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# THE 1980 ANNUAL REPORT OF THE CAPTIVE SNOW LEOPARD (*Panthera uncia*) POPULATION AND A REVIEW AT THE BREEDING RESULTS DURING THE 1970's

By LEIF BLOMQUIST  
International Studbook keeper of snow leopards

## THE FLUCTUATIONS IN THE CAPTIVE SNOW LEOPARD STOCK IN 1980

After having received a late correction from the Tashkent Zoo, USSR, for the 1979 year's register of the snow leopard population (1), the following change has to be made in the report. Only the male snow leopard had died in 1979, the female was alive on 31. December 1979 and was shipped to Novosibirsk Zoo in 1981. The total population for 1979 should not therefore be 91.103, but 91.104 (195 animals).

In 1980 twenty-one births were recorded in sixteen different zoos. These births produced altogether 47 cubs (24.21.2, Table 1 & Figure 3). Of the births only four took place in Europe (4.5 cubs) of which only one pair survived, namely the one in Nettuno, Italy (Table 7). In the Soviet Union three births produced 5.2 cubs of which 4.2 survived, while all the remaining nine births occurred in the USA.

The zoos in Krefeld, Cincinnati and Bronx, all recorded two births each, of which the first mentioned zoo lost all its cubs due to an infection. The Oklahoma City Zoo recorded three births, all sired by the same male, of which one litter died. Worth mentioning is, that the breeding female in Seneca Park Zoo, Rochester, "Jennifer, San Antonio 7", which was born in San Antonio in 1976, gave birth to a litter of 0.4 cubs, which she successfully reared herself. According to the studbook information I have, this is the fifth time that a female has given birth to a litter of four (2), but the first time that all the cubs have survived (Table 2).

Of the 47 cubs born in 1980, 32 (17.15) survived and were registered (Table 1). The cub mortality was therefore 32% in 1980, which is slightly

higher than the previous year when it was 28% (1). Furthermore 13 subadults died in 1980, which leaves us with the fact that 28 (13.13.2) snow leopards died in 1980.

In addition to this, 7.2 snow leopards were wild-caught in 1980; 3.0 in Mongolia, the rest in the Soviet Union, Kirgisia. These nine snow leopards were exported to Helsinki, Zurich, Toronto, Dushanbe, Kiev, Riga and Perm respectively.

Besides the 21 births which took place in 1980, it has also been reported that 25 other pairs have mated during that time without success. In one of these matings, the male had passed his breeding age, being 18 years old, in another the male was only two years old and apparently too young. In the third case both sexes were too young (also 2 years). However, the fact remains, that 22 pairs have copulated without giving birth. The reasons are of course various, but worth studying. One could be that the pair is continuously kept together. As Helen Freeman has suggested (3), it is certainly worth separating such pairs in due time before the mating season (in November), then re-introduce them when the female comes into oestrus. This could be a good stimulus for such pairs, but cannot be the whole truth. Another reason could be that there are a lot of zoos that do not have proper facilities for breeding such an easily disturbed species as the snow leopard. It is also worth mentioning, that Brookfield Zoo electroejaculated some of their male snow leopards and found them to have very poor semen samples (J. Ott & G. Rabb, pers. comm.). A look at the studbook shows that a lot of snow leopards have not reproduced for some years. The results of this investigation will be published elsewhere at a later date.

Table 3 and Figure 2 show that the captive stock comprises of rather young animals. 35% of the whole captive group today comprises namely of animals between 1-4 years of age. 96

Table 1.

Number (N) of captive-born snow leopards in 1970-1980 as well as number of cubs which have survived for 6 months or longer

Year	N of cubs	Sex	N of survived cubs (6 months)
1970	12	3. 8.1	3 (0. 3)
1971	11	6. 4.1	8 (5. 3)
1972	25	12. 10.3	15 (8. 7)
1973	23	8. 12.3	14 (5. 9)
1974	24	7. 15.2	18 (6.12)
1975	34	19. 12.3	20 (13. 7)
1976	24	11. 11.2	14 (8. 6)
1977	50	19. 26.5	23 (7.16)
1978	30	12. 17.1	18 (7.11)
1979	49	20. 23.6	35 (17.18)
1980	47	24. 21.2	32 (17.15)
Total	329	141.159.29	200 (93.107)

Figure 1.

Number of captive-born snow leopards which have survived for 6 months or longer

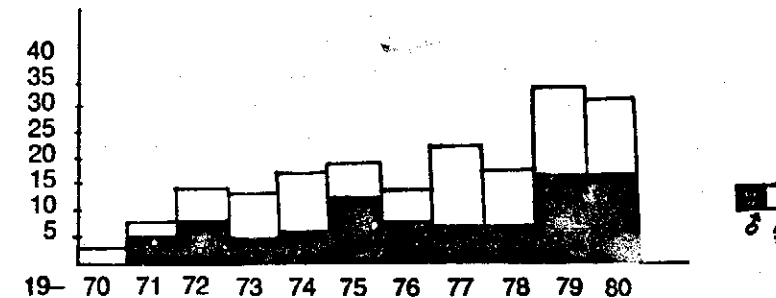


Table 2.

Zoo-born snow leopard litters, comprising of 4 cubs

Location*	Dam	Year	N of cubs	Surviving
St. Louis	Copenhagen 7	1965	4.0	—
St. Louis	Copenhagen 7	1967	1.2.1	1.0
Kaunas	Astra, Kaunas 3	1975	2.1.1	2.0
LPZ, Chicago	Big Head, LPZ 7	1978	0.0.4	—
Helsinki	Ventla, Helsinki 6	1979	2.2	2.1
Rochester	Jennifer, S. Antonio 7	1980	0.4	0.4

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Figure 2.  
Age and sex distribution of the captive snow leopard stock on 1. January 1981

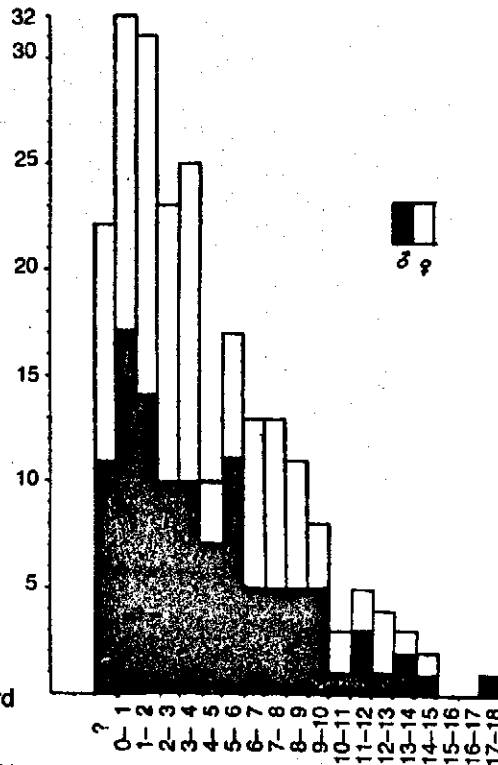


Table 3.  
Age/sex of the captive snow leopard population on 1.1.1981

Age class (years)	Sex	Total N
0-1	17. 15	32
1-2	14. 17	31
2-3	10. 13	23
3-4	10. 15	25
4-5	7. 3	10
5-6	11. 6	17
6-7	5. 8	13
7-8	5. 8	13
8-9	5. 6	11
9-10	5. 3	8
10-11	1. 2	3
11-12	3. 2	5
12-13	1. 3	4
13-14	2. 1	3
14-15	1. 1	2
15-16	—	—
16-17	—	—
17-18	1. 0	1
unknown age	11. 11	22
<b>Total</b>	<b>109.114</b>	<b>223</b>

Table 4.  
Growth of the captive snow leopard population between 1960—1980

Year	N of animals
1960	22
1970	80
1971	95
1972	113
1973	126
1974	142
1975	157
1976	167
1977	168
1978	170
1979	195
1980	223

female specimen are between the ages of 3-10 years which must be regarded upon as encouraging. A great number of females are now from 1-3 years old and therefore will soon come into breeding age. 15 of the females which bred in

1980, were zoo-born, the remaining 6 were wild-caught. This also gives us hope for the future, to see the captive stock grow as it already has during the last years (Table 4, Figure 3).

## II A REVIEW OF THE 1970's AND THE PROGRESS IN BREEDING SNOW LEOPARDS DURING THAT PERIOD

During the 1970's a big step forward for the promotion of the snow leopard has been taken. Though a lot of valuable work between different zoos already had been done before, one can say, without doubt, that the real breeding program did not start before that.

The first milestones in this direction was the establishing of the **International Studbook for the Snow leopard**, which was founded in 1976, which has been reported elsewhere (4). The main scientific value of this studbook is, of course, genetic. As Dr. K. Benirschke from San Diego Zoo so aptly stated at the **International Symposium on the Use and Practice of Wild Animal Studbooks** in Copenhagen in 1979, "studbooks provide the data to construct pedigrees and they also establish lineages of animals from which inheritance of genetic defects can be traced".

By the end of 1980, 462 snow leopards have been entered into the studbook from the period of 1891-1980. To these 462 animals, we can add the numerous cubs which were born in captivity, but died before reaching the age of 6 months and therefore get no registration numbers. All these cubs are, however, recorded in both the parents' studbooks and also in the special file in Helsinki Zoo. In the autumn of 1980 these cubs as well as all the registered snow leopards have been compiled into the ISIS computer system in Minnesota Zoo (5, 6). In the future this will make all kinds of species' analyses easier than today.

A further step in the attempt to improve the breeding programme for the snow leopards was taken in 1978, when

the I International Snow Leopard Conference was arranged by Helsinki Zoo (7). During this conference the lines of direction were drawn for the following years' work and in 1980, the II Snow Leopard Conference was arranged by Zurich Zoo (8). The main task of the second conference was also to exchange information. During the Zurich meeting, it was decided that the III Conference will be arranged by Woodland Park Zoo, Seattle, in June 1982.

The first, as well as the second conference, lasted for two days, which proved to be too short, especially since a lot of medical problems had come up in between these two meetings. The lack of time, left only a little space for discussion about the behavior and conservation of the snow leopard in its natural habitat. To improve this, it was agreed that one day should be promoted for these questions in the future, and the Seattle Conference will therefore take three days instead of two.

To get involved in these problems further, Helen Freeman from Woodland Park Zoo and myself, contacted Sir Peter Scott in order to establish a **Snow Leopard Specialist Group** as has been done with many other endangered species. We planned that this group would be an extension of the biannually arranged conferences but with a higher degree of involvement. This group could also be important for creating co-operation between Western and Soviet scientists. The main task of this group would thus be:

Figure 3.  
Number of snow leopards born in captivity 1970-1980

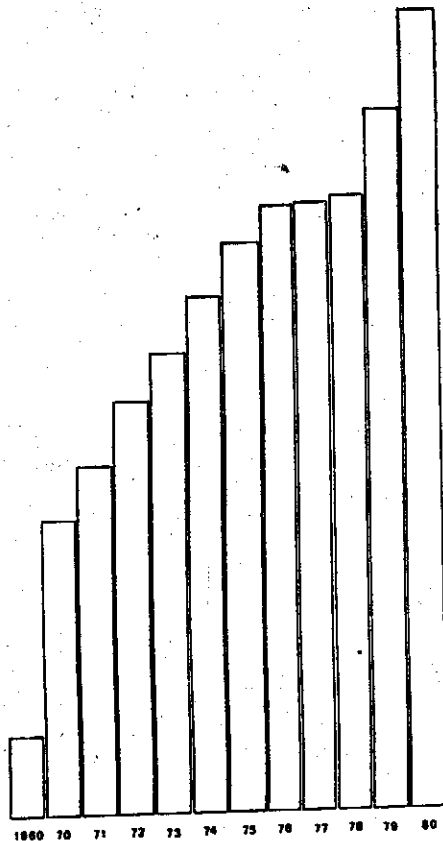
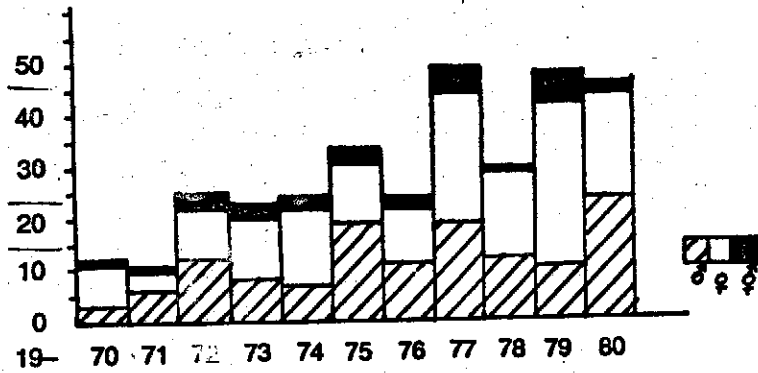


Figure 4.  
The increase of the captive snow leopard population from 1960-80

Table 5.  
Number of snow leopards which have died in captivity 1970-1980

Year	0-6 months' age	6 months -	Total deaths
1970	3. 5.1 ( 9)	4. 6.1 ( 11)	7. 11.2 ( 20)
1971	1. 1.1 ( 3)	0. 1 ( 1)	1. 2.1 ( 4)
1972	4. 3.3 ( 10)	3. 5 ( 8)	7. 8.3 ( 18)
1973	3. 3.3 ( 9)	4. 5 ( 9)	7. 8.3 ( 18)
1974	1. 3.2 ( 6)	6. 3 ( 9)	7. 6.2 ( 15)
1975	6. 5.3 ( 14)	3. 6 ( 9)	9. 11.3 ( 23)
1976	3. 5.2 ( 10)	5. 4 ( 9)	8. 9.2 ( 19)
1977	12. 10.5 ( 27)	8. 14 ( 22)	20. 24.5 ( 49)
1978	5. 6.1 ( 12)	9. 10 ( 19)	14. 16.1 ( 31)
1979	3. 5.6 ( 14)	7. 7 ( 14)	10. 12.6 ( 28)
1980	7. 6.2 ( 15)	6. 7 ( 13)	13. 13.2 ( 28)
Total	48.52.29 (129)	58.68.1 (124)	103.120.30 (253)

Figure 5.  
Number of wild-caught snow leopards in 1970-1980

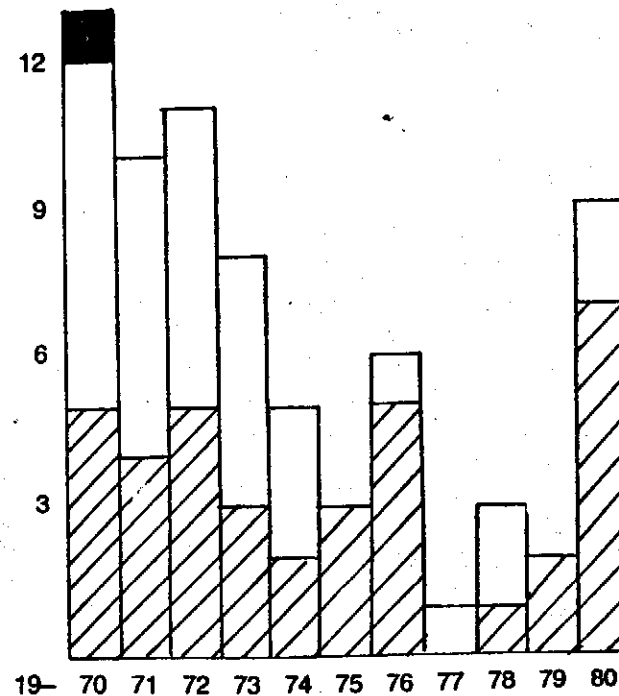


Table 6.  
Wild caught snow leopards in the ten years' period of 1970-1980

Year	N	Sex
1970	13	5.7. 1
1971	10	4.6
1972	11	5.6
1973	8	3.5
1974	5	2.3
1975	3	3.0
1976	6	5.1
1977	1	0.1
1978	3	1.2
1979	2	2.0
1980	9	7.2
Total	71	37.33.1



- promote the conservation of the snow leopard in captivity as well as in their natural habitat,
- start a close co-operation with field biologists and zoos,
- co-operate with the Snow leopard Conferences,
- gather information for the Red Data Book.

As one think about the proceedings done in the 1970's, it is also worth mentioning the reports of the captive snow leopard stock which have been published annually. The first report was published in *International Zoo Yearbook* (4). The *International Pedigree Book of Snow leopards, Panthera uncia*, has been published every second year so far (in 1978 and 1980) in accordance to the conferences arranged by Helsinki and Zurich. Therefore these books do not only contain a register, but also the scientific papers presented in these conferences. Thus, by trying to establish a more informative pedigree book, I have tried to create a book which also serves as an "assistant" in the endeavour to preserve this wonderful species. Rather useful, I hope, could also be the **Reference Sections** in both volumes (9, 10). These sections, which in volume I contains 103 references and in volume II 77 new ones, have been compiled by Dr. Ingo Rieger and myself.

These Pedigree Books, as well as the interim reports are automatically sent to the present as well as to earlier breeders of snow leopards. Furthermore it has been delivered to libraries and different institutions working with mammals. They have also been mailed to people showing interest in this species. Upon request they can be obtained from Helsinki Zoo.

Without going into any details, I have gladly noticed that a tremendous PR-job has been done by several zoos throughout the world for the promotion of the snow leopard. Especially I want to thank Dr. G.B. Schaller from Bronx Zoological Society for the numerable articles and books in which he talks about the snow leopard. His latest book "Mountain Monarchs" (11) and "Stones of Silence" (12) are extremely important in promoting the species. I think we can all agree, that

Dr. Schaller has done more than anybody else to create the awareness of the fatal situation of the snow leopard in the wild.

Besides this we shall not, of course, forget the marvellous job a lot of zoos have done by keeping and breeding the snow leopard. Table 4 shows the increase of the captive snow leopard population in the 1970's. In 1960, there were only 22 animals kept in captivity, while ten years later, the number had increased to 80 and to 223 on the 1st of January 1981.

What I see as even more encouraging is that this increase has not happened by capturing more animals from the wilderness, but by breeding them in zoos (Figure 5, Table 6). From 1970-1976 the number of cubs grew steadily (from 12 cubs in 1970 to 24 in 1976), to a peak in 1977, when 50 cubs were born. The following year was worse with a decrease in the birth rate. But during the last two years the birth rate has again risen to about 50 cubs per year. (Table 1).

The mortality of the cubs is, however, rather high, being almost 32 % in 1980 (Table 5). The mortality has decreased, which can also be seen from Figure 1 which shows that the percentage of the surviving cubs is slowly increasing. In 1970, only 25 % of the cubs survived, five years later it had increased to 59 % and last year (1980) it was 68 %. According to this and Table 4, which is showing the increase of the whole population, the number of animals which have been caught from the wild, has decreased during the last decade from 13 animals in 1970 to only 3 in 1975. Unfortunately as many as 9 were caught in 1980, and it is to be wished, that this capturing will totally stop, even for zoos. The genetic material we already have, is big enough to create a strong and healthy population of snow leopards. What we need today is good co-operation between the breeders, an effectively handled studbook and total protection of the snow leopard and its habitat in the wild.

Table 7. The 1980 world register for the captive snow leopard population

Location	Total 1979	Births	Death of cubs	Total deaths	Transf. to	Transf. from	Total 1980
Alma-Ata, USSR	2.1						2.1
Arnhem, Ne	1.0					0.1 S. Antonio	1.1
Baker, USA	—					1.1 S. Antonio	1.1
Basle, Switz	1.0			1.0	1.2 Zurich	1.2 Zurich	0.1
Bekesbourne, GB	2.2					0.1 S. Antonio	2.2
Berlin, GDR	0.1				0.1 Leipzig		—
Buffalo, USA	1.1				1.0 LPZ		0.1
Calgary, Can	1.1						1.1
Center Hill, USA	2.3		0.1	0.1		0.1 Helsinki	2.2
Cheyenne, USA	3.2	1.0		2.0			4.3
Chicago, Brookfield, USA	3.2		0.0.2	0.0.2	1.0 Omaha		1.2
Chicago, LPZ, USA	4.6	0.0.2	0.0.2	0.0.2		1.0 S. Antonio	6.6
Cincinnati, USA	2.2	2.3		1.0			3.5
Cleveland, USA	1.2						1.2
Columbia, USA	1.1						1.1
Dallas, USA	1.1						1.1
Denver, USA	1.1						1.1
Detroit, USA	1.1						1.1
Dublin, Ir	1.1						1.1
Dushanbe, USSR	1.1			1.1	1.0 Moscow	1.0 Marwell 1.1 wild	2.1
Grodno, USSR	1.0						1.1
Hannover, GFR	1.1				0.1 Marwell 0.1 Cheyenne	2.0 wild	8.5
Helsinki, Fin	6.7						—
Houston, USA	1.2						1.2
Kaunas, USSR	3.3			0.2			3.1
Kiev, USSR	—					0.1 wild	0.1
Krefeld, GFR	1.5	1.3 <sup>1</sup>	1.3	1.5			1.3
Leipzig, GDR	1.1					0.1 Berlin-E	1.2
Leningrad, USSR	1.2	0.1			0.1 Moscow	1.0 Moscow	2.2

Location	Total 1979	Births	Death of cubs	Total deaths	Transf. to	Transf. from	Total 1980
Los Angeles, USA	1.1	1.1	0.1	0.1	1.0 Toledo		1.1
Marwell, GB	3.1				1.0 Dublin	0.1 S. Antonio 0.1 Helsinki	2.3
Milwaukee, USA	2.2	1.0					3.2
Moscow, USSR	3.2	2.1			1.0 Leningrad	1.0 Grodno 0.1 Leningrad	5.4
Munich, GFR	1.1						1.1
Nagoya, Jap	0.1						0.1 <sup>3</sup>
Nettuno, It	1.1	1.1				0.1 Zurich	2.3
New York, Bronx, USA	5.4	3.1 <sup>1</sup>				0.1 Rochester	8.6
Nikolaev, USSR	1.1						1.1 <sup>2</sup>
Novosibirsk, USSR	3.2	3.0	1.0	1.1			5.1
Oklahoma, USA	3.5	5.2 <sup>2</sup>	1.1	1.1	1.0 LPZ		6.6
Omaha, USA	1.1	2.0	2.0	2.0		1.0 LPZ	2.1
Peking, China	2.1						2.1
Perm, USSR	—					1.0 wild	1.0
Pittsburgh, USA	1.0						1.0
Portland, USA	1.1						1.1
Prague, CSSR	1.2						1.2
Riga, USSR	—					1.0 wild	1.0
Rochester, USA	2.1	0.4			1.2 S. Antonio 0.1 S. Lake City 0.1 Bronx		1.1
Salt Lake City, USA	1.0					0.1 S. Antonio 0.1 Rochester	1.2
San Antonio, USA	3.9	0.3			1.0 LPZ 1.1 Baker 0.1 Arnhem 0.1 Marwell 0.1 Basle 0.1 S. Lake City	1.2 Rochester	2.8
<hr/>							
					0.1 Toledo		1.1
San Diego, USA	1.1						1.1
San Francisco, USA	1.1						3.3
Seattle, USA	3.3						1.1
St. Louis, USA	1.1						1.1
Tallinn, USSR	1.1						0.1
Tashkent, USSR	0.1						1.1
Toledo, USA	—					1.0 L. Angeles 0.1 S. Antonio	1.1
Toronto, Can	—					1.0 wild 0.1 Winnipeg	1.1
Winnipeg, Can	2.3				0.1 Toronto		2.2
Zurich, Switz	3.7	2.1	2.1	3.1	1.2 Basle 0.1 Nettuno	1.2 Basle 1.0 wild	3.6
<b>Total</b>	<b>91.104</b>	<b>(195)</b>	<b>24.21.2</b>	<b>7.6.2</b>			<b>109.114 (223)</b>

1) two births  
 2) three births  
 3) no information obtained

**Table 8. Studbook listing of snow leopards according to zoos where they were located on 31. December 1980**

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
Alma-Ata, USSR 2.1	♂	Sneschok, Alma-Ata 1	wild born 1968		
	♂	Krasaftjik, Alma-Ata 4	wild born 1973		
	♀	Kometa, Alma-Ata 3	wild born 1970		
Arnhem, Ne 1.1	♂	Vodka, Helsinki 37	23. Jun. 1978	Charlie, LPZ 9	Vuokko, Helsinki 14
	♀	Nadia, San Antonio 15	27. Apr. 1979	Frosty, San Antonio 1	Crystal, San Antonio 2
Baker, USA 1.1	♂	Alexandr, San Antonio 13	19. May 1979	Karl, San Antonio 3	Ilka, Helsinki 22
	♀	Ingrid, San Antonio 14	16. Mar. 1979	Frosty, San Antonio 1	Suki, Oklahoma 12
Basle, Switz 0.1	♀	Trina, San Antonio 17	27. Apr. 1979	Frosty, San Antonio 1	Crystal, San Antonio 2
Bekesbourne, GB 2.2	♂	Pamir, LPZ 14	29. Apr. 1974	Snowman, Helsinki 5	Marylin, LPZ 6
	♂	Kanchen, Bekesbourne 1	1. Jul. 1977	Pamir, LPZ 14	Kush, LPZ 15
	♀	Kush, LPZ 15	29. Apr. 1974	Snowman, Helsinki 5	Marylin, LPZ 6
	♀	Junga, Bekesbourne 2	1. Jul. 1977	Pamir, LPZ 14	Kush, LPZ 15
	♀	Tanya, Buffalo 1	wild born 1966		
Buffalo, USA 0.1					
Calgary, Can 1.1	♂	Cheyenne, Cheyenne 8	23. May 1975	Cheyenne 3	Cheyenne 1
	♀	Irina, Seattle 8	18. May 1977	Nicholas, Seattle 1	Alexandra, Seattle 2
Center Hill, USA 2.2	♂	Nicholas, Oklahoma 19	13. Mar. 1979	Old Man, San Francisco 7	Damascus, Oklahoma 9
	♂	Tora, Center Hill 2	16. May 1971	Irkust, Center Hill 1	Nadia, Oklahoma 7
	♀	Nadia, Oklahoma 7	21. Jun. 1968	Bowser II, Copenh. 9	Tanya, Oklahoma 2
	♀	Neva, Center Hill 6	20. May 1979	Irkust, Center Hill 1	Nadia, Oklahoma 7
Cheyenne, USA 4.3	♂	Yuri, Cheyenne 4	9. May 1974	Cheyenne 3	Cheyenne 2
	♂	Cheyenne 9	20. May 1977	Cheyenne 3	Cheyenne 2
	♂	Cheyenne 3	wild born		
	♂	Misha, Cheyenne 11	18. May 1980	Yuri, Cheyenne 4	Cheyenne 1
	♀	Cheyenne 1	wild born		
	♀	Cheyenne 2	wild born		
	♀	Wilhelmina, Helsinki 42	1. Apr. 1979	Charlie, LPZ 9	Venla, Helsinki 6

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam	
Chicago, Brook- field, USA 1.2	♂	Yeti, West Orange 1	wild born 1963-64		Lhasa, Brookfield 2	
	♀	Sonjah, Brookfield 3	17. May 1968	Ikaz, Brookfield 1	Alexandra, Seattle 2	
	♀	Masha, Seattle 9	18. May 1977	Nicholas, Seattle 1		
Chicago, LPZ, USA 6.6	♂	Boris, LPZ 5	wild born			
	♂	Cincinnati Kid, Cin. 4	12. May 1972	Nikolai, Cincinnati 1	Tanya, Cincinnati 2	
	♂	Boris, Brookfield 5	24. May 1971	Ikaz, Brookfield 1	Lhasa, Brookfield 2	
	♂	Ootah, Milwaukee 12	7. May 1979	Frisco, S. Francisco 8	Timi, Milwaukee 4	
	♂	Corey, Rochester 1	16. May 1979	Jeremiah, Cheyenne 7	Jennifer, S. Antonio 7	
	♂	Josef, Oklahoma 20	13. Mar. 1979	Old Man, S. Francisco 7	Damascus, Oklahoma 9	
	♀	Marylin, LPZ 6	11. Jun. 1969	Walter, LPZ 2	Ida II, LPZ 3	
	♀	Natasha, LPZ 12	28. May 1973	Bruce-S, LPZ 8	Marylin, LPZ 6	
	♀	Anastasia, LPZ 13	28. May 1973	Bruce-S, LPZ 8	Marylin, LPZ 6	
	♀	Eleh, LPZ 18	27. Apr. 1978	Cincinnati Kid, Cin 4	Natasha, LPZ 12	
	♀	Nahti, LPZ 19	27. Apr. 1978	Cincinnati Kid, Cin 4	Natasha, LPZ 12	
	♀	Marlova, LPZ 21	30. Apr. 1979	Cincinnati Kid, Cin 4	Natasha, LPZ 12	
	Cincinnati, USA 3.5	♂	Marco, Cincinnati 5	27. Jun. 1973	Nikolai, Cincinnati 1	Tanya, Cincinnati 2
		♂	Alisha, Cincinnati 11	27. Jun. 1980	Marco, Cincinnati 5	Virpi, Helsinki 25
♂		Kesar, Cincinnati 12	27. Jun. 1980	Marco, Cincinnati 5	Virpi, Helsinki 25	
♀		Anastasia, LPZ 10	20. May 1973	Bruce-S, LPZ 8	Big Head, LPZ 7	
♀		Virpi, Helsinki 25	12. May 1974	Charlie, LPZ 9	Venla, Helsinki 6	
♀		Kami, Cincinnati 9	29. Mar. 1980	Marco, Cincinnati 5	Anastasia, LPZ 10	
♀		Semo, Cincinnati 10	29. Mar. 1980	Marco, Cincinnati 5	Anastasia, LPZ 10	
♀		Nam Lang, Cincinnati 13	27. Jun. 1980	Marco, Cincinnati 5	Virpi, Helsinki 25	
Cleveland, USA 1.2		♂	Yushu, Milwaukee 8	1. Jun. 1976	Frisco, S. Francisco 8	Timi, Milwaukee 4
		♀	Anshi, Milwaukee 9	1. Jun. 1976	Frisco, S. Francisco 8	Timi, Milwaukee 4
	♀	Irene, Cheyenne 6	22. Apr. 1975	Cheyenne 3	Cheyenne 2	
Columbia, USA 1.1	♂	Davilo, LPZ 20	30. Apr. 1979	Cincinnati Kid, Cin 4	Natasha, LPZ 12	
	♀	Teshu, Milwaukee 13	7. May 1979	Frisco, S. Francisco 8	Timi, Milwaukee 4	
Dallas, USA 1.1	♂	Zebulon, Rochester 2	16. May 1979	Jeremiah, Cheyenne 7	Jennifer, S. Antonio 7	
	♀	Morana, Rochester 3	16. May 1979	Jeremiah, Cheyenne 7	Jennifer, S. Antonio 7	
Denver, USA 1.1	♂	Mushkin, San Antonio 8	11. Apr. 1977	Pushkin, Seattle 6	Ilka, Helsinki 22	
	♀	Moti, San Antonio 11	19. Jul. 1977	Frosty, San Antonio 1	Crystal, S. Antonio 2	
Detroit, USA 1.1	♂	Tali, Milwaukee 5	26. May 1975	Frisco, S. Francisco 8	Timi, Milwaukee 4	
	♀	Sonya, Detroit 2	wild born			

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
Dublin, Ir 2.1	♂	Timi, Rotterdam 4	wild born		
	♀	Shey, Cincinnati 8	29. Aug. 1978	Marco, Cincinnati 5	Anastasia, LPZ 10
Dushanbe, USSR 1.1	♀	Sonya, Helsinki 33	11. Jun. 1977	Charlie, LPZ 9	Vuokko, Helsinki 14
	♀	Dushanbe 3	wild born		
Hannover, GFR 1.1	♂	Barsunja, Dushanbe 4	wild born 1979		
	♀	Hannover 2	wild born		
Helsinki, Fin 8.5	♀	Hannover 1	wild born		
	♂	Charlie, LPZ 9	10. Jun. 1971	Walter, LPZ 2	Ida II, LPZ 3
	♂	Kara, Cincinnati 6	27. Jun. 1973	Nikolai, Cincinnati 1	Tanya, Cincinnati 2
	♂	Ville Jr, Helsinki 18	29. Mar. 1974	Ville, Helsinki 2	Vilma, Helsinki 1
	♂	Vellamo, Helsinki 30	24. Apr. 1976	Charlie, LPZ 9	Venla, Helsinki 6
	♂	Viktor, Helsinki 34	22. May 1978	Charlie, LPZ 9	Valpuri, Helsinki 13
	♂	Winnie, Helsinki 41	1. Apr. 1979	Charlie, LPZ 9	Venla, Helsinki 6
	♂	Ulan, Helsinki 43	w-b 1978		
	♂	Bator, Helsinki 44	w-b 1978		
	♀	Välkky, Helsinki 4	10. Aug. 1968	Ville, Helsinki 2	Vilma, Helsinki 1
Houston, USA 1.2	♀	Venla, Helsinki 6	29. Apr. 1971	Ville, Helsinki 2	Vilma, Helsinki 1
	♀	Vieno, Helsinki 24	12. May 1974	Charlie, LPZ 9	Venla, Helsinki 6
	♀	Disa, San Antonio 4	14. Jun. 1974	Frosty, San Antonio 1	Crystal, San Antonio 2
	♀	Veronika, Helsinki 36	22. May 1978	Charlie, LPZ 9	Valpuri, Helsinki 13
	♂	Rayf, Oklahoma 11	15. May 1973	Chumbi, St. Louis 6	Cleo, Oklahoma 5
	♀	Simone, San Antonio 3	14. Jun. 1974	Frosty, San Antonio 1	Crystal, San Antonio 2
	♀	Nyeda, Houston 1	3. Aug. 1978	Rayf, Oklahoma 11	Simone, San Antonio 3
	♂	Osh, Moscow 6	29. May 1977	wild	Ili, Moscow 5
	♂	Atas, Kaunas 5	27. Jun. 1975	Azuolas, Kaunas 4	Astra, Kaunas 3
	♀	Lapka, Moscow 3	w-b 1972-73		
Kiev, USSR 0.1	♀	Aba, Kaunas 8	13. Apr. 1977	Azuolas, Kaunas 4	Astra, Kaunas 3
	♀	Kiev 6	w-b 1978-79		
Krefeld, GFR 1.3	♂	Whisky, Helsinki 29	24. Apr. 1976	Charlie, LPZ 9	Venla, Helsinki 6
	♀	Viivi, Helsinki 15	14. May 1973	Ville, Helsinki 2	Vilma, Helsinki 1
	♀	Irina, Krefeld 6	29. Apr. 1977	Iikka, Krefeld 4	Valma, Helsinki 20
	♀	Schirin, Krefeld 7	w-b May 1977		

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
Leipzig, GDR 1.2	♂	Veli, Helsinki 28	15. May 1975	Ville, Helsinki 2	Vilkku, Helsinki 3
	♀	Sadia, Helsinki 11	3. Jul. 1972	Ville, Helsinki 2	Vilma, Helsinki 1
Leningrad, USSR 2.2	♀	Hörnchen, Berlin-0-4	w-b 1972		
	♂	Arstan, Leningrad 9	w-b 1972		
	♂	Opor, Moscow 7	30. Apr. 1979	Sabir, Moscow 4	Ili, Moscow 5
	♀	Tora, Leningrad 10	w-b 1972		
Los Angeles, USA 1.1	♂	Dimka, Leningrad 12	17. Mar. 1978	Arstan, Leningrad 9	Tora, Leningrad 10
	♂	Davies, S. Francisco 9	30. Apr. 1971	Nikolai, S. Francisco 3	Caterina, S. Francisco 5
	♀	Natasha, Los Angeles 7	13. May 1971	Los Angeles 3	Snowflake, Los Angeles 1
Marwell, GB 2.3	♂	Irkust, Center Hill 1	w-b		
	♂	Pavel, Seattle 6	2. May 1975	Nicholas, Seattle 1	Alexandra, Seattle 2
	♀	Vuokko, Helsinki 14	14. May 1973	Ville, Helsinki 2	Vilma, Helsinki 1
	♀	Vanda, Helsinki 39	23. Jun. 1978	Charlie, LPZ 9	Vuokko, Helsinki 14
	♀	Olga, San Antonio 16	27. Apr. 1979	Frosty, San Antonio 1	Crystal, San Antonio 2
Milwaukee, USA 3.2	♂	Frisco, S. Francisco 8	19. May 1969	Nikolai, S. Francisco 3	Caterina, S. Francisco 5
	♂	Pete, Bronx 22	6. Jun. 1978	Mr. Cin, Cincinnati 3	Shanda, Bronx 21
	♂	Shambala, Milwaukee 14	4. May 1980	Frisco, S. Francisco 8	Timi, Milwaukee 4
	♀	Timi, Milwaukee 4	10. Jun. 1969	Bowser II, Copenh. 9	Smiley, Milwaukee 2
Moscow, USSR 5.4	♀	Shigatse, Milwaukee 11	31. May 1977	Frisco, S. Francisco 8	Timi, Milwaukee 4
	♂	Sabir, Moscow 4	w-b 1971		
	♂	Aramis, Kaunas 6	27. Jun. 1975	Azuolas, Kaunas 4	Astra, Kaunas 3
	♂	Cyral, Moscow 8	30. Apr. 1979	Sabir, Moscow 4	Ili, Moscow 5
	♂	Orion, Moscow 9	9. May 1980	Sabir, Moscow 4	Ili, Moscow 5
	♂	Olymp, Moscow 10	9. May 1980	Sabir, Moscow 4	Ili, Moscow 5
	♀	Ili, Moscow 5	w-b 1974		
	♀	Azara, Leningrad 11	17. Mar. 1978	Arstan, Leningrad 9	Tora, Leningrad 10
	♀	Orbita, Moscow 11	9. May 1980	Sabir, Moscow 4	Ili, Moscow 5
Munich, GFR 1.1	♀	Vika, Leningrad 13	15. May 1980	Arstan, Leningrad 9	Tora, Leningrad 10
	♂	Irun, Helsinki 23	10. May 1974	Ville, Helsinki 2	Vilkku, Helsinki 3
	♀	Koki, Dvur Kralove 1	w-b		
Nagoya, Jap 0.1	♀	Nagoya 1	w-b		

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
Nettuno, It 2.3	♂	Romulus, Oklahoma 16	9. Sep. 1976	Old Man, S. Francisco 7	Damascus, Oklahoma 9
	♂	Nerone, Nettuno 1	9. May 1980	Romulus, Oklahoma 16	Valputi, Helsinki 13
	♀	Valpuri, Helsinki 13	14. May 1973	Ville, Helsinki 2	Viima, Helsinki 1
	♀	Messalina, Nettuno 2	9. May 1980	Romulus, Oklahoma 16	Valpuri, Helsinki 13
	♀	Firsa, Zürich 8	12. May 1979	Walo, Helsinki 8	Andra, Zürich 2
New York, Bronx, USA 8.6	♂	Mr. Cin, Cincinnati 3	6. May 1969	Nikolai, Cincinnati 1	Tanya, Cincinnati 2
	♂	Pervez Khan, LPZ 17	22. Jun. 1975	Boris, LPZ 5	Big Head, LPZ 7
	♂	Lhasa, Milwaukee 10	31. May 1977	Frisco, S. Francisco 8	Timi, Milwaukee 4
	♂	Thurman, Bronx 24	8. Jun. 1979	Mr. Cin, Cincinnati 3	Shanda, Bronx 21
	♂	Munson, Bronx 25	8. Jun. 1979	Mr. Cin, Cincinnati 3	Shanda, Bronx 21
	♂	Ping, Bronx 27	26. May 1980	Pervez Khan, LPZ 17	Shanda, Bronx 21
	♂	Pong, Bronx 28	26. May 1980	Pervez Khan, LPZ 17	Shanda, Bronx 21
	♂	Casey, Bronx 30	29. May 1980	Mr. Cin, Cincinnati 3	Olga, Seattle 10
	♀	Shanda, Bronx 21	20. Jun. 1975	Mr. Cin, Cincinnati 3	Tippy, Bronx 19
	♀	Olga, Seattle 10	18. May 1977	Nicholas, Seattle 1	Alexandra, Seattle 2
	♀	Rose, Bronx 23	6. Jun. 1978	Mr. Cin, Cincinnati 3	Shanda, Bronx 21
	♀	Marissa, Bronx 26	8. Jun. 1979	Mr. Cin, Cincinnati 3	Shanda, Bronx 21
	♀	Shere, Bronx 29	26. May 1980	Pervez Khan, LPZ 17	Shanda, Bronx 21
	♀	Hoth, Rochester 7	25. May 1980	Jeremiah, Cheyenne 7	Jennifer, San Antonio 7
	Nikolaev, USSR 1.1	♂	Snezhok, Moscow 2	w-b 1967-68	
♀		Mira, Moscow 1	w-b 1967-68		
Novosibirsk, USSR 5.1	♂	Pamir, Novosibirsk 2	w-b		
	♂	Argus, Novosibirsk 4	w-b		
	♂	Ger, Novosibirsk 5	w-b 1977		
	♂	Bisser, Novosibirsk 6	27. May 1980	Argus, Novosibirsk 4	Alpha, Novosibirsk 3
	♂	Batyr, Novosibirsk 7	27. May 1980	Argus, Novosibirsk 4	Alpha, Novosibirsk 3
	♀	Alpha, Novosibirsk 3	w-b		
Oklahoma, USA 6.6	♂	Old Man, S. Francisco 7	19. May 1969	Nikolai, S. Francisco 3	Caterina, S. Francisco 5
	♂	Cisco, Oklahoma 13	23. May 1974	Chumbi, St. Louis 6	Cleo, Oklahoma 5
	♂	Manaslu, Oklahoma 22	6. Apr. 1980	Old Man, S. Francisco 7	Damascus, Oklahoma 9
	♂	Nuptse, Oklahoma 23	6. Apr. 1980	Old Man, S. Francisco 7	Damascus, Oklahoma 9
	♂	Tsen-tsing, Oklahoma 25	25. May 1980	Old Man, S. Francisco 7	Tangla, Oklahoma 15
	♂	Bischa, Oklahoma 26	25. May 1980	Old Man, S. Francisco 7	Tangla, Oklahoma 15

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
Omaha, USA 2.1	♀	Damascus, Oklahoma 9	27. May 1972	Chumbi, St. Louis 6	Cleo, Oklahoma 5
	♀	Elektra, Oklahoma 14	23. May 1974	Chumbi, St. Louis 6	Cleo, Oklahoma 5
	♀	Tangla, Oklahoma 15	21. Jun. 1975	Chumbi, St. Louis 6	Cleo, Oklahoma 5
	♀	Ning Ku, Oklahoma 18	29. May 1978	Old Man, S. Francisco 7	Elektra, Oklahoma 14
	♀	Zura, Oklahoma 21	13. Mar. 1979	Old Man, S. Francisco 7	Damascus, Oklahoma 9
	♀	Annapurna, Oklahoma 24	6. Apr. 1980	Old Man, S. Francisco 7	Damascus, Oklahoma 9
	♀	Tamerline, Omaha 1	w-b		
Peking, China 2.1	♂	Hami, Milwaukee 7	26. May 1975	Frisco, S. Francisco 8	Timi, Milwaukee 4
	♂	Omaha 3	27. May 1972	Tamerline, Omaha 1	Natasha, Edmonton 4
	♂	Peking 5	w-b 1976		
Perm, USSR 1.0	♂	Peking 7	w-b 1978		
	♂	Peking 6	w-b 1978		
Pittsburgh, USA 1.0	♂	Perm 2	w-b 1976-77		
	♂	Ivan, Pittsburgh 1	w-b		
Portland, USA 1.1	♂	Piotr, Seattle 5	2. May 1975	Nicholas, Seattle 1	Alexandra, Seattle 2
	♂	Natasha, San Antonio 12	19. Jul. 1977	Frosty, San Antonio 1	Crystal, San Antonio 2
Prague, CSSR 1.2	♂	Visa, Helsinki 26	5. May 1975	Charlie, LPZ 9	Venla, Helsinki 6
	♂	Vaula, Helsinki 27	5. May 1975	Charlie, LPZ 9	Venla, Helsinki 6
	♂	Chinga, Praha 1	w-b		
Riga, USSR 1.0	♂	Rogo, Riga 1	w-b 1976-77		
Rochester, USA 1.1	♂	Jeremiah, Cheyenne 7	23. May 1975	Cheyenne 3	Cheyenne 1
	♂	Jennifer, S. Antonio 7	12. May 1976	Frosty, San Antonio 1	Crystal, San Antonio 2
Salt Lake City, USA 1.2	♂	Ping, Los Angeles 11	23. Apr. 1979	Davies, S. Francisco 9	Natasha, L. Angeles 7
	♂	Annapurna, S. Antonio 19	19. May 1979	Karl, San Antonio 6	Ilka, Helsinki 22
	♂	Yoda, Rochester 6	25. May 1980	Jeremiah, Cheyenne 7	Jennifer, S. Antonio 7
San Antonio, USA 2.8	♂	Frosty, San Antonio 1	w-b		
	♂	Karl, San Antonio 6	12. May 1976	Frosty, San Antonio 1	Crystal, S. Antonio 2
	♂	Crystal, San Antonio 2	w-b		
	♂	Suki, Oklahoma 12	15. May 1973	Chumbi, St. Louis 6	Cleo, Oklahoma 5
	♂	Ilka, Helsinki 22	10. May 1974	Ville, Helsinki 2	Vilkku, Helsinki 3



Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
San Diego, USA 1.1	♀	Sasha, San Antonio 13	2. Jun. 1978	Frosty, San Antonio 1	Ilka, Helsinki 22
	♀	Sayan, San Antonio 21	23. Apr. 1980	Frosty, San Antonio 1	Crystal, S. Antonio 2
	♀	Altai, San Antonio 22	23. Apr. 1980	Frosty, San Antonio 1	Crystal, S. Antonio 2
	♀	Seneca, Rochester 4	25. May 1980	Jeremiah, Cheyenne 7	Jennifer, S. Antonio 7
	♀	Darth, Rochester 5	25. May 1980	Jeremiah, Cheyenne 7	Jennifer, S. Antonio 7
	♂	Hima, Cincinnati 7	29. Aug. 1978	Marco, Cincinnati 5	Anastasia, LPZ 10
	♀	Gyalmo, Los Angeles 9	11. May 1978	Davies, S. Francisco 9	Natasha, L. Angeles 7
	♂	Dersu, San Antonio 9	13. Apr. 1977	Frosty, San Antonio 1	Suki, Oklahoma 12
	♀	Chuma, Los Angeles 8	15. Jun. 1977	Davies, S. Francisco 9	Natasha, L. Angeles 7
Seattle, USA 3.3	♂	Nicholas, Seattle 1	w-b 1970		
	♂	Igor, Omaha 2	27. May 1972	Tamerline, Omaha 1	Natasha, Edmonton 4
	♂	Stasik, Seattle 11	31. May 1979	Nicholas, Seattle 1	Alexandra, Seattle 2
	♀	Alexandra, Seattle 2	w-b 1970		
	♀	Marya, Seattle 7	2. May 1975	Nicholas, Seattle 1	Alexandra, Seattle 2
St. Louis, USA 1.1	♀	Sasha, Seattle 12	31. May 1979	Nicholas, Seattle 1	Alexandra, Seattle 2
	♂	Oki Dok, Oklahoma 6	27. Jul. 1967	Bowser II, Copenhagen 9	Tanya, Oklahoma 2
	♂	Linka, San Antonio 10	13. Apr. 1977	Frosty, San Antonio 1	Suki, Oklahoma 12
Tallinn, USSR 1.1	♂	Kungei, Tallinn 3	w-b 1973-74		
Tashkent, USSR 0.1	♀	Aksu, Tallinn 1	w-b		
Toledo, USA 1.1	♀	Sljuka, Tashkent 2	w-b		
	♂	Taboo, Los Angeles 12	25. May 1980	Davies, S. Francisco 9	Natasha, L. Angeles 7
Toronto, USA 1.1	♂	Persia, San Antonio 20	23. Apr. 1980	Frosty, San Antonio 1	Crystal, S. Antonio 2
	♂	Toronto 1	w-b 1977-78		
Winnipeg, Can 2.2	♀	Tiffany, Detroit 3	7. Jun. 1975	Ilyat, Detroit 1	Sonya, Detroit 2
	♂	Shadow, Bronx 17	1. Jun. 1966	Bowser II, Copenhagen 9	Bronx 15
	♂	Remus, Oklahoma 17	9. Sep. 1976	Old Man, S. Francisco 7	Damascus, Oklahoma 9
	♀	Simba, Helsinki 12	3. Jul. 1972	Ville, Helsinki 2	Viima, Helsinki 1
	♀	Sasha, Assiniboine 2	23. May 1976	Shadow, Bronx 17	Simba, Helsinki 12
Zurich, Switz 3.6	♂	Walo, Helsinki 8	2. May 1972	Ville, Helsinki 2	Valkky, Helsinki 4
	♂	Visna, Helsinki 38	23. Jun. 1978	Charlie, LPZ 9	Vuokko, Helsinki 14

Location	Sex	House-name, reg.no.	Date of birth	Sire	Dam
	♂	Galdan, Zürich 11	w-b 1978		
	♀	Arga, Zürich 1	w-b 1973		
	♀	Andra, Zürich 2	w-b 1971		
	♀	Dobra, Zürich 4	16. Apr. 1977	Walo, Helsinki 8	Andra, Zürich 2
	♀	Dalaia, Zürich 5	16. May 1977	Walo, Helsinki 8	Arga, Zürich 1
	♀	Firba, Zürich 7	12. May 1979	Walo, Helsinki 8	Andra, Zürich 2
	♀	Fonga, Zürich 10	20. May 1979	Walo, Helsinki 8	Arga, Zürich 1

Total 109.114 (223)

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