National Studbook for the Asiatic Lion
(Panthera leo persica)

Data Current Till	:	**30th September, 2002**
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Contents

Species status in the wild

There are two subspecies of lions, *Panthera leo*. All African populations are classified into a single subspecies, *Panthera leo leo* and Asiatic lions belong to the second subspecies, *Panthera leo persica (* Guggisberg, 1975; Neff,1983) .

The Asiatic lion has been classified as Endangered and Appendix I of the Convention of International Trade in Endangered Species (CITES). It is also in the Schedule-I of the Wild Life (Protection) Act, 1972 of India.

Today, the only free- ranging population of the Asiatic lion occurs in the Gir forests of Gujarat in Western India. Historical records indicate that the range of the Asiatic lion stretched from Northern Greece across the Middle East and southwest Asia to eastern India (Guggisberg, 1961, Joslin 1973, Smithers 1975). It became extinct in eastern Europe around A.D 100, and in Palestine around the time of the Crusades (Guggisberg, 1961). By the late 1800s, the lions had disappeared from Turkey (Ustay 1990); the last reports from Iran and Iraq date to 1942 (Joslin, 1973) and 1918 (Hatt, 1959) respectively. In India, Asiatic lions ranged east to the state of Bihar, but declined under indiscriminate hunting (Pocock, 1939). The last lion in central India was shot near Goona in 1873 (Kinnear, 1920). For more than a hundred years, now, all the Asiatic lions in India have been restricted to the Gir forest in the Saurashtra peninsula, Gujarat state, where it was protected by by the Nawab of Junagadh in his private hunting grounds (Kinnear, 1920). Subsequently, the Gujarat Forest Department has been providing protection to the lions and managing Gir forest.

Table A. Population estimates for Asiatic lions in the Gir Forest.

Year	1974	1979	1985	1990	1995	2001
Asiatic lion #	180	205	239	284	304	327

Source: Gujarat Forest Department

The close proximity of predators, livestock, and humans in Gir forest gives rise to number of management problems, which threaten the Asiatic lions. The Gir is an important pilgrim center with four big temples, which attract more than 100,000 pilgrims annually and create several problems including firewood extraction, noise pollution, dumping of garbage and encroachment (Chellam, 1993). Out of four temples two (Kankai & Banej) are situated on the bank of rivers, which is a crucial habitat for large mammals (Chellam,1993). Three highways and a railway track pass through the Protected Area leading to extensive disturbance and occassional large mammal mortality including lions.

The maldharis, a local pastoralist community, are resident within the Gir sanctuary in small settlements (called nesses). All nesses are located close to the riverine tract. Maldharis lop and cut the trees for fuel and fodder, thus leading to a devastating impact on the riverine forest, which is the prime habiat for lionesses with cubs during the dry season (Chellam, 1993). The lions' predation on livestock is another threat to their survival. Though lions have been preying on cattle ever since they first moved into the area, there are indications that peoples' tolerance to lions is wearing thin. The government's livestock loss compensation schemes are complicated and unrealistic (Joslin 1984, Chellam,1993). There are reports of villagers killing lions in retaliation.

The more alarming cause of people's rancor in Gir is lions' attack on people. Saberwal *et al.* (1994) documented 193 attacks resulting in 28 deaths from 1977 –1991.

Chellam (1993) stresses that involvement of local population in management of PA is very essential. Hence, it should be a matter of highest priority for Gujarat Forest Department to resolve human wildlife conflicts and to involve local people in the management of the Protected Area.

The Asiatic lion currently exists as a single large population, and is thus vulnerable to extinction from unpredictable events. The Population and Habitat Viability Analysis (PHVA) workshop (Ashraf *et al.* 1995) predicted a 0 % chance of extinction of lions over the next 100 years, based on their current population model. However, an urgent need for establishing another wild population for maximizing genetic diversity cannot be ignored. The Asiatic lion PHVA (Ashraf *et al.* 1995) reviewed several potential sites throughout the lion's former range in India. This was followed by an intensive field survey of three potential sites by the Wildlife Institute of India and the forest in and around Kuno Wildlife Sanctuary in Sheopur District of M.P was chosen as the most suitable site for translocation using 11 different parameters (Chellam *et al.* 1995).

The captive population of Asiatic lions can be considered to represent a second population (Nowell & Jackson 1996). The Government of India is currently considering offering problematic wild lions to Western zoos as new founders. The American Zoos and Aquarium Association's Felid Taxon Action Group recommends collection of germ plasm from wild animals, which could be used to infuse genetic diversity into the captive population (Wildt *et al.* 1992)

Biological Data:

Scientific Name

- *Panthera leo persica*

Habitat

- Semi-arid dry deciduous forest and thorny savanna.

Current Distribution and Numbers

- Confined to Gir forests. Located in the south west of the Saurashtra peninsula, the Gir Wildlife Sanctuary National Park is 1,412.13 sq. km. The Gir is the only remaining representative patch of natural forest in the entire Saurashtra peninsula
- 2001 lion population estimate is 327.

Size

- Male150 -200 Kg, Female 100-160 Kg (Body weight)
- Male 170-190 cm, Female 140-175 cm (Body length)

Physical Description

- Asiatic lions have a longitudinal fold of skin running along its belly. Male Asiatic lions have moderate mane growth at the top of the head, so that their ears are always visible. These features can help distinguish them morphologically from the African lions. The situation is confounded as some African lions also have belly folds and for some the mane growth is only moderate.

Life History Characteristics

- The diet is predominantly wild ungulates and livestock .
- Sexual maturity is attained at age 4 years for females and 5-8 for males. In captivity 3 years for both males and females.
- Gestation period approximately 116 days;
- Life span – females 17-18 years (21 years in captivity), males 16 years (17 years -captive record)

Source: Nowell, K. & Jackson, P. 1996.

Scope and conventions of Studbook

(A) ASSUMPTIONS

1. The year of capture is recorded as the year of the individual's transfer to its first captive facility.
2. If only the year of birth is known then 30th of June of that year is taken as the date of birth for an individual.
3. If the final fate (when it is known what happened to the animal finally) of an individual is not known it is recorded as Lost-to-follow-up. Such individuals are shown as l t f between local Id and event columns.
4. All individuals are identified by local/expert knowledge not by artificial markings and the animal keepers identify the unmarked individual correctly.
5. Individuals having origin at Sakkarbaugh zoo (Wild caught or captive born) are considered as pure Asiatic lions.
6. Individuals, which were already assigned National stud numbers in the National studbook for the Asiatic lion (current till 30th September 2000, compiled by Wildlife Institute of India, published in May 2001) have retained their old stud numbers in this studbook.
7. New individuals not recorded in the previous edition are allotted new National studbook numbers. The new National stud numbers start from 470.
8. Studbook number 273 is not allotted to any individual and should not be allotted in future.

B) SYMBOL USED:

UNK: Unknown

C) TIME SCALE:

The earliest date entered in the studbook is August 1958 and data is current through 30th September 2002. The studbook software used is SPARKS 1.52 , its associated programmes and Population management 2000.

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Species Status in Indian Zoos:

A total of 546 individuals are registered in the present studbook. Of these, 58 individuals (11%) are wild caught and 488 (89%) are captive born. As of 30th September 2002, there are 89 individuals (32.57) living in 15 institutions in India.

Demographic analysis:

The details of the status of total captive population have been summarised in Table. 1.

Table.1: Asiatic Lion captive population data as of 30th September 2002.

	Male	Female	Unknown sex	Total
Total Registered	224	274	48	546
Total wild caught	29	29	0	58
Total captive born	195	245	48	488
Alive as of 30th September 2002				
Wild origin	7	6	0	13
Captive born	25	51	0	76
Total Breeding Animals				
Wild born that have bred	14	19	0	33
Captive born that have bred	20	41	0	61
Living proven breeders (animals who have bred at least once)				
Wild born	3	3	0	6
Captive born	5	17	0	22

Pyramid shapes, (i.e. younger age classes are larger than older age classes) indicate that a population is either stable or growing. The age pyramid as shown in **Figure.1** is narrow (light) at the bottom demonstrates that there are fewer cubs than those for a stable population and the A.lion population is declining.

The sex ratio is biased towards females. The numbers of females are almost double than males. There are 57 females and 32 males, which is good for captive breeding programme as same male can be bred with several females in lions. 60% of total individuals of both the sexes fall in the reproductive age class i.e. 3 to 15 years. This type of age structure is potentially unstable because it shows many animals in the reproductive age class are not reproducing or lack partners. 5 institutions out of 15 have only single sexed animals and 5 institutions in spite of having both sexed animals have never bred. It indicates the population has a lot of potential for growth if managed properly.

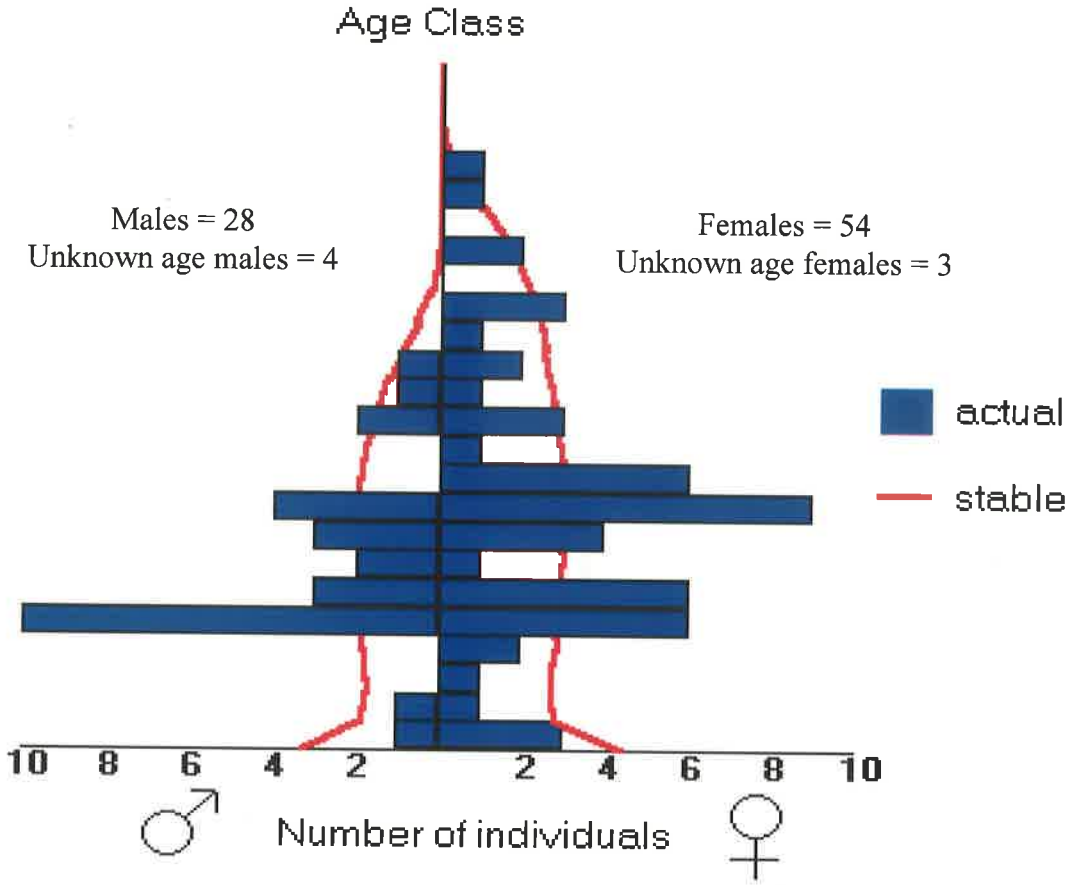


Figure 1. Age distribution in captive population of Asiatic lion as on 30th September 2002.

Demographic analysis gives the life table of captive population, which indicates the different phases of animals at various age classes during its lifetime. The life tables of captive animals do not necessarily show biological features of a species. It evaluates zoo management in the past. The main indicators from the life table can be used to evaluate the health of captive population. These are fecundity (Mx) and mortality (Qx). The instantaneous growth rate (r) and projected growth rate (λ) give an indication of the population's overall health. The life table does not take import of any individual from wild or release into wild into consideration for calculating the population parameters. It is entirely based on actual births and deaths happened in the captivity. These terms are defined in glossary (Appendix-I).

Fecundity (Fertility):

Present analysis shows, a successful parentage in Asiatic lions is from 3 to16 years in both females and males.

The data have been smoothed once after which the fertility values for the oldest and youngest age classes were corrected to reality as the smoothing process can put a small fictitious value in age classes with zero values and the small sample sizes in older classes can distort their values.

The analysis is not very reliable for the higher age classes as the sample size was too small.

Figure 2. Age specific fertility in captive males of Asiatic lion. Actual Model Vs Model
(Data for ages >10 are very unreliable due to small sample size)

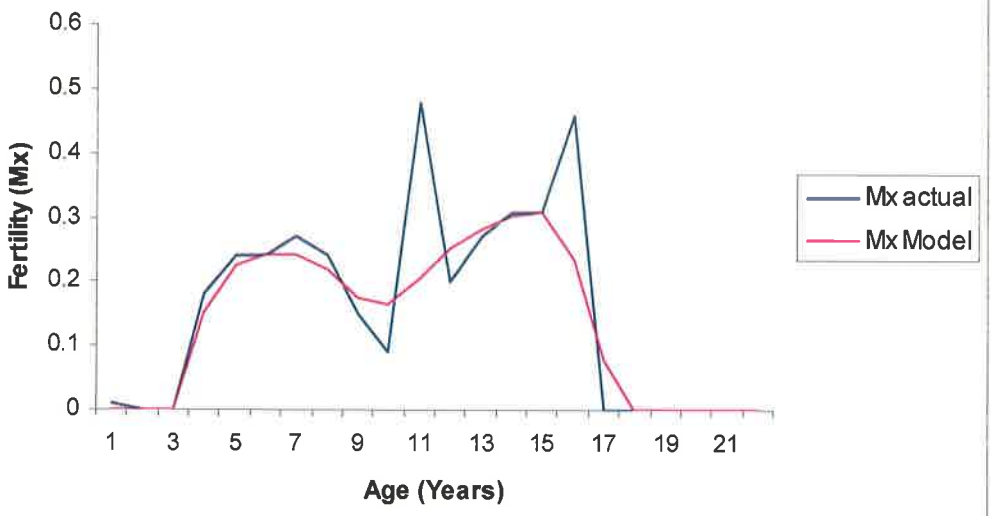
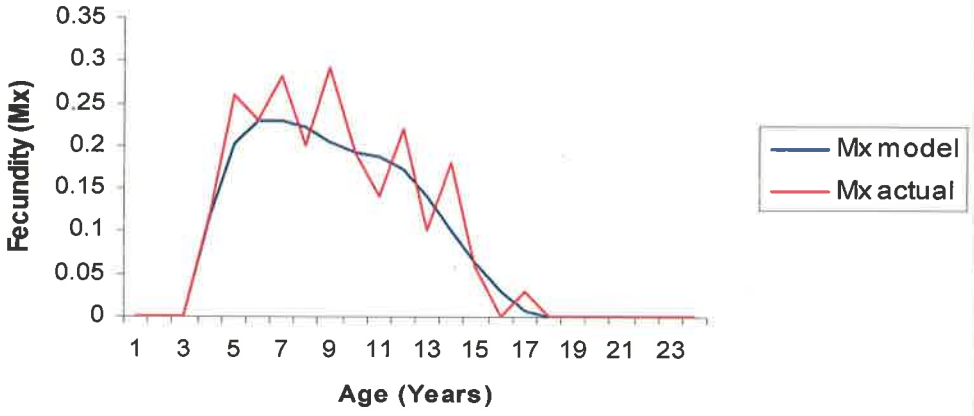


Figure 3. Age specific fertility in captive females of Asiatic lion. Model Vs Actual.
(Data above for ages>13 are very unreliable due to small sample size)



Fgure 2. shows in case of males the curve is less smooth, there seems two peaks: one from 5 to 7 years and other from age class 13 to 16. These two peaks definitely do not reflect biological features of Asiatic lion. It could be a result of management as zoo managers can decide at which age Asiatic lions are paired. Furthermore, life tables in studbook populations are based on relatively small numbers of data. The second peak in male fecundity may be due to small sample sizes. For example, the high fecundity in males in age class 14 to 15 could be due the 'odd' case where single surviving male produced offspring. **Figure 3.** illustrates peak reproduction in captive females from the age of 5 to 9 years followed by a decline. Analysis done on captive born individuals showed miean age of captive born females at first reproduction is about 5 years 4 months (N=41) and for males 4 years 9 months (N=20). Mean age of females at reproduction is about 7 years 6 months (N=41) and males 7 years 8 months (N=20).

The litter size for Asiatic lions ranges from 1 to 5. Mean litter size is 2.4 (N=194).

Mortality:

The mortality rate Qx of an age class is the proportion of animals belonging to that class that die before reaching the next age class. The data for mortality have also been smoothed and the mortality values for the oldest age classes were corrected to reality, as is standard procedure. In **Figure 4,** first year mortality in males is about 60% and for females about 53% (**Figure 5**), which is quite high. Analysis showed that 30 days mortality for both the sexes is 47% (220 of 481 neonates). Mortality decreases from age 3 to 10 years for females but is higher for males at this age class when compared to females. This is very unusual as mortality is usually higher in females at sexual maturity due to increased death from pregnancy related problems (Rehse, 2002). The reason for mortality of these males cannot be territorial fights because as per practice in Indian zoos only one pre-selected male is introduced into a female's enclosure for mating. Due to insufficient data it is impossible to conclude about the cause of these deaths. **Fig. 4** and **5**. show mortality increases significantly in males from age 14 and females from age 19 respectively, though data is less reliable for the higher age classes due to small sample size.

Figure 4. Age specific mortality in males of captive Asiatic lions. Actual Vs Model

(Data for ages >10 are very unreliable due to small sample size)

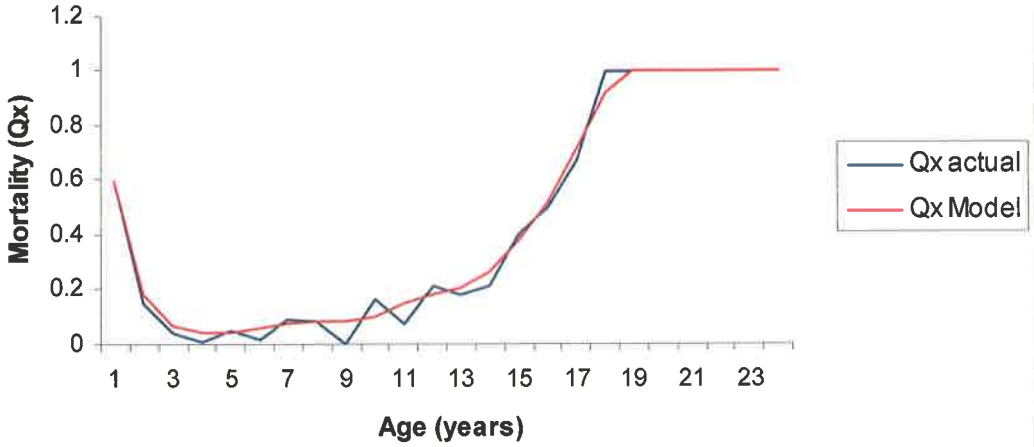
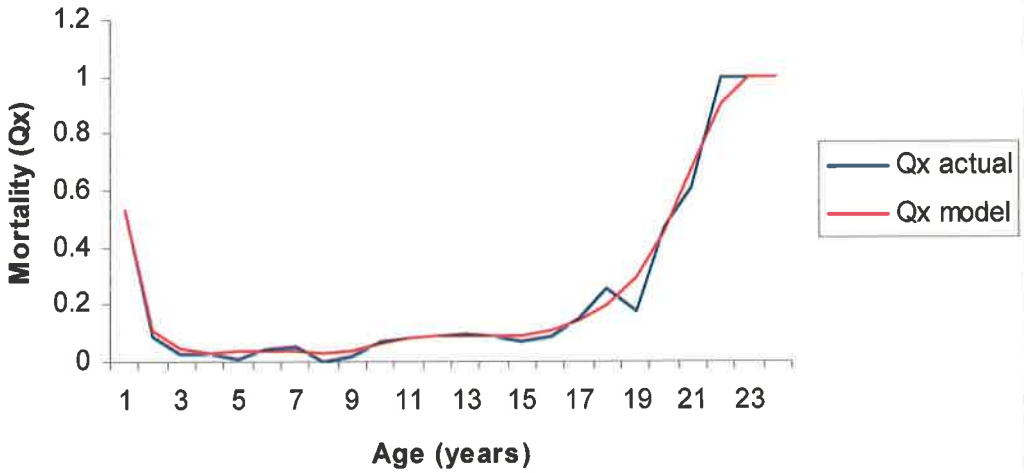


Figure 5. Age specific mortality in captive females of Asiatic lion. Model Vs Actual.

(Data for ages >13 are very unreliable due to small sample size)



Instantaneous rate of growth (r)

The rate of growth for males is -0.0803 and for females is -= -0.0502. This mean population is decreasing for males by 8% per year and for females by 5% per year.

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Projected growth rate (λ)

λ for Asiatic lion population as on 30th December 2002 is 0.94 means a 6% decline in population size per year. λ and r are calculated on the bases of birth and death rates in the life table.

Genetic analysis

For genetic analysis wild caught individuals of unknown age are included if they have bred in recent past assuming they are adult and capable of breeding successfully. Very young individuals (age < 3) and old ones already reached their reproductive senescence (>14 years) were excluded from the analysis. The analysis showed present population. The present population includes living descendants for 25 founder animals (**Table 2**). The founder representation shown in **Figure 6.** clearly indicates that the reproductive success and founder representation of the wild caught animals has been very variable with some animals being hardly represented in the current stock, while other founders are fully represented. 7 wild caught animals are the potential founders and have not bred yet and hence not contributed to the captive population.

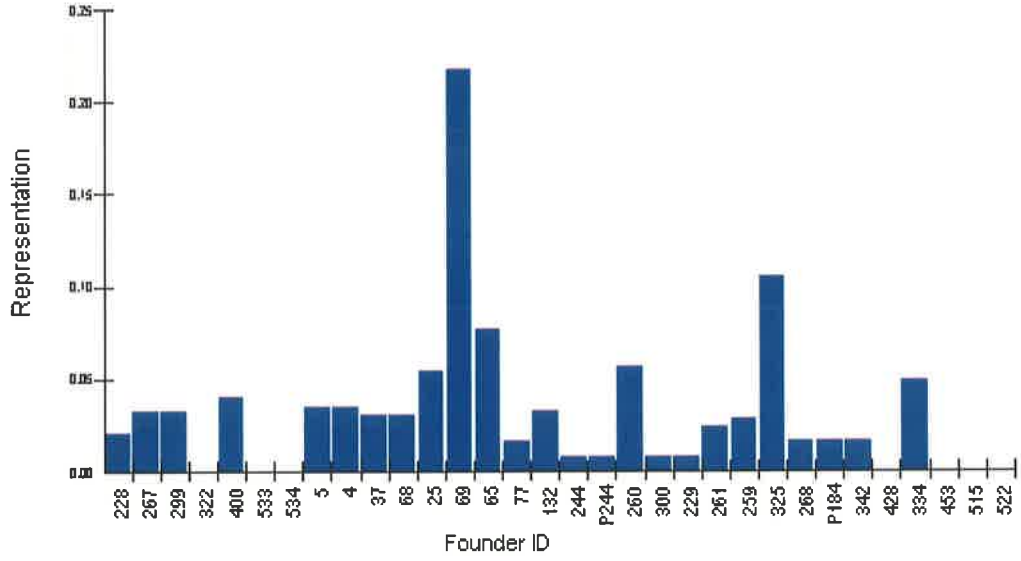
Table 2. Founder representation in Asiatic lions as on 30th September 2002.

National Stud #	Sex	Status	Represent	Contribution	Allele retention	Potential retention	Living Descendants
228	"M"	"D	" 0.0203	1.25	0.7505	0.7505	3
267	"F"	0	0.0325	2	0.935	1	4
299	"F"	0	0.0325	2	0.9325	1	4
322	"M"	0	0	0	0	1	0
400	"M"	0	0.0407	2.5	0.973	1	5
533	"M"	0	0	0	0	1	0
534	"M"	0	0	0	0	1	0
5	"F"	"D"	0.0346	2.125	0.429	0.429	22
4	"M"	"D"	0.0346	2.125	0.4285	0.4285	22
37	"F"	"D"	0.0305	1.875	0.5545	0.5545	12
68	"M"	"D"	0.0305	1.875	0.551	0.551	12
25	"F"	"D"	0.0549	3.375	0.847	0.847	13
69	"M"	"D"	0.2175	13.375	0.998	0.998	39
65	"F"	"D"	0.0772	4.75	0.815	0.815	21
77	"F"	"D"	0.0163	1	0.326	0.326	8
132	"F"	"D	" 0.0325	2	0.8865	0.8865	6
244	"F"	"D	" 0.0081	0.5	0.5	0.5	1

National Stud #	Sex	Status	Represent	Contribution	Allele retention	Potential retention	Living Descendants
"P244	M	D	0.0081	0.5	0.5	0.5	1
260	"F"	"D	" 0.0569	3.5	0.9385	0.9385	10
300	"M"	"D	" 0.0081	0.5	0.5	0.5	1
229	"F"	"D	" 0.0081	0.5	0.5	0.5	1
261	"F"	"D	" 0.0244	1.5	0.8755	0.8755	3
259	"F"	"D	" 0.0285	1.75	0.8635	0.8635	4
325	"M"	"D	" 0.1057	6.5	0.9985	0.9985	16
268	"F"	"D	" 0.0163	1	0.756	0.756	2
"P184	M	D	0.0163	1	0.739	0.739	2
342	"M"	"D	" 0.0163	1	0.7505	0.7505	2
428	"M"	7	0	0	0	1	0
334	"M"	"D	" 0.0488	3	0.987	0.987	6
453	"M"	4	0	0	0	1	0
515	"M"	4	0	0	0	1	0
522	"F"	4	0	0	0	1	0

Key: M= male F= female L= Living individual D= dead individual

Figure 6. Founder Representation in Captive Asiatic lion



Definitions of the terms mentioned in **Table 2** are given below:

- Representation: It gives percentage of the current population descended from a particular founder. For example if it is 0 (eg. Studbook # 322) then 0% of the current population has descended from stud # 322. Value of 0.0488 (as given in Table 2 for an individual having studbook # 334) shows that 5% of the current population has descended from this particular individual.
- Contribution: It calculates equivalent number of living animals solely descended from each founder. For example, an immediate offspring of a founder will acquire half of the alleles from the founder, therefore one offspring represents the equivalent of only 0.5 (50%) of an animal solely descended from that founder. If this immediate offspring of founder breeds, will contribute 0.25 (25%) of the alleles of founder in a direct second generation descendant . Therefore, a founder with one immediate offspring and one direct second generation descendant in the living population has a founder contribution of 0.5+0.25=0.75.
- Allele retention: The proportion of the total genome from each founder that is represented in the living descendant population. If a founder has had two offsprings, it is likely to have passed 75% of its genetic material (retention-0.75). If a founder had only one offspring, which in turn had one offspring before dying, only 25 % (retention=0.25) of that founder's genetic material will remain in the descendant population. Where the retention is 0, the animal is yet to breed. If the founder is alive, then its retention can improve. The values given for **potential retention** shows possibility for an animal to pass 100% of its genetic material. But in practice, these are not attainable. Thus, these are theoretical numbers.

In the genetic summary given in **Table 3,** founder genome equivalent (fge) is 8.62 (9 individuals) indicating that present captive populations of Asiatic lion behave genetically like 9 founders. This is a measure of the loss of genetic variation due to bottlenecks and disparities in founder representation. This means there are many founders, which have not contributed to the current population (**Figure 6**)

Over 94% of wild genetic diversity (GD=0.94) is currently being retained; meaning 6% of the gene diversity has been lost during the years in captivity.

Mean Inbreeding coefficient of the population is 0.0762. The mean inbreeding coefficient of a population is the proportional decrease in observed heterozygosity relative to the expected heterozygosity of the founder population. This value lies between 0 to 1; smaller the value more heterozygous is the population. The average mean kinship is about 0.058. The mean kinship of a population is equal to the proportional loss of gene diversity of the descendant (captive-born) population relative to the founders. Low mean kinship value signifies rare genes and less relatives in the population.

95% pedigree is known for the current population.

Table 3. Genetic Summary of captive Asiatic lion as on 30th September 2002

	Current	Potential
Founders	25	7additional
Founder genome equivalents	8.62	25.49
Founder genome surviving	18.34	2549
Gene diversity retained (GD)	0.9420	0.9804
Population mean kinship	0.058	
Mean inbreeding	0.0762	
% of pedigree known	94.5	

Note: Definitions of all terms used are given in Glossary (appendix)

The population has 7living founders not represented in the descendent population yet. Hence there is potential to improve the genetic diversity of current population by breeding these founders.

Table 4 shows ordered list of Mean kinship (MK). This analysis has been carried out from PM 2000 software. Mean kinship measures the genetic importance of each individual relative to all others in the analyses. The younger animals are given less weightage as they have more years of breeding life left, and hence there is no urgency to breed these individuals as compared with older animals nearing reproductive senescence.

Table 4. Ordered Lists of Mean Kinship by Sex

Males Stud no.	MK	Known	Age	Location	Female Stud No.	MK	Known	Age	Location
322	0	100	0	JUNAGADH	522	0	100	4	JUNAGADH
533	0	100	0	JUNAGADH	252	0.008	100	15	DELHI
534	0	100	0	JUNAGADH	367	0.01	100	8	JUNAGADH
428	0	100	7	JUNAGADH	365	0.014	100	8	SILVASA
453	0	100	4	JUNAGADH	267	0.016	100	0	HYDERABAD
515	0	100	4	JUNAGADH	299	0.016	100	0	HYDERABAD
319	0.018	100	11	DELHI	320	0.016	100	11	JUNAGADH
400	0.02	100	0	JUNAGADH	480	0.02	50	4	KANPUR
481	0.02	50	4	HYDERABAD	482	0.02	50	4	KANPUR
360	0.036	100	8	AHMEDABAD	348	0.035	100	9	AHMEDABAD
355	0.037	100	8	HYDERABAD	349	0.035	100	9	JUNAGADH
449	0.039	100	5	JUNAGADH	470	0.035	100	8	GIR SAFAR
441	0.041	100	5	JUNAGADH	471	0.035	100	8	GIR SAFAR
436	0.045	100	5	JUNAGADH	331	0.037	100	9	JUNAGADH
407	0.048	100	6	DELHI	357	0.037	100	8	JUNAGADH
408	0.048	100	6	SILVASA	335	0.038	100	9	HYDERABAD

297	0.057	100	12	JUNAGADH	486	0.038	100	4	DELHI
476	0.064	100	4	VEERMATA	442	0.041	100	5	JUNAGADH
477	0.064	100	4	HYDERABAD	443	0.041	100	5	SILVASA
478	0.064	100	4	HYDERABAD	444	0.041	100	5	JUNAGADH
479	0.064	100	4	HYDERABAD	377	0.042	100	7	JUNAGADH
455	0.068	100	4	HYDERABAD	437	0.045	100	5	JUNAGADH
316	0.081	100	11	RAJKOT	410	0.048	100	6	JUNAGADH
483	0.084	100	4	BANNERGHA	333	0.049	100	9	DELHI
431	0.085	100	7	BANNERGHA	269	0.053	100	14	JUNAGADH
164	0.089	100	13	MADRAS	332	0.053	100	9	JUNAGADH
350	0.091	100	8	MADRAS	289	0.055	100	12	JUNAGADH
370	0.103	100	8	HYDERABAD	247	0.057	100	15	BANNERGHA
385	0.103	100	7	HYDERABAD	246	0.063	100	15	JUNAGADH
488	0.5	0	4	HYDERABAD	454	0.068	100	4	HYDERABAD
					212	0.076	100	10	SHIMOGA
					354	0.076	100	8	SHIMOGA
					430	0.076	100	8	BANNERGHA
					284	0.08	100	13	JUNAGADH
					179	0.081	100	13	BANNERGHA
					317	0.081	100	11	RAJKOT
					434	0.083	100	5	BANNERGHA
					435	0.083	100	5	BANNERGHA
					352	0.091	100	8	MADRAS
					353	0.091	100	8	MADRAS
					124	0.095	100	11	LUCKNOW
					382	0.103	100	7	HYDERABAD
					383	0.103	100	7	HYDERABAD
					384	0.103	100	7	HYDERABAD
					489	0.5	0	4	HYDERABAD

Key: Known-% of each animal's pedigree that is known. MK- Mean Kinship. Age 0: Unknown age D:Dead

Management and breeding recommendations

Demographic and genetic future projections made by PM 2000 are based on the conditions that occurred in past. These models are very useful to evaluate trends in the populations, predict future developments and analyse effects of management measures. However, these projections (models) do not solve these problems. As seen in results, Asiatic lion population in captivity is declining. To achieve a self-sustaining population with high genetic diversity there is need to increase population growth rate. Maximising the rate of growth will therefore minimise the loss of diversity during the growth phase (Foose & Ballou, 1988). It was also found by reducing juvenile mortality and increasing fertility there was increase in population growth rate. Though there is continued influx of wild born orphaned or problem Asiatic lion into captive population but it is not enough to supplement population loss. Founder representation shows not all wild born animals have bred. To achieve demographic and genetic goals under current scenario there is need to increase population growth rate, rectify past disparities in founder representations, regulate family sizes and sex ratios to maximise effective size of population. It could be accomplished by optimising breeding conditions by reducing mortality and increasing fertility. Hence the most important recommendation for the zoo managers would be-

1. **Research and husbandry improvements**: To know the causes of high mortality (in juvenile and adults) and low fertility in their zoos. There is need to devise appropriate research and husbandry programmes to resolve the problems. It is vital to do post-mortems for all individuals dying and record causes of death whether they are due to congenital factors, due to insufficient maternal care or disease related. Similarly, research should be taken on issues of infertility whether it is due to non-conducive environment, inbreeding, stress, non-compatible mates so on. For example in Ahmedabad zoo, there is pair together since 1996 but they never bred.

2. **Animal Identification:** There is foremost need to give Individual identification to each captive individual. Without reliable techniques for individual recognition the data from even the most carefully maintained studbook are open to dispute. Though animal keepers in Indian zoos are a very important source of information on the individuals, one cannot rely on experience or memory alone to track individual specimens;

   - Firstly, animal keepers should be trained to use standard and adequate methods of animal identification. In absence of transponder, ear tag, tattoo etc they can be trained to identify individual by their unique physical markings. Whatever technique an institution uses should be recorded and explained properly.
   - Secondly, zoo directors should not change sections of animal keepers unless it is absolutely essential. This will maintain consistency in animal identification, record keeping and will make animal keepers answerable for their sections.

2. Mating recommendations:

Table 5, gives mating pairs recommended for the next year. These recommendations are made with an objective of increasing genetic diversity of the captive Asiatic lion.

Table 5 : Breeding pair recommended for captive Asaitic lion

Serial #	Studbook # of mating pairs	Transfer involved	Inbreeding co-efficient of offspring
1	322 & 522	Both individuals at Junagadh	0
2	533 & 367	Both individuals at Junagadh	0
3	428 & 320	Both individuals at Junagadh	0
	534 & 365	Transfer male from Junagadh to Silvassa	0
5	525 & 252	Transfer male from Junagadh to Delhi	0
6	481 & 299	Transfer male from Junagadh to Hyderabad	0

If mating is successful as per recommendations then there will be an improvement in genetic status of Asiatic lion population as shown in **Table 6**. The breeding strategies, which minimize mean kinship and maximize fge increases gene diversity (Ballou & Lacy, 1995). Also clear from **Table 6**, the increase in fge and decrease in mean kinship has increased the gene diversity of the population.

Table 6. Change in genetic status after mating recommendations for captive Asiatic population.

	Initial status	After mating recommendations
Population size N	75	87
Founder genome equivalents	8.62	11
Gene diversity retained	0.9420	0.9546
Mean kinship	0.058	0.0454
% of pedigree known	95	95.0

The efficiency and success of any breeding strategy is limited by demographic constraints that are imposed by population's life history and management considerations. The success of the breeding programme depends on the possibility of these individuals to breed. For example, the 2 potential founders out of 7 were caught in early 1999 and they never bred for some reason. Probably, now they may not breed, as they are old and could be nearing their reproductive senescence However, I did not remove them from the genetic analysis as being a wild they are

immediate candidates for breeding or they were very young when caught. Hence, such recommendations hold no good unless we know the reasons of breeding failures in Asiatic lion. As mentioned earlier, it is most imperative to get into the root cause of problems of low fertility and high mortality. Other recommendations for cooperative breeding programme are as under:

- Central zoo authority of India should emphasize that all zoo should cooperate for making captive breeding programme successful. They should not breed outside the national studbook. Prior to any breeding studbook keeper should be consulted.

- There should be no breeding between siblings, as it will lead to inbreeding. Inbreeding can increase juvenile mortality and reduce fertility (Lacy *et al.,* 1993) and therefore can negatively influence population growth. Currently, 3 zoos out of 16 are having siblings as mating pairs. It would be extremely prudent for holding institutions to agree not to send opposite sex littermates (or any siblings) to the same receiving institution for pair formation. This policy alone would eliminate future inbreeding of the intensity presently occurring. Coordination of future transactions through the studbook keeper could further facilitate pairings, making it possible to locate and match the least related animals (Shoemaker & Wharton, 1984). It will also reduce threat of breeding pure Asiatic lions with the African lions.

- Advanced reproductive technology (semen/ovum collection and storage, embryo transfer etc.) can be considered as a tool for assisting captive propagation programmes in long-term maintenance of genetic diversity. Living founders who have not yet contributed to the population should be considered immediate candidates for germ plasm storage. This technique has been used for captive South China tigers in Indonesia (pers comm., Kathy Taylor, CBSG). However, this technology can be expensive but zoological institutions should acknowledge that population management doesn't come without a cost. The cost of population management is justifiable for the long-term health of individuals and the population as a whole (Wiese *et al*, 1994).

Section 1
Historical Listing of Asiatic lions *(Panthera leo perisca)*

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
1	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1958 8-Aug-58 9-Sep-69	UNK 1	Capture Transfer Death	VEENA	
2	M	29-Sep-63	WILD	WILD	JUNAGADH	29-Sep-63 14-Feb-73	2	Birth Death	KANT	3
3	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1965 12-Jan-65 12-Aug-83	UNK 3	Capture Transfer Death	ROHINI	14
4	M	????	WILD	WILD	GIR SANC JUNAGADH BORIVILI	~ 1966 20-Mar-66 20-Mar-76 29-Jul-76	UNK 4 UNK	Capture Transfer Transfer Death	NAVIN	282
5	F	????	WILD	WILD	GIR SANC JUNAGADH KANPUR	~ 1966 20-Mar-66 13-Apr-76 29-Mar-79	UNK 5 UNK	Capture Transfer Transfer Death	NEETA	283
6	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1968 15-Apr-68 17-Sep-75	UNK 6	Capture Transfer Death	GANGA	4

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
7	M	????	WILD	WILD	GIR SANC JUNAGADH KANPUR	~ 1968 15-Apr-68 13-Apr-76 23-Aug-77	UNK 7 UNK	Capture Transfer Transfer Death	RAM/ BADAL	15
8	M	~ 1967	WILD	WILD	GIR SANC JUNAGADH	~ 1967 14-Apr-68 14-Jun-76	UNK 8	Capture Transfer Death	SHAYAM	1002
9	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1968 15-Jun-68 28-Sep-73	UNK 8	Capture Transfer Death	JAMUNA	
10	M	4-Oct-70	2	9	JUNAGADH AHMEDABAD	4-Oct-70 7-Jan-77 3-Jan-85	10 UNK	Birth Transfer Death	KETAN	1005
11	F	4-Oct-70	2	9	JUNAGADH BORIVILI PUNE	4-Oct-70 30-Mar-76 13-Jan-81 ????	11 UNK UNK	Birth Transfer Transfer Death	KETAKI	1006
12	F	8-Jul-70	2	3	JUNAGADH DELHI CHICAGOLP	8-Jul-70 21-Apr-72 14-Mar-73	12 UNK 2452	Birth Transfer Transfer	CHANDARA	6

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						14-Oct-87		Death		
13	M	8-Jul-70	2	3	JUNAGADH	8-Jul-70	13	Birth	KUMAR	5
					DELHI	21-Apr-72	UNK	Transfer		
					CHICAGOLP	14-Mar-73	2451	Transfer		
					COLO SPRG	9-Nov-83	10029	Transfer		
						18-Jan-84		Death		
14	M	30-Nov-70	4	5	JUNAGADH	30-Nov-70	UNK	Birth	MAYUR	1007
					AHMEDABAD	28-Nov-72	UNK	Transfer		
						3-Apr-82		Death		
15	M	30-Nov-70	4	5	JUNAGADH	30-Nov-70	15	Birth	ZAFAR	7
					JERSEY	14-Apr-72	M294	Transfer		
					MARWELL	6-Nov-80	139	Transfer		
					KNOXVILLE	22-Sep-83	139	Transfer		
						18-Jun-84		Death		
16	F	30-Nov-70	4	5	JUNAGADH	30-Nov-70	16	Birth	ZAHIDA	8
					JERSEY	14-Apr-72	M295	Transfer		
					MARWELL	6-Nov-80	140	Transfer		
						19-Feb-91		Death		
17	F	22-Mar-72	7	3	JUNAGADH	22-Mar-72	17	Birth	NEETI	1010
						16-Nov-76		Death		
18	F	22-Mar-72	7	3	JUNAGADH	22-Mar-72	18	Birth	PREETI	1009

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					AHMEDABAD	28-Nov-72	UNK	Transfer		
						17-Feb-86		Death		
19	M	????	WILD	WILD	GIR SANC	~ 1972	UNK	Capture	TILAK	
					JUNAGADH	20-Jun-72	19	Transfer		
						23-Mar-75		Death		
20	M	7-Jul-72	4	5	JUNAGADH	7-Jul-72	20	Birth	SHOBAN	1012
					JAIPUR	26-Mar-74	UNK	Transfer		
						25-Apr-74		Death		
21	F	7-Jul-72	4	5	JUNAGADH	7-Jul-72	21	Birth	SHOBANA	284
					GIR SAFAR	13-Mar-94		Death		
22	F	2-Mar-73	7	9	JUNAGADH	2-Mar-73	22	Birth	JUNA	1013
					KUALA LUM	13-Feb-75	UNK	Transfer		
					TAIPING	2-Jul-89	UNK I	tf Transfer		
23	F	2-Mar-73	7	9	JUNAGADH	2-Mar-73	23	Birth		1014
					JAIPUR	26-Mar-74	UNK	Transfer		
						8-Mar-92		Death		
24	F	2-Mar-73	7	9	JUNAGADH	2-Mar-73	23	Birth		1015
						1-May-73		Death		
25	F	????	WILD	WILD	GIR SANC	~ 1973	UNK	Capture	SARITA	285

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					JUNAGADH	22-May-73	25	Transfer		
						30-Oct-92		Death		
26	F	9-Jun-73	7	3	JUNAGADH	9-Jun-73	26	Birth		1016
					JODHPUR	29-Mar-74	UNK	Transfer		
					KOTA	25-Oct-74	UNK	Transfer		
					JODHPUR	29-Oct-74	UNK	Transfer		
						30-Oct-92		Death		
27	F	9-Jun-73	7	3	JUNAGADH	9-Jun-73	27	Birth	MOHANI	1017
					NANDANKAN	20-Apr-74	UNK	Transfer		
						20-Nov-91		Death		
28	M	9-Jun-73	7	3	JUNAGADH	9-Jun-73	27	Birth	MOHAN1	1018
					NANDANKAN	20-Apr-74	UNK	Transfer		
						20-Dec-82		Death		
29	F	17-Jul-80	28	27	NANDANKAN	17-Jul-80	UNK	Birth		
						22-Jul-80		Death		
30	F	14-Apr-81	28	27	NANDANKAN	14-Apr-81	UNK	Birth		
						15-Apr-81		Death		
31	F	14-Apr-81	28	27	NANDANKAN	14-Apr-81	UNK	Birth		
						18-Apr-81		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
32	M	8-Sep-81	28	27	NANDANKAN	8-Sep-81	UNK	Birth	MADAN	
						27-May-94		Death		
33	M	11-Jun-73	4	6	JUNAGADH	11-Jun-73	29	Birth		1019
						21-Aug-73		Death		
34	M	11-Jun-73	4	6	JUNAGADH	11-Jun-73	34	Birth		1020
					JODHPUR	29-Mar-74	UNK	Transfer		
						25-Apr-74		Death		
35	M	30-Jul-73	4	5	JUNAGADH	30-Jul-73	31	Birth		1020
						25-Apr-74		Death		
36	M	30-Jul-73	4	5	JUNAGADH	30-Jul-73	32	Birth		1022
						9-Feb-74		Death		
37	F	????	WILD	WILD	GIR SANC	~ 1973	UNK	Capture	SUSHMA	288
					JUNAGADH	27-Oct-73	33	Transfer		
						1-Oct-81		Death		
38	F	????	WILD	WILD	GIR SANC	~ 1974	UNK	Capture	MUMTAJ1	
					JUNAGADH	4-Apr-74	34	Transfer		
					CHATBIR Z	15-Jan-78	UNK	Transfer		
						4-Jun-80		Death		
39	M	4-Jun-74	7	3	JUNAGADH	4-Jun-74	35	Birth	SHITHYAM	1023
					HYDERABAD	27-Mar-76	UNK	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						28-Feb-91		Death		
40	F	4-Jun-74	7	3	JUNAGADH	4-Jun-74	36	Birth		1024
					DELHI	13-Feb-75	UNK	Transfer		
					MALAYSIA	13-Feb-75	UNK I	tf Transfer		
41	F	4-Jun-74	7	3	JUNAGADH	4-Jun-74	37	Birth	ROHINI	1025
					TRIVANDRU	4-Mar-75	UNK	Transfer		
						20-Jun-89		Death		
42	F	4-Jun-74	7	3	JUNAGADH	4-Jun-74	38	Birth		1026
						6-Apr-75		Death		
43	M	7-Jun-74	8	6	JUNAGADH	7-Jun-74	39	Birth		1027
					DELHI	13-Feb-75	UNK	Transfer		
						????		Death		
44	F	7-Jun-74	8	6	JUNAGADH	7-Jun-74	40	Birth		1028
					SHIMLA	20-May-75	UNK	Transfer		
						????		Death		
45	F	17-Jun-74	4	5	JUNAGADH	17-Jun-74	41	Birth		1029
						19-Jul-74		Death		
46	M	4-Jul-74	7	37	JUNAGADH	4-Jul-74	42	Birth	RAM	1030
					TRIVANDRU	9-Mar-75	UNK	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						22-Mar-89		Death		
47	M	22-Sep-80	46	41	TRIVANDRU	22-Sep-80	UNK	Birth		
					SENTHIL C	13-Feb-85	UNK I	tf Transfer		
48	M	22-Sep-80	46	41	TRIVANDRU	22-Sep-80	UNK	Birth		
						9-Jan-81		Death		
49	M	29-Jun-81	46	41	TRIVANDRU	29-Jun-81	UNK	Birth	SAJIV	
					CALCUTTA	16-Jan-84	UNK	Transfer		
						23-Nov-98		Death		
50	F	29-Jun-81	46	41	TRIVANDRU	29-Jun-81	UNK	Birth	AMBLI	
					CALCUTTA	16-Jan-84	4	Transfer		
						3-Sep-00		Death		
51	M	16-Sep-85	46	41	TRIVANDRU	16-Sep-85	UNK	Birth		
						7-Nov-92		Death		
52	F	16-Sep-85	46	41	TRIVANDRU	16-Sep-85	UNK I	tf Birth	GAURI	
53	M	23-Dec-86	46	41	TRIVANDRU	23-Dec-86	UNK I	tf Birth	MANI	
54	M	4-Jul-74	7	37	JUNAGADH	4-Jul-74	43	Birth		1031
					SHIMLA	20-May-75	UNK	Transfer		
						????		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
55	F	4-Jul-74	7	37	JUNAGADH	4-Jul-74	UNK	Birth		1032
					SHIMLA	8-Nov-75	UNK	Transfer		
						????		Death		
56	M	8-Nov-74	4	5	JUNAGADH	8-Nov-74	45	Birth		1036
					BIKANER	25-Jan-76	UNK	Transfer		
						17-May-77		Death		
57	M	8-Nov-74	4	5	JUNAGADH	8-Nov-74	46	Birth		1037
					BIKANER	23-Jan-76	UNK	Transfer		
					JAIPUR	2-Mar-83	UNK	Transfer		
						7-Jan-86		Death		
58	M	9-May-75	8	11	JUNAGADH	9-May-75	47	Birth		1039
						12-Sep-75		Death		
59	F	9-May-75	8	11	JUNAGADH	9-May-75	48	Birth		1040
						20-Mar-76		Death		
60	F	24-Jun-75	7	38	JUNAGADH	24-Jun-75	49	Birth		1041
						19-Mar-76		Death		
61	F	24-Jun-75	7	38	JUNAGADH	24-Jun-75	50	Birth		1042
						27-Mar-76		Death		
62	F	24-Jun-75	7	38	JUNAGADH	24-Jun-75	51	Birth	JUNA	1043

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					HYDERABAD	27-Mar-76	UNK	Transfer		
						8-May-76		Death		
63	F	18-Aug-75	7	3	JUNAGADH	18-Aug-75	52	Birth	SUNDARI	1044
					HYDERABAD	27-Mar-76	UNK	Transfer		
						21-Jan-77		Death		
64	F	????	WILD	WILD	GIR SANC	~ 1976	UNK	Capture	KALIDUM	1045
					JUNAGADH	25-May-76	53	Transfer		
					HYDERABAD	28-Nov-76	UNK	Transfer		
						22-Jun-91		Death		
65	F	????	WILD	WILD	GIR SANC	~ 1976	UNK	Capture	KAMINI	289
					JUNAGADH	25-Jun-76	54	Transfer		
						29-Apr-95		Death		
66	M	26-Jul-76	7	38	JUNAGADH	26-Jul-76	55	Birth		1049
						7-Oct-76		Death		
67	F	26-Jul-76	7	38	JUNAGADH	26-Jul-76	56	Birth	KALPANA	1050
						4-Apr-77		Death		
68	M	????	WILD	WILD	GIR SANC	~ 1977	UNK	Capture	CHETAK	287
					JUNAGADH	11-Jan-77	57	Transfer		
						25-Sep-81		Death		
69	M	????	WILD	WILD	GIR SANC	~ 1977	UNK	Capture	SUNDER	286

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					JUNAGADH	14-May-77	58	Transfer		
						1-Jan-91		Death		
70	M	10-Apr-77	10	38	JUNAGADH	10-Apr-77	59	Birth		1051
					CHATBIR Z	15-Jan-78	UNK	Transfer		
						5-Oct-84		Death		
71	F	10-Apr-77	10	38	JUNAGADH	10-Apr-77	60	Birth		1052
					CHATBIR Z	15-Jan-78	UNK	Transfer		
						18-Jun-90		Death		
72	M	28-Aug-77	68	21	JUNAGADH	28-Aug-77	61	Birth		1053
					KANPUR	25-Aug-78	UNK	Transfer		
						15-Jun-79		Death		
73	M	28-Aug-77	68	21	JUNAGADH	28-Aug-77	62	Birth	HEER	1054
					KANPUR	25-Aug-78	UNK	Transfer		
						16-Apr-79		Death		
74	M	28-Aug-77	68	21	JUNAGADH	28-Aug-77	63	Birth		1055
						18-Feb-80		Death		
75	F	24-Jan-78	68	37	JUNAGADH	24-Jan-78	64	Birth	MALINI	
						16-Apr-88		Death		
76	F	24-Jan-78	68	37	JUNAGADH	24-Jan-78	65	Birth	SHIELA	290

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						26-Jun-95		Death		
77	F	????	WILD	WILD	GIR SANC	~ 1978	UNK	Capture	PRATIMA	
					JUNAGADH	23-Jul-78	66	Transfer		
						30-Nov-82		Death		
78	M	14-Aug-78	69	25	JUNAGADH	14-Aug-78	67	Birth	KESHAV	293
					RAJKOT	21-Jan-92	UNK	Transfer		
						17-May-93		Death		
79	F	14-Aug-78	69	25	JUNAGADH	14-Aug-78	68	Birth	KANKU	
					AHMEDABAD	5-May-83	UNK	Transfer		
						15-Oct-89		Death		
80	M	27-Nov-79	69	37	JUNAGADH	27-Nov-79	69	Birth	RAJA	
					AHMEDABAD	5-May-83	UNK	Transfer		
						????		Death		
81	M	27-Nov-79	69	37	JUNAGADH	27-Nov-79	70	Birth	JIGAR	1058
					AHMEDABAD	21-Jan-81	UNK	Transfer		
						7-May-89		Death		
82	F	27-Nov-79	69	37	JUNAGADH	27-Nov-79	71	Birth	POONAM	1059
					AHMEDABAD	21-Jan-81	UNK	Transfer		
						11-Sep-89		Death		
83	M	20-Feb-80	69	21	JUNAGADH	20-Feb-80	72	Birth	DILAWAR OR	296

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					AHMEDABAD	5-Sep-89	UNK	Transfer		
						8-Jul-94		Death		
84	M	20-Feb-80	69	21	JUNAGADH	20-Feb-80	73	Birth	RUSTAM	300
					BANNERGHA	14-Dec-89	UNK	Transfer		
						10-Oct-95		Death		
85	F	20-Feb-80	69	21	JUNAGADH	20-Feb-80	74	Birth	MUMTAJ -II	297
					AHMEDABAD	5-Sep-89	UNK	Transfer		
						11-Mar-92		Death		
86	F	20-Feb-80	69	21	JUNAGADH	20-Feb-80	75	Birth	RUKHSANA	298
						23-Oct-89		Death		
87	M	26-Mar-80	69	65	JUNAGADH	26-Mar-80	76	Birth	WILLIUM	299
						26-Jan-97		Death		
88	M	26-Mar-80	69	65	JUNAGADH	26-Mar-80	77	Birth	TOMY	
						30-Mar-91		Death		
89	F	26-Mar-80	69	65	JUNAGADH	26-Mar-80	78	Birth	RADHA	
						8-Mar-87		Death		
90	M	6-Aug-80	69	25	JUNAGADH	6-Aug-80	79	Birth	MOHAN -II	
					NANDANKAN	15-Feb-83	UNK	Transfer		
						2-Jul-87		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
91	F	6-Aug-80	69	25	JUNAGADH NANDANKAN	6-Aug-80 15-Feb-83 9-Oct-92	80 UNK	Birth Transfer Death	MADHVAI	
92	M	27-Jul-84	90	27	NANDANKAN	27-Jul-84 28-Jul-84	UNK	Birth Death		
93	F	9-Dec-84	90	27	NANDANKAN	9-Dec-84 21-Dec-84	UNK	Birth Death		
94	M	27-May-85	90	27	NANDANKAN	27-May-85 14-Oct-85	UNK	Birth Death		
95	F	27-May-85	90	27	NANDANKAN	27-May-85 14-Sep-85	UNK	Birth Death		
96	F	27-May-85	90	27	NANDANKAN	27-May-85 3-Apr-96	UNK	Birth Death	MANASI	
97	F	27-May-85	90	27	NANDANKAN MYSORE	27-May-85 6-Dec-96	UNK UNK ltf	Birth Transfer	MANANI	
98	M	26-Nov-81	69	77	JUNAGADH	26-Nov-81 25-May-82	81	Birth Death	NAWAB	
99	M	26-Nov-81	69	77	JUNAGADH	26-Nov-81	82	Birth	KADAR	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						28-Feb-88		Death		
100	F	26-Nov-81	69	77	JUNAGADH	26-Nov-81	83	Birth	MINA	
					RAJKOT	22-Jan-92	UNK	Transfer		
						20-Feb-99		Death		
101	F	15-Dec-81	69	25	JUNAGADH	15-Dec-81	84	Birth	MASIHAN	305
					RAJKOT	24-Jan-92	UNK	Transfer		
						27-Dec-01		Death		
102	F	15-Dec-81	69	25	JUNAGADH	15-Dec-81	85	Birth	SANGEETA	309
						3-Jul-00		Death		
103	F	15-Dec-81	69	25	JUNAGADH	15-Dec-81	86	Birth		1065
						17-Dec-81		Death		
104	F	24-Feb-82	69	21	JUNAGADH	24-Feb-82	87	Birth	BHAVANA	
					MADRAS	22-Sep-89	UNK	Transfer		
						29-Aug-01		Death		
105	M	24-Feb-82	69	21	JUNAGADH	24-Feb-82	88	Birth		1066
						26-Feb-82		Death		
106	F	24-Feb-82	69	21	JUNAGADH	24-Feb-82	89	Birth		1067
						2-Mar-82		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
107	M	19-Mar-82	69	65	JUNAGADH	19-Mar-82 9-Apr-82	90	Birth Death	RAKESH	
108	M	19-Mar-82	69	65	JUNAGADH HYDERABAD	19-Mar-82 29-Jan-87 3-Mar-98	91 AL0001	Birth Transfer Death	SANTOSH	
109	F	19-Mar-82	69	65	JUNAGADH	19-Mar-82 10-Sep-98	92	Birth Death	RAKHI	
110	F	13-Jul-82	UNK	21	JUNAGADH	13-Jul-82 15-Jul-82	93	Birth Death		1068
111	F	13-Jul-82	UNK	21	JUNAGADH	13-Jul-82 16-Jul-82	94	Birth Death		1069
112	F	13-Jul-82	UNK	21	JUNAGADH	13-Jul-82 23-Jul-82	112	Birth Death		1070
113	F	13-Jul-82	UNK	21	JUNAGADH	13-Jul-82 13-Jul-82	96	Birth Death		1071
114	F	13-Nov-82	69	21	JUNAGADH	13-Nov-82 15-Nov-82	114	Birth Death		1075
115	?	16-Dec-82	78	76	JUNAGADH	16-Dec-82 17-Dec-82	98	Birth Death		1076

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
116	F	9-Feb-83	78	75	JUNAGADH	9-Feb-83 7-Mar-83	99	Birth Death		1077
117	F	9-Feb-83	78	75	JUNAGADH HYDERABAD	9-Feb-83 29-Jan-87 16-May-97	100 AL0002	Birth Transfer Death		
118	M	9-Feb-83	78	75	JUNAGADH MADRAS	9-Feb-83 18-Aug-84	101 UNK I	Birth tf Transfer		
119	F	9-Feb-83	78	75	JUNAGADH	9-Feb-83 7-Mar-84	102	Birth Death		
120	M	12-May-83	69	21	JUNAGADH PRIVATE	12-May-83 16-May-83	102 UNK I	Birth tf Transfer		
121	M	12-May-83	69	21	JUNAGADH VANVIHAR	12-May-83 25-Sep-86 13-Nov-90	104 UNK	Birth Transfer Death	NILAM	
122	F	12-May-83	69	21	JUNAGADH HYDERABAD	12-May-83 29-Jan-87 2-Sep-98	105 AL0003	Birth Transfer Death	SHIVANI	
123	M	24-Mar-90	108	122	HYDERABAD	24-Mar-90	UNK	Birth	JAGGU	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					LUCKNOW	21-Sep-96	UNK	Transfer		
						3-Jul-00		Death		
124	F	13-Apr-93	108	122	HYDERABAD	13-Apr-93	AL0007	Birth	NANDINI	
					LUCKNOW	21-Sep-96	UNK	Transfer		
125	F	13-Apr-93	108	122	HYDERABAD	13-Apr-93	AL0008	Birth	ASWANI, Na	
						29-Apr-02		Death		
126	F	13-Apr-93	108	122	HYDERABAD	13-Apr-93	AL0009	Birth	NALINI	
					LUCKNOW	21-Sep-96	UNK	Transfer		
						9-Sep-98		Death		
127	M	15-Jul-83	69	65	JUNAGADH	15-Jul-83	106	Birth		1078
						27-Jul-83		Death		
128	F	7-Sep-83	69	25	JUNAGADH	7-Sep-83	107	Birth	VIJAYA	
					MADRAS	18-Aug-84	UNK	Transfer		
						4-Jul-96		Death		
129	F	7-Sep-83	69	25	JUNAGADH	7-Sep-83	108	Birth	KANCHAN	
						10-Nov-85		Death		
130	F	7-Sep-83	69	25	JUNAGADH	7-Sep-83	109	Birth	GIRA / RAN	
					VANVIHAR	25-Sep-86	UNK	Transfer		
131	?	20-Nov-83	UNK	65	JUNAGADH	20-Nov-83	110	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						26-Aug-84		Death		
132	F	????	WILD	WILD	GIR SANC	~ 1984	UNK	Capture	JESSICA	
					JUNAGADH	18-Jan-84	111	Transfer		
						23-Jul-98		Death		
133	?	1-Jun-84	UNK	65	JUNAGADH	1-Jun-84	112	Birth		1085
						2-Jun-84		Death		
134	F	6-Jun-84	78	76	JUNAGADH	6-Jun-84	113	Birth		1086
						10-Jun-84		Death		
135	F	6-Jun-84	78	76	JUNAGADH	6-Jun-84	114	Birth		1087
						11-Jun-84		Death		
136	F	6-Jun-84	78	76	JUNAGADH	6-Jun-84	115	Birth		1088
						12-Jun-84		Death		
137	F	6-Jun-84	78	76	JUNAGADH	6-Jun-84	116	Birth		1089
						16-Jun-84		Death		
138	M	6-Jun-84	78	76	JUNAGADH	6-Jun-84	117	Birth		1090
						18-Jun-84		Death		
139	M	17-Jul-84	78	75	JUNAGADH	17-Jul-84	118	Birth	MITHUN	1091
					PESHWE	5-Apr-88	UNK	Transfer		

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National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					VEERMATA	20-Feb-98	UNK	Transfer		
						2-Jun-00		Death		
140	F	17-Jul-84	78	75	JUNAGADH	17-Jul-84	119	Birth	JUNA	1092
					VANVIHAR	31-May-89	UNK	Transfer		
141	?	26-Aug-84	69	132	JUNAGADH	26-Aug-84	120	Birth		1094
						26-Aug-84		Death		
142	?	26-Aug-84	69	132	JUNAGADH	26-Aug-84	121	Birth		1095
						3-Sep-84		Death		
143	F	22-Sep-84	UNK	86	JUNAGADH	22-Sep-84	122	Birth		1096
						23-Sep-84		Death		
144	F	19-Oct-84	78	65	JUNAGADH	19-Oct-84	123	Birth		1097
						21-Oct-84		Death		
145	F	19-Oct-84	78	65	JUNAGADH	19-Oct-84	124	Birth		1098
						30-Oct-84		Death		
146	F	19-Oct-84	78	65	JUNAGADH	19-Oct-84	125	Birth		1099
						15-Nov-84		Death		
147	M	19-Oct-84	78	65	JUNAGADH	19-Oct-84	126	Birth		1100
						????		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
148	F	30-Nov-84	69	21	JUNAGADH	30-Nov-84	127	Birth		
						30-Aug-85		Death		
149	F	30-Nov-84	69	21	JUNAGADH	30-Nov-84	128	Birth	MINU	
					PESHWE	5-Apr-88	UNK	Transfer		
						16-Jul-91		Death		
150	M	15-Jan-85	69	132	JUNAGADH	15-Jan-85	129	Birth	RAJA	
					SHIMOGA	6-Apr-88	UNK	Transfer		
						31-Aug-95		Death		
151	M	15-Jan-85	69	132	JUNAGADH	15-Jan-85	130	Birth		
						19-Nov-85		Death		
152	F	15-Jan-85	69	132	JUNAGADH	15-Jan-85	131	Birth		
						29-Dec-85		Death		
153	F	15-Jan-85	69	132	JUNAGADH	15-Jan-85	132	Birth	HEENA	
					MADRAS	22-Sep-89	UNK	Transfer		
					KANPUR	3-Dec-92	UNK	Transfer		
						30-Sep-95		Death		
154	M	13-Feb-85	69	76	JUNAGADH	13-Feb-85	133	Birth		1103
						14-Feb-85		Death		
155	F	13-Feb-85	69	76	JUNAGADH	13-Feb-85	134	Birth		1104

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						14-Feb-85		Death		
156	?	13-Feb-85	69	76	JUNAGADH	13-Feb-85	135	Birth		1105
						15-Feb-85		Death		
157	?	13-Feb-85	69	76	JUNAGADH	13-Feb-85	136	Birth		1106
						16-Feb-85		Death		
158	M	18-Mar-85	87	86	JUNAGADH	18-Mar-85	137	Birth		1107
						18-Mar-85		Death		
159	M	18-Mar-85	87	86	JUNAGADH	18-Mar-85	138	Birth		1108
						19-Mar-85		Death		
160	F	18-Mar-85	87	86	JUNAGADH	18-Mar-85	139	Birth		1109
						24-Mar-85		Death		
161	M	5-Apr-85	69	25	JUNAGADH	5-Apr-85	140	Birth	RAVI	
					GIRSAFARI	20-Nov-88	UNK	Transfer		
						18-Jan-99		Death		
162	F	5-Apr-85	69	25	JUNAGADH	5-Apr-85	141	Birth	AARTI	
					MADRAS	22-Sep-89	UNK	Transfer		
						27-Dec-91		Death		
163	M	7-May-85	69	65	JUNAGADH	7-May-85	142	Birth	JIMMY	1110
					MADRAS	22-Sep-89	UNK	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						15-Dec-91		Death		
164	M	8-Oct-90	163	162	MADRAS	8-Oct-90	UNK	Birth	SURYA	
165	F	8-Oct-90	163	162	MADRAS	8-Oct-90	UNK	Birth	CHANDRA	
						24-Dec-91		Death		
166	F	8-Oct-90	163	162	MADRAS	8-Oct-90	UNK	Birth	MEENA	
						24-Nov-01		Death		
167	F	7-May-85	69	65	JUNAGADH	7-May-85	143	Birth		1111
						22-Nov-85		Death		
168	M	10-Jun-85	87	85	JUNAGADH	10-Jun-85	144	Birth		1112
						13-Jun-85		Death		
169	F	10-Jun-85	87	85	JUNAGADH	10-Jun-85	145	Birth		1113
						13-Jun-85		Death		
170	F	10-Jun-85	87	85	JUNAGADH	10-Jun-85	146	Birth		1114
						13-Jun-85		Death		
171	?	30-Jul-85	UNK	86	JUNAGADH	30-Jul-85	147	Birth		1115
						2-Aug-85		Death		
172	?	30-Jul-85	UNK	86	JUNAGADH	30-Jul-85	148	Birth		1116

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						3-Aug-85		Death		
173	F	29-Sep-85	99	75	JUNAGADH	29-Sep-85	149	Birth	JENI	1117
						27-Oct-88		Death		
174	F	29-Sep-85	99	75	JUNAGADH	29-Sep-85	150	Birth	SARIKA	1118
					GIR SAFAR	11-Feb-87	UNK	Transfer		
						14-Aug-95		Death		
175	F	29-Sep-85	99	75	JUNAGADH	29-Sep-85	151	Birth	SAPANA	1119
					BANNERGHA	14-Dec-89	UNK	Transfer		
						16-Jun-02		Death		
176	F	29-Sep-85	99	75	JUNAGADH	29-Sep-85	152	Birth	SONIA	1120
					BANNERGHA	14-Dec-89	UNK	Transfer		
						4-May-02		Death		
177	M	26-Jun-90	84	176	BANNERGHA	26-Jun-90	UNK	Birth	RAMA	
						24-Aug-99		Death		
178	M	26-Jun-90	84	176	BANNERGHA	26-Jun-90	UNK	Birth	LAXMAN	
					MYSORE	18-Aug-95	ZAK02	Transfer		
					BANNERGHA	18-Mar-02	UNK	Transfer		
						27-Jul-02		Death		
179	F	26-Jun-90	84	176	BANNERGHA	26-Jun-90	UNK	Birth	madhuri	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
180	?	4-Jan-86	87	85	JUNAGADH	4-Jan-86 4-Jan-86	153	Birth Death		1121
181	?	4-Jan-86	87	85	JUNAGADH	4-Jan-86 8-Jan-86	154	Birth Death		1122
182	?	4-Jan-86	87	85	JUNAGADH	4-Jan-86 8-Jan-86	155	Birth Death		1123
183	F	30-Jan-86	99	21	JUNAGADH GIR SAFAR	30-Jan-86 20-May-88 3-Oct-99	156 UNK	Birth Transfer Death	LEENA	1124
184	F	30-Jan-86	99	21	JUNAGADH GIR SAFAR	30-Jan-86 20-May-88 1-Mar-03	157 UNK	Birth Transfer Death	YOGITA	1125
185	M	19-Mar-86	87	85	JUNAGADH	19-Mar-86 23-Mar-86	158	Birth Death		1126
186	F	19-Mar-86	87	85	JUNAGADH	19-Mar-86 24-Mar-86	159	Birth Death		1127
187	?	12-Apr-86	UNK	UNK	JUNAGADH	12-Apr-86 15-Apr-86	160	Birth Death		1128

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
188	?	12-Apr-86	UNK	UNK	JUNAGADH	12-Apr-86	161	Birth		1129
						16-Apr-86		Death		
189	?	12-Apr-86	UNK	UNK	JUNAGADH	12-Apr-86	162	Birth		1130
						16-Apr-86		Death		
190	M	24-Apr-86	UNK	86	JUNAGADH	24-Apr-86	163	Birth		
						28-May-86		Death		
191	M	24-Apr-86	UNK	86	JUNAGADH	24-Apr-86	164	Birth		1131
						28-May-86		Death		
192	M	24-Apr-86	UNK	86	JUNAGADH	24-Apr-86	165	Birth		1133
						1-Jul-86		Death		
193	M	24-Apr-86	UNK	86	JUNAGADH	24-Apr-86	166	Birth		1134
						????		Death		
194	?	26-May-86	UNK	UNK	JUNAGADH	26-May-86	167	Birth		1135
						????		Death		
195	M	3-Jun-86	UNK	UNK	JUNAGADH	3-Jun-86	168	Birth		1136
						4-Jun-86		Death		
196	M	3-Jun-86	UNK	UNK	JUNAGADH	3-Jun-86	169	Birth		1137
						4-Jun-86		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
197	?	8-Jun-86	UNK	104	JUNAGADH	8-Jun-86	170	Birth		1138
						9-Jun-86		Death		
198	?	8-Jun-86	UNK	104	JUNAGADH	8-Jun-86	171	Birth		1139
						11-Jun-86		Death		
199	M	8-Jun-86	UNK	104	JUNAGADH	8-Jun-86	172	Birth		1140
						16-Jun-86		Death		
200	?	8-Jun-86	UNK	104	JUNAGADH	8-Jun-86	173	Birth		1141
						????		Death		
201	F	11-Jul-86	78	76	JUNAGADH	11-Jul-86	174	Birth		1142
						5-Jan-87		Death		
202	M	20-Jul-86	99	65	JUNAGADH	20-Jul-86	175	Birth	RAMAN	1143
					MADRAS	22-Sep-89	UNK	Transfer		
						27-Nov-91		Death		
203	F	20-Jul-86	99	65	JUNAGADH	20-Jul-86	176	Birth	PARUL	1144
					SHIMOGA	6-Apr-88	UNK	Transfer		
						16-Jun-98		Death		
204	?	2-Aug-86	UNK	UNK	JUNAGADH	2-Aug-86	177	Birth		1145
						3-Aug-86		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
205	?	2-Aug-86	UNK	UNK	JUNAGADH	2-Aug-86	178	Birth		1146
						????		Death		
206	F	2-Aug-86	99	100	JUNAGADH	2-Aug-86	179	Birth	PRIYANKA	1147
					SHIMOGA	6-Apr-88	UNK	Transfer		
207	M	24-Oct-86	83	85	JUNAGADH	24-Oct-86	180	Birth		
						7-May-87		Death		
208	F	24-Oct-86	83	85	JUNAGADH	24-Oct-86	181	Birth	BIRWA	1149
						25-May-87		Death		
209	F	24-Oct-86	83	85	JUNAGADH	24-Oct-86	182	Birth	ASHA	1150
						27-Jul-87		Death		
210	F	24-Oct-86	83	85	JUNAGADH	24-Oct-86	183	Birth	JYOTI	1151
					SHIMOGA	6-Apr-88	UNK	Transfer		
211	M	30-Nov-93	150	210	SHIMOGA	30-Nov-93	UNK	Birth		
						30-Nov-93		Death		
212	F	30-Nov-93	150	210	SHIMOGA	30-Nov-93	UNK	Birth	RASHMI	1152
213	M	29-Oct-86	84	86	JUNAGADH	29-Oct-86	184	Birth	DEEP	
						2-Dec-98		Death		
214	F	29-Oct-86	84	86	JUNAGADH	29-Oct-86	185	Birth	ZARINA	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						20-Aug-87		Death		
215	M	29-Oct-86	84	86	JUNAGADH	29-Oct-86	186	Birth		1154
						29-Oct-86		Death		
216	?	29-Oct-86	84	86	JUNAGADH	29-Oct-86	187	Birth		1155
						30-Oct-86		Death		
217	?	5-Jan-87	UNK	UNK	JUNAGADH	5-Jan-87	188	Birth		1156
						????		Death		
218	F	5-Jan-87	83	85	JUNAGADH	5-Jan-87	189	Birth		1157
						25-May-87		Death		
219	F	5-Jan-87	83	85	JUNAGADH	5-Jan-87	190	Birth		1158
						27-Jul-87		Death		
220	F	5-Jan-87	UNK	UNK	JUNAGADH	5-Jan-87	191	Birth		1159
						28-Aug-87		Death		
221	?	21-Feb-87	99	100	JUNAGADH	21-Feb-87	192	Birth		1160
						27-Feb-87		Death		
222	?	21-Feb-87	99	100	JUNAGADH	21-Feb-87	193	Birth		1161
						23-Feb-87		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
223	F	????	WILD	WILD	GIR SANC	~ 1987	UNK	Capture	ASHA	
					JUNAGADH	7-Oct-87	194	Transfer		
						9-Mar-90		Death		
224	?	13-Feb-88	UNK	UNK	JUNAGADH	13-Feb-88	195	Birth		1168
						14-Feb-88		Death		
225	F	15-May-88	UNK	65	JUNAGADH	15-May-88	196	Birth		1170
						20-May-88		Death		
226	F	15-May-88	UNK	65	JUNAGADH	15-May-88	197	Birth		1171
						20-May-88		Death		
227	F	15-May-88	UNK	65	JUNAGADH	15-May-88	198	Birth		1178
						25-May-88		Death		
228	M	????	WILD	WILD	GIR SANC	~ 1988	UNK	Capture		1235
					JUNAGADH	5-Jul-88	199	Transfer		
					HELSINKI	27-Nov-92	920201 ltf	Transfer		
229	F	????	WILD	WILD	GIR SANC	~ 1988	UNK	Capture	MANDA	1236
					JUNAGADH	10-Jul-88	200	Transfer		
					KANPUR	15-Nov-98	16KAN3	Transfer		
						26-Dec-98		Death		
230	F	16-Jul-88	83	85	JUNAGADH	16-Jul-88	201	Birth		1173
						19-Jul-88		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
231	M	4-Aug-88	UNK	86	JUNAGADH	4-Aug-88 6-Aug-88	202	Birth Death		1174
232	?	22-Aug-88	163	162	JUNAGADH	22-Aug-88 29-Aug-88	203	Birth Death		1176
233	?	22-Aug-88	163	162	JUNAGADH	22-Aug-88 ~ 1988	204	Birth Death		1177
234	F	22-Aug-88	69	132	JUNAGADH AHMEDABAD	22-Aug-88 28-Apr-93 1-May-99	205 UNK	Birth Transfer Death	JUHI	1175
235	?	22-Aug-88	69	132	JUNAGADH	22-Aug-88 22-Aug-88	206	Birth Death		1178
236	?	3-Dec-88	UNK	86	JUNAGADH	3-Dec-88 3-Dec-88	207	Birth Death		1179
237	?	3-Dec-88	UNK	86	JUNAGADH	3-Dec-88 5-Dec-88	208	Birth Death		1180
238	F	6-Dec-88	83	85	JUNAGADH ZURICH	6-Dec-88 27-Jul-91	209 UNK I	Birth tf Transfer		1181

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
239	F	6-Dec-88	83	85	JUNAGADH	6-Dec-88	210	Birth		1182
						6-Dec-88		Death		
240	M	10-Jan-89	69	132	JUNAGADH	10-Jan-89	211	Birth	KAPIL	1183
					MYSORE	20-Dec-89	UNK	Transfer		
						19-Nov-93		Death		
241	F	10-Jan-89	69	132	JUNAGADH	10-Jan-89	212	Birth	RATI	1183
						8-Dec-03		Death		
242	M	17-Jan-89	163	162	JUNAGADH	17-Jan-89	213	Birth		1185
						20-Jan-89		Death		
243	?	27-Feb-89	UNK	21	JUNAGADH	27-Feb-89	214	Birth		1186
						12-Mar-89		Death		
244	F	????	WILD	WILD	GIR SANC	31-Mar-89	UNK	Capture	HEMLATA	1237
					JUNAGADH	31-Mar-89	215	Transfer		
						1-Aug-96		Death		
245	M	3-Apr-89	78	76	JUNAGADH	3-Apr-89	216	Birth	BHAGIRATH	1187
					ZURICH	27-Jul-91	0101 I	tf Transfer		
246	F	3-Apr-89	78	76	JUNAGADH	3-Apr-89	217	Birth	CHANDRA	1188
247	F	3-Apr-89	78	76	JUNAGADH	3-Apr-89	218	Birth	VRUNDA	1189
					MYSORE	20-Dec-89	ZAK01	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					BANNERGHA	4-Oct-02	UNK	Transfer		
248	?	10-Apr-89	87	153	JUNAGADH	10-Apr-89 10-Apr-89	219	Birth Death		1192
249	M	10-Apr-89	WILD	244	JUNAGADH	10-Apr-89 29-Jul-89	220	Birth Death	SIKANDAR	1194
250	M	10-Apr-89	WILD	244	JUNAGADH	10-Apr-89 12-Apr-89	221	Birth Death		1193
251	F	10-Apr-89	WILD	244	JUNAGADH DELHI	10-Apr-89 25-Jan-91 17-Aug-01	222 UNK	Birth Transfer Death	ABHA/RITA/	1190
252	F	10-Apr-89	WILD	244	JUNAGADH DELHI	10-Apr-89 25-Jan-91	223 UNK	Birth Transfer	SULAXNA /S	1191
253	F	2-May-89	84	86	JUNAGADH DELHI LONDON RP	2-May-89 7-Mar-90 22-Dec-90	224 UNK A1272 I	Birth Transfer tf Transfer	CHANDANI	1195
254	F	2-May-89	84	86	JUNAGADH DELHI LONDON RP	2-May-89 7-Mar-90 22-Dec-90	225 UNK A1271 ltf	Birth Transfer Transfer	RUCHI	1196

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
255	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1989 8-May-89 5-Sep-98	UNK 226	Capture Transfer Death	TINA	1238
256	M	14-Aug-89	69	162	JUNAGADH	14-Aug-89 24-Aug-89	227	Birth Death		1197
257	M	14-Aug-89	69	162	JUNAGADH	14-Aug-89 20-Aug-89	228	Birth Death		1198
258	M	5-Sep-89	UNK	65	JUNAGADH	5-Sep-89 6-Sep-89	229	Birth Death		1199
259	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1990 28-Feb-90 20-Mar-00	UNK 230	Capture Transfer Death	SUKESHI	1242
260	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1990 28-Feb-90 9-May-03	UNK 231	Capture Transfer Death	BIJLEE	1243
261	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1990 28-Feb-90 12-Dec-96	UNK 232	Capture Transfer Death	PRIYA	1244
262	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1990 28-Feb-90	UNK 233	Capture Transfer		1253

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					DELHI	7-Mar-90	UNK	Transfer		
					LONDON	22-Dec-90	A1270 I	tf Transfer		
263	F	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture		1245
					JUNAGADH	28-Feb-90	234	Transfer		
					DELHI	7-Mar-90	UNK	Transfer		
					LONDON	22-Dec-90	A1269	Transfer		
					CHESTER	19-Dec-96	24890	Transfer		
					BOISE	7-Jul-00	UNK I	tf Transfer		
264	M	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	NAVIN	1246
					JUNAGADH	1-Mar-90	235	Transfer		
					VEERMATA	19-Mar-91	UNK	Transfer		
						13-Feb-97		Death		
265	M	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	RAMU	1247
					JUNAGADH	1-Mar-90	236	Transfer		
					DELHI	25-Jan-91	UNK	Transfer		
						26-Oct-97		Death		
266	F	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	ANITA	1248
					JUNAGADH	1-Mar-90	237	Transfer		
					VEERMATA	19-Mar-91	UNK	Transfer		
267	F	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	CAROL	1249
					JUNAGADH	1-Mar-90	238	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
					HYDERABAD	29-Nov-98	UNK	Transfer		
268	F	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	RUPA	1250
					JUNAGADH	1-Mar-90	239	Transfer		
					HYDERABAD	29-Nov-98	UNK	Transfer		
						15-Dec-98		Death		
269	F	9-Jun-90	87	132	JUNAGADH	9-Jun-90	240	Birth	MADHURI	1256
270	F	9-Jun-90	87	132	JUNAGADH	9-Jun-90	241	Birth	HEMA	
						21-Jul-01		Death		
271	M	17-Sep-90	87	244	JUNAGADH	17-Sep-90	242	Birth		1204
						20-Sep-90		Death		
272	M	17-Sep-90	87	244	JUNAGADH	17-Sep-90	243	Birth		1205
						28-Sep-90		Death		
274	?	2-Nov-90	78	76	JUNAGADH	2-Nov-90	245	Birth		1206
						2-Nov-90		Death		
275	M	31-Jan-91	87	260	JUNAGADH	31-Jan-91	246	Birth		1209
						5-Sep-91		Death		
276	F	31-Jan-91	87	260	JUNAGADH	31-Jan-91	247	Birth		1210
						5-Feb-91		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
277	F	31-Jan-91	87	260	JUNAGADH	31-Jan-91	248	Birth		1211
						5-Feb-91		Death		
278	F	31-Jan-91	87	260	JUNAGADH	31-Jan-91	249	Birth		1212
						5-Feb-91		Death		
279	M	6-Mar-91	87	101	JUNAGADH	6-Mar-91	250	Birth		1213
						12-Mar-91		Death		
280	F	6-Mar-91	87	101	JUNAGADH	6-Mar-91	251	Birth	LESLEY	1214
						27-Nov-92		Death		
281	M	20-Mar-91	87	102	JUNAGADH	20-Mar-91	252	Birth		1215
						22-Mar-91		Death		
282	F	20-Mar-91	87	102	JUNAGADH	20-Mar-91	253	Birth		1261
						22-Mar-91		Death		
283	F	20-Mar-91	87	102	JUNAGADH	20-Mar-91	254	Birth	KRITHIDA	1217
					HELSINKI	27-Nov-92	920202 I	tf Transfer		
284	F	20-Mar-91	87	102	JUNAGADH	20-Mar-91	255	Birth	PAMELA	1218
285	F	30-Mar-91	78	76	JUNAGADH	30-Mar-91	256	Birth		1219
						31-Mar-91		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
286	F	30-Mar-91	78	76	JUNAGADH	30-Mar-91	257	Birth		1220
						31-Mar-91		Death		
287	F	30-Mar-91	78	76	JUNAGADH	30-Mar-91	258	Birth		1121
						31-Mar-91		Death		
288	M	14-Jul-91	87	132	JUNAGADH	14-Jul-91	259	Birth	VINAY	1223
						3-Oct-92		Death		
289	F	14-Jul-91	87	132	JUNAGADH	14-Jul-91	260	Birth	RUKAMANI	1224
290	M	10-Aug-91	87	109	JUNAGADH	10-Aug-91	261	Birth	AMITABH	1225
					GIR SAFAR	25-Oct-98	UNK	Transfer		
					JUNAGADH	12-Jan-99	260	Transfer		
						10-Feb-03		Death		
291	M	21-Aug-91	78	76	JUNAGADH	21-Aug-91	262	Birth		1226
						22-Aug-91		Death		
292	M	21-Aug-91	78	76	JUNAGADH	21-Aug-91	263	Birth		1227
						22-Aug-91		Death		
293	F	21-Aug-91	78	76	JUNAGADH	21-Aug-91	264	Birth		1228
						27-Aug-91		Death		
294	M	29-Nov-91	78	UNK	JUNAGADH	29-Nov-91	265	Birth		1229
						2-Dec-91		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
295	M	29-Nov-91	78	UNK	JUNAGADH	29-Nov-91 2-Dec-91	266	Birth Death		1230
296	M	29-Nov-91	78	UNK	JUNAGADH	29-Nov-91 2-Dec-91	267	Birth Death		1231
297	M	13-Dec-91	78	76	JUNAGADH	13-Dec-91 13-Dec-91	268 267	Birth Transfer		1232
298	M	13-Dec-91	78	76	JUNAGADH	13-Dec-91 13-Dec-91	269	Birth Death		1233
299	F	????	WILD	WILD	GIR SANC JUNAGADH HYDERABAD	~ 1991 16-Dec-91 29-Nov-98	UNK 270 UNK	Capture Transfer Transfer	JAN	1258
300	M	30-Jun-91	WILD	WILD	GIR SANC JUNAGADH KANPUR	~ 1992 1-Jan-92 15-Nov-98 10-Feb-03	UNK 271 16KAN1	Capture Transfer Transfer Death	POUL	1257
301	M	1-Apr-92	228	229	JUNAGADH	1-Apr-92 3-Apr-92	272	Birth Death		1259
302	M	1-Apr-92	228	229	JUNAGADH	1-Apr-92	273	Birth		1260

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						3-Apr-92		Death		
303	F	1-Apr-92	228	229	JUNAGADH	1-Apr-92	274	Birth		1261
						3-Apr-92		Death		
304	F	1-Apr-92	228	229	JUNAGADH	1-Apr-92	275	Birth		
						29-Apr-92		Death		
305	M	20-May-90	87	244	JUNAGADH	20-May-90	276	Birth	MOHAN	1276
						14-Jun-94		Death		
306	M	20-May-90	87	244	JUNAGADH	20-May-90	277	Birth	ROHAN	1277
					SINGAPORE	14-May-94	UNK I	tf Transfer		
307	?	31-Jul-92	228	76	JUNAGADH	31-Jul-92	278	Birth		1263
						31-Jul-92		Death		
308	M	2-Aug-92	87	UNK	JUNAGADH	2-Aug-92	279	Birth		1264
						3-Aug-92		Death		
309	M	14-Sep-92	228	229	JUNAGADH	14-Sep-92	280	Birth		1265
						15-Sep-92		Death		
310	F	14-Sep-92	228	229	JUNAGADH	14-Sep-92	281	Birth		1266
						16-Sep-92		Death		
311	F	17-Sep-92	228	260	JUNAGADH	17-Sep-92	282	Birth		1267

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						20-Sep-92		Death		
312	M	12-Oct-92	228	261	JUNAGADH	12-Oct-92	283	Birth		1268
						14-Oct-92		Death		
313	F	12-Oct-92	228	261	JUNAGADH	12-Oct-92	284	Birth		1269
						17-Oct-92		Death		
314	F	12-Oct-92	228	261	JUNAGADH	12-Oct-92	285	Birth		1270
						12-Oct-92		Death		
315	F	12-Oct-92	228	261	JUNAGADH	12-Oct-92	286	Birth		1271
						31-Oct-92		Death		
316	M	27-Oct-92	78	101	RAJKOT	27-Oct-92	UNK	Birth	PARTH	
317	F	27-Oct-92	78	101	RAJKOT	27-Oct-92	UNK	Birth	BANSI	
318	M	8-Nov-92	228	259	JUNAGADH	8-Nov-92	287	Birth	DEVID	1272
						10-Dec-92		Death		
319	M	8-Nov-92	228	259	JUNAGADH	8-Nov-92	288	Birth	JOHN	1273
					DELHI	29-Aug-99	UNK	Transfer		
320	F	8-Nov-92	228	259	JUNAGADH	8-Nov-92	289	Birth	MARIA	1274

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
321	F	8-Nov-92	228	259	JUNAGADH	8-Nov-92 7-Dec-93	290	Birth Death	PENNY	1275
322	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1993 ~ 1993	UNK 291	Capture Transfer	ABHISHEK	
323	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1993 25-Jul-93 9-Nov-94	UNK 292	Capture Transfer Death		
324	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1994 13-Feb-94 8-Jun-02	UNK 293	Capture Transfer Death	KAMALA	
325	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1994 31-May-94 28-Jul-01	UNK 294	Capture Transfer Death	HEMRAJ	
326	F	21-Sep-94	108	122	HYDERABAD	21-Sep-94 15-Apr-96	AL0010	Birth Death	REKHA	
327	F	21-Sep-94	108	122	HYDERABAD	21-Sep-94 9-May-96	AL0011	Birth Death	RAKHI	
328	M	8-Dec-94	264	266	VEERMATA	8-Dec-94 12-Dec-94	UNK	Birth Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
329	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	295	Birth		
						29-Dec-94		Death		
330	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	296	Birth		
						20-Jan-95		Death		
331	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	297	Birth	KANCHAN	
332	F	25-Feb-95	325	260	JUNAGADH	25-Feb-95	298	Birth	RADHIKA	
333	F	25-Feb-95	325	260	JUNAGADH	25-Feb-95	299	Birth	ANITA	
					DELHI	29-Aug-99	UNK	Transfer		
334	M	????	WILD	WILD	GIR SANC	~ 1995	UNK	Capture	AKASH	
					JUNAGADH	28-Mar-95	300	Transfer		
					HYDERABAD	29-Nov-98	UNK	Transfer		
						4-Jun-99		Death		
335	F	16-Apr-95	325	259	JUNAGADH	16-Apr-95	301	Birth	AVANI	
					HYDERABAD	29-Nov-98	UNK	Transfer		
	F	16-Apr-95	325	259	JUNAGADH	16-Apr-95	302	Birth	DHARTI	
						17-Aug-00		Death		
	M	17-Apr-95	325	229	JUNAGADH	17-Apr-95	303	Birth		
						6-May-95		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
329	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	295	Birth		
						29-Dec-94		Death		
330	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	296	Birth		
						20-Jan-95		Death		
331	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	297	Birth	KANCHAN	
332	F	25-Feb-95	325	260	JUNAGADH	25-Feb-95	298	Birth	RADHIKA	
333	F	25-Feb-95	325	260	JUNAGADH	25-Feb-95	299	Birth	ANITA	
					DELHI	29-Aug-99	UNK	Transfer		
334	M	????	WILD	WILD	GIR SANC	~ 1995	UNK	Capture	AKASH	
					JUNAGADH	28-Mar-95	300	Transfer		
					HYDERABAD	29-Nov-98	UNK	Transfer		
						4-Jun-99		Death		
335	F	16-Apr-95	325	259	JUNAGADH	16-Apr-95	301	Birth	AVANI	
					HYDERABAD	29-Nov-98	UNK	Transfer		
336	F	16-Apr-95	325	259	JUNAGADH	16-Apr-95	302	Birth	DHARTI	
						17-Aug-00		Death		
337	M	17-Apr-95	325	229	JUNAGADH	17-Apr-95	303	Birth		
						6-May-95		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
321	F	8-Nov-92	228	259	JUNAGADH	8-Nov-92 7-Dec-93	290	Birth Death	PENNY	1275
322	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1993 ~ 1993	UNK 291	Capture Transfer	ABHISHEK	
323	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1993 25-Jul-93 9-Nov-94	UNK 292	Capture Transfer Death		
324	F	????	WILD	WILD	GIR SANC JUNAGADH	~ 1994 13-Feb-94 8-Jun-02	UNK 293	Capture Transfer Death	KAMALA	
325	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1994 31-May-94 28-Jul-01	UNK 294	Capture Transfer Death	HEMRAJ	
326	F	21-Sep-94	108	122	HYDERABAD	21-Sep-94 15-Apr-96	AL0010	Birth Death	REKHA	
327	F	21-Sep-94	108	122	HYDERABAD	21-Sep-94 9-May-96	AL0011	Birth Death	RAKHI	
328	M	8-Dec-94	264	266	VEERMATA	8-Dec-94 12-Dec-94	UNK	Birth Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
338	F	17-Apr-95	325	229	JUNAGADH	17-Apr-95 22-Apr-96	304	Birth Death		
339	M	3-Apr-95	264	266	VEERMATA	3-Apr-95 1-Feb-96	UNK	Birth Death	JAY	
340	M	3-Apr-95	264	266	VEERMATA	3-Apr-95 28-Mar-97	UNK	Birth Death	VIJAY	
341	F	3-Apr-95	264	266	VEERMATA	3-Apr-95 30-Nov-97	UNK	Birth Death	MONICA	
342	M	????	WILD	WILD	GIR SANC JUNAGADH	~ 1995 21-May-95 9-Jul-96	UNK 305	Capture Transfer Death	ASHOK	
343	M	3-Jun-95	325	289	JUNAGADH	3-Jun-95 8-Jun-95	306	Birth Death		
344	M	3-Jun-95	325	289	JUNAGADH	3-Jun-95 9-Feb-98	307	Birth Death	GARRY	
345	M	3-Jun-95	325	289	JUNAGADH	3-Jun-95 3-Jun-95	308	Birth Death		
346	M	12-Jun-95	325	268	JUNAGADH	12-Jun-95	309	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						8-Jul-96		Death		
347	M	12-Jun-95	325	268	JUNAGADH	12-Jun-95	310	Birth	VIJAY	
						9-May-97		Death		
348	F	12-Jun-95	325	268	JUNAGADH	12-Jun-95	311	Birth	EKTA	
					AHMEDABAD	12-Feb-99	UNK	Transfer		
349	F	12-Jun-95	325	268	JUNAGADH	12-Jun-95	312	Birth	AMI	
350	M	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	BACHAN	
351	F	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	DURGA	
						21-Apr-02		Death		
352	F	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	REENA	
353	F	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	REETA	
354	F	20-Sep-95	150	210	SHIMOGA	20-Sep-95	UNK	Birth	URMILA	
355	M	14-Nov-95	325	261	JUNAGADH	14-Nov-95	313	Birth	HANSRAJ	
					HYDERABAD	29-Nov-98	UNK	Transfer		
356	F	14-Nov-95	325	261	JUNAGADH	14-Nov-95	314	Birth	GURJARI	
					KANPUR	15-Nov-98	16KAN2	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						13-Jun-99		Death		
357	F	14-Nov-95	325	261	JUNAGADH	14-Nov-95	315	Birth	RAJVANTI	
358	M	21-Mar-96	342	289	JUNAGADH	21-Mar-96	316	Birth		
						7-Apr-96		Death		
359	M	21-Mar-96	342	289	JUNAGADH	21-Mar-96	316	Birth	SIMBHA	
						27-Nov-02		Death		
360	M	21-Mar-96	342	289	JUNAGADH	21-Mar-96	318	Birth	MUFASA	
					AHMEDABAD	12-Feb-99	UNK	Transfer		
361	F	21-Mar-96	342	289	JUNAGADH	21-Mar-96	319	Birth		
						24-Mar-96		Death		
362	F	21-Mar-96	342	289	JUNAGADH	21-Mar-96	320	Birth		
						24-Mar-96		Death		
363	F	1-Apr-96	264	266	VEERMATA	1-Apr-96	UNK	Birth	SEETA	
						22-Sep-96		Death		
364	F	1-Apr-96	264	266	VEERMATA	1-Apr-96	UNK	Birth	GEETA	
						29-Jan-97		Death		
365	F	25-Apr-96	300	267	JUNAGADH	25-Apr-96	321	Birth	SILKY	
					SILVASA	25-May-02	UNK	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
366	M	20-May-96	342	229	JUNAGADH	20-May-96 22-May-96	322	Birth Death		
367	F	20-May-96	342	229	JUNAGADH	20-May-96	323	Birth	ASHWINI	
368	M	21-Mar-96	108	122	HYDERABAD	21-Mar-96 18-Mar-97	AL0012	Birth Death	SHAM	
369	M	21-Mar-96	108	122	HYDERABAD	21-Mar-96 25-Oct-97	AL0013	Birth Death	SANDEEP	
370	M	21-Mar-96	108	122	HYDERABAD	21-Mar-96	AL0014	Birth	SIDDHARATH	
371	F	31-Aug-96	300	267	JUNAGADH	31-Aug-96 31-Aug-96	324	Birth Death		
372	F	12-Sep-96	325	260	JUNAGADH	12-Sep-96 20-Sep-96	325	Birth Death		
373	?	17-Sep-96	325	259	JUNAGADH	17-Sep-96 18-Sep-96	326	Birth Death		
374	M	26-Jan-97	334	270	JUNAGADH	26-Jan-97 5-Aug-98	327	Birth Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
375	F	26-Jan-97	334	270	JUNAGADH	26-Jan-97	328	Birth		
						5-Feb-97		Death		
376	F	26-Jan-97	334	270	JUNAGADH	26-Jan-97	329	Birth		
						12-Feb-97		Death		
377	F	26-Jan-97	334	270	JUNAGADH	26-Jan-97	330	Birth	MAYURI	
378	M	30-Jan-97	325	260	JUNAGADH	30-Jan-97	331	Birth		
						28-Mar-97		Death		
379	F	30-Jan-97	325	260	JUNAGADH	30-Jan-97	332	Birth		
						1-Feb-97		Death		
380	M	14-Feb-97	300	267	JUNAGADH	14-Feb-97	333	Birth		
						3-Mar-97		Death		
381	F	14-Feb-97	300	267	JUNAGADH	14-Feb-97	334	Birth	RANI	
						18-Oct-02		Death		
382	F	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0015	Birth	UMA	
383	F	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0016	Birth	CHANDANI	
384	F	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0017	Birth	GAURI	
385	M	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0018	Birth	SANKAR	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
386	M	19-Apr-97	334	241	JUNAGADH	19-Apr-97	335	Birth		
						19-Apr-97		Death		
387	M	19-Apr-97	334	241	JUNAGADH	19-Apr-97	336	Birth		
						19-Apr-97		Death		
388	M	19-Apr-97	334	241	JUNAGADH	19-Apr-97	337	Birth		
						19-Apr-97		Death		
389	M	1-May-97	334	246	JUNAGADH	1-May-97	338	Birth		
						1-May-97		Death		
390	F	1-May-97	334	246	JUNAGADH	1-May-97	339	Birth		
						1-May-97		Death		
391	M	1-May-97	334	246	JUNAGADH	1-May-97	340	Birth		
						4-May-97		Death		
392	M	1-May-97	334	246	JUNAGADH	1-May-97	341	Birth		
						????		Death		
393	M	27-Jul-97	325	260	JUNAGADH	27-Jul-97	342	Birth	ROHIT	
						2-Jul-02		Death		
394	?	20-Sep-97	334	246	JUNAGADH	20-Sep-97	343	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						20-Sep-97		Death		
395	?	20-Sep-97	334	246	JUNAGADH	20-Sep-97	344	Birth		
						22-Sep-97		Death		
396	F	20-Sep-97	334	246	JUNAGADH	20-Sep-97	345	Birth		
						24-Sep-97		Death		
397	M	18-Oct-97	319	299	JUNAGADH	18-Oct-97	346	Birth		
						18-Oct-97		Death		
398	M	18-Oct-97	319	299	JUNAGADH	18-Oct-97	347	Birth		
						19-Oct-97		Death		
399	F	18-Oct-97	319	299	JUNAGADH	18-Oct-97	348	Birth		
						20-Oct-97		Death		
400	M	????	WILD	WILD	GIR SANC	~ 1997	UNK	Capture	JOGI	
					JUNAGADH	16-Nov-97	UNK	Transfer		
401	M	????	WILD	WILD	GIR SANC	17-Dec-97	UNK	Capture		
					JUNAGADH	18-Dec-97	UNK	Transfer		
						20-Dec-97		Death		
402	F	28-Jan-98	334	241	JUNAGADH	28-Jan-98	349	Birth		
						28-Jan-98		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
403	F	28-Jan-98	334	241	JUNAGADH	28-Jan-98	350	Birth		
						29-Jan-98		Death		
404	M	28-Jan-98	334	241	JUNAGADH	28-Jan-98	351	Birth		
						29-Jan-98		Death		
405	F	28-Jan-98	334	241	JUNAGADH	28-Jan-98	352	Birth		
						31-Jan-98		Death		
406	M	28-Mar-98	334	246	JUNAGADH	28-Mar-98	353	Birth		
						28-Mar-98		Death		
407	M	28-Mar-98	334	246	JUNAGADH	28-Mar-98	354	Birth	LAV	
					DELHI	29-Aug-99	UNK	Transfer		
408	M	28-Mar-98	334	246	JUNAGADH	28-Mar-98	355	Birth	KUSH	0
					SILVASA	25-Feb-02	UNK	Transfer		
409	F	28-Mar-98	334	246	JUNAGADH	28-Mar-98	356	Birth	AMI	
						5-Mar-02		Death		
410	F	28-Mar-98	334	246	JUNAGADH	28-Mar-98	357	Birth	PAMI	
411	F	22-Sep-98	322	320	JUNAGADH	22-Sep-98	358	Birth		
						23-Sep-98		Death		
412	F	22-Sep-98	322	320	JUNAGADH	22-Sep-98	359	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						23-Sep-98		Death		
413	F	22-Sep-98	322	320	JUNAGADH	22-Sep-98	360	Birth		
						24-Sep-98		Death		
414	F	22-Sep-98	322	320	JUNAGADH	22-Sep-98	361	Birth		
						29-Oct-98		Death		
415	F	1-Oct-98	400	335	JUNAGADH	1-Oct-98	362	Birth		
						1-Oct-98		Death		
416	M	1-Oct-98	400	335	JUNAGADH	1-Oct-98	363	Birth		
						3-Oct-98		Death		
417	M	1-Nov-98	300	WILD	GIR SAFAR	1-Nov-98	UNK	Birth		
						1-Nov-98		Death		
418	M	1-Nov-98	300	WILD	GIR SAFAR	1-Nov-98	UNK	Birth		
						1-Nov-98		Death		
419	M	1-Nov-98	300	WILD	GIR SAFAR	1-Nov-98	UNK	Birth		
					JUNAGADH	4-Nov-98	UNK	Transfer		
						5-Nov-98		Death		
420	M	1-Nov-98	300	WILD	GIR SAFAR	1-Nov-98	UNK	Birth		
					JUNAGADH	4-Nov-98	UNK	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						5-Nov-98		Death		
421	F	2-Nov-98	300	WILD	GIR SAFAR JUNAGADH	2-Nov-98 5-Nov-98 8-May-00	UNK 375	Birth Transfer Death	RIDDHI	
422	F	2-Nov-98	300	WILD	GIR SAFAR JUNAGADH	2-Nov-98 5-Nov-98 8-May-00	UNK 376	Birth Transfer Death	SIDDHI	
423	F	10-Feb-87	121	130	VANVIHAR	10-Feb-87 14-Feb-87	UNK	Birth Death		
424	F	10-Feb-87	121	130	VANVIHAR	10-Feb-87 14-Feb-87	UNK	Birth Death		
425	M	10-Feb-87	121	130	VANVIHAR	10-Feb-87 15-Feb-87	UNK	Birth Death		
426	M	16-Oct-91	108	122	HYDERABAD	16-Oct-91 2-Sep-93	5	Birth Death	SANKAR	
427	F	16-Oct-91	108	122	HYDERABAD	16-Oct-91 24-Nov-92	6	Birth Death	PARU	
428	M	~ 1996	WILD	WILD	GIR SANC JUNAGADH	~ 1999 18-Dec-99	UNK 393	Capture Transfer	KHOKAR	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
429	M	~ 1996	WILD	WILD	GIR SANC JUNAGADH GIR SANC	~ 1999 18-Dec-99 8-Mar-00	UNK 394	Capture Transfer Death	VIKRAM	
430	F	7-Feb-96	84	176	BANNERGHA	7-Feb-96	UNK	Birth	SEEBA	
431	M	28-Nov-96	177	179	BANNERGHA	28-Nov-96	UNK	Birth	GANESHA	
432	F	28-Nov-96	177	176	BANNERGHA	28-Nov-96 24-Nov-99	UNK	Birth Death		
433	M	~ 1998	WILD	WILD	GIR SANC JUNAGADH	~ 1999 5-Mar-99 23-Dec-99	UNK 377	Capture Transfer Death	LANGA	
434	F	9-Dec-98	177	179	BANNERGHA	9-Dec-98	UNK	Birth	GANGA	
435	F	9-Dec-98	177	179	BANNERGHA	9-Dec-98	UNK	Birth	GAURI	
436	M	16-Jan-99	325	260	JUNAGADH	16-Jan-99	365	Birth	BHOLO	
437	F	16-Jan-99	325	260	JUNAGADH	16-Jan-99	366	Birth		
438	M	3-Feb-99	400	333	JUNAGADH	3-Feb-99 3-Feb-99	367	Birth Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
439	F	8-Feb-99	322	320	JUNAGADH	8-Feb-99	368	Birth		
						13-Feb-99		Death		
440	F	10-Feb-99	322	320	JUNAGADH	10-Feb-99	369	Birth		
						12-Feb-99		Death		
441	M	2-Mar-99	400	332	JUNAGADH	2-Mar-99	370	Birth	SACHIN	
442	F	2-Mar-99	400	332	JUNAGADH	2-Mar-99	371	Birth	SWATI	
443	F	2-Mar-99	400	332	JUNAGADH	2-Mar-99	372	Birth	SONAL	
					SILVASA	5-Sep-02	UNK	Transfer		
444	F	2-Mar-99	400	332	JUNAGADH	2-Mar-99	273	Birth	SUCHI	
445	M	2-Mar-99	400	332	JUNAGADH	2-Mar-99	374	Birth		
						6-Mar-99		Death		
446	M	17-Mar-99	322	289	JUNAGADH	17-Mar-99	378	Birth	SANKAR	
						16-Dec-00		Death		
447	F	17-Mar-99	322	289	JUNAGADH	17-Mar-99	379	Birth		
						28-Mar-99		Death		
448	M	13-Jun-99	300	356	KANPUR	13-Jun-99	UNK	Birth	KARGIL	
						5-Oct-99		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
449	M	21-Jun-99	400	333	JUNAGADH	21-Jun-99	380	Birth	SHAMBU	
450	F	21-Jun-99	400	333	JUNAGADH	21-Jun-99	381	Birth		
						21-Jun-99		Death		
451	M	21-Jun-99	400	333	JUNAGADH	21-Jun-99	382	Birth		
						22-Jun-99		Death		
452	M	21-Jun-99	400	333	JUNAGADH	21-Jun-99	383	Birth		
						24-Jun-99		Death		
453	M	~ 1999	WILD	WILD	GIR SANC	~ 2000	UNK	Capture	SAVAN	
					JUNAGADH	27-Apr-00	395	Transfer		
454	F	7-Sep-99	334	125	HYDERABAD	7-Sep-99	UNK	Birth	RITA	
455	M	7-Sep-99	334	125	HYDERABAD	7-Sep-99	UNK	Birth	ATUL	
456	F	24-Oct-99	400	246	JUNAGADH	24-Oct-99	384	Birth		
						24-Oct-99		Death		
457	F	24-Oct-99	400	246	JUNAGADH	24-Oct-99	385	Birth		
						24-Oct-99		Death		
458	F	24-Oct-99	400	246	JUNAGADH	24-Oct-99	386	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						25-Oct-99		Death		
459	?	12-Nov-99	400	365	JUNAGADH	12-Nov-99	387	Birth		
						13-Nov-99		Death		
460	M	12-Nov-99	400	365	JUNAGADH	12-Nov-99	388	Birth		
						13-Nov-99		Death		
461	M	11-Dec-99	322	320	JUNAGADH	11-Dec-99	389	Birth		
						29-Apr-00		Death		
462	M	11-Dec-99	322	320	JUNAGADH	11-Dec-99	390	Birth		
						29-Apr-00		Death		
463	F	11-Dec-99	322	320	JUNAGADH	11-Dec-99	391	Birth		
						25-Apr-00		Death		
464	F	11-Dec-99	322	320	JUNAGADH	11-Dec-99	392	Birth		
						11-Apr-00		Death		
465	M	~ 2000	WILD	WILD	GIR SANC	~ 2000	UNK	Capture	JATIN	
					JUNAGADH	27-Apr-00	396	Transfer		
						1-Jun-01		Death		
466	M	2-May-00	400	246	JUNAGADH	2-May-00	397	Birth		
						2-May-00		Death		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
467	F	2-May-00	400	246	JUNAGADH	2-May-00	398	Birth		
						2-May-00		Death		
468	F	2-May-00	400	246	JUNAGADH	2-May-00	399	Birth		
						3-May-00		Death		
469	M	10-May-00	400	336	JUNAGADH	10-May-00	400	Birth		
						10-May-00		Death		
470	F	27-Jun-95	WILD	184	GIR SAFAR	27-Jun-95	UNK	Birth	BABITA	
471	F	27-Jun-95	WILD	184	GIR SAFAR	27-Jun-95	UNK	Birth	SANGEETA	
472	?	19-Jan-00	WILD	471	GIR SAFAR	19-Jan-00	UNK	Birth		
						19-Jan-00		Death		
473	?	19-Jan-00	WILD	471	GIR SAFAR	19-Jan-00	UNK	Birth		
						19-Jan-00		Death		
474	?	19-Jan-00	WILD	471	GIR SAFAR	19-Jan-00	UNK	Birth		
						19-Jan-00		Death		
476	M	19-Jan-00	370	299	HYDERABAD	19-Jan-00	27	Birth	AMAR	
					VEERMATA	23-Aug-02	UNK	Transfer		
477	M	19-Jan-00	370	299	HYDERABAD	19-Jan-00	28	Birth	AJAY	

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National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
478	M	19-Jan-00	370	299	HYDERABAD	19-Jan-00	29	Birth	AMRUTH	
479	M	19-Jan-00	370	299	HYDERABAD	19-Jan-00	30	Birth	PRANAY	
480	F	12-Mar-00	UNK	267	HYDERABAD	12-Mar-00	31	Birth	CHOUNMI	
					KANPUR	22-Feb-03	UNK	Transfer		
481	M	12-Mar-00	UNK	267	HYDERABAD	12-Mar-00	32	Birth		
482	F	12-Mar-00	UNK	267	HYDERABAD	12-Mar-00	33	Birth	CHITRA	
					KANPUR	22-Feb-03	UNK	Transfer		
483	M	9-Apr-00	431	430	BANNERGHA	9-Apr-00	UNK	Birth	RANGANATHA	
484	F	9-Apr-00	431	430	BANNERGHA	9-Apr-00	UNK	Birth		
						9-Apr-00		Death		
485	M	16-Apr-00	319	333	DELHI	16-Apr-00	UNK	Birth		
						16-Apr-00		Death		
486	F	16-Apr-00	319	333	DELHI	16-Apr-00	UNK	Birth	SARAWATI	
487	F	16-Apr-00	319	333	DELHI	16-Apr-00	UNK	Birth	SARASWATI	
						16-Apr-00		Death		
488	M	20-Apr-00	UNK	UNK	HYDERABAD	20-Apr-00	34	Birth	NAGESH	

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
489	F	20-Apr-00	UNK	UNK	HYDERABAD	20-Apr-00	35	Birth	SOWS	
490	?	8-Nov-00	400	246	JUNAGADH	8-Nov-00	401	Birth		
						8-Nov-00		Death		
491	?	21-Nov-00	322	357	JUNAGADH	21-Nov-00	402	Birth		
						21-Nov-00		Death		
492	M	3-Dec-00	400	332	JUNAGADH	3-Dec-00	406	Birth	ATAL	
						7-Aug-01		Death		
493	F	3-Dec-00	400	332	JUNAGADH	3-Dec-00	407	Birth	AMRIN	
						15-Oct-01		Death		
494	F	3-Dec-00	400	332	JUNAGADH	3-Dec-00	408	Birth	KAJAL	
						20-Oct-01		Death		
495	F	17-Apr-01	322	357	JUNAGADH	17-Apr-01	403	Birth	DIKU	
496	F	17-Apr-01	322	357	JUNAGADH	17-Apr-01	404	Birth	BITTU	
497	F	17-Apr-01	322	357	JUNAGADH	17-Apr-01	405	Birth		
						24-Apr-01		Death		
498	F	25-Jul-01	322	377	JUNAGADH	25-Jul-01	409	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
						26-Jul-01		Death		
499	M	25-Jul-01	322	377	JUNAGADH	25-Jul-01	410	Birth		
						26-Jul-01		Death		
500	F	25-Jul-01	322	377	JUNAGADH	25-Jul-01	411	Birth		
						22-Aug-01		Death		
501	M	25-Jul-01	322	377	JUNAGADH	25-Jul-01	412	Birth		
						25-Jul-01		Death		
502	F	30-Jul-01	408	320	JUNAGADH	30-Jul-01	413	Birth		
						10-Aug-01		Death		
503	M	30-Jul-01	408	320	JUNAGADH	30-Jul-01	414	Birth		
						1-Aug-01		Death		
504	M	30-Jul-01	408	320	JUNAGADH	30-Jul-01	415	Birth		
						1-Aug-01		Death		
505	F	10-Sep-01	322	377	JUNAGADH	10-Sep-01	416	Birth		
						11-Sep-01		Death		
506	M	~ 1988	WILD	WILD	GIR SANC	~ 2001	UNK	Capture	JOGAL	
					JUNAGADH	22-Nov-01	UNK	Transfer		
					GIR SANC	19-Feb-02	UNK	Release		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
507	M	26-Jan-02	322	377	JUNAGADH	26-Jan-02	417	Birth		
						26-Jan-02		Death		
508	M	26-Jan-02	322	377	JUNAGADH	26-Jan-02	418	Birth		
						26-Jan-02		Death		
509	F	26-Jan-02	322	377	JUNAGADH	26-Jan-02	419	Birth		
						29-Jan-02		Death		
510	M	26-Jan-02	400	332	JUNAGADH	26-Jan-02	420	Birth		
						8-Jan-03		Death		
511	M	26-Jan-02	400	332	JUNAGADH	26-Jan-02	421	Birth		
						2-Feb-02		Death		
512	M	26-Jan-02	400	332	JUNAGADH	26-Jan-02	422	Birth		
						29-Jan-02		Death		
513	F	26-Jan-02	400	332	JUNAGADH	26-Jan-02	423	Birth	SHYAMA	
514	F	~ Feb 2002	WILD	WILD	GIR SANC	~ 2002	UNK	Capture	DODHI	
					JUNAGADH	15-Apr-02	424	Transfer		
						11-Dec-02		Death		
515	M	~ 1999	WILD	WILD	GIR SANC	~ 2002	UNK	Capture	GHAGHAS	
					JUNAGADH	1-Apr-02	425	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
516	M	29-Sep-02	515	444	JUNAGADH	29-Sep-02	426	Birth		
						30-Sep-02		Death		
517	M	29-Sep-02	515	444	JUNAGADH	29-Sep-02	427	Birth		
						30-Sep-02		Death		
518	?	29-Sep-02	515	444	JUNAGADH	29-Sep-02	428	Birth		
						30-Sep-02		Death		
519	M	~ Oct 2002	WILD	WILD	GIR SANC	~ Oct 2002	UNK	Capture	RAM	
					JUNAGADH	27-Oct-02	429	Transfer		
						9-Apr-03		Death		
520	M	~ Oct 2002	WILD	WILD	GIR SANC	~ Oct 2002	UNK	Capture	SHYAM	
					JUNAGADH	4-Oct-02	430	Transfer		
						20-May-03		Death		
521	F	4-Nov-02	400	377	JUNAGADH	4-Nov-02	431	Birth		
						10-Nov-02		Death		
522	F	~ Nov 1999	WILD	WILD	GIR SANC	~ Apr 2001	UNK	Capture	TULSI	
					JUNAGADH	22-Apr-01	432	Transfer		
523	M	22-Jan-03	319	333	DELHI	22-Jan-03	UNK	Birth		
						22-Jan-03		Death		

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National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
524	F	22-Jan-03	319	333	DELHI	22-Jan-03	UNK	Birth		
						22-Jan-03		Death		
525	M	25-Jan-03	515	442	JUNAGADH	25-Jan-03	433	Birth		
						25-Jan-03		Death		
526	F	~ Nov 2002	WILD	WILD	GIR SANC	~ Feb 2003	UNK	Capture	SATYABHAMA	
					JUNAGADH	5-Feb-03	434	Transfer		
527	F	11-Feb-03	400	246	JUNAGADH	11-Feb-03	435	Birth		
						20-Feb-03		Death		
528	F	24-Jun-03	400	357	JUNAGADH	24-Jun-03	436	Birth		
						24-Jun-03		Death		
529	F	24-Jun-03	400	357	JUNAGADH	24-Jun-03	437	Birth		
						24-Jun-03		Death		
530	M	16-Mar-03	400	332	JUNAGADH	16-Mar-03	438	Birth		
						9-Nov-03		Death		
531	M	16-Mar-03	400	332	JUNAGADH	16-Mar-03	439	Birth		
						30-Sep-03		Death		
532	M	25-Mar-03	400	377	JUNAGADH	25-Mar-03	440	Birth		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
533	M	????	WILD	WILD	GIR SANC	~ 2003	UNK	Capture	JANAK	
					JUNAGADH	25-Mar-03	443	Transfer		
534	M	????	WILD	WILD	GIR SANC	~ Jun 2003	UNK	Capture	DEBRAJ	
					JUNAGADH	12-Jun-03	444	Transfer		
535	M	5-Jul-03	WILD	470	GIR SAFAR	5-Jul-03	UNK	Birth		
						10-Jul-03		Death		
536	F	5-Jul-03	WILD	470	GIR SAFAR	5-Jul-03	UNK	Birth		
						16-Jul-03		Death		
537	F	5-Jul-03	WILD	470	GIR SAFAR	5-Jul-03	UNK	Birth		
538	F	5-Jul-03	WILD	470	GIR SAFAR	5-Jul-03	UNK	Birth		
539	M	5-Jul-03	WILD	470	GIR SAFAR	5-Jul-03	UNK	Birth		
540	?	23-Jul-03	400	246	JUNAGADH	23-Jul-03	441	Birth		
						26-Jul-03		Death		
541	?	23-Jul-03	400	246	JUNAGADH	23-Jul-03	442	Birth		
						26-Jul-03		Death		
542	F	~ 2003	WILD	WILD	GIR SANC	~ 2003	UNK	Capture	MAMTA	
					JUNAGADH	13-Aug-03	445	Transfer		

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
543	F	25-Oct-03	400	377	JUNAGADH	25-Oct-03	446	Birth		
						25-Oct-03		Death		
544	F	25-Oct-03	400	377	JUNAGADH	25-Oct-03	447	Birth		
						25-Oct-03		Death		
545	F	25-Oct-03	400	377	JUNAGADH	25-Oct-03	448	Birth		
						25-Oct-03		Death		
546	F	25-Oct-03	400	377	JUNAGADH	25-Oct-03	449	Birth		
						25-Oct-03		Death		
547	M	27-Oct-03	UNK	442	JUNAGADH	27-Oct-03	450	Birth		
						27-Oct-03		Death		
548	?	27-Oct-03	UNK	442	JUNAGADH	27-Oct-03	451	Birth		
						27-Oct-03		Death		

TOTALS: 224.274.48 (546)

Section 2

Current Living Population of Asiatic lions by Location as on 30th September, 2002

National Stud #	Sex	Birth Date	Sire	Dam	Location	Date	Local ID	Event	Name	Int. Stud #
Kamla Nehru Zoological Garden, Ahmedabad, Gujarat										
348	F	12-Jun-95	325	268	JUNAGADH	12-Jun-95	311	Birth	EKTA	
					AHMEDABAD	12-Feb-99	UNK	Transfer		
360	M	21-Mar-96	342	289	JUNAGADH	21-Mar-96	318	Birth	MUFASA	
					AHMEDABAD	12-Feb-99	UNK	Transfer		
Totals:	1.1.0	-2								
Bannerghatta National Park and Zoological Garden, Bangalore, Karnataka										
179	F	26-Jun-90	84	176	BANNERGHA	26-Jun-90	UNK	Birth	MADHURI	
247	F	3-Apr-89	78	76	JUNAGADH	3-Apr-89	218	Birth	VRUNDA	1189
					MYSORE	20-Dec-89	ZAK01	Transfer		
					BANNERGHA	4-Oct-02	UNK	Transfer		
430	F	7-Feb-96	84	176	BANNERGHA	7-Feb-96	UNK	Birth	SEEBA	
431	M	28-Nov-96	177	179	BANNERGHA	28-Nov-96	UNK	Birth	GANESHA	
434	F	9-Dec-98	177	179	BANNERGHA	9-Dec-98	UNK	Birth	GANGA	
435	F	9-Dec-98	177	179	BANNERGHA	9-Dec-98	UNK	Birth	GAURI	
483	M	9-Apr-00	431	430	BANNERGHA	9-Apr-00	UNK	Birth	RANGANATHAN	

Totals:	2.5.0	-7								
National Zoological Park, N.Delhi										
252	F	10-Apr-89	WILD	244	JUNAGADH	10-Apr-89	223	Birth	SULAXNA	1191
					DELHI	25-Jan-91	UNK	Transfer		
319	M	8-Nov-92	228	259	JUNAGADH	8-Nov-92	288	Birth	JOHN	1273
					DELHI	29-Aug-99	UNK	Transfer		
333	F	25-Feb-95	325	260	JUNAGADH	25-Feb-95	299	Birth	ANITA	
					DELHI	29-Aug-99	UNK	Transfer		
407	M	28-Mar-98	334	246	JUNAGADH	28-Mar-98	354	Birth	LAV	
					DELHI	29-Aug-99	UNK	Transfer		
Totals:	2.2.0	-4								
Nehru Zoological Park, Hyderabad, Andhra Pradesh										
267	F	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	CAROL	1249
					JUNAGADH	1-Mar-90	238	Transfer		
					HYDERABAD	29-Nov-98	UNK	Transfer		
299	F	????	WILD	WILD	GIR SANC	~ 1991	UNK	Capture	JAN	1258
					JUNAGADH	16-Dec-91	270	Transfer		
					HYDERABAD	29-Nov-98	UNK	Transfer		
335	F	16-Apr-95	325	259	JUNAGADH	16-Apr-95	301	Birth	AVANI	
					HYDERABAD	29-Nov-98	UNK	Transfer		
355	M	14-Nov-95	325	261	JUNAGADH	14-Nov-95	313	Birth	HANSRAJ	
					HYDERABAD	29-Nov-98	UNK	Transfer		
370	M	21-Mar-96	108	122	HYDERABAD	21-Mar-96	AL0014	Birth	SIDDHARATH	
382	F	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0015	Birth	UMA	
383	F	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0016	Birth	CHANDANI	
384	F	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0017	Birth	GAURI	
385	M	21-Mar-97	108	125	HYDERABAD	21-Mar-97	AL0018	Birth	SANKAR	
454	F	7-Sep-99	334	125	HYDERABAD	7-Sep-99	UNK	Birth	RITA	
455	M	7-Sep-99	334	125	HYDERABAD	7-Sep-99	UNK	Birth	ATUL	
488	M	20-Apr-00	UNK	UNK	HYDERABAD	20-Apr-00	34	Birth	NAGESH	

489	F	20-Apr-00	UNK	UNK	HYDERABAD	20-Apr-00	35	Birth	SOWS	
Totals:	5.8.0	-13								
Sakkarbaug Zoo, Junagadh, Gujarat										
246	F	3-Apr-89	78	76	JUNAGADH	3-Apr-89	217	Birth	CHANDRA	1188
269	F	9-Jun-90	87	132	JUNAGADH	9-Jun-90	240	Birth	MADHURI	1256
284	F	20-Mar-91	87	102	JUNAGADH	20-Mar-91	255	Birth	PAMELA	1218
289	F	14-Jul-91	87	132	JUNAGADH	14-Jul-91	260	Birth	RUKAMANI	1224
297	M	13-Dec-91	78	76	JUNAGADH	13-Dec-91	268	Birth		1232
						13-Dec-91	267	Transfer		
320	F	8-Nov-92	228	259	JUNAGADH	8-Nov-92	289	Birth	MARIA	1274
322	M	????	WILD	WILD	GIR SANC	~ 1993	UNK	Capture	ABHISHEK	
					JUNAGADH	~ 1993	291	Transfer		
331	F	18-Dec-94	325	261	JUNAGADH	18-Dec-94	297	Birth	KANCHAN	
332	F	25-Feb-95	325	260	JUNAGADH	25-Feb-95	298	Birth	RADHIKA	
349	F	12-Jun-95	325	268	JUNAGADH	12-Jun-95	312	Birth	AMI	
357	F	14-Nov-95	325	261	JUNAGADH	14-Nov-95	315	Birth	RAJVANTI	
367	F	20-May-96	342	229	JUNAGADH	20-May-96	323	Birth	ASHWINI	
377	F	26-Jan-97	334	270	JUNAGADH	26-Jan-97	330	Birth	MAYURI	
400	M	????	WILD	WILD	GIR SANC	~ 1997	UNK	Capture	JOGI	
					JUNAGADH	16-Nov-97	UNK	Transfer		
410	F	28-Mar-98	334	246	JUNAGADH	28-Mar-98	357	Birth	PAMI	
428	M	~ 1996	WILD	WILD	GIR SANC	~ 1999	UNK	Capture	KHOKAR	
					JUNAGADH	18-Dec-99	393	Transfer		
436	M	16-Jan-99	325	260	JUNAGADH	16-Jan-99	365	Birth	BHOLO	
437	F	16-Jan-99	325	260	JUNAGADH	16-Jan-99	366	Birth		
441	M	2-Mar-99	400	332	JUNAGADH	2-Mar-99	370	Birth	SACHIN	

442	F	2-Mar-99	400	332	JUNAGADH	2-Mar-99	371	Birth	SWATI
444	F	2-Mar-99	400	332	JUNAGADH	2-Mar-99	273	Birth	SUCHI
449	M	21-Jun-99	400	333	JUNAGADH	21-Jun-99	380	Birth	SHAMBU
453	M	~ 1999	WILD	WILD	GIR SANC	~ 2000	UNK	Capture	SAVAN
					JUNAGADH	27-Apr-00	395	Transfer	
515	M	~ 1999	WILD	WILD	GIR SANC	~ 2002	UNK	Capture	GHAGHAS
					JUNAGADH	1-Apr-02	425	Transfer	
522	F	~ Nov 1999	WILD	WILD	GIR SANC	~ Apr 2001	UNK	Capture	TULSI
					JUNAGADH	22-Apr-01	432	Transfer	
526	F	~ Nov 2002	WILD	WILD	GIR SANC	~ Feb 2003	UNK	Capture	SATYABHAMA
					JUNAGADH	5-Feb-03	434	Transfer	
533	M	????	WILD	WILD	GIR SANC	~ 2003	UNK	Capture	JANAK
					JUNAGADH	25-Mar-03	443	Transfer	
534	M	????	WILD	WILD	GIR SANC	~ Jun 2003	UNK	Capture	DEBRAJ
					JUNAGADH	12-Jun-03	444	Transfer	
542	F	~ 2003	WILD	WILD	GIR SANC	~ 2003	UNK	Capture	MAMTA
					JUNAGADH	13-Aug-03	445	Transfer	
Totals:	11.18	.0 (29)							
Kanpur Zoological Park, Kanpur , Uttar Pradesh									
480	F	12-Mar-00	UNK	267	HYDERABAD	12-Mar-00	31	Birth	CHOUNMI
					KANPUR	22-Feb-03	UNK	Transfer	
482	F	12-Mar-00	UNK	267	HYDERABAD	12-Mar-00	33	Birth	CHITRA
					KANPUR	22-Feb-03	UNK	Transfer	
Totals:	0.2.0	-2							
Lucknow Zoological Park, U.P									
124	F	13-Apr-93	108	122	HYDERABAD	13-Apr-93	AL0007	Birth	NANDINI
					LUCKNOW	21-Sep-96	UNK	Transfer	
Totals:	0.1.0	-1							
Arignar Anna Zoological Park, Vandalur, Tamil Nadu									
164	M	8-Oct-90	163	162	MADRAS	8-Oct-90	UNK	Birth	SURYA

350	M	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	BACHAN	
352	F	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	REENA	
353	F	22-Aug-95	164	166	MADRAS	22-Aug-95	UNK	Birth	REETA	
Totals:	2.2.0	-4								
Rajkot Municipal Corporation Zoo, Gujarat										
316	M	27-Oct-92	78	101	RAJKOT	27-Oct-92	UNK	Birth	PARTH	
317	F	27-Oct-92	78	101	RAJKOT	27-Oct-92	UNK	Birth	BANSI	
Totals:	1.1.0	-2								
Children's Park Mini Zoo, Shimoga, Karnataka										
206	F	2-Aug-86	99	100	JUNAGADH	2-Aug-86	179	Birth	PRIYANKA	1147
					SHIMOGA	6-Apr-88	UNK	Transfer		
210	F	24-Oct-86	83	85	JUNAGADH	24-Oct-86	183	Birth	JYOTI	1151
					SHIMOGA	6-Apr-88	UNK	Transfer		
212	F	30-Nov-93	150	210	SHIMOGA	30-Nov-93	UNK	Birth	RASHMI	1152
354	F	20-Sep-95	150	210	SHIMOGA	20-Sep-95	UNK	Birth	URMILA	
Totals:	0.4.0	-4								
Lion Safari, Silvassa										
365	F	25-Apr-96	300	267	JUNAGADH	25-Apr-96	321	Birth	SILKY	
					SILVASA	25-May-02	UNK	Transfer		
408	M	28-Mar-98	334	246	JUNAGADH	28-Mar-98	355	Birth	KUSH	
					SILVASA	25-Feb-02	UNK	Transfer		
443	F	2-Mar-99	400	332	JUNAGADH	2-Mar-99	372	Birth	SONAL	
					SILVASA	5-Sep-02	UNK	Transfer		
Totals:	1.2.0	-3								
Vanvihar National Park, Bhopal, M.P										
130	F	7-Sep-83	69	25	JUNAGADH	7-Sep-83	109	Birth	GIRA / RAN	
					VANVIHAR	25-Sep-86	UNK	Transfer		
140	F	17-Jul-84	78	75	JUNAGADH	17-Jul-84	119	Birth	JUNA	1092

					VANVIHAR	31-May-89	UNK	Transfer		
Totals:	0.2.0	-2								
Veermata Jijabai Bhosle Udhyan & Zoo, Mumbai, Maharashtra										
266	F	????	WILD	WILD	GIR SANC	~ 1990	UNK	Capture	ANITA	1248
					JUNAGADH	1-Mar-90	237	Transfer		
					VEERMATA	19-Mar-91	UNK	Transfer		
476	M	19-Jan-00	370	299	HYDERABAD	19-Jan-00	27	Birth	AMAR	
					VEERMATA	23-Aug-02	UNK	Transfer		
Totals:	1.1.0	-2								

Appendix I

Glossary

Age Distribution -- A two-way classification showing the numbers or percentages of individuals in various age and sex classes.

Population Growth Rate (Lambda, λ) -- The proportional change in population size from one year to the next. Lambda can be based on life-table calculations (the expected lambda) or from observed changes in population size from year to year. A lambda of 1.11 means a 11% per year increase; lambda of .97 means a 3% decline in size per year.

Px, Age-Specific Survival – The probability that an individual of age *x* survives one time period; is conditional on an individual being alive at the beginning of the time period. Alternatively, the proportion of individuals which survive from the beginning of one age class to the next.

Qx, Mortality – Probability that an individual of age *x* dies during time period. Qx = 1-Px The proportion of individuals that die during an age class. It is calculated from the number of animals that die during an age class divided by the number of animals that were alive at the beginning of the age class (i.e.-"at risk").

lx, Age-Specific Survivorship – The probability that a new individual (e.g., age 0) is alive at the *beginning* of age *x*. Alternatively, the proportion of individuals which survive from birth to the beginning of a specific age class.

Mx, Fecundity – The average number of same-sexed young born to animals in that age class. Because SPARKS is typically using relatively small sample sizes, SPARKS calculates Mx as 1/2 the average number of young born to animals in that age class. This provides a somewhat less "noisy" estimate of Mx, though it does not allow for unusual sex ratios. The fecundity rates provide information on the age of first, last, and maximum reproduction.

Vx, Reproductive Value – The expected number of offspring produced this year and in future years by an animal of age x.

Ex, Life Expectancy – Average years of further life for an animal in age class x.

Risk (Qx or Mx) – The number of individuals that have lived during an age class. The number at risk is used to calculate Mx and Qx by dividing the number of births and deaths that occurred during an age class by the number of animals at risk of dying and reproducing during that age class.

Genetic Terms

(Founder) Contribution -- Number of copies of a founder's genome that are present in the living descendants. Each offspring contributes 0.5, each grand-offspring contributes 0.25, etc.

Current Gene Diversity (GD) -- The proportional gene diversity (as a proportion of the source population) is the probability that two alleles from the same locus sampled at random from the population will be identical by descent. Gene diversity is calculated from allele frequencies, and is the heterozygosity expected in progeny produced by random mating, and if the population were in Hardy-Weinberg equilibrium.

Effective Population Size (Inbreeding N_e) -- The size of a randomly mating population of constant size with equal sex ratio and a Poisson distribution of family sizes that would (a) result in the same mean rate of inbreeding as that observed in the population, or (b) would result in the same rate of random change in gene frequencies (genetic drift) as observed in the population. These two definitions are identical only if the population is demographically stable (because the rate of inbreeding depends on the distribution of alleles in the parental generation, whereas the rate of gene frequency drift is measured in the current generation). Ne/N

Founder – An individual obtained from a source population (often the wild) that has no known relationship to any individuals in the derived population (except for its own descendants).

Founder Genome Equivalents (FGE) – The number wild-caught individuals (founders) that would produce the same amount of gene diversity as does the population under study. The gene diversity of a population is 1 - 1 / (2 * FGE).

Founder Genome Surviving – The sum of allelic retentions of the individual founders (i.e., the product of the mean allelic retention and the number of founders).

GU, Genome Uniqueness – Probability that an allele sampled at random from an individual is not present, identical by descent, in any other living individual in the population. GU-all is the genome uniqueness relative to the entire population. GU-Desc is the genome uniqueness relative to the living non-founder, descendants.

Inbreeding Coefficient (F) -- Probability that the two alleles at a genetic locus are identical by descent from an ancestor common to both parents. The mean inbreeding coefficient of a population will be the proportional decrease in observed heterozygosity relative to the expected heterozygosity of the founder population.

KV, Kinship Value – The weighted mean kinship of an animal, with the weights being the reproductive values of each of the kin. The mean kinship value of a population predicts the loss of gene diversity expected in the subsequent generation if all animals were to mate randomly and all were to produce the numbers of offspring expected for animals of their age.

Mean Generation Time (T) -- The average time elapsing from reproduction in one generation to the time the next generation reproduces. Also, the average age at which a female (or male) produces offspring. It is not the age of first reproduction. Males and females often have different generation times.

Mean Kinship (MK) -- The mean kinship coefficient between an animal and all animals (including itself) in the living, captive-born population. The mean kinship of a population is equal to the proportional loss of gene diversity of the descendant (captive-born) population relative to the founders and is also the mean inbreeding coefficient of progeny produced by random mating. Mean kinship is also the reciprocal of two times the founder genome equivalents: MK = 1 / (2 * FGE). MK = 1 - GD.

Percent Known -- Percent of an animal's genome that is traceable to known Founders. Thus, if an animal has an UNK sire, the % Known = 50. If it has an UNK grandparent, % Known = 75.

Prob Lost – Probability that a random allele from the individual will be lost from the population in the next generation, because neither this individual nor any of its relatives pass on the allele to an offspring. Assumes that each individual will produce a number of future offspring equal to its reproductive value, Vx.

(Founder) Representation – Proportion of the genes in the descendant population that derives from that founder. I.e., proportional Founder Contribution.

Allele Retention – The probability that a gene present in a founder individual exists in the living, descendant population.

Appendix II
Full name of Institutions

Trivandru	Thiruvananthapuram Zoo, Kerala.
Bannergha	Bannerghatta Zoological Garden, Bangalore, Karnataka
Chatbir Z	M.C. Zoological Park, Punjab.
Nandankan	Nandankanan Zoological Park, Bhubaneswar, Orissa.
London RP	Zoological Society of London, England, U.K.
Chicagolp	Lincoln Park Zoolgical Garden, Chicago, Illinois, U.S.A.
Col Sprg	Cheyenne Mtn Zoological Park, Colorado Springs, Colorado, U.S.A
Marwell	Marwell Zoological Park, Owlebury, Hampshire, U.K.
Knoxville	Knoxville Municipal Zoo, Knoxville, Tennessee, U.S.A.
Kaula Lum	Zoo Negara Malaysia, Hulu Kelang, Selangor, Malaysia.
Zurich	Zoologischer Garden Zrich, Zrich, Switzerland.
Taiping	Taman Mergasetua Idris Shah, Taiping, Perak, Malaysia.
SandiegoZ	San Diego Zoological Society Wild Animal Park, U.S.A