

# National Studbook Asiatic Wild Dog (*Cuon alpinus*) II Edition

Maintenance of Studbooks for Selected Endangered Species in Indian Zoos” awarded to the Wildlife Institute of India vide sanction order: Central Zoo Authority letter no. 9-2/2012-CZA(NA)/418 dated 7<sup>th</sup> March 2012]

Published: January 2017



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India



केन्द्रीय चिड़ियाघर प्राधिकरण  
Central Zoo Authority



# National Studbook of Asiatic Wild Dog (*Cuon alpinus*) II Edition

Published as a part of the Central Zoo Authority sponsored project titled  
“Development and maintenance of studbooks for selected endangered species in Indian zoos”

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Wildlife Institute of India (2016) National Studbook of Asiatic Wild Dog (*Cuon alpinus*) II Edition, Wildlife Institute of India, Dehradun and Central Zoo Authority, New Delhi. TR. No 2017/001 pages: 75.

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## FOREWORD

Habitat loss, fragmentation and degradation coupled with disease threats have rendered Asiatic wild dogs prone to extinction. Despite protection measures in recent times the free ranging population continues to show a decline in populations; therefore, maintenance of viable *ex-situ* populations for ensuring their long-term persistence remains imperative. Effective *ex-situ* conservation of the species can be ensured by scientific management to ensure their long term genetic viability and demographic stability. Pedigree information contained in studbooks forms the basis for this management.

The Central Zoo Authority (CZA) in collaboration with zoos in India has initiated a conservation breeding program for threatened species in Indian zoos. Asiatic wild dog is a part of the identified species under this initiative. As a part of this endeavour a Memorandum of Understanding has been signed with the Wildlife Institute of India for compilation and update of studbooks of identified species in Indian zoos.

As part of the project outcomes the WII has compiled the II edition of the National Studbook of Asiatic Wild Dog (*Cuon alpinus*) in Indian Zoos. The recommendations contained in the studbook will form the basis for the long term management of the species in captivity. It is hoped that the holding institutions will adopt the recommendations and keep the WII informed of changes in their populations on a regular basis to enable the timely update of the studbook.

**(Dr. D.N. Singh, I.F.S.)**  
**Member Secretary**  
**Central Zoo Authority**



## ACKNOWLEDGEMENTS

This report is a part of the assignment to the Wildlife Institute of India, Dehradun by the Central Zoo Authority, New Delhi on the development and maintenance of studbooks of selected endangered species in Indian zoos.

The authors are thankful to the Central Zoo Authority for the financial support in carrying out the assignment. The guidance and support extended by Dr. D.N. Singh, IFS, Member Secretary, CZA is gratefully acknowledged. The authors also thank Dr. Brij Kishore Gupta, Evaluation and Monitoring Officer, Dr Devender Singh, Scientific Officer and the support staff of the Central Zoo Authority for facilitating this work.

The valuable advice and support provided by Dr. V.B. Mathur, Director, WII and Dr. G.S. Rawat, Dean Faculty of Wildlife Sciences, is duly acknowledged.

Authors sincerely acknowledge the support from the Directors, Veterinarians and other personnel from holding zoos (provided below) for providing pedigree information that led to the successful development of the studbook.

Arignar Anna Zoological Garden, Chennai  
Bannerghata Biological Park, Bengaluru  
Guindy Children's Park, Chennai  
Indira Gandhi Zoological Park, Vishakhapatnam  
Nehru Zoological Park, Hyderabad  
Sri Chamarajendra Zoological Gardens, Mysuru  
Sri Venkateswara Zoological Park, Tirupati

We also thank Mr. Mukesh Arora for layout and design of this document.

**Authors**





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## Species Biology: Asiatic Wild Dog (*Cuon alpinus*)

The species is similar to domestic dogs in appearance. It is characterized by a distinctive red coat with a black tipped bushy tail. They are social carnivores living in packs of 3-38 adult members. Similar to other canids they have well developed jaws, with a head longer than felids and prominent ears.



### Phylogeny and Taxonomy

Kingdom:	Animalia
Phylum:	Chordata
Class:	Mammalia
Order:	Carnivora
Family:	Canidae
Genus:	<i>Cuon</i>
Species:	<i>alpinus</i>
Species Authority:	Pallas, 1811

The family Canidae, a family of dog-like carnivores is divided into 16 genera containing 36 species (Nowak, 2005). Traditional taxonomy based on dentition divides the family into three subfamilies: The Caninae (Genera: *Canis*, *Alopex*, *Vulpes*, *Fennecus*, *Urocyon*, *Nyctereutes*, *Dusicyon*, *Cerdocyon*, *Atelocynus* and *Chrysocyon*) the Simcyoninae (Genra: *Speothos*, *Cuon* and *Lycaon*) and the Otocyoninae (Genus: *Otocyon*) (Nowak, 2005). The genus *Cuon* includes a single species with traditional taxonomy recognizing nine to eleven sub-species (Ellerman and Morrison-Scott 1966; Cohen, *et al.* 1978; and Durbin *et al.* 2004). The sub-species with their distinguishing characters are listed below.

- C. a. alpinus* (east of eastern Sayans, East Russia). Thick tawny red coat greyish neck and ochre muzzle.
- C. a. lepturus* (south of Yangze River, China). Uniform red coat with thick underfur.
- C. a. dukhunensis* (south of the Ganges, India). Reddish coat, short hair on the paws and black whiskers.
- C. a. adjustus* (North Myanmar and north-east India). Reddish brown coat.
- C. a. primaevus* (Himalayan Nepal, Sikkim and Bhutan). Longer redder coat than *C. a. dukhunensis*, long hair on paws.
- C. a. laniger* (Kashmir and southern Tibet). Full, yellowish-grey coat, tail not black but same colour as body.
- C. a. hesperius* (East Russia and China). Long yellow tinted coat, white underside and pale whiskers.
- C. a. fumosus* (West Szechuan, China and Mongolia). Luxuriant yellowish-red coat, dark back and grey neck.
- C. a. infuscus* (South Myanmar, Malaysia, Thailand, Laos, Cambodia and Vietnam). Relatively uniform brown coat.
- C. a. sumatrensis* (Sumatra, Indonesia). Short red coat and dark whiskers.
- C. a. javanicus* (Java, Indonesia). Short, bright red coat.

The taxonomy of the species was revised based on molecular phylogenetic analyses, indicating that they diverged early in the evolutionary time scale from the basal wolf-like canid group that includes grey wolf (*Canis lupus*), the coyote (*Canis latrans*), the Ethiopian wolf (*Canis simensis*), some jackals (*Canis aureus*, *Canis mesomelas*) and dhole (*Cuon alpinus*) (Wayne *et al.* 1997). Mitochondrial genome analysis of selected Canidae revealed that *Cuon* occupies a basal phylogenetic position within wolf-like animals (Zhang and Chen, 2011). Mitochondrial control region sequencing and microsatellite genotyping analysis have revealed there to be only two major phylo-geographic groupings with no clear sub-species level distinctions. The first major subgroup extends from the south of Ganges to Myanmar while the second extends from the north of Ganges into northeastern India, Myanmar, Thailand and the Malaysian Peninsula (Iyengar *et al.*, 2005).

### Natural History:

Dholes are large carnivores that resemble a small wolf or a domestic dog in size; however, unlike dogs they have a rust-red to brown coat and the ears are rounded with fur. The muzzle is slightly convex and shorter than typical dogs. In contrast to other the canids, they have extremely well-developed jaw muscles. They have fewer teeth on the lower jaw (six molars) than typical dogs (seven molars), the last molar being absent. However, females have 12 – 14 teats while the typical dog number is 10) (Prater, 1980). Their size and colour vary regionally (Cohen, 1978), ranging from red to brown with a darker, bushy tail (occasionally with a white tip). The side of the leg is lighter in colour and the pelage on the neck, shoulders and upper parts of the body darker. The coat is thicker and lighter

in the northern latitudes, and darker in the southern latitudes. In some regions of distribution, the winter coat may be yellow-gray. The coat is shed once every year, either at the end of March or the end of May (Sosnovskii, 1967). Sexual dimorphism is not very distinct with no quantitative anatomical differences known; however, the males are slightly bigger and heavier than the females (Cohen, 1978).

### Habitat Ecology:

They inhabit a variety of habitat types that include primary, secondary and degraded forms of tropical dry and moist deciduous forests, evergreen and semi-evergreen forests, dry-thorn forests, scrublands etc. In India, the species inhabits tropical dry and moist deciduous forest supporting adequate prey base (Karanth and Sunquist, 1995, 2000). In peninsular India, they inhabit dense forests and thick scrub jungles (Krishnan, 1972; Davidar, 1975) with a home range of 40 km<sup>2</sup>, and an average population density of 0.35 – 0.9 individuals per km<sup>2</sup> in 20 km<sup>2</sup> core area (Johnsingh, 1982). Factors determining

**Table 1:** Morphometric characteristics of dhole \*

Attribute	Male	Female
Body weight	15 – 17 kg	10 – 13 kg
Shoulder height	42 – 55 cm	
Head & body length	80 – 113 cm	
Tail length	40 – 50 cm	
Mammae	12 – 16 (Davidar, 1975)	

\* Source: Cohen (1978)

**Table 2:** Reproductive attributes of dhole

Attribute	Range
Age at first reproduction	1-1.5 years (Paulraj <i>et al.</i> , 1992)
Estrous Cycle	14-39 days (Paulraj <i>et al.</i> , 1992)
Litter Size	4-6 pups (Prater, 1980).
Gestation period	60-63 days (Davidar, 1975)
Weaning Age	31 days (Paulraj <i>et al.</i> , 1992)
Lifespan	15-16 years (Sosnovskii, 1967)
Mating Season	September and January (Burton, 1939).
Births	November - March

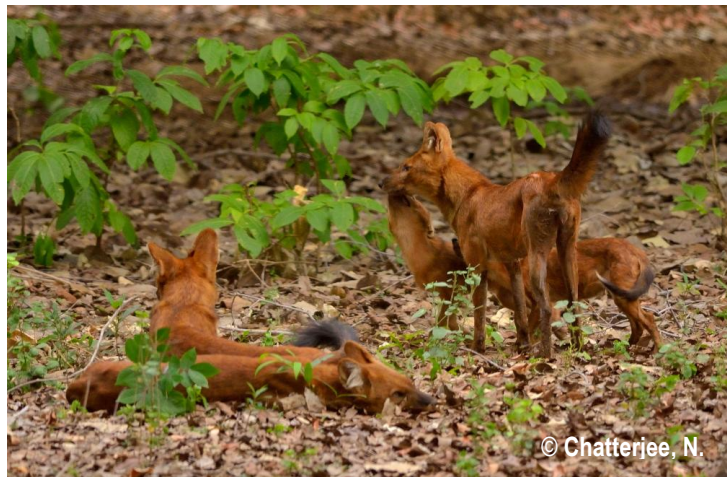
habitat preference are prey abundance, water availability, interspersed forests with grassy openings, minimum human disturbance, and potential den sites (Johnsingh, 1985).

The preferred prey consumed has been reported to vary at different locations; in Nagarhole, the body-mass of prey ranged from 31kg and 175kg in weight (Karanth and Sunquist 1995, 2000) with an average weight of 43 kg, while in Bandipur prey weighing less than 50kg were most preferred (Johnsingh, 1992). In Mudumalai Venkataraman *et al.* (1995) based on scat analysis reported the diet to comprise of chital 70% and 41%, sambar 22% and 23%, cattle 4% and 15%, and lagomorphs 3% and 20%, for the two packs studied by them. Recent studies at Kalakad-Mundanthurai Tiger Reserve by Selvan and others (2013); a review of literature by Hayward and others (2014) and in the Silent Valley National Park by Dar and Khan (2016) revealed sambar to be the principal prey species followed by spotted deer/ wild pig/ mouse deer and hare depending on the area.

Dens are an essential component of the life history of carnivores for successful breeding and rearing of offspring as den sites affect safety from predators and access to food resources. A study in Indonesia revealed that dhole's use burrows of other animal's on steep slopes with dense vegetation cover and located away from anthropogenic activity with den changes every 2 weeks (Nurvianto *et al.*, 2015).

#### **Behaviour and Social Organization:**

They exhibit a bimodal crepuscular activity pattern (Johnsingh, 1981) with hunting occurring mainly in the early morning or late evening (Acharya, 2007). A study on activity patterns of dholes in central India revealed that they spent maximum time in locomotion (41.89%) followed by resting (40.01%), social behaviour (6.23%), feeding (4.76%), Scent marking (2.64%) and miscellaneous (1.45%) with time spent on various activities varying according to sex and age (Ghaskadbi *et al.*, 2016).



Dholes are group living animals with a bi-level social organization. The “pack” acts as the hunting and the feeding unit and the pack members stay together all the time. Sometimes two or more packs might come together to form “clans”. The clan assembly primarily revolves around affiliative social interactions during rest and play periods. Not much is known about the degree of genetic relatedness in clan or pack members.

They are social canids living in packs of five to 12 individuals that may go up to 40 (Davidar, 1975; Hoogerwerf, 1970). Their packs are fusion – fission groups (Prater, 1980), and an extended family unit analogous to clans in baboons (Fox 1975). They are cooperative hunters with hunting strategy being determined by pack size, prey and habitat conditions (Johnsingh, 1981).



## Communication:

Vocalizations include yaps, whistles, barks, howls, squeals, screams, whines, squeaks and yap-squeaks to the members of the pack as well as to intruders (Volodin *et al.*, 2001). Biphonic calls including a high frequency squeak and a low frequency yap are a prominent feature of their vocalizations. These are believed to be used for individual recognition and as a contact call to locate pack members and re-group after separation (Phythian-Adams, 1927; Volodina *et al.*, 2006).

## Reproduction

The species is a cooperative breeder with both males and females in the pack assisting in rearing of litters (Johnsingh, 1982). Johnsingh (1979) has observed lone females breeding outside the group, with limited or no success in rearing their litters. The packs show male-biased sex ratios, a consequence of delayed dispersal by males that probably occurs as a consequence of reduced fecundity of the pack females as they get older. The males may disperse with younger pack females or due to reproductive vacancies and opportunities outside the natal pack (Venkataraman, 1998). Reproductive activity may be initiated by subordinate males also despite mate-guarding by the dominant male and is tolerated to a limited extent by the dominant males. This leads to confused paternity and may be an incentive for taking care of the pups (Venkataraman, 1998).

The species exhibits typical canid reproductive patterns that include frequent urine marking and vocalizing by both sexes, olfactory inspection of marked spots and of partners' genitalia, and by the male licking the female's and mounting, copulatory tie and the back-to-back copulatory posture. Pups are born after a gestation period ranging from 50 – 70 days. Their eyes open after 8 to 19 days and they are given regurgitated food by the 31<sup>st</sup> day. Teeth start erupting by the 50<sup>th</sup> day and the animals are sexually mature by the 11<sup>th</sup> month (Paulraj *et al.*, 1992).

## Distribution

The species has a large distribution range south and central Asia and the Russian Federation. The range countries include Bangladesh; Bhutan; Cambodia; China; India; Indonesia; Kazakhstan; Kyrgyzstan; Lao People's Democratic Republic; Malaysia; Mongolia; Myanmar; Nepal; Russian Federation; Tajikistan; Thailand; Vietnam (Durbin *et al.*, 2004). Recent taxonomic revisions identify two major subgroups of the species rather than 11 subspecies attributed to it. The range of the first major subgroup extends from the south of Ganges to Myanmar while the second extends from the north of Ganges into north-eastern India, Myanmar, Thailand and the Malaysian Peninsula (Iyengar *et al.*, 2005).

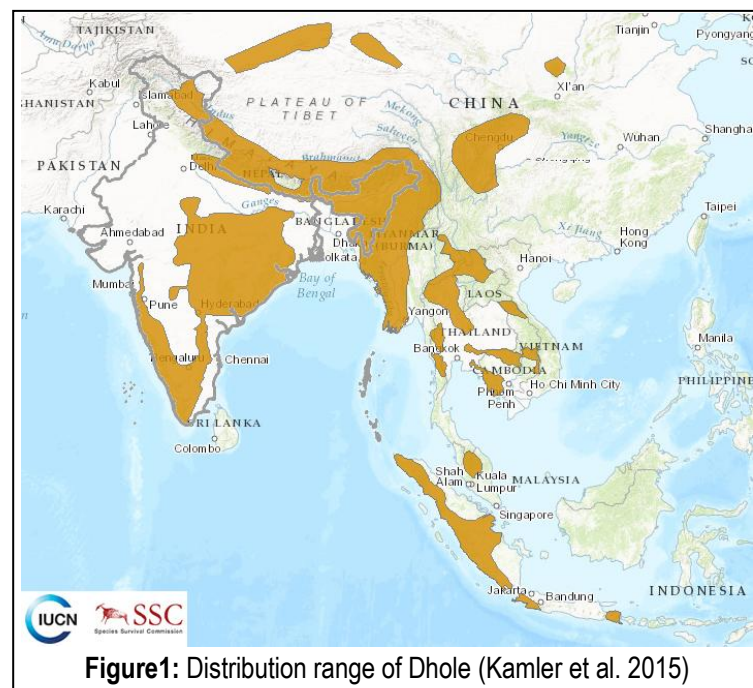


Figure1: Distribution range of Dhole (Kamler *et al.* 2015)

### Distribution in India:

In India, the species inhabits southern part of the Indo-Gangetic plains, Eastern and Western Ghats and most parts of North-Eastern India including Arunachal Pradesh, Assam, Meghalaya, West Bengal. Dholes also occur in some parts of Ladakh and Kashmir (Durbin et al., 2004).

### Threats and Status

The species is threatened by loss of prey base (Durbin et al., 2004; Gopi et al., 2012), habitat loss and transformation (Kamler et al., 2015). Additionally, the species is vulnerable to multiple disease threats from domestic dogs; these include rabies, canine distemper, canine parvovirus and sarcoptic mange (Durbin et al., 2004). The species has been extirpated from most of its historical range and surviving populations are declining in most areas (Kamler et al., 2015). The species is therefore listed under Schedule I of the Wildlife Protection Act (1972) of India and as endangered in the IUCN Red list of threatened species (Kamler et al., 2015).

### Status in Captivity

The species is held at 38 institutions across three regions, the global population include 328 (177.140.11) according to the ZIMS database. The database includes records from three Indian Institutions with eight (4.3.1.) specimens; however, the CZA inventory (Table 3) indicates the presence of 45 (19.7.5) specimens, while the data made available by seven holding zoos for the compilation of the studbook includes 58 (35.22.1) specimens.

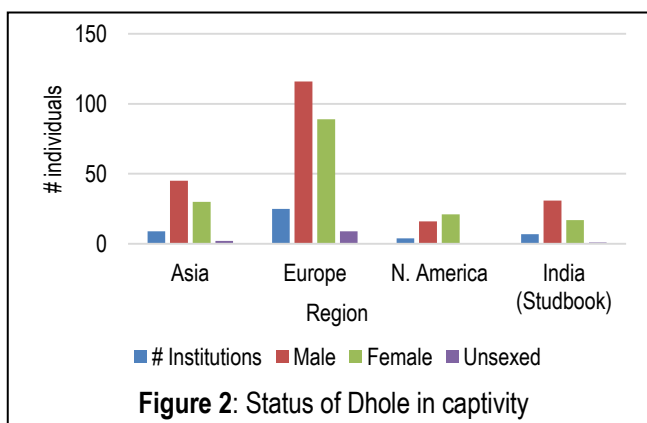


Figure 2: Status of Dhole in captivity

Table 3: Status of Dhole in Indian Zoos

Zoo Name	CZA inventory *				Based on data made available by holding zoos			
	Male	Female	Unsexed	Total	Male	Female	Unsexed	Total
Arignar Anna Zoological Garden, Chennai	2	0	0	2	2	0	0	2
Bannerghata Biological Park, Bengaluru	1	0	1	2	3	1	0	4
Guindy Children's Park, Chennai	3	0	0	7	3	1	0	4
Indira Gandhi Zoological Park, Vishakhapatnam	9	13	0	22	19	14	0	33
Nehru Zoological Park, Hyderabad	0	1	0	1	0	1	0	1
Sri Chamarajendra Zoological Gardens, Mysuru	3	2	1	6	3	2	1	6
Sri Venkateswara Zoological Park, Tirupati	1	1	3	5	5	3	0	8
<b>Total</b>	<b>19</b>	<b>17</b>	<b>5</b>	<b>45</b>	<b>35</b>	<b>22</b>	<b>1</b>	<b>58</b>

\* Source: <http://cza.nic.in/inventory.html> downloaded on 8/12/2016)

## Methods

Data on individual history was collected by means of questionnaires, zoo visits and from the websites of CZA and ZIMS (Zoological Information Management System). Questionnaires were sent to institutions housing Dhole in India, requesting information for each captive specimen. Data was entered in the Single Population Analysis and Records Keeping System (SPARKS v 1.66) (ISIS 2004) and subsequently exported to population management programme PMx v 1.2 (Ballou *et al.*, 2011) for further analysis.

## Scope of the Studbook and Conventions

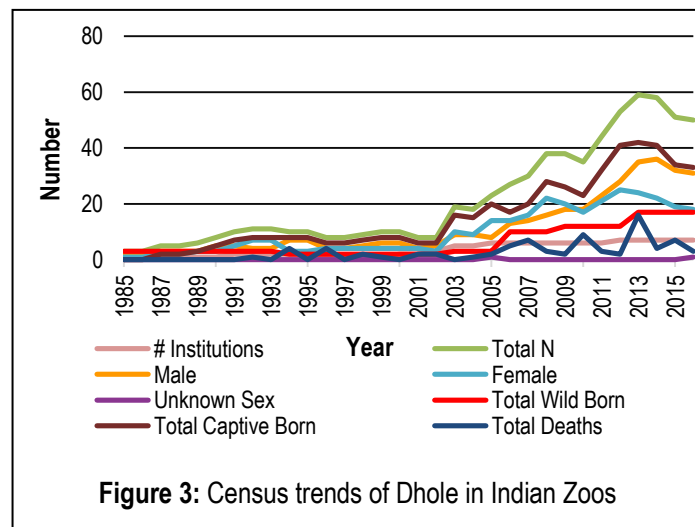
- The data included in the National Studbook of Asiatic Wild Dog (*Cuon alpinus*) (2010) forms the basis for the second edition of the National Studbook of Asiatic Wild Dog.
- The studbook includes all specimens present in India for whom records were available from holding institutions, species taxon report from Species360 website.
- The mnemonics present in the SPARKS software were used for individual institutions and the same are listed in the location glossary (Appendix IV). The mnemonic India was used for all specimens acquired from the wild.
- The CZA inventory was used as a benchmark for population estimates and deviations from the same are based on records made available by the holding institutions and the <https://zims.species360.org> taxon report of Wild dog downloaded on 28<sup>th</sup> November 2016.

## Analysis

### Demographic Status

#### Historical Population:

The current edition of the studbook records 143 (71.63.9) specimens housed at seven zoos in India. The first recorded entry of the species in captivity was at Arignar Anna Zoological Garden, Chennai, with two (1.1) wild origin specimens being acquired by the zoo. Growth in the population has been primarily due to captive births with wild origin specimens; 21 (14.7.0) forming only 14.68% of the captive population. Unknown origin specimens account for 7.69% 11 (4.7.0) animals of unknown origin. A total of 111 (53.49.9) births have occurred in captivity accounting for 77.62% of the historical population. The captive births are attributed to 21 (10.11) specimens. The population since its inception has also witnessed 85 (36.41.8) deaths. A male bias is observed for a



**Figure 3:** Census trends of Dhole in Indian Zoos

**Table 4:** Summary of the historical population

	Males	Females	Unknown	Total
Studbook size	71	63	9	143
Acquisitions from wild	14	7	0	21
Captive births	53	49	9	111
Unknown origin individuals	4	7	0	11
Deaths	36	41	8	85
Breeding individuals	10	11	0	21



large proportion of time spent by the species in captivity. Figure 3 and Table 4 summarize the trends of the historical population while Annexure I includes detailed event-wise information on individual specimens.

### Living Population:

The living population includes 58 (35.22.1) specimens housed at seven institutions; this includes 18 (13.5.0) wild origin specimens. The population; however, includes approximately 10% or six (3.3.0) proven breeders. A probable reason for the small number of reproductively active individuals could be the bias towards male. Table 5 summarizes the status of the living population.

**Table 5:** Summary of the living population

	Males	Females	Unknown	Total
Living individuals	35	22	1	58
Wild-born individuals	13	5	0	18
Captive-born individuals	22	17	1	40
Breeding individuals	3	3	0	6

### Population Vital Rates

The population shows a slow overall growth rate of 0.4%; however, the males show a marginal declining trend of 0.6%, while the females are increasing at a rate of 1.5% per annum. The captive population has a short generation time of

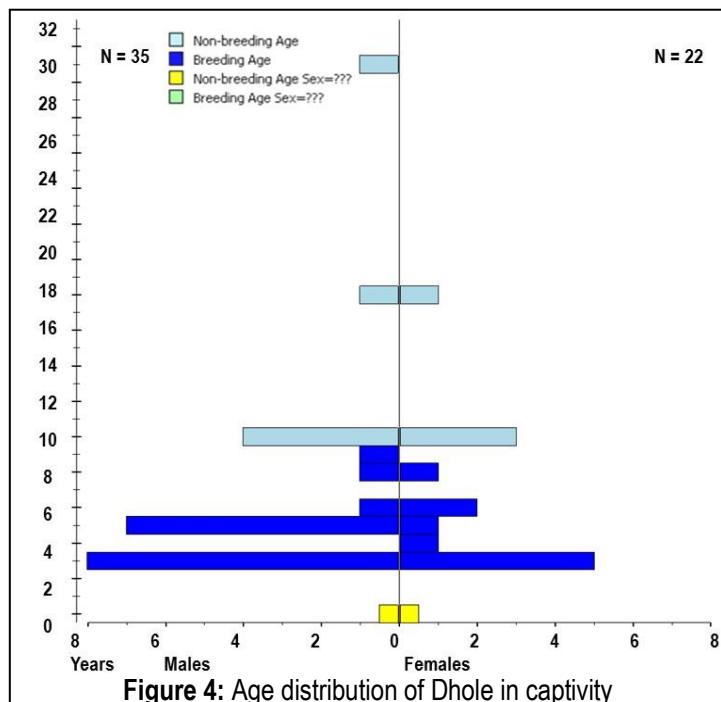
**Table 6:** Vital rates of the captive population

	Male	Female	Total
$\lambda$ : Population growth rate	0.994	1.015	1.004
T: Generation time	3.9	4.3	4.1
N 20: Projected population after 20 years	110.7	88.9	199.6

4.1 years a consequence of its natural history as the species reaches sexual maturity in less than a year in captivity. The species further show a high likelihood of long-term persistence in captivity as the projected population after 20 years is approximately 200 captive individuals. The accuracy of the life table analysis carried out to arrive at the conclusions is limited by the small size of the population.

### Age Distribution:

Age distribution of 39 (24.14.1) known age living specimens indicates a male bias with a large proportion of animals in the reproductively active age classes. It also shows the presence of a small proportion of individuals of either sex in the post reproductive age class. However, the low population growth rate resulting from limited recruitment is reflected by the presence of only one unsexed specimen in the pre-reproductive age classes.



## Genetic Status

Table 7 summarizes the genetic status of the living population. Analysis indicates that it originates from three founders only despite the presence of 18 (13.5) wild origin specimens in the population. The living population of 58 specimens therefore retains only 53.35% of the genetic diversity brought in by the three founders. Limitations to effective record keeping due to inadequate marking of individual specimens are reflected in only 55% of the specimens having proven pedigrees.

**Table 7:** Genetic summary

Genetic parameters	Current
Founders	3
Living Animals	58
Percent Ancestry Known	55%
Gene Diversity	0.5335
Founder Genome Equivalents	1.07
Mean Inbreeding	0.4018
Population mean kinship	0.4665
Ne/N	--

The unequal representation of the 3 founders in the living population has resulted in the population retaining the founder genome of only one wild origin specimen. The population also shows a high level of relatedness between individuals as is indicated by the high values of mean inbreeding and population mean kinship. Small size of the population and presence of a large proportion of unknown lineage specimens in the populations limits arriving at an effective population size (Ne).

## Pairing Recommendations

The pairing recommendations (table 8) for the species in captivity have been arrived at based on 'Mate Suitability Index' (Box 1 for details) that assesses changes in genetic diversity, differences in mean kinship and inbreeding coefficient as result of each pairing choice being exercised. The analysis also indicates that females with studbook numbers 00043 at MADRAS and 00059 at GUINDY may be transferred to either Viskhapatnam or Tirupati and paired with any one of the males present as the MSI Score for all such pairings is one i.e. it would enable the maintenance of genetic diversity in the captive population. The location of transfer may be determined by available enclosure space at the recipient zoo. However, the females with studbook numbers 00084 and 00085 at GUINDY; 00098, 00109 and 00110 at Mysuru and 00095, 00097 and 00100 at Bannerghatta may not be used for breeding, as such pairing would be highly detrimental to the overall genetic diversity of the population.

**Table 8:** Pairing recommendations

Females		Males		MSI Score
Studbook No.	Location	Studbook No.	Location	
00006	VISAKAPAT	00010	VISAKAPAT	1
00025	VISAKAPAT	00023	VISAKAPAT	1
00026	VISAKAPAT	00024	VISAKAPAT	1
00028	VISAKAPAT	00029	VISAKAPAT	1
00005	TIRUPATI	00102	TIRUPATI	1

### Box 1: Mate Suitability Index (MSI)

It is a numerical genetic assessment of a male-female pair that incorporates several variables into one ranking (MSI range is 1 to 7, with 1 being the most genetically beneficial).

The default value in the table is the *MSI* (Mate Suitability Index) value for each male –female pair. *MSI* is a composite score that integrates four genetic components into a single index:

**Delta GD (dGD):** Change in gene diversity (GD) of the population if one offspring is produced by the pair. Positive dGD increases the GD of the population, while negative dGD decreases GD.

**Differences in MK values (MKDiff):** Difference in the genetic value (mean kinship value) of the male and female. Breeding a pair with a large MKDiff is detrimental because it combines under-represented and over-represented genetic lines.

**Inbreeding coefficient (F):** Inbreeding coefficient of any offspring resulting from the pair (i.e., the kinship value for the pair). Inbreeding is considered to be detrimental to the fitness of the resulting offspring.

**Unknown ancestry:** The amount of unknown ancestry in the male and female. Incomplete pedigree information means that the genetic value and relatedness of a pair cannot be accurately calculated.

- 1 = very beneficial (genetically) to the population;
- 2 = moderately beneficial,
- 3 = slightly beneficial;
- 4 = slightly detrimental,
- 5 = detrimental, should only be used if demographically necessary
- 6 = very detrimental (should be considered only if demographic considerations override preservation of genetic diversity)
- “-“= very highly detrimental (should not be paired, due to high level of kinship of pair)

#### Using Pairwise Info

The default table of *MSI* values for pairs can be used to quickly assess the relative genetic value of a pair, subset of pairs, potential mates for one individual, and many other valuable data when making breeding recommendations. This can be especially helpful to quickly explore options for pairing individuals at one facility that houses numerous individuals of each sex or to quickly identify an alternative suitable mate if a recommended breeding fails.

## Targets for Population Management

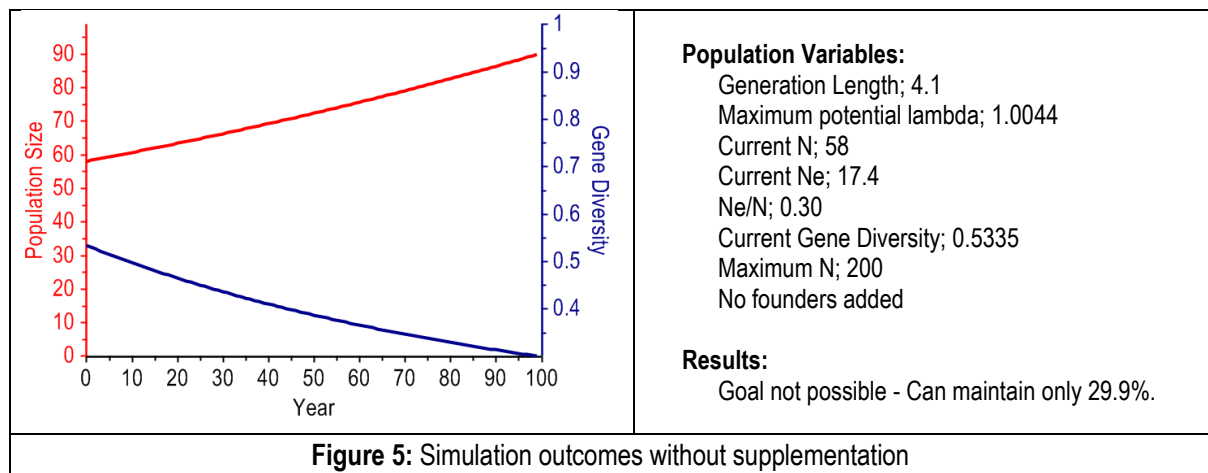
The current captive population of Asiatic wild dog in Indian zoos includes 58 (35.22.1) individuals. Eighteen (13.5.0) wild origin specimens are present in the population of which only three have contributed to the population. The population also includes 20 (11.8.0) unknown age specimens. The population shows a limited growth rate of 0.4% per annum. The population is characterized by a low genetic diversity (53.35% introduced from three founders) and a high level of relatedness (Mean Inbreeding: 0.4018 and Population mean kinship: 0.4665). It is therefore unlikely to achieve population targets of maintaining a genetically viable and demographically stable population.

Multiple simulations were run using PMx to determine the fate of the current population for assessing the effect of management interventions that result in increased population growth rate desired for achieving demographic stability and supplementation with effective founders for ensuring genetic viability; over the next 100 years. The outcomes of the scenarios that were run without change and with changes (supplementation with effective founders and increasing the population growth rate) that

ensure a genetically viable and demographically stable population over the next 100 years are presented below.

**Scenario I:**

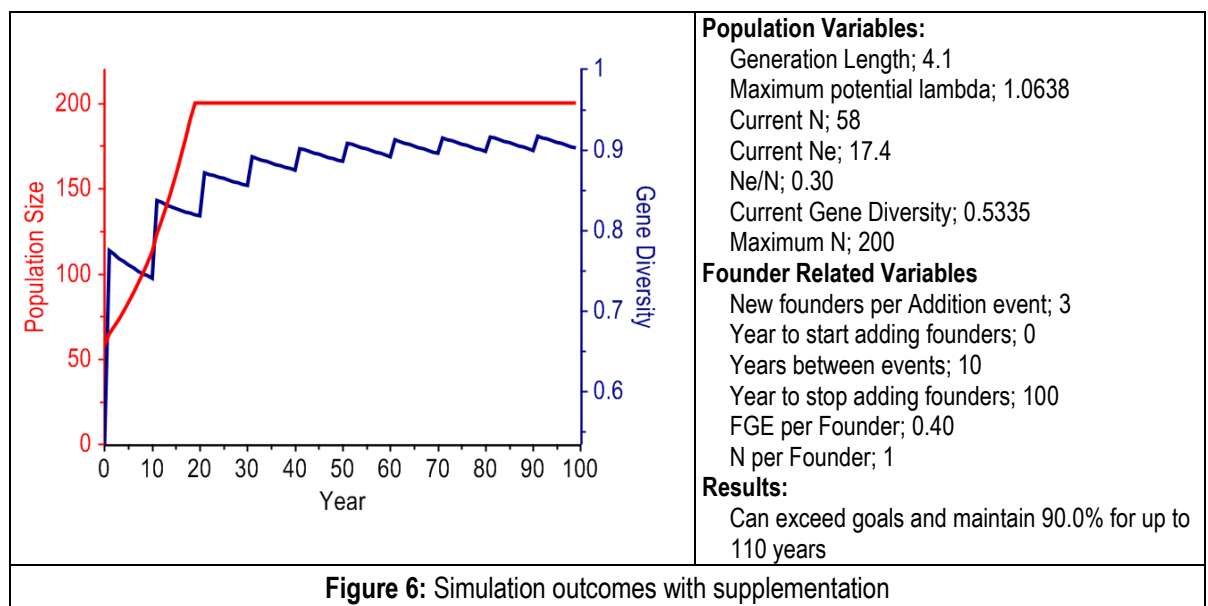
The simulation was run using the current population variables and increasing the maximum population size to 200 individuals, without supplementation with additional animals. The outcomes indicate that the population was unlikely to survive over the next 100 years and would be unable to achieve the goal of maintaining a demographically stable and genetically viable population in captivity. The population variables used and the outcomes of the simulation are presented in Figure 5.



**Figure 5:** Simulation outcomes without supplementation

**Scenario II:**

The outcomes of the simulation that was run using a maximum potential lambda of 1.0638, increasing the maximum size of the population to 200 specimens and supplementation with three effective founders every ten years provided a population that was able to achieve the goals of maintaining 90% of the genetic diversity and a demographically stable population. The population and founder related variables, and the simulation outcome are presented as Figures 6.



**Figure 6:** Simulation outcomes with supplementation

## Conclusions and Recommendations

Asiatic wild dog continued to face threats to their long term survival in their natural habitats across their distribution range and are accordingly listed as Endangered in the IUCN Red List of Threatened Species and in the Schedule I of the Wildlife Protection Act of India. The factors responsible for their decline remain operational and the populations across their range are showing declining trend. Maintenance of demographically stable and genetically viable *ex-situ* populations is thus crucial for ensuring the continued survival of the species.

The captive population in Indian zoos is characterized by its small size showing a stable trend ( $\lambda = 1.004$ ). The population remains biased towards males with a small number (six) of proven breeders, though a large proportion belong to reproductively active age classes. It retains approximately 53% genetic diversity introduced by only three founders. Individuals in the population are closely related to each other as is indicated by the values of population mean inbreeding and mean kinship that are 0.4018 and 0.4665 respectively. The founder genome is poorly represented with the population containing genetic diversity of only one founder animal.

Population simulations run using PMx software indicate that supplementation with three effective founders every ten years and increasing the population growth rate to 1.063 and size to 200 specimens in Indian institutions can ensure that the population remains viable over the next 100 years.

The captive population of Asiatic wild dog in Indian zoos therefore requires intensive management efforts towards ensuring achievement of *ex-situ* conservation goals to address the following concerns:

Additional housing needs to be created to ensure availability of adequate space for holding the additional number of specimens needed for maintaining a genetically viable and demographically stable population.

The wild origin specimens that are currently present in the population should be assessed for relatedness using appropriate molecular genetics tools.

Packs that include unrelated individuals in the population should be formed using appropriate behavioural management techniques for ensuring optimum reproductive output.

Issues that limit optimum reproductive performance of the captive population *viz.* housing and husbandry practices and keeping of unpaired animals need to be addressed for ensuring effective population growth.

The species is vulnerable to diseases that infect domestic dogs (*Canis familiaris*) and other carnivores. Appropriate interventions aimed at minimizing the likelihood of disease events occurring should be adopted to ensure a healthy population.

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Historical Population of Asiatic Wild Dog (*Cuon alpinus*) in Indian Zoos

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00001	M00010 VALLI 0006A34FBB	F	02-Dec-99	UNK	UNK	MADRAS MYSORE	02-Dec-99 19-Dec-03 21-Dec-09	Birth Transfer Death
00002	MOHAN	M	02-Dec-99	00055	00057	MADRAS	02-Dec-99 23-Feb-05	Birth Death
00003	_____ VIJI	F	09-Dec-98	00055	00057	MADRAS	09-Dec-98 17-Nov-04	Birth Death
00004	RADHA 0006B7287C	F	????	UNK	UNK	VISAKAPAT TIRUPATI	???? ????	Birth Transfer
00005	CHANTI 0006B71632	M	????	WILD	WILD	INDIA TIRUPATI	???? ????	Capture Transfer
00006	WDM1	M	????	WILD	WILD	INDIA VISAKAPAT	08-Jan-02 08-Jan-02	Capture Transfer
00007	BUJI	F	????	UNK	UNK	VISAKAPAT TIRUPATI	???? 11-Nov-03	Birth Transfer
00008	KRISHNA	M	????	UNK	UNK	VISAKAPAT TIRUPATI	???? 11-Nov-03	Birth Transfer
00009	MANI 0006B72EAE M00009	M	18-Oct-02	UNK	UNK	MADRAS MYSORE	18-Oct-02 19-Dec-03 09-Aug-11	Birth Transfer Death
00010	WDF2	F	????	WILD	WILD	INDIA VISAKAPAT	21-Dec-03 21-Dec-03	Capture Transfer
00011	ANJU 100100 0006B725C4	F	28-Dec-03	00002	00003	MADRAS HYDERABAD	28-Dec-03 10-Sep-07 06-Sep-10	Birth Transfer Death
00012	DHIVIYA	F	28-Dec-03	00002	00003	MADRAS	28-Dec-03 02-Oct-10	Birth Death
00013	_____	F	28-Dec-03	00002	00003	MADRAS HYDERABAD	28-Dec-03 11-Sep-07 06-Sep-10	Birth Transfer Death
00014	GOMATHI	F	28-Dec-03	00002	00003	MADRAS	28-Dec-03 23-Nov-14	Birth Death
00015	SHEELA	F	28-Dec-03	00002	00003	MADRAS	28-Dec-03 18-Dec-07	Birth Death
00016	Praveen 100103	M	28-Dec-03	00002	00003	MADRAS	28-Dec-03 23-Oct-14	Birth Death
00017	Paulraj 100102	M	28-Dec-03	00002	00003	MADRAS	28-Dec-03 25-Nov-11	Birth Death
00018	ASHA 0006B746B9	F	????	UNK	UNK	TIRUPATI HYDERABAD	???? 22-Jul-05 17-Feb-08	Birth Transfer Death
00019	AKITA 0006B715F0	F	????	UNK	UNK	TIRUPATI HYDERABAD	???? 22-Jul-07	Birth Transfer
00021	SIVASHANKAR ZSB40	M	19-Aug-06	00016	00014	MADRAS	19-Aug-06 11-Sep-07	Birth Death



Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00023	WDF5	F	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00024	WDF4	F	~ 2006	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00025	WDM2	M	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00026	WDM3	M	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00027	WDM4	M	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00028	WDM5	M	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00029	WDF3	F	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00030	ZSB41	M	22-Dec-06	00016	00014	MADRAS	22-Dec-06	Birth
00031	KANNAN	M	22-Dec-06	00016	00015	MADRAS	22-Dec-06 ????	Birth Death
00032	ASHWIN, 100104 00065EB22D	M	14-Nov-07	00017	00012	MADRAS	14-Nov-07 03-Sep-08	Birth Death
00033	RAMU, 100104 00061126AC	M	14-Nov-07	00017	00012	MADRAS	14-Nov-07 10-Oct-10	Birth Death
00034	100105	F	14-Nov-07	00017	00012	MADRAS	14-Nov-07 10-Jul-09	Birth Death
00035	100106	F	14-Nov-07	00017	00012	MADRAS	14-Nov-07 08-Jun-10	Birth Death
00036	AAZP53	F	06-Jan-08	00016	00014	MADRAS	06-Jan-08 20-Oct-08	Birth Death
00037	BHARATH 100107 M00324	M	06-Jan-08	00016	00014	MADRAS MYSORE	06-Jan-08 19-Nov-09 27-Nov-13	Birth Transfer Death
00038	100108	M	06-Jan-08	00016	00014	MADRAS	06-Jan-08 25-Feb-10	Birth Death
00039	AAZP54	F	06-Jan-08	00016	00014	MADRAS	06-Jan-08 03-Oct-10	Birth Death
00040	LAKSHMI 100109	F	06-Jan-08	00016	00014	MADRAS MYSORE	06-Jan-08 10-Oct-09	Birth Transfer
00041	100110	F	06-Jan-08	00016	00014	MADRAS	06-Jan-08 22-Jan-10	Birth Death
00042	ANU	F	~ 1985	WILD	WILD	INDIA MADRAS	~Feb 1985 14-Feb-85 23-Aug-94	Capture Transfer Death
00043	GOPAL/ASOK	M	~ 1985	WILD	WILD	INDIA MADRAS	~Feb 1985 14-Feb-85	Capture Transfer
00044	KRISHNA	M	~ 1985	WILD	WILD	INDIA MADRAS HYDERABAD	~Feb 1985 14-Feb-85 19-Mar-91 08-Jan-96	Capture Transfer Transfer Death

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00045		F	~ 1987	UNK	00042	MADRAS HYDERABAD	~ 1987 19-Mar-91 06-Feb-96	Birth Transfer Death
00046	SURESH	M	23-Dec-87	00043	00042	MADRAS	23-Dec-87 21-Jan-96	Birth Death
00047	ALLI/AMBIKA	F	~ 1989	UNK	00042	MADRAS	~ 1989 23-Aug-94	Birth Death
00048	ARJUNA	M	~ 1990	UNK	00042	MADRAS	~ 1990 25-Nov-92	Birth Death
00049	RAGHAVAN	M	24-Nov-90	00043	00042	MADRAS	24-Nov-90 05-Mar-01	Birth Death
00050	SHEELA	F	15-Nov-91	00046	00042	MADRAS	15-Nov-91 07-Jun-98	Birth Death
00051	SHILPA	F	15-Nov-91	00046	00042	MADRAS	15-Nov-91 02-Apr-98	Birth Death
00052	ABHITHA	F	~ 1992	UNK	00042	MADRAS	~ 1992 10-Nov-94	Birth Death
00053	RADHA	F	~ 1992	UNK	00042	MADRAS	~ 1992 20-Nov-94	Birth Death
00054	SUBU	M	03-Jan-94	00043	00042	MADRAS	03-Jan-94 31-Dec-96	Birth Death
00055	SEKAR	M	03-Jan-94	00043	00042	MADRAS	03-Jan-94 18-May-02	Birth Death
00056	RATHNAM	M	03-Jan-94	00043	00042	MADRAS	03-Jan-94 14-Jul-01	Birth Death
00057	ASHWINI	F	????	WILD	WILD	INDIA MADRAS	~Mar 1996 28-Mar-96 17-Mar-02	Capture Transfer Death
00058	ROHINI	F	30-Nov-96	00055	00057	MADRAS	30-Nov-96 05-May-99	Birth Death
00059	BALU	M	09-Dec-98	00055	00057	MADRAS GUINDY	09-Dec-98 20-Jan-00	Birth Transfer
00060	AMUDHA	F	09-Dec-98	00055	00057	MADRAS GUINDY	09-Dec-98 20-Jan-00	Birth Transfer
00061		?	02-Dec-99	00055	00057	MADRAS	02-Dec-99 ????	Birth Death
00062		?	02-Dec-99	00055	00057	MADRAS	02-Dec-99 ????	Birth Death
00063		?	02-Dec-99	00055	00057	MADRAS	02-Dec-99 ????	Birth Death
00064		?	02-Dec-99	00055	00057	MADRAS	02-Dec-99 ????	Birth Death
00065		M	28-Dec-03	00002	00003	MADRAS	28-Dec-03 25-Feb-05	Birth Death
00066		M	31-Dec-05	00016	00014	MADRAS	31-Dec-05 29-Apr-06	Birth Death
00067		F	31-Dec-05	00016	00014	MADRAS	31-Dec-05 29-Apr-06	Birth Death

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00068		F	31-Dec-05	00016	00014	MADRAS	31-Dec-05 29-Apr-06	Birth Death
00069		F	31-Dec-05	00016	00014	MADRAS	31-Dec-05 05-Jul-06	Birth Death
00070		?	31-Dec-05	00016	00014	MADRAS	31-Dec-05 ~ 5 Jul 2006	Birth Death
00071		M	03-Jan-07	00017	00012	MADRAS	03-Jan-07 04-Mar-07	Birth Death
00072		M	03-Jan-07	00017	00012	MADRAS	03-Jan-07 10-Mar-07	Birth Death
00073		M	03-Jan-07	00017	00012	MADRAS	03-Jan-07 10-Mar-07	Birth Death
00074		F	03-Jan-07	00017	00012	MADRAS	03-Jan-07 10-Mar-07	Birth Death
00075		F	03-Jan-07	00017	00012	MADRAS	03-Jan-07 04-Mar-07	Birth Death
00076	100111	M	19-Dec-08	00017	00012	MADRAS	19-Dec-08 22-Feb-10	Birth Death
00077	100112	F	19-Dec-08	00017	00012	MADRAS	19-Dec-08 07-Mar-12	Birth Death
00078	100113	F	19-Dec-08	00017	00012	MADRAS	19-Dec-08 31-Dec-12	Birth Death
00079	100114	F	19-Dec-08	00017	00012	MADRAS	19-Dec-08 22-Aug-15	Birth Death
00080	CHANDIRAN 100115	F	19-Dec-08	00017	00012	MADRAS	19-Dec-08 08-Mar-13	Birth Death
00081	100116	M	19-Dec-10	00017	00014	MADRAS	19-Dec-10 06-Feb-13	Birth Death
00082	100117	M	19-Dec-10	00017	00014	MADRAS	19-Dec-10 31-Aug-15	Birth Death
00083	100459	M	04-Jan-13	00081	00079	MADRAS	04-Jan-13 21-Nov-13	Birth Death
00084	100460	M	04-Jan-13	00081	00079	MADRAS GUINDY	04-Jan-13 23-Jul-14	Birth Transfer
00085	100461	M	04-Jan-13	00081	00079	MADRAS GUINDY	04-Jan-13 23-Jul-14	Birth Transfer
00086	100462	M	04-Jan-13	00081	00079	MADRAS	04-Jan-13 02-Sep-15	Birth Death
00087	100463	M	04-Jan-13	00081	00079	MADRAS	04-Jan-13 03-Sep-15	Birth Death
00088	100540	F	~ Mar 2012	UNK	UNK	GUINDY MADRAS	~ Mar 2012 23-Jul-14 23-May-16	Birth Transfer Death
00089	100541	F	~ Mar 2012	UNK	UNK	GUINDY MADRAS	~ Mar 2012 23-Jul-14 29-Dec-14	Birth Transfer Death
00090	100562	M	12-Dec-14	00082	00079	MADRAS	12-Dec-14 23-May-16	Birth Death

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00091	100563	M	12-Dec-14	00082	00079	MADRAS	12-Dec-14 04-Sep-15	Birth Death
00092	NILA 100564	F	12-Dec-14	00082	00079	MADRAS	12-Dec-14 04-Sep-15	Birth Death
00093	ANARKALI 20124	F	28-Dec-05	UNK	UNK	VISAKAPAT HYDERABAD	28-Dec-05 31-Jan-10 05-Feb-11	Birth Transfer Death
00094	M4-010	M	15-Aug-08	WILD	WILD	INDIA TIRUPATI VISAKAPAT	10-Feb-09 10-Feb-09 21-Sep-12	Capture Transfer Transfer
00095	ADHI, M00781 DH004, 9.56E+14	M	19-Nov-11	00037	00040	MYSORE BANNERGHA	19-Nov-11 06-Nov-12	Birth Transfer
00096	MALINI, M00786 9.56E+14	F	19-Nov-11	00037	00040	MYSORE	19-Nov-11 14-Sep-14	Birth Death
00097	PRAJWAL, M00784 DH002, 9.56E+14	M	19-Nov-11	00037	00040	MYSORE BANNERGHA	19-Nov-11 07-Nov-13	Birth Transfer
00098	PRANAV, M00782 9.56E+14	M	19-Nov-11	00037	00040	MYSORE	19-Nov-11	Birth
00099	PRERNA, M00785 9.56E+14	F	19-Nov-11	00037	00040	MYSORE	19-Nov-11 07-Nov-13	Birth Death
00100	SHARATH, M00783 DH003, 9.56E+14	M	19-Nov-11	00037	00040	MYSORE BANNERGHA	19-Nov-11 06-Nov-12	Birth Transfer
00101	VINUTHA, M00787 9.56E+14	F	19-Nov-11	00037	00040	MYSORE	19-Nov-11 25-May-15	Birth Death
00102	DURGA 0006EFC5C2	F	????	WILD	WILD	INDIA TIRUPATI	~25 Apr 2013 31-May-13	Capture Transfer
00103	ARJUNA 0006EFD755	M	????	WILD	WILD	INDIA TIRUPATI	~May 2013 31-May-13	Capture Transfer
00104	ADITYA 0006EF518B	M	????	WILD	WILD	INDIA TIRUPATI	25-Apr-13 31-May-13	Capture Transfer
00105	ASHA, M01020 DH001 00074D54BA	F	15-Dec-12	00037	00040	MYSORE BANNERGHA	15-Dec-12 08-Nov-13	Birth Transfer
00106	KEERTHANA M01014	F	15-Dec-12	00037	00040	MYSORE	15-Dec-12 23-Jan-13	Birth Death
00107	M01015 SUDHAMA	M	15-Dec-12	00037	00040	MYSORE	15-Dec-12 30-Jan-13	Birth Death
00108	M01016 SRIDHARA	M	15-Dec-12	00037	00040	MYSORE	15-Dec-12 01-Feb-13	Birth Death
00109	SACHIN, M01017 00074D29A4	M	15-Dec-12	00037	00040	MYSORE	15-Dec-12	Birth
00110	BRUCE LEE, M01018 00074D30AE	M	15-Dec-12	00037	00040	MYSORE	15-Dec-12	Birth
00111	SHANTHI, M01019 00074D3FF5	F	15-Dec-12	00037	00040	MYSORE	15-Dec-12	Birth
00112	M-03	M	????	WILD	WILD	INDIA TIRUPATI VISAKAPAT	~ 5 Feb 2009 10-Feb-09 21-Sep-12	Capture Transfer Transfer
00113	M1	M	????	UNK	UNK	VISAKAPAT	????	Birth

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00114	F1	F	????	UNK	UNK	VISAKAPAT	????	Birth
00115	M2-01	M	~ 2010	00113	00114	VISAKAPAT	~ 2010	Birth
00116	F2-01	F	~ 2010	00113	00114	VISAKAPAT	~ 2010	Birth
00117	F2-02	F	~ 2010	00113	00114	VISAKAPAT	~ 2010	Birth
00118	M3-01	M	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00119	M3-02	M	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00120	F3-01	F	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00121	F3-02	F	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00123	M4-01	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00124	M4-02	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00125	M4-03	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00126	M4-04	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00127	F4-01	F	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00128	F4-02	F	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00129	F4-03	F	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00130	M-01	M	????	UNK	UNK	VISAKAPAT	????	Birth
00131	F-01	F	????	UNK	UNK	VISAKAPAT	????	Birth
00132	M-02	M	????	UNK	UNK	VISAKAPAT	????	Birth
00133	F-02	F	????	UNK	UNK	VISAKAPAT	????	Birth
00134	F-03	F	????	00130	00131	VISAKAPAT TIRUPATI	???? 21-Sep-12 17-Mar-13	Birth Transfer Death
00135	UNK	M	????	WILD	WILD	VISAKAPAT	~-Nov-13 20-Nov-13	Capture Transfer
00136	UNK	M	????	WILD	WILD	VISAKAPAT	~-Nov-13 20-Nov-13	Capture Transfer
00137	MIND1	?	24-Oct-13	00037	00040	MYSORE	24-Oct-13 24-Oct-13	Birth Death
00138	MIND2	?	24-Oct-13	00037	00040	MYSORE	24-Oct-13 24-Oct-13	Birth Death
00139	MIND3	M	24-Oct-13	00037	00040	MYSORE	24-Oct-13 25-Oct-13	Birth Death
00140	MIND4	M	24-Oct-13	00037	00040	MYSORE	24-Oct-13 25-Oct-13	Birth Death
00141	MIND5	M	24-Oct-12	00037	00040	MYSORE	24-Oct-12 25-Oct-13	Birth Death
00142	MIND6	M	24-Oct-13	00037	00040	MYSORE	24-Oct-13 25-Oct-13	Birth Death
00143	BHAIRAVA M40011	M	23-Nov-11	UNK	UNK	VISAKAPAT TIRUPATI	23-Nov-11 21-Sep-12	Birth Transfer
00144	M4-012	F	21-Sep-10	UNK	UNK	VISAKAPAT TIRUPATI	21-Sep-10 21-Sep-12 17-Mar-13	Birth Transfer Death
00145	M01214	?	06-Jan-16	UNK	UNK	MYSORE	06-Jan-16 22-Aug-16	Birth Death
00146	M01215	?	06-Jan-16	UNK	UNK	MYSORE	06-Jan-16	Birth
<b>TOTALS: 71.63.9 (143)</b>								

## Annexure II

Asiatic Wild Dog (*Cuon alpinus*) living in Indian Zoos

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
<b>Arignar Anna Zoological Garden, Chennai</b>								
00030	ZSB41	M	22-Dec-06	00016	00014	MADRAS	22-Dec-06	Birth
00043	GOPAL/ASOK	M	~ 1985	WILD	WILD	INDIA MADRAS	~Feb 1985 14-Feb-85	Capture Transfer
<b>Totals: 2.0.0 (2)</b>								
<b>Bannerghata Biological Park, Bengaluru</b>								
00095	ADHI, M00781 DH004 9.56E+14	M	19-Nov-11	00037	00040	MYSORE BANNERGHA	19-Nov-11 06-Nov-12	Birth Transfer
00097	PRAJWAL, M00784 DH002 9.56E+14	M	19-Nov-11	00037	00040	MYSORE BANNERGHA	19-Nov-11 07-Nov-13	Birth Transfer
00100	SHARATH, M00783 DH003 9.56E+14	M	19-Nov-11	00037	00040	MYSORE BANNERGHA	19-Nov-11 06-Nov-12	Birth Transfer
00105	ASHA, M01020 00074D54BA DH001	F	15-Dec-12	00037	00040	MYSORE BANNERGHA	15-Dec-12 08-Nov-13	Birth Transfer
<b>Totals: 3.1.0 (4)</b>								
<b>Guindy Children's Park, Chennai</b>								
00059	BALU	M	09-Dec-98	00055	00057	MADRAS GUINDY	09-Dec-98 20-Jan-00	Birth Transfer
00060	AMUDHA	F	09-Dec-98	00055	00057	MADRAS GUINDY	09-Dec-98 20-Jan-00	Birth Transfer
00084	100460	M	04-Jan-13	00081	00079	MADRAS GUINDY	04-Jan-13 23-Jul-14	Birth Transfer
00085	100461	M	04-Jan-13	00081	00079	MADRAS GUINDY	04-Jan-13 23-Jul-14	Birth Transfer
<b>Totals: 3.1.0 (4)</b>								
<b>Indira Gandhi Zoological Park, Vishakhapatnam</b>								
00006	WDM1	M	????	WILD	WILD	INDIA VISA KAPAT	08-Jan-02 08-Jan-02	Capture Transfer
00010	WDF2	F	????	WILD	WILD	INDIA VISA KAPAT	21-Dec-03 21-Dec-03	Capture Transfer
00023	WDF5	F	04-Dec-06	WILD	WILD	INDIA VISA KAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00024	WDF4	F	~ 2006	WILD	WILD	INDIA VISA KAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00025	WDM2	M	04-Dec-06	WILD	WILD	INDIA VISA KAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00026	WDM3	M	04-Dec-06	WILD	WILD	INDIA VISA KAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00027	WDM4	M	04-Dec-06	WILD	WILD	INDIA VISA KAPAT	04-Dec-06 04-Dec-06	Capture Transfer

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00028	WDM5	M	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00029	WDF3	F	04-Dec-06	WILD	WILD	INDIA VISAKAPAT	04-Dec-06 04-Dec-06	Capture Transfer
00094	M4-010	M	15-Aug-08	WILD	WILD	INDIA TIRUPATI VISAKAPAT	10-Feb-09 10-Feb-09 21-Sep-12	Capture Transfer Transfer
00112	M-03	M	????	WILD	WILD	INDIA TIRUPATI VISAKAPAT	~ 5 Feb 2009 10-Feb-09 21-Sep-12	Capture Transfer Transfer
00113	M1	M	????	UNK	UNK	VISAKAPAT	????	Birth
00114	F1	F	????	UNK	UNK	VISAKAPAT	????	Birth
00115	M2-01	M	~ 2010	00113	00114	VISAKAPAT	~ 2010	Birth
00116	F2-01	F	~ 2010	00113	00114	VISAKAPAT	~ 2010	Birth
00117	F2-02	F	~ 2010	00113	00114	VISAKAPAT	~ 2010	Birth
00118	M3-01	M	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00119	M3-02	M	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00120	F3-01	F	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00121	F3-02	F	~ 2011	00113	00114	VISAKAPAT	~ 2011	Birth
00123	M4-01	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00124	M4-02	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00125	M4-03	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00126	M4-04	M	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00127	F4-01	F	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00128	F4-02	F	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00129	F4-03	F	07-Mar-13	00115	00116	VISAKAPAT	07-Mar-13	Birth
00130	M-01	M	????	UNK	UNK	VISAKAPAT	????	Birth
00131	F-01	F	????	UNK	UNK	VISAKAPAT	????	Birth
00132	M-02	M	????	UNK	UNK	VISAKAPAT	????	Birth
00133	F-02	F	????	UNK	UNK	VISAKAPAT	????	Birth
00135	UNK	M	????	WILD	WILD	VISAKAPAT	~Nov-13 20-Nov-13	Capture Transfer
00136	UNK	M	????	WILD	WILD	VISAKAPAT	~Nov-13 20-Nov-13	Capture Transfer
<b>Totals: 19.14.0 (33)</b>								
<b>Nehru Zoological Park, Hyderabad</b>								
00019	AKITA 0006B715F0	F	????	UNK	UNK	TIRUPATI HYDERABAD	???? 22-Jul-07	Birth Transfer
<b>Totals: 0.1.0 (1)</b>								
<b>Sri Chamarajendra Zoological Gardens, Mysuru</b>								
00040	LAKSHMI 100109	F	06-Jan-08	00016	00014	MADRAS MYSORE	06-Jan-08 10-Oct-09	Birth Transfer
00098	PRANAV, M00782 9.56E+14	M	19-Nov-11	00037	00040	MYSORE	19-Nov-11	Birth
00109	SACHIN, M01017 00074D29A4	M	15-Dec-12	00037	00040	MYSORE	15-Dec-12	Birth
00110	BRUCE LEE, M01018 00074D30AE	M	15-Dec-12	00037	00040	MYSORE	15-Dec-12	Birth

Stud#	Local ID Name Transponder	Sex	Birth Date	Sire	Dam	Location	Date	Event
00111	SHANTHI, M01019 00074D3FF5	F	15-Dec-12	00037	00040	MYSORE	15-Dec-12	Birth
00146	M01215	?	06-Jan-16	UNK	UNK	MYSORE	06-Jan-16	Birth
<b>Totals: 3.2.1 (6)</b>								
<b>Sri Venkateswara Zoological Park, Tirupati</b>								
00004	RADHA 0006B7287C	F	????	UNK	UNK	VISAKAPAT TIRUPATI	???? ????	Birth Transfer
00005	CHANTI 0006B71632	M	????	WILD	WILD	INDIA TIRUPATI	???? ????	Capture Transfer
00007	BUJI	F	????	UNK	UNK	VISAKAPAT TIRUPATI	???? 11-Nov-03	Birth Transfer
00008	KRISHNA	M	????	UNK	UNK	VISAKAPAT TIRUPATI	???? 11-Nov-03	Birth Transfer
00102	DURGA 0006EFC5C2	F	????	WILD	WILD	INDIA TIRUPATI	~25 Apr 2013 31-May-13	Capture Transfer
00103	ARJUNA 0006EFD755	M	????	WILD	WILD	INDIA TIRUPATI	~May 2013 31-May-13	Capture Transfer
00104	ADITYA 0006EF518B	M	????	WILD	WILD	INDIA TIRUPATI	25-Apr-13 31-May-13	Capture Transfer
00143	BHAIRAVA M40011	M	23-Nov-11	UNK	UNK	VISAKAPAT TIRUPATI	23-Nov-11 21-Sep-12	Birth Transfer
<b>Totals: 5.3.0 (8)</b>								
<b>Total living in Indian Zoos: 35.22.1 (58)</b>								



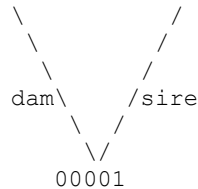
## Pedigree Chart Report of Asiatic Wild Dog (*Cuon alpinus*)

=====

Taxon Name: CUON ALPINUS Studbook Number: 00001

=====

UNK

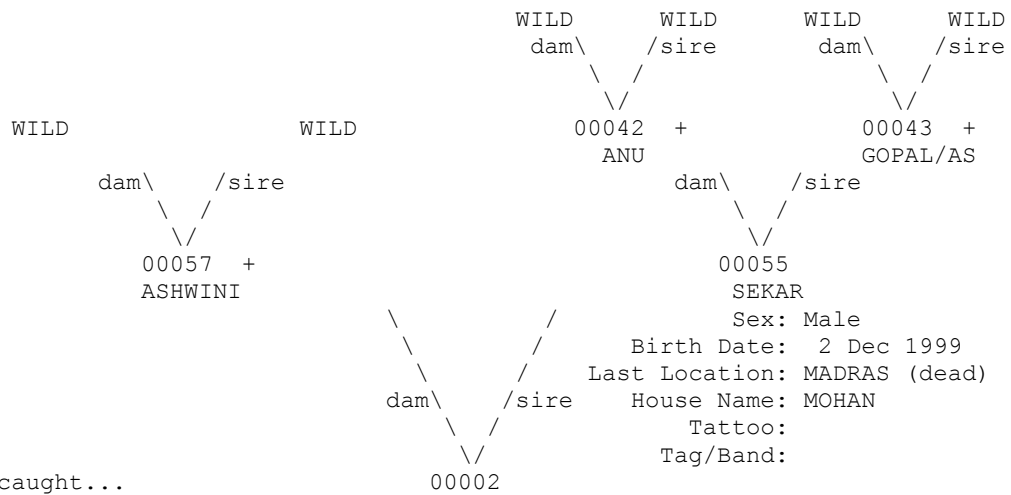


UNK  
 Sex: Female  
 Birth Date: 2 Dec 1999  
 Last Location: MYSORE (dead)  
 House Name: VALLI  
 Tattoo:  
 Tag/Band:

=====

Taxon Name: CUON ALPINUS Studbook Number: 00002

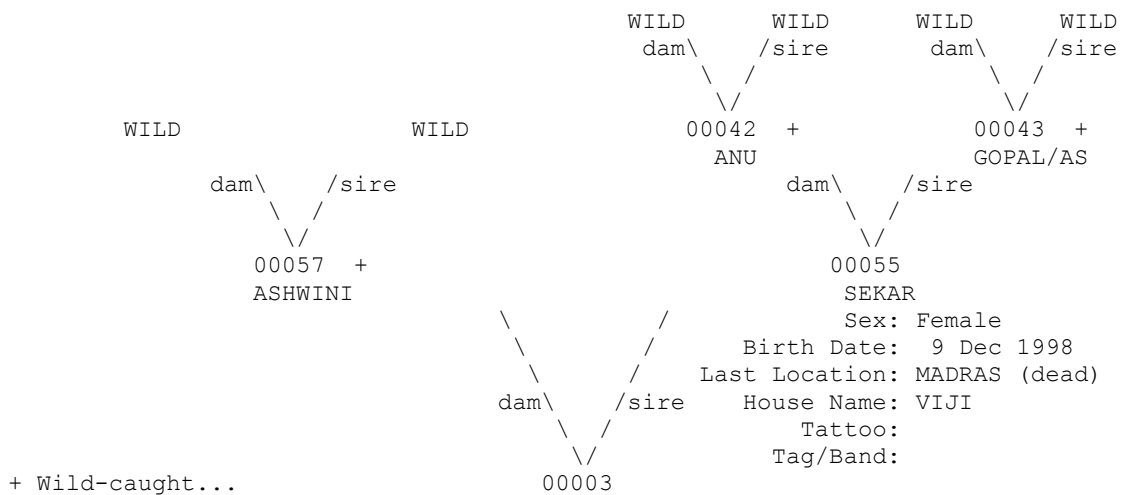
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Taxon Name: CUON ALPINUS Studbook Number: 00003

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=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00004
=====
UNK                                                     UNK
                                                     Sex: Female
                                                     Birth Date:  ???
Last Location: TIRUPATI
House Name:
Tattoo:
Tag/Band:
    \      /
    \    /
dam \  /sire
    \  /
     \ /
      V
    00004

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00005
=====
WILD                                                    WILD
                                                     Sex: Male
                                                     Birth Date:  ???
Last Location: TIRUPATI
House Name:
Tattoo:
Tag/Band:
    \      /
    \    /
dam \  /sire
    \  /
     \ /
      V
    00005

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00006
=====
WILD                                                    WILD
                                                     Sex: Male
                                                     Birth Date:  ???
Last Location: VISAKAPAT
House Name:
Tattoo:
Tag/Band:
    \      /
    \    /
dam \  /sire
    \  /
     \ /
      V
    00006

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00007
=====
UNK                                                     UNK
                                                     Sex: Female
                                                     Birth Date:  ???
Last Location: TIRUPATI
House Name:
Tattoo:
Tag/Band:
    \      /
    \    /
dam \  /sire
    \  /
     \ /
      V
    00007

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00008
=====
UNK                                                     UNK
                                                     Sex: Male
                                                     Birth Date:  ???
Last Location: TIRUPATI
House Name: KRISHNA
Tattoo:
Tag/Band:
    \      /
    \    /
dam \  /sire
    \  /
     \ /
      V
    00008

```

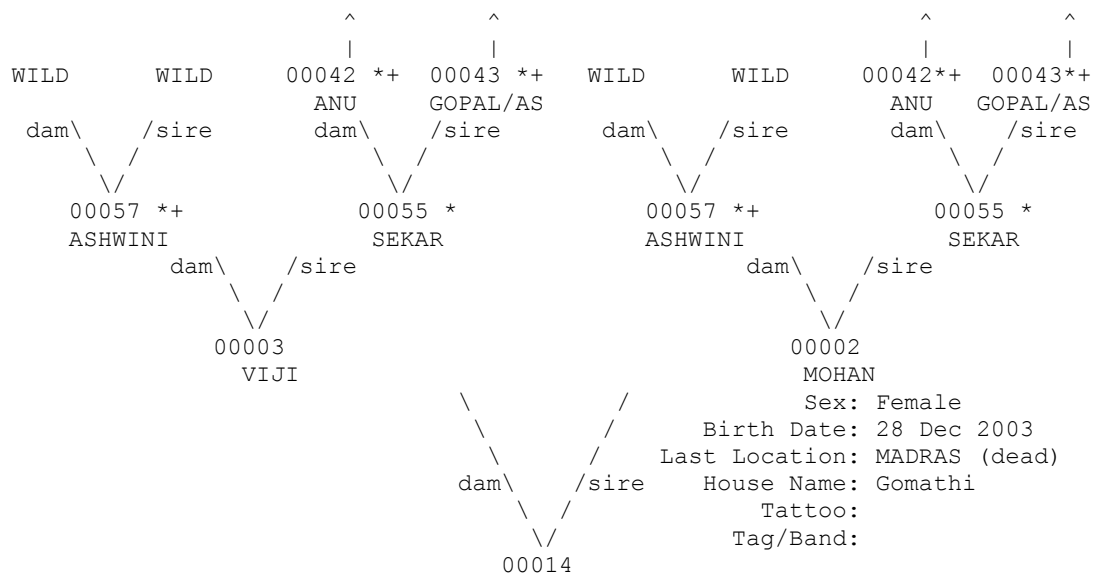




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Taxon Name: CUON ALPINUS Studbook Number: 00014

=====

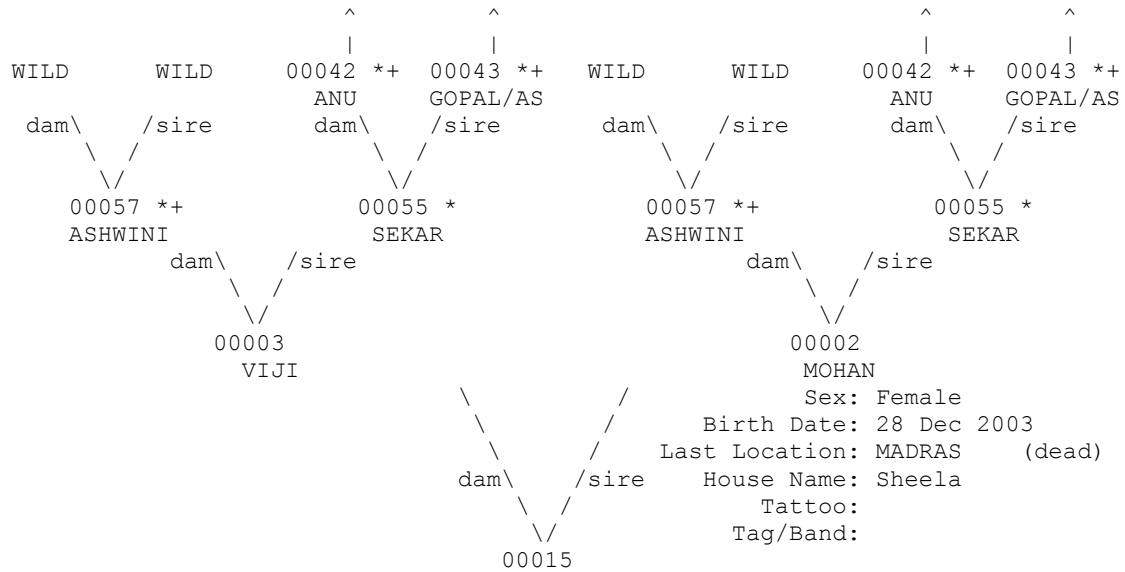


+ Wild-caught... \* Appear more than once...  
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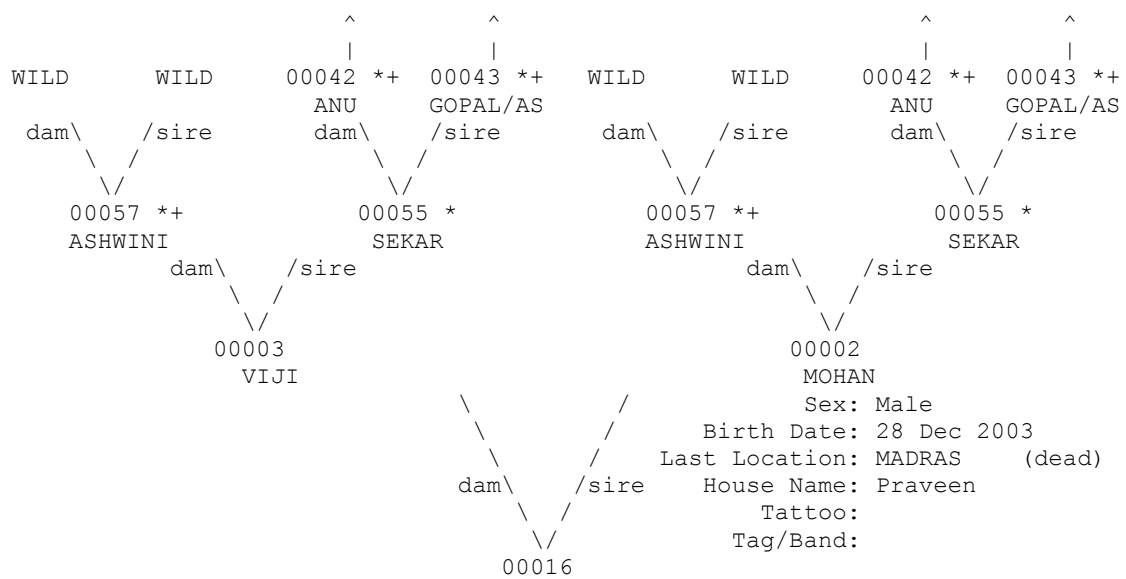
Taxon Name: CUON ALPINUS Studbook Number: 00015

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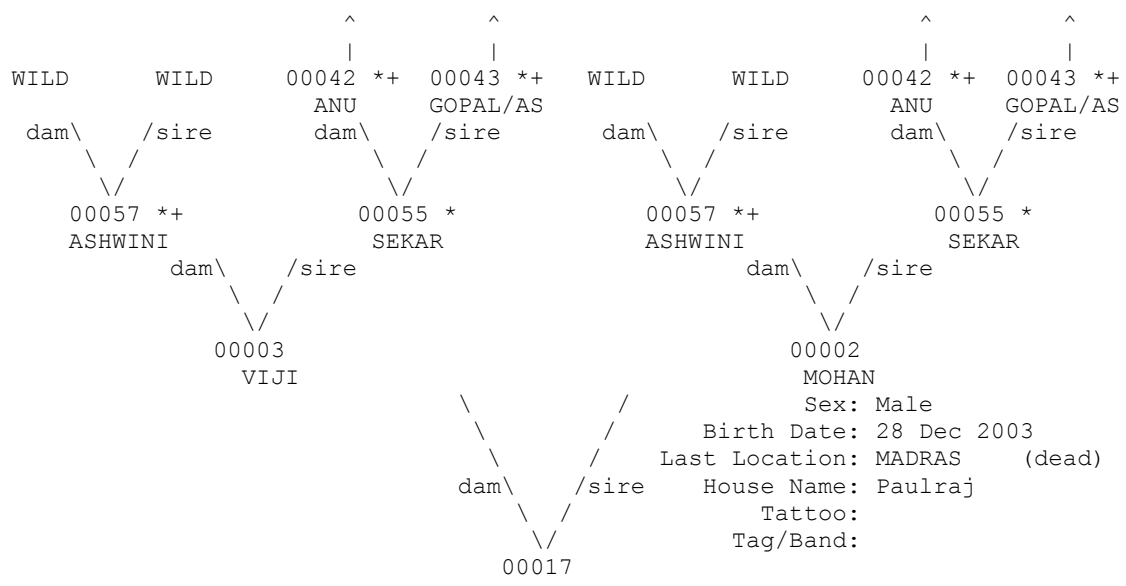
+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00016
   
=====



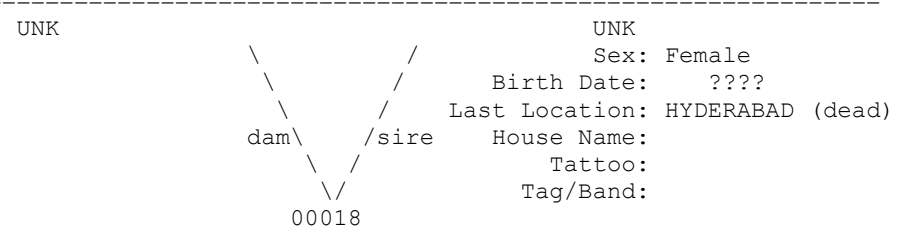
+ Wild-caught... \* Appear more than once...
   
^ Pedigree continues beyond top of page...

=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00017
   
=====



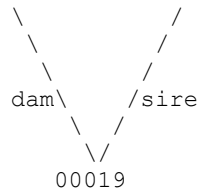
+ Wild-caught... \* Appear more than once...
   
^ Pedigree continues beyond top of page...

=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00018
   
=====



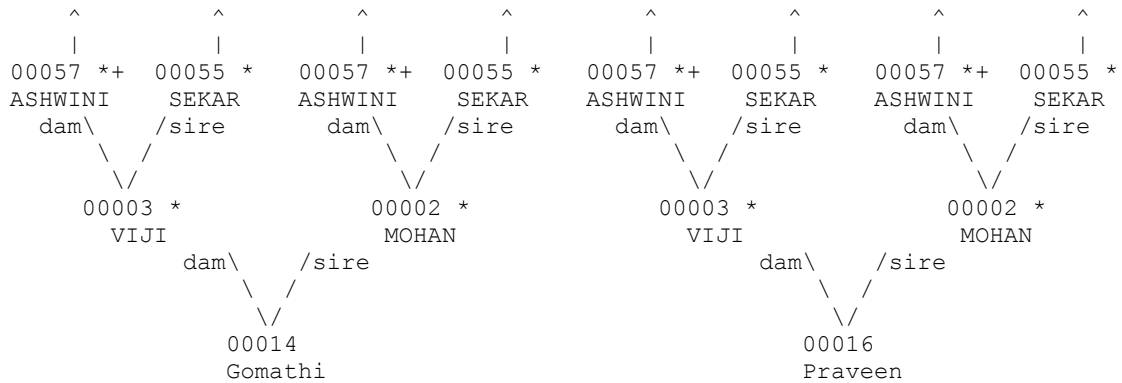
=====  
Taxon Name: CUON ALPINUS Studbook Number: 00019  
=====

UNK



UNK  
Sex: Female  
Birth Date: ????  
Last Location: HYDERABAD  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00021  
=====

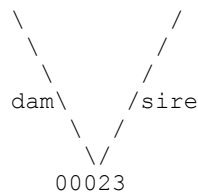


Sex: Male  
Birth Date: 19 Aug 2006  
Last Location: MADRAS (dead)  
House Name: sivashankar  
Tattoo:  
Tag/Band:

+ Wild-caught... \* Appear more than once...  
^ Pedigree continues beyond top of page...

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00023  
=====

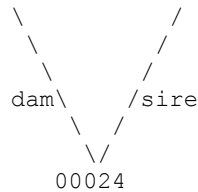
WILD



WILD  
Sex: Female  
Birth Date: 4 Dec 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00024  
=====

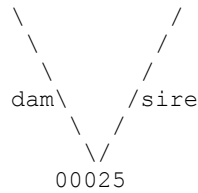
WILD



WILD  
Sex: Female  
Birth Date: ~ 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00025  
=====

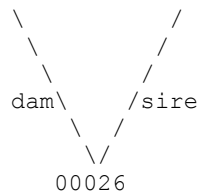
WILD



WILD  
Sex: Male  
Birth Date: 4 Dec 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00026  
=====

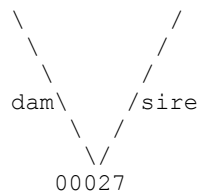
WILD



WILD  
Sex: Male  
Birth Date: 4 Dec 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00027  
=====

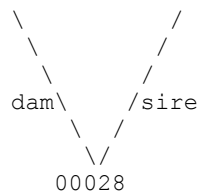
WILD



WILD  
Sex: Male  
Birth Date: 4 Dec 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00028  
=====

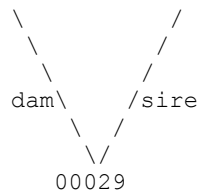
WILD



WILD  
Sex: Male  
Birth Date: 4 Dec 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00029  
=====

WILD



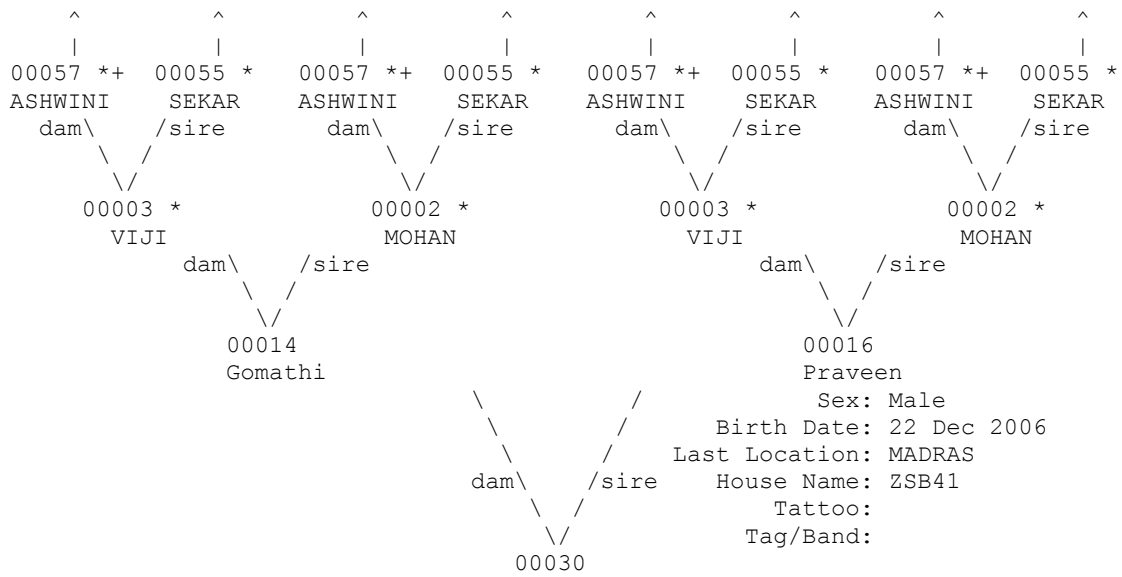
WILD  
Sex: Female  
Birth Date: 4 Dec 2006  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:



=====

Taxon Name: CUON ALPINUS Studbook Number: 00030

=====

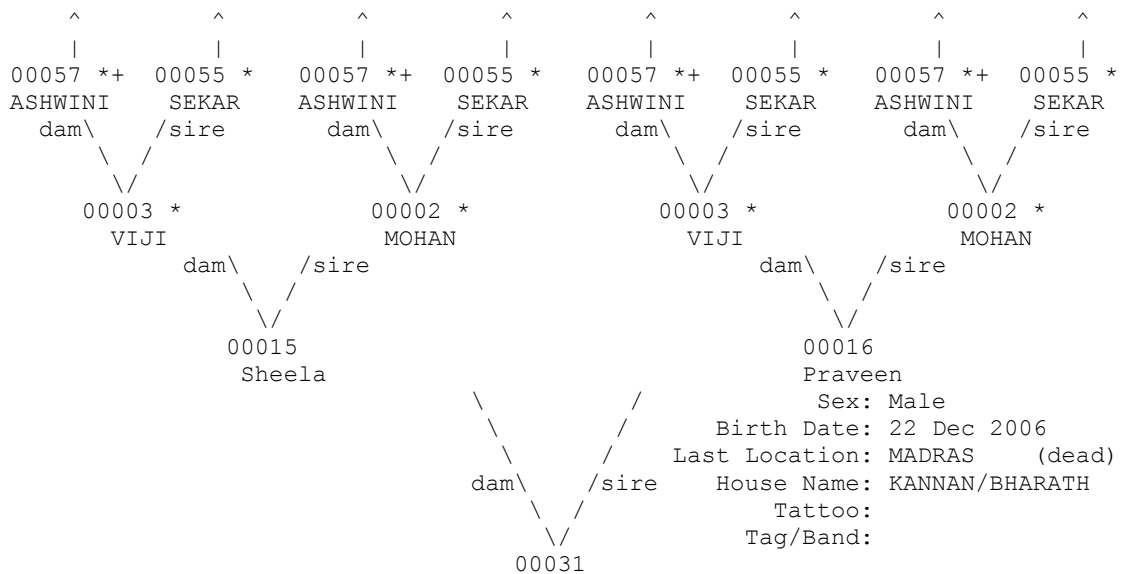


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00031

=====



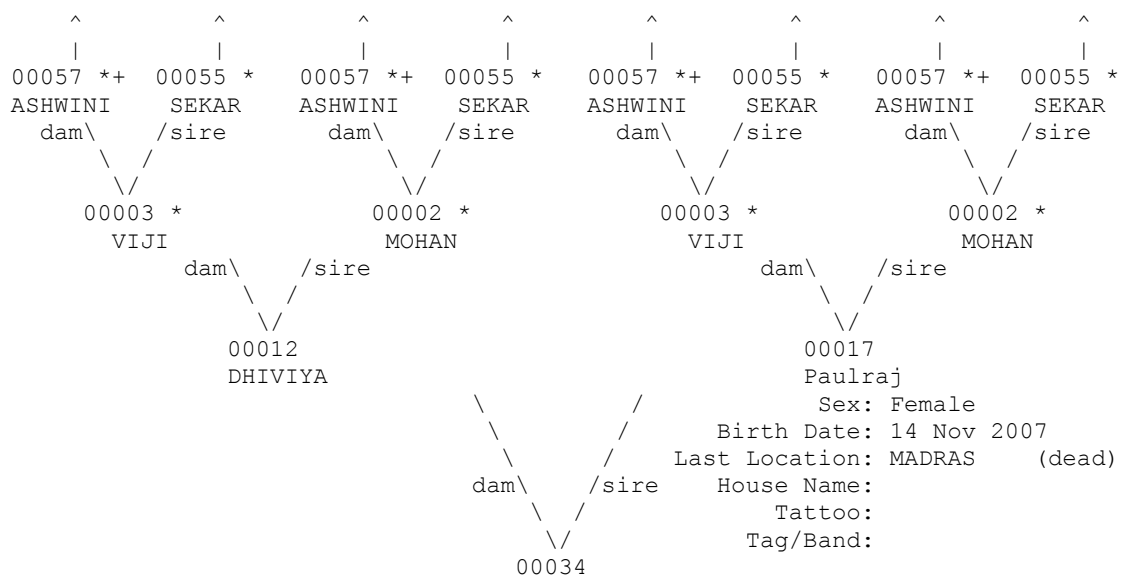
+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...



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Taxon Name: CUON ALPINUS Studbook Number: 00034

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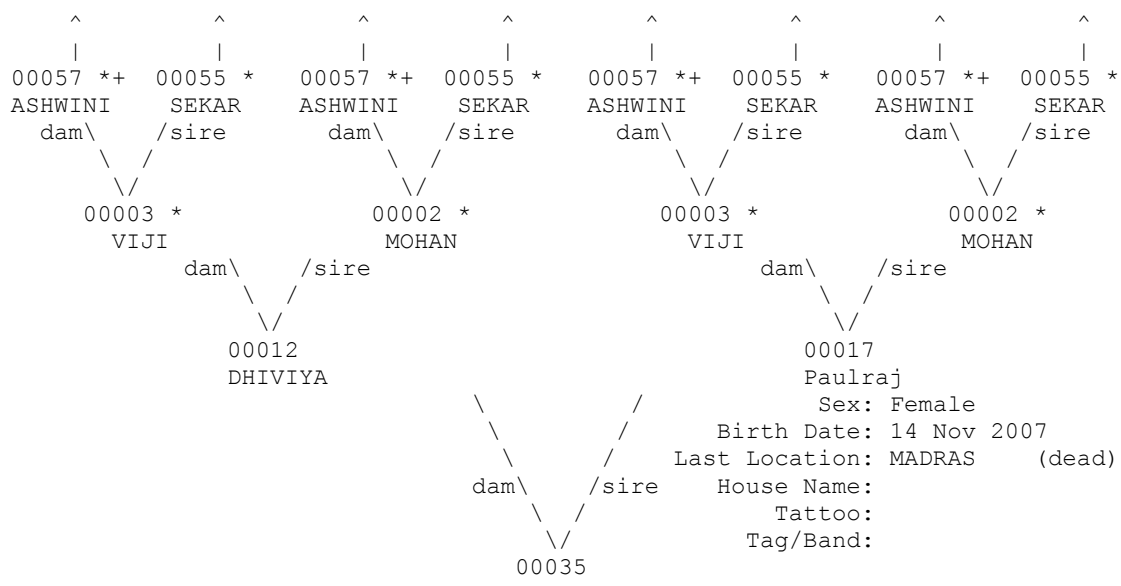


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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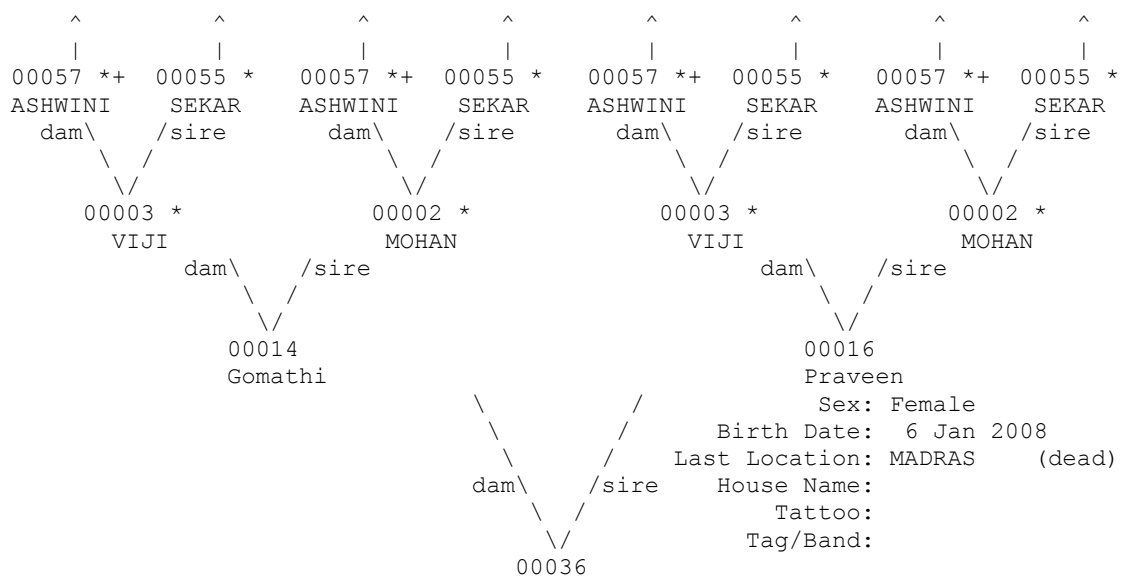
Taxon Name: CUON ALPINUS Studbook Number: 00035

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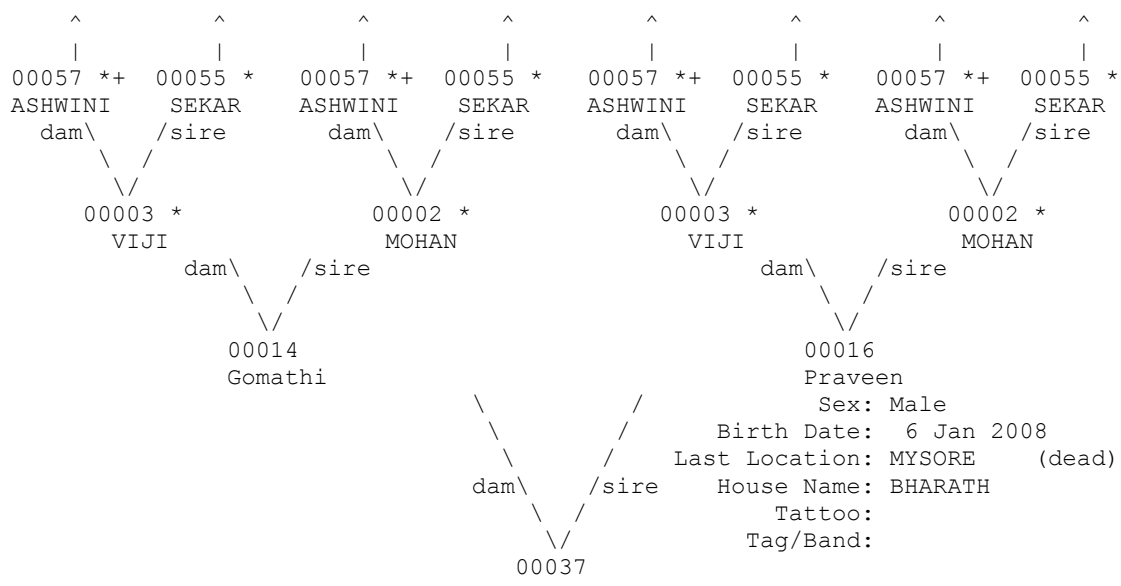
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=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00036  
 =====



+ Wild-caught... \* Appear more than once...  
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=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00037  
 =====



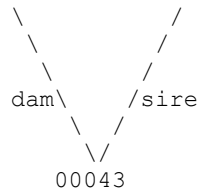
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=====  
Taxon Name: CUON ALPINUS Studbook Number: 00043  
=====

WILD

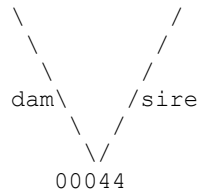


WILD

Sex: Male  
Birth Date: ~ 1985  
Last Location: MADRAS  
House Name: GOPAL/ASOK  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00044  
=====

WILD

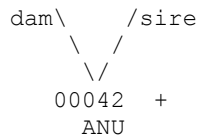


WILD

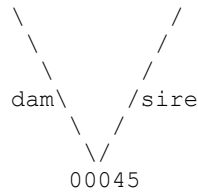
Sex: Male  
Birth Date: ~ 1985  
Last Location: HYDERABAD (dead)  
House Name: KRISHNA  
Tattoo:  
Tag/Band:

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00045  
=====

WILD



WILD



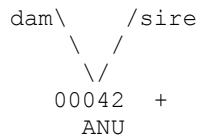
UNK

Sex: Female  
Birth Date: ~ 1987  
Last Location: HYDERABAD (dead)  
House Name:  
Tattoo:  
Tag/Band:

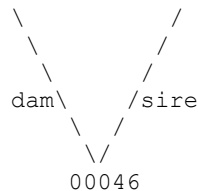
+ Wild-caught...

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00046  
=====

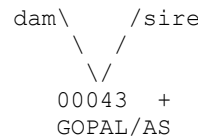
WILD



WILD



WILD



WILD

Sex: Male  
Birth Date: 23 Dec 1987  
Last Location: MADRAS (dead)  
House Name: SURESH  
Tattoo:  
Tag/Band:

+ Wild-caught...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00047
=====

WILD dam\ /sire WILD
00042 + UNK
ANU
Sex: Female
Birth Date: ~ 1989
Last Location: MADRAS (dead)
House Name: ALLI/AMBIKA
Tattoo:
Tag/Band:
+ Wild-caught... 00047

=====
Taxon Name: CUON ALPINUS Studbook Number: 00048
=====

WILD dam\ /sire WILD
00042 + UNK
ANU
Sex: Male
Birth Date: ~ 1990
Last Location: MADRAS (dead)
House Name: ARJUNA
Tattoo:
Tag/Band:
+ Wild-caught... 00048

=====
Taxon Name: CUON ALPINUS Studbook Number: 00049
=====

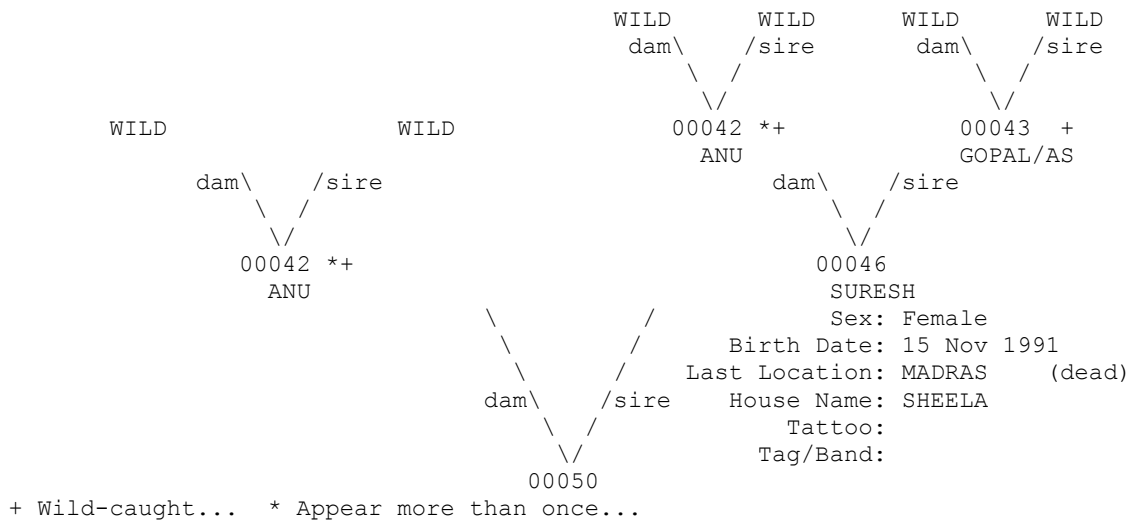
WILD dam\ /sire WILD WILD dam\ /sire WILD
00042 + 00043 +
ANU GOPAL/AS
Sex: Male
Birth Date: 24 Nov 1990
Last Location: MADRAS (dead)
House Name: RAGHAVAN/SANKAR
Tattoo:
Tag/Band:
+ Wild-caught... 00049



=====

Taxon Name: CUON ALPINUS Studbook Number: 00050

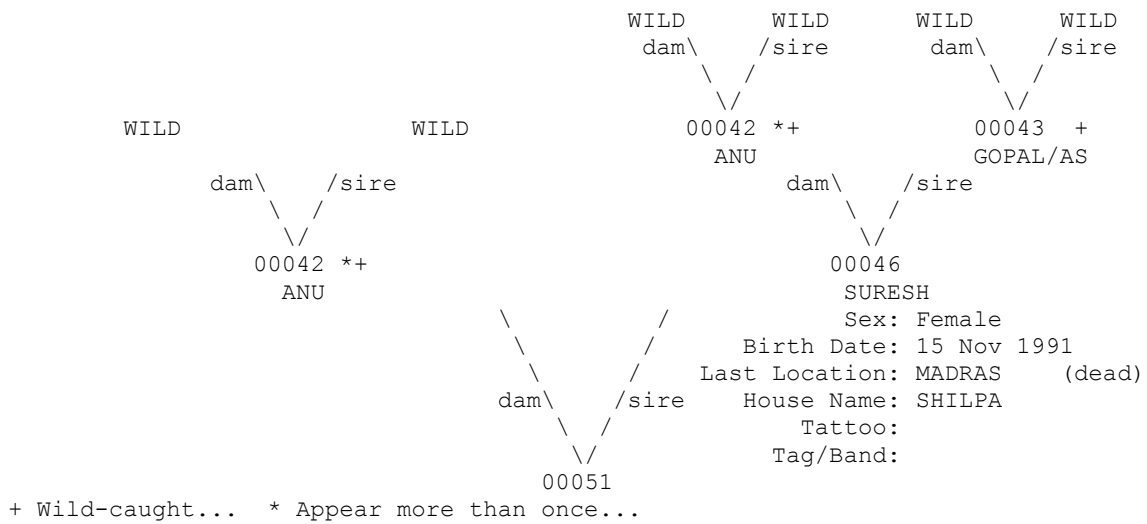
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Taxon Name: CUON ALPINUS Studbook Number: 00051

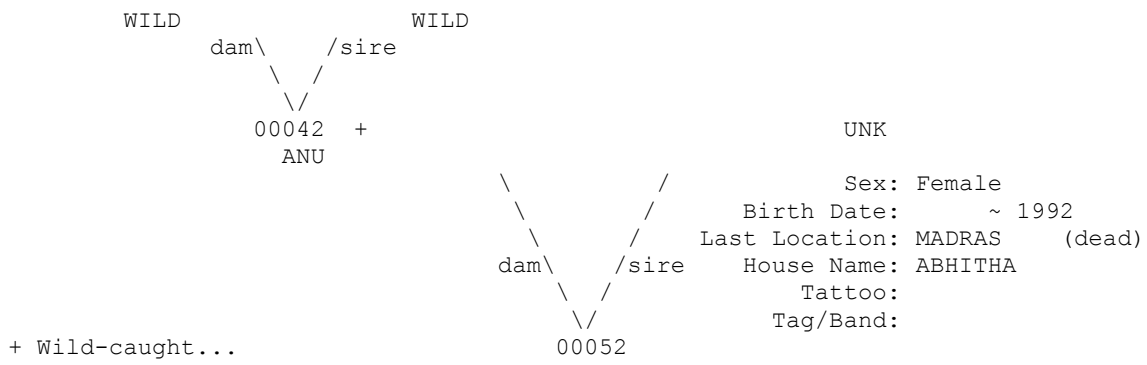
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Taxon Name: CUON ALPINUS Studbook Number: 00052

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Taxon Name: CUON ALPINUS Studbook Number: 00053

=====

WILD dam\ /sire WILD

00042 + ANU

UNK

Sex: Female

Birth Date: ~ 1992

Last Location: MADRAS (dead)

House Name: RADHA

Tattoo:

Tag/Band:

dam\ /sire

00053

+ Wild-caught...

=====

Taxon Name: CUON ALPINUS Studbook Number: 00054

=====

WILD dam\ /sire WILD WILD dam\ /sire WILD

00042 + ANU

00043 + GOPAL/AS

Sex: Male

Birth Date: 3 Jan 1994

Last Location: MADRAS (dead)

House Name: SUBU

Tattoo:

Tag/Band:

dam\ /sire

00054

+ Wild-caught...

=====

Taxon Name: CUON ALPINUS Studbook Number: 00055

=====

WILD dam\ /sire WILD WILD dam\ /sire WILD

00042 + ANU

00043 + GOPAL/AS

Sex: Male

Birth Date: 3 Jan 1994

Last Location: MADRAS (dead)

House Name: SEKAR

Tattoo:

Tag/Band:

dam\ /sire

00055

+ Wild-caught...

=====

Taxon Name: CUON ALPINUS Studbook Number: 00056

=====

WILD dam\ /sire WILD WILD dam\ /sire WILD

00042 + ANU

00043 + GOPAL/AS

Sex: Male

Birth Date: 3 Jan 1994

Last Location: MADRAS (dead)

House Name: RATHNAM

Tattoo:

Tag/Band:

dam\ /sire

00056

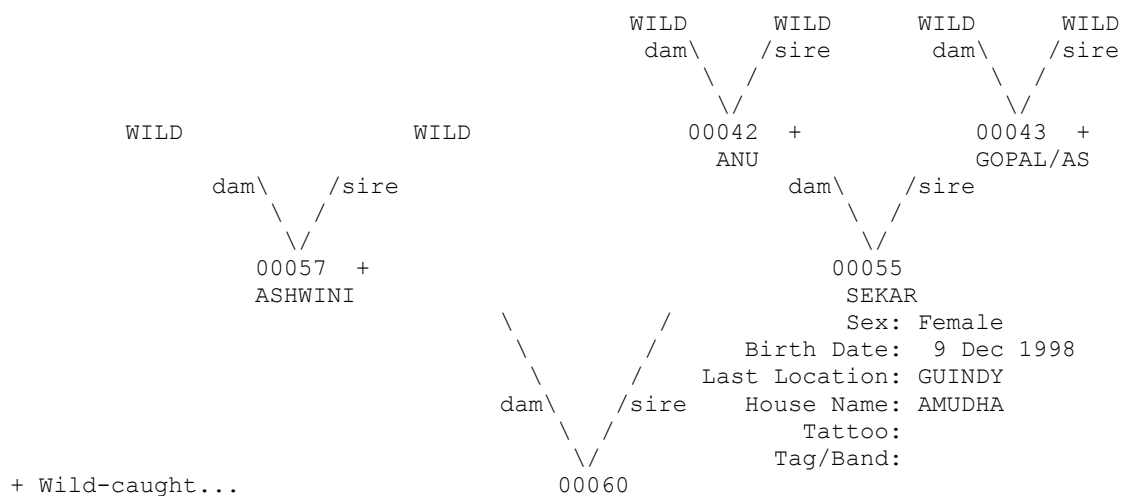
+ Wild-caught...



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Taxon Name: CUON ALPINUS Studbook Number: 00060

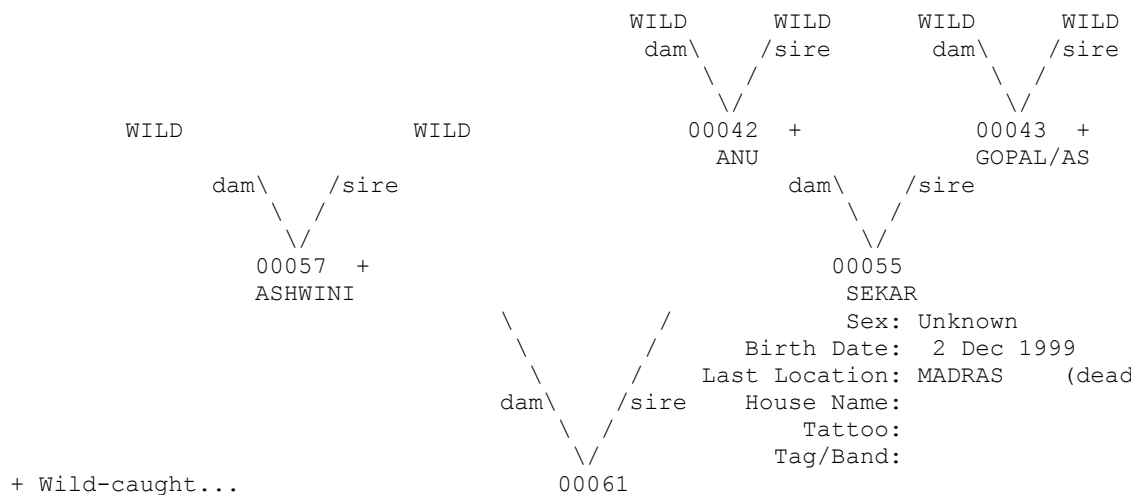
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Taxon Name: CUON ALPINUS Studbook Number: 00061

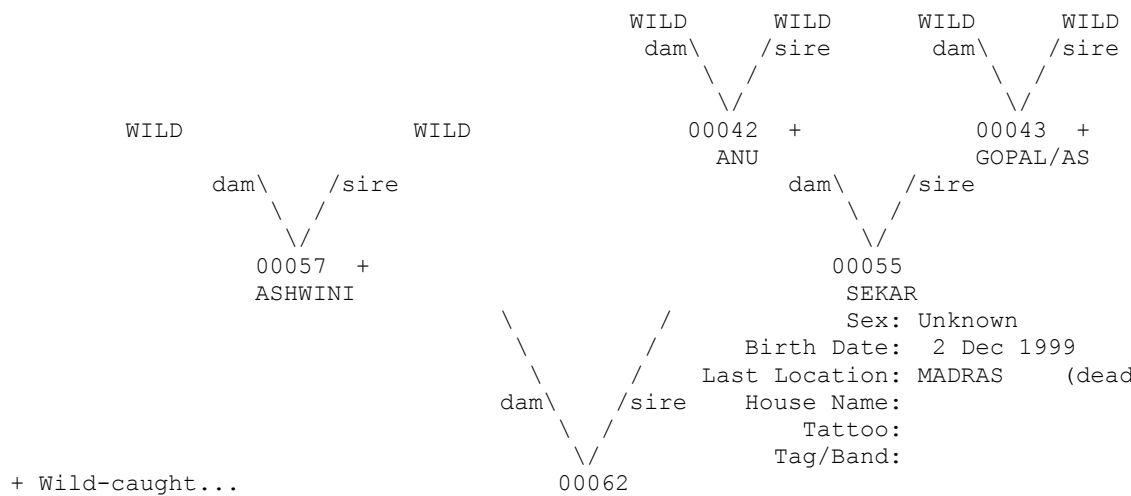
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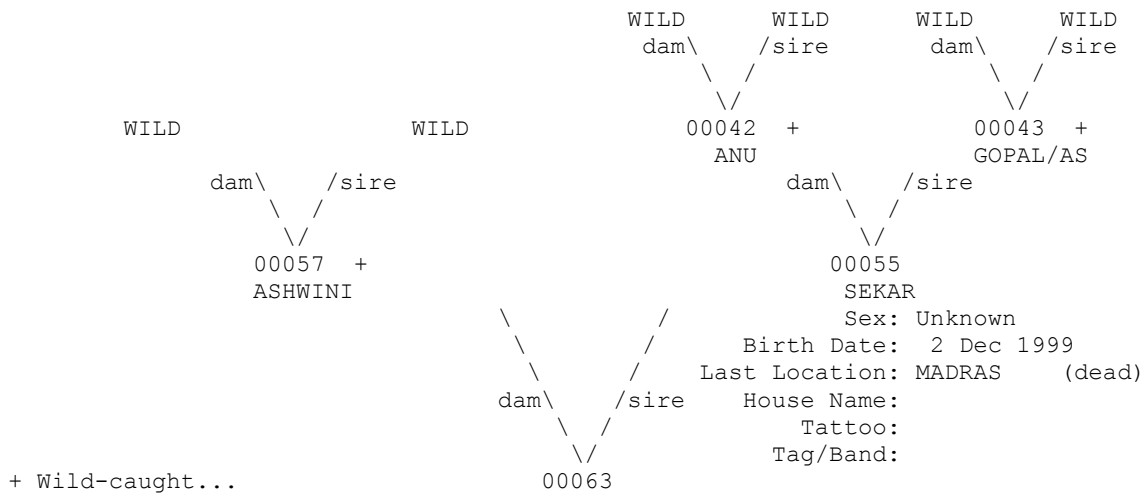
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Taxon Name: CUON ALPINUS Studbook Number: 00062

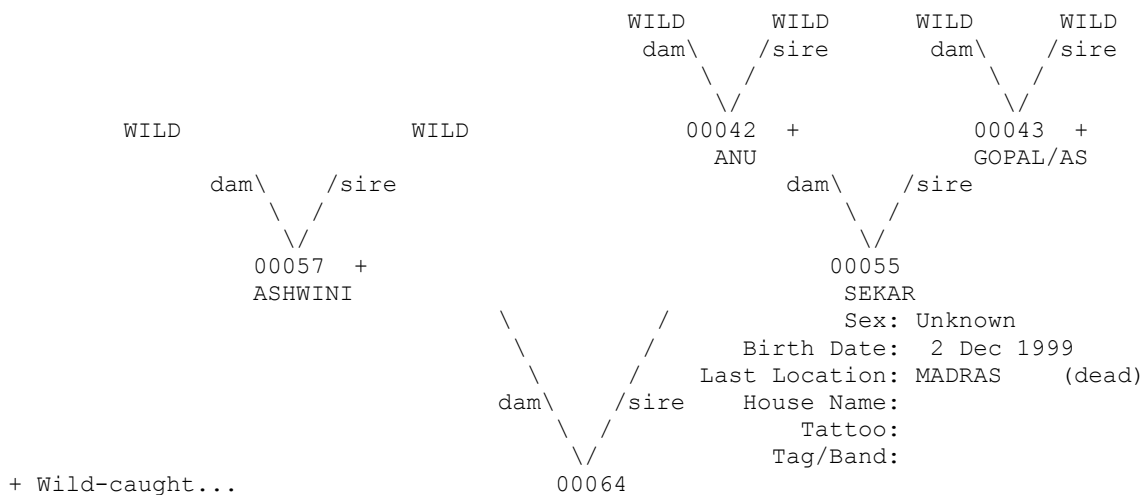
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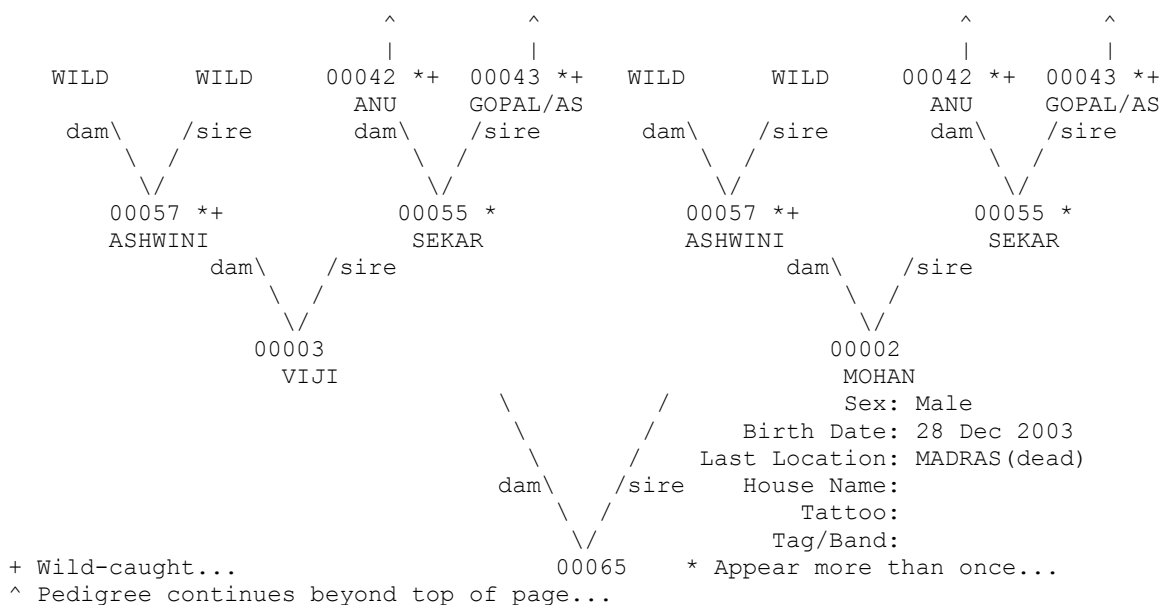
=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00063
   
=====



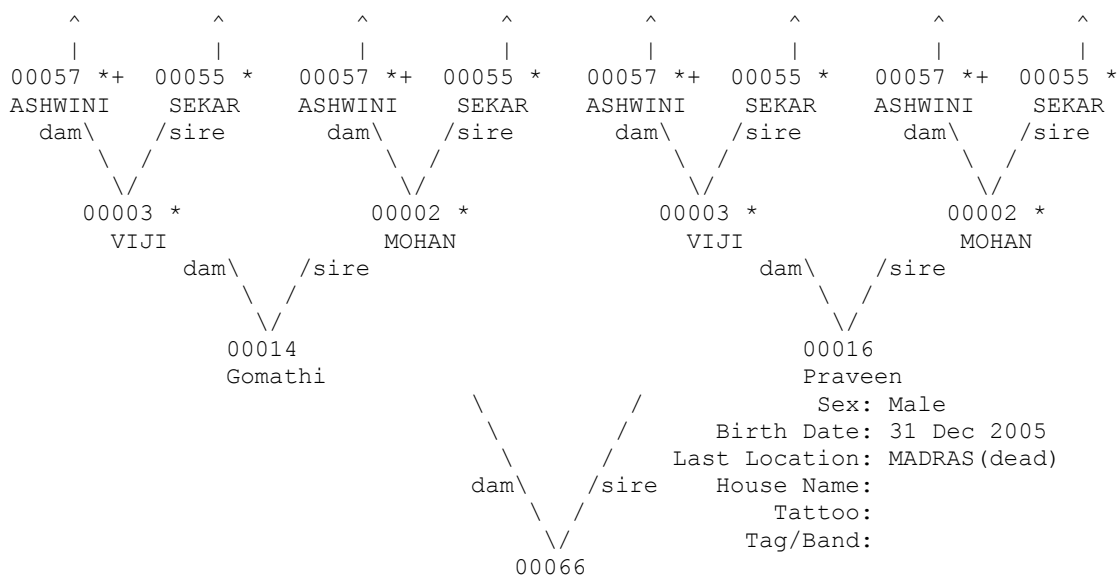
=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00064
   
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Taxon Name: CUON ALPINUS Studbook Number: 00065
   
=====

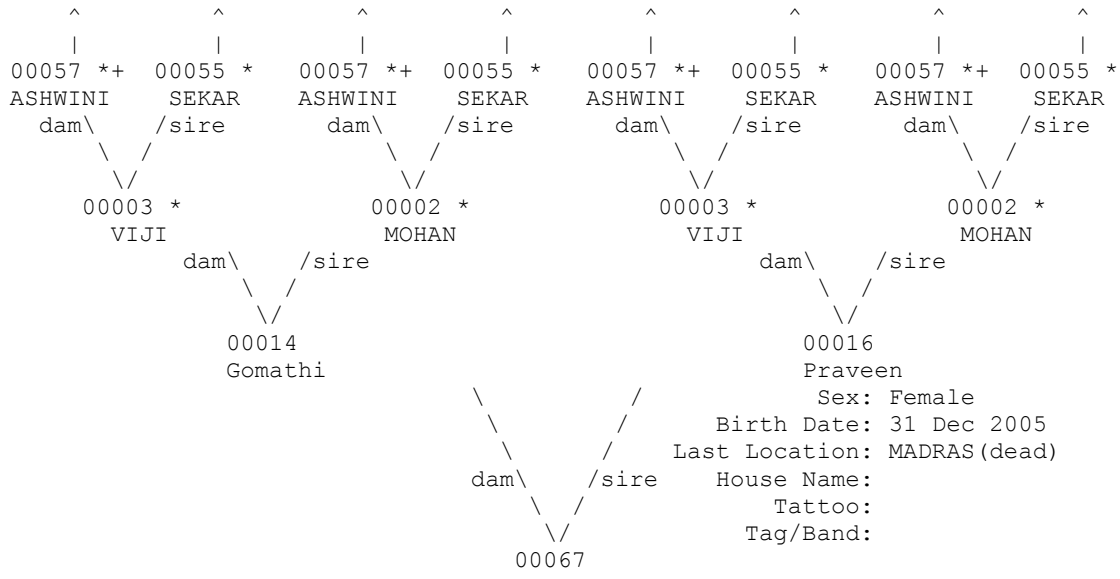


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Taxon Name: CUON ALPINUS Studbook Number: 00066
   
=====



+ Wild-caught... \* Appear more than once...
   
^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00067
   
=====

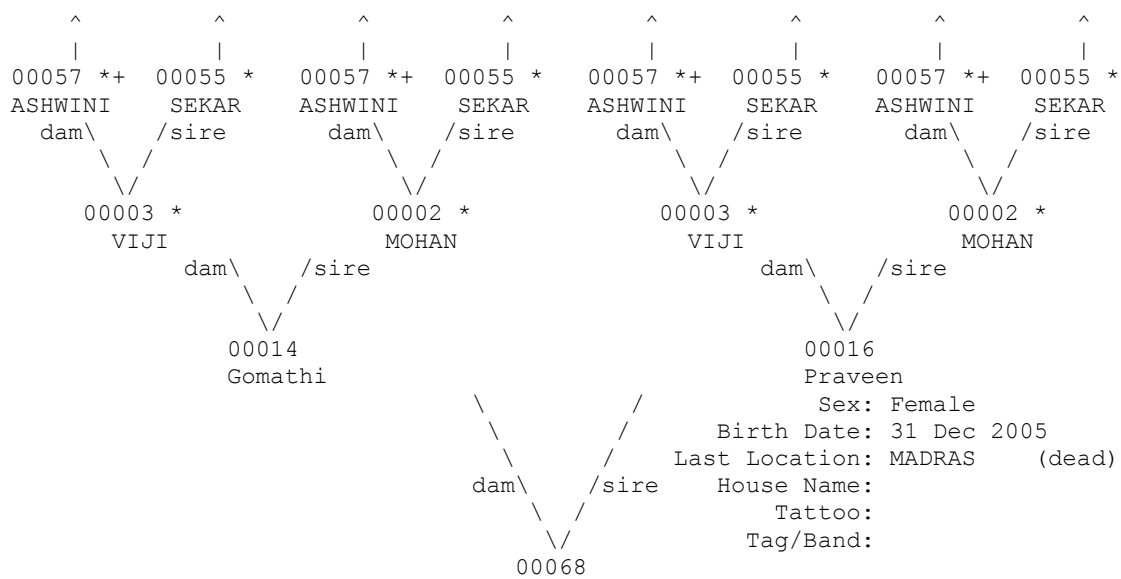


+ Wild-caught... \* Appear more than once...
   
^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00068

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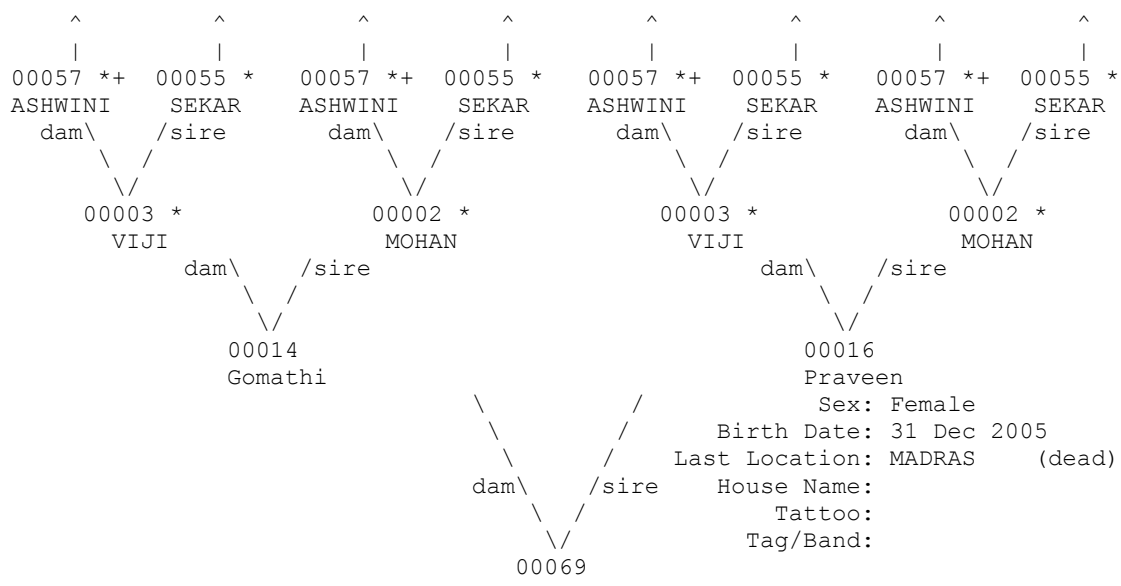


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00069

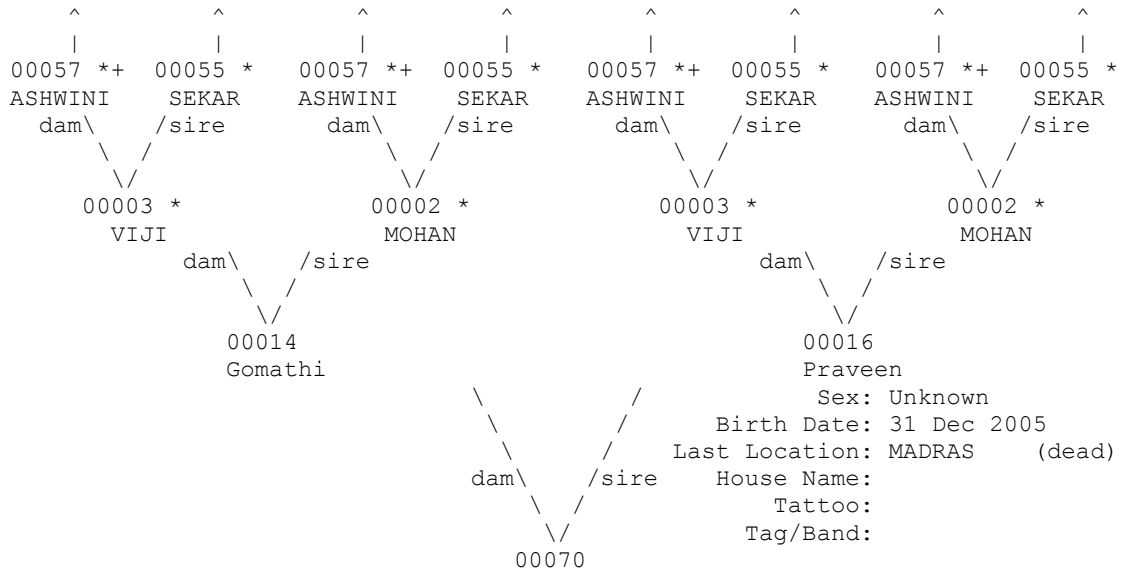
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+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

=====  
Taxon Name: CUON ALPINUS

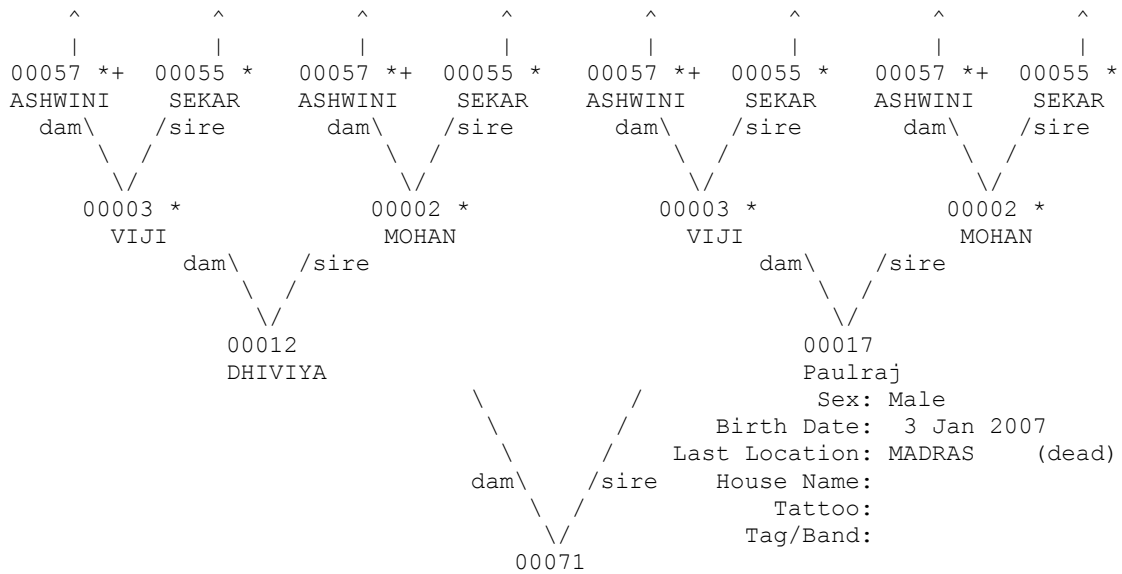
Studbook Number: 00070  
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+ Wild-caught... \* Appear more than once...  
^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS

Studbook Number: 00071  
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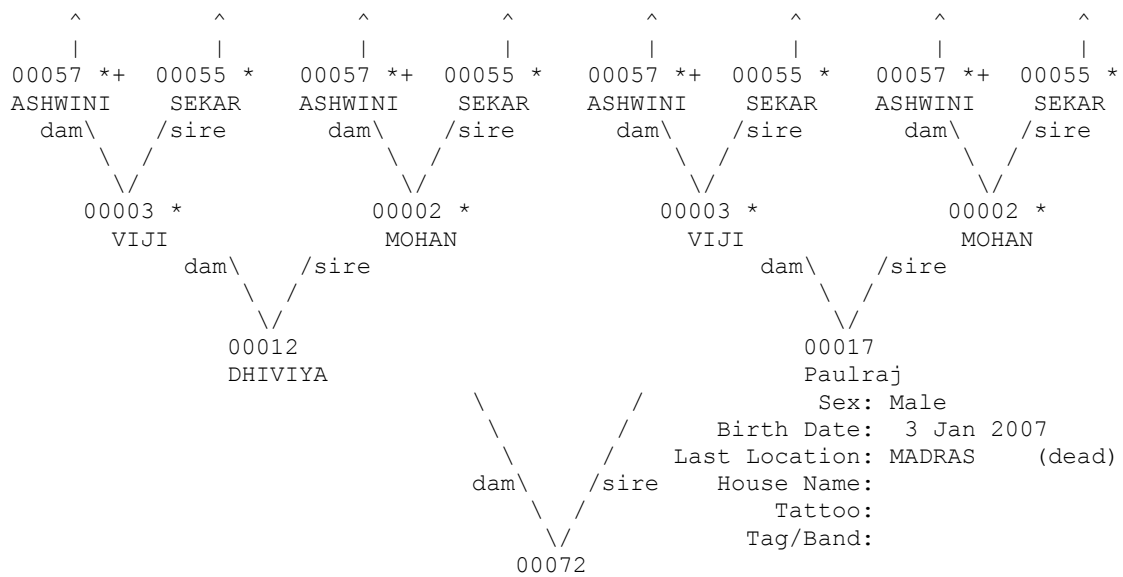
+ Wild-caught... \* Appear more than once...  
^ Pedigree continues beyond top of page...



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Taxon Name: CUON ALPINUS Studbook Number: 00072

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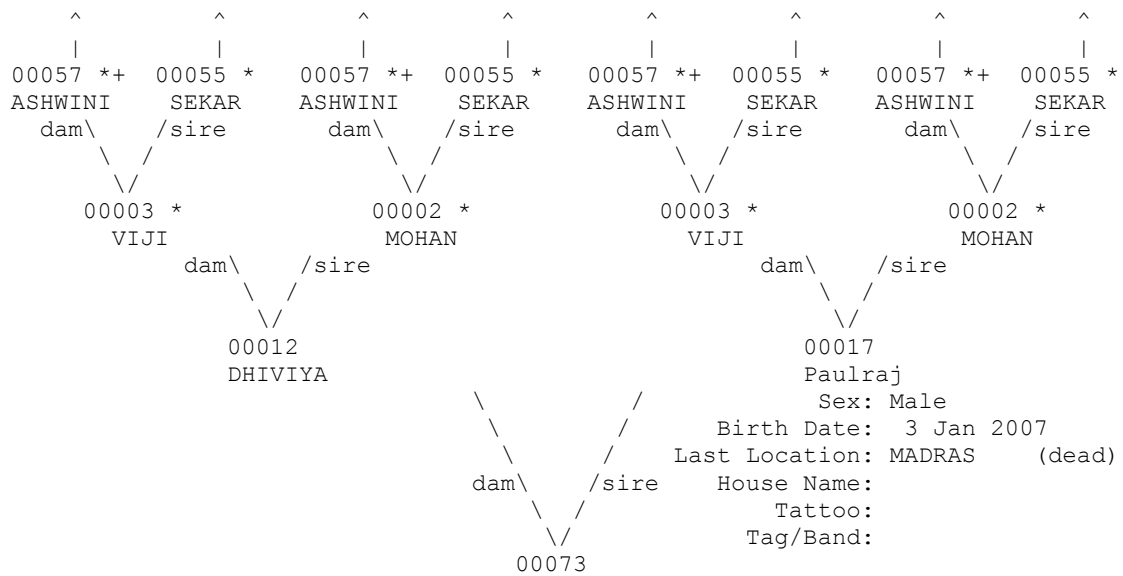


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00073

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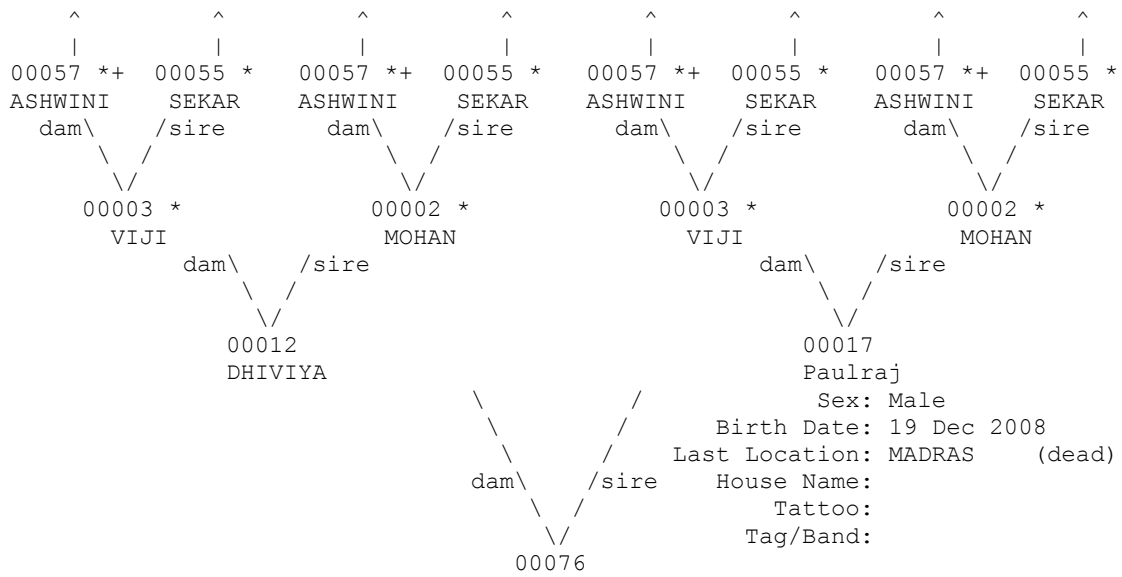
+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...



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Taxon Name: CUON ALPINUS Studbook Number: 00076

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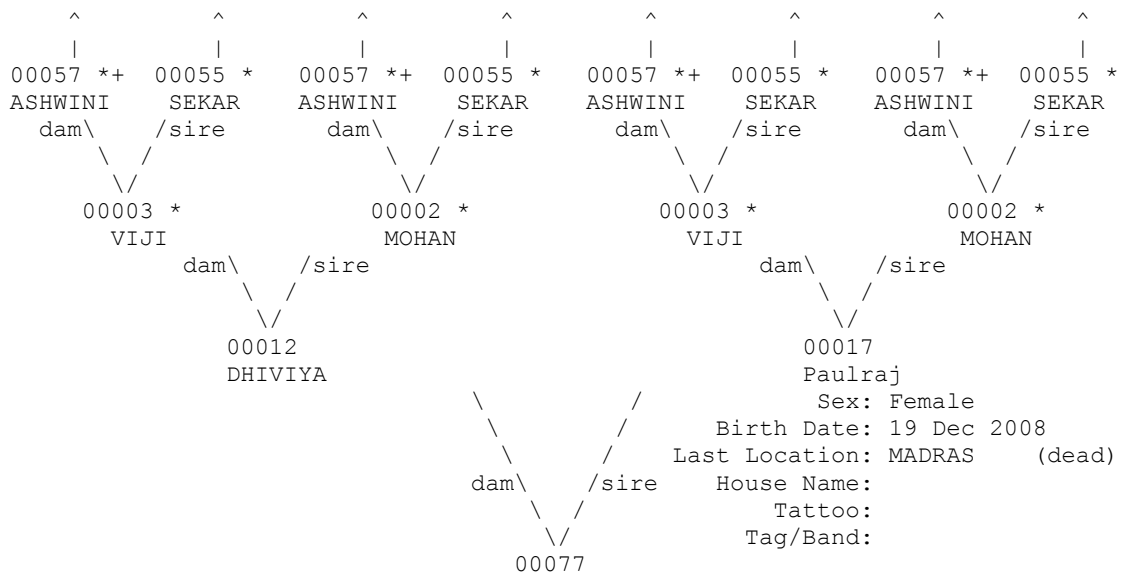


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00077

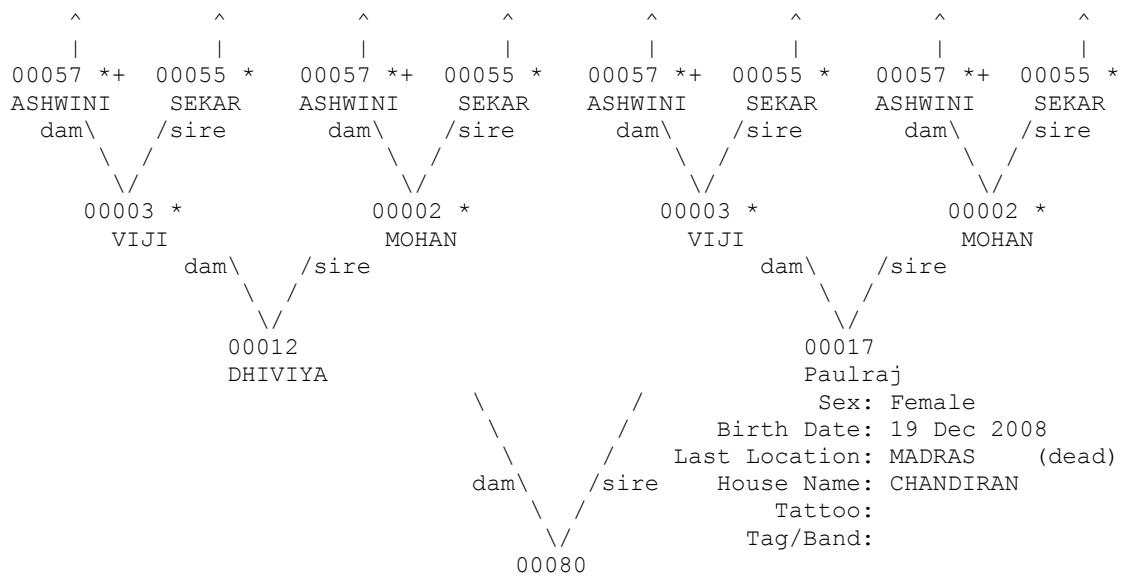
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+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

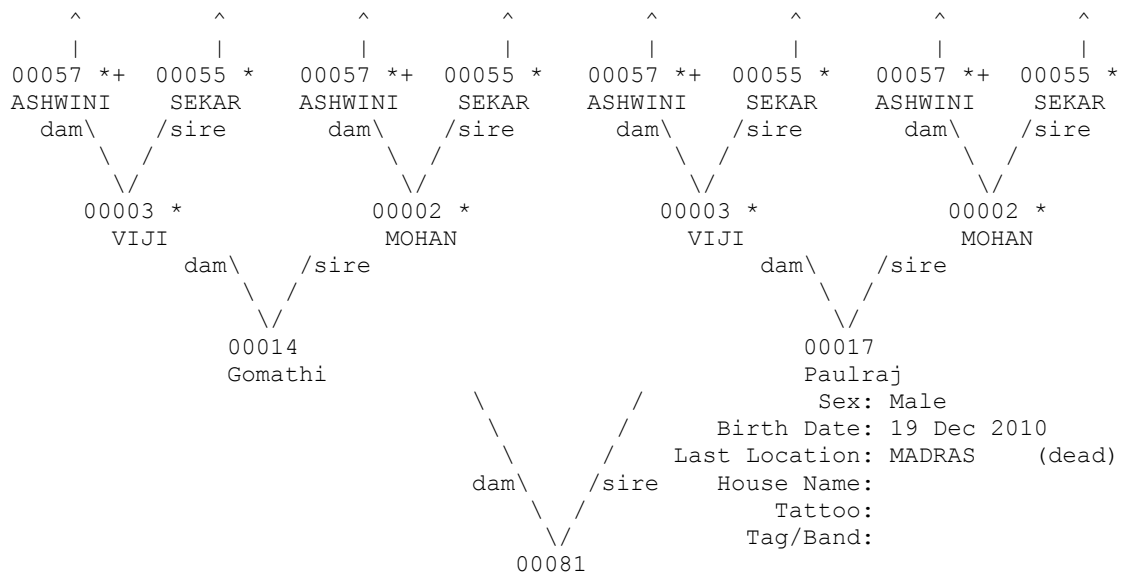


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 Taxon Name: CUON ALPINUS Studbook Number: 00080  
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+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00081  
 =====

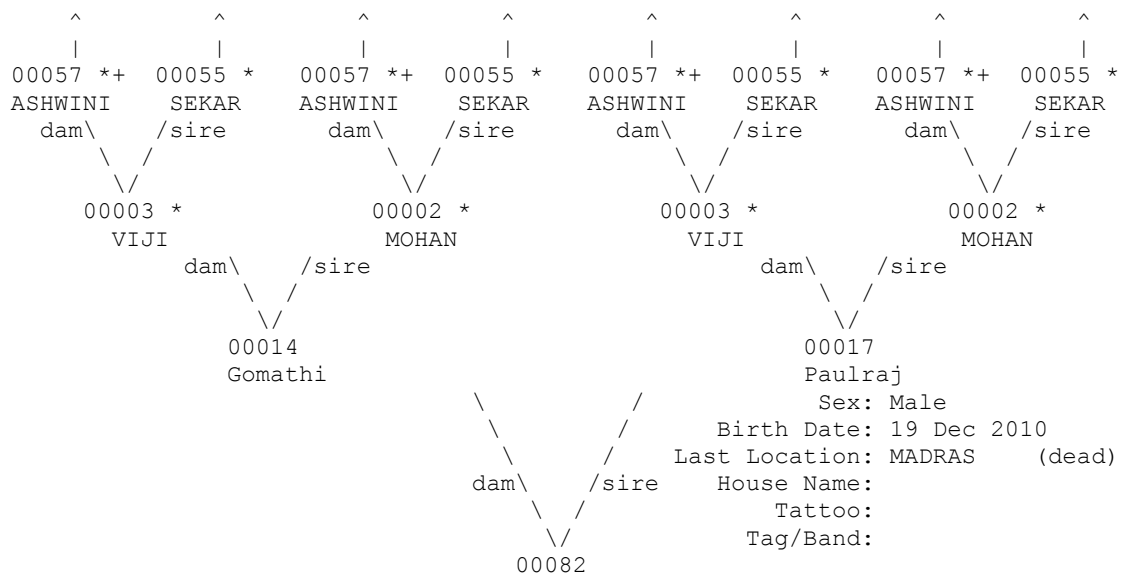


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00082

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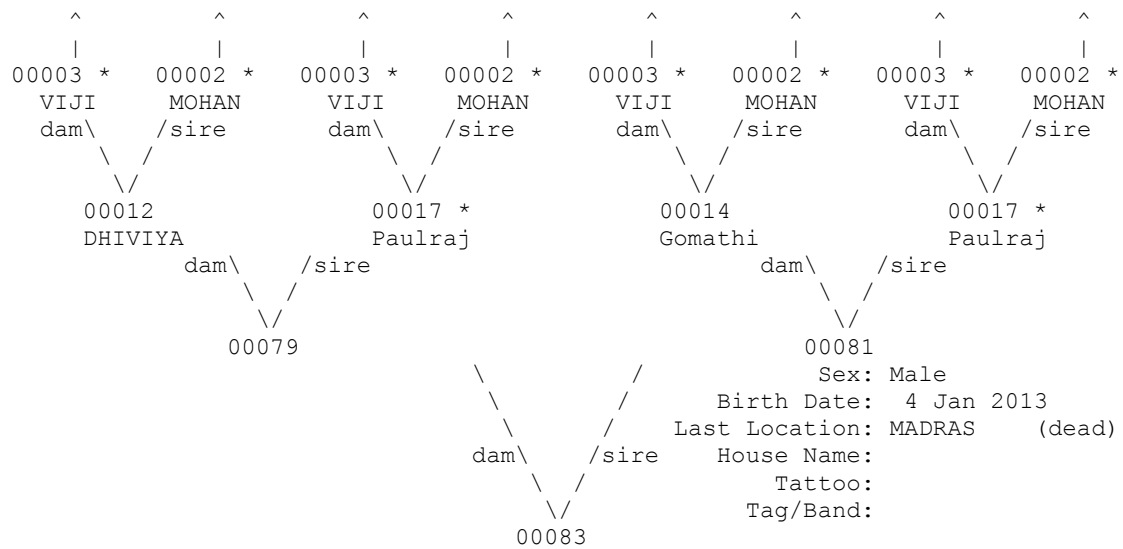


+ Wild-caught... \* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00083

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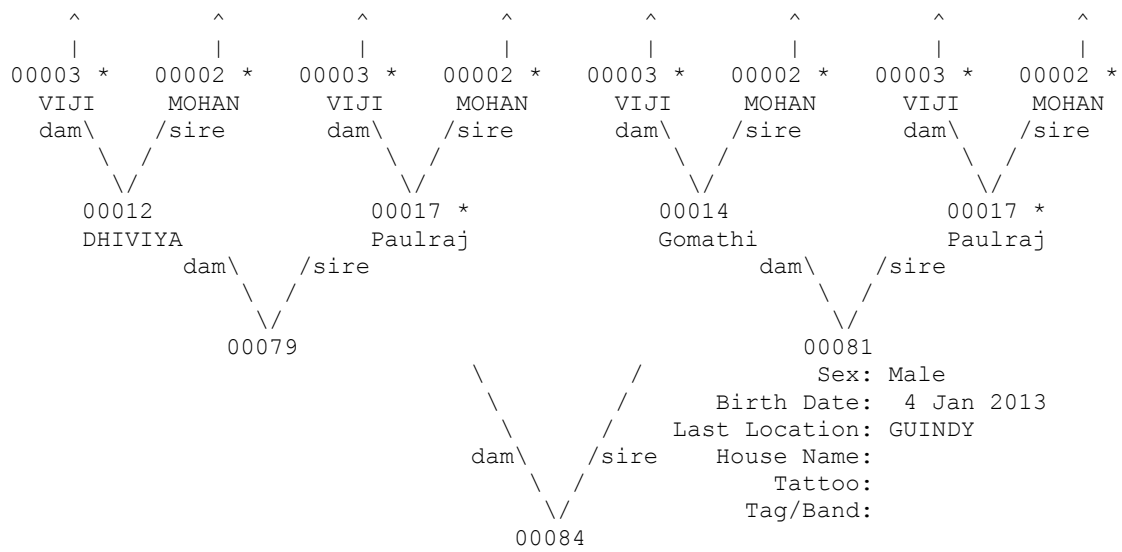


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00084

=====

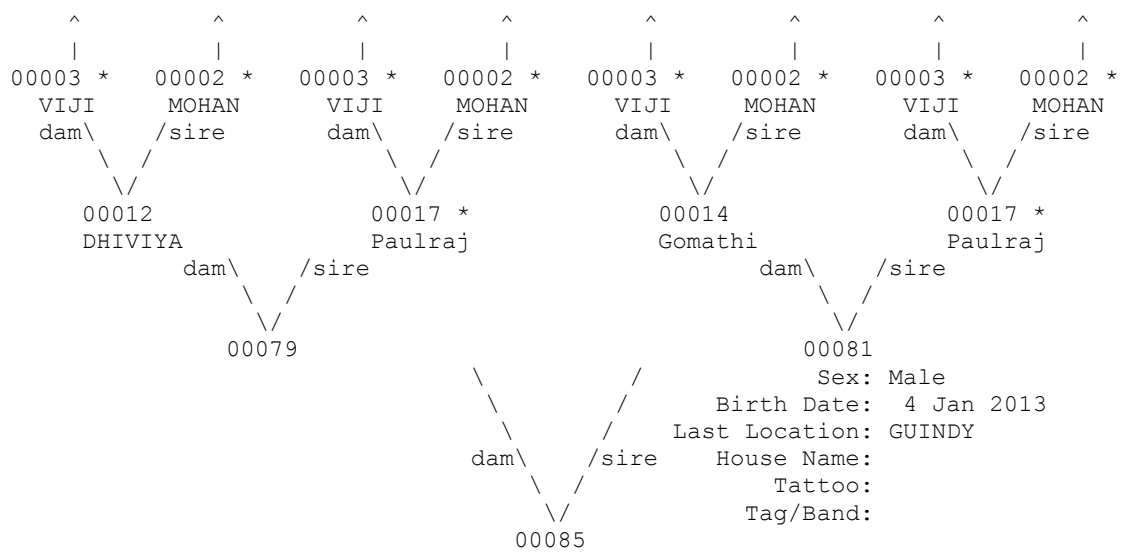


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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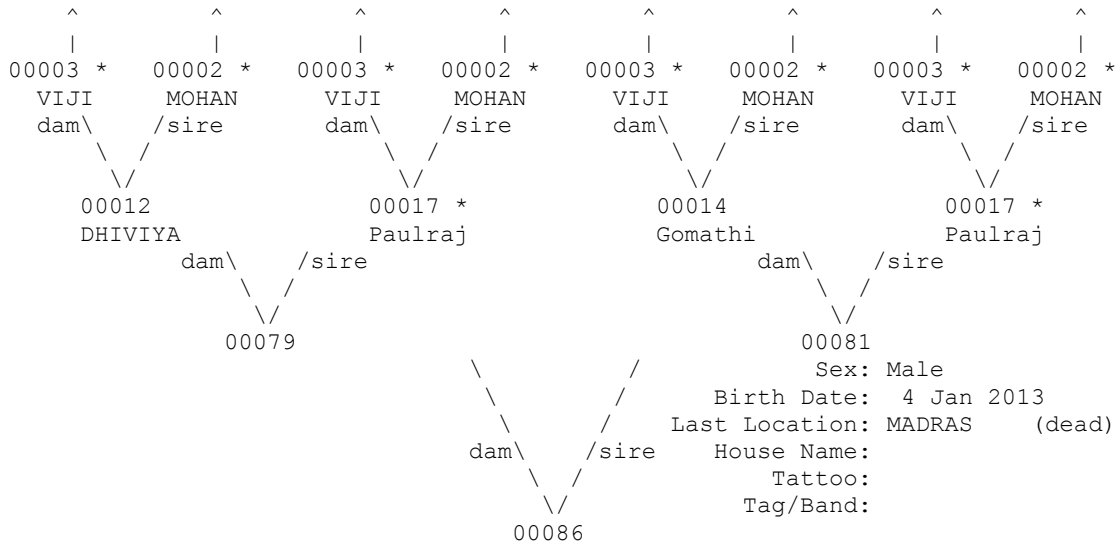
Taxon Name: CUON ALPINUS Studbook Number: 00085

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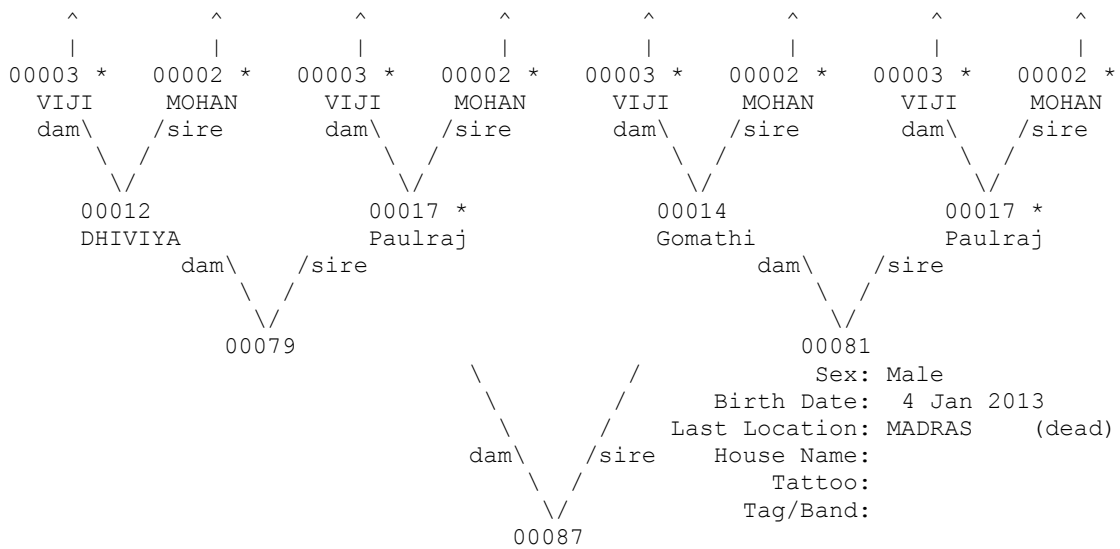
\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00086  
=====



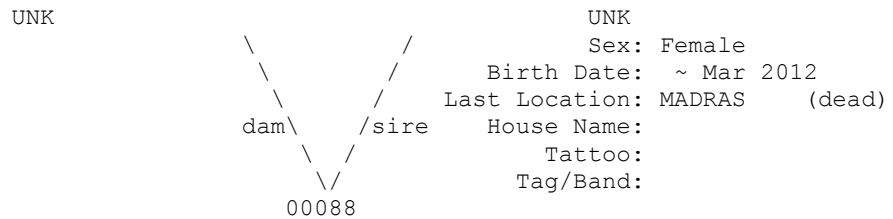
\* Appear more than once...  
^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00087  
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\* Appear more than once...  
^ Pedigree continues beyond top of page...

=====  
Taxon Name: CUON ALPINUS Studbook Number: 00088  
=====





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=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00089
=====
                                UNK
                                Sex: Female
                                Birth Date: ~ Mar 2012
                                Last Location: MADRAS (dead)
                                House Name:
                                Tattoo:
                                Tag/Band:
                                dam\ /sire
                                00089

```

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=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00090
=====
^ ^ ^ ^ ^ ^ ^ ^
| | | | | | | |
00003 * 00002 * 00003 * 00002 * 00003 * 00002 * 00003 * 00002 *
VIJI MOHAN VIJI MOHAN VIJI MOHAN VIJI MOHAN
dam\ /sire dam\ /sire dam\ /sire dam\ /sire dam\ /sire dam\ /sire
  \ /  \ /  \ /  \ /  \ /  \ /  \ /  \ /
  00012 00017 * 00014 00017 *
DHIVIYA Paulraj Gomathi Paulraj
  dam\ /sire dam\ /sire dam\ /sire
    \ /  \ /  \ /
    00079 00082
          Sex: Male
          Birth Date: 12 Dec 2014
          Last Location: MADRAS (dead)
          House Name:
          Tattoo:
          Tag/Band:
          dam\ /sire
          00090

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\* Appear more than once...  
^ Pedigree continues beyond top of page...

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=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00091
=====
^ ^ ^ ^ ^ ^ ^ ^
| | | | | | | |
00003 * 00002 * 00003 * 00002 * 00003 * 00002 * 00003 * 00002 *
VIJI MOHAN VIJI MOHAN VIJI MOHAN VIJI MOHAN
dam\ /sire dam\ /sire dam\ /sire dam\ /sire dam\ /sire dam\ /sire
  \ /  \ /  \ /  \ /  \ /  \ /  \ /  \ /
  00012 00017 * 00014 00017 *
DHIVIYA Paulraj Gomathi Paulraj
  dam\ /sire dam\ /sire dam\ /sire
    \ /  \ /  \ /
    00079 00082
          Sex: Male
          Birth Date: 12 Dec 2014
          Last Location: MADRAS (dead)
          House Name:
          Tattoo:
          Tag/Band:
          dam\ /sire
          00091

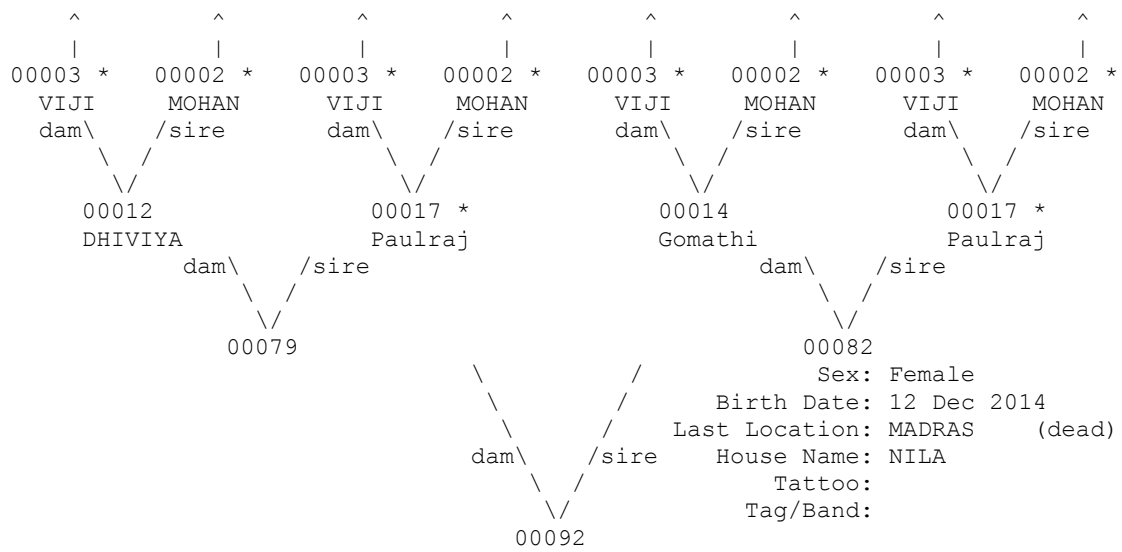
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\* Appear more than once...  
^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00092

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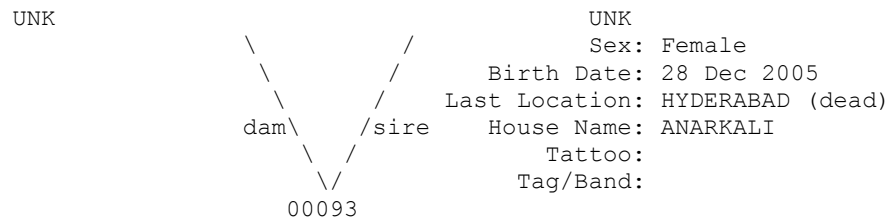


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

=====

Taxon Name: CUON ALPINUS Studbook Number: 00093

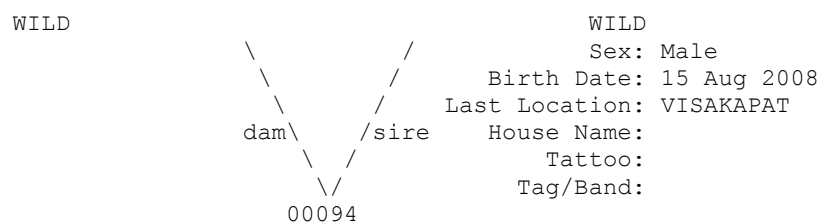
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Taxon Name: CUON ALPINUS Studbook Number: 00094

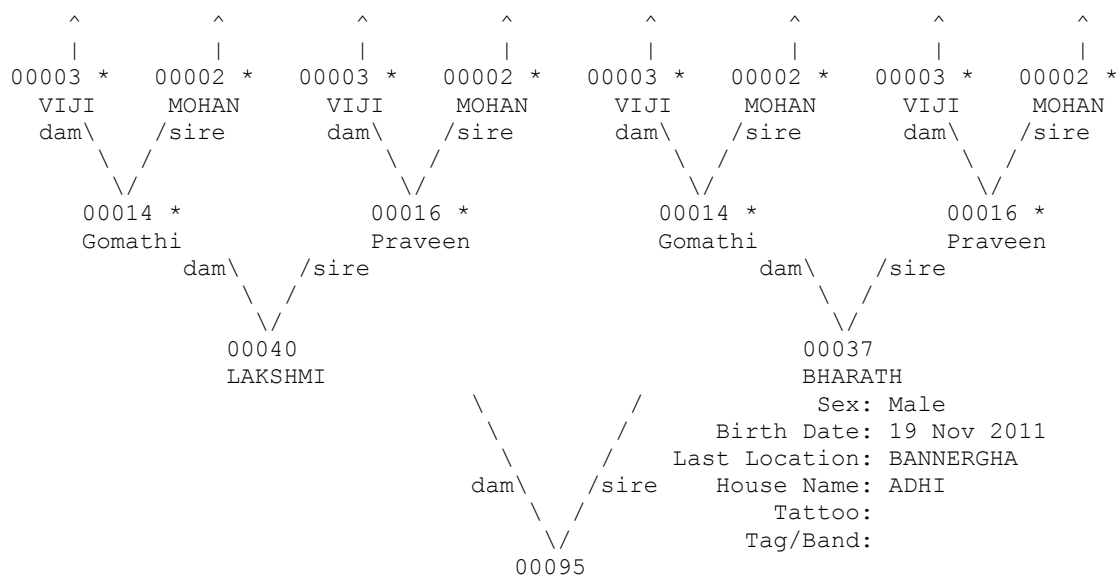
=====



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Taxon Name: CUON ALPINUS Studbook Number: 00095

=====

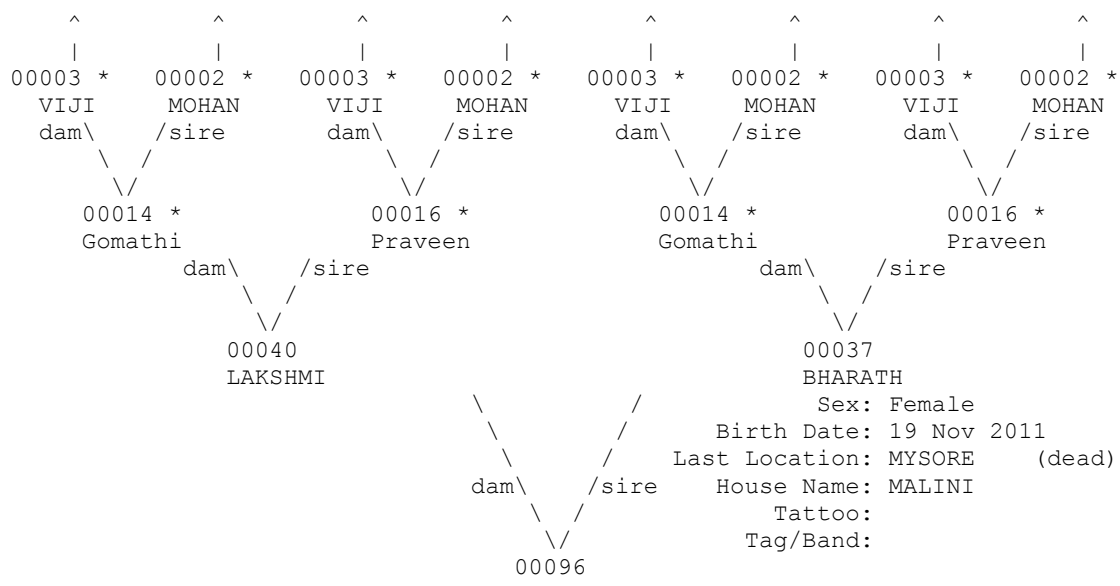


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00096

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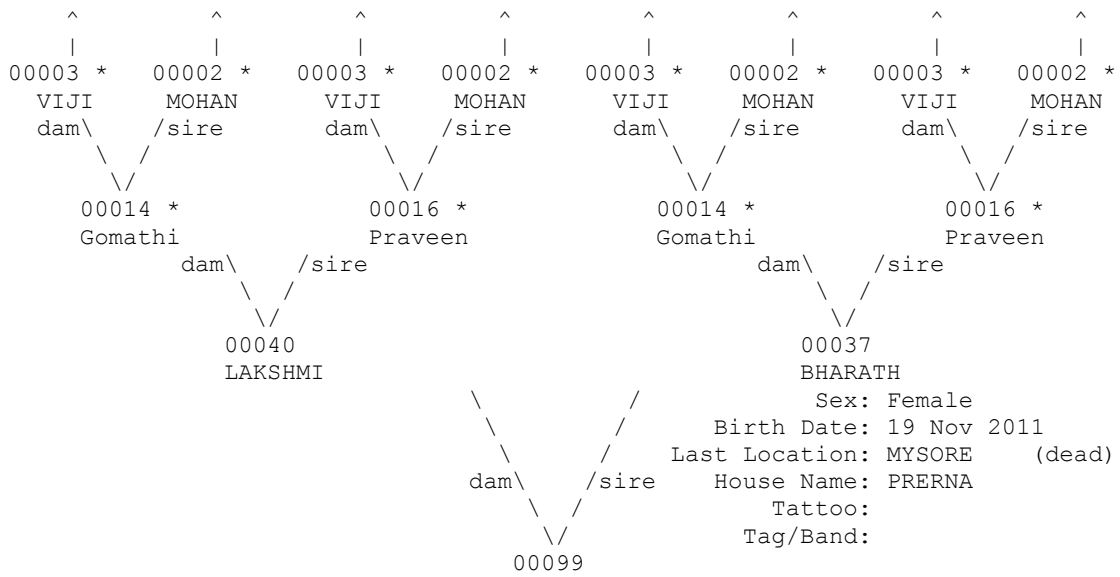
\* Appear more than once...  
 ^ Pedigree continues beyond top of page...



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Taxon Name: CUON ALPINUS Studbook Number: 00099

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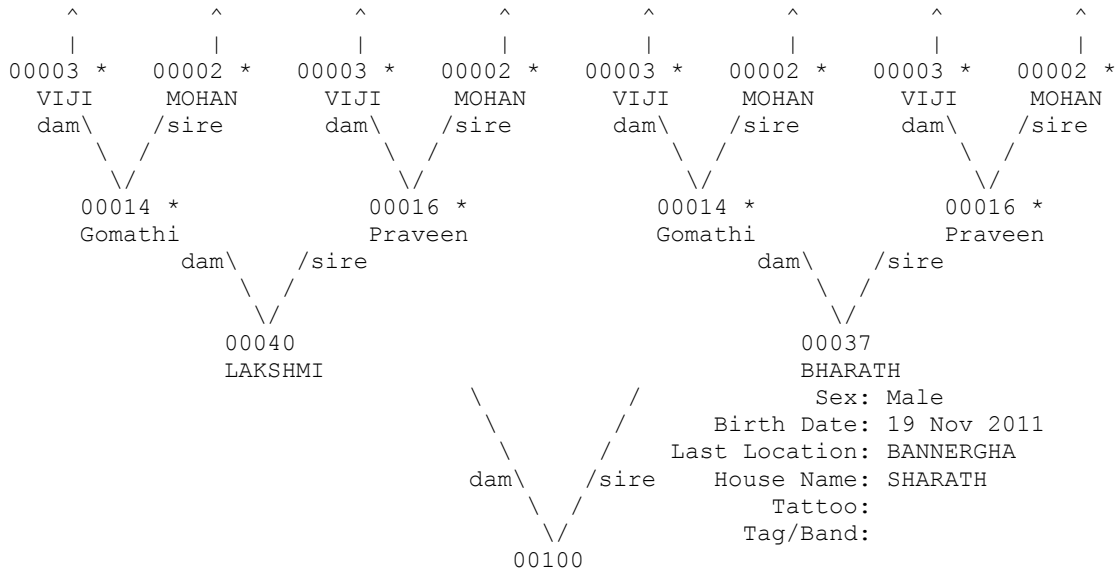


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Taxon Name: CUON ALPINUS Studbook Number: 00100

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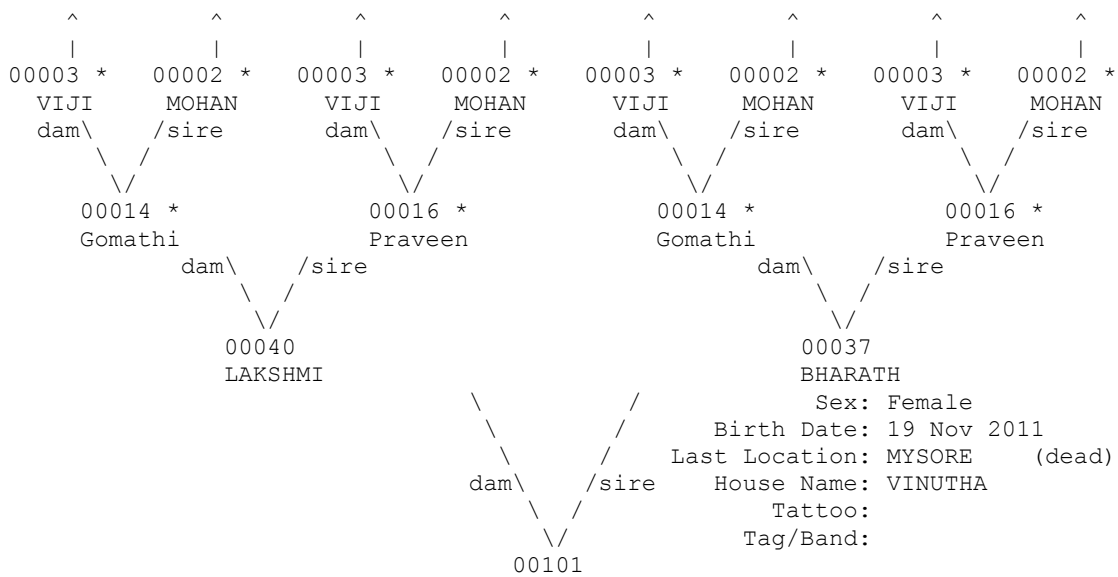


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00101

=====

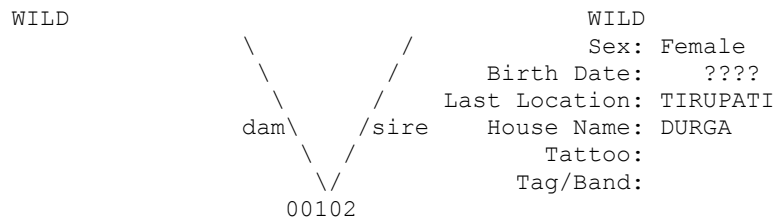


\* Appear more than once...  
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Taxon Name: CUON ALPINUS Studbook Number: 00102

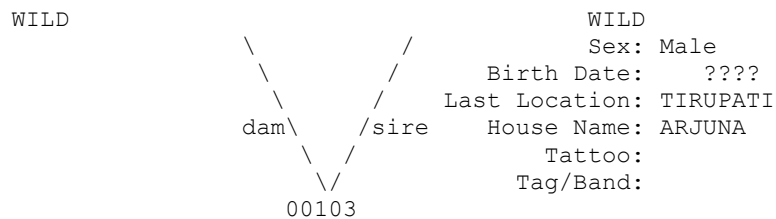
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Taxon Name: CUON ALPINUS Studbook Number: 00103

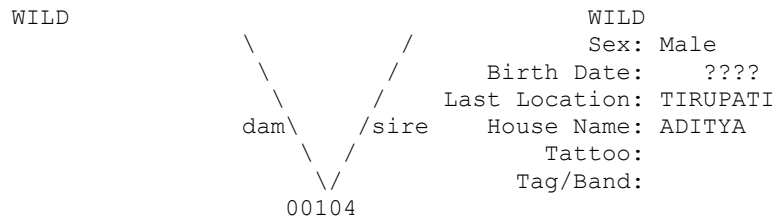
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Taxon Name: CUON ALPINUS Studbook Number: 00104

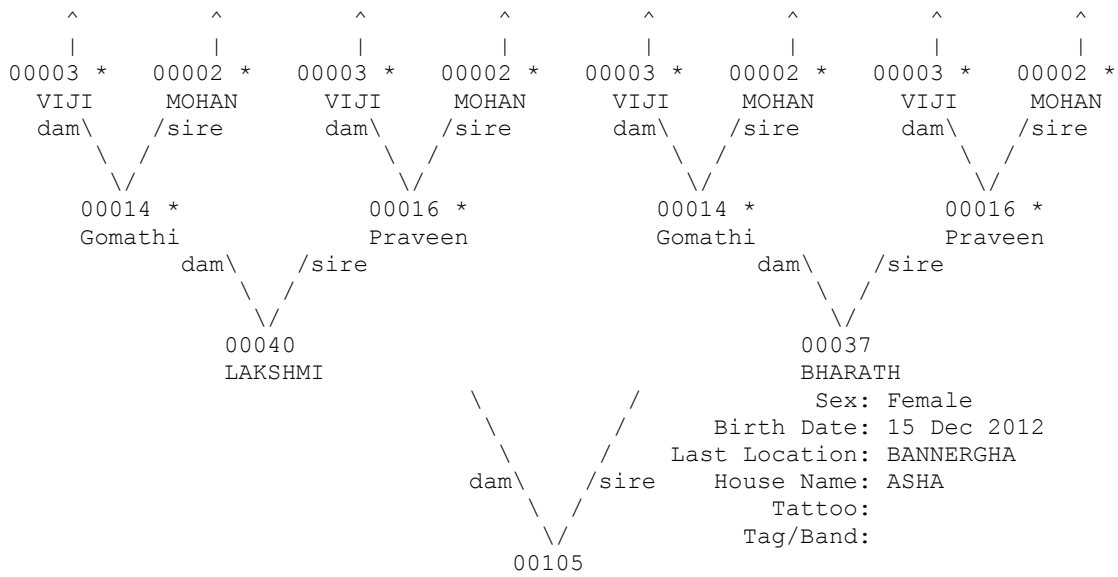
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Taxon Name: CUON ALPINUS Studbook Number: 00105

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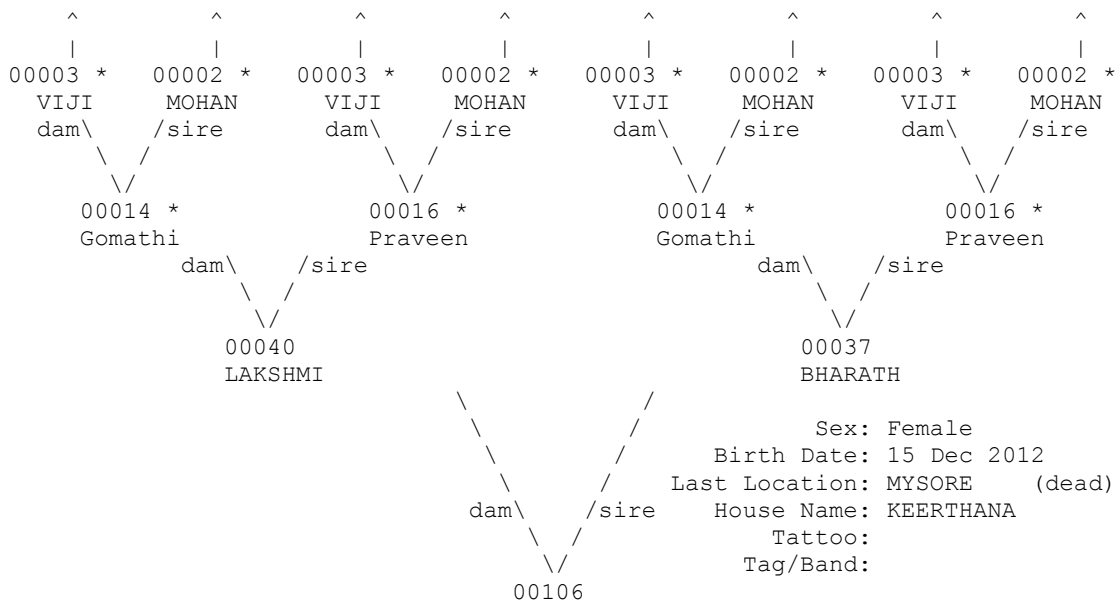


\* Appear more than once...  
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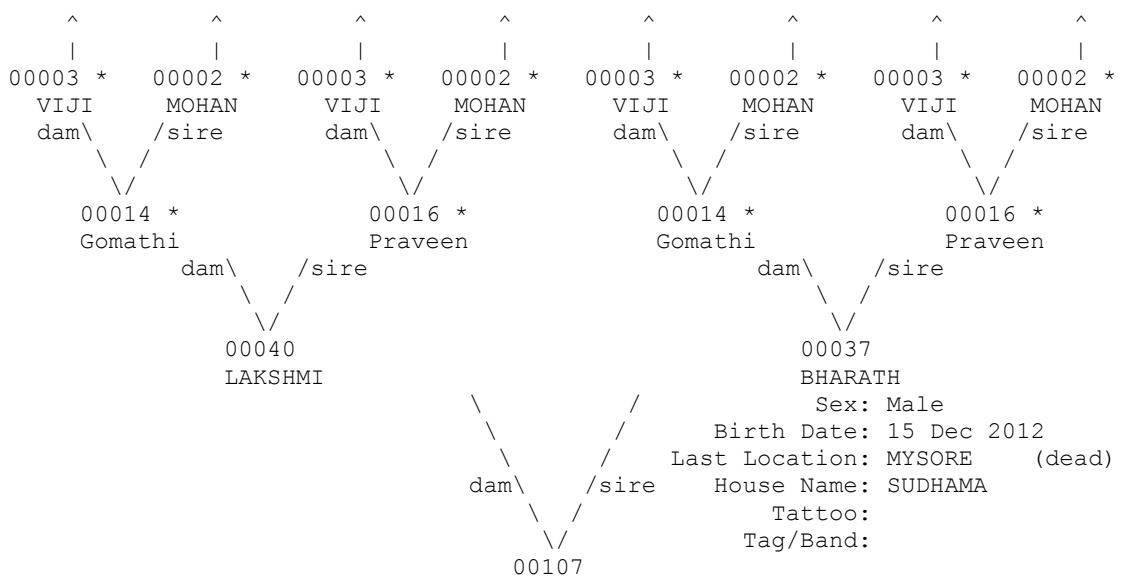
Taxon Name: CUON ALPINUS Studbook Number: 00106

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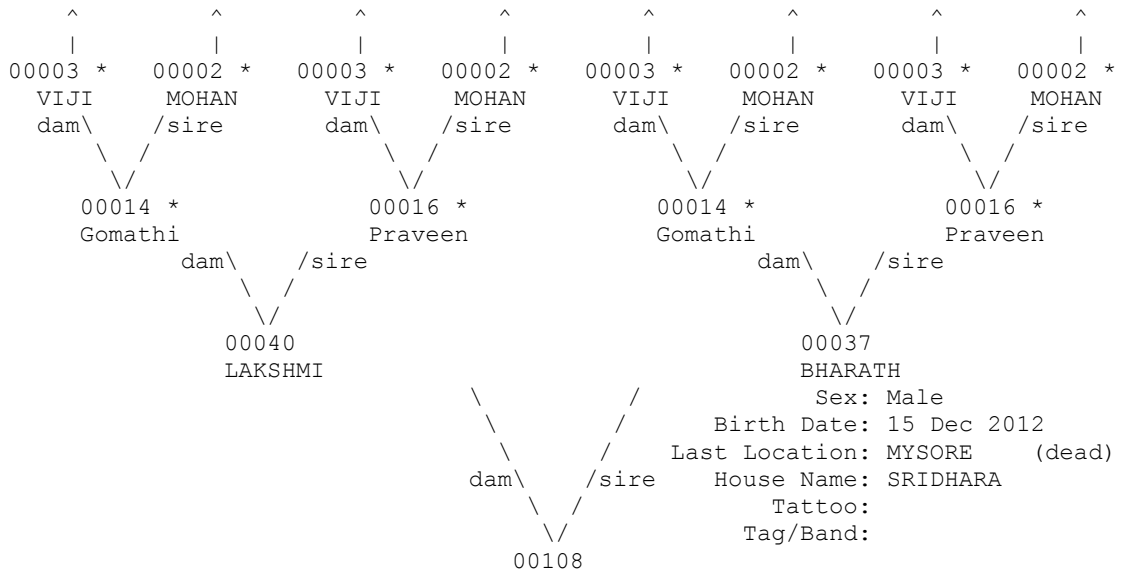
\* Appear more than once...  
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Taxon Name: CUON ALPINUS Studbook Number: 00107
   
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^ Pedigree continues beyond top of page...

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Taxon Name: CUON ALPINUS Studbook Number: 00108
   
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^ Pedigree continues beyond top of page...







=====

Taxon Name: CUON ALPINUS Studbook Number: 00115

=====

UNK dam\ /sire UNK dam\ /sire UNK

00114 00113

Sex: Male

Birth Date: ~ 2010

Last Location: VISAKAPAT

House Name:

Tattoo:

Tag/Band:

UNK dam\ /sire UNK

00115

=====

Taxon Name: CUON ALPINUS Studbook Number: 00116

=====

UNK dam\ /sire UNK dam\ /sire UNK

00114 00113

Sex: Female

Birth Date: ~ 2010

Last Location: VISAKAPAT

House Name:

Tattoo:

Tag/Band:

UNK dam\ /sire UNK

00116

=====

Taxon Name: CUON ALPINUS Studbook Number: 00117

=====

UNK dam\ /sire UNK dam\ /sire UNK

00114 00113

Sex: Female

Birth Date: ~ 2010

Last Location: VISAKAPAT

House Name:

Tattoo:

Tag/Band:

UNK dam\ /sire UNK

00117

=====

Taxon Name: CUON ALPINUS Studbook Number: 00118

=====

UNK dam\ /sire UNK dam\ /sire UNK

00114 00113

Sex: Male

Birth Date: ~ 2011

Last Location: VISAKAPAT

House Name:

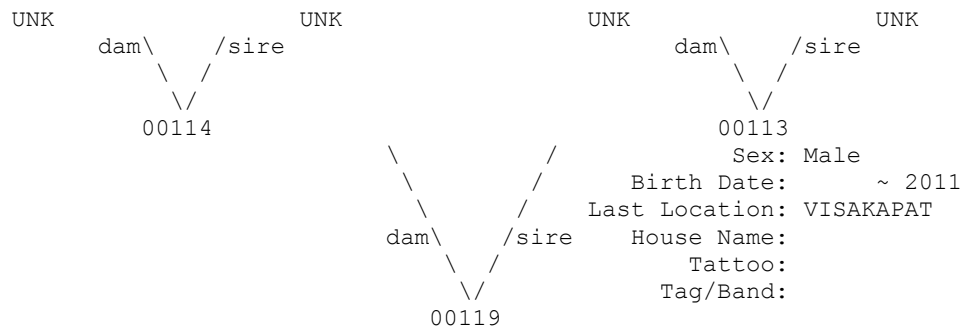
Tattoo:

Tag/Band:

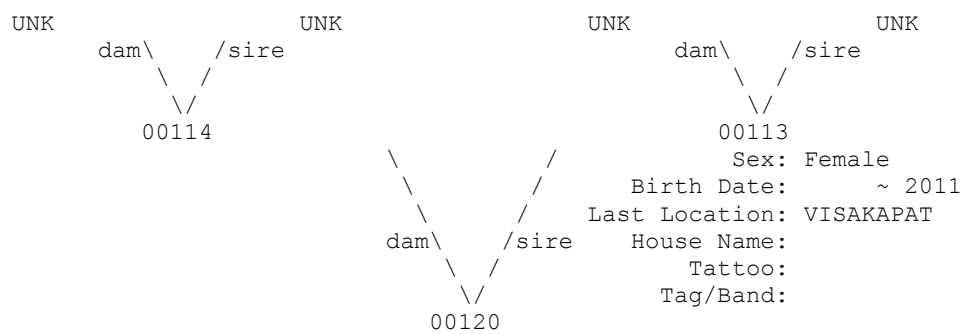
UNK dam\ /sire UNK

00118

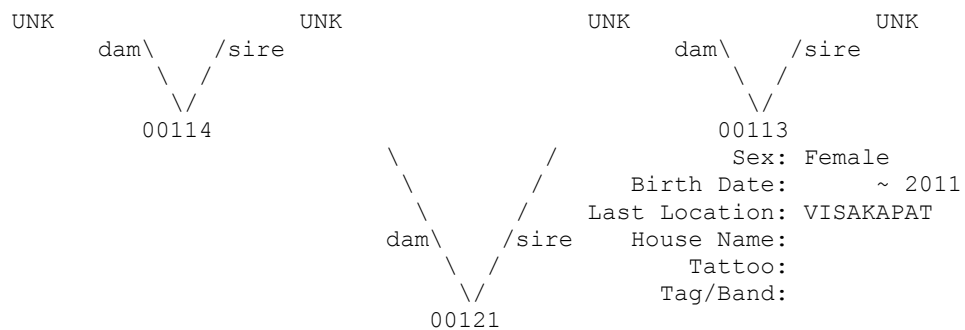
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Taxon Name: CUON ALPINUS Studbook Number: 00119
=====



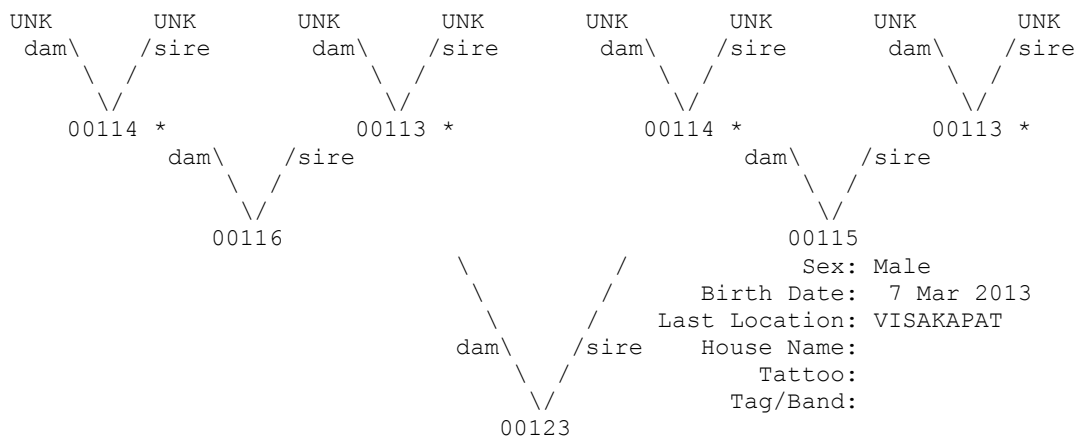
=====
Taxon Name: CUON ALPINUS Studbook Number: 00120
=====



=====
Taxon Name: CUON ALPINUS Studbook Number: 00121
=====

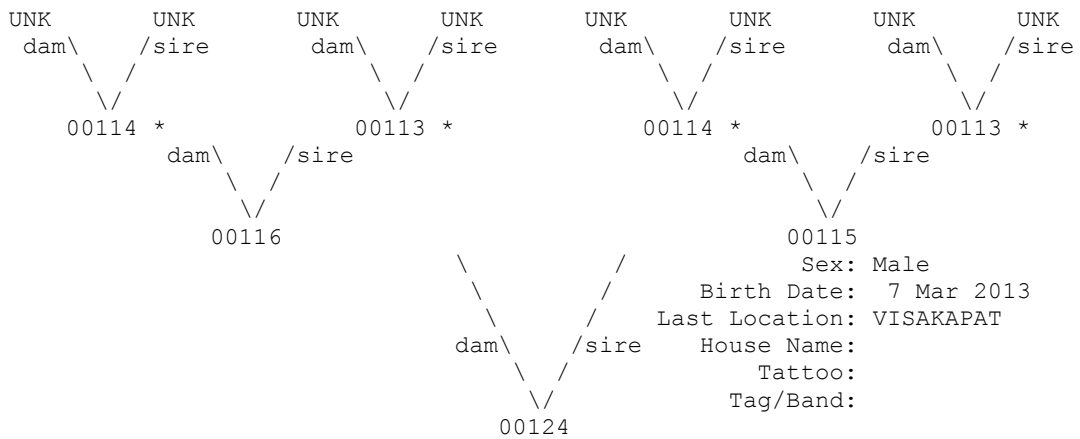


=====
Taxon Name: CUON ALPINUS Studbook Number: 00123
=====



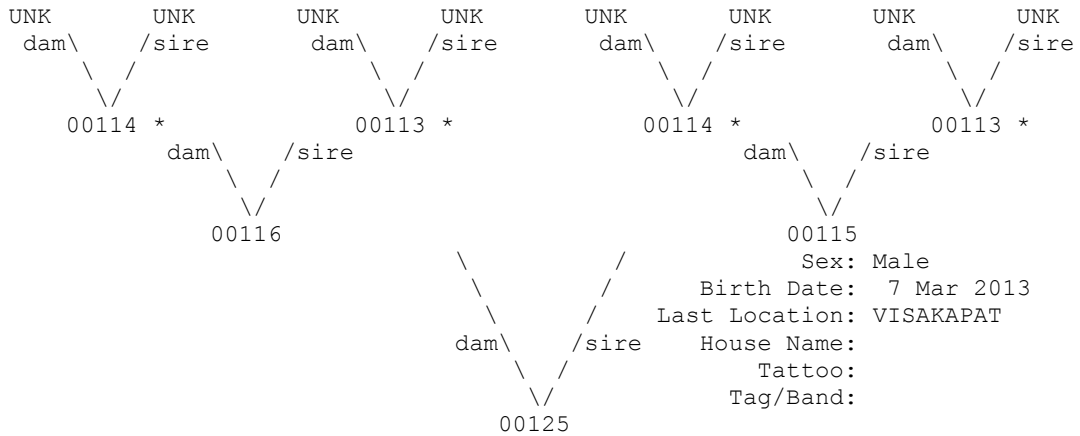
\* Appear more than once...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00124
=====



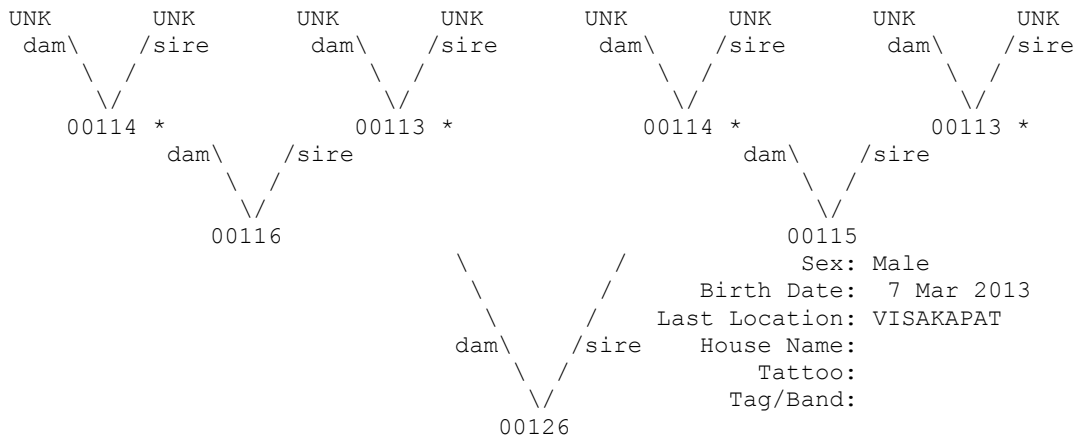
\* Appear more than once...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00125
=====



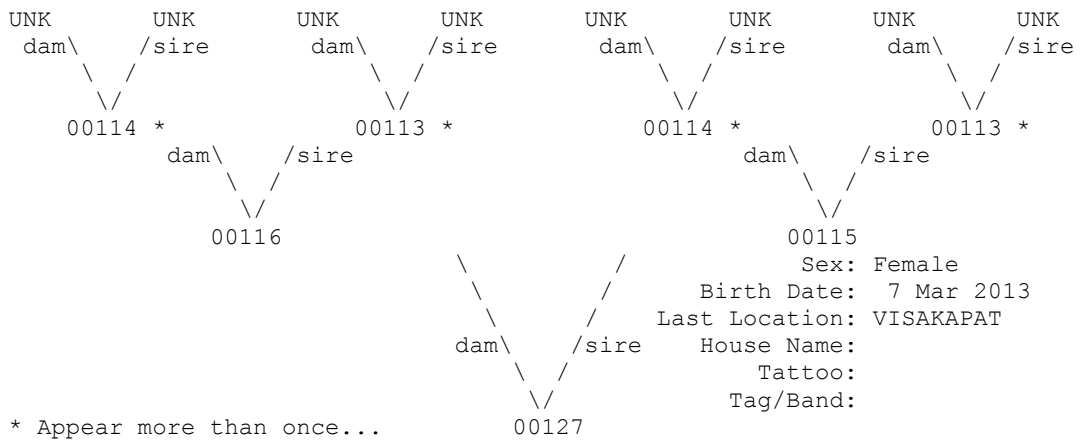
\* Appear more than once...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00126
=====



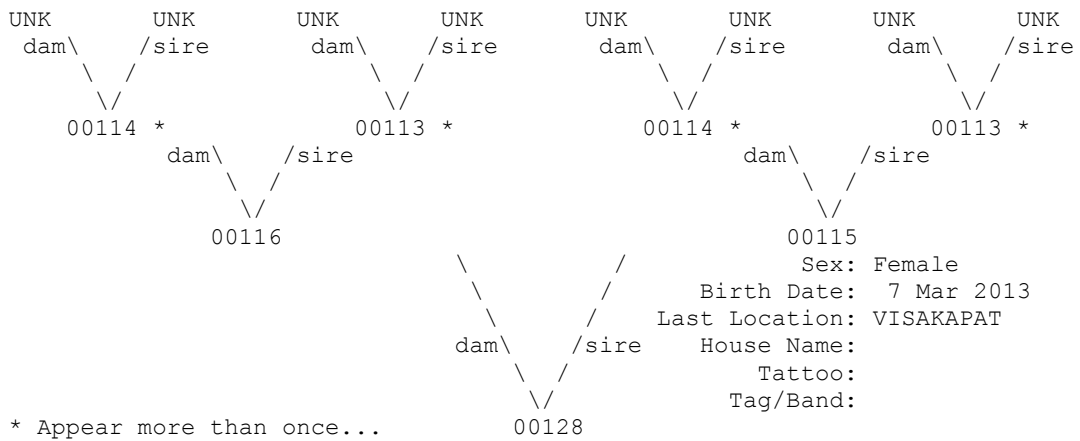
\* Appear more than once...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00127
=====



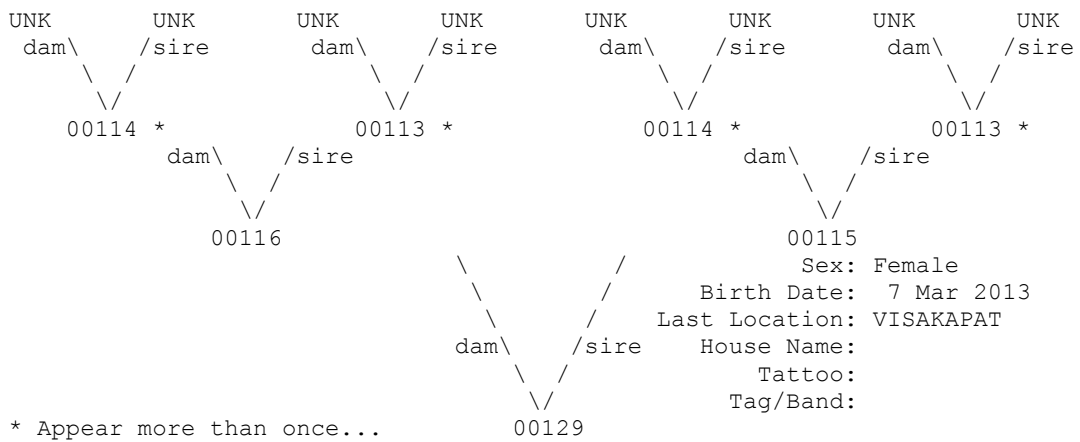
\* Appear more than once...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00128
=====



\* Appear more than once...

=====
Taxon Name: CUON ALPINUS Studbook Number: 00129
=====



\* Appear more than once...

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00130
=====
UNK                                                     UNK
                                                     Sex: Male
                                                     Birth Date:   ???
Last Location: VISAKAPAT
House Name:
Tattoo:
Tag/Band:
    \      /
   dam\  /sire
      \  /
       00130

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00131
=====
UNK                                                     UNK
                                                     Sex: Female
                                                     Birth Date:   ???
Last Location: VISAKAPAT
House Name:
Tattoo:
Tag/Band:
    \      /
   dam\  /sire
      \  /
       00131

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00132
=====
UNK                                                     UNK
                                                     Sex: Male
                                                     Birth Date:   ???
Last Location: VISAKAPAT
House Name:
Tattoo:
Tag/Band:
    \      /
   dam\  /sire
      \  /
       00132

```

```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00133
=====
UNK                                                     UNK
                                                     Sex: Female
                                                     Birth Date:   ???
Last Location: VISAKAPAT
House Name:
Tattoo:
Tag/Band:
    \      /
   dam\  /sire
      \  /
       00133

```

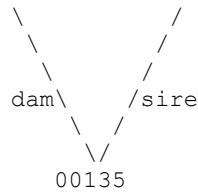
```

=====
Taxon Name: CUON ALPINUS                               Studbook Number: 00134
=====
UNK   dam\  /sire   UNK   UNK   dam\  /sire   UNK
      \  /          \  /          \  /          \  /
       00131          \  /          00130          \  /
                       \  /          Sex: Female          \  /
                        \  /          Birth Date:   ???          \  /
                         \  /          Last Location: TIRUPATI (dead)
                          \  /          House Name:
                           \  /          Tattoo:
                            \  /          Tag/Band:
                             \  /
                              00134

```

=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00135
   
=====

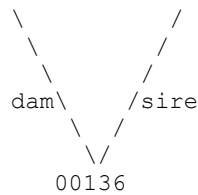
WILD



WILD  
Sex: Male  
Birth Date: ????  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

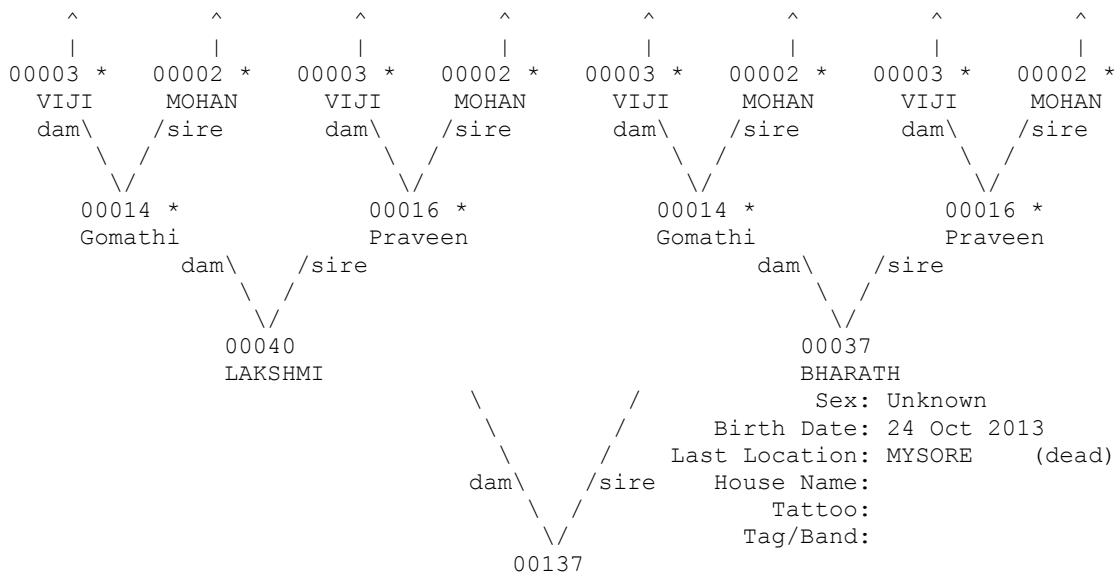
=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00136
   
=====

WILD



WILD  
Sex: Male  
Birth Date: ????  
Last Location: VISAKAPAT  
House Name:  
Tattoo:  
Tag/Band:

=====
   
Taxon Name: CUON ALPINUS Studbook Number: 00137
   
=====



\* Appear more than once...  
^ Pedigree continues beyond top of page...

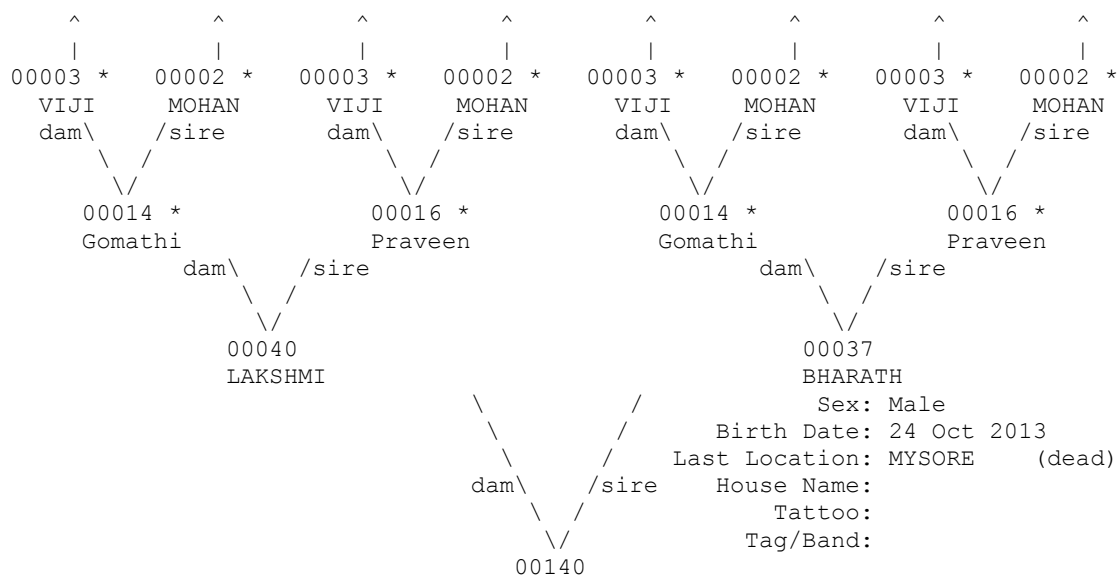




=====

Taxon Name: CUON ALPINUS Studbook Number: 00140

=====

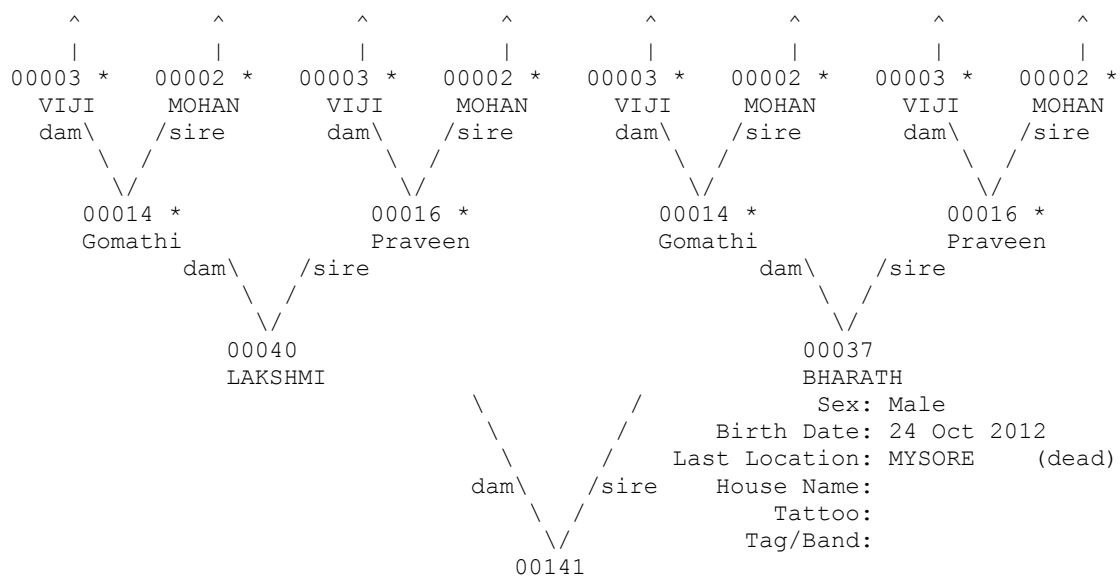


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

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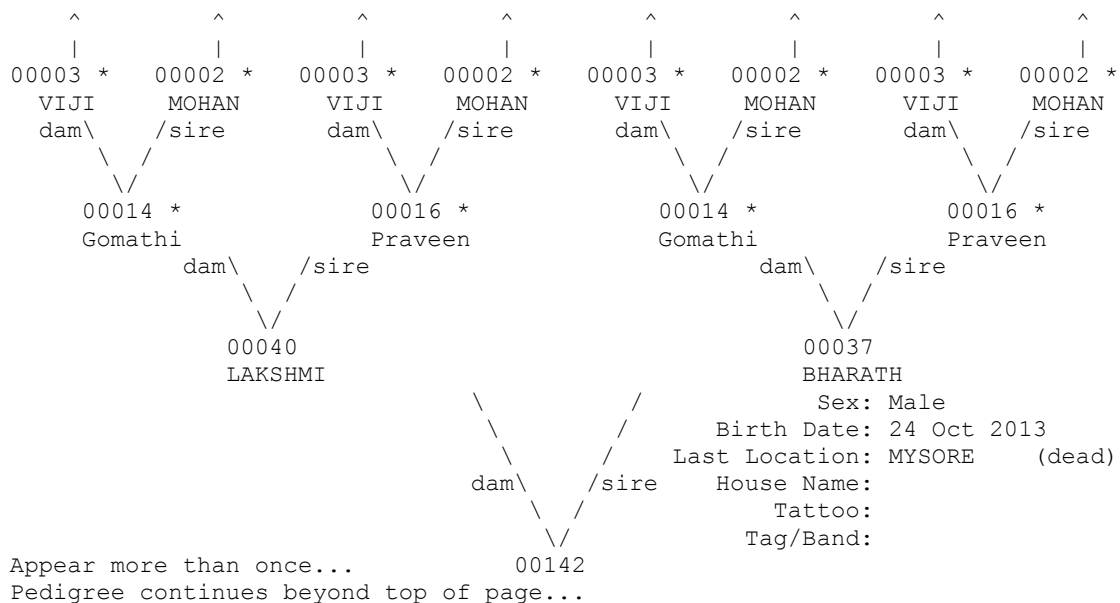
Taxon Name: CUON ALPINUS Studbook Number: 00141

=====

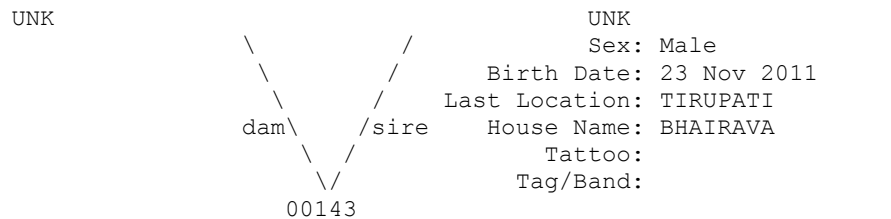


\* Appear more than once...  
 ^ Pedigree continues beyond top of page...

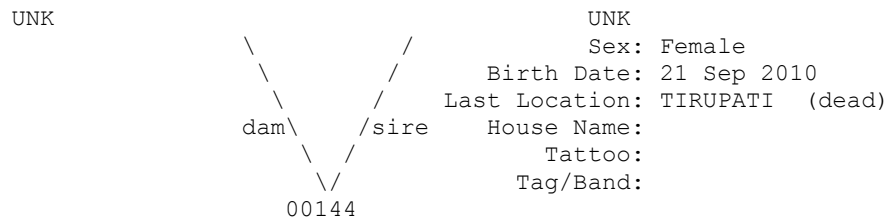
=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00142  
 =====



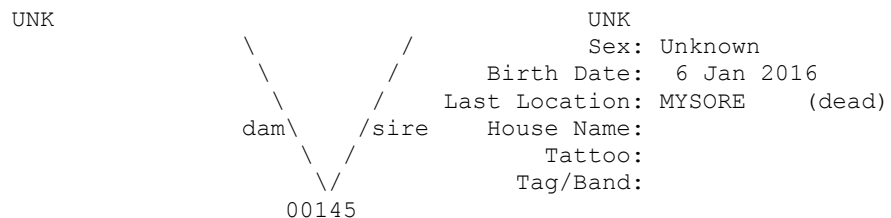
=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00143  
 =====



=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00144  
 =====



=====  
 Taxon Name: CUON ALPINUS Studbook Number: 00145  
 =====



=====  
Taxon Name: CUON ALPINUS Studbook Number: 00146  
=====

UNK

UNK



Sex: Unknown  
Birth Date: 6 Jan 2016  
Last Location: MYSORE  
House Name:  
Tattoo:  
Tag/Band:

## Location Glossary

MADRAS	Arignar Anna Zoological Garden, Vandalur, Chennai – 600 048, Tamil Nadu.
BANNERGHA	Bannerghatta Biological Garden - National Park, Bengaluru – 560 083 (Karnataka).
GUINDY	Children's Park, Guindy National Park Range, Rajbhavan (Post), Chennai, Tamil Nadu
VISAKAPAT	Indira Gandhi Zoological Park, Visakhapatnam – 530 040, Andhra Pradesh.
HYDERABAD	Nehru Zoological Park, Bahadur Pura, Hyderabad – 500 064, Telangana
MYSORE	Sri Chamarajendra Zoological Gardens, Indira Nagar, Mysuru – 570 010, Karnataka.
TIRUPATI	Sri Venkateswara Zoological Park, Pudipatla Post, Tirupati, – 517 505, Andhra Pradesh.