NATIONAL STUDBOOK

Western Tragopan (*Tragopan melanocephalus*)

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"
Awarded to the Wildlife Institute of India
[Sanction Order: Central Zoo Authority letter no. 9-2/2012-CZA(NA)/418 dated 7th March 2012]

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Central Zoo Authority

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FOREWORD

Habitat loss, fragmentation and degradation coupled with poaching are limiting the growth of wild populations of several species; increasingly rendering them vulnerable to extinction. For species threatened with extinction in their natural habitats *ex-situ* conservation offers an opportunity for ensuring their long-term survival. Pedigree information contained in studbooks forms the basis for scientific management and ensures long term genetic viability and demographic stability of such populations.

The Central Zoo Authority (CZA) in collaboration with zoos in India has initiated a conservation breeding program for threatened species in Indian zoos. 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 Western tragopan (*Tragopan melanocephalus*) in Indian zoos. The recommendations contained in the studbook can form 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.

(Vinod Ranjan, I.F.S.)
Member Secretary
Central Zoo Authority

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Authors

CONTENTS

Species Biology

The Western tragopan (*Tragopan melanocephalus*) considered to be the rarest of all extant pheasants, is endemic to north-western Himalayas They are medium-sized montane pheasants with a high level of dimorphism displayed by the sexes (Johnsgard, 1986). The bird has long been associated with the cultural heritage of the locals and has been named **"***Jujurana***"** meaning the "King of Birds".

Taxonomy

Class: Aves
Order: Galliformes
Family: Phasianidae
Genus: Tragopan
Species: *melanocephalus* (Gray, 1829)

Tragopans are a group of the five pheasant species belonging to the genus *Tragopan* Cuvier, 1829 (Phasianidae) with unresolved phylogeny. Based on a qualitative evaluation of plumage colour, Johnsgard (1986) suggested that tragopans consisted of the super-species *blythii-caboti* and *melanocephalus-satyra-temminckii*. Based on analyses of vocalizations and sexual display patterns, Islam and Crawford (1996, 1998) on the other hand suggested a descent from a single ancestral population with the three centrally distributed closely related tragopan species (Satyr, Blyth's and Temmink's) retaining primitive characteristics, while the two peripheral species (Western and Cabot's) underwent modification in vocalizations and were separated into two distinct groups. Results of molecular phylogenetic studies on tragopan by Randi *et al*. (2000); however suggested that most likely allopatric speciation generated either by fragmentation of a larger widespread ancestral population, or by dispersion and deviation of two separate populations along the Himalayan and central Chinese mountain ranges that led to the evolution of the current species.

Plate 1: Western tragopan

Morphology

The species exhibits distinct sexual dimorphism (McGowan, 1994), the males are brightly coloured and larger in size, while the females have a dull appearance. The males can be described as having a black crown with a decumbent red tipped occipital crest. The face is bright red with lines of blue spots below the eyes. The throat is deep blue while the cheeks are blue-green and a black beak. A bare tumescent, dark blue tinged with purple, sac of skin called the lappet is present on the throat. A tumescent blue wattle is present above each eye that, when engorged, stands erect like a miniature horn. These fleshy horns and lappets become prominent and can be inflated and expanded during courtship displays (Delacour, 1977; Johnsgard, 1986). The neck including nape, sides, lower throat, and upper breast are red. The upper-part including wing-coverts and tertiary feathers are a dark shade of grey and have a vermiculated appearance with round black bordered white ocelli. The under-parts are black, with white ocelli and random splashes of red.

Females and yearlings have inconspicuous and similar plumages, while males are larger, higher on leg and have variation in the black colour on head and red on neck. The females lack the red colour and the ocelli are reduced to fine streaks on the under parts allowing them to blend with the forest habitat.

Distribution

The species is endemic to the western Himalayas, occurring from Indus-Kohistan district, north Pakistan, east through Kashmir and Himachal Pradesh to Bhagirathi River in Uttarakhand, north-western India (Birdlife International 2013).

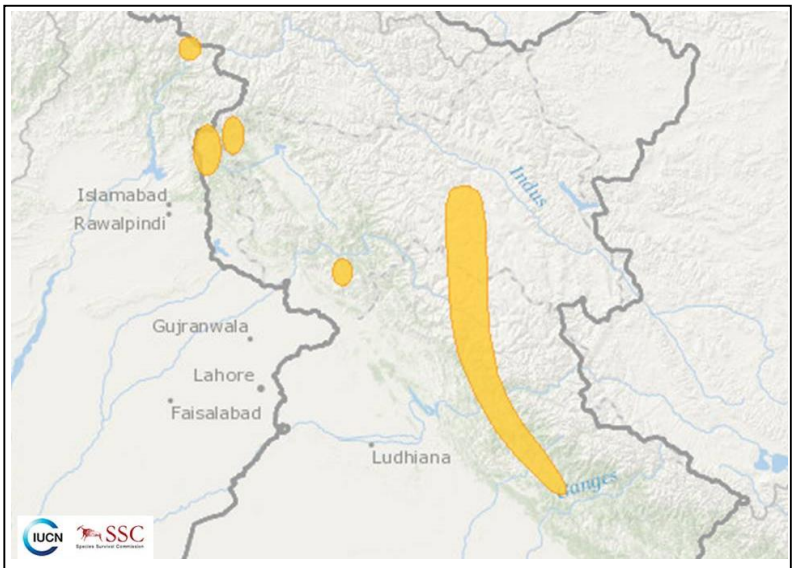


Figure 1: Distribution of Western tragopan (BirdLife International 2013)

Habitat

The species is a habitat specialist (Ramesh, 2003) occurring in open moist deciduous and coniferous temperate forests with dense undergrowth at elevations of 2,400–3,600 m (Delacour, 1977, Grimmett, *et al.,* 1998). They inhabit montane to sub-alpine areas with specific broadleaved (e.g., *Aesculus indica*, *Acer sp*. and *Betula utilis*) and coniferous *(Cedrus deodara*, *Pinus wallichiana*, *Abies pindrow, Picea smithiana)* vegetation (Duke, 1989). In Palas valley, Pakistan, they have been recorded to occupy conifer dominated temperate forests at altitudes between 2,400 and 3,350 m during spring and in oak *(Quercus baloot)* forests at altitudes of 1,735 m, during winter; indicative of lateral and attitudinal migration. The cooler northern aspects are preferred during summers while the sunny and warmer southern slopes are preferred during winters (Whale, 1996).

A study by Katoch *et al*. (1997) revealed an uneven distribution through several sites with similar tree structure but varied understory structure, suggesting that variation in the latter is critical in determining its distribution. They occur in low densities and prefer extremely steep terrain, even in areas of no

disturbance. They have been reported to be fairly sedentary, with preference for higher altitude coniferous forests followed by mixed deciduous and high altitude oak forests (Gaston, *et al.,* 1981, Singh and Tu, 2008).

Feeding ecology

The principal component of their diet includes sprouting oak leaves, shrubs like ringal bamboo *Arindunaria sps* and other plant materials (Johnsgard, 1986, Schales and Schales, 1994). Sheppard *et al.* (1998), from a study of museum specimens and a review of available literature on diets of pheasants, suggested that they are likely to be herbivorous, specialized in feeding on parts like leaves, flowers, bulbs and buds. They also consume berries of *Viburnum nervosum* and *Skimmia laureola*, and acorns of *Quercus semecarpifolia* and occasionally invertebrates such as grubs and insects (Ali and Ripley, 1968; Delacour, 1977; Roberts, 1991). The foraging behaviour of the bird is poorly known, except for the fact that peak periods of feeding occur during dawn and dusk, often with other pheasants.

Behaviour

The species is extremely shy and remains concealed in undergrowth and dense foliage as a means of predator avoidance. The elusive nature of the species, the dense forest and difficult terrain it inhabits has resulted in limiting information available regarding the species. Conclusions drawn from the studies carried out suggest a mean group size of 1.09 ± 0.29 (n=45, range 1–2) with a skewed sex ratio biased towards females (10:13). They are primarily solitary (recorded singly in 91% of occasions), except during the breeding season (Ramesh, 2003). Earlier studies suggest that the species occurs in pairs in summer and small groups in winter (Gaston, 1980; Whale, 1997) and have been recorded feeding with Himalayan Monal (Grimmett and Robson, 1986) and Koklass (Narang, 1993a).

The birds are extremely vigilant and flee at the least disturbance by flight or concealing themselves into trees or fleeing on the ground (Beebe, 1918-1922). Preferred roosting sites include both dense understory and trees (Johnsgard, 1986; Ramesh, 1995), open areas are used for preening and resting (Johnsgard, 1986). Although they are ground dwelling, a significant amount of time is spent above the ground on rocks and trees, especially at the middle of the day during winter (Whale, 1997).

Reproduction

Tragopan perform ritualized, complex courtship displays during their breeding period and male birds produce distinctive advertisement calls (a *waa* note) to attract females as well as to defend their territory from other males (Delacour, 1977; Johnsgard, 1986). During the breeding season the calls by males are uttered during dusk and daybreak at intervals of about five or ten minutes. The calls starting from late April; continue through May in the early hours of the morning (starting at 04.15 hours and reaching a peak at 05.00–05.14 hours) (Miller, 2010). The species has been observed to exercise displaced call timing with that of competing sympatric Koklass pheasant (Miller, 2010), to avoid overlapping of auditory space as both share the same habitat and breeding season.

The species is assumed to have a monogamous mating system, with males assisting in caring for the chicks (Ali and Ripley, 1968; Baker, 1930). They are highly territorial and occupy large home ranges during the breeding season. Mating generally takes place during April–June (Baker, 1932; Johnsgard, 1986), with breeding beginning in mid-May and extending to the end of June (Roberts, 1991).

The nesting of tragopan is unique among pheasants as they are the only species that are elevated nesters (Ali and Ripley, 1968; Johnsgard, 1986); however, they have also been reported as nesting on ground (Roberts; 1991; Baker; 1932). A rudimentary nest; either on the ground or in an elevated position, on trees, is constructed, often using the abandoned nests of other species (Roberts, 1991–1992). Clutch size ranges from 2-6, eggs, comprise of dull, reddish-brown eggs with faint dark brown spots, averaging 63×42 mm. in size (Johnsgard, 1986). Information regarding incubation patterns and brooding behaviour of the species is inadequate.

Table 1: Reproductive attributes of Western tragopan

Call	*Khuwaaah, khuwaaah, waa, waa,waa* (Johnsgard, 1986)
Mating System	Assumed to be monogamous (Ali and Ripley, 1983)
Breeding Season	May- early June (Johnsgard, 1986; Roberts, 1991)
Nest Site/ Type	Mainly elevated nesters (Ali and Ripley, 1968; Johnsgard, 1986)
Clutch Size	2-6. (Johnsgard, 1986)
Eggs	Pale- buff to reddish-brown feebly freckled with dark brown, averaging 63×42 mm. in size having an estimated fresh weight of 61.3g (Johnsgard, 1986)
Incubation Period	28 days
Attended by	Incubation entirely by hen (Ali and Ripley, 1983) but males have been reported to attend to chicks (Baker, 1930)

Threats and conservation measures

It is one of the four threatened members of the 11 bird species that are entirely restricted to the "Western Himalayas Endemic Bird Area" (Stattersfield *et al.*, 1998). The species is threatened by habitat degradation and fragmentation through commercial exploitation activities like timber extraction, browsing of under storey shrubs by livestock, tree lopping, and fuel wood collection (Gaston *et al.*, 1983; Jandrotia *et al.*, 1995). Disturbance in the form of graziers and collectors of edible fungi and medicinal plants (Gaston and Garson, 1992; Pandey, 1993) have been reported to interfere with nesting. Further threats include, poaching for meat and ornamentation (Islam and Crawford, 1987; Chauhan and Sharma, 1991).

The species is legally protected in both its range countries, India and Pakistan. It is protected under Schedule I, of the Indian Wildlife (Protection) Act 1972 and in Third Schedule [SECTION 2 (n) and 9 (ii)] that lists Wild birds and animals protected throughout the year in the 'Punjab Wildlife (Protection, Preservation, Conservation and Management) Act, 1974' of Pakistan. It is listed as "Vulnerable" by the IUCN (C2a (i) ver 3.1) and in Appendix I of CITES. It has been identified by the Central Zoo Authority, New Delhi for a planned and coordinated conservation breeding programme in Himachal Pradesh, with the long-term goal of future releases in the wild.

Status in Captivity

Its small population size in the wild; no captive population outside Himachal Pradesh and limited technical knowledge available for breeding the species in captivity make it a high priority species for *ex-situ* conservation. Available records suggest that the species is currently maintained only at two institutions in Himachal Pradesh. The captive population comprises of 24 birds, housed in Sarahan Pheasantry, Sarahan and Himalayan Nature Park, Kufri (Table 2). The species is part of the ongoing Conservation Breeding Programme at Sarahan Pheasantry initiated by the Himachal Pradesh Forest Department and

Central Zoo Authority (CZA) since 2003-04, with the objective of breeding and establishing a 'reserve' population in captivity. The *ex-situ* effort has been reviewed by Malviya *et al*., (2011) and they suggest that demographically the population was growing, but unstable while genetically it was healthy although with inequitable founder representation. From 2010-11 onwards, Wildlife Institute of India in collaboration with the Himachal Pradesh Forest Department had been associated with the programme for effective implementation of the conservation programme both at *in-situ* and *ex-situ* levels.

Table 2: Status of Western tragopan in Indian zoos

Location	Total no. of Individuals (M.F.U)	Living Individuals (M.F.U)	Time span in captivity (years)	Hatches (M.F.U)	Deaths (M.F.U)
Kufri	2.0.0	2.0.0	2007-2015 9	0.0.0	0.0.0
Sarahan	25.25.8	14.14.28	1993-2015 23	18.19.8	9.11.8

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 the institutions housing the bird 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 Data Quality

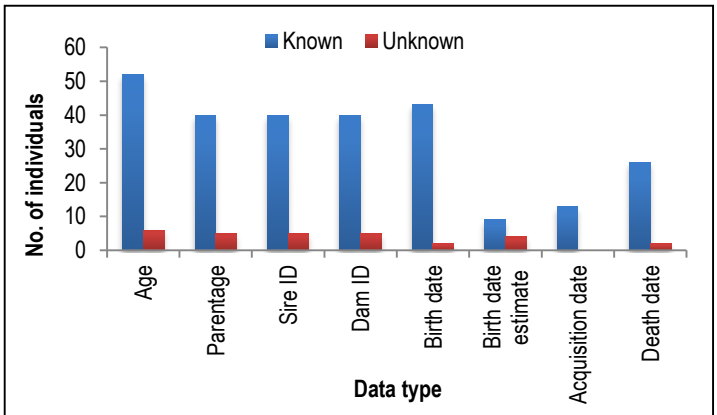


Figure 2: Data quality of the captive population

The first edition of the studbook for Western tragopan prepared by Lakshminarasimha *et al.* (2011) forms the basis for the second edition of the National Studbook of the species and includes all available records both historical as well as the living in Indian zoos. The present studbook records a total of 58 (25.25.8) specimens. Records of life-history events and parentage of individuals held in captivity prior to the births recorded in 1993 were not available from the holding zoo. These individuals have been listed separately in Appendix IA for reference and have been excluded from the Studbook and subsequent demographic and genetic analysis. The availability of data with respect to the analysis carried out in the studbook is summarized in Figure 2. The studbook includes 52 known age individuals and 40 captive-born individuals with complete parentage records. Records of birth dates were known for 43 captive-born and estimates were known for 9 wild-born individuals. Acquisition dates were available for all the wild-born individuals while death dates were available for 26 out of the 28 reported mortalities.

ANALYSIS

Demographic Analysis

Historical Population: Census Trends

A total historical population of 58 birds is documented in the second edition of the National Studbook that includes 13 (7.6.0) wild born and 45 (18.19.8) captive-born specimens. An overview of the historical population is provided in Table 3 and the details of individual specimens are presented in Annexure I. Census trends (figure 3) of the population indicate that population growth from 1993 – 2006 was dependent largely on wild origin specimens; whereas after 2006 the growth in population can be largely attributed to captive births.

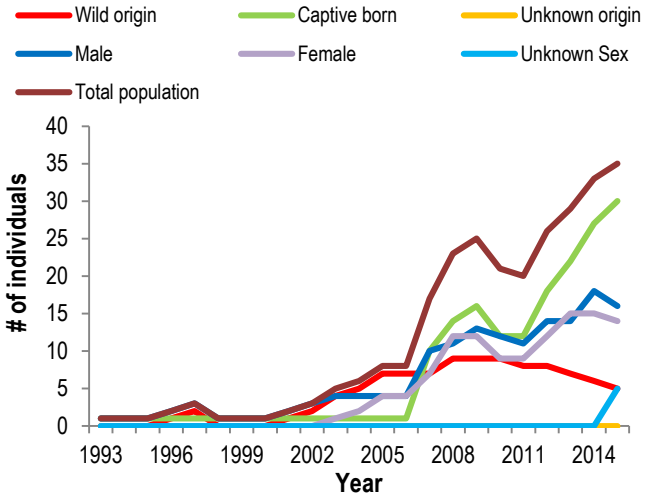


Figure 3: Census trends

Records indicate that two birds were born in captivity in 1993 to individuals of unknown origin and identification (records of parents unavailable), of which only one survived. The captive stock was further supplemented with wild-born individuals (n=7) during 2001-2005. The first birth was recorded in 2005; subsequently births have taken place annually from 2007 – 2015. The population increased to 25 birds in captivity in 2009 that declined to 20 (11.9.0) in 2011 owing to a lower recruitment rate as compared to the mortality rate. The population has subsequently shown an increasing trend and the current population stands at 30 (16.14.0) due to increase in number of captive origin specimens. The population has remained consistently small with a median of 6 individuals ($11.61_{Mean} \pm 11.5039_{SD}$) per year.

Figure 3 indicates that the captive population was initiated with a male of unknown origin in 1993 while the first female entered the population only in 2003. The population shows a male biased sex ratio for a large proportion of the time with only 2005 and 2006 showing equitable sex ratios while 2008 and 2013 showed marginal female bias.

Table 3: Summary of the historical captive population

	Males	Females	Unknown	Total
Total studbook size	25	25	8	58
Total number of acquisitions from wild	7	6	0	13
Total number of births	18	19	8	45
Total number of deaths	9	11	8	28
Total number of breeding individuals	7	7	0	14
Wild-born that have bred	4	3	0	7
Captive-born that have bred	3	4	0	7

Age structure

The age-sex structure (figure 4) is based on a total of 30 living known age and sex individuals present in the population, that includes 25 (13.12.0) in the reproductively active age-classes and 1 (1.0.0) belong to post-reproductive age-classes; while 2 (0.2) birds are of pre-reproductive age. The age structure shows the presence of 17 (7.10.0) birds that are under four years of age.

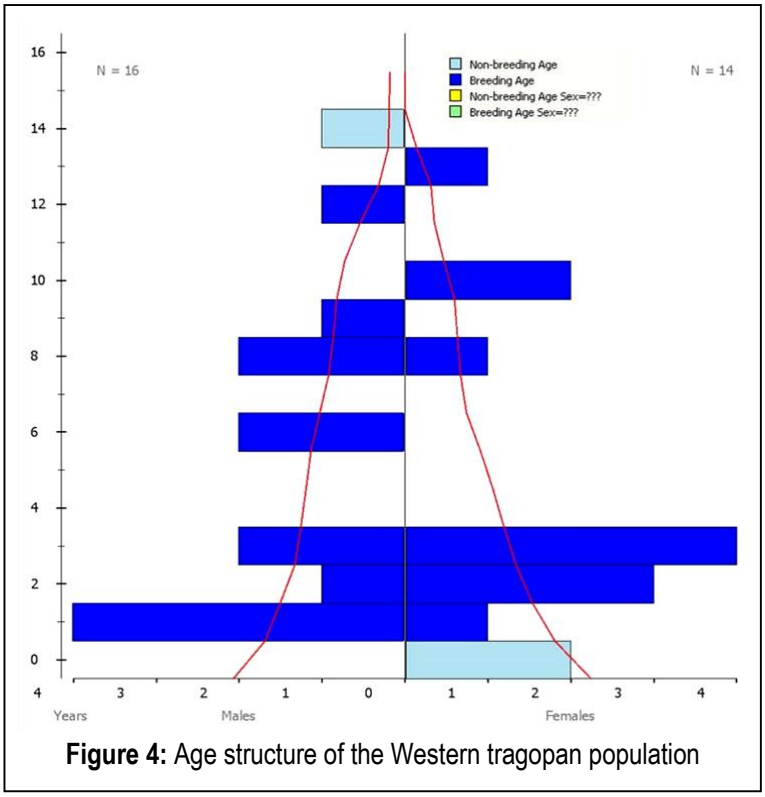


Figure 4: Age structure of the Western tragopan population

The population thus consists of a large proportion of individuals in the reproductively active age classes. A significant number of these birds are in the early stages of life and are likely to make significant contributions to the captive population. These features of the age structure are indicative of a population capable of rapid growth.

Living population

The living captive population of Western tragopan consists of 30(16.14.0) including 5 (3.2.0) wild-born and 25(13.12.0) captive-born individuals housed in two facilities in India. The details of the living population are summarized in table 4 and the individuals are listed in Appendix II.

Table 4: Summary of the living captive population

	Males	Females	Total
Total no. of living individuals	16	14	30
Total number of wild-born individuals	3	2	5
Total number of captive-born individuals	13	12	25
Total number of breeding individuals	5	4	9
Pre Reproductive	2	2	4
Breeding Age	13	12	25
Post Reproductive	1	0	1

Life table and population growth rates

Table 5: Life Table Summary

Demographic variables	Males	Females	Total
r	0.051	0.057	0.054
λ	1.052	1.059	1.056
Ro	1.420	1.452	1.436
T years	6.9	6.5	6.7
N 20 years	52.4	44.5	96.8

The age-specific patterns of reproduction and mortality in a population are summarized in the form of a life-table. The sex specific vital rates (mortality- Qx; fecundity- Mx) for each age class are calculated from life-tables. The studbook includes a total of 58 specimens; of which dates of events are available for 52 individuals. The small sample size limits accurate life table

analysis and drawing of meaningful conclusions; however, a review of the reproductive output suggests that both female and male reproductive activity is initiated at two years of age and continues to 12 – 13 years of age.

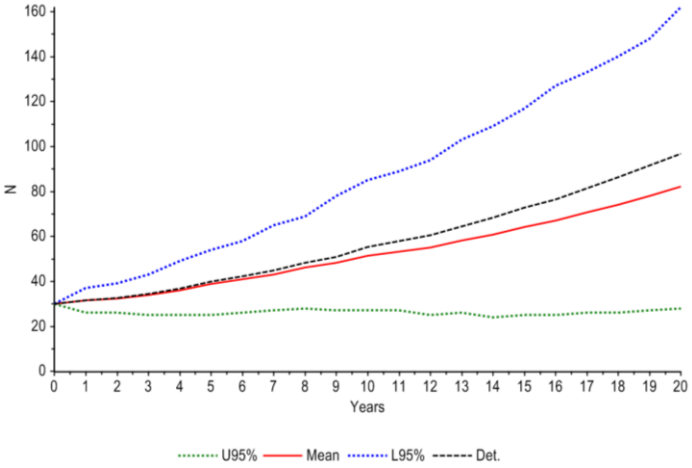


Figure 5: Population projections for 20 years

The population growth rates, generation time and projected number of individuals after a period of 20 years obtained from life table analysis are represented in table 5 and figure 5. These are included here only as indicators of population trends and may not be used for drawing conclusions. The various measures of population growth (table 5) indicate a growth rate of approximately 5% with a projected population size of 97(52.45.0) after 20 years. Management efforts directed towards the reduction in generation time from the current 6.9 years for males and 6.5 years for females can lead to a faster increase in population size.

Genetic Analysis

Genetic summary

Table 6: Genetic Summary

Genetic Variables	Values
Founders	8
Percent Ancestry Known	93%
Gene Diversity	0.8726
Gene Value	0.8639
Founder Genome Equivalents	3.93
Mean kinship	0.127
Mean Inbreeding	0.00
Ne/N	0.174

The population consists of eight (5.3) founder birds that retains 87.26% of gene diversity sampled, that is lower than the desired 90%. Appropriate pairing choices has resulted in avoiding inbreeding in the population despite limited number of founders available. The population mean kinship (a measure of the average degree of relatedness between individuals) is 0.127 (Table 6), indicating that the birds are related to each other at a level higher than half-siblings. The relatedness is attributed to the small population size and few founders available in the population that limit mating choices. Further 10 (5.4.1) wild origin birds remain unrepresented. The founder representation varies in the eight founders with founders #00002 and #00005 being over-represented in the population, while 00006 and 00010 remain under-represented resulting in 3.93 founder genome equivalents. The living wild origin birds that have not contributed to the population have likely reached reproductive senescence and are therefore unlikely to contribute to the captive gene pool. Further the population has an effective to actual population size ratio (N_e/N) of only 0.174, indicating poor reproductive contribution of the captive population.

Breeding Recommendations

The long-term maintenance of viable populations in captivity is dependent on their genetic viability and demographic stability. This is best achieved by regulating mating choices to ensure retention of maximum levels of genetic diversity in target populations. The mating choices for western tragopan in captivity were developed using "Mate Suitability Index' (MSI) scores obtained using PMx. A detailed description of MSI scores and how to use them is provided in box 1. The pairing options available are summarized in table 7. The mating choices exercised should also aim at the avoidance of pairing multiple progeny of one set of parents with that of another set of parents to ensure retention of maximum genetic diversity in the population.

Table 7: Pairing Options

Males	Females	
	MSI	
	1	2
00003	00009, 00053, 00054	00005, 00008, 00034, 00035, 00043
00006	00009, 00054	00005, 0000 8, 00034, 00035, 00043,
00010	00005, 00008, 00009, 00034, 00035, 00043, 00053, 00054	
00014	00009, 00053, 00054	00005, 00034, 00035, 00043,
00024	00008, 00009	
00042		00008,
00047	00054	00005, 00008
00048	00054	00005, 00008

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 (MK Diff): Difference in the genetic value (mean kinship value) of the male and female. Breeding a pair with a large MK Diff 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.

Source: Traylor-Holzer, K. (ed.). 2011.

Targets for Population Management

Western tragopan is listed under Schedule I of the Wildlife Protection act of India and as Vulnerable in the IUCN Red List. The species further has a restricted range of distribution and is endemic to western

Himalayas. It is therefore imperative to manage the captive population in a manner that ensures its genetic viability, demographic stability and availability of surpluses for reintroduction/ restocking as and when conditions become conducive for such an effort.

The data obtained for the captive population was modelled using PMx (Ballou *et. al.* 2011) to obtain deterministic projection of gene diversity and population size over time, based on the population characteristics. Two of the models run are presented here.

Scenario 1: Without supplementation

The first model was run retaining the current population characteristics (figure 6) with the goal of retaining 90% genetic diversity at the end of 100 years. It revealed that the population would retain only 19.4% of the genetic diversity introduced by founders as compared to the desired 90% genetic diversity.

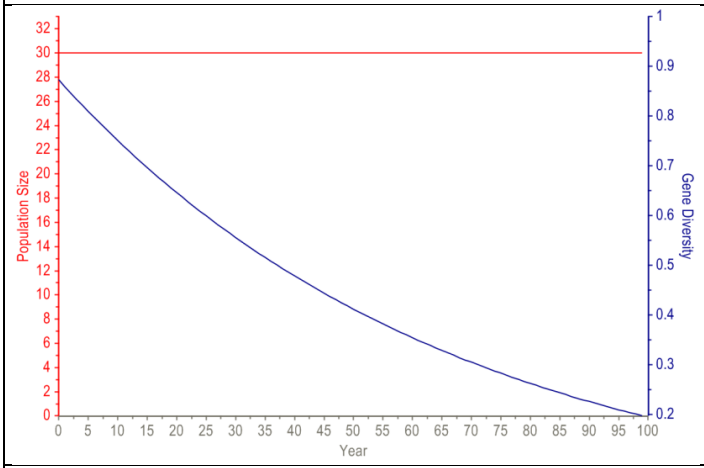
Simulation Output	Population Variables
	Generation Length; 6.7 Maximum potential lambda; 1.0556 Current N; 30 Current Ne; 5.2 Ne/N; 0.17 Current Gene Diversity; 0.8726 Maximum N; 30 No founders added Variables used as are **Results:** Goal not possible - Can maintain only 19.4%.

Figure 6: Simulation outcomes without supplementation

Scenario 2: With supplementation

The second model (figure 7) was run by supplementation of one new effective founder every third year for the next 100 years and increasing the maximum captive population size to 200 birds. The model indicated that modifying the population characteristics ensured its survival over the next 100 years and that it could retain 91.0% of genetic diversity sampled from founder birds.

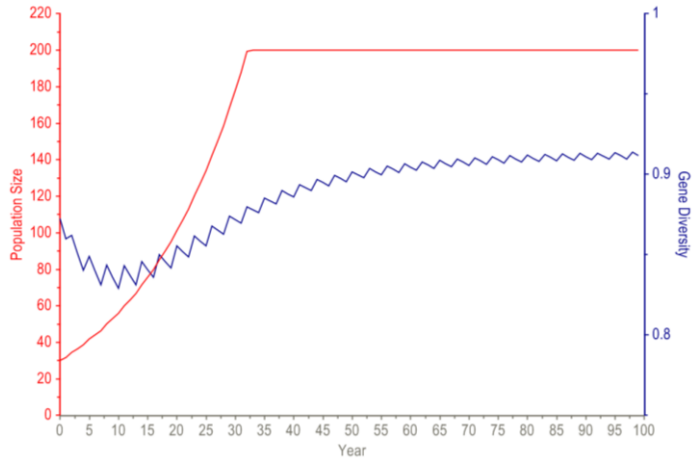
Simulation Output	Population Variables
	Generation Length; 6.7 Maximum potential lambda; 1.0556 Current N; 30 Current Ne; 5.2 Ne/N; 0.17 Current Gene Diversity; 0.8726 Maximum N; 200 **Founder Related Variables** New founders per Addition event; 1 Year to start adding founders; 1 Years between events; 3 Year to stop adding founders; 100 FGE per Founder; 0.40 N per Founder; 1 **Results:** You can exceed goals and maintain 91.0%

Figure 7: Simulation outcomes with supplementation

Conclusions

The species has a limited range and is facing multiple threats to its survival; as a result it has been placed in the Schedule I of the Wildlife Protection Act and in the IUCN Red list as Vulnerable. A viable *ex-situ* population thus can act to ensure the long-term survival of the species.

The current captive population is characterised by a total population size of 30(16.14.0) individuals housed at two institutions in India. The population shows low rate of increment (λ=1.052), retains 87% of the genetic diversity from 8(5.3) founders and exhibits a high level of relatedness between specimens (MK=0.127). Changes in husbandry are reflected in the increased population size and proportion of captive origin birds during recent years.

Management interventions suggested for ensuring the desired growth and long term viability of the population include:

i. Regulating mate choices according to the pairing recommendations included in the studbook.
ii. Supplementation of the population periodically with wild origin birds to ensure demographic stability and genetic viability.
iii. The creation of additional holding facility to house the target population size of 200 birds.

Implementation of these measures will ensure the availability of surpluses for reintroduction in suitable habitats if necessary at a future date.

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Appendix I

Historical Population of *Tragopan melanocephalus*

Sl. No.	Natl. Stud# Ring House Name	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
1.	00001 2259Q ABBU	M	~ 1999	WILD	WILD	INDIA SARAHAN	~ 2001 ~ Jan 2001 1-Feb-13	NONE _____	Capture Transfer Death
2.	00002 2256Q RAJA	M	~ 2000	WILD	WILD	INDIA SARAHAN	~ Jan 2002 ~ Jan 2002 1-Nov-11	NONE WTAB-1	Capture Transfer Death
3.	00003 2258Q JONEY	M	~ 2001	WILD	WILD	INDIA SARAHAN	~ Feb 2003 ~ Feb 2003	NONE WTJN-4	Capture Transfer
4.	00004 2260Q NEELU	F	~ 2001	WILD	WILD	INDIA SARAHAN	~ Feb 2003 ~ Feb 2003 18-Feb-15	NONE WTNL-3	Capture Transfer Death
5.	00005 2265Q RANI	F	~ 2002	WILD	WILD	INDIA SARAHAN	1-Feb-04 1-Feb-04	NONE WTRN-5	Capture Transfer
6.	00006 2268Q MOTI	M	~ 2003	WILD	WILD	INDIA SARAHAN	~ Apr 2005 ~ Apr 2005	NONE WTMT-7	Capture Transfer
7.	00007 2266Q REKHA	F	~ 2003	WILD	WILD	INDIA SARAHAN	~ Feb 2005 ~ Feb 2005 22-May-14	NONE WTRK-6	Capture Transfer Death
8.	00008 2267Q RUCHI	F	6-Jun-05	00001	00004	SARAHAN	6-Jun-05	WTRU-8	Hatch
9.	00009 2283Q SHALU	F	~ 2005	WILD	WILD	INDIA SARAHAN	~ Apr 2008 ~ Apr 2008	NONE _____	Capture Transfer
10.	00010 2284Q SANJU	M	~ 2006	WILD	WILD	INDIA SARAHAN	~ Apr 2008 ~ Apr 2008	NONE _____	Capture Transfer
11.	00011 2285Q PAPU	M	27-Apr-07	00002	00005	SARAHAN	27-Apr-07 20-Apr-10	_____	Hatch Death
12.	00012 2282Q DEEPA	F	8-Jun-07	UNK	UNK	SARAHAN	8-Jun-07 16-May-10	WTDP16	Hatch Death
13.	00013 2286Q SHIV	M	24-Jun-07	00003	00008	SARAHAN	24-Jun-07	WTSV11	Hatch
14.	00014 2278Q GOLU	M	27-Jun-07	00001	00004	SARAHAN	27-Jun-07	WTGO12	Hatch
15.	00015 2281Q GUDDU	M	27-Jun-07	00002	00005	SARAHAN	27-Jun-07 20-Apr-15	WTPP13	Hatch Death
16.	00016 2279Q	F	27-Jun-07	00002	00005	SARAHAN	27-Jun-07 11-May-10	WTSH14	Hatch Death

Sl. No.	Natl. Stud# Ring House Name	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
	NEETHA								
17.	00017 2276Q SHEELA	F	27-Jun-07	00002	00005	SARAHAN	27-Jun-07	WTNT15	Hatch
18.	00018 2289Q SEEMA	F	12-Jun-08	00003	00008	SARAHAN	12-Jun-08 11-Jul-12	WTSM20	Hatch Death
19.	00020 2290Q LATA	F	26-Jun-08	00002	00005	SARAHAN	26-Jun-08 7-Jun-15	WTLT21	Hatch Death
20.	00021 2287Q NEHA	F	30-Jun-08	00003	00008	SARAHAN	30-Jun-08 2-May-10	WTNH23	Hatch Death
21.	00022 2288Q HEENA	F	30-Jun-08	00003	00008	SARAHAN	30-Jun-08 24-Apr-15	WTHN22	Hatch Death
22.	00023 2291Q TEENU	M	14-Jun-09	00013	00017	SARAHAN	14-Jun-09	_____	Hatch
23.	00024 2292Q MONU	M	14-Jul-09	00006	00016	SARAHAN	14-Jul-09	_____	Hatch
24.	00025 2280Q RAM	M	????	UNK	UNK	SARAHAN KUFRI	???? ~ Aug 2007	_____ KUFRI1	Hatch Transfer
25.	00026 2277Q ANU	M	????	UNK	UNK	SARAHAN KUFRI	???? ~ Aug 2007	_____ KUFRI2	Hatch Transfer
26.	00027 2257Q	M	~ 1993	UNK	UNK	SARAHAN	~ 1993 ~ 2005	_____	Hatch Death
27.	00028	?	~ 1993	UNK	UNK	SARAHAN	~ 1993 ~ 1993	_____	Hatch Death
28.	00029	M	????	WILD	WILD	INDIA SARAHAN	~ 1996 ~ Jan 1996 ~ Mar 1998	NONE _____	Capture Transfer Death
29.	00030	F	????	WILD	WILD	INDIA SARAHAN	~ Dec 1996 ~ Dec 1996 ????	NONE _____	Capture Transfer Death
30.	00031	M	????	WILD	WILD	INDIA SARAHAN	~ May 1997 ~ May 1997 ~ Mar 1998	NONE _____	Capture Transfer Death
31.	00032	F	????	WILD	WILD	INDIA SARAHAN	~ Nov 1997 ~ Nov 1997 ????	NONE _____	Capture Transfer Death
32.	00033 2305Q	M	12-Jun-12	00015	00009	SARAHAN	12-Jun-12 1-Mar-15	2012_1	Hatch Death
33.	00034 2306Q	F	12-Jun-12	00015	00009	SARAHAN	12-Jun-12	2012_2	Hatch
34.	00035 2307Q	F	12-Jun-12	00015	00009	SARAHAN	12-Jun-12	2012_3	Hatch

Sl. No.	Natl. Stud# Ring House Name	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
35.	00036 2308Q	M	13-Jun-12	00013	00017	SARAHAN	13-Jun-12	2012_4	Hatch
36.	00037 2309Q	F	13-Jun-12	00013	00017	SARAHAN	13-Jun-12	2012_5	Hatch
37.	00038 2310Q	M	18-Jun-12	00013	00017	SARAHAN	18-Jun-12	2012_6	Hatch
38.	00039 2311Q	F	18-Jun-12	00013	00017	SARAHAN	18-Jun-12	2012_7	Hatch
39.	00040	M	30-Jun-12	00014	00020	SARAHAN	30-Jun-12 4-Jul-12	2012_8	Hatch Death
40.	00041	?	26-Jun-12	00003	00008	SARAHAN	26-Jun-12 27-Jun-12	2012_9	Hatch Death
41.	00042 2301Q	M	12-Jun-13	00015	00009	SARAHAN	12-Jun-13	2013_1	Hatch
42.	00043 2302Q	F	12-Jun-13	00015	00009	SARAHAN	12-Jun-13	2302Q	Hatch
43.	00044 2312Q	F	26-Jun-13	00013	00017	SARAHAN	26-Jun-13	2013_3	Hatch
44.	00045 2313Q	F	26-Jun-13	00013	00017	SARAHAN	26-Jun-13	2013_4	Hatch
45.	00046	?	25-Jun-13	00010	00005	SARAHAN	25-Jun-13 8-Aug-13	2013_5	Hatch Death
46.	00047 2303Q	M	19-Jul-14	00006	00009	SARAHAN	19-Jul-14	2014_1	Hatch
47.	00048 2304Q	M	19-Jul-14	00006	00009	SARAHAN	19-Jul-14	2014_2	Hatch
48.	00049 1HPWLW	M	20-Jul-14	00013	00017	SARAHAN	20-Jul-14	2014_3	Hatch
49.	00050 2HPWLW	M	20-Jul-14	00013	00017	SARAHAN	20-Jul-14	2014_4	Hatch
50.	00051 3HPWLW	F	20-Jul-14	00013	00017	SARAHAN	20-Jul-14	2014_5	Hatch
51.	00052	F	20-Jul-14	00013	00017	SARAHAN	20-Jul-14 4-Dec-14	2014_6	Hatch Death
52.	00053	F	28-Jun-15	00006	00009	SARAHAN	28-Jun-15	2015_1	Hatch
53.	00054	F	25-Jun-15	00010	00005	SARAHAN	25-Jun-15	2015_2	Hatch
54.	00055	?	25-Jun-15	00010	00005	SARAHAN	25-Jun-15 9-Jul-15	2015_3	Hatch Death
55.	00056	?	9-Jul-15	00013	00017	SARAHAN	9-Jul-15 7-Aug-15	2015_4	Hatch Death
56.	00057	?	9-Jul-15	00013	00017	SARAHAN	9-Jul-15 10-Jul-15	2015_5	Hatch Death
57.	00058	?	9-Jul-15	00013	00017	SARAHAN	9-Jul-15 9-Jul-15	2015_6	Hatch Death
58.	00059	?	9-Jul-15	00013	00017	SARAHAN	9-Jul-15 9-Jul-15	2015_7	Hatch Death

TOTALS: 25.25.8 (58)

Appendix IA

Listing of individuals with no parentage and transaction records									
Sl. No.	**National Studbook No.**	**House name Local ID Ring No.**	**Sex**	**Hatch Date**	**Sire**	**Dam**	**Location**	**Date**	**Event**
1.	-*	Unnamed 1	M	Unknown	Unk	Unk	Daranghati SARAHAN	~ Jan 1990 ~ Jan 1990 ~ May 1991	Capture Transfer Death
2.	-*	Unnamed 2	F	Unknown	Unk	Unk	Daranghati SARAHAN	~ Jan 1990 ~ Jan 1990 ~ Oct 1992	Capture Transfer Death
3.	-*	Unnamed 3	M	Unknown	Unk	Unk	Thar Jot SARAHAN	~ Apr 1992 ~ Apr 1992 ~ Feb 1995	Capture Transfer Death
4.	-*	Unnamed 4	F	Unknown	Unk	Unk	Thar Jot SARAHAN	~ Apr 1992 ~ Apr 1992 ~ Mar 1994	Capture Transfer Death
5.	-*	Unnamed 5	M	Unknown	Unk	Unk	Daranghati SARAHAN	~ Jan 1993 ~ Jan 1993 ~ Feb 1995	Capture Transfer Death
6.	-*	Unnamed 6	F	Unknown	Unk	Unk	Daranghati SARAHAN	~ Mar 1993 ~ Mar 1993 ~ Aug 1997	Capture Transfer Death
7.	-*	Unnamed 7	M	Unknown	Unk	Unk	Daranghati SARAHAN	~ Jan 1996 ~ Jan 1996 ~ Mar 1998	Capture Transfer Death
8.	-*	Unnamed 8	F	Unknown	Unk	Unk	Daranghati SARAHAN	~ Dec 1996 ~ Dec 1996 Unknown	Capture Transfer Death
9.	-*	Unnamed 9	M	Unknown	Unk	Unk	Kashapat SARAHAN	~ May 1997 ~ May 1997 ~ Mar 1998	Capture Transfer Death
10.	-*	Unnamed 9	M	Unknown	Unk	Unk	Kashapat SARAHAN	~ Nov 1997 ~ Nov 1997 Unknown	Capture Transfer Death

Appendix II

Living Population of *Tragopan melanocephalus*

Sl. No	Natl. Stud# Ring Name	Sex	Hatch Date	Sire	Dam	Location	Date	LocalID	Event
Sarahan Pheasantry, Sarahan									
1.	00003 2258Q JONEY	M	~ 2001	WILD	WILD	INDIA SARAHAN	~ Feb 2003 ~ Feb 2003	NONE WTJN-4	Capture Transfer
2.	00005 2265Q RANI	F	~ 2002	WILD	WILD	INDIA SARAHAN	1-Feb-04 1-Feb-04	NONE WTRN-5	Capture Transfer
3.	00006 2268Q MOTI	M	~ 2003	WILD	WILD	INDIA SARAHAN	~ Apr 2005 ~ Apr 2005	NONE WTMT-7	Capture Transfer
4.	00008 2267Q RUCHI	F	6-Jun-05	00001	00004	SARAHAN	6-Jun-05	WTRU-8	Hatch
5.	00009 2283Q SHALU	F	~ 2005	WILD	WILD	INDIA SARAHAN	~ Apr 2008 ~ Apr 2008	NONE _____	Capture Transfer
6.	00010 2284Q SANJU	M	~ 2006	WILD	WILD	INDIA SARAHAN	~ Apr 2008 ~ Apr 2008	NONE _____	Capture Transfer
7.	00013 2286Q SHIV	M	24-Jun-07	00003	00008	SARAHAN	24-Jun-07	WTSV11	Hatch
8.	00014 2278Q GOLU	M	27-Jun-07	00001	00004	SARAHAN	27-Jun-07	WTGO12	Hatch
9.	00017 2276Q SHEELA	F	27-Jun-07	00002	00005	SARAHAN	27-Jun-07	WTNT15	Hatch
10.	00023 2291Q TEENU	M	14-Jun-09	00013	00017	SARAHAN	14-Jun-09	_____	Hatch
11.	00024 2292Q MONU	M	14-Jul-09	00006	00016	SARAHAN	14-Jul-09	_____	Hatch
12.	00034 2306Q	F	12-Jun-12	00015	00009	SARAHAN	12-Jun-12	2012_2	Hatch
13.	00035 2307Q	F	12-Jun-12	00015	00009	SARAHAN	12-Jun-12	2012_3	Hatch
14.	00036 2308Q	M	13-Jun-12	00013	00017	SARAHAN	13-Jun-12	2012_4	Hatch
15.	00037 2309Q	F	13-Jun-12	00013	00017	SARAHAN	13-Jun-12	2012_5	Hatch
16.	00038 2310Q	M	18-Jun-12	00013	00017	SARAHAN	18-Jun-12	2012_6	Hatch
17.	00039	F	18-Jun-12	00013	00017	SARAHAN	18-Jun-12	2012_7	Hatch

Sl. No	Natl. Stud# Ring Name	Sex	Hatch Date	Sire	Dam	Location	Date	LocalID	Event
	2311Q								
18.	00042 2301Q	M	12-Jun-13	00015	00009	SARAHAN	12-Jun-13	2013_1	Hatch
19.	00043 2302Q	F	12-Jun-13	00015	00009	SARAHAN	12-Jun-13	2302Q	Hatch
20.	00044 2312Q	F	26-Jun-13	00013	00017	SARAHAN	26-Jun-13	2013_3	Hatch
21.	00045 2313Q	F	26-Jun-13	00013	00017	SARAHAN	26-Jun-13	2013_4	Hatch
22.	00047 2303Q	M	19-Jul-14	00006	00009	SARAHAN	19-Jul-14	2014_1	Hatch
23.	00048 2304Q	M	19-Jul-14	00006	00009	SARAHAN	19-Jul-14	2014_2	Hatch
24.	00049 1HPWLW	M	20-Jul-14	00013	00017	SARAHAN	20-Jul-14	2014_3	Hatch
25.	00050 2HPWLW	M	20-Jul-14	00013	00017	SARAHAN	20-Jul-14	2014_4	Hatch
26.	00051 3HPWLW	F	20-Jul-14	00013	00017	SARAHAN	20-Jul-14	2014_5	Hatch
27.	00053	F	28-Jun-15	00006	00009	SARAHAN	28-Jun-15	2015_1	Hatch
28.	00054	F	25-Jun-15	00010	00005	SARAHAN	25-Jun-15	2015_2	Hatch
Totals: 28(14.14.0)									
Himalayan Nature Park, Kufri									
29.	00025 2280Q RAM	M	????	UNK	UNK	SARAHAN KUFRI	???? ~ Aug 2007	_____ KUFRI1	Hatch Transfer
30.	00026 2277Q ANU	M	????	UNK	UNK	SARAHAN KUFRI	???? ~ Aug 2007	_____ KUFRI2	Hatch Transfer
Totals: 2(2.0.0)									

Appendix III

Pedigree Chart Report of Western Tragopan

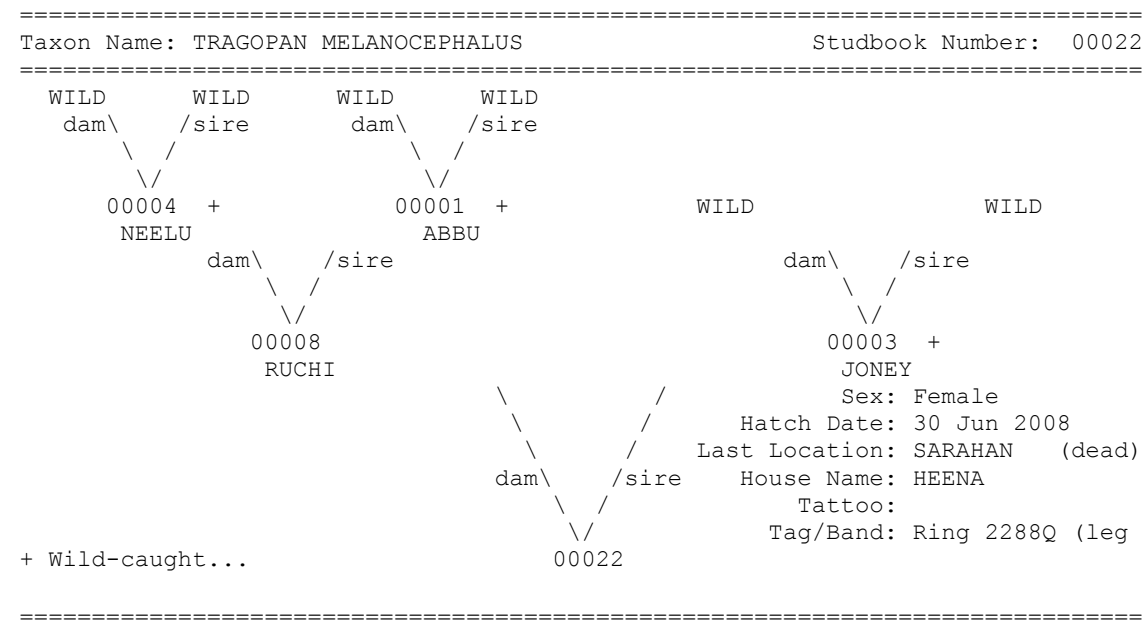
```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00001
================================================================================
                WILD                                      WILD
                                \           /             Sex: Male
                                 \         /      Hatch Date:      ~ 1999
                                  \       /    Last Location: SARAHAN   (dead)
                                dam\     /sire    House Name: ABBU
                                    \   /             Tattoo:
                                     \/             Tag/Band: Ring 2259Q (leg
                                   00001

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00002
================================================================================
                WILD                                      WILD
                                \           /             Sex: Male
                                 \         /      Hatch Date:      ~ 2000
                                  \       /    Last Location: SARAHAN   (dead)
                                dam\     /sire    House Name: RAJA
                                    \   /             Tattoo:
                                     \/             Tag/Band: Ring 2256Q (Leg
                                   00002

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00003
================================================================================
                WILD                                      WILD
                                \           /             Sex: Male
                                 \         /      Hatch Date:      ~ 2001
                                  \       /    Last Location: SARAHAN
                                dam\     /sire    House Name: JONEY
                                    \   /             Tattoo:
                                     \/             Tag/Band: Ring 2258Q (leg
                                   00003

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00004
================================================================================
                WILD                                      WILD
                                \           /             Sex: Female
                                 \         /      Hatch Date:      ~ 2001
                                  \       /    Last Location: SARAHAN   (dead)
                                dam\     /sire    House Name: NEELU
                                    \   /             Tattoo:
                                     \/             Tag/Band: Ring 2260Q (leg
                                   00004

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00005
================================================================================
                WILD                                      WILD
                                \           /             Sex: Female
                                 \         /      Hatch Date:      ~ 2002
                                  \       /    Last Location: SARAHAN
                                dam\     /sire    House Name: RANI
                                    \   /             Tattoo:
                                     \/             Tag/Band: Ring 2265Q (leg
                                   00005
```

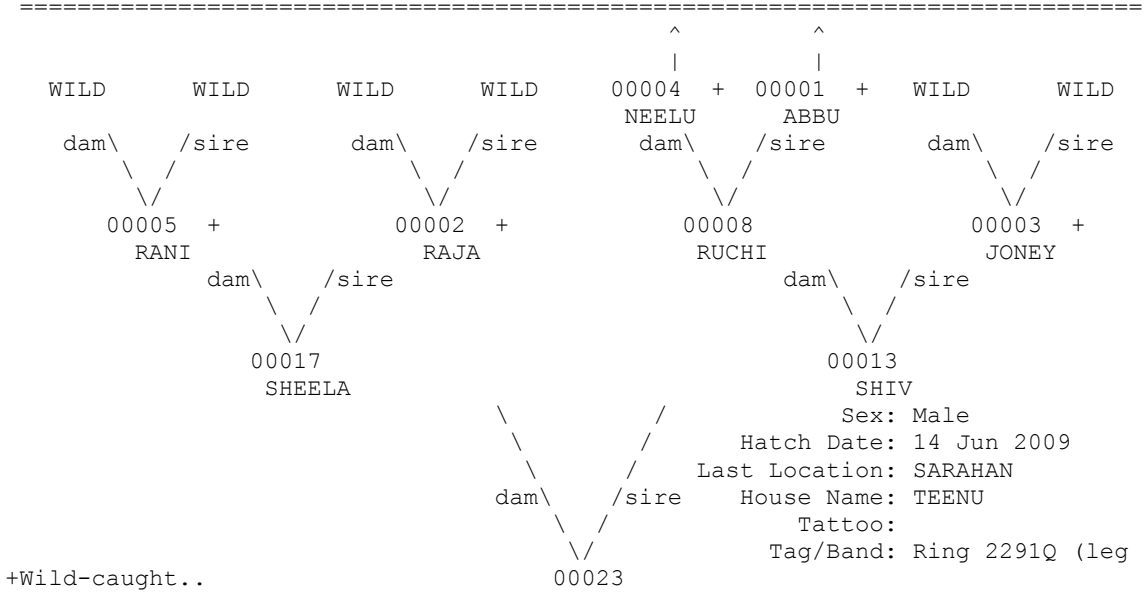
```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00006
================================================================================
                 WILD                                    WILD
                                  \          /           Sex: Male
                                   \        /      Hatch Date:      ~ 2003
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: MOTI
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2268Q (leg
                                     00006

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00007
================================================================================
                 WILD                                    WILD
                                  \          /           Sex: Female
                                   \        /      Hatch Date:      ~ 2003
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: REKHA
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2266Q (leg
                                     00007

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00008
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
                 00004  +                                00001  +
                  NEELU                                   ABBU
                                  \          /           Sex: Female
                                   \        /      Hatch Date:  6 Jun 2005
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: RUCHI
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2267Q (leg
+ Wild-caught...                     00008

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00009
================================================================================
                 WILD                                    WILD
                                  \          /           Sex: Female
                                   \        /      Hatch Date:      ~ 2005
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: SHALU
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2283Q (leg
                                     00009

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00010
================================================================================
                 WILD                                    WILD
                                  \          /           Sex: Male
                                   \        /      Hatch Date:      ~ 2006
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: SANJU
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2284Q (leg
                                     00010
```

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00011
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                       dam\    /sire
                 \  /                                \  /
                  \/                                  \/
               00005  +                            00002  +
                 RANI                                RAJA
                                  \          /         Sex: Male
                                   \        /      Hatch Date: 27 Apr 2007
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: PAPU
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2285Q (leg
+ Wild-caught...                     00011

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00012
================================================================================
                UNK                                  UNK
                                  \          /         Sex: Female
                                   \        /      Hatch Date:  8 Jun 2007
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: DEEPA
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2282Q (leg
                                    00012

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00013
================================================================================
  WILD      WILD      WILD      WILD
   dam\    /sire      dam\    /sire
       \  /               \  /
        \/                 \/
      00004  +           00001  +            WILD                WILD
       NEELU               ABBU
             dam\    /sire                       dam\    /sire
                 \  /                                \  /
                  \/                                  \/
               00008                               00003  +
                RUCHI                               JONEY
                                  \          /         Sex: Male
                                   \        /      Hatch Date: 24 Jun 2007
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: SHIV
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2286Q (leg
+ Wild-caught...                     00013

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00014
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                       dam\    /sire
                 \  /                                \  /
                  \/                                  \/
               00004  +                            00001  +
                 NEELU                               ABBU
                                  \          /         Sex: Male
                                   \        /      Hatch Date: 27 Jun 2007
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: GOLU
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2278Q (leg
 + Wild-caught...                    00014
```

```
 ================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00015
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                       dam\    /sire
                 \  /                                \  /
                  \/                                  \/
               00005  +                            00002  +
                 RANI                                RAJA
                                  \          /            Sex: Male
                                   \        /      Hatch Date: 27 Jun 2007
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: GUDDU
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2281Q (leg
+ Wild-caught...                     00015


================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00016
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                       dam\    /sire
                 \  /                                \  /
                  \/                                  \/
               00005  +                            00002  +
                 RANI                                RAJA
                                  \          /            Sex: Female
                                   \        /      Hatch Date: 27 Jun 2007
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: NEETHA
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2279Q (leg
+ Wild-caught...                     00016


================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00017
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                       dam\    /sire
                 \  /                                \  /
                  \/                                  \/
               00005  +                            00002  +
                 RANI                                RAJA
                                  \          /            Sex: Female
                                   \        /      Hatch Date: 27 Jun 2007
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: SHEELA
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2276Q (leg
+ Wild-caught...                     00017
```

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00018
================================================================================
  WILD      WILD      WILD      WILD
   dam\    /sire       dam\    /sire
       \  /                \  /
        \/                  \/
      00004  +            00001  +            WILD               WILD
       NEELU                ABBU
             dam\    /sire                          dam\    /sire
                 \  /                                \  /
                  \/                                  \/
                00008                               00003  +
                 RUCHI                               JONEY
                                  \          /         Sex: Female
                                   \        /      Hatch Date: 12 Jun 2008
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: SEEMA
                                      \  /            Tattoo:
                                       \/           Tag/Band: Ring 2289Q
+ Wild-caught...                     00018

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00020
================================================================================
       WILD                WILD                WILD               WILD
             dam\    /sire                          dam\    /sire
                 \  /                                \  /
                  \/                                  \/
                00005  +                            00002  +
                  RANI                                RAJA
                                  \          /         Sex: Female
                                   \        /      Hatch Date: 26 Jun 2008
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: LATA
                                      \  /            Tattoo:
                                       \/           Tag/Band: Ring 2290Q (leg
+ Wild-caught...                     00020

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00021
================================================================================
  WILD      WILD      WILD      WILD
   dam\    /sire       dam\    /sire
       \  /                \  /
        \/                  \/
      00004  +            00001  +            WILD               WILD
       NEELU                ABBU
             dam\    /sire                          dam\    /sire
                 \  /                                \  /
                  \/                                  \/
                00008                               00003  +
                 RUCHI                               JONEY
                                  \          /         Sex: Female
                                   \        /      Hatch Date: 30 Jun 2008
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name: NEHA
                                      \  /            Tattoo:
                                       \/           Tag/Band: Ring 2287Q (leg
+ Wild-caught...                     00021
```


Taxon Name: TRAGOPAN MELANOCEPHALUS
Studbook Number: 00022
WILD
WILD
WILD
WILD
dam\
/sire
dam\
/sire
00004 +
NEELU
00001 +
ABBU
WILD
WILD
dam\
/sire
dam\
/sire
00008
RUCHI
00003 +
JONEY
Sex: Female
Hatch Date: 30 Jun 2008
Last Location: SARAHAN (dead)
House Name: HEENA
Tattoo:
Tag/Band: Ring 2288Q (leg
+ Wild-caught...
00022


Taxon Name: TRAGOPAN MELANOCEPHALUS
Studbook Number: 00023
WILD
WILD
WILD
WILD
00004 +
NEELU
00001 +
ABBU
WILD
WILD
dam\
/sire
dam\
/sire
dam\
/sire
dam\
/sire
00005 +
RANI
00002 +
RAJA
00008
RUCHI
00003 +
JONEY
dam\
/sire
dam\
/sire
00017
SHEELA
00013
SHIV
Sex: Male
Hatch Date: 14 Jun 2009
Last Location: SARAHAN
House Name: TEENU
Tattoo:
Tag/Band: Ring 2291Q (leg
+Wild-caught..
00023
^Pedigree continues beyond top of page..

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00024
================================================================================
  WILD      WILD      WILD      WILD
   dam\    /sire      dam\    /sire
       \  /               \  /
        \/                 \/
      00005  +           00002  +            WILD                WILD
        RANI               RAJA
               \      /                                \      /
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
                00016                                   00006  +
                 NEETHA                                  MOTI
                                  \          /            Sex: Male
                                   \        /      Hatch Date: 14 Jul 2009
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name: MONU
                                      \  /             Tattoo:
                                       \/            Tag/Band: Ring 2292Q (leg
+ Wild-caught...                     00024

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00025
================================================================================
                  UNK                                    UNK
                                  \          /            Sex: Male
                                   \        /      Hatch Date:    ????
                                    \      /    Last Location: KUFRI
                                  dam\    /sire    House Name: RAM
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2280Q (leg)
                                    00025

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00026
================================================================================
                  UNK                                    UNK
                                  \          /            Sex: Male
                                   \        /      Hatch Date:    ????
                                    \      /    Last Location: KUFRI
                                  dam\    /sire    House Name: ANU
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2277Q (leg)
                                    00026

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00027
================================================================================
                  UNK                                    UNK
                                  \          /            Sex: Male
                                   \        /      Hatch Date:      ~ 1993
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: RING 2257Q
                                    00027

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00028
================================================================================
                  UNK                                    UNK
                                  \          /            Sex: Unknown
                                   \        /      Hatch Date:      ~ 1993
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
                                    00028
```

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00029
================================================================================
                 WILD                                    WILD
                                \          /             Sex: Male
                                 \        /      Hatch Date:    ????
                                  \      /    Last Location: SARAHAN   (dead)
                                dam\    /sire    House Name:
                                    \  /             Tattoo:
                                     \/            Tag/Band:
                                   00029

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00030
================================================================================
                 WILD                                    WILD
                                \          /             Sex: Female
                                 \        /      Hatch Date:    ????
                                  \      /    Last Location: SARAHAN   (dead)
                                dam\    /sire    House Name:
                                    \  /             Tattoo:
                                     \/            Tag/Band:
                                   00030

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00031
================================================================================
                 WILD                                    WILD
                                \          /             Sex: Male
                                 \        /      Hatch Date:    ????
                                  \      /    Last Location: SARAHAN   (dead)
                                dam\    /sire    House Name:
                                    \  /             Tattoo:
                                     \/            Tag/Band:
                                   00031

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00032
================================================================================
                 WILD                                    WILD
                                \          /             Sex: Female
                                 \        /      Hatch Date:    ????
                                  \      /    Last Location: SARAHAN   (dead)
                                dam\    /sire    House Name:
                                    \  /             Tattoo:
                                     \/            Tag/Band:
                                   00032

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00033
================================================================================
                                          WILD      WILD      WILD      WILD
                                           dam\    /sire      dam\    /sire
                                               \  /               \  /
                                                \/                 \/
       WILD               WILD               00005  +            00002  +
                                               RANI                RAJA
              dam\    /sire                        dam\    /sire
                  \  /                                \  /
                   \/                                  \/
                 00009  +                            00015
                  SHALU                               GUDDU
                                \          /             Sex: Male
                                 \        /      Hatch Date: 12 Jun 2012
                                  \      /    Last Location: SARAHAN   (dead)
                                dam\    /sire    House Name:
                                    \  /             Tattoo:
                                     \/            Tag/Band: 2305Q
+ Wild-caught...                   00033
```

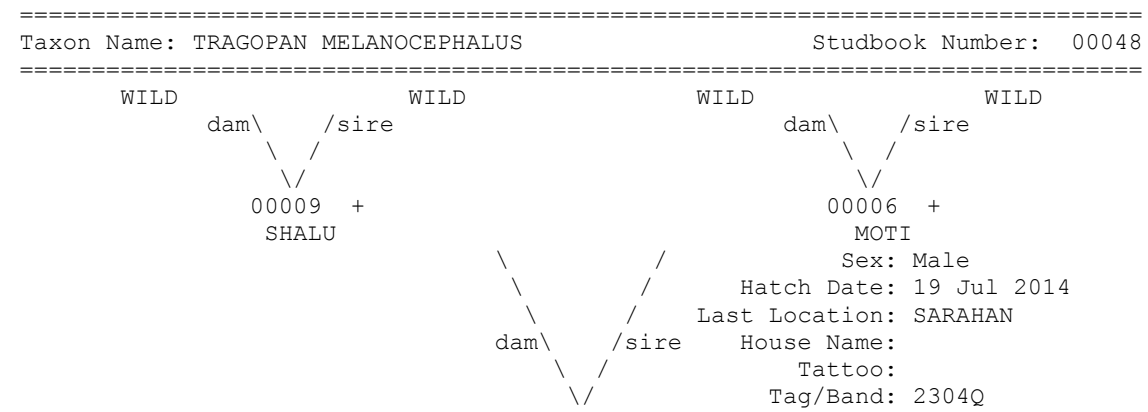
```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00034
================================================================================
                                        WILD      WILD      WILD      WILD
                                         dam\    /sire      dam\    /sire
                                             \  /                \  /
                                              \/                  \/
       WILD               WILD               00005  +             00002  +
                                               RANI                 RAJA
              dam\    /sire                        dam\    /sire
                  \  /                                 \  /
                   \/                                   \/
                  00009  +                             00015
                   SHALU                                GUDDU
                                 \          /            Sex: Female
                                  \        /      Hatch Date: 12 Jun 2012
                                   \      /    Last Location: SARAHAN
                                 dam\    /sire    House Name:
                                     \  /             Tattoo:
                                      \/            Tag/Band: 2306Q
+ Wild-caught...                    00034

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00035
================================================================================
                                        WILD      WILD      WILD      WILD
                                         dam\    /sire      dam\    /sire
                                             \  /                \  /
                                              \/                  \/
       WILD               WILD               00005  +             00002  +
                                               RANI                 RAJA
              dam\    /sire                        dam\    /sire
                  \  /                                 \  /
                   \/                                   \/
                  00009  +                             00015
                   SHALU                                GUDDU
                                 \          /            Sex: Female
                                  \        /      Hatch Date: 12 Jun 2012
                                   \      /    Last Location: SARAHAN
                                 dam\    /sire    House Name:
                                     \  /             Tattoo:
                                      \/            Tag/Band: 2307Q
+ Wild-caught...                    00035

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00036
================================================================================
                                             ^         ^
                                             |         |
  WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                          NEELU      ABBU
    dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
        \  /                \  /                \  /                \  /
         \/                  \/                  \/                  \/
       00005  +            00002  +            00008               00003  +
         RANI                RAJA                RUCHI               JONEY
              dam\    /sire                        dam\    /sire
                  \  /                                 \  /
                   \/                                   \/
                  00017                                00013
                   SHEELA                               SHIV
                                 \          /            Sex: Male
                                  \        /      Hatch Date: 13 Jun 2012
                                   \      /    Last Location: SARAHAN
                                 dam\    /sire    House Name:
                                     \  /             Tattoo:
                                      \/            Tag/Band: 2308Q
+ Wild-caught...                    00036
^ Pedigree continues beyond top of page...
```

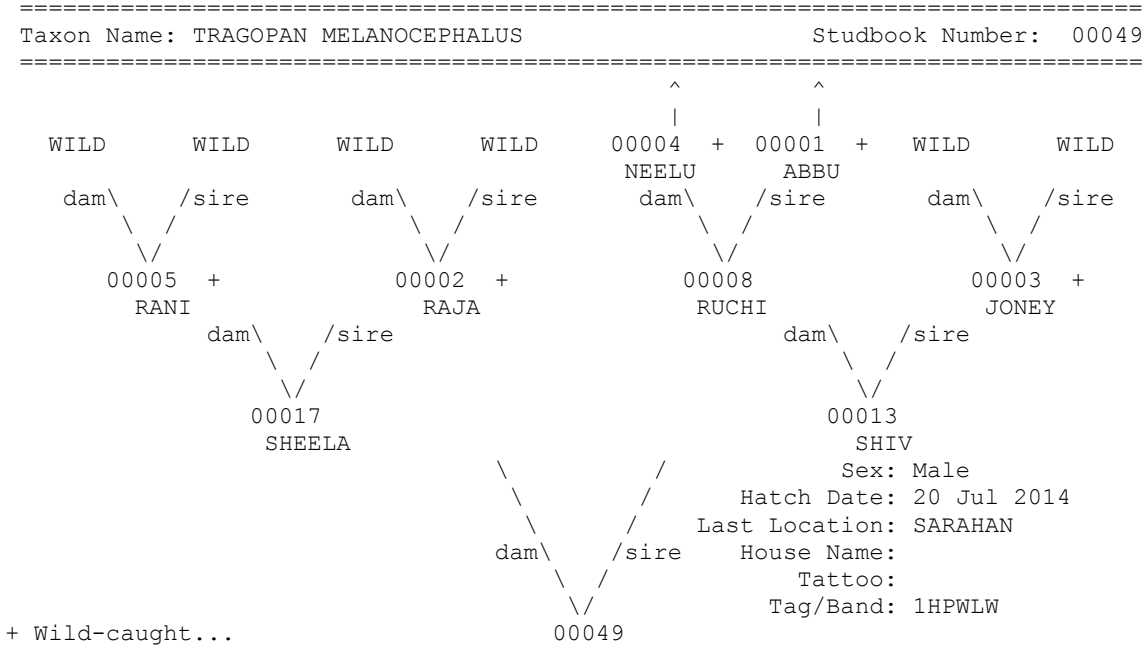
```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00037
================================================================================
                                                ^         ^
                                                |         |
  WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                          NEELU       ABBU
   dam\    /sire     dam\    /sire       dam\    /sire       dam\    /sire
       \  /              \  /               \  /               \  /
        \/                \/                 \/                 \/
      00005  +          00002  +           00008              00003  +
        RANI              RAJA               RUCHI              JONEY
            dam\    /sire                          dam\    /sire
                \  /                                   \  /
                 \/                                     \/
               00017                                  00013
                SHEELA                                  SHIV
                                  \          /           Sex: Female
                                   \        /      Hatch Date: 13 Jun 2012
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2309Q
+ Wild-caught...                     00037
^ Pedigree continues beyond top of page...

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00038
================================================================================
                                                ^         ^
                                                |         |
  WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                          NEELU       ABBU
   dam\    /sire     dam\    /sire       dam\    /sire       dam\    /sire
       \  /              \  /               \  /               \  /
        \/                \/                 \/                 \/
      00005  +          00002  +           00008              00003  +
        RANI              RAJA               RUCHI              JONEY
            dam\    /sire                          dam\    /sire
                \  /                                   \  /
                 \/                                     \/
               00017                                  00013
                SHEELA                                  SHIV
                                  \          /           Sex: Male
                                   \        /      Hatch Date: 18 Jun 2012
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2310Q
+ Wild-caught...                     00038
^ Pedigree continues beyond top of page...
```

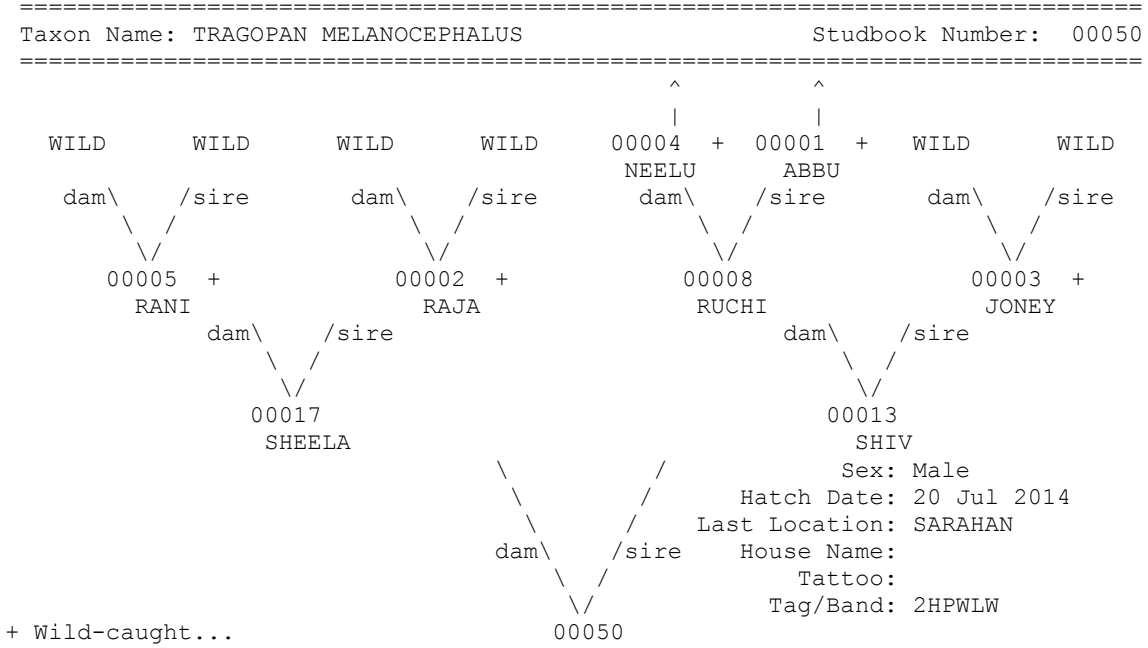
```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00039
================================================================================
                                                 ^         ^
                                                 |         |
  WILD      WILD      WILD      WILD     00004  +  00001  +   WILD      WILD
                                          NEELU      ABBU
   dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
       \  /                \  /                \  /                \  /
        \/                  \/                  \/                  \/
      00005  +            00002  +            00008               00003  +
        RANI                RAJA                RUCHI               JONEY
             dam\    /sire                               dam\    /sire
                 \  /                                        \  /
                  \/                                          \/
               00017                                       00013
                SHEELA                                      SHIV
                                  \          /              Sex: Female
                                   \        /       Hatch Date: 18 Jun 2012
                                    \      /     Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2311Q
+ Wild-caught...                    00039
^ Pedigree continues beyond top of page...

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00040
================================================================================
  WILD      WILD      WILD      WILD      WILD      WILD      WILD      WILD
   dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
       \  /                \  /                \  /                \  /
        \/                  \/                  \/                  \/
      00005  +            00002  +            00004  +            00001  +
        RANI                RAJA                NEELU               ABBU
             dam\    /sire                               dam\    /sire
                 \  /                                        \  /
                  \/                                          \/
               00020                                       00014
                 LATA                                        GOLU
                                  \          /              Sex: Male
                                   \        /       Hatch Date: 30 Jun 2012
                                    \      /     Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
+ Wild-caught...                    00040

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00041
================================================================================
  WILD      WILD      WILD      WILD
   dam\    /sire       dam\    /sire
       \  /                \  /
        \/                  \/
      00004  +            00001  +            WILD                WILD
       NEELU               ABBU
             dam\    /sire                               dam\    /sire
                 \  /                                        \  /
                  \/                                          \/
               00008                                       00003  +
                RUCHI                                       JONEY
                                  \          /              Sex: Unknown
                                   \        /       Hatch Date: 26 Jun 2012
                                    \      /     Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
+ Wild-caught...                    00041
```

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00042
================================================================================
                                       WILD      WILD      WILD      WILD
                                        dam\    /sire       dam\    /sire
                                            \  /                \  /
                                             \/                  \/
       WILD                WILD              00005  +              00002  +
                                               RANI                 RAJA
              dam\    /sire                        dam\    /sire
                  \  /                                \  /
                   \/                                  \/
                 00009  +                            00015
                  SHALU                               GUDDU
                                 \          /          Sex: Male
                                  \        /      Hatch Date: 12 Jun 2013
                                   \      /    Last Location: SARAHAN
                                 dam\    /sire    House Name:
                                     \  /            Tattoo:
                                      \/           Tag/Band: 2301Q
 + Wild-caught...                   00042

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00043
================================================================================
                                       WILD      WILD      WILD      WILD
                                        dam\    /sire       dam\    /sire
                                            \  /                \  /
                                             \/                  \/
       WILD                WILD              00005  +              00002  +
                                               RANI                 RAJA
              dam\    /sire                        dam\    /sire
                  \  /                                \  /
                   \/                                  \/
                 00009  +                            00015
                  SHALU                               GUDDU
                                 \          /          Sex: Female
                                  \        /      Hatch Date: 12 Jun 2013
                                   \      /    Last Location: SARAHAN
                                 dam\    /sire    House Name:
                                     \  /            Tattoo:
                                      \/           Tag/Band: 2302Q
+ Wild-caught...                   00043

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00044
================================================================================
                                          ^         ^
                                          |         |
  WILD      WILD      WILD      WILD     00004  +  00001  +   WILD      WILD
                                         NEELU      ABBU
    dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
        \  /                \  /                \  /                \  /
         \/                  \/                  \/                  \/
       00005  +            00002  +            00008               00003  +
         RANI                RAJA                RUCHI               JONEY
              dam\    /sire                        dam\    /sire
                  \  /                                \  /
                   \/                                  \/
                 00017                               00013
                  SHEELA                              SHIV
                                 \          /          Sex: Female
                                  \        /      Hatch Date: 26 Jun 2013
                                   \      /    Last Location: SARAHAN
                                 dam\    /sire    House Name:
                                     \  /            Tattoo:
                                      \/           Tag/Band: 2312Q
+ Wild-caught...                   00044
^ Pedigree continues beyond top of page...
```

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00045
================================================================================
                                                ^         ^
                                                |         |
  WILD      WILD      WILD      WILD     00004  +  00001  +   WILD      WILD
                                          NEELU      ABBU
   dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
       \  /                \  /                \  /                \  /
        \/                  \/                  \/                  \/
      00005  +            00002  +            00008               00003  +
        RANI                RAJA                RUCHI               JONEY
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
               00017                                   00013
                SHEELA                                   SHIV
                                  \          /            Sex: Female
                                   \        /      Hatch Date: 26 Jun 2013
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2313Q
+ Wild-caught...                    00045
^ Pedigree continues beyond top of page...

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00046
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
               00005  +                                00010  +
                 RANI                                    SANJU
                                  \          /            Sex: Unknown
                                   \        /      Hatch Date: 25 Jun 2013
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
+ Wild-caught...                    00046

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00047
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
               00009  +                                00006  +
                SHALU                                   MOTI
                                  \          /            Sex: Male
                                   \        /      Hatch Date: 19 Jul 2014
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: 2303Q
+ Wild-caught...                    00047
```


Taxon Name: TRAGOPAN MELANOCEPHALUS
Studbook Number: 00048
WILD
WILD
WILD
WILD
dam\ /sire
dam\ /sire
00009 +
SHALU
00006 +
MOTI
Sex: Male
Hatch Date: 19 Jul 2014
Last Location: SARAHAN
dam\ /sire
House Name:
Tattoo:
Tag/Band: 2304Q
+ Wild-caught...
00048

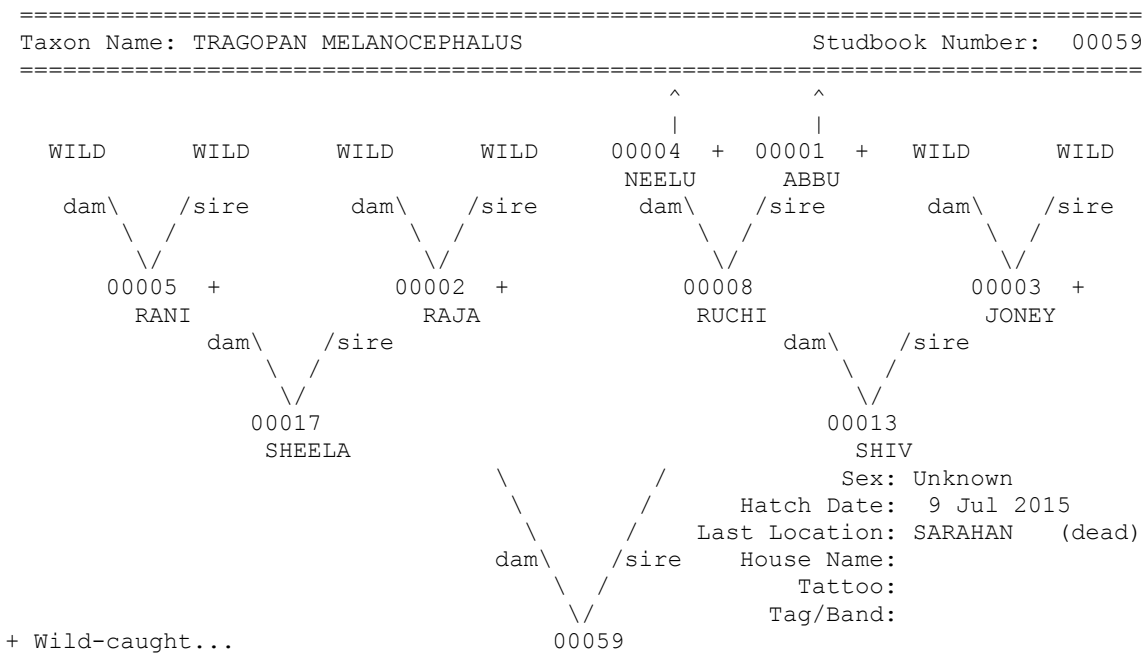

Taxon Name: TRAGOPAN MELANOCEPHALUS
Studbook Number: 00049
WILD
WILD
WILD
WILD
00004 +
NEELU
00001 +
ABBU
WILD
WILD
dam\ /sire
dam\ /sire
dam\ /sire
dam\ /sire
00005 +
RANI
00002 +
RAJA
00008
RUCHI
00003 +
JONEY
dam\ /sire
dam\ /sire
00017
SHEELA
00013
SHIV
Sex: Male
Hatch Date: 20 Jul 2014
Last Location: SARAHAN
dam\ /sire
House Name:
Tattoo:
Tag/Band: 1HPWLW
+ Wild-caught...
00049
^ Pedigree continues beyond top of page...


Taxon Name: TRAGOPAN MELANOCEPHALUS
Studbook Number: 00050
WILD
WILD
WILD
WILD
00004 +
NEELU
00001 +
ABBU
WILD
WILD
dam\ /sire
dam\ /sire
dam\ /sire
dam\ /sire
00005 +
RANI
00002 +
RAJA
00008
RUCHI
00003 +
JONEY
dam\ /sire
dam\ /sire
00017
SHEELA
00013
SHIV
Sex: Male
Hatch Date: 20 Jul 2014
Last Location: SARAHAN
dam\ /sire
House Name:
Tattoo:
Tag/Band: 2HPWLW
+ Wild-caught...
00050
^ Pedigree continues beyond top of page...

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00051
================================================================================
                                                 ^         ^
                                                 |         |
  WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                          NEELU       ABBU
   dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
       \  /                \  /                \  /                \  /
        \/                  \/                  \/                  \/
      00005  +            00002  +            00008               00003  +
        RANI                RAJA                RUCHI               JONEY
             dam\    /sire                             dam\    /sire
                 \  /                                      \  /
                  \/                                        \/
               00017                                     00013
                SHEELA                                    SHIV
                                  \          /            Sex: Female
                                   \        /      Hatch Date: 20 Jul 2014
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band: 3HPWLW
+ Wild-caught...                    00051
^ Pedigree continues beyond top of page...

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00052
================================================================================
                                                 ^         ^
                                                 |         |
  WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                          NEELU       ABBU
   dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
       \  /                \  /                \  /                \  /
        \/                  \/                  \/                  \/
      00005  +            00002  +            00008               00003  +
        RANI                RAJA                RUCHI               JONEY
             dam\    /sire                             dam\    /sire
                 \  /                                      \  /
                  \/                                        \/
               00017                                     00013
                SHEELA                                    SHIV
                                  \          /            Sex: Female
                                   \        /      Hatch Date: 20 Jul 2014
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
+ Wild-caught...                    00052
^ Pedigree continues beyond top of page...

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00053
================================================================================
       WILD                WILD                WILD                WILD
             dam\    /sire                             dam\    /sire
                 \  /                                      \  /
                  \/                                        \/
               00009  +                                  00006  +
                SHALU                                     MOTI
                                  \          /            Sex: Female
                                   \        /      Hatch Date: 28 Jun 2015
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
  + Wild-caught...                  00053
```

```
 ================================================================================
 Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00054
 ================================================================================
        WILD                WILD                WILD                WILD
              dam\    /sire                       dam\    /sire
                  \  /                                \  /
                   \/                                  \/
                00005  +                            00010  +
                  RANI                                SANJU
                                  \          /          Sex: Female
                                   \        /      Hatch Date: 25 Jun 2015
                                    \      /    Last Location: SARAHAN
                                  dam\    /sire    House Name:
                                      \  /            Tattoo:
                                       \/           Tag/Band:
+ Wild-caught...                    00054

 ================================================================================
 Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00055
 ================================================================================
        WILD                WILD                WILD                WILD
              dam\    /sire                       dam\    /sire
                  \  /                                \  /
                   \/                                  \/
                00005  +                            00010  +
                  RANI                                SANJU
                                  \          /          Sex: Unknown
                                   \        /      Hatch Date: 25 Jun 2015
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /            Tattoo:
                                       \/           Tag/Band:
+ Wild-caught...                    00055

 ================================================================================
 Taxon Name: TRAGOPAN MELANOCEPHALUS                    Studbook Number:  00056
 ================================================================================
                                                 ^         ^
                                                 |         |
   WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                           NEELU      ABBU
    dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
        \  /                \  /                \  /                \  /
         \/                  \/                  \/                  \/
       00005  +            00002  +            00008               00003  +
         RANI                RAJA                RUCHI               JONEY
              dam\    /sire                               dam\    /sire
                  \  /                                        \  /
                   \/                                          \/
                00017                                       00013
                 SHEELA                                      SHIV
                                  \          /          Sex: Unknown
                                   \        /      Hatch Date:  9 Jul 2015
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /            Tattoo:
                                       \/           Tag/Band:
+ Wild-caught...                    00056
^ Pedigree continues beyond top of page...
```

```
================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00057
================================================================================
                                                 ^         ^
                                                 |         |
   WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                           NEELU      ABBU
    dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
        \  /                \  /                \  /                \  /
         \/                  \/                  \/                  \/
      00005  +            00002  +            00008               00003  +
        RANI                RAJA                RUCHI               JONEY
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
               00017                                   00013
                SHEELA                                   SHIV
                                  \          /            Sex: Unknown
                                   \        /      Hatch Date:  9 Jul 2015
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
+ Wild-caught...                    00057
^ Pedigree continues beyond top of page...

================================================================================
Taxon Name: TRAGOPAN MELANOCEPHALUS                  Studbook Number:  00058
================================================================================
                                                 ^         ^
                                                 |         |
   WILD      WILD      WILD      WILD      00004  +  00001  +   WILD      WILD
                                           NEELU      ABBU
    dam\    /sire       dam\    /sire       dam\    /sire       dam\    /sire
        \  /                \  /                \  /                \  /
         \/                  \/                  \/                  \/
      00005  +            00002  +            00008               00003  +
        RANI                RAJA                RUCHI               JONEY
             dam\    /sire                           dam\    /sire
                 \  /                                    \  /
                  \/                                      \/
               00017                                   00013
                SHEELA                                   SHIV
                                  \          /            Sex: Unknown
                                   \        /      Hatch Date:  9 Jul 2015
                                    \      /    Last Location: SARAHAN   (dead)
                                  dam\    /sire    House Name:
                                      \  /             Tattoo:
                                       \/            Tag/Band:
+ Wild-caught...                    00058
^ Pedigree continues beyond top of page...
```


Taxon Name: TRAGOPAN MELANOCEPHALUS
Studbook Number: 00059
^
|
WILD
WILD
WILD
WILD
00004 +
NEELU
00001 +
ABBU
WILD
WILD
dam\
/sire
dam\
/sire
dam\
/sire
dam\
/sire
00005 +
RANI
00002 +
RAJA
00008
RUCHI
00003 +
JONEY
dam\
/sire
dam\
/sire
00017
SHEELA
00013
SHIV
Sex: Unknown
Hatch Date: 9 Jul 2015
Last Location: SARAHAN (dead)
House Name:
Tattoo:
Tag/Band:
dam\
/sire
00059
+ Wild-caught...
^ Pedigree continues beyond top of page...