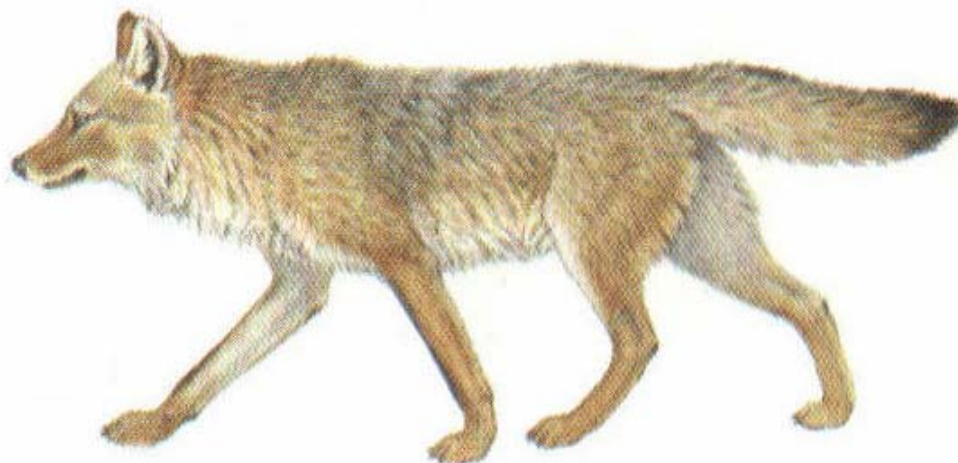


Population Analysis and Breeding/Transfer Plan

Red Wolf

Canis rufus gregoryi

Species Survival Plan[®]



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ASSOCIATION
OF ZOOS &
AQUARIUMS

Executive Summary 2008 - 2009

Breeding/Transfer Plan - Red Wolf SSP[®]

The captive population of red wolves consists of 198 (87.111.0) animals at 40 participating institutions as of July 2008. The population has been growing steadily in captivity since the early 1970s, with a slight decline in numbers in recent years. The target population size set by the SSP and the Canid Taxon Advisory Group is 250.

Current gene diversity for the managed population is 89.50% and is equivalent to the genetic diversity of a population descended from approximately five founders (FGE = 4.76). As gene diversity decreases, it is expected that reproduction will be increasingly compromised by, among other factors, lower birth weights, smaller litter sizes, and greater neonatal mortality. Recent research on red wolves has shown that higher inbreeding levels in males are correlated with reductions in sperm quality (Lockyear 2006). Breeding success and litter size also appear to decrease with increased inbreeding levels of sires and dams. Although inbreeding should be avoided in order to maintain a healthy captive population, it has become increasingly difficult to avoid in this population since no additional founders exist. When setting up breeding pairs for this masterplan, offspring inbreeding coefficients greater than the population mean kinship (0.1050) were avoided.

The Red Wolf Recovery Plan (USFWS) has set the target gene diversity to be retained at 80 – 85%. Under the current conditions, with a target size of 200 – 250 and a growth rate of 2%, gene diversity can be maintained at or above 85% for approximately 25 years and above 80% for 60 years. Strategies that may help maintain a high level of gene diversity for a longer period of time include increasing the population growth rate and increasing the proportion of breeders in the population (effective population size).

DEMOGRAPHY

Current Population Size (at time of planning meeting)	198 (87.111.0)
Specimens Excluded from Genetic Analyses	31
Target Population Size	250
Number of Participating Institutions	43
Mean Generation Time (years)	5.5
Population Growth Rate	1.02
Number of Transfers Within The SSP (Breeding/Space)	8/24
Number of Specimens to Import/Export	0/0

GENETICS

	Current	Potential
Number of Founders	12	0
Founder Genome Equivalents (fge)	4.76	7.64
Current Gene Diversity (%)	89.50	93.45
Population Mean Kinship	0.1050	--
Mean Inbreeding Coefficient	0.0682	--
Effective Population Size to Census Size Ratio (Ne/N)	0.2167	--
Years To 90% Gene Diversity	already < 90%	--
Gene Diversity at 100 Years From Present (%)	72.44 – 75.13	--
<i>(assuming $\lambda = 1.02$, $Kt = 200 - 250$)</i>		

Demographic projections indicate that approximately 25 – 30 births are needed in the coming year to maintain the population growth rate of 0 - 2% ($\lambda = 1.00 - 1.02$). For the 2008-09 breeding season 16 breeding recommendations have been made in order to meet genetic and demographic goals, plus 2 breeding recommendations as potential fostering opportunities. Additional pairs could occur prior to next breeding season depending on available space or if breeding recommendations are modified as a result of unanticipated deaths or medical issues. Pairings are based on mean kinship, avoidance of inbreeding, avoidance of linking rare and common lineages, and logistical constraints identified by the participating institutions.

Summary Actions 2008 - 2009: *The SSP recommends 18 breeding pairs, no imports, no exports, and 32 transfers to create new breeding pairs or meet institutional requests.*

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Sarah Long, Senior Population Biologist, AZA Population Management Center
Will Waddell, Red Wolf SSP Studbook Keeper and Species Coordinator

Reference:

Lockyear, K. M. (2006). *AN EXPLORATION OF FECUNDITY IN CAPTIVE REDWOLVES (Canis rufus): IMPLICATIONS FOR POPULATIONMANAGEMENT*. PhD dissertation, York University, Toronto, Ontario.

Description of Population Status

Red Wolf SSP[®]

Introduction: Red wolves have been maintained in captivity since the early 1970s, when the U.S. Fish and Wildlife Service began capturing individuals from the remaining wild population in Texas and Louisiana. At that time, a captive breeding program was established to increase the population size of red wolves and reestablish this federally endangered species in portions of its original range. The captive population has been managed demographically and genetically with the cooperation of approved zoos and nature centers across the country.

The demographic and genetic analyses upon which this report is based were performed in July 2008 using SPARKS v1.52, PopLink 1.3 and PM2000 v1.212 software and data obtained from the International Red Wolf Studbook, current to 14 July 2008. Based on these analyses, draft breeding recommendations were made at the Red Wolf SSP Master Plan Meeting at the Chattanooga Zoo in Chattanooga, Tennessee on 1 August 2008.

Analytical Population: As of July 2008, the size of the captive red wolf population in North America was 198 wolves (87 males, 111 females) distributed among 40 institutions. This includes captive facilities at three USFWS locations at the Alligator River NWR, NC, Cape Romain NWR, SC, and North Carolina State University. Of these 204 animals, 31 were excluded from the genetic analyses due to sterility, age (primarily females over 10 and males over 12 years old), or health concerns (Appendix B), resulting in a potentially breeding population of 169 wolves.

Demography: The Canid, Hyaenid, and Aardwolf TAG have set a target population size for this species at 250. The SSP has decided that with the large number of births this past year, a growth rate of 0% is reasonable for this population to maintain a stable age structure. Over the next few years.

The captive population increased steadily from the late 1970's to the mid 1990's, when the population size peaked and began to decline (Figure 1) as births sharply decreased due primarily to space limitations and the end of participation in the SSP by several cooperators. This resulted in fewer breeding recommendations and breeding prioritization of animals that, based on age, were considered marginal in terms of their reproductive potential. Additionally, space limitations during this time period required implanting reproductive inhibitors in a number of females which may have compromised their reproductive potential when implants were removed to resume expanded reproduction in the population. However, the population has stabilized in the past decade. In the past few years, the population experienced a marked increase in size due in part to a focus on breeding younger animals and an increase in average litter size. Despite the large number of births in 2007, a focus on maintaining at least a modest birth rate remains crucial to maintaining the population size, replacing the animals that will be lost due to natural attrition, and providing a reproductive base for the future.

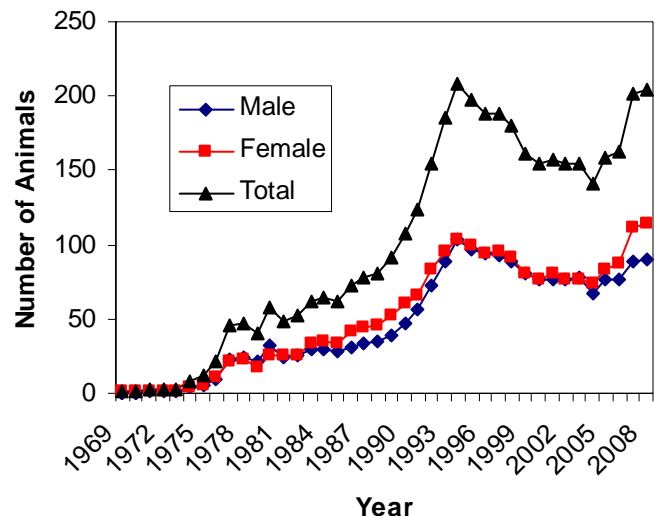


Figure 1. Census of captive red wolf population as of July 2008.

The age structure of this population shows a large proportion of animals in the older age classes in addition to a large base of juveniles from the 2007 baby boom (Figures 2a and 2b). The number of older animals that are reproductively senescent and no longer able to contribute to the genetic or demographic future of the population is an ongoing issue (Figure 2a). Demographic data indicate that the most reproductive age classes are between 3 and 9 years old. Both males and females are capable of breeding as young as one year old, but female red wolves in this SSP have not demonstrated the ability to reproduce reliably beyond the age of 11, and males not past 15 years (Appendix B). In order to achieve a sufficient number of births to

maintain demographic stability, the inclusion of younger animals in breeding pairs should continue. First-year mortality for both sexes has averaged 38% historically (based on studbook data from 1980-2007); however, in recent years average first-year mortality has decreased dramatically to 29% for males and 23% for females, with 30-day mortality averaging 21% for both sexes (2000-2007 data).

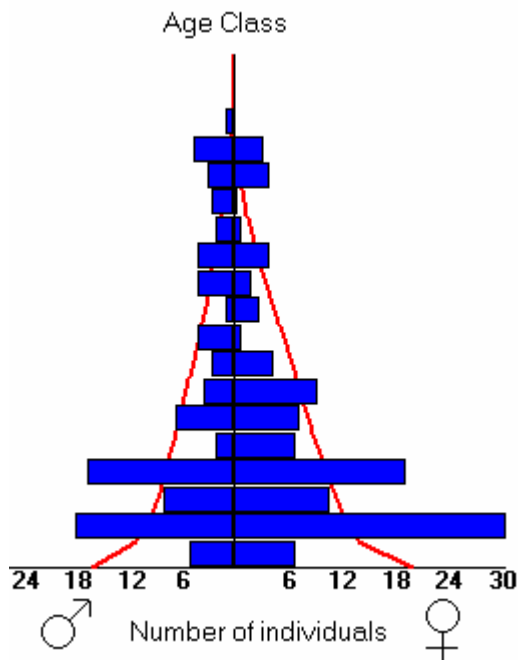


Figure 2a. Age distribution of the entire SSP population of captive red wolves as of July 2008 (no exclusions, N = 204 = 88.116).

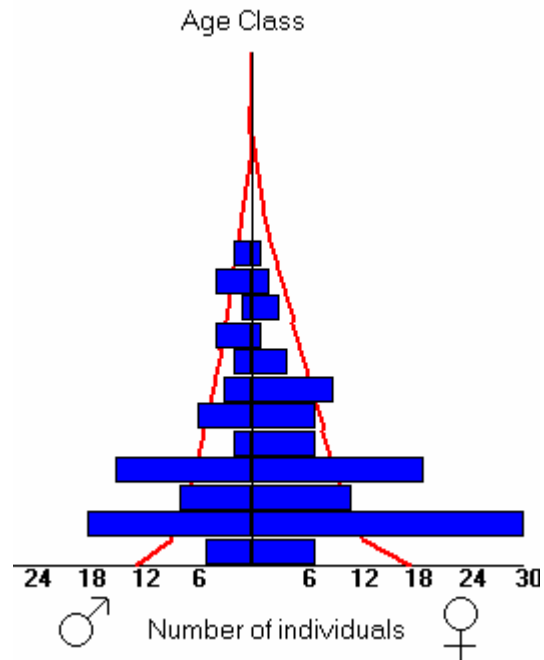


Figure 3. Age distribution of the potentially breeding population of captive red wolves as of July 2008 (N = 171 = 70.101).

Although the SSP target size is set at 250, there is not sufficient space to grow to this population size; an increase in births in the last few years has limited available space and the number of participating institutions is not likely to increase significantly. Demographic projections indicate that to grow the population at a rate of 2% ($\lambda = 1.02$), approximately 30 – 40 births per year over the next decade will be required. For the next year, the SSP will try to simply offset deaths and maintain the population at its current size, which will require at least 25 births (0% growth rate or $\lambda = 1.00$).

Genetics: Current gene diversity for the managed population is 89.50% and is equivalent to the genetic diversity of a population descended from approximately five founders (FGE = 4.76). Gene diversity has decreased slightly since last year and will inevitably continue to decrease over time due to random genetic processes, as offspring are produced and as previous generations pass away without passing on all of their alleles to the next generation. Data from other mammalian species has shown that when gene diversity falls below 90% and inbreeding increases, reproduction is increasingly compromised by, among other factors, lower birth weights, smaller litter sizes, and greater neonatal mortality. Recent research on red wolves has shown that higher inbreeding levels in males are correlated with reductions in sperm quality. Breeding success and litter size also appear to decrease with increased inbreeding levels of sires and dams (Lockyear 2006). Although inbreeding should be avoided in order to maintain a healthy captive population, it has become increasingly difficult to avoid in this population since no additional founders exist. When setting up breeding pairs for this masterplan, offspring inbreeding coefficients greater than the population mean kinship (0.1050) were avoided.

The Red Wolf Recovery Plan (USFWS) has set the target gene diversity to be retained at 80 – 85%. Under the current conditions, with a target size of 200 – 250 and a growth rate of 2%, gene diversity can be maintained at or above 85% for approximately 25 years and above 80% for 60 years. Strategies that can help maintain a high level of gene diversity for a longer period of time include increasing the population growth rate, increasing the proportion of breeders in the population (effective population size), and prioritizing breeding pairs with low and similar mean kinship values.

Through the use of mean kinship to select breeding pairs, under-represented lineages can be increased and the loss of gene diversity can be minimized. Some measure of the success of careful genetic management in this population is visible in the change in founder representation over recent years (Figure 4). Founder representation changes with each birth and death, and changes from 2005 to 2008 show that some underrepresented founder lineages (16, 34, 42) have increased in the population in the past years. However, many of the over-represented founder lineages are linked to the underrepresented lineages, and efforts to equalize founder lineages may not be possible.

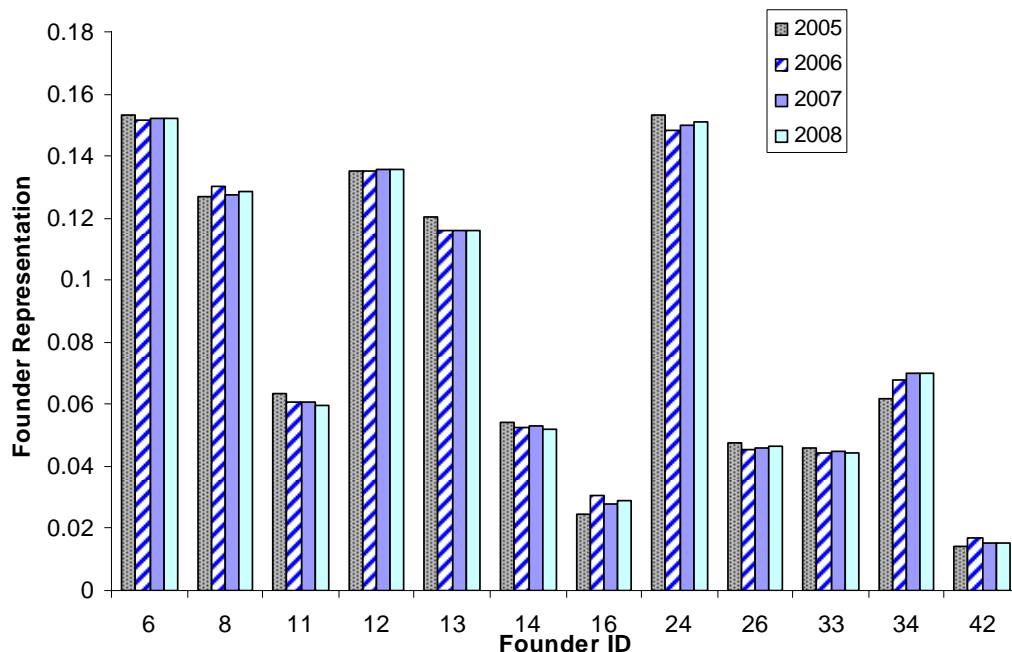


Figure 4. Founder representation graph illustrating the inequality of the 12 founder lineages that have contributed to the captive Red Wolf SSP population and the differences in founder representation across years 2005 - 2008.

Genetics Summary of Red Wolf SSP	2000	2001	2002	2003	2004	2005	2006	2007	2008	Potential
Current Gene Diversity	90.4	90.4	90.4	90.3	90.3	89.84	89.65	89.52	89.50	93.45
Number of Founders	12	12	12	12	12	12	12	12	12	0
Founder Genome Equivalents	5.22	5.20	5.23	5.15	5.17	4.92	4.83	4.77	4.76	7.64
Founder Genome Surviving	8.34	8.25	8.31	8.12	--	7.89	7.80	7.65	7.64	7.64
Population Mean Kinship	0.0967	0.0961	0.096	0.0972	0.97	0.1016	0.1035	0.1048	0.01050	--
Mean Inbreeding	0.0537	0.0546	0.0542	0.0562	0.0569	0.0625	0.0630	0.0670	0.0682	--
% Known Pedigree	100	100	100	100	100	100	100	100	100	--
Years To 90% Gene Diversity	0	0	0	0	0	0	0	0	0	--
Years To 85% Gene Diversity									25	--
Gene Diversity at 100 Years	70.92	72.03	74.71	75.12	76	77.8	77.8	77.75	75.13	--

Management Strategy: For the next year, the SSP will try to simply offset deaths and maintain the population at its current size, which will require at least 25 births (0% growth rate or $\lambda = 1.00$). The SSP recommends 16 breeding pairs to meet demographic and genetic goals, assuming a litter size of four and taking into account that as few as 25% of pairs may successfully reproduce. Adjustments in recommended pairings may occur prior to next breeding season pending available space, assessment of individual medical cases and transfer logistics. The USFWS also requests consideration of establishing or maintaining breeding pairs at or near the northeastern North Carolina recovery area to accommodate potential captive to wild fostering opportunities, if possible, given space and logistical considerations. To that end, an additional two breeding recommendations were created to accommodate that request. As with all PMP and SSP populations, breeding recommendations are based on mean kinship values, avoidance of inbreeding, avoidance of linking rare and common lineages, and logistical constraints identified by the participating institutions.

Summary and institutional tables in the following pages contain draft recommendations.

1. Recommend 18 breeding pairs (16 to produce pups for the captive population and 2 to produce pups for potential wild fostering).
2. Recommend 32 transfers to create new breeding pairs and meet institutional requests.
3. The Red Wolf SSP coordinator will contact institutional representatives to confirm contraception for "Do not breed" recommended females. Red wolf females that are recommended should be given the 6-month formulation (4.7mg) of Deslorelin (Suprelorin®). Placement should be prior to the onset of pro-estrus to suppress the females. Ordering information and questions can be directed to Sally Boutelle, AZA Wildlife Contraception Center. Phone: 314-781-0900 ext. 384 email: contraception@stlzoo.org. The Red Wolf SSP coordinator will contact institutional representatives to confirm contraception for recommended females.

Summary of Breeding and Transfer Recommendations 2008 - 2009

“BREED WITH” = breeding recommended

“PAIR WITH” = social pairing, breeding not recommended or expected

“TBD” = to be determined

Note: addendums (if any) are listed after summary recommendations at each institutional location

ID	Location	Sex	Age	Disposition	Location	Breeding	With	Notes
1653	ALEXANDRI	F	1	HOLD	ALEXANDRI	DO NOT BREED		
1652	ALEXANDRI	M	1	HOLD	ALEXANDRI	DO NOT BREED		separate during breeding season
1651	ALEXANDRI	F	1	HOLD	ALEXANDRI	DO NOT BREED		
1203	ALEXANDRI	F	6	HOLD	ALEXANDRI	DO NOT BREED		
932	ALEXANDRI	s	11	HOLD	ALEXANDRI	DO NOT BREED		excluded; separate during breeding season.
1397	ASHEBORO	F	3	HOLD	ASHEBORO	DO NOT BREED		
1393	ASHEBORO	F	3	HOLD	ASHEBORO	DO NOT BREED		
1392	ASHEBORO	F	3	HOLD	ASHEBORO	DO NOT BREED		
1366	ASHEBORO	F	4	HOLD	ASHEBORO	BREED WITH	1122	
1197	ASHEBORO	F	6	HOLD	ASHEBORO	DO NOT BREED		Separate during breeding season.
1194	ASHEBORO	M	6	HOLD	ASHEBORO	DO NOT BREED		Separate during breeding season.
1122	ASHEBORO	M	7	HOLD	ASHEBORO	BREED WITH	1366	
983	ASHEVILLE	F	10	HOLD	ASHEVILLE	BREED WITH	953	
953	ASHEVILLE	M	10	HOLD	ASHEVILLE	BREED WITH	983	
1370	AWENDA	F	4	HOLD	AWENDA	SEE NOTES		Do not separate during breeding season.
780	AWENDA	M	13	HOLD	AWENDA	SEE NOTES		Excluded due to age (low likelihood of reproducing); do not separate during breeding season.
1465	BLOOMINGT	F	2	HOLD	BLOOMINGT	BREED WITH	1414	
1414	BLOOMINGT	M	3	HOLD	BLOOMINGT	BREED WITH	1465	
1716	BREVARD	F	0	HOLD	BREVARD	DO NOT BREED		
1715	BREVARD	F	0	HOLD	BREVARD	DO NOT BREED		
1714	BREVARD	M	0	SEND TO	HOMOSASSA	DO NOT BREED		
1713	BREVARD	M	0	SEND TO	HOMOSASSA	DO NOT BREED		
1712	BREVARD	M	0	SEND TO	HOMOSASSA	DO NOT BREED		
1574	BREVARD	F	1	SEND TO	TALLAHASE	DO NOT BREED		Contracept (deslorelin) Companion w/ 1359
1361	BREVARD	F	4	HOLD	BREVARD	DO NOT BREED		
1020	BREVARD	M	9	HOLD	BREVARD	DO NOT BREED		Sterilize (TENTATIVE)
1615	BRIDGEPRT	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1614	BRIDGEPRT	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1613	BRIDGEPRT	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1612	BRIDGEPRT	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1127	BRIDGEPRT	F	7	HOLD	BRIDGEPRT	DO NOT BREED		
1569	CHATT NAT	F	1	SEND TO	GOLDENPND	DO NOT BREED		
1568	CHATT NAT	F	1	SEND TO	GOLDENPND	DO NOT BREED		
1567	CHATT NAT	M	1	HOLD	CHATT NAT	DO NOT BREED		
1566	CHATT NAT	M	1	HOLD	CHATT NAT	DO NOT BREED		
1565	CHATT NAT	M	1	HOLD	CHATT NAT	DO NOT BREED		
1275	CHATT NAT	F	5	HOLD	CHATT NAT	DO NOT BREED		internal move- separate during breeding season.
1200	CHATT NAT	M	6	SEND TO	MANTEO	BREED WITH	1276	FOSTER PAIR
744	CHATT NAT	F	14	HOLD	CHATT NAT	DO NOT BREED		excluded
620	CHATT NAT	M	15	HOLD	CHATT NAT	DO NOT BREED		excluded
919	CHEHAW	F	11	HOLD	CHEHAW	DO NOT BREED		excluded
842	CHEHAW	M	12	HOLD	CHEHAW	DO NOT BREED		excluded
1591	CHICAGOLP	F	1	SEND TO	TACOMA	DO NOT BREED		
1590	CHICAGOLP	F	1	SEND TO	TACOMA	DO NOT BREED		

ID	Location	Sex	Age	Disposition	Location	Breeding	With	Notes
1589	CHICAGOLP	F	1	SEND TO	TACOMA	DO NOT BREED		
1588	CHICAGOLP	M	1	SEND TO	MILL MOUN	DO NOT BREED		
1587	CHICAGOLP	M	1	SEND TO	MILL MOUN	DO NOT BREED		
1353	CHICAGOLP	F	4	HOLD	CHICAGOLP	BREED WITH	1121	
1121	CHICAGOLP	M	7	HOLD	CHICAGOLP	BREED WITH	1353	
1410	COAL VAL	F	3	HOLD	COAL VAL	DO NOT BREED		
1409	COAL VAL	F	3	HOLD	COAL VAL	DO NOT BREED		
918	COAL VAL	s	11	HOLD	COAL VAL	DO NOT BREED		excluded
1391	DURHAM MS	M	3	SEND TO	MANTEO	DO NOT BREED		excluded
1390	DURHAM MS	M	3	SEND TO	MANTEO	DO NOT BREED		
956	FORTWORTH	M	10	HOLD/TBD	FORTWORTH	DO NOT BREED		SSP will attempt to identify possible placement for pairing
937	FORTWORTH	s	11	HOLD	FORTWORTH	DO NOT BREED		excluded
1586	FOSSILRIM	F	1	SEND TO	VICTOR TX	DO NOT BREED		
1585	FOSSILRIM	F	1	SEND TO	VICTOR TX	DO NOT BREED		
1584	FOSSILRIM	F	1	SEND TO	VICTOR TX	DO NOT BREED		
1583	FOSSILRIM	F	1	SEND TO	VICTOR TX	DO NOT BREED		
1582	FOSSILRIM	F	1	SEND TO	VICTOR TX	DO NOT BREED		Transfer 3 of these females (1582-1586) to VICTOR TX; hold other 2 w/ dam.
1581	FOSSILRIM	M	1	SEND TO	COLORADO W&W	DO NOT BREED		PENDING
1580	FOSSILRIM	M	1	SEND TO	COLORADO W&W	DO NOT BREED		PENDING
1363	FOSSILRIM	F	4	HOLD	FOSSILRIM	DO NOT BREED		
1091	FOSSILRIM	M	8	HOLD	FOSSILRIM	DO NOT BREED		internal move - separate during breeding season with 692F
692	FOSSILRIM	F	14	HOLD	FOSSILRIM	DO NOT BREED		excluded
1387	FRESNO	M	3	HOLD	FRESNO	DO NOT BREED		
1386	FRESNO	M	3	HOLD	FRESNO	DO NOT BREED		
1201	GOLDENPND	M	6	HOLD	GOLDENPND	DO NOT BREED		
725	GOLDENPND	F	14	HOLD	GOLDENPND	DO NOT BREED		excluded
1464	GREENBAY	M	2	HOLD	GREENBAY	BREED WITH	1388	
1388	GREENBAY	F	3	HOLD	GREENBAY	BREED WITH	1464	
1129	JACKSON	F	7	HOLD	JACKSON	BREED WITH	1400	
1376	JACKSONVL	F	3	HOLD	JACKSONVL	DO NOT BREED		
1125	JACKSONVL	s	7	HOLD	JACKSONVL	DO NOT BREED		excluded
1408	KNOXVILLE	M	3	HOLD	KNOXVILLE	DO NOT BREED		
1360	KNOXVILLE	F	4	HOLD	KNOXVILLE	DO NOT BREED		Contracept (Deslorelin)
917	KNOXVILLE	s	11	HOLD	KNOXVILLE	DO NOT BREED		excluded
622	KNOXVILLE	F	15	HOLD	KNOXVILLE	DO NOT BREED		excluded
1564	LOWRY	F	1	HOLD	LOWRY	BREED WITH	1460	Pair one of these two females with 1460; hold other female with sire/dam.
1563	LOWRY	F	1	HOLD	LOWRY	BREED WITH	1460	Pair one of these two females with 1460; hold other female with sire/dam.
1460	LOWRY	M	3	HOLD	LOWRY	BREED WITH	1563,1564	Pair with either female.
1375	LOWRY	M	3	HOLD	LOWRY	DO NOT BREED		SSP will identify companion for 1375
1274	LOWRY	F	5	HOLD	LOWRY	SEE NOTES		Do not separate from 779 during breeding season.
779	LOWRY	M	13	HOLD	LOWRY	SEE NOTES		Excluded due to age (low likelihood of reproducing); do not separate during breeding season.

ID	Location	Sex	Age	Disposition	Location	Breeding	With	Notes
720	LOWRY	F	14	HOLD	LOWRY	DO NOT BREED		excluded
1600	MANTEO	F	1	HOLD	MANTEO	DO NOT BREED		
1599	MANTEO	F	1	HOLD	MANTEO	DO NOT BREED		
1598	MANTEO	F	1	HOLD	MANTEO	DO NOT BREED		
1473	MANTEO	F	2	HOLD	MANTEO	DO NOT BREED		
1404	MANTEO	F	3	SEND TO	AWENDA	DO NOT BREED		Transfer 1403 or 1404 to AWENDA
1403	MANTEO	F	3	SEND TO	AWENDA	DO NOT BREED		See note above
1400	MANTEO	M	3	SEND TO	JACKSON	DO NOT BREED	1129	
1396	MANTEO	F	3	HOLD	MANTEO	BREED WITH	974	
1276	MANTEO	F	5	HOLD	MANTEO	BREED WITH	1200	
1395	MILL MOUN	M	3	HOLD	MILL MOUN	DO NOT BREED		
1394	MILL MOUN	M	3	HOLD	MILL MOUN	DO NOT BREED		
640	NCS RAL	M	15	HOLD	NCS RAL	DO NOT BREED		excluded
1369	NYWOLF	M	4	SEND TO	DURHAM MS	BREED WITH	1227	
1291	NYWOLF	F	5	HOLD	NYWOLF	BREED WITH	1097	
1196	OKLAHOMA	F	6	HOLD	OKLAHOMA	DO NOT BREED		
619	OKLAHOMA	M	15	HOLD	OKLAHOMA	DO NOT BREED		excluded
1292	PROVIDNCE	s	5	SEND TO	AWENDA	DO NOT BREED		excluded
1287	PROVIDNCE	F	5	HOLD	PROVIDNCE	BREED WITH	1092	
1097	PROVIDNCE	M	8	SEND TO	NYWOLF	BREED WITH	1291	
624	PROVIDNCE	s	15	HOLD	PROVIDNCE	DO NOT BREED		excluded
1576	SALIS NC	F	1	HOLD	SALIS NC	DO NOT BREED		
1575	SALIS NC	F	1	HOLD	SALIS NC	DO NOT BREED		
1195	SALIS NC	F	6	HOLD	SALIS NC	DO NOT BREED		
816	SALIS NC	m	12	HOLD	SALIS NC	DO NOT BREED		excluded
1721	SALISBURY	F	0	HOLD	SALISBURY	DO NOT BREED		
1720	SALISBURY	F	0	HOLD	SALISBURY	DO NOT BREED		
1719	SALISBURY	F	0	HOLD	SALISBURY	DO NOT BREED		
1718	SALISBURY	M	0	HOLD	SALISBURY	DO NOT BREED		
1717	SALISBURY	M	0	HOLD	SALISBURY	DO NOT BREED		
1126	SALISBURY	F	7	HOLD	SALISBURY	DO NOT BREED		
974	SALISBURY	M	10	SEND TO	MANTEO	BREED WITH	1396	FOSTER PAIR
1723	SIoux FAL	F	0	HOLD	SIoux FAL	DO NOT BREED		Maintain w/ sire/dam
1722	SIoux FAL	F	0	HOLD	SIoux FAL	DO NOT BREED		Maintain w/ sire/dam
958	SIoux FAL	F	10	HOLD	SIoux FAL	BREED WITH	924	
924	SIoux FAL	M	11	HOLD	SIoux FAL	BREED WITH	958	
1608	SPRINGFIE	F	1	HOLD	SPRINGFIE	DO NOT BREED		
1607	SPRINGFIE	F	1	HOLD	SPRINGFIE	DO NOT BREED		
1606	SPRINGFIE	M	1	SEND TO	ASHEBORO	DO NOT BREED		
1605	SPRINGFIE	M	1	SEND TO	ASHEBORO	DO NOT BREED		
1604	SPRINGFIE	M	1	SEND TO	ASHEBORO	DO NOT BREED		
1204	SPRINGFIE	F	6	HOLD	SPRINGFIE	DO NOT BREED		
1398	SYRACUSE	F	3	HOLD	SYRACUSE	DO NOT BREED		Contracept (Deslorelin)
1379	SYRACUSE	M	3	HOLD	SYRACUSE	DO NOT BREED		
1619	TACOMA	F	1	HOLD	TACOMA	DO NOT BREED		
1603	TACOMA	F	1	HOLD	TACOMA	DO NOT BREED		
1602	TACOMA	F	1	HOLD	TACOMA	DO NOT BREED		
1601	TACOMA	M	1	HOLD	TACOMA	DO NOT BREED		
1496	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		
1495	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		
1492	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		separate during breeding season OR contracept (deslorelin)
1491	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		
1490	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		
1489	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		
1488	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		
1487	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		
1485	TACOMA	F	2	HOLD	TACOMA	DO NOT BREED		
1484	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		
1483	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		
1482	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		

ID	Location	Sex	Age	Disposition	Location	Breeding	With	Notes
1468	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		
1467	TACOMA	M	2	HOLD	TACOMA	DO NOT BREED		
1416	TACOMA	F	3	HOLD	TACOMA	DO NOT BREED		
1415	TACOMA	F	3	HOLD	TACOMA	DO NOT BREED		
1407	TACOMA	F	3	HOLD	TACOMA	DO NOT BREED		
1406	TACOMA	F	3	HOLD	TACOMA	DO NOT BREED		
1405	TACOMA	M	3	SEND TO	WOLFHAVEN	BREED WITH	1096	
1385	TACOMA	F	3	HOLD	TACOMA	BREED WITH	1381	check other male options
1382	TACOMA	F	3	HOLD	TACOMA	DO NOT BREED		
1381	TACOMA	M	3	HOLD	TACOMA	BREED WITH	1385	
1364	TACOMA	F	4	HOLD	TACOMA	DO NOT BREED		
1286	TACOMA	M	5	HOLD	TACOMA	BREED WITH	938	
1284	TACOMA	M	5	HOLD	TACOMA	DO NOT BREED		
1281	TACOMA	F	5	HOLD	TACOMA	DO NOT BREED		
1280	TACOMA	F	5	HOLD	TACOMA	DO NOT BREED		
1279	TACOMA	M	5	HOLD	TACOMA	DO NOT BREED		
1278	TACOMA	M	5	HOLD	TACOMA	DO NOT BREED		
1277	TACOMA	M	5	HOLD	TACOMA	DO NOT BREED		
1228	TACOMA	F	6	HOLD	TACOMA	DO NOT BREED		
1224	TACOMA	F	6	HOLD	TACOMA	BREED WITH	939	
1123	TACOMA	F	7	HOLD	TACOMA	DO NOT BREED		
1095	TACOMA	M	8	HOLD	TACOMA	DO NOT BREED		
1010	TACOMA	F	9	HOLD	TACOMA	DO NOT BREED		
1009	TACOMA	F	9	HOLD	TACOMA	DO NOT BREED		
939	TACOMA	M	11	HOLD	TACOMA	BREED WITH	1224	
938	TACOMA	F	11	HOLD	TACOMA	BREED WITH	1286	
648	TACOMA	F	15	HOLD	TACOMA	DO NOT BREED		excluded; companion w/ 688M
645	TACOMA	M	15	HOLD	TACOMA	DO NOT BREED		excluded
1378	TALLAHASE	F	3	HOLD	TALLAHASE	DO NOT BREED		
1377	TALLAHASE	F	3	HOLD	TALLAHASE	DO NOT BREED		
1359	TALLAHASE	M	4	HOLD	TALLAHASE	DO NOT BREED		SSP will identify companion.
1479	TREVOR	F	2	HOLD	TREVOR	DO NOT BREED		
1380	TREVOR	s	3	HOLD	TREVOR	DO NOT BREED		excluded
1596	VA MUSEUM	M	1	HOLD	VA MUSEUM	DO NOT BREED		
1595	VA MUSEUM	M	1	HOLD	VA MUSEUM	DO NOT BREED		
1594	VA MUSEUM	M	1	HOLD	VA MUSEUM	DO NOT BREED		
1273	VA MUSEUM	M	5	HOLD	VA MUSEUM	DO NOT BREED		
1227	VICTOR TX	F	6	SEND TO	DURHAM MS	BREED WITH	1369	
1092	VICTOR TX	M	8	SEND TO	PROVIDNCE	BREED WITH	1287	
1593	WCSRC	F	1	HOLD	WCSRC	DO NOT BREED		
819	WCSRC	F	12	HOLD	WCSRC	DO NOT BREED		excluded
791	WCSRC	s	13	HOLD	WCSRC	DO NOT BREED		excluded
1480	WOLFHAVEN	F	2	HOLD	WOLFHAVEN	DO NOT BREED		
1222	WOLFHAVEN	s	6	HOLD	WOLFHAVEN	DO NOT BREED		excluded
1096	WOLFHAVEN	F	8	HOLD	WOLFHAVEN	BREED WITH	1405	
688	WOLFHAVEN	M	14	SEND TO	TACOMA	DO NOT BREED		excluded; companion w/ 648F
1611	WSC MN	M	1	HOLD	WSC MN	DO NOT BREED		
1610	WSC MN	M	1	HOLD	WSC MN	DO NOT BREED		
1609	WSC MN	M	1	HOLD	WSC MN	DO NOT BREED		
1402	WSC MN	M	3	HOLD	WSC MN	DO NOT BREED		
1401	WSC MN	M	3	HOLD	WSC MN	DO NOT BREED		
1225	WSC MN	F	6	HOLD	WSC MN	BREED WITH	957	
957	WSC MN	M	10	HOLD	WSC MN	BREED WITH	1225	

ALEXANDRI**Alexandria Zoological Park**

Alexandria, LA

Institutional contact/representative: Lisa Laskoski (318) 441-6819 – lisa.laskoski@cityofalex.com

Institutional Notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
932	M00232	s	11	HOLD	ALEXANDRI	DO NOT BREED		excluded from genetic analysis; separate during breeding season.
1203	M00276	F	6	HOLD	ALEXANDRI	DO NOT BREED		
1651	M00291	F	1	HOLD	ALEXANDRI	DO NOT BREED		
1652	M00292	M	1	HOLD	ALEXANDRI	DO NOT BREED		separate during breeding season with 932
1653	M00293	F	1	HOLD	ALEXANDRI	DO NOT BREED		

Summary:

Before transfers: 1 male, 3 females, 1 sterile

After transfers: 1 male, 3 females, 1 sterile

No Change from Draft

ASHEBORO**North Carolina Zoological Park**

Asheboro, NC

Institutional contact/representative: Chris Lasher (336) 879-7364 – chris.lasher@nczoo.org

Institutional Notes:

Transfer: None**Receive: 1604, 1605, 1606 from SPRINGFIE****1124 from ST VINCENT NWR**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1122	1782	M	7	HOLD	ASHEBORO	BREED WITH	1366	
1124		M		RECEIVE FROM	ST VINCENT NWR	DO NOT BREED		
1194	1676	M	6	HOLD	ASHEBORO	DO NOT BREED		Separate during breeding season.
1197	1689	F	6	HOLD	ASHEBORO	DO NOT BREED		Separate during breeding season.
1366	1654	F	4	HOLD	ASHEBORO	BREED WITH	1122	
1392	1710	F	3	HOLD	ASHEBORO	DO NOT BREED		
1393	1711	F	3	HOLD	ASHEBORO	DO NOT BREED		
1397	1755	F	3	HOLD	ASHEBORO	DO NOT BREED		SSP will identify companion
1604	902	M	1	RECEIVE FROM	SPRINGFIE	DO NOT BREED		
1605	903	M	1	RECEIVE FROM	SPRINGFIE	DO NOT BREED		
1606	904	M	1	RECEIVE FROM	SPRINGFIE	DO NOT BREED		

Summary:

Before transfers: 2 males, 5 females

After transfers: 6 males, 5 females

ADDENDUM: RECEIVE 1124 male from ST VINCENT NWR via TALLAHASSEE

ASHEVILLE**Western NC Nature Center**

Asheville, NC

Institutional contact/representative: Henry Bulluck (828)298-5600 x311 – hbulluck@ashevillenc.gov

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
953	3425	M	10	HOLD	ASHEVILLE	BREED WITH	983	
983	02M301	F	10	HOLD	ASHEVILLE	BREED WITH	953	

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

No Change from Draft**AWENDA****Cape Romain Nat'l Wildlife Refuge**

Awenda, SC

Institutional contact/representative: Sarah Dawsey (843) 928-3264 – sarah_dawsey@fws.gov

Institutional notes:

Transfer: None**Receive: Receive 1403F or 1404F from MANTEO****Receive 1292m from PROVIDNCE**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
780	780	M	13	HOLD	AWENDA	SEE NOTES		Excluded from genetic analysis due to age (low likelihood of reproducing); do not separate during breeding season.
1370	11370	F	4	HOLD	AWENDA	SEE NOTES		Maintain with 780M
1292	100196	S	5	RECEIVE FROM	PROVIDNCE	DO NOT BREED	1403 or 1404	Companion pairing
1403	11403	F	3	RECEIVE FROM	MANTEO	DO NOT BREED		Receive 1403 or 1404 from MANTEO. Companion pair w/ 1292 from
1404	11404	F	3	RECEIVE FROM	MANTEO	DO NOT BREED		Receive 1403 or 1404 from MANTEO. Companion pair w/ 1292 from

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 males, 3 females, 1 sterile

No Change from Draft

BLOOMINGT**Miller Park Zoo**

Bloomington, IL

Institutional contact/representative: John Tobias (309) 434-2825 – jtobias@cityblm.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1414	MO7007	M	3	HOLD	BLOOMINGT	BREED WITH	1465	
1465	M08002	F	2	HOLD	BLOOMINGT	BREED WITH	1414	

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

No Change from Draft**BREVARD****Brevard Zoo**

Melbourne, FL

Institutional contact/representative: Michelle Smurl (321)254-9453 x217 – msmurl@brevardzoo.org

Institutional notes:

Transfer: 1712, 1713, 1714 to HOMOSASSA**1574 to TALLAHASE****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1020	24079	M	9	HOLD	BREVARD	DO NOT BREED		Sterilize (TENTATIVE)
1361	27010	F	4	HOLD	BREVARD	DO NOT BREED		
1574	27029	F	1	SEND TO	TALLAHASE	DO NOT BREED		Companion w/ 1359; contracept (deslorelin)
1712	28030	M	0	SEND TO	HOMOSASSA	DO NOT BREED		
1713	28031	M	0	SEND TO	HOMOSASSA	DO NOT BREED		
1714	28032	M	0	SEND TO	HOMOSASSA	DO NOT BREED		
1715	28033	F	0	HOLD	BREVARD	DO NOT BREED		
1716	28034	F	0	HOLD	BREVARD	DO NOT BREED		

Summary:

Before transfers: 4 males, 4 females

After transfers: 1 male, 3 females

No Change from Draft

BRIDGEPRT

Connecticut's Beardsley Zoo

Bridgeport, CT

Institutional contact/representative: Don Goff (203)394-6564 – dgoff@beardsleyzoo.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1127	101359	F	7	HOLD	BRIDGEPRT	DO NOT BREED		
1612	101821	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1613	101822	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1614	101825	F	1	HOLD	BRIDGEPRT	DO NOT BREED		
1615	101826	F	1	HOLD	BRIDGEPRT	DO NOT BREED		

Summary:

Before transfers: 0 males, 5 females

After transfers: 0 males, 5 females

No Change from Draft**CHATT NAT**

Chattanooga Nature Center

Chattanooga, TN

Institutional contact/representative: Tish Gailmard (423) 821-1160 x103 – tgailmard@chattanature.org

Institutional notes:

Transfer: 1568, 1569 to GOLDENPND**1200 to MANTEO****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
620	620	M	15	HOLD	CHATT NAT	DO NOT BREED		excluded from genetic analysis
744	744	F	14	HOLD	CHATT NAT	DO NOT BREED		excluded from genetic analysis Died during the draft period.
1200	1200	M	6	SEND TO	MANTEO	BREED WITH	1276	Foster pairing
1275	1275	F	5	HOLD	CHATT NAT	DO NOT BREED		internal move- separate during breeding season.
1565	1565	M	1	HOLD	CHATT NAT	DO NOT BREED		
1566	1566	M	1	HOLD	CHATT NAT	DO NOT BREED		
1567	1567	M	1	HOLD	CHATT NAT	DO NOT BREED		
1568	1568	F	1	SEND TO	GOLDENPND	DO NOT BREED		
1569	1569	F	1	SEND TO	GOLDENPND	DO NOT BREED		

Summary:

Before transfers: 5 males, 4 females

After transfers: 4 males, 1 females

Addendum: 744F died during comment period

CHEHAW**Chehaw Wild Animal Park**

Albany, GA

Institutional contact/representative: Jan Thompson (229) 430-5275 – jthompson@parksatchehaw.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
842	M04022	M	12	HOLD	CHEHAW	DO NOT BREED		excluded from genetic analysis
919	MO3009	F	11	HOLD	CHEHAW	DO NOT BREED		excluded from genetic analysis

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

No Change from Draft**CHICAGOLP****Lincoln Park Zoological Gardens**

Chicago, IL

Institutional contact/representative: Diane Mulkerin (312) 742-2376 – dmulkerin@lpzoo.org

Institutional notes:

**Transfer: 1587, 1588 to MILL MOUN
1598, 1590, 1591 to TACOMA****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1121	21600	M	7	HOLD	CHICAGOLP	BREED WITH	1353	
1353	21456	F	4	HOLD	CHICAGOLP	BREED WITH	1121	
1587	21878	M	1	SEND TO	MILL MOUN	DO NOT BREED		
1588	21879	M	1	SEND TO	MILL MOUN	DO NOT BREED		
1589	21880	F	1	SEND TO	TACOMA	DO NOT BREED		
1590	21881	F	1	SEND TO	TACOMA	DO NOT BREED		
1591	21882	F	1	SEND TO	TACOMA	DO NOT BREED		

Summary:

Before transfers: 3 males, 4 females

After transfers: 1 male, 1 female

No Change from Draft

COAL VAL**Niabi Zoo**

Coal Valley, IL

Institutional contact/representative: Tom Stalf (309) 779-3482 – tstalf@niabizoo.com

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
918	M2001	s	11	HOLD	COAL VAL	DO NOT BREED		excluded from genetic analysis
1409	M2002	F	3	HOLD	COAL VAL	DO NOT BREED		
1410	M2003	F	3	HOLD	COAL VAL	DO NOT BREED		

Summary:

Before transfers: 0 males, 2 females, 1 sterile

After transfers: 0 males, 2 females, 1 sterile

No Change from Draft**DURHAM MS****N C Museum of Life and Science**

Durham, NC

Institutional contact/representative: Sherry Samuels (919) 220-5429 x333 – sherry.samuels@ncmls.org

Institutional notes:

Transfer: 1390 and 1391 to MANTEO**Receive: 1369 from NYWOLF****1227 from VICTOR TX**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1390	09M05	M	3	SEND TO	MANTEO	DO NOT BREED		
1391	10M05	M	3	SEND TO	MANTEO	DO NOT BREED		excluded from genetic analysis
1369	1369	M	4	RECEIVE FROM	NYWOLF	BREED WITH	1227	
1227	200504	F	6	RECEIVE FROM	VICTOR TX	BREED WITH	1369	

Summary:

Before transfers: 2 males, 0 females

After transfers: 1 male, 1 female

No Change from Draft

FORTWORTH

Fort Worth Zoological Park

Ft Worth, TX

Institutional contact/representative: John Ward (817) 759-7196 – jward@fortworthzoo.org

Institutional notes:

Transfer: None/TBD

Receive: None

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
937	202057	s	11	HOLD	FORTWORTH	DO NOT BREED		excluded from genetic analysis
956	201422	M	10	HOLD/TBD	FORTWORTH	TBD		SSP will attempt to identify possible placement for pairing and replacement

Summary:

Before transfers: 1 male, 0 females, 1 sterile

After transfers: 1 male, 0 females, 1 sterile

No Change from Draft

FOSSILRIM**Fossil Rim Wildlife Center**

Glen Rose, TX

Institutional contact/representative: Mary Jo Stearns (254) 898-4235 – maryjos@fossilrim.com

Institutional notes:

Transfer: 1580 and 1581 to COLORADO WOLF (pending)
Transfer any three females (1582 thru 1586) to VICTOR TX

Receive: None

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
692	_____	F	14	HOLD	FOSSILRIM	DO NOT BREED		excluded from genetic analysis
1091	5053	M	8	HOLD	FOSSILRIM	DO NOT BREED		internal move - separate during breeding season (w/692)
1363	5051	F	4	HOLD	FOSSILRIM	DO NOT BREED		Manage w/ female offspring that remain after VICTOR TX move
1580	5056	M	1	SEND TO	COLORADO W&W	DO NOT BREED		PENDING
1581	5057	M	1	SEND TO	COLORADO W&W	DO NOT BREED		PENDING
1582	5058	F	1	SEND TO	VICTOR TX	DO NOT BREED		Transfer 3 of these females (1582 thru 1586) to VICTOR TX; hold other 2 w/ dam
1583	5059	F	1	SEND TO	VICTOR TX	DO NOT BREED		See above
1584	5060	F	1	SEND TO	VICTOR TX	DO NOT BREED		See above
1585	5061	F	1	SEND TO	VICTOR TX	DO NOT BREED		See above
1586	5062	F	1	SEND TO	VICTOR TX	DO NOT BREED		See above

Summary:

Before transfers: 3 males, 7 females

After transfers: 1 male, 4 females

No Change from Draft**FRESNO****Chaffee Zoological Gardens of Fresno**

Fresno, CA

Institutional contact/representative: Andy Snider (559) 498-5910 – asnider@fresonchaffeezoo.com

Institutional notes: **Maintain**

Transfer: None

Receive: None

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1386	250024	M	3	HOLD	FRESNO	DO NOT BREED		
1387	250025	M	3	HOLD	FRESNO	DO NOT BREED		

Summary:

Before transfers: 2 males, 0 females

After transfers: 2 males, 0 females

No Change from Draft

GOLDENPND**Land Between the Lakes**

Golden Pond, KY

Institutional contact/representative: Darrin Samborski (270) 924-2050 – dsamborski@fs.fed.us

Institutional notes:

Transfer: None**Receive: 1568, 1569 from CHATT NAT**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1568	1568	F	1	RECEIVE FROM	CHATT NAT	DO NOT BREED		
1569	1569	F	1	RECEIVE FROM	CHATT NAT	DO NOT BREED		
725	725	F	14	HOLD	GOLDENPND	DO NOT BREED		excluded from genetic analysis
1201	1201	M	6	HOLD	GOLDENPND	DO NOT BREED		

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 3 females

No Change from Draft**GREENBAY****NEW Zoo**

Green Bay, WI

Institutional contact/representative: Carmen Murach (920) 434-8597 – Murach_CD@co.brown.wi.us

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1388	200762	F	3	HOLD	GREENBAY	BREED WITH	1464	
1464	200744	M	2	HOLD	GREENBAY	BREED WITH	1388	

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

No Change from Draft

JACKSON**Jackson Zoological Park**

Jackson, MS

Institutional contact/representative: Dave Wetzel (601) 352-2590 – dlwetzel@msn.com

Institutional notes:

Transfer: None**Receive: 1400 from MANTEO**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1129	200137	F	7	HOLD	JACKSON	BREED WITH	1400	
1400	11400	M	3	RECEIVE FROM	MANTEO	BREED WITH	1129	

Summary:

Before transfers: 0 males, 1 female

After transfers: 1 male, 1 female

No Change from Draft**JACKSONVL****Jacksonville Zoo and Gardens**

Jacksonville, FL

Institutional contact/representative: Craig Miller (904) 757-4463 x136 – millerc@jaxzoo.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1125	805374	s	7	HOLD	JACKSONVL	DO NOT BREED		excluded from genetic analysis
1376	808326	F	3	HOLD	JACKSONVL	DO NOT BREED		

Summary:

Before transfers: 0 males, 1 female, 1 sterile

After transfers: 0 males, 1 female, 1 sterile

No Change from Draft

KNOXVILLE**Knoxville Zoological Gardens**

Knoxville, TN

Institutional contact/representative: Lisa New (865) 637-5331 x329 – lnew@knoxville-zoo.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
622	1568	F	15	HOLD	KNOXVILLE	DO NOT BREED		excluded from genetic analysis
917	1896	s	11	HOLD	KNOXVILLE	DO NOT BREED		excluded from genetic analysis
1360	3167	F	4	HOLD	KNOXVILLE	DO NOT BREED		Contracept (Deslorelin)
1408	3386	M	3	HOLD	KNOXVILLE	DO NOT BREED		

Summary:

Before transfers: 1 male, 2 females, 1 sterile

After transfers: 1 male, 2 females, 1 sterile

No Change from Draft**LOWRY****Tampa's Lowry Park Zoo**

Tampa, FL

Institutional contact/representative: Lee Ann Rottman (813) 935-8552 x221 – curator@lowryparkzoo.com

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
720	102308	F	14	HOLD	LOWRY	DO NOT BREED		excluded from genetic analysis: determine internal move
779	102018	M	13	HOLD	LOWRY	SEE NOTES		excluded from genetic analysis (post-reproductive)
1274	102264	F	5	HOLD	LOWRY	SEE NOTES		Do not separate during breeding season.
1375	102291	M	3	HOLD	LOWRY	DO NOT BREED		
1460	102082	M	3	HOLD	LOWRY	BREED WITH	1563,1564	Pair with either female.
1563	102334	F	1	HOLD	LOWRY	BREED WITH	1460	Pair 1563 or 1564 w/ 1460; hold other female with sire/dam
1564	102335	F	1	HOLD	LOWRY	BREED WITH	1460	Pair 1563 or 1564 w/ 1460; hold other female with sire/dam.

Summary:

Before transfers: 3 males, 4 females

After transfers (requested): 1 male, 1 female

ADDENDUM: Do not pair 1460 with either female 1563/1564 due to space constraints.**SSP is attempting to place wolves currently held at Green Swamp facility.**

MANTEO**Alligator River Nat'l Wldf Refuge**

Manteo, NC

Institutional contact/representative: Art Beyer (252) 473-1131 x241 – arthur_beyer@fws.gov

Institutional notes:

**Transfer: 1403 or 1404 to AWENDA
1400 to JACKSON****Receive: 1200 from CHATT NAT
974 from SALISBURY
1390 and 1391 from DURHAM MS**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
974	1692	M	10	RECEIVE FROM	SALISBURY	BREED WITH	1396	
1200	1200	M	6	RECEIVE FROM	CHATT NAT	BREED WITH	1276	
1390	09M05	M	3	RECEIVE FROM	DURHAM MS	DO NOT BREED		
1391	10M05	M	3	RECEIVE FROM	DURHAM MS	DO NOT BREED		excluded from genetic analysis
1276	11276	F	5	HOLD	MANTEO	BREED WITH	1200	FOSTER PAIR
1396	11396	F	3	HOLD	MANTEO	BREED WITH	974	FOSTER PAIR
1400	11400	M	3	SEND TO	JACKSON	DO NOT BREED	1129	
1403	11403	F	3	SEND TO	AWENDA	DO NOT BREED		Transfer either 1403 or 1404
1404	11404	F	3	SEND TO	AWENDA	DO NOT BREED		Transfer either 1403 or 1404
1473	11473	F	2	HOLD	MANTEO	DO NOT BREED		
1598	11598	F	1	HOLD	MANTEO	DO NOT BREED		
1599	11599	F	1	HOLD	MANTEO	DO NOT BREED		
1600	11600	F	1	HOLD	MANTEO	DO NOT BREED		

Summary:

Before transfers: 1 male, 8 females

After transfers: 4 males, 7 females

No Change from Draft

MILL MOUN**Mill Mountain Zoo**

Roanoke, VA

Institutional contact/representative: David Orndorff (540) 343-3241 x31 – dorndorff@mmzoo.org

Institutional notes:

Transfer: None
Receive: 1587 and 1588 from CHICAGOLP

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1587	21878	M	1	RECEIVE FROM	CHICAGOLP	DO NOT BREED		
1588	21879	M	1	RECEIVE FROM	CHICAGOLP	DO NOT BREED		
1394	582	M	3	HOLD	MILL MOUN	DO NOT BREED		
1395	583	M	3	HOLD	MILL MOUN	DO NOT BREED		

Summary:

Before transfers: 2 males, 0 females

After transfers: 4 males, 0 females

No Change from Draft**NCS RAL****North Carolina State Univ Dept Zool**

Raleigh, NC

Institutional contact/representative: Michael Stoskopf (919) 513-6279 – mkstosko@unity.ncsu.edu

Institutional notes:

Transfer: None
Receive: None

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
640	10640	M	15	HOLD	NCS RAL	DO NOT BREED		excluded from genetic analysis

Summary:

Before transfers: 1 male, 0 females

After transfers: 1 male, 0 females

No Change from Draft**NYWOLF****Wolf Conservation Center**

South Salem, NY

Institutional contact/representative: Rebecca Bose (914) 763-2373 – rebecca@nywolf.org

Institutional notes:

Transfer: 1369 to DURHAM MS
Receive: ~~1097 from PROVIDNCE~~

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1291	1291	F	5	HOLD	NYWOLF	BREED WITH	1097	
1369	1369	M	4	SEND TO	DURHAM MS	BREED WITH	1227	Transfer completed
1097	100119	M	8	RECEIVE FROM	PROVIDNCE	BREED WITH	1291	

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

ADDENDUM: 1097 cannot be transferred due to medical issues. SSP is attempting to identify a replacement breeding male for female 1291.

OKLAHOMA**Oklahoma City Zoological Park**

Oklahoma City, OK

Institutional contact/representative: Jon Reding (405) 425-0225 – jreding@okczoo.com

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
619	770521	M	15	HOLD	OKLAHOMA	DO NOT BREED		excluded from genetic analysis
1196	770119	F	6	HOLD	OKLAHOMA	DO NOT BREED		

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

PROVIDNCE**Roger Williams Park Zoo**

Providence, RI

Institutional contact/representative: Tim French (401) 785-3510 (x306) – tfrench@rwpzoo.org

Institutional notes:

Transfer: ~~1097 to NYWOLF~~**1292 to AWENDA****Receive: ~~1092 from VICTOR TX~~**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
624	931051	s	15	HOLD	PROVIDNCE	DO NOT BREED		excluded from genetic analysis
1097	100119	M	8	SEND TO	NYWOLF	BREED WITH	1291	Cannot be shipped due to medical reasons.
1287	100192	F	5	HOLD	PROVIDNCE	BREED WITH	1092	
1292	100196	s	5	SEND TO	AWENDA	DO NOT BREED	1403 or 1404	excluded from genetic analysis
1092	200201	M	8	RECEIVE FROM	VICTOR TX	BREED WITH	1287	Died during comment period.

Summary:

Before transfers: 1 male, 1 female, 2 sterile

After transfers: 1 male, 1 female, 1 sterile

**ADDENDUM: 1097F cannot be shipped due to medical reasons.
1092M died during comment period.**

SALIS NC**Dan Nicholas Nature Center**

Salisbury, NC

Institutional contact/representative: Bob Pendergrass (704) 216-7819 – bobpend@co.rowan.nc.us

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
816	816	m	12	HOLD	SALIS NC	DO NOT BREED		excluded from genetic analysis
1195	1195	F	6	HOLD	SALIS NC	DO NOT BREED		
1575	1575	F	1	HOLD	SALIS NC	DO NOT BREED		
1576	1576	F	1	HOLD	SALIS NC	DO NOT BREED		

Summary:

Before transfers: 0 male, 3 females, 1 sterile

After transfers: 0 male, 3 females, 1 sterile

No Change from Draft**SALISBURY****Salisbury Zoological Park**

Salisbury, MD

Institutional contact/representative: Deb Graham (410) 548-3188 (x7) – dgraham@ci.salisbury.md.us

Institutional notes:

Transfer: 974 to MANTEO**Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
974	1692	M	10	SEND TO	MANTEO	BREED WITH	1396	
1126	1693	F	7	HOLD	SALISBURY	DO NOT BREED		
1717	1707	M	0	HOLD	SALISBURY	DO NOT BREED		
1718	1706	M	0	HOLD	SALISBURY	DO NOT BREED		
1719	1703	F	0	HOLD	SALISBURY	DO NOT BREED		
1720	1705	F	0	HOLD	SALISBURY	DO NOT BREED		
1721	1704	F	0	HOLD	SALISBURY	DO NOT BREED		

Summary:

Before transfers: 3 males, 4 females

After transfers: 2 males, 4 females

No Change from Draft

SIOUX FAL**Great Plains Zoo**

Sioux Falls, SD

Institutional contact/representative: Jay Tetzloff (605) 367-7003 – jtetzloff@gpzoo.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
924	3232	M	11	HOLD	SIOUX FAL	BREED WITH	958	
958	2164	F	10	HOLD	SIOUX FAL	BREED WITH	924	
1722	3751	F	0	HOLD	SIOUX FAL	DO NOT BREED		Maintain w/ family group
1723	3752	F	0	HOLD	SIOUX FAL	DO NOT BREED		Maintain w/ family group

Summary:

Before transfers: 1 male, 3 females

After transfers: 1 male, 3 females

No Change from Draft**SPRINGFIE****Henson Robinson Zoo**

Springfield, IL

Institutional contact/representative: Talon Thornton (217) 753-6217 – tthornton@hensonrobinsonzoo.org

Institutional notes:

Transfer: 1604, 1605, 1606 to ASHEBORO**Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1204	848	F	6	HOLD	SPRINGFIE	DO NOT BREED		
1604	902	M	1	SEND TO	ASHEBORO	DO NOT BREED		
1605	903	M	1	SEND TO	ASHEBORO	DO NOT BREED		
1606	904	M	1	SEND TO	ASHEBORO	DO NOT BREED		
1607	905	F	1	HOLD	SPRINGFIE	DO NOT BREED		
1608	906	F	1	HOLD	SPRINGFIE	DO NOT BREED		

Summary:

Before transfers: 3 males, 3 females

After transfers: 0 males, 3 females

No Change from Draft**SYRACUSE****Rosamond Gifford Zoo at Burnet Park**

Syracuse, NY

Institutional contact/representative: Tom Labarge (315) 435-8511 x122 – markhor_3@hotmail.com

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1379	M07095	M	3	HOLD	SYRACUSE	DO NOT BREED		
1398	M05094	F	3	HOLD	SYRACUSE	DO NOT BREED		Contracept (Deslorelin)

Summary:

Before transfers: 1 male, 1 female

After transfers: 1 male, 1 female

No Change from Draft

TACOMA**Point Defiance Zoo & Aquarium**

Tacoma, WA

Institutional contact/representative: Will Waddell (253) 858-9172 -- wwaddell@pdza.org

Institutional notes: Number of Deslorelin implants TBD

Transfer: 1405 to WOLFHAVEN**Receive: 1589, 1590, 1591 from CHICAGOLP
688 from WOLFHAVEN**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1589	21880	F	1	RECEIVE FROM	CHICAGOLP	DO NOT BREED		
1590	21881	F	1	RECEIVE FROM	CHICAGOLP	DO NOT BREED		
1591	21882	F	1	RECEIVE FROM	CHICAGOLP	DO NOT BREED		
645	0645	M	15	HOLD	TACOMA	DO NOT BREED		excluded from genetic analysis Euthanized during the comment period.
648	0648	F	15	HOLD	TACOMA	DO NOT BREED		excluded from genetic analysis; companion w/ 688M
938	0938	F	11	HOLD	TACOMA	BREED WITH	1286	
939	0939	M	11	HOLD	TACOMA	BREED WITH	1224	
1009	01009	F	9	HOLD	TACOMA	DO NOT BREED		
1010	01010	F	9	HOLD	TACOMA	DO NOT BREED		
1095	01095	M	8	HOLD	TACOMA	DO NOT BREED		
1123	01123	F	7	HOLD	TACOMA	DO NOT BREED		
1224	01224	F	6	HOLD	TACOMA	BREED WITH	939	
1228	01228	F	6	HOLD	TACOMA	DO NOT BREED		
1277	01277	M	5	HOLD	TACOMA	DO NOT BREED		
1278	01278	M	5	HOLD	TACOMA	DO NOT BREED		
1279	01279	M	5	HOLD	TACOMA	DO NOT BREED		
1280	01280	F	5	HOLD	TACOMA	DO NOT BREED		
1281	01281	F	5	HOLD	TACOMA	DO NOT BREED		
1284	01284	M	5	HOLD	TACOMA	DO NOT BREED		
1286	01286	M	5	HOLD	TACOMA	BREED WITH	938	
1364	01364	F	4	HOLD	TACOMA	DO NOT BREED		
1381	01381	M	3	HOLD	TACOMA	BREED WITH	1385	

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1382	01382	F	3	HOLD	TACOMA	DO NOT BREED		
1385	01385	F	3	HOLD	TACOMA	BREED WITH	1381	check other options
1405	01405	M	3	SEND TO	WOLFHAVEN	BREED WITH	1096	
1406	01406	F	3	HOLD	TACOMA	DO NOT BREED		
1407	01407	F	3	HOLD	TACOMA	DO NOT BREED		
1415	01415	F	3	HOLD	TACOMA	DO NOT BREED		
1416	01416	F	3	HOLD	TACOMA	DO NOT BREED		
1467	01467	M	2	HOLD	TACOMA	DO NOT BREED		
1468	01468	M	2	HOLD	TACOMA	DO NOT BREED		
1482	01482	M	2	HOLD	TACOMA	DO NOT BREED		
1483	01483	M	2	HOLD	TACOMA	DO NOT BREED		
1484	01484	M	2	HOLD	TACOMA	DO NOT BREED		
1485	01485	F	2	HOLD	TACOMA	DO NOT BREED		
1487	01487	F	2	HOLD	TACOMA	DO NOT BREED		
1488	01488	F	2	HOLD	TACOMA	DO NOT BREED		
1489	01489	F	2	HOLD	TACOMA	DO NOT BREED		
1490	01490	M	2	HOLD	TACOMA	DO NOT BREED		
1491	01491	M	2	HOLD	TACOMA	DO NOT BREED		
1492	01492	F	2	HOLD	TACOMA	DO NOT BREED		separate from companion during breeding season
1495	01495	F	2	HOLD	TACOMA	DO NOT BREED		
1496	01496	F	2	HOLD	TACOMA	DO NOT BREED		
1601	01601	M	1	HOLD	TACOMA	DO NOT BREED		
1602	01602	F	1	HOLD	TACOMA	DO NOT BREED		
1603	01603	F	1	HOLD	TACOMA	DO NOT BREED		
1619	01619	F	1	HOLD	TACOMA	DO NOT BREED		
688	688	M	14	RECEIVE FROM	WOLFHAVEN	DO NOT BREED		excluded from genetic analysis; companion w/ 648F

Summary:

Before transfers: 18 males, 26 females

After transfers: 17 males, 29 females

ADDENDUM: 645M euthanized during the comment period.

TALLAHASE**Tallahassee Museum of History and**

Tallahassee, FL

Institutional contact/representative: Mike Jones (850) 575-8685 – pwpalmik@nettally.com

Institutional notes:

Transfer: None
Receive: 1574 from BREVARD

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1574	27029	F	1	RECEIVE FROM	BREVARD	DO NOT BREED		Companion w/ 1359; contraceptive (Deslorelin)
1359	05L009	M	4	HOLD	TALLAHASE	DO NOT BREED		Companion w/ 1574
1377	05L003	F	3	HOLD	TALLAHASE	DO NOT BREED		
1378	05L004	F	3	HOLD	TALLAHASE	DO NOT BREED		

Summary:

Before transfers: 1 male, 2 females

After transfers: 1 male, 3 females

No Change from Draft**TREVOR****Trevor Zoo**

Millbrook, NY

Institutional contact/representative: Jon Meigs (845) 677-3704 – trevorzoo@millbrook.org

Alan Tousignant (845) 677-3704 – atousignant@millbrook.org

Institutional notes: **Maintain**

Transfer: None
Receive: None

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1380	A5M679	s	3	HOLD	TREVOR	DO NOT BREED		excluded from genetic analysis
1479	1067	F	2	HOLD	TREVOR	DO NOT BREED		

Summary:

Before transfers: 0 males, 1 female, 1 sterile

After transfers: 0 males, 1 female, 1 sterile

No Change from Draft

VA MUSEUM**Virginia Living Museum**

Newport News, VA

Institutional contact/representative: George Mathews (757) 595-1900 x213 – george.mathews@valivingmuseum.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1273	1222	M	5	HOLD	VA MUSEUM	DO NOT BREED		
1594	1264	M	1	HOLD	VA MUSEUM	DO NOT BREED		
1595	1265	M	1	HOLD	VA MUSEUM	DO NOT BREED		
1596	1266	M	1	HOLD	VA MUSEUM	DO NOT BREED		

Summary:

Before transfers: 4 males, 0 females

After transfers: 4 males, 0 females

No Change from Draft**VICTOR TX****Texas Zoo**

Victoria, TX

Institutional contact/representative: Doug Hotle (361) 573-7681 – dhotle@texaszoo.org

Institutional notes:

**Transfer: ~~1092 to PROVIDNCE~~
1227 to DURHAM MS****Receive: Three female siblings (1582 thru 1586) from FOSSILRIM**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1582	5058	F	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		Receive three female siblings from FOSSILRIM
1583	5059	F	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		Receive three female siblings from FOSSILRIM
1584	5060	F	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		Receive three female siblings from FOSSILRIM
1585	5061	F	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		Receive three female siblings from FOSSILRIM
1586	5062	F	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		Receive three female siblings from FOSSILRIM
1092	200204	M	8	SEND TO	PROVIDNCE	BREED WITH	1287	Died during the comment period.
1227	200504	F	6	SEND TO	DURHAM MS	BREED WITH	1369	

Summary:

Before transfers: 1 male, 1 female

After transfers: 0 males, 3 females

ADDENDUM: 1092M died during the comment period.

WCSRC**Wild Canid Survival & Rescue Center**

Eureka, MO

Institutional contact/representative: Sue Lindsey (636) 938-5900 – slindsey_wcc@onemain.com

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
791	200537	s	13	HOLD	WCSRC	DO NOT BREED		excluded from genetic analysis
819	20009	F	12	HOLD	WCSRC	DO NOT BREED		excluded from genetic analysis
1593	200701	F	1	HOLD	WCSRC	DO NOT BREED		

Summary:

Before transfers: 0 males, 2 females, 1 sterile

After transfers: 0 males, 2 females, 1 sterile

No Change from Draft**WOLFHAVEN****Wolf Haven International**

Tenino, WA

Institutional contact/representative: Wendy Spencer (360) 264-4695 – wendy@wolfhaven.org

Institutional notes:

Transfer: 688 to TACOMA**Receive: 1405 from TACOMA**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1405	01405	M	3	RECEIVE FROM	TACOMA	BREED WITH	1096	
688	688	M	14	SEND TO	TACOMA	DO NOT BREED		excluded from genetic analysis; companion w/ 648F
1096	1096	F	8	HOLD	WOLFHAVEN	BREED WITH	1405	
1222	1222	s	6	HOLD	WOLFHAVEN	DO NOT BREED		excluded from genetic analysis
1480	1480	F	2	HOLD	WOLFHAVEN	DO NOT BREED		

Summary:

Before transfers: 1 male, 2 females, 1 sterile

After transfers: 1 male, 2 females, 1 sterile

No Change from Draft

WSC MN**Wildlife Science Center**

Forest Lake, MN

Institutional contact/representative: Peggy Callahan (651) 464-3993 – peggy@wildlifesciencecenter.org

Institutional notes: **Maintain****Transfer: None****Receive: None**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
957	957	M	10	HOLD	WSC MN	BREED WITH	1225	
1225	1225	F	6	HOLD	WSC MN	BREED WITH	957	
1401	1401	M	3	HOLD	WSC MN	DO NOT BREED		
1402	1402	M	3	HOLD	WSC MN	DO NOT BREED		
1609	1609	M	1	HOLD	WSC MN	DO NOT BREED		
1610	1610	M	1	HOLD	WSC MN	DO NOT BREED		
1611	1611	M	1	HOLD	WSC MN	DO NOT BREED		

Summary:

Before transfers: 6 males, 1 female

After transfers: 6 males, 1 female

No Change from Draft**HOMOSASSA****Homosassa Springs Wildlife State Park**

Homosassa, FL

Institutional contact/representative: Susan Lowe (352) 628-1508 – Susan.Lowe@dep.state.fl.us

Institutional notes: New cooperator

Transfer: None**Receive: 1712, 1713, 1714 from BREVARD**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1712	28030	M	0	RECEIVE FROM	BREVARD	DO NOT BREED		
1713	28031	M	0	RECEIVE FROM	BREVARD	DO NOT BREED		
1714	28032	M	0	RECEIVE FROM	BREVARD	DO NOT BREED		

Summary:

Before transfers: 0 males, 0 females

After transfers: 3 males, 0 females

No Change from Draft**COLORADO W&W****Colorado Wolf & Wildlife Center**

Divide, CO

Institutional contact/representative: Darlene Kobobel (719) 687-9742 – darlene@wolfeducation.org

Institutional notes: New cooperator. Timing to receive wolves from FOSSILRIM to be determined by facility logistics

Transfer: None**Receive: 1580, 1581 from FOSSILRIM**

ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
1580	5056	M	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		PENDING
1581	5057	M	1	RECEIVE FROM	FOSSILRIM	DO NOT BREED		PENDING

Summary:

Before transfers: 0 males, 0 females

After transfers: 2 males, 0 females

No Change from Draft

Appendix A

Summary of Data Exports Used to Prepare Breeding & Transfer Plan

Project: redwolf08_2

Report compiled under Population Management 2000, version 1.212

1:34:33 PM, 9/5/2008

Comments: created after Chattanooga meeting; updated with recent deaths

Demographic data from: C:\Program Files\PopLink 1.3\PopLink Databases\REDWOLF3\mREDWOLF3.prn
and C:\Program Files\PopLink 1.3\PopLink Databases\REDWOLF3\fREDWOLF3.prn

Demographic filter conditions:

Locations = N.AMERICA During 1/1/1980 - 7/23/2008 Status = Living CAPFREE = C

Genetic data from: C:\Program Files\PopLink 1.3\PopLink Databases\REDWOLF3\REDWOLF3.ped

Genetic filter conditions:

Locations = N.AMERICA, As of 7/23/2008, Status = Living, CAPFREE = C

Studbook information:

Data exported on: 7/23/2008

Data compiled by: William Waddell

Contact info: Point Defiance Zoo & Aquarium wwaddell@pdza.org/253-858-9172

Data current thru: 7/14/2008

Scope of data: International

Appendix B

List of Individuals Excluded from the Genetic Analyses

Age exclusions included females over 10 and males over 12 years old

SB#	Sex	Reason
619	M	Age
620	M	Age
622	F	Age
624	F	Sterile
640	M	Age
645	M	Age
648	F	Age
688	M	Age
692	F	Age
720	F	Age
725	F	Age
744	F	Age
779	M	Age
780	M	Age
791	M	Sterile
816	M	Sterile

SB#	Sex	Reason
819	F	Age
842	M	Repro
917	M	Sterile
918	F	Sterile
919	F	Age (will not have opportunity to breed)
932	M	Sterile
937	F	Sterile
1021	F	
1020	M	
1125	M	Sterile/PRA
1222	M	Sterile
1292	M	Sterile
1380	M	Sterile/PRA
1391	M	PRA
1618	F	medical

Appendix C Life Tables

Data from 1980 - 2008

Males

Age	Qx	Px	lx	Mx	Vx	Ex	Risk (Qx)	Risk (Mx)
0	0.370	0.630	1.000	0.000	1.227	6.828	407.700	268
1	0.140	0.860	0.630	0.040	1.792	8.106	242.200	222.6
2	0.080	0.920	0.542	0.290	2.071	8.005	200.500	191.9
3	0.060	0.940	0.498	0.460	2.012	7.536	171.800	167.2
4	0.050	0.950	0.469	0.400	1.724	6.917	157.000	153.3
5	0.080	0.920	0.445	0.260	1.486	6.326	142.300	139
6	0.060	0.940	0.410	0.310	1.384	5.729	127.800	124
7	0.130	0.870	0.385	0.280	1.245	5.219	119.400	111.2
8	0.080	0.920	0.335	0.330	1.134	4.724	103.400	98.6
9	0.130	0.870	0.308	0.260	0.941	4.156	95.400	90
10	0.140	0.860	0.268	0.360	0.827	3.647	80.900	76
11	0.140	0.860	0.231	0.290	0.570	3.078	66.300	61.6
12	0.250	0.750	0.198	0.120	0.363	2.568	55.700	49.4
13	0.300	0.700	0.149	0.180	0.350	2.152	40.400	33.7
14	0.440	0.560	0.104	0.130	0.277	1.793	24.700	18.8
15	0.610	0.390	0.058	0.310	0.310	1.589	9.900	8.1
16	0.450	0.550	0.023	0.000	0.000	1.355	2.200	1.4
17	1.000	0.000	0.013	0.000	0.000	1.000	1.000	0.6
18	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0

$r = 0.0486$
 $\lambda = 1.0498$
 $T = 5.75$
 $N = 70.00$
 $N(\text{at } 20 \text{ yrs}) = 184.85$

Females

Age	Qx	Px	lx	Mx	Vx	Ex	Risk (Qx)	Risk (Mx)
0	0.380	0.620	1.000	0.010	1.235	7.216	446.300	307.300
1	0.090	0.910	0.620	0.090	1.760	8.504	257.500	242.600
2	0.050	0.950	0.564	0.200	1.888	8.077	220.100	213.000
3	0.060	0.940	0.536	0.340	1.876	7.488	194.300	186.900
4	0.060	0.940	0.504	0.430	1.716	6.902	173.300	167.600
5	0.060	0.940	0.474	0.430	1.437	6.278	155.600	150.700
6	0.060	0.940	0.445	0.350	1.125	5.615	138.700	133.100
7	0.080	0.920	0.418	0.250	0.875	4.961	126.400	122.000
8	0.100	0.900	0.385	0.280	0.722	4.351	115.800	109.100
9	0.130	0.870	0.346	0.310	0.524	3.783	104.500	97.000
10	0.170	0.830	0.301	0.180	0.264	3.268	88.000	79.900
11	0.240	0.760	0.250	0.110	0.110	2.842	70.400	61.400
12	0.280	0.720	0.190	0.000	0.000	2.480	50.300	45.000
13	0.280	0.720	0.137	0.000	0.000	2.055	36.000	30.900
14	0.350	0.650	0.099	0.000	0.000	1.528	22.900	17.900
15	0.830	0.170	0.064	0.000	0.000	1.145	10.900	6.600
16	1.000	0.000	0.011	0.000	0.000	1.000	1.000	0.100
17	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

$r = 0.0492$
 $\lambda = 1.0504$
 $T = 5.30$
 $N = 101.00$
 $N(\text{at } 20 \text{ yrs}) = 270.01$

Appendix D Ordered Mean Kinship List

Note: This list is current to August 2008 and values are subject to change with any birth, death, import, export, inclusion, or exclusion.
Population Average MK = 0.1050

Males				Females			
Stbk#	MK	Age	Location	Stbk#	MK	Age	Location
924	0.094	11	SIOUX FAL	1225	0.092	6	WSC MN
1097	0.096	8	PROVIDNCE	1227	0.092	6	VICTOR TX
1286	0.098	5	TACOMA	1228	0.092	6	TACOMA
1414	0.098	3	BLOOMINGT	1224	0.094	6	TACOMA
1092	0.099	8	VICTOR TX	1287	0.094	5	PROVIDNCE
1122	0.099	7	ASHEBORO	1291	0.095	5	NYWOLF
1369	0.099	4	NYWOLF	1385	0.096	3	TACOMA
957	0.1	10	WSC MN	1563	0.096	1	LOWRY
1490	0.1	2	TACOMA	1564	0.096	1	LOWRY
1491	0.1	2	TACOMA	1415	0.098	3	TACOMA
956	0.101	10	FORTWORTH	1416	0.098	3	TACOMA
1381	0.101	3	TACOMA	1722	0.098	0	SIOUX FAL
1386	0.101	3	FRESNO	1723	0.098	0	SIOUX FAL
1387	0.101	3	FRESNO	958	0.099	10	SIOUX FAL
953	0.102	10	ASHEVILLE	1010	0.099	9	TACOMA
1460	0.102	3	LOWRY	1370	0.099	4	AWENDA
939	0.103	11	TACOMA	1382	0.099	3	TACOMA
1095	0.103	8	TACOMA	1495	0.099	2	TACOMA
1121	0.103	7	CHICAGOLP	1496	0.099	2	TACOMA
1405	0.103	3	TACOMA	1619	0.099	1	TACOMA
1464	0.103	2	GREENBAY	938	0.1	11	TACOMA
1467	0.103	2	TACOMA	1353	0.1	4	CHICAGOLP
1468	0.103	2	TACOMA	1366	0.1	4	ASHEBORO
1587	0.103	1	CHICAGOLP	1492	0.1	2	TACOMA
1588	0.103	1	CHICAGOLP	1009	0.101	9	TACOMA
974	0.104	10	SALISBURY	1096	0.101	8	WOLFHAVEN
1277	0.104	5	TACOMA	1388	0.101	3	GREENBAY
1278	0.104	5	TACOMA	983	0.102	10	ASHEVILLE
1279	0.104	5	TACOMA	1406	0.103	3	TACOMA
1284	0.104	5	TACOMA	1407	0.103	3	TACOMA
1400	0.104	3	MANTEO	1465	0.103	2	BLOOMINGT
1401	0.104	3	WSC MN	1589	0.103	1	CHICAGOLP
1402	0.104	3	WSC MN	1590	0.103	1	CHICAGOLP
1408	0.104	3	KNOXVILLE	1591	0.103	1	CHICAGOLP
1482	0.104	2	TACOMA	1593	0.103	1	WCSRC
1483	0.104	2	TACOMA	1280	0.104	5	TACOMA
1484	0.104	2	TACOMA	1281	0.104	5	TACOMA
1601	0.104	1	TACOMA	1364	0.104	4	TACOMA
1194	0.105	6	ASHEBORO	1403	0.104	3	MANTEO
1201	0.105	6	GOLDENPND	1404	0.104	3	MANTEO
1604	0.105	1	SPRINGFIE	1409	0.104	3	COAL VAL
1605	0.105	1	SPRINGFIE	1410	0.104	3	COAL VAL
1606	0.105	1	SPRINGFIE	1485	0.104	2	TACOMA
1379	0.106	3	SYRACUSE	1487	0.104	2	TACOMA
1394	0.106	3	MILL MOUN	1488	0.104	2	TACOMA
1395	0.106	3	MILL MOUN	1489	0.104	2	TACOMA
1091	0.107	8	FOSSILRIM	1602	0.104	1	TACOMA
1200	0.108	6	CHATT NAT	1603	0.104	1	TACOMA

1359	0.109	4	TALLAHASE	1129	0.105	7	JACKSON
1580	0.109	1	FOSSILRIM	1196	0.105	6	OKLAHOMA
1581	0.109	1	FOSSILRIM	1607	0.105	1	SPRINGFIE
1390	0.11	3	DURHAM MS	1608	0.105	1	SPRINGFIE
1565	0.11	1	CHATT NAT	1123	0.106	7	TACOMA
1566	0.11	1	CHATT NAT	1276	0.106	5	MANTEO
1567	0.11	1	CHATT NAT	1396	0.106	3	MANTEO
1609	0.11	1	WSC MN	1397	0.106	3	ASHEBORO
1610	0.11	1	WSC MN	1398	0.106	3	SYRACUSE
1611	0.11	1	WSC MN	1195	0.107	6	SALIS NC
1712	0.11	0	BREVARD	1197	0.107	6	ASHEBORO
1713	0.11	0	BREVARD	1274	0.107	5	LOWRY
1714	0.11	0	BREVARD	1363	0.107	4	FOSSILRIM
1717	0.11	0	SALISBURY	1575	0.107	1	SALIS NC
1718	0.11	0	SALISBURY	1576	0.107	1	SALIS NC
1273	0.111	5	VA MUSEUM	1204	0.108	6	SPRINGFIE
1375	0.112	3	LOWRY	1275	0.109	5	CHATT NAT
1652	0.112	1	ALEXANDRI	1360	0.109	4	KNOXVILLE
1594	0.114	1	VA MUSEUM	1480	0.109	2	WOLFHAVEN
1595	0.114	1	VA MUSEUM	1582	0.109	1	FOSSILRIM
1596	0.114	1	VA MUSEUM	1583	0.109	1	FOSSILRIM
				1584	0.109	1	FOSSILRIM
				1585	0.109	1	FOSSILRIM
				1586	0.109	1	FOSSILRIM
				1203	0.11	6	ALEXANDRI
				1392	0.11	3	ASHEBORO
				1393	0.11	3	ASHEBORO
				1479	0.11	2	TREVOR
				1568	0.11	1	CHATT NAT
				1569	0.11	1	CHATT NAT
				1574	0.11	1	BREVARD
				1612	0.11	1	BRIDGEPRT
				1613	0.11	1	BRIDGEPRT
				1614	0.11	1	BRIDGEPRT
				1615	0.11	1	BRIDGEPRT
				1715	0.11	0	BREVARD
				1716	0.11	0	BREVARD
				1719	0.11	0	SALISBURY
				1720	0.11	0	SALISBURY
				1721	0.11	0	SALISBURY
				1127	0.111	7	BRIDGEPRT
				1376	0.112	3	JACKSONVL
				1377	0.112	3	TALLAHASE
				1378	0.112	3	TALLAHASE
				1651	0.112	1	ALEXANDRI
				1653	0.112	1	ALEXANDRI
				1361	0.113	4	BREVARD
				1126	0.114	7	SALISBURY
				1473	0.114	2	MANTEO
				1598	0.114	1	MANTEO
				1599	0.114	1	MANTEO
				1600	0.114	1	MANTEO

Appendix E

Definitions

Management Terms

SSP Master Plan – A document that provides complete breeding and transfer recommendations for a Species Survival Plan (SSP®) population. The document is based on genetic and demographic analyses with consideration of behavioral, social, and institutional wants and needs. A draft of the Master Plan must be published in the Members Only section of the AZA Web site for a 30-day comment period. After the Coordinator incorporates/responds to institutional comments, a final version of the Master Plan must be published in the Members Only section of the AZA Web site. SSP Participation by AZA institutions is required.

Full Participation – AZA policy stating that all AZA accredited institutions and certified related facilities having an SSP animal in their collection are required to participate in the SSP partnership process and abide by the recommendations of the SSP.

Population Management Plan (PMP)– A document that provides complete breeding and transfer recommendations for a PMP population. The document is based on genetic and demographic analyses with consideration of behavioral, social, and institutional wants and needs. A draft of the PMP must be published in the Members Only section of the AZA Web site for a 30-day comment period. After the PMP Manager incorporates/responds to institutional comments, a final version of the PMP must be published in the Members Only section of the AZA Web site. PMP Participation by AZA institutions is voluntary.

Demographic Terms

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

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

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

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

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

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

Qx, Mortality – Probability that an individual of age x dies during time period. $Qx = 1 - Px$

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

The proportion of individuals that die during an age class. It is calculated from the number of animals that die during an age class divided by the number of animals that were alive at the beginning of the age class (i.e. "at risk").

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

Genetic Terms

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

Current Gene Diversity (GD) -- The proportional gene diversity (as a proportion of the source population) is the probability that two alleles from the same locus sampled at random from the population will not be identical by descent. Gene diversity is calculated from allele frequencies, and is the heterozygosity expected in progeny produced by random mating, and if the population were in Hardy-Weinberg equilibrium.

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

FOKE, First Order Kin Equivalents – The number of first-order kin (siblings or offspring) that would contain the number of copies of an individual's alleles (identical by descent) as are present in the captive-born population. Thus an offspring or sib contributes 1 to FOKE; each grand-offspring contributes 1/2 to FOKE; each cousin contributes 1/4 to FOKE. $FOKE = 4 * N * MK$, in which N is the number of living animals in the captive population.

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

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

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

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

Founder Representation -- Proportion of the genes in the living, descendant population that are derived from that founder. I.e., proportional Founder Contribution.

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

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

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

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

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

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

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

Appendix F

List of Institutional Representatives

Contact Name (IR)	Institution	Email	Phone
Lisa Laskoski	ALEXANDRI - Alexandria Zoological Park, Alexandria, LA	lisa.laskoski@cityofalex.com	318-441-6819
Terry Webb	ASHEBORO - North Carolina Zoological Park, Asheboro, NC	terry.webb@nczoo.org	336-879-7603
Henry Bulluck	ASHEVILLE - Western NC Nature Center, Asheville, NC	hbulluck@ashevillenc.gov	828-298-5600 (x311)
Sarah Dawsey	AWENDA - Cape Romain NWR, Awenda, SC	sarah_dawsey@fws.gov	843-928-3264
John Tobias	BLOOMINGT - Miller Park Zoo, Bloomington, IL	jtobias@cityblm.org	309-434-2825
Michelle Smurl	BREVARD - Brevard Zoo, Melbourne, FL	msmurl@brevardzoo.org	321-254-9453 (x217)
Don Goff	BRIDGEPT - Connecticut's Beardsley Zoo, Bridgeport, CT	dgoff@beardsleyzoo.org	203-394-6564
Tish Gailmard	CHATT NAT - Chattanooga Nature Center, Chattanooga, TN	tgailmard@chattanature.org	423-821-1160 (x103)
Jan Thompson	CHEHAW - Chehaw Wild Animal Park, Albany, GA	jthompson@parksatchehaw.org	229-430-5275
Diane Mulkerin	CHICAGOLP - Lincoln Park Zoological Gardens, Chicago, IL	dmulkerin@lpzoo.org	312-742-2376
Tom Stalf	COAL VAL – Niabi Zoo, Coal Valley, IL	tstalf@niabizoo.com	309-799-3482
Darlene Kobobel	COLORADOWW (temporary) – Colorado Wolf & Wildlife Center, CO	darlene@wolfeducation.org	719-687-9742
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Andy Snider	FRESNO - Chaffee Zoological Gardens of Fresno, Fresno, CA	asnider@fresnochaffeezoo.com	559-498-5910
Darrin Samborski	GOLDENPND - Land Between the Lakes, Golden Pond, KY	dsamborski@fs.fed.us	270-924-2050
Carmen Murach	GREENBAY - NEW Zoo, Green Bay, WI	Murach_CD@co.brown.wi.us	920-434-8597
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Craig Miller	JACKSONVL - Jacksonville Zoo and Gardens, Jacksonville, FL	millerc@jaxzoo.org	904-757-4463 (x136)
Lisa New	KNOXVILLE - Knoxville Zoological Gardens, Knoxville, TN	lnew@knoxville-zoo.org	865-637-5331 (x329)
LeeAnn Rottman	LOWRY - Tampa's Lowry Park Zoo, Tampa, FL	curator@lowryparkzoo.com	813-935-8552 (x221)
Art Beyer	MANTEO - Alligator River NWR, Manteo, NC	Arthur_beyer@fws.gov	252-473-1131 (x241)
David Orndorff	MILL MOUN – Mill Mountain Zoo, Roanoke, VA	dorndorff@mmzoo.org	540-343-3241 (X31)

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Jonathan Reding	OKLAHOMA - Oklahoma City Zoological Park, Oklahoma City, OK	jreding@okczoo.com	405-425-0225
Tim French	PROVIDNCE - Roger Williams Park Zoo, Providence, RI	tfrench@rwpzoo.org	410-785-3510 (x306)
Bob Pendergrass	SALIS NC - Dan Nicholas Nature Center, Salisbury, NC	bobpend@co.rowan.nc.us	704-216-7819
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Jay Tetzloff	SIOUX FAL - Great Plains Zoo, Sioux Falls, SD	jtetzloff@gpzoo.org	605-367-7003
Talon Thornton	SPRINGFIE - Henson Robinson Zoo, Springfield, IL	tthornton@hensonrobinsonzoo.org	217-753-6217
Monica Harris	ST.VINCE - St. Vincent Island NWR, Apalachicola, FL	monica_harris@fws.gov	850-653-8808
Tom Labarge	SYRACUSE - Rosamond Gifford Zoo at Burnet Park, Syracuse, NY	markhor_3@hotmail.com	315-435-8511 (x122)
Will Waddell	TACOMA - Point Defiance Zoo & Aquarium, Tacoma, WA	wwaddell@pdza.org	253-858-9172
Mike Jones	TALLAHASE - Tallahassee Museum of Natural History, Tallahassee, FL	pwpalnik@nettally.com	850-575-8685
Jon Meigs	TREVOR - Trevor Zoo, Millbrook, NY	trevorzoo@millbrook.org	845-677-3704
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Sue Lindsey	WCSRC - Wild Canid Survival & Rescue Center, Eureka, MO	slindsey_wcc@onemain.com	636-938-5900
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