

Population Analysis & Breeding and Transfer Plan

Generic Tiger (*Panthera tigris*) AZA Species Survival Plan® Red Program



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Although this Program is a Red SSP, AZA APM has granted an exception such that recommendations are binding and compliance is mandatory. AZA-accredited institutions are asked not to breed, acquire, or transfer generic tigers unless otherwise approved by the Tiger SSP.

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Acknowledgments

The AZA Tiger SSP planning meeting for all four tiger SSP programs was held virtually on 24 August 2021. Attendees include Management Group members K. Goodrowe Beck, T. Fischer, L. Myers, K. Traylor-Holzer, S. Bircher, D. Dembiec, D. Goff, A. Morris, A. Nelson and J. Tetzloff, as well as representatives from numerous Tiger SSP institutions.

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This plan was prepared and distributed with the assistance of the Population Advisor at the IUCN SSC Conservation Planning Specialist Group (kathy@cpsg.org).

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Description of Population Status

Species Survival Plan® for Generic Tigers (*Panthera tigris*)

Introduction: The Generic Tiger SSP was formed in 2009 for the purpose of managing non-pedigreed tigers of unverified origin and taxonomy to extinction in AZA member zoos. It is highly unlikely that any of these tigers are of pure taxonomic status and/or are unrelated to the existing managed SSP populations for Amur, Sumatran and Malayan tigers.

Demographic analyses were performed based on the AZA Regional Generic Tiger Studbook (current to 15 August 2021) using ZIMS for Studbooks v 8/21/2021 and PMx v1.6.2.20200804. The recommendations in this plan supersede those made in previous plans.

Analytical Assumptions and Conservation Value: By definition, generic tigers are those whose ancestry cannot be traced. Exact birth information (location, date, parents) is unknown for most individuals, with 0% known pedigree in the population. With almost no births and few deaths tracked in this studbook database, there is little demographic information and essentially no useful genetic information for this population. These tigers are considered to have no conservation value to long-term breeding programs and are being managed to extinction. Survival rates from the AZA generic tiger ZIMS database were used to project attrition rate.

Demography: As of 15 August 2021, there are N = 39 animals (14 males; 25 females) at 12 AZA institutions in the US and Canada. The program goal is to manage this population of generic tigers (taxonomic hybrids and/or tigers of unknown pedigree) to extinction to increase the capacity of AZA institutions to hold, breed and manage tigers of known pedigree and management unit – namely, Amur (*P.t. altaica*), Malayan (*P.t. jacksoni*) and Sumatran (*P.t. sumatrae*) tigers. Of these 39 generic tigers, 25 are considered to be occupying ‘spaces’ for tigers in 11 AZA-accredited institutions, while 14 are housed at an AZA-accredited sanctuary (IEFS).

Addendum: IEFS is no longer an AZA member institution as of October 2021; when combined with three tiger deaths in August-September 2021, this leaves 22 tigers (8 males; 14 females) at 9 AZA institutions as of publication of this final plan on 29 October 2021.

AZA member institutions were requested to refrain from acquiring or breeding generic tigers from 2006-2009 but generic tiger numbers continued to rise. This management action became mandatory in Fall 2009 with the establishment of the Generic Tiger SSP. Since active management of the generic tiger population in AZA institutions began in 2009, the non-sanctuary population has declined by 78% – from 114 in 2009 in 42 institutions to 25 in 2021 in 11 institutions (Fig. 1). Generic tigers now account for 10% of the tigers in non-sanctuary AZA institutions, a decrease from 31% in 2009. This decline is due to normal mortality, transfer of tigers out of AZA institutions, and the loss of AZA membership status by some holding institutions. Several institutions have replaced their generic tigers with tigers of managed subspecies, helping to expand the combined managed tiger population; however, many of the former generic spaces have been lost to the SSP. Periodic emergency placement of confiscated cubs in AZA institutions remains a challenge to eliminating this population.

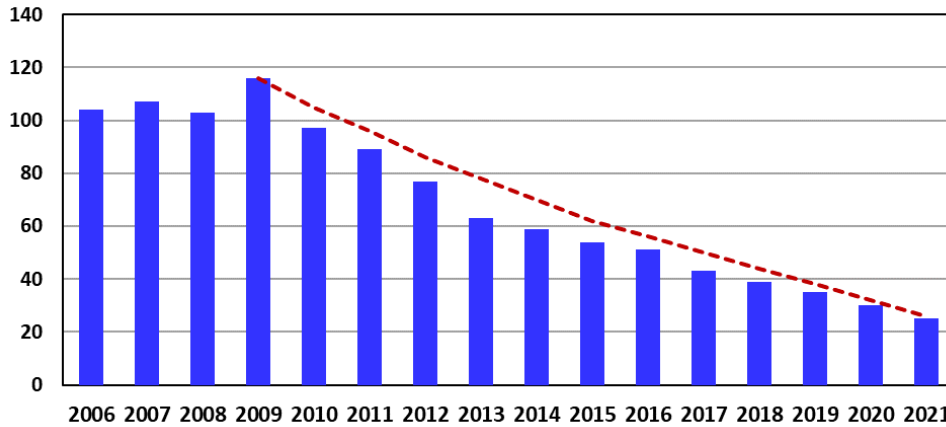


Figure 1. Population census of generic tigers reported in AZA-accredited institutions in the US and Canada from 2006 to 2021. Numbers do not include tigers being held at IEFS, an AZA-accredited sanctuary that does acquire but does not breed genetic tigers. Red dashed line indicates projected attrition rate in 2009.

Figure 2 shows the age and sex structure for 25 (8 males, 17 females) generic tigers in AZA institutions in the US and Canada, which range in age from 0 to 18 years old. Spaces in AZA institutions outside of the US and Canada are not considered to be feasible for managing these SSP populations at this time. White tigers comprise about one-half of the generic tiger population – currently held color morphs are: white (n=19), orange (n=16), golden (n=1) and three of unknown coat color. Two-thirds of generic tigers have been neutered or spayed (n=26), 10 are reproductively intact, and three are of unknown status. Figure 3 shows the latest projected attrition of generic tigers based on the current age structure and life tables in Appendix D, assuming no future breeding or transfers.

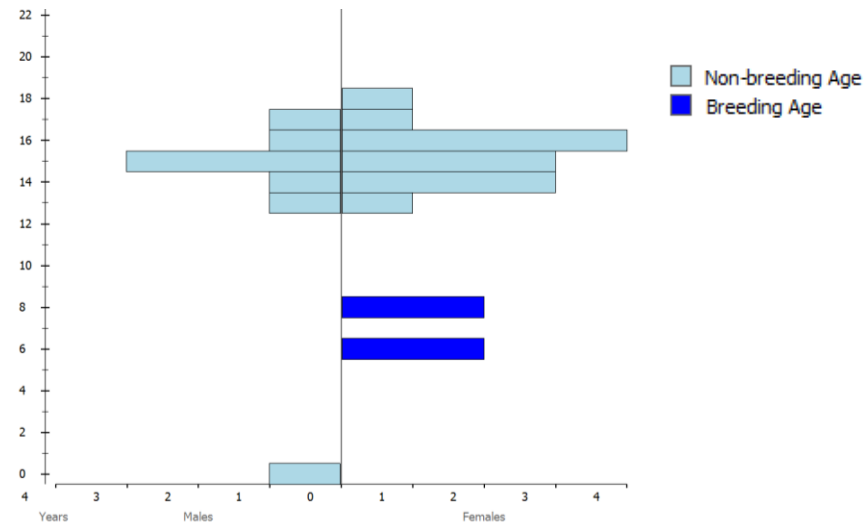


Figure 2. Age and sex structure of the generic tiger SSP population outside of IEFS, N = 25 (8.17.0).

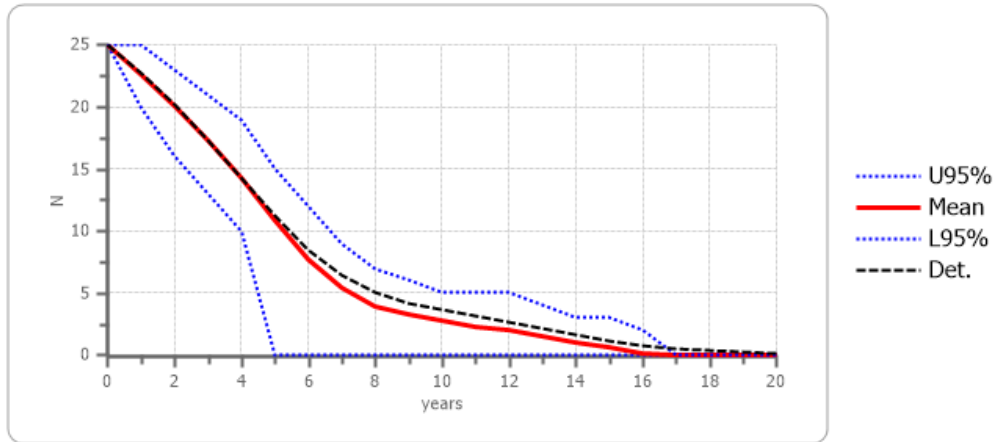


Figure 3. Projected decline of the current AZA generic tiger population with no reproduction or transfers (dotted lines represent 95% confidence intervals). Note: Projected population does not include tigers being held at IEFS, an AZA-accredited sanctuary, or tigers held in AZA institutions outside of the US and Canada.

Management Strategy: Space to hold and breed tigers is a high priority for the Tiger SSP, to manage viable populations of verified Amur, Sumatran and Malayan tigers. Space limitations restrict the ability to grow these populations to their target sizes and impede the ability of population managers to achieve the number of breeding recommendations needed for demographic stability and genetic management. Space is required not only for breeding pairs but also for maturing offspring and aging non-reproductive individuals. Space currently occupied by generic tigers in AZA institutions in the US and Canada would serve both population sustainability and conservation goals if re-distributed as space for managed tiger subspecies for exhibition and/or breeding.

To that end, **the Tiger SSP recommends that AZA-accredited institutions should not breed, acquire, or transfer generic tigers unless otherwise approved by the Tiger SSP.** Exceptions that may be considered by the Tiger SSP include transfers of tigers that are on loan to AZA-accredited institutions from private holders or for transfers that free up space specifically for studbook-registered tigers. In such cases, **the Tiger SSP requires that these generic tigers be neutered or spayed prior to transfer.**

Although this program is designated as a Red SSP, the APM Committee has granted an exception such that these recommendations are binding and compliance is mandatory. This recommendation continues even though the Generic Tiger SSP population has declined to fewer than 50 individuals.

Breeding and Transfer Recommendations by Facility

Location	Local ID	Sex	Age	House name	Disposition	Location	Breeding	Color	Contracepted status
ALEXANDRI	M00218	F	18	Hannah	HOLD	ALEXANDRI	DO NOT BREED	WHITE	<i>Addendum: euthanized 5 Sept2021</i>
BILLINGS	M14008	F	8	Sofi	HOLD	BILLINGS	DO NOT BREED	Unknown	Unknown
BILLINGS	M14009	F	8	Jasmine	HOLD	BILLINGS	DO NOT BREED	Unknown	Unknown
BISMARCK	2486	F	14	Vimila	HOLD	BISMARCK	DO NOT BREED	WHITE	Neutered
BISMARCK	2487	F	14	Lila	HOLD	BISMARCK	DO NOT BREED	Orange	Neutered
BROWNSVIL	10087	F	13	Hobbs	HOLD	BROWNSVIL	DO NOT BREED	Orange	Neutered
BROWNSVIL	10089	M	13	Neb	HOLD	BROWNSVIL	DO NOT BREED	WHITE	Neutered
BUSCH TAM	63503	M	15	Sohan	HOLD	BUSCH TAM	DO NOT BREED	Orange	Neutered
BUSCH TAM	63504	F	15	Zahra	HOLD	BUSCH TAM	DO NOT BREED	Orange	Neutered
BUSCH TAM	63365	M	15	Cosmo	HOLD	BUSCH TAM	DO NOT BREED	Orange	Neutered
BUSCH TAM	63319	M	14	BBKing	HOLD	BUSCH TAM	DO NOT BREED	WHITE	Neutered
BUSCH TAM	63318	F	14	Lanie	HOLD	BUSCH TAM	DO NOT BREED	WHITE	Neutered
CALDWELL	105783	M	15	Willieking	HOLD	CALDWELL	DO NOT BREED	WHITE	Neutered
CALDWELL	105784	F	15	Meka	HOLD	CALDWELL	DO NOT BREED	WHITE	Neutered
FRANKLINP	A05047	F	16	Anala	HOLD	FRANKLINP	DO NOT BREED	Orange	Neutered
IEFS*		F	17	Arusha	HOLD	IEFS	DO NOT BREED	WHITE	Intact
IEFS*		F	16	Allie Kat	HOLD	IEFS	DO NOT BREED	WHITE	Intact
IEFS*		M	16	Rasul	HOLD	IEFS	DO NOT BREED	WHITE	Neutered
IEFS*		F	14	Karen	HOLD	IEFS	DO NOT BREED	WHITE	Intact
IEFS*		F	14	Kimberley	HOLD	IEFS	DO NOT BREED	WHITE	Intact
IEFS*		F	~16	Princess	HOLD	IEFS	DO NOT BREED	Orange	Neutered
IEFS*		M	~16	Prince	HOLD	IEFS	DO NOT BREED	Orange	Intact
IEFS*		M	~16	Titan	HOLD	IEFS	DO NOT BREED	WHITE	Intact
IEFS*		M	8	Saber	HOLD	IEFS	DO NOT BREED	WHITE	Neutered
IEFS*		M	7	Sherekhan	HOLD	IEFS	DO NOT BREED	Orange	Neutered
IEFS*		F	7	Kiki	HOLD	IEFS	DO NOT BREED	WHITE	Intact
IEFS*		M	6	Louis	HOLD	IEFS	DO NOT BREED	WHITE	Neutered
IEFS*		F	6	Julia	HOLD	IEFS	DO NOT BREED	Orange	Neutered
IEFS*		F	5	Nahla	HOLD	IEFS	DO NOT BREED	Orange	Impact
LANDRYSAQ	PTT0104	M	17	Nero	HOLD	LANDRYSAQ	DO NOT BREED	WHITE	Neutered
LANDRYSAQ	PTT0404	M	16	Reef	HOLD	LANDRYSAQ	DO NOT BREED	WHITE	Neutered
LANDRYSAQ	PTT0204	F	17	Marina	HOLD	LANDRYSAQ	DO NOT BREED	WHITE	Neutered
LANDRYSAQ	PTT0521	M	0	Apollo	HOLD	LANDRYSAQ	DO NOT BREED	Unknown	Unknown

MEMPHIS	22128	F	15	Kumari	HOLD	MEMPHIS	DO NOT BREED	Golden	<i>Addendum: transf. out of AZA on 2 Sept 2021</i>
OAKLAND	2865	F	16	Milou	HOLD	OAKLAND	DO NOT BREED	Orange	Neutered
OAKLAND	2866	F	16	Molly	HOLD	OAKLAND	DO NOT BREED	Orange	Neutered
OAKLAND	2867	F	16	Ginger	HOLD	OAKLAND	DO NOT BREED	Orange	Neutered; <i>Addendum: euthanized 24Aug2021</i>
YULEE	203304	F	6	Jordan	HOLD	YULEE	DO NOT BREED	Orange	Neutered
YULEE	203303	F	6	Ilaura	HOLD	YULEE	DO NOT BREED	Orange	Neutered

**no longer AZA member as of October 2021*

APPENDIX A. Analytical Assumptions

None (0% known pedigree; not relevant for this population being managed to extinction)

APPENDIX B. Summary of Data Exports

Project Comments: Final analysis for 2021 Tiger SSP recommendations and planning

Primary data file

Data File Name: zims.zims

Common Name: Tiger

Scientific Name: Panthera tigris

Data Source: ZIMS for Studbooks

Studbook Name: Tiger, Generic (Panthera tigris)

Exported On: 2021-08-21

Software version: ZIMS for Studbooks 3.0

Current Through: 2021-08-15

Compiled By: Kathy Traylor-Holzer

Scope: AZA

Dates: 1980-01-01 to 2021-08-21

Location:

Association: AZA / Association of Zoos & Aquariums (AZA)

Other Filters: Status = Living

User: Kathy Traylor

Date used for calculations: 21/08/2021

APPENDIX C. Animals Excluded from Genetic Analyses

No genetic analysis for the population (0% known pedigree; no breeding;

APPENDIX D. Survival rates used for projections (based on generic tiger data in ZIMS for Studbooks)

MALES (model data)

Age (yrs)	Px	Qx	Lx
0	0.70	0.30	1.00
1	0.98	0.02	0.70
2	1.00	0.00	0.68
3	1.00	0.00	0.68
4	0.98	0.02	0.68
5	1.00	0.00	0.67
6	1.00	0.00	0.67
7	0.98	0.02	0.67
8	0.98	0.02	0.66
9	1.00	0.00	0.64
10	0.96	0.04	0.64
11	0.98	0.02	0.61
12	1.00	0.00	0.60
13	0.93	0.07	0.60
14	0.95	0.05	0.56
15	0.91	0.09	0.53
16	0.82	0.18	0.48
17	0.91	0.09	0.40
18	0.70	0.30	0.36
19	0.62	0.38	0.25
20	0.38	0.62	0.16
21	0.33	0.67	0.06
22	0.00	1.00	0.02
23	0.00	1.00	0.00
24	0.00	1.00	0.00

FEMALES (model data)

Age (yrs)	Px	Qx	Lx
0	0.70	0.30	1.00
1	1.00	0.00	0.70
2	1.00	0.00	0.70
3	1.00	0.00	0.70
4	1.00	0.00	0.70
5	1.00	0.00	0.70
6	0.99	0.01	0.70
7	1.00	0.00	0.69
8	1.00	0.00	0.69
9	1.00	0.00	0.69
10	1.00	0.00	0.69
11	0.99	0.01	0.69
12	0.98	0.02	0.68
13	0.98	0.02	0.67
14	0.96	0.04	0.66
15	0.94	0.06	0.64
16	0.91	0.09	0.60
17	0.83	0.17	0.54
18	0.85	0.15	0.45
19	0.78	0.22	0.38
20	0.82	0.18	0.30
21	0.43	0.57	0.25
22	0.17	0.83	0.11
23	0.00	1.00	0.02
24	0.00	1.00	0.00

Px = survival; Qx = mortality; Lx = cumulative survivorship

APPENDIX E. Directory of Institutional Representatives (US or Canada)

ALEXANDRI

Alexandria Zoological Park

3016 Masonic Drive, PO Box 71

Alexandria, LA 71301-4240

Institutional Representative: Lisa Laskoski (Lisa.Laskoski@cityofalex.com)

BILLINGS

Zoo Montana

2100 Shiloh Rd

Billings, MT 59106

Institutional Representative: Travis Goebel (tgoebel@zoomontana.org)

BISMARCK

Dakota Zoo

602 Riverside Park Road

Bismarck, ND 58504

Institutional Representative: Terry Lincoln (director@dakotazoo.org)

BROWNSVIL

Gladys Porter Zoo

500 Ringgold St.

Brownsville, TX 78520

Institutional Representative: Walter DuPree (wdupree@gpz.org)

BUSCH TAM

Busch Gardens

3605 Bougainvillea Ave.

Tampa, FL 33612

Institutional Representative: Jason Green (jason.green@buschgardens.com)

CALDWELL

Caldwell Zoo

P.O. Box 4785

Tyler, TX 75712

Institutional Representative: Scotty Stainback (sstainback@caldwellzoo.org)

FRANKLINP

Zoo New England/Franklin Park Zoo

One Franklin Park Rd.

Boston, MA 02121

Institutional Representative: John Piazza (jpiazza@zoonewengland.com)

IEFS (no longer an AZA member as of October 2021)

International Exotic Animal Sanctuary

P.O. Box 637

Boyd, TX 76023

Institutional Representative: Casey Craig (casey@wildanimalsanctuarytexas.org)

LANDRYSAQ

Houston Aquarium

410 Bagby St.

Houston, TX 77002

Institutional Representative: Ashley Gildart (agildart@ldry.com)

MEMPHIS

Memphis Zoo

2000 Prentiss Place

Memphis, TN 38112

Institutional representative: Dan Dembiec (ddembiec@memphiszoo.org)

OAKLAND

Oakland Zoo

P.O. Box 5238

Oakland, CA 94605

Institutional Representative: Ann Marie Bisagno (abisagno@oaklandzoo.org)

YULEE

White Oak Conservation

581705 White Oak Rd.

Yulee, Florida 32097

Institutional Representative: Karen Meeks (KMeeks@white-oak.org)