



November 2, 2019

US Fish & Wildlife Service
Division of Management Authority
Branch of Permits
5275 Leesburg Pike
Falls Church, VA 22041-3803

RCVD NOV 05 2019

Re: Permit application 3-200-37 to import 0.1 Amur Leopard under the Convention on International Trade in Endangered Species (CITES) and/or the U.S. Endangered Species Act (ESA)

Enclosed is our application booklet requesting authorization to import one female leopard from Thrigby Hall Wildlife Gardens in the United Kingdom. The attachments in this booklet are referenced with the application question number I am addressing. I will submit this information electronically, once I have received an application reference number.

Attachments include:

- Sec D1 - Signed Document of Exempt status, USDA Exhibitors license
- Sec E8 - Specimen report for the Amur leopard to be covered under this permit and specimen reports for her Sire and Dam
- Sec E10a - EEP Status report, Amur leopard PVA, and AZA Amur leopard Analysis & Breeding and Transfer plan, educational interpretive signage at our leopard Exhibit.
- Sec E10b - Staff Resumes
- Sec E10c - Sample copy of our standard donation agreement and standard breeding loan agreement
- Sec E12a - Exhibit and Holding area photos

I have also included a FedEx mailing label for return permit if approved.

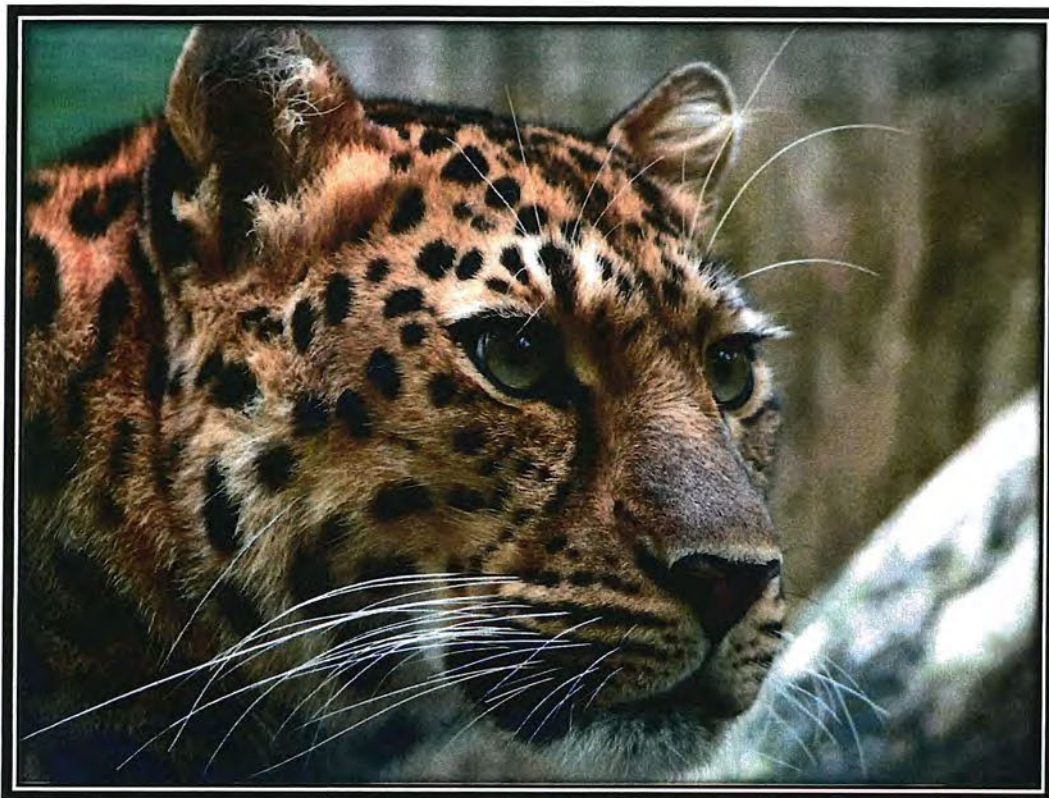
If you have any question or need further information, please do not hesitate to contact me.

Sincerely,

Laurie J Kokkeler, Registrar
Minnesota Zoo
Tel: (952) 431-9271
Email: laurie.kokkeler@state.mn.us



MINNESOTA ZOO®



**USFW PERMIT APPLICATION 3-200-37 ESA/CITES TO
IMPORT FEMALE AMUR LEOPARD**

Prepared by: Laurie Kokkeler | Animal Registrar | Minnesota Zoo | 952.431.9271

laurie.kokkeler@state.mn.us



RCVD NOV 05 2019

LB

Department of Interior
U.S. Fish and Wildlife Service
Federal Fish and Wildlife Permit Application Form

Type of Activity

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

**EXPORT/RE-EXPORT/IMPORT/INTERSTATE AND FOREIGN
COMMERCE/TAKE OF ANIMALS (LIVE/ SAMPLES/PARTS/PRODUCTS)
under the Convention on International Trade in Endangered Species
(CITES) and/or the U.S. Endangered Species Act (ESA)**

Complete Sections A or B, and C,D, and E of this application. U.S. address may be required in Section C, see instructions for details. Instructions on how to make your application complete and help avoid unnecessary delays are attached.

Section A: Complete if applying as an individual

1.a. Last Name	1.b. First Name	1.c. Middle Name/Initial	1.d. Suffix
2. Date of Birth (mm/dd/yyyy)	3. Telephone Number	3.a. Alternate Telephone Number	4. E-mail address

Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution Minnesota Zoological Gardens			
2. Tax identification no. 416007162		3. Description of business, agency, Tribe, or institution Zoo	
4.a. Principal officer Last name Frawley	4.b. Principal officer First Name John	4.c. Principal officer Middle name/initial A.	4.d. Suffix
5. Principal officer title Zoo Director/CEO		6. Primary contact name Laurie Kokkeler	
7.a. Business telephone number 952.431-9299	7.b. Alternate telephone number 952.431.9271	7.c. Business fax number 952.997.4383	7.d. Business e-mail address Laurie.kokkeler@state.mn.us

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes) 13000 Zoo Blvd				
1.b. City Apple Valley	1.c. State MN	1.d. Zip code/Postal code 55124	1.e. County/Province Dakota	1.f. Country USA
2.a. Mailing address (include if different than physical address; include name of contact person if applicable)				
2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f. Country

Section D: All applicants MUST complete

1. Attach the nonrefundable application processing fee in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE in the amount of \$100. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee - attach documentation of fee exempt status as outlined in instructions [50CFR 13.11(d)]. **Signed Document of Exempt status is included**
2. Certification: I hereby certify that I have read and am familiar with the regulations contained in **Title 50 Part 13 of the Code of Federal Regulations** and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

Signature of applicant/Principal Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)

10/29/19

Please continue to next page

**E. EXPORT/RE-EXPORT/IMPORT/INTERSTATE AND
FOREIGNCOMMERCE/TAKE OF ANIMALS (Live/samples/parts/products)
(CITES and/or ESA)**

Allow at least 90 days for the application to be processed. Applications for endangered species permits must be published in the Federal Register for a 30-day public comment period.

Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use separate sheets of paper. On all attachments or separate sheets you submit, indicate the application question number you are addressing. If you are applying for multiple specimens, be sure to indicate which specimen you are addressing in each response.

NOTE: The import of live southern white rhinoceros from South Africa and Swaziland must meet specific CITES criteria for an import permit to be issued. If you are requesting authorization for the import of these species, please ensure that you respond to question 14 below.

Electronic submission of inventories, photographs, and receipts: Some applications contain extensive inventories and/or a large number of photographs or receipts. You may provide electronic versions of the documents. Such a submission will assist the processing of your application since it may reduce data entry by the U.S. Fish and Wildlife Service. If you wish to provide information electronically, once you have received an application number via the e-mailed acknowledgment letter, e-mail your information to Permits@fws.gov. Be sure to include the application number provided in the acknowledgment e-mail that will be sent to you when we receive your application.

☒ I will be submitting documents electronically.

1. Name and address where you wish the permit to be mailed, **if different from page 1**. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via regular mail through the U.S. Postal Service.

A prepaid FedEx shipping label and envelope is included in this application packet. Shipping address is the same as provided on Page 1 and should be sent Attention: Laurie Kokkeler

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

Please contact: Laurie Kokkeler, ph: 952.431.9271, laurie.kokkeler@state.mn.us

3. Have you or any of the owners of the business (if applying as a business, corporation, or institution), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act, forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit. **N/A**

4. What activity are you requesting authorization to carry out (Indicate appropriate activities):

☐ EXPORT ☐ RE-EXPORT ☐ IMPORT ☐ TAKE (e.g., cull, lethal harvest)
☐ INTERSTATE COMMERCE ☐ FOREIGNCOMMERCE

Note: Interstate Commerce permits authorize the sale of endangered and threatened species across State lines, but only for activities that will contribute to enhancing the propagation or survival of that species. Interstate commerce activities with wildlife require the buyer to obtain a permit prior to the sale or offer for sale. **N/A This is not a commercial transaction**

5. For **EACH** animal/specimen involved in the proposed activity provide:

a. Scientific name (genus, species, and, if applicable, subspecies)	b. Common name	c. Birth/ Hatch Date (mm/dd/yyyy) (approximate of actual unknown)	d. Wild or captive-born	e. Qty	f. Gender (male or female, if known)	g. Permanent markings, if alive (e.g., tattoo, ID#, microchip #, scars)	h. Type of sample or product (e.g., blood, tissue, DNA)
EXAMPLE: <i>Pan troglodytes</i>	Chimpanzee						
Panthera pardus orientalis	Amur leopard	10/15/2017	Captive	one	female	Microchip #4D00024133 GAN: NMC18-00110	Live Animal

6. The current location of the specimen(s) (address and country): Name: **Thrigby Hall Wildlife Gardens**

Address: **Filby Road**

City: **Great Yarmouth**

State/Province: **Norfolk**

Country, **United Kingdom**

Postal code: **NR29 3DR**

7. Recipient / Sender:

- If **export**, provide name and address of the recipient in the foreign country.
- If **re-export**, provide the name and address of the recipient in the foreign country.
- If **import**, provide name and address of the exporter in the foreign country.

We are requesting your authorization to import.

- If **interstate or foreign commerce**, provide name and address of the proposed seller/supplier.

Name: **Thrigby Hall Wildlife Gardens**

Address: **Filby Road**

City/State: **Great Yarmouth, Norfolk**

Country: **United Kingdom**

Postal code: **NR29 3DR**

SOURCE OF SPECIMEN (answer question 8 or 9 for **EACH** animal/specimen involved, as appropriate).

8. For captive-bred animals or animal(s) from which the specimen(s) are/were obtained, provide a signed and dated statement from the breeder that includes the following:

I have included a specimen report that contains all the below information. The specimen report is signed by Scott Bird, Director of the Thrigby Hall Wildlife Gardens stating that the leopard was captive born at that facility. (See Sec E-8)

- a. Scientific name (genus, species, and, if applicable, subspecies) and common name;
Panthera pardus orientalis (Amur leopard)
- b. Name and address of the facility where the animal was bred and born;
Thrigby Hall Great Yarmouth, Norfolk United Kingdom NR29 3DR
- c. Birth/hatch date (mm/dd/yyyy), and, if applicable, identification information;
DOB: **10/15/2017**
- d. Location (name of facility, address, city, State, postal code) of parental stock; **The Sire to this leopard was born at Tierpark in Berlin. The Dam was born at the Prague Zoological Garden.**
Specimen reports for the sire and dam are included. (See Sec E-8)
- e. A statement that the animal was bred at the above facility; **included**
- f. Documentation demonstrating the history of transactions (e.g. chain of custody or ownership of the animal). **This information is captured in the specimen reports.**

9. For **EACH** animal/specimen **taken from the wild**, provide the following:

N/A This animal was born captive born at Thrigby Hall Wildlife Gardens

- a. Scientific name (genus, species, and, if applicable, subspecies) and common name;
- b. Specific location of where, when, and by whom (name and address) the specimen was removed from the wild;
- c. Purpose of removal and length or approximate length of time held in captivity. Discuss issues such as the method of collection, was the collection done as part of a larger study, were animals returned to the wild after sampling, and did any mortalities or injuries occur due to collection or holding;
- d. If and how any remuneration, either financial or in-kind, was provided for taking or capturing animals or for the collection of samples.
- e. Your efforts to use captive specimens (e.g., captive-born, captive-held), or parts thereof, in lieu of taking animals from the wild.
- f. Copies of your foreign or domestic collecting permit, license, contract or agreement;
- g. Documentation showing that the specimen(s) was/were legally obtained by the applicant; and
- h. Copies of any applicable State, Tribal, Federal, or Foreign government permits or licenses that authorized the removal of this animal from the wild.

JUSTIFICATION FOR REQUESTED ACTIVITY.

10. Provide a detailed statement justifying the proposed activity, particularly the following:

- a. Describe the purpose of your proposed activity. For example, if the purpose is scientific research, attach a copy of your research proposal outlining the purpose, objectives, methods (e.g., specific information on survey/collection methods, sampling regime, equipment to be used),

and whether similar work has already been done or is currently being done. If the

Purpose includes conservation education, provide copies of educational materials (e.g., handouts, text of signage or public presentations), and include the purpose and objectives of the proposed activity. If the purpose is for propagation for conservation purposes (including culling as part of herd management), provide a description of how the species will be propagated and the disposition of progeny, as well as long-term goals of the breeding program, how the breeding program is managed to maintain genetic vitality, and information on any cooperative breeding programs or agreements that are/will be established, including any future plans for re-introduction.

The purpose of our proposed activity is propagation for conservation purpose as well as conservation education.

We work in cooperation with the AZA Amur leopard SSP program, which strives to maintain population sustainability and genetic diversity. In order to achieve this it is necessary to import young unrelated and reproductively viable animals. This will increase the number of offspring produced each year and will help offset our declining numbers due to an aging captive population in the US.

Our staff expertise can ensure high quality husbandry for Amur leopards while helping the SSP reach its sustainability goals and genetic diversity long-term. Our Amur leopard holding facility has ample room providing a safe environment for introductions and breeding. At this time, we are not aware of where the progeny produced will be dispositioned; however, the Minnesota Zoo will follow AZA SSP recommendations for the sustainability of the population.

I have attached the most current EEP status report that includes the breeding recommendation and transfer plans. (See Sec E-10a)

Also included in (Sec E-10a) are photos of our educational interpretive signage.

- b. Description of the technical expertise of each person (please also include CV or resume), as it relates to the proposed activities. If the proposed activity involves live animals, include the experience of each animal caretaker working with the species.

The Minnesota Zoo is unique in that we have a very long-tenured staff. Our Northern Trail staff provide care for our large carnivores and are considered some of the most experienced individuals in the breeding and daily husbandry of large felids. Supervisor Diana Weinhardt leads the Northern Trail staff, which members include:

Tim Hill, Zookeeper has worked at the Minnesota Zoo since 1989 and has worked exclusively on the Northern Trail. During this time, he has been the primary keeper for the Asian Wild Horse. Tim's experience includes herd introductions, shipments of wild horse, breeding of horses and management of pregnant mares and their foals and has done field work in Mongolia for the Asian wild horse. He has also worked with numerous large cats, has been involved in red panda husbandry and has worked with arctic fox, coyotes, Mexican grey wolves, and Dhole. He was previously a zookeeper at the Baltimore Zoo.

Cindy Bjork-Groebner, Zookeeper has been at the Minnesota Zoo since 1989 and has worked exclusively on the Northern Trail. Cindy received a BS in Biology from the University of Wisconsin River Falls in 1983. She has assisted in numerous breeding's of Amur leopards, tigers, lynx, snow leopards and other felids. In addition to the large felids, she has worked with Dhole, Mexican wolf, fox, coyote and red pandas. Before coming to the Minnesota Zoo, she was a keeper at the Topeka Zoo.

Trista Fischer, Zoologist since 2014 with a focus on felids. Before working at the Minnesota Zoo, she worked as lead keeper at the Wildcat Sanctuary in Sandstone, Minnesota and currently is the Board Director for Wild Paws Midwest Animal Sanctuary.

Ben Sutton, Zookeeper has been at the Minnesota Zoo since 2001 and spends most of his time working in the RGC Exhibit area with Brown bears, Amur leopards, and Wild boar but has worked other areas of the Northern Trail and has extensive experience with our Dhole, wolves, coyotes and fox.

Jessica Grill, Zookeeper has been at the Minnesota Zoo since 2012. She has worked with large felids, Dhole, Mexican wolf, fox, coyote and red pandas. She is currently the lead keeper for our Asian Dhole and has been to Thailand to work on a Dhole field project with the MN Zoo conservation department.

I have included the resumes of the key people involved in the management decisions for this animal collection. (See Sec E-10b)

c. Copies of contracts, agreements or other documents that identify persons involved and dates of activities for which authorization is being requested.

The terms of the animal transfer agreement will be determined upon your approval of this application. If necessary, we can have documents prepared and signed between Minnesota Zoological Gardens and the Thrigby Hall Wildlife Gardens. We anticipate the transaction to be a donation to our facility. This transaction is in agreement with the Amur leopard SSP breeding recommendations. I have included a sample copy of our standard animal donation agreement document for your review. (See Sec E-10c)

11. A statement on how the activities will enhance or benefit the wild population (e.g., in-situ and ex-situ projects).

The Minnesota Zoo continues to promote conservation activities in the Russian Far East benefitting the Amur leopard and other endangered species. The Minnesota Zoo's support has included direct funding for Amur leopard conservation via grants provided to the Zoological Society of London (previously administered as the Amur Leopard and Tiger Alliance; now known as the Wild Cats Conservation Alliance). The Minnesota Zoo also hosts the AZA Tiger Species Survival Plan's Tiger Conservation Campaign, which leverages the support of zoos across North America to raise awareness and funding for wild populations of tigers. Amur leopards benefit indirectly from many of the associated conservation activities conducted for Amur tigers in the Russian Far East, such as anti-poaching activities and the closure of logging roads.

The following table provides a summary of contributions for the past 5 years. The Tiger Conservation Campaign field includes funds provided by the Minnesota Zoo Foundation and other institutions and individuals, but does not reflect the Minnesota Zoo's in-kind contribution for hosting the campaign.

Year	Grants to Zoological Society of London	Tiger Conservation Campaign funds supporting conservation actions in the Russian Far East
2015	\$3,610.00	\$56,597.24
2016	\$5,000.00	\$81,065.52
2017	\$5,000.00	\$84,131.67
2018	\$4,000.00	\$87,552.80
2019	\$1,000.00	\$73,706.28

The Minnesota Zoo Foundation will continue to co-host the Tiger Conservation Campaign (in partnership with the Phoenix Zoo), going forward, and we remain committed to supporting the conservation of wild populations of Amur leopards and other species in our collection

12. If live specimens are to be held in captivity as part of the proposed activity:

- a. Provide a detailed description (e.g., size, construction materials, protection from the elements) and photographs or diagrams (no blueprints, please) clearly depicting the existing facilities **where the wildlife will be maintained**. If the specimens will be housed at multiple facilities, either immediately or within the next year, provide a full description of each facility.

If you are unsure of which facilities may be receiving specimens (e.g., final decisions on placement have not been made), please indicate likely candidates and the mechanism that will be used to determine recipient facilities;

The SSP recommendation for this leopard is to be transferred to our location for breeding with no further instruction to move elsewhere in the near future.

She will be housed and cared for at our Russia's Grizzly Coast exhibit, which opened in 2008.

The Exhibit simulates the Kamchatka peninsula and the species that live there. The leopard habitat is designed to replicate the rocky areas of a Russian forest line. The habitat was built with generous flexibility to be able to manage multiple animals on display at any one time. Two meshed enclosures measure approximately 1150 sq. feet each and can be opened up via shift doors to become one large enclosure. A separate glass fronted maternity exhibit measures 504 sq ft. The entire area is almost 20 feet high and enclosed with 3-inch cable mesh, supported by center poles that incorporate natural deadfall on which leopards can climb and lounge. Rock features are present, including heat rocks for winter basking.

Discreetly positioned shift tunnels lead to four off-exhibit indoor dens which measure 12 x 14 feet in size. Exhibit floor material includes natural rock, Gunitite and natural soil. The entire perimeter has a concrete apron under mesh canopy buried to a depth of 4 feet. CCTV cams are present on exhibit and in holding for security and monitoring of animals by keepers.

An enrichment, training panel was added into the east side leopard exhibit and is utilized for public demonstrations.

Diagrams and photos of both habitat and holding areas are included. (See Sec E-12a)

A statement of the specific technical experience of CV or resume available to the recipient(s) for maintaining and propagating live specimens of the same or similar species;

This question is answered in section 10-b

- b. The number of years each species has been maintained at the facility;

The Minnesota Zoo has maintained and cared for Amur leopard since 1991

- c. The number of births by year for each species for the last 5 years; and

Our most recent births were 1.1 born on May 29, 2015. We have had 17 leopard births in the 28 years we have cared for Amur leopards.

- d. Mortalities at the facility with these or similar species in the last 5 years, causes of such mortalities, and steps taken to avoid or decrease such mortalities.

There have been no mortalities in the last 5 years.

IMPORTS, EXPORTS, OR RE-EXPORTS.

13. For shipment of LIVE specimens, the transport conditions for animals must comply with the CITES Guidelines for Transport of Live Animals or, in the case of air transport, with the International Air Transport Association (IATA) live animal regulations (contact airline for information). As such, describe:

- a. The type, size, and construction of any shipping container; and

The Amur leopard will be shipped in a crate meeting or exceeding IATA requirements. The Minnesota Zoo has extensive experience shipping and receiving leopards and other large felids and foresees no difficulty in this importation. We also provide photos of the shipping crate to the border patrol and USDA customs for review before shipping.

- b. The arrangements for watering or otherwise caring for the wildlife during transport.

Each crate will have a water devise secured firmly to the side of the crate. Like other carnivores, leopards do not need feeding during shipping and no food stuffs (meat) will be present in the shipping crate.

14. For import of live southern white rhinoceroses from South Africa and Swaziland, a determination that the importing facility meets the CITES "appropriate and acceptable destination" annotation must be made. Therefore, provide written documentation demonstrating that the proposed activity would promote *in situ* conservation of the species. **Note: For any permit authorizing trade of live rhinoceroses under an "appropriate and acceptable destination" annotation, the rhinoceros horn from these animals may not enter commercial trade and the animal may not be sport hunted. N/A**

15. For import of LIVECITES Appendix-I listed marine mammal species, provide a copy of your FWS or NOAA Fisheries permit or authorization. **N/A**

16. For import of CITES Appendix-I listed species, provide information to show the import is not for primarily commercial purposes as outlined in Resolution Cont. 5.10.

This leopard was specifically identified and recommended by the GSMP (Global Species Management Program) to come here to the Minnesota Zoo to be paired with our male Amur leopard. There are no future transfer recommendations at this time. I have included a copy of the Population analysis, breeding, and transfer plan for your reference. (Ref Sec 10a)

For export of CITES Appendix-I listed species, provide a copy of the CITES import permit, or evidence one will be issued by the Management Authority of the country to which you plan to export the specimen(s). In accordance with Article III of the CITES treaty, it is required that import permits are issued before the corresponding export permit. **N/A, we are asking to import**

17. If the specimen is being **re-exported** (e.g., exporting a specimen that was previously imported into the United States), provide: **N/A**
- A copy of the canceled CITES export or re-export document issued by the appropriate CITES office in the country from which the wildlife was imported (if applicable); and
 - A cleared copy of Form 3-177, wildlife Declaration for Import (hard copy or electronic release); **OR**
 - If you did not make the original import, provide a copy of the importer's documents outlined above and the invoice or other documentation that shows you acquired the wildlife from the original importer or history of transactions, which demonstrate chain of ownership.

All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).



Memorandum

DATE: May 1, 2018

TO: US Fish and Wildlife Service

FROM: Jeff Higgins, Accounting Director, MN Zoo

RE: Exemption request for Minnesota State Agency

The Minnesota Zoo requests the exemption to the Fee requirement based on the exemption for state agencies. The Minnesota Zoo is a state agency created in Minnesota Statute under Chapter 85A, which operates under the supervision of the Minnesota Zoo Board.

Thank you for your consideration.

2017 Minnesota Statutes

- Minnesota Zoo
- Zoological Board

85A.01 CREATION; ORGANIZATION.

Subdivision 1. Creation.

The Minnesota Zoological Garden is established under the supervision and control of the Minnesota Zoological Board.



STATE of MINNESOTA

- WHEREAS: The 66th Minnesota Legislature voted to establish the Minnesota Zoological Garden Board, which opened the Minnesota Zoological Garden on May 22, 1979; and
- WHEREAS: The Minnesota Zoological Garden is a state agency and belongs to the people of Minnesota; and
- WHEREAS: The Minnesota Zoological Garden is a world-class zoo connecting people, animals, and the natural world to save wildlife; and
- WHEREAS: The Minnesota Zoological Garden serves 1.35 million visitors each year; and
- WHEREAS: The Minnesota Zoological Garden is an economic engine, with \$227.7 million in gross output, approximately 2,265 jobs and \$137.2 million in value-added impacts; and
- WHEREAS: The Minnesota Zoological Garden is a respected world leader in conservation, with significant conservation achievements in Minnesota to restore trumpeter swans and bison, and projects underway to save prairie butterflies, freshwater mussels, and turtles; and
- WHEREAS: The Minnesota Zoological Garden is celebrating "40 years of Amazing"

NOW, THEREFORE, I, MARK DAYTON, Governor of Minnesota, do hereby proclaim Tuesday, May 22, 2018 as:

MINNESOTA ZOOLOGICAL GARDEN DAY

in the State of Minnesota.



Steve Pimm

SECRETARY OF STATE

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Minnesota to be affixed at the State Capitol this 18th day of May.

Mark Dayton
GOVERNOR



**United States
Department of
Agriculture**

**Marketing and
Regulatory
Programs**

**Animal and
Plant Health
Inspection
Service**

Animal Care

EXPIRATION DATE: JUNE 14, 2020

This is to certify that STATE OF MINNESOTA

is a licensed CLASS C EXHIBITOR
under the

Animal Welfare Act

(7 U.S.C. 2131 et seq.)

Certificate No. 41-C-0019

Customer No. 2793

A handwritten signature in black ink, appearing to be "J. J. [unclear]", written over a horizontal line.

Deputy Administrator

Specimen Report

SPECIES
360

Species360 NMC18-00110

Local ID: YARMOUTH / TH1713

GAN

Panthera pardus orientalis

Amur leopard

Studbooks EAZA, WAZA,
PAAZA, AZA

Order Carnivora

Family

Felidae

IUCN Critically Endangered (CR)

CITES I

Start Date Jan 01, 1800

End Date Apr 22, 2019

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Basic Animal Information

No Local Data Differences Found

Sex - Contraception Female -

Status

Alive

Birthdate - Age Oct 15, 2017 - 1Y,6M,7D

Preferred ID

YARMOUTH / TH1713

Origin Thrigby Hall Wildlife Gardens

Rearing

Birth Type Captive Birth/Hatch

Hybrid Status

Not Hybrid

Sire MIG12-29213357 (YARMOUTH /
29705776)

Dam

NJZ13-01046 (YARMOUTH /
29705812)

Current Collection Main Institution Animal Collection

Collection Trip

Clutch / Litter

Enclosure

YARMOUTH

Visit History

Date in	Acquisition - Vendor/Local ID	Phy Own	Reported By	Disposition - Recipient/Local ID	Phy Own	Date Out
Oct 15, 2017	Birth/Hatch	In	In	YARMOUTH / TH1713	-	-

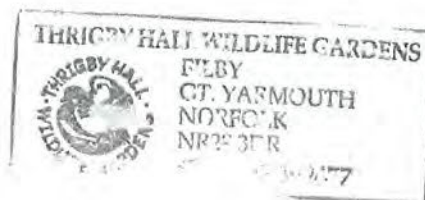
Identifiers

Reported By	Effective Date	Type	Identifier	Location	Status	Comments
YARMOUTH	May 14, 2018	House Name	IONA/LEIA/LUNA		Active	
YARMOUTH	May 01, 2018	Intl Stdtk#	#954		Active	
YARMOUTH	Jan 02, 2018	Transponder	4D00024133		In-Use	
YARMOUTH	Jan 02, 2018	Transponder	953010001892044	Interscapular	Not located	
YARMOUTH	Oct 15, 2017	Local ID	TH1713		Active	

Sex Information

Reported By	Date	Sex	Comments
YARMOUTH	Dec 11, 2017	Female	
YARMOUTH	Oct 15, 2017	Undetermined	

I certify that this animal was born at
Thrigby Hall Wildlife Gardens & the above
information is correct
Scott Bird (Zoo Director)
SB



Specimen Report



Species360 MIG12-29213357

GAN

Panthera pardus orientalis

Amur leopard

Studbooks EAZA, WAZA,
PAAZA, AZA

Order Carnivora

Family

Felidae

IUCN Critically Endangered (CR)

CITES I

Start Date Jan 01, 1800

End Date Aug 14, 2019

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SIRE

Basic Animal Information

No Local Data Differences Found

Sex - Contraception	Male -	Status	Alive
Birthdate - Age	Oct 21, 2005 - 13Y,9M,24D	Preferred ID	
Origin	Tierpark Berlin-Friedrichsfelde GmbH	Rearing	Parent
Birth Type	Captive Birth/Hatch	Hybrid Status	Not Hybrid
Sire	MIG12-30065938 (BERLIN TP / M01620)	Dam	MIG12-29211028 (BERLIN TP / M02725)
Current Collection		Collection Trip	
Clutch / Litter		Enclosure	

Visit History

Date in	Acquisition - Vendor/Local ID	Phy	Own	Reported By	Disposition - Recipient/Local ID	Phy	Own	Date Out
Oct 21, 2005	Birth/Hatch	In	In	BERLIN TP / M03103	Donation To EDINBURGH/M07F13	Out	Out	Jun 24, 2007
Jun 25, 2007	Donation From BERLIN TP/SKODJE	In	In	EDINBURGH / M07F13	Donation To YARMOUTH/UNDETERM+	Out	Out	Feb 26, 2015
Feb 26, 2015	Donation From EDINBURGH/M07F13	In	In	YARMOUTH / 29705776				

Identifiers

Reported By	Effective Date	Type	Identifier	Location	Status	Comments
YARMOUTH	Feb 26, 2015	Local ID	29705776		Active	
EDINBURGH	Jun 25, 2007	Local ID	M07F13		Active	
EDINBURGH	Jun 25, 2007	Transponder	968000003409031		In-Use	
EDINBURGH	Jun 25, 2007	House Name	SKODJE		Active	
BERLIN TP	Oct 30, 2005	Transponder	96800-00034-09031		In-Use	Legacy SLocation: shoulder Legacy Comment:
BERLIN TP	Oct 30, 2005	House Name	Skodje		Active	
EDINBURGH	Oct 21, 2005	Regional	EAZA/654		Active	Legacy SLocation: EAZA Legacy Comment:
BERLIN TP	Oct 21, 2005	Local ID	M03103		Active	

Sex Information

Reported By	Date	Sex	Comments
YARMOUTH	Feb 26, 2015	Male	
EDINBURGH	Jun 25, 2007	Male	
BERLIN TP	Oct 21, 2005	Male	

Parent Info

Reported By	In ZIMS	Parent Info	Type / Probability	Birth Date	Comments
BERLIN TP	Yes	MIG12-29211028 [BERLIN TP / M02725]	Dam/100%	May 12, 2002	
BERLIN TP	Yes	MIG12-30065938 [BERLIN TP / M01620]	Sire/100%	Jan 01, 1988	
EDINBURGH	No	BERLIN TP/UNK	Dam/100%		
EDINBURGH	No	BERLIN TP/UNK	Sire/100%		

Ancestry Information (calculated by Species360 from shared data)

% Pedigree Known	% Pedigree Certain	Taxonomic Inconsistencies	No. Identified Ancestors
100.00%	100.00%	No	29

Rearing Information

Reported By	Start Date	End Date	Rearing	Comments
EDINBURGH	Jun 25, 2007		Parent	
BERLIN TP	Oct 21, 2005		Parent	

Specimen Report

SPECIES
360

Species360 NJZ13-01046

GAN

Panthera pardus orientalis

Amur leopard

Studbooks EAZA, WAZA,
PAAZA, AZA

Order Carnivora

Family

Felidae

IUCN Critically Endangered (CR)

CITES I

Start Date Jan 01, 1800

End Date Aug 14, 2019

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DAM

Basic Animal Information

No Local Data Differences Found

Sex - Contraception Female -	Status Alive
Birthdate - Age Nov 25, 2013 - 5Y,8M,20D	Preferred ID
Origin The Prague Zoological Garden	Rearing
Birth Type Captive Birth/Hatch	Hybrid Status Not Hybrid
Sire MIG12-28085775 (USTI / UL1121)	Dam MIG12-28743862 (TALLIN / 17785)
Current Collection	Collection Trip
Clutch / Litter	Enclosure

Visit History

Date in	Acquisition - Vendor/Local ID	Phy Own	Reported By	Disposition - Recipient/Local ID	Phy Own	Date Out
Nov 25, 2013	Birth/Hatch	In In	PRAHA / 130465	Donation To	Out Out	Feb 29, 2016
Mar 01, 2016	Donation From PRAHA/130465	In In	YARMOUTH / 29705812	YARMOUTH/UNDETERM+		

Identifiers

Reported By	Effective Date	Type	Identifier	Location	Status	Comments
YARMOUTH	Mar 01, 2016	Local ID	29705812		Active	
PRAHA	Feb 01, 2015	Intl Sdbk#	853		Active	
PRAHA	Nov 25, 2013	Local ID	130465		Active	
PRAHA	Jan 24, 2014	Transponder	967000009493863		In-Use	

Sex Information

Reported By	Date	Sex	Comments
YARMOUTH	Mar 01, 2016	Female	
PRAHA	Nov 25, 2013	Female	

Parent Info

Reported By	In ZIMS	Parent Info	Type / Probability	Birth Date	Comments
PRAHA	Yes	MIG12-28743862 [TALLIN / 17785]	Dam/100%	Apr 05, 2010	
PRAHA	Yes	MIG12-28085775 [USTI / UL1121]	Sire/100%	May 03, 2009	

Ancestry Information (calculated by Species360 from shared data)

% Pedigree Known	% Pedigree Certain	Taxonomic Inconsistencies	No. Identified Ancestors
81.25%	81.25%	No	49

No Rearing Information Found

No Weights Found

Amur leopard EEP Status report 2018

Compiled by Jo Cook (ZSL) and Tanya Arzhanova (EARAZA)



Contact:

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EARAZA: tanya.arz@gmail.com

Introduction

This report will provide details on events in the EEP in 2017 and 2018, the current status of the population, and transfer and breeding recommendations for 2019. A more comprehensive report including information on research and conservation activities will be compiled and distributed in 2019.

As always we would like to extend our thanks to all of you who participate or contribute to this challenging programme and appreciate your ongoing cooperation.

Jo Cook & Tanya Arzhanova, EEP Co-coordinators

Events in 2017 and 2018 to date

Births

In 2017 there were 3.4.1 (8) births in 4 litters, in 3 institutions. The litters born in LEIPZIG and YARMOUTH were the results of breeding recommendations, the litter born at LES SABLE was not. Unfortunately due to the current limited space availability for placing Amur leopards, it was not possible to retain these non-recommended cubs within the EEP and they have been moved to COULANGE. The male was castrated before being moved. This is not an ideal situation and we would like to urge you once again to please **do not** allow your leopards to breed unless you have been given a breeding recommendation.

AMUR / FAR EASTERN LEOPARD Studbook
Restricted to: (Panthera pardus orientalis)
Dates: 1 Jan 2017 - 31 Dec 2017
Event: Births
Association: \Sparks\AMLEPEEP.fed
Report ordered by: current/last location (alphabetic)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
-------	-----	------------	------	-----	----------	------	---------	-------	------

LEIPZIG - Zoo Leipzig, Leipzig, Sachsen, Germany

938	M	22 Mar 2017	644	839	LEIPZIG	22 Mar 2017	M10787	Birth	
					ASCHERSLE	4 Sep 2018		Transfer	
939	M	22 Mar 2017	644	839	LEIPZIG	22 Mar 2017	M10788	Birth	
					ASCHERSLE	4 Sep 2018		Transfer	

Totals: 2.0.0 (2)

LES SABLE - Zoo Des Sables D'Olonne, Les Sables D'Olonne, Vend, e, France

936	F	12 Jan 2017	758	849	LES SABLE	12 Jan 2017	17PPO3	Birth	Zeya
					COULANGE	16 Aug 2018	PPO2	Transfer	
937 contM		12 Jan 2017	758	849	LES SABLE	12 Jan 2017	17PPO4	Birth	Argun
					COULANGE	16 Aug 2018	PPO1	Transfer	

Totals: 1.1.0 (2)

YARMOUTH - Thrigby Hall Wildlife Gardens, Great Yarmouth, Norfolk, United Kingdom

947	?	21 Apr 2017	654	853	YARMOUTH	21 Apr 2017		Birth	
						21 Apr 2017		Death	

[Death by: Injury from exhibit mate Unknown No necropsy planned Necropsy not received]

953	F	15 Oct 2017	654	853	YARMOUTH	15 Oct 2017	TH1712	Birth	
954	F	15 Oct 2017	654	853	YARMOUTH	15 Oct 2017	TH1713	Birth	
955	F	15 Oct 2017	654	853	YARMOUTH	15 Oct 2017	TH1714	Birth	

Totals: 0.3.1 (4)

TOTALS: 3.4.1 (8)

3 Institutions

Because there is such a shortage of available spaces for Amur leopards, and the situation has been exacerbated by the male bias in the population, a temporary breeding plan was put in place for 2018. The only two exceptions to this were for the pair at KINGUSSIE in the off-show breeding facility, and for the wild-caught male at MOSCOW. In total there were 3.2.2 (7) leopards born in 4 litters in 4 institutions with both the pairs at KINGUSSIE and the pair at MOSCOW being successful. The two non-recommended litters were born at NOVOSIBRK and VIENNA. We will be doing everything we can to retain these leopards within the EEP, or the GSMP where appropriate, but it is incredibly difficult to manage the population when the breeding recommendations that are given after extremely careful consideration are not always followed. Your cooperation in this would be greatly appreciated.

AMUR / FAR EASTERN LEOPARD Studbook

Restricted to: (Panthera pardus orientalis)

Dates: 1 Jan 2018 - 16 Dec 2018

Event: Births

Association: \Sparks\AMLEPEEP.fed

Report ordered by: current/last location (alphabetic)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
KINGUSSIE - Highland Wildlife Park, Kingussie, Highland, United Kingdom									
968	?	17 Jun 2018	858	861	KINGUSSIE	17 Jun 2018	6102	Birth	
970	?	17 Jul 2018	858	861	KINGUSSIE	17 Jul 2018	6108	Birth	
Totals: 0.0.2 (2)									
MOSCOW - Moscow Zoological Park, Moscow, Moskovskaya Oblast', Russian Federation									
963	M	5 Jun 2018	924	819	MOSCOW	5 Jun 2018	180321	Birth	
964	M	5 Jun 2018	924	819	MOSCOW	5 Jun 2018	180294	Birth	
Totals: 2.0.0 (2)									
NOVOSIBRK - Novosibirsk Zoological Park, Novosibirsk, Novosibirskaya Oblas, Russian Federation									
969	F	20 May 2018	763	783	NOVOSIBRK	20 May 2018	058059	Birth	
Totals: 0.1.0 (1)									
VIENNA - Sch'nbrunner Tiergarten GmbH, Vienna, Wien, Austria									
961	M	27 Mar 2018	898	881	VIENNA	27 Mar 2018	11589	Birth	
962	F	27 Mar 2018	898	881	VIENNA	27 Mar 2018	11590	Birth	
Totals: 1.1.0 (2)									
TOTALS: 3.2.2 (7)									
4 Institutions									

Deaths

In 2017 there were 0.3.1 (4) deaths in 4 institutions, one of which was a neonate and one was over 16 years old.

AMUR / FAR EASTERN LEOPARD Studbook
 Restricted to: (Panthera pardus orientalis)
 Dates: 1 Jan 2017 - 31 Dec 2017
 Event: Deaths
 Association: \Sparks\AMLEPEEP.fed
 Report ordered by: current/last location (alphabetic)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
-------	-----	------------	------	-----	----------	------	---------	-------	------

AYWAILLE - Monde Sauvage Safari Sprl, Aywaille, Liège, Belgium									
627	F	22 Oct 2004	312	358	CHARD	22 Oct 2004	Z619	Birth	LILLY
					AYWAILLE	20 Aug 2008	080065	Transfer	
						5 Jan 2017		Death	
[Death by: Euthanasia (medical) Unknown No necropsy planned Necropsy not received]									

Totals: 0.1.0 (1)

ESKILSTUN - Parken Zoo I Eskilstuna Ab, Eskilstuna, Södermanlands Län, Sweden									
916	F	12 Mar 2016	705	771	ESKILSTUN	12 Mar 2016	3161	Birth	Seja
						9 Oct 2017		Death	
[Death by: Unknown means]									

Totals: 0.1.0 (1)

HELSINKI - Helsinki Zoo, Helsinki, Etelä-Suomen Lääni, Finland									
536	F	19 May 2001	211	422	OLOMOUC	19 May 2001	5498	Birth	STINA
					HELSINKI	13 Mar 2002	202020	Transfer	
						18 Oct 2017		Death	
[Death by: Unknown means]									

Totals: 0.1.0 (1)

YARMOUTH - Thrigby Hall Wildlife Gardens, Great Yarmouth, Norfolk, United Kingdom									
947	?	21 Apr 2017	654	853	YARMOUTH	21 Apr 2017		Birth	
						21 Apr 2017		Death	
[Death by: Injury from exhibit mate Unknown No necropsy planned Necropsy not received]									

Totals: 0.0.1 (1)

TOTALS: 0.3.1 (4)

4 Institutions

In 2018 to date there have been 2.1.0 (3) deaths in 2 institutions, all of which were over 17 years old.

AMUR / FAR EASTERN LEOPARD Studbook
 Restricted to: (Panthera pardus orientalis)
 Dates: 1 Jan 2018 - 16 Dec 2018
 Event: Deaths
 Association: \Sparks\AMLEPEEP.fed
 Report ordered by: current/last location (alphabetic)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
AYWAILLE - Monde Sauvage Safari Sprl, Aywaille, Liège, Belgium									
359	M	12 Jun 1994	134	170	AGRATE	12 Jun 1994	875	Birth	Mickey
					MONTPELLI	13 Apr 1995	M95003	Transfer	
					AYWAILLE	16 Jul 2005	050071	Transfer	
						13 Mar 2018		Death	
[Death by: Unknown means]									

Totals: 1.0.0 (1)

COPENHAGE - Copenhagen Zoo, Frederiksberg, Region Hovedstaden, Denmark									
520	M	13 Nov 2000	312	358	CHARD	13 Nov 2000	286	Birth	CAIUS
					COPENHAGE	21 Jun 2002	PAN015	Transfer	
						17 Sep 2018		Death	
[Death by: Euthanasia (medical) Unknown No necropsy planned Necropsy not received]									
548	F	15 Jul 2001	164	203	FRANKFURT	15 Jul 2001	40291	Birth	HAILAR
					COPENHAGE	19 Jul 2002	PAN016	Transfer	
						17 Sep 2018		Death	
[Death by: Euthanasia (medical) Unknown No necropsy planned Necropsy not received]									

Totals: 1.1.0 (2)

TOTALS: 2.1.0 (3)
 2 Institutions

Transfers

In 2017 there were 3.3.0 (6) leopards transferred either within the EEP or as part of GSMP recommendations. These included 1.2.0 going to the SSP and a male going to Japan to join the JSMP. VIENNA also joined as a new holder.

AMUR / FAR EASTERN LEOPARD Studbook
 Restricted to: (Panthera pardus orientalis)
 Dates: 1 Jan 2017 - 31 Dec 2017
 Event: Transfers
 Association: \Sparks\AL_GSMP.fed
 Report ordered by: current/last location (alphabetic)

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
COLO SPRG - Cheyenne Mtn Zoological Park, Colorado Springs, Colorado, United States									
896	M	28 Jun 2015	756	821	BRANTON	28 Jun 2015	LEO007	Birth	Anadyr
					COLO SPRG	4 May 2017	M025	Transfer	

Totals: 1.0.0 (1)

GRANBY - Zoo De Granby, Granby, Quebec, Canada									
893	F	18 May 2015	718	692	HELSINKI	18 May 2015	215037	Birth	Hope
					GRANBY	9 May 2017	M15047	Transfer	

Totals: 0.1.0 (1)

TOBU - Tobu Zoological Park, Minamisaitama-Gun, Saitama, Japan

618	M	18 Jun 2004	450	444	YARMOUTH	18 Jun 2004		Birth	ABUS
					ROTTERDAM	13 Jul 2006	107435	Transfer	
					IEPER	17 Jun 2014	M00501	Transfer	
					TOBU	15 Jun 2017		Transfer	

Totals: 1.0.0 (1)

VIENNA - Sch"nbrunner Tiergarten GmbH, Vienna, Wien, Austria

898	M	14 Jul 2015	653	819	MOSCOW	14 Jul 2015	150395	Birth	
					VIENNA	19 Apr 2017	11232	Transfer	

Totals: 1.0.0 (1)

VLAD-ZOO - Safari-Park Shkotovo, Vladivostok, Russia

891	F	28 Apr 2015	760	765	NIKOLAEV	28 Apr 2015	N128	Birth	Rona
					VLAD-ZOO	14 Oct 2017		Transfer	

Totals: 0.1.0 (1)

W ORANGE - Turtle Back Zoo, West Orange, New Jersey, United States

874	F	21 Jun 2014	705	771	ESKILSTUN	21 Jun 2014	3081	Birth	Olga
					W ORANGE	8 Aug 2017	2191	Transfer	

Totals: 0.1.0 (1)

TOTALS: 3.3.0 (6)

6 Institutions

=====

In 2018 to date there have been 9.3.0 (12) leopards transferred within the EEP. This includes two males going from NOVOSIBRK to SEOUL who have joined the programme as a non-EAZA EEP participant. ASCHERSLE and COMBE MAR have also joined as non-EAZA EEP participants and LYPNPE is another new participant in this programme.

AMUR / FAR EASTERN LEOPARD Studbook
 Restricted to: (Panthera pardus orientalis)
 Dates: 1 Jan 2018 - 16 Dec 2018
 Event: Transfers
 Association: \Sparks\AL_GSMP.fed
 Report ordered by: current/last location (alphabetic)

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Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
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ASCHERSLE - Tiergarten Aschersleben, Aschersleben, Sachsen-Anhalt, Germany

938	M	22 Mar 2017	644	839	LEIPZIG	22 Mar 2017	M10787	Birth	
					ASCHERSLE	4 Sep 2018		Transfer	
939	M	22 Mar 2017	644	839	LEIPZIG	22 Mar 2017	M10788	Birth	
					ASCHERSLE	4 Sep 2018		Transfer	

Totals: 2.0.0 (2)

AYWAILLE - Monde Sauvage Safari Sprl, Aywaille, Liège, Belgium

895	M	28 Jun 2015	756	821	BRANTON	28 Jun 2015	LEO006	Birth	Teva
					AYWAILLE	25 Jun 2018		Transfer	

Totals: 1.0.0 (1)

COLCHESTR - Colchester Zoo, Stanway, Essex, United Kingdom

922	F	20 May 2016	741	820	IEPER	20 May 2016	M00549	Birth	Esra
					COLCHESTR	29 May 2018	DL1724	Transfer	
933	M	21 Oct 2016	533	559	OLOMOUC	21 Oct 2016	8606	Birth	Crispin
					COLCHESTR	28 Apr 2018	DLL171	Transfer	

Totals: 1.1.0 (2)

COMBE MAR - Combe Martin Wildlife & Dinosaur Park, Combe Martin, Devon, United Kingdom
 925 M 25 Jun 2016 535 720 MARWELL 25 Jun 2016 9720 Birth Anik
 COMBE MAR 21 Nov 2018 Transfer

928 M 25 Jun 2016 535 720 MARWELL 25 Jun 2016 9733 Birth Kazimir
 COMBE MAR 21 Nov 2018 Transfer

Totals: 2.0.0 (2)

COPENHAGE - Copenhagen Zoo, Frederiksberg, Region Hovedstaden, Denmark
 921 F 20 May 2016 741 820 IEPER 20 May 2016 M00548 Birth Zyra
 COPENHAGE 8 Oct 2018 PAN036 Transfer

Totals: 0.1.0 (1)

LYMPNE - Port Lympne Wild Animal Park, Hythe, Kent, United Kingdom
 648 F 6 Sep 2005 535 299 MARWELL 6 Sep 2005 7212 Birth MILENA
 COLCHESTR 19 Oct 2006 CLL074 Transfer
 LYPNE 17 Apr 2018 P21809 Transfer

706 M 29 May 2007 555 587 MULHOUSE 29 May 2007 M07075 Birth SAYAN
 COLCHESTR 6 Jun 2009 CLL605 Transfer
 LYPNE 17 Apr 2018 P21808 Transfer

Totals: 1.1.0 (2)

SEOUL - Seoul Zoo, Gwacheon-Si, Gyeonggido, Korea, Republic Of
 919 M 1 May 2016 763 783 NOVOSIBRK 1 May 2016 058057 Birth
 SEOUL 7 Jun 2018 M77418 Transfer

920 M 1 May 2016 763 783 NOVOSIBRK 1 May 2016 058058 Birth
 SEOUL 7 Jun 2018 M77419 Transfer

Totals: 2.0.0 (2)

TOTALS: 9.3.0 (12)
 7 Institutions

Current population status

The EEP population currently stands at 63.52.2 (117) Amur leopards in 45 institutions. The population is descended from 14 founders (up by one following the birth of cubs sired by the wild-caught male at Moscow) and the gene diversity stands at 0.9042 with mean inbreeding of 0.0592. The potential breeding population stands at 58.47.2 (107) with the remaining animals excluded for reasons such as old age, health or behavioural issues etc. Please see below the current mean kinship rankings. The red lines indicate the level of average mean kinship. Ideally we would only breed animals that are higher than this line but there are sometimes extenuating factors which need to be taken into account, leading to animals being bred from even if they are ranking lower than this line.

ISB	Age	Location	MK	MK	ISB	Age	Location
924	4	MOSCOW	1	1	580	16	USTI
963	0	MOSCOW	2	2	655	13	ROTTERDAM
964	0	MOSCOW	2	3	839	5	LEIPZIG
575	16	HEADCORN	4	3	881	3	VIENNA
933	2	COLCHESTR	5	5	854	5	OLOMOUC
654	13	YARMOUTH	6	6	692	11	HELSINKI
760	8	NIKOLAEV	7	6	739	9	HUNBSTRND
653	13	MOSCOW	8	8	815	7	ROSTOV
584	15	WALTER	9	9	675	12	SEVERSK Z
733	10	HEADCORN	10	10	649	12	NESLES
697	11	KALININGR	11	11	643	13	HEADCORN
741	9	IEPER	12	12	771	8	ESKILSTUN
738	9	LYON	13	13	745	14	LIPEZK
938	1	ASCHERSLE	14	14	816	7	TWYCROSS
939	1	ASCHERSLE	14	15	962	0	VIENNA
656	13	LIPEZK	16	16	891	3	VLAD-ZOO
602	15	ZELENOGOR	16	17	902	3	KHABAROV
677	12	ZELENOGOR	16	18	953	1	YARMOUTH
879	4	MOSCOW	19	18	954	1	YARMOUTH
663	13	MINSK ZOO	20	18	955	1	YARMOUTH
664	13	SEVERSK Z	20	21	574	16	MOSCOW
744	14	SEVERSK Z	20	22	775	8	AGRATE
740	9	ROEVUCHI	23	23	849	5	LES SABLE
961	0	VIENNA	24	24	770	8	LYON
676	12	KHABAROV	25	25	922	2	COLCHESTR
814	7	ROSTOV	26	25	921	2	COPENHAGE
644	13	LEIPZIG	27	27	659	13	NOVOSIBRK
890	3	NIKOLAEV	28	28	859	4	ROEVUCHI
901	3	KISHINEV	29	28	860	4	TALLIN
586	15	ANTWERP	30	30	926	2	TWYCROSS
824	6	PRAHA	31	30	927	2	TWYCROSS
768	8	NOVOSIBRK	32	32	711	11	DORTMUND
555	16	MULHOUSE	33	32	648	13	LYMPNE
682	11	AGRATE	34	34	821	6	BRANTON
698	11	HEADCORN	35	35	861	4	KINGUSSIE

898	3	VIENNA	36	36	765	8	NIKOLAEV
914	2	ESKILSTUN	37	37	820	6	IEPER
915	2	ESKILSTUN	37	37	720	10	MARWELL
706	11	LYMPNE	39	39	559	16	OLOMOUC
862	4	TALLIN	40	40	853	4	YARMOUTH
852	4	VLAD-ZOO	41	41	762	8	PRAHA
900	3	AGRATE	42	42	699	11	MULHOUSE
785	7	AGRATE	43	43	819	6	MOSCOW
718	10	HELSINKI	43	44	877	4	KISHINEV
858	4	KINGUSSIE	43	45	969	0	NOVOSIBRK
683	11	TWYXCROSS	46	46	783	7	NOVOSIBRK
925	2	COMBE MAR	47	47	615	14	TALLIN
928	2	COMBE MAR	47				
705	11	ESKILSTUN	49				
763	8	NOVOSIBRK	50				
757	8	HUNBSTRND	51				
758	8	LES SABLE	51				
778	8	ROTTERDAM	53				
756	8	BRANTON	54				
895	3	AYWAILLE	55				
919	2	SEOUL	56				
920	2	SEOUL	56				
579	15	USTI	58				

Transfer recommendations

We are still trying to place some young leopards and there are some pending transfers as well as new transfer recommendations. We will also be trying to create new pairings over the next few months. If you are expecting to move or receive a leopard and you are not mentioned in the table below please do not worry as further recommendations will be made. Please contact us if you have a specific query relating to your own institution. As you can see there are several proposed transfers to north America which have been made as part of the GSMP.

Transfer recommendations 2018/19:

ISB#	Origin	Sex	Year born	Destination	Notes
741	Ieper	M	2009	Rotterdam	For breeding, needs to be discussed
914	Parken	M	2016	Dortmund	Transfer has been delayed
926	Twycross	F	2016	Memphis	Arrangements are being made
927	Twycross	F	2016	Granby	This may need to be changed due to timescales involved
654	Yarmouth	M	2005	Nordens Ark	For breeding, needs to be discussed
953	Yarmouth	F	2017	Toledo	Arrangements are being made
954	Yarmouth	F	2017	Minnesota	Arrangements are being made
961	Vienna	M	2018	Toledo	Arrangements are being made
778	Rotterdam	M	2010	Sibiu	Arrangements are being made

Whilst there are still a number of young leopards needing to be placed, it is important that we ensure we have a certain number of births to keep the population demographically healthy. We are therefore lifting the temporary breeding halt and issuing a small number of breeding recommendations for this season. Some of these need to be discussed with the institutions involved as they involve transferring animals. If there had not been unrecommended litters at VIENNA and NOVOSIBRK it is likely there would have been a higher number of breeding recommendations given this year.

Male	Female	lbc cubs	Founder 2 cubs	Location	Notes
654	739	0.0353	14.07	Nordens Ark	Would require male to be transferred first. Needs to be discussed with both zoos
575	643	0.0671	22.36	Headcorn	Female getting old so last opportunity for her. Founder 2 of cubs higher than desired but would pair accordingly.
933	922	0.0668	11.88	Colchester	New young pairing
741	655	0.0445	12.53	Rotterdam	Would require male to be transferred first. Needs to be discussed with both zoos
924	????			Moscow	Need a new female for him once space is available

Living by location December 2018

Stud#	Sex	Birth Date	Sire	Dam	Location	Date	LocalID	Event	Name
AGRATE - Parco Faunistico La Torbiera, Agrade Conturbia No, Piemonte, Italy									
682	M	27 Nov 2006	561	560	TWYCROSS	27 Nov 2006	4958	Birth	CALVIN
					AGRATE	12 Mar 2008	1575	Transfer	
775	F	13 Jun 2010	682	678	AGRATE	13 Jun 2010	1615	Birth	
785	M	14 Apr 2011	384	615	TALLIN	14 Apr 2011	18151	Birth	BARUTO
					AGRATE	17 Oct 2012	1672	Transfer	
900	M	16 Jun 2015	785	775	AGRATE	16 Jun 2015	1730	Birth	
Totals: 3.1.0 (4)									

ANTWERP - Zoo of Antwerp, Antwerp, Antwerpen, Belgium

586	M	17 May 2003	164	203	FRANKFURT	17 May 2003	41156	Birth	JAROLIM
					ANTWERP	7 Oct 2004	M10632	Transfer	

Totals: 1.0.0 (1)

ASCHERSLE - Tiergarten Aschersleben, Aschersleben, Sachsen-Anhalt, Germany

938	M	22 Mar 2017	644	839	LEIPZIG	22 Mar 2017	M10787	Birth	
					ASCHERSLE	4 Sep 2018		Transfer	
939	M	22 Mar 2017	644	839	LEIPZIG	22 Mar 2017	M10788	Birth	
					ASCHERSLE	4 Sep 2018		Transfer	

Totals: 2.0.0 (2)

AYWAILLE - Monde Sauvage Safari Sprl, Aywaille, Liège, Belgium

895	M	28 Jun 2015	756	821	BRANTON	28 Jun 2015	LEO006	Birth	Teva
					AYWAILLE	25 Jun 2018		Transfer	

Totals: 1.0.0 (1)

BRANTON - Yorkshire Wildlife Park, Branton Doncaster, South Yorkshire, United Kingdom

756	M	10 Dec 2009	555	699	MULHOUSE	10 Dec 2009	M09115	Birth	Drake
					BRANTON	1 May 2011	LEO002	Transfer	
821	F	13 Apr 2012	384	615	TALLIN	13 Apr 2012	18663	Birth	Freya
					BRANTON	20 Jun 2014	LEO004	Transfer	

Totals: 1.1.0 (2)

COLCHESTR - Colchester Zoo, Stanway, Essex, United Kingdom

922	F	20 May 2016	741	820	IEPER	20 May 2016	M00549	Birth	Esra
					COLCHESTR	29 May 2018	DL1724	Transfer	
933	M	21 Oct 2016	533	559	OLOMOUC	21 Oct 2016	8606	Birth	Crispin
					COLCHESTR	28 Apr 2018	DLL171	Transfer	

Totals: 1.1.0 (2)

COMBE MAR - Combe Martin Wildlife & Dinosaur Park, Combe Martin, Devon, United Kingdom

925	M	25 Jun 2016	535	720	MARWELL	25 Jun 2016	9720	Birth	Anik
					COMBE MAR	21 Nov 2018		Transfer	
928	M	25 Jun 2016	535	720	MARWELL	25 Jun 2016	9733	Birth	Kazimir
					COMBE MAR	21 Nov 2018		Transfer	

Totals: 2.0.0 (2)

COPENHAGE - Copenhagen Zoo, Frederiksberg, Region Hovedstaden, Denmark

921	F	20 May 2016	741	820	IEPER	20 May 2016	M00548	Birth	Zyra
					COPENHAGE	8 Oct 2018	PAN036	Transfer	

Totals: 0.1.0 (1)

DORTMUND - Zoo Dortmund, Dortmund, Nordrhein-Westfalen, Germany

711	F	18 Nov 2007	535	299	MARWELL	18 Nov 2007	7982	Birth	KISKA
					DORTMUND	29 Sep 2009	052549	Transfer	

Totals: 0.1.0 (1)

ESKILSTUN - Parken Zoo I Eskilstuna Ab, Eskilstuna, Södermanlands Län, Sweden

705	M	29 May 2007	555	587	MULHOUSE	29 May 2007	M07074	Birth	BORIS
					ESKILSTUN	10 Apr 2008	1882	Transfer	
771	F	24 Jun 2010	644	655	LEIPZIG	24 Jun 2010	M09522	Birth	TAKARA
					ESKILSTUN	20 May 2011	2178	Transfer	
914	M	12 Mar 2016	705	771	ESKILSTUN	12 Mar 2016	3159	Birth	Igor
915	M	12 Mar 2016	705	771	ESKILSTUN	12 Mar 2016	3160	Birth	Zino

Totals: 3.1.0 (4)

HEADCORN - Wildlife Heritage Foundation, Smarden Ashford, United Kingdom

575	M	14 Sep 2002	204	356	NOVOSIBRK	14 Sep 2002	058033	Birth	ARTUR
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					HEADCORN	3 Mar 2004	WHF006	Transfer	
643	F	8 Jun 2005	344	536	HELSINKI	8 Jun 2005	205049	Birth	XYLOFONI
					HEADCORN	1 Mar 2007	WHF026	Transfer	
698	M	30 May 2007	533	422	OLOMOUC	30 May 2007	6644	Birth	HOGAR
					HEADCORN	11 Jul 2011	WHF062	Transfer	
733	M	12 Oct 2008	575	643	HEADCORN	12 Oct 2008	WHF042	Birth	ARGUN
Totals: 3.1.0 (4)									

HELSINKI - Helsinki Zoo, Helsinki, Etelä-Suomen Lääni, Finland

692	F	12 Apr 2007	344	536	HELSINKI	12 Apr 2007	207018	Birth	ZANE
					EDINBURGH	22 Jan 2009	M09A10	Transfer	
					HELSINKI	25 Feb 2014	207018	Transfer	
718	M	15 May 2008	384	615	TALLIN	15 May 2008	16895	Birth	TOOMAS
					HELSINKI	25 Mar 2010	210002	Transfer	
Totals: 1.1.0 (2)									

HUNBSTRND - Nordens Ark, Hunnebostrand, Västergötlands Län, Sweden

739	F	26 Apr 2009	344	536	HELSINKI	26 Apr 2009	209012	Birth	BIRA
					HUNBSTRND	29 Apr 2010	210006	Transfer	
757	M	10 Dec 2009	555	699	MULHOUSE	10 Dec 2009	M09116	Birth	Denzel
					BRANTON	1 May 2011	LEO003	Transfer	
					HUNBSTRND	12 May 2014	214009	Transfer	
Totals: 1.1.0 (2)									

IEPER - Bellewaerde, Ieper Zillebeke, West-Vlaanderen, Belgium

741	M	3 May 2009	579	580	USTI	3 May 2009	UL1120	Birth	KITAN
					HUNBSTRND	22 May 2010	210013	Transfer	
					IEPER	11 May 2014	M00500	Transfer	
820	F	13 Apr 2012	384	615	TALLIN	13 Apr 2012	18662	Birth	VLADA
					IEPER	19 Aug 2014	M00502	Transfer	
Totals: 1.1.0 (2)									

KALININGR - Kaliningrad Zoo, Kaliningrad, Kaliningradskaya Obl, Russian Federation

697	M	29 May 2007	327	574	MOSCOW	29 May 2007	70259	Birth	Khan
					KALININGR	4 Jul 2014	800040	Transfer	
Totals: 1.0.0 (1)									

KHABAROV - Khabarovsk Zoo Park, Khabarovsk, Khabarovskiy, Russian Federation

676	M	5 Jul 2006	271	480	SEVERSK Z	5 Jul 2006	260002	Birth	DANIL
					NOVOSIBRK	1 Nov 2006	058041	Transfer	
					KHABAROV	~ 2016		Transfer	
902	F	1 Jul 2015	814	815	ROSTOV	1 Jul 2015		Birth	
					KHABAROV	20 Oct 2016		Transfer	
Totals: 1.1.0 (2)									

KINGUSSIE - Highland Wildlife Park, Kingussie, Highland, United Kingdom

858	M	3 Apr 2014	384	615	TALLIN	3 Apr 2014	19511	Birth	Freddo
					KINGUSSIE	29 Jul 2016	5981	Transfer	
861	F	2 Jun 2014	683	816	TWYCROSS	2 Jun 2014	6994	Birth	Arina
					KINGUSSIE	2 Mar 2016	5925	Transfer	
968	?	17 Jun 2018	858	861	KINGUSSIE	17 Jun 2018	6102	Birth	
970	?	17 Jul 2018	858	861	KINGUSSIE	17 Jul 2018	6108	Birth	
Totals: 1.1.2 (4)									

KISHINEV - Kishinev Zoopark, Chisinau, Moldova

877	F	26 May 2014	768	783	NOVOSIBRK	26 May 2014	058056	Birth	Mariuka
					KISHINEV	27 Aug 2015	M14037	Transfer	

901	M	1 Jul 2015	814	815	ROSTOV	1 Jul 2015		Birth	Emir
					KISHINEV	24 Dec 2016	M15035	Transfer	

Totals: 1.1.0 (2)

LEIPZIG - Zoo Leipzig, Leipzig, Sachsen, Germany

644	M	8 Jun 2005	344	536	HELSINKI	8 Jun 2005	205050	Birth	XEMBALO
					LEIPZIG	7 Feb 2007	M08954	Transfer	
839	F	15 Feb 2013	533	559	OLOMOUC	15 Feb 2013	7860	Birth	Mia
					LEIPZIG	2 Jun 2014	M10262	Transfer	

Totals: 1.1.0 (2)

LES SABLE - Zoo Des Sables D'Olonne, Les Sables D'Olonne, Vendée, France

758	M	10 Dec 2009	555	699	MULHOUSE	10 Dec 2009	M09117	Birth	Dimitri
					BRANTON	1 May 2011	LEO001	Transfer	
					LES SABLE	2 Apr 2014	09PPC0	Transfer	
849	F	21 Aug 2013	738	770	LYON	21 Aug 2013	L13041	Birth	Chilka
					LES SABLE	11 Mar 2015	13PP02	Transfer	

Totals: 1.1.0 (2)

LIPEZK - Lipetsk Zoopark, Lipetsk, Lipetskaya Oblast', Russian Federation

656	M	18 May 2005	271	480	SEVERSK Z	18 May 2005	250005	Birth	
					NOVOSIBRK	31 Aug 2005	058040	Transfer	
					LIPEZK	19 Oct 2006		Transfer	
745	F	24 Sep 2004	274	500	ROEVUCHI	24 Sep 2004	941344	Birth	SELLI
					LIPEZK	15 Nov 2005		Transfer	
777	M	4 Jul 2010	656	745	LIPEZK	4 Jul 2010		Birth	

Totals: 2.1.0 (3)

LYMPNE - Port Lympe Wild Animal Park, Hythe, Kent, United Kingdom

648	F	6 Sep 2005	535	299	MARWELL	6 Sep 2005	7212	Birth	MILENA
					COLCHESTR	19 Oct 2006	CLL074	Transfer	
					LYMPNE	17 Apr 2018	P21809	Transfer	
706	M	29 May 2007	555	587	MULHOUSE	29 May 2007	M07075	Birth	SAYAN
					COLCHESTR	6 Jun 2009	CLL605	Transfer	
					LYMPNE	17 Apr 2018	P21808	Transfer	

Totals: 1.1.0 (2)

LYON - Jardin Zoologique De La Ville De Lyon, F-69205 Lyon Cedex 0, Rhône, France

738	M	26 Apr 2009	344	536	HELSINKI	26 Apr 2009	209013	Birth	Busse
					LYON	3 Jun 2010	L10009	Transfer	
770	F	21 May 2010	410	649	NESLES	21 May 2010	B10033	Birth	Kahla
					LYON	6 Sep 2011	L11096	Transfer	

Totals: 1.1.0 (2)

MARWELL - Marwell Wildlife, Winchester, Hampshire, United Kingdom

535	M	19 May 2001	211	422	OLOMOUC	19 May 2001	5497	Birth	AKIN
					MARWELL	29 Apr 2002	5811	Loan to	
720	F	15 May 2008	384	615	TALLIN	15 May 2008	16894	Birth	KAIA
					MARWELL	17 Nov 2009	8581	Transfer	

Totals: 1.1.0 (2)

MINSK ZOO - Minskii Zoopark (Minsk Zoo), Minsk, Minskaya Voblasts', Belarus

663	M	9 Aug 2005	274	500	ROEVUCHI	9 Aug 2005		Birth	Leo
					MINSK ZOO	~ Sep 2006	115	Transfer	

Totals: 1.0.0 (1)

MOSCOW - Moscow Zoological Park, Moscow, Moskovskaya Oblast', Russian Federation

327	M	17 May 1993	135	167	MOSCOW	17 May 1993	930183	Birth	Harbin
					KAZAN	9 Aug 1994	160249	Transfer	
					MOSCOW	28 Jan 2005	930183	Transfer	

574	F	24 Aug 2002	204	298	NOVOSIBRK MOSCOW	24 Aug 2002 23 Apr 2003	058032 30260	Birth Transfer	IZOLDA
653	M	21 Oct 2005	216	562	BERLIN TP MOSCOW	21 Oct 2005 29 Jun 2006	M03102 60228	Birth Transfer	BRATWAG
819	F	13 Apr 2012	384	615	TALLIN MOSCOW	13 Apr 2012 26 Nov 2013	18661 130861	Birth Transfer	Akra
842	M	23 May 2013	814	574	MOSCOW	23 May 2013	130130	Birth	
879	M	23 Aug 2014	653	574	MOSCOW	23 Aug 2014	140525	Birth	
924	M	~ Apr 2014	WILD	WILD	PRIMORSKI MOSCOW	~15 Jun 2015 20 Jun 2016	LEO80M 160247	Capture Transfer	NIKOLAY
963	M	5 Jun 2018	924	819	MOSCOW	5 Jun 2018	180321	Birth	
964	M	5 Jun 2018	924	819	MOSCOW	5 Jun 2018	180294	Birth	
Totals: 7.2.0 (9)									

MULHOUSE - Parc Zoologique Et Botanique Mulhouse, Mulhouse, Haut-Rhin, France

555	M	1 May 2002	216	278	BERLIN TP MULHOUSE	1 May 2002 17 Jul 2003	M01927 M03114	Birth Transfer	BAYAN
699	F	30 May 2007	533	422	OLOMOUC MULHOUSE	30 May 2007 24 Nov 2008	6645 M08101	Birth Loan to	ELIXA
Totals: 1.1.0 (2)									

NESLES - Le Parc Des Felins, Lumigny-Nesles-Ormea, Paris, France

589	neutF	2 Jan 2003	284	299	BURFORD NESLES	2 Jan 2003 23 May 2013	MM670 A13004	Birth Transfer	AMARA
649	F	18 Apr 2006	579	580	USTI NESLES	18 Apr 2006 21 Aug 2008	UL0547 A08012	Birth Transfer	KAILA
Totals: 0.2.0 (2)									

NIKOLAEV - Nikolaev Zoo of Nikolaev-City Council, Nikolaev, Mykola<vs'Ka Oblast', Ukraine

760	M	13 Jan 2010	533	559	OLOMOUC NIKOLAEV	13 Jan 2010 19 Dec 2011	7155 411028	Birth Transfer	RAYO
765	F	5 May 2010	676	659	NOVOSIBRK NIKOLAEV	5 May 2010 3 Mar 2012	058049 412002	Birth Transfer	
890	M	28 Apr 2015	760	765	NIKOLAEV	28 Apr 2015	N129	Birth	
Totals: 2.1.0 (3)									

NOVOSIBRK - Novosibirsk Zoological Park, Novosibirsk, Novosibirskaya Oblas, Russian Federation

659	F	12 Oct 2005	533	422	OLOMOUC NOVOSIBRK	12 Oct 2005 27 Mar 2007	6367 058042	Birth Transfer	RADA
763	M	5 Apr 2010	384	615	TALLIN NOVOSIBRK	5 Apr 2010 20 Feb 2013	17786 050055	Birth Transfer	HASAN
768	M	21 May 2010	410	649	NESLES NOVOSIBRK	21 May 2010 19 Jul 2012	B10031 058052	Birth Transfer	Kadron
783	F	14 Mar 2011	555	699	MULHOUSE NOVOSIBRK	14 Mar 2011 11 Jul 2011	M11023 058051	Birth Transfer	KATHANGA
969	F	20 May 2018	763	783	NOVOSIBRK	20 May 2018	058059	Birth	
Totals: 2.3.0 (5)									

OLOMOUC - Zoologická Zahrada Olomouc, Olomouc-Svaty Kopece, Olomoucki Kraj, Czech Republic

533	M	11 Mar 2001	193	376	PRAHA LIBEREC PRAHA OLOMOUC PRAHA OLOMOUC PRAHA	11 Mar 2001 14 Aug 2002 8 Oct 2003 19 Jan 2005 11 Mar 2008 2 Oct 2009 10 Feb 2010	10018 10018 6208 10018 6208 10018	Birth Transfer Transfer Loan to Transfer Transfer Transfer	EDWARD
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				OLOMOUC	3 Aug 2011	6208	Loan to	
559	F	26 May 2002	211	422 OLOMOUC	26 May 2002	5692	Birth	NATY
854	F	25 Aug 2013	579	580 USTI	25 Aug 2013	UL2184	Birth	Suyana
				OLOMOUC	28 Apr 2015	8316	Transfer	
Totals: 1.2.0 (3)								

PRAHA - The Prague Zoological Garden, Praha, Praha Hlavní Město, Czech Republic								
762	F	5 Apr 2010	384	615 TALLIN	5 Apr 2010	17785	Birth	HANKA
				PRAHA	27 Oct 2011	110490	Transfer	
824	M	22 May 2012	698	643 HEADCORN	22 May 2012	WHF076	Birth	Manchurian
				PRAHA	3 Mar 2016	160101	Transfer	
Totals: 1.1.0 (2)								

ROEVRUCHI - Municipal Independent Org "roev Ruchei, Krasnoyarsk, Krasnoyarskiy Kray, Russian Federation								
740	M	3 May 2009	579	580 USTI	3 May 2009	UL1121	Birth	KIRIN
				PRAHA	4 Aug 2010	100201	Transfer	
				ROEVRUCHI	9 Aug 2016	261	Transfer	
859	F	3 Apr 2014	384	615 TALLIN	3 Apr 2014	19512	Birth	
				ROEVRUCHI	24 Aug 2016		Transfer	
Totals: 1.1.0 (2)								

ROSTOV - Rostov-on-Don Zoo, Rostov-on-Don, Rostovskaya Oblast', Russian Federation								
814	M	12 Aug 2011	653	574 MOSCOW	12 Aug 2011	110472	Birth	
				ROSTOV	5 Apr 2014		Transfer	
815	F	6 Sep 2011	579	580 USTI	6 Sep 2011	UL1804	Birth	
				ROSTOV	6 Jun 2013		Transfer	
Totals: 1.1.0 (2)								

ROTTERDAM - Rotterdam Zoo, Rotterdam, Zuid-Holland, Netherlands								
655	F	21 Oct 2005	216	562 BERLIN TP	21 Oct 2005	M03104	Birth	VATNE
				LEIPZIG	1 Mar 2007	M08963	Transfer	
				ROTTERDAM	2 Jul 2014	Z14255	Transfer	
778	M	16 Sep 2010	718	536 HELSINKI	16 Sep 2010	210064	Birth	CEMA
				ANTWERP	20 Nov 2012	M11197	Transfer	
				ROTTERDAM	10 Jun 2013	Z13110	Transfer	
Totals: 1.1.0 (2)								

SEOUL - Seoul Zoo, Gwacheon-Si, Gyeonggido, Korea, Republic Of								
919	M	1 May 2016	763	783 NOVOSIBRK	1 May 2016	058057	Birth	
				SEOUL	7 Jun 2018	M77418	Transfer	
920	M	1 May 2016	763	783 NOVOSIBRK	1 May 2016	058058	Birth	
				SEOUL	7 Jun 2018	M77419	Transfer	
Totals: 2.0.0 (2)								

SEVERSK Z - Seversk Wildlife Park, Seversk, Tomskaya Oblast', Russian Federation								
480	F	18 Jun 1998	204	356 NOVOSIBRK	18 Jun 1998	058018	Birth	ADEL
				SEVERSK Z	31 Mar 2000	200008	Transfer	
664	M	9 Aug 2005	274	500 ROEVRUCHI	9 Aug 2005		Birth	
				SEVERSK Z	12 Apr 2006	260001	Transfer	
675	F	5 Jul 2006	271	480 SEVERSK Z	5 Jul 2006	260003	Birth	BRITNI
744	M	24 Sep 2004	274	500 ROEVRUCHI	24 Sep 2004	941343	Birth	
				SEVERSK Z	10 Dec 2004		Transfer	
Totals: 2.2.0 (4)								

TALLIN - Tallinn Zoo, Tallinna Loomaaed, Estonia								
615	F	17 Apr 2004	216	278 BERLIN TP	17 Apr 2004	M02551	Birth	DARLA

					TALLIN	30 Nov 2005	15941	Transfer	
860	F	3 Apr 2014	384	615	TALLIN	3 Apr 2014	19513	Birth	
862	M	2 Jun 2014	683	816	TWYCROSS	2 Jun 2014	6995	Birth	Alexei
					TALLIN	1 Aug 2016	20759	Transfer	
Totals: 1.2.0 (3)									

TWYCROSS - Twycross Zoo, Atherstone, Warwickshire, United Kingdom									
683	M	27 Nov 2006	561	560	TWYCROSS	27 Nov 2006	4959	Birth	DAVIDOFF
816	F	6 Sep 2011	579	580	USTI	6 Sep 2011	UL1805	Birth	Kristen
					TWYCROSS	7 Feb 2013	6619	Transfer	
926	F	28 Jun 2016	683	816	TWYCROSS	28 Jun 2016	7332	Birth	Kira
927	F	28 Jun 2016	683	816	TWYCROSS	28 Jun 2016	7333	Birth	Samara
Totals: 1.3.0 (4)									

USTI - Usti Nad Labem Zoo, Usti Nad Labem, est; Nad Labem, Czech Republic									
579	M	12 Apr 2003	450	444	YARMOUTH	12 Apr 2003		Birth	RUSHER
					USTI	8 Jun 2005	UL0532	Transfer	
580	F	12 Nov 2002	211	376	USTI	12 Nov 2002	UL0356	Birth	KIARA
					PRAHA	18 Oct 2004	240440	Transfer	
					USTI	28 Apr 2005	UL0356	Transfer	
Totals: 1.1.0 (2)									

VIENNA - Sch"nbrunner Tiergarten GmbH, Vienna, Wien, Austria									
881	F	26 Jan 2015	533	559	OLOMOUC	26 Jan 2015	8260	Birth	Ida
					VIENNA	25 May 2016	8260	Transfer	
898	M	14 Jul 2015	653	819	MOSCOW	14 Jul 2015	150395	Birth	
					VIENNA	19 Apr 2017	11232	Transfer	
961	M	27 Mar 2018	898	881	VIENNA	27 Mar 2018	11589	Birth	
962	F	27 Mar 2018	898	881	VIENNA	27 Mar 2018	11590	Birth	
Totals: 2.2.0 (4)									

VLAD-ZOO - Safari-Park Shkotovo, Vladivostok, Russia									
852	M	25 Nov 2013	740	762	PRAHA	25 Nov 2013	130463	Birth	
					VLAD-ZOO	19 Jan 2016		Transfer	
891	F	28 Apr 2015	760	765	NIKOLAEV	28 Apr 2015	N128	Birth	Rona
					VLAD-ZOO	14 Oct 2017		Transfer	
Totals: 1.1.0 (2)									

WALTER - Abenteuerland Walter Zoo, Gossau, Sankt Gallen, Switzerland									
515	F	3 Feb 2000	131	278	DORTMUND	3 Feb 2000	052517	Birth	TURA
					WALTER	19 Jun 2001	100602	Transfer	
516	F	3 Feb 2000	131	278	DORTMUND	3 Feb 2000	052518	Birth	NERA
					WALTER	19 Jun 2001	100603	Transfer	
584	M	8 Apr 2003	312	358	CHARD	8 Apr 2003	2428	Birth	TJ
					WALTER	23 Jan 2006	100604	Transfer	
Totals: 1.2.0 (3)									

YARMOUTH - Thrigby Hall Wildlife Gardens, Great Yarmouth, Norfolk, United Kingdom									
654	M	21 Oct 2005	216	562	BERLIN TP	21 Oct 2005	M03103	Birth	SKODJE
					EDINBURGH	25 Jun 2007	M07F13	Transfer	
					YARMOUTH	26 Feb 2015	297057	Transfer	
853	F	25 Nov 2013	740	762	PRAHA	25 Nov 2013	130465	Birth	
					YARMOUTH	1 Mar 2016	297058	Transfer	
953	F	15 Oct 2017	654	853	YARMOUTH	15 Oct 2017	TH1712	Birth	
954	F	15 Oct 2017	654	853	YARMOUTH	15 Oct 2017	TH1713	Birth	

955 F 15 Oct 2017 654 853 YARMOUTH 15 Oct 2017 TH1714 Birth
Totals: 1.4.0 (5)

ZELENOGOR - Zelenogorsk Zoo, Zelenogorsk, Krasnoyarskiy Kray, Russian Federation
544 F 27 Apr 2001 204 298 NOVOSIBRK 27 Apr 2001 058028 Birth ISSA
ZELENOGOR 18 Oct 2001 Transfer
602 M 15 May 2003 271 480 SEVERSK Z 15 May 2003 230010 Birth
CHELYABIN 15 Aug 2003 Transfer
ZELENOGOR 12 Nov 2012 Transfer
677 M 5 Jul 2006 271 480 SEVERSK Z 5 Jul 2006 260006 Birth
ZELENOGOR 26 Oct 2006 Transfer
Totals: 2.1.0 (3)

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TOTALS: 63.52.2 (117)
45 Institutions

Appendix I Population Viability Analysis

Amur Leopard (*Panthera pardus orientalis*)

Population Biologist: Melissa Theis, mtheis@lpzoo.org

AZA SSP Coordinator and Studbook Keeper: Cynthia Kreider, CKreider@eriezoo.org

AZA Felid TAG Chair: Don Goff, dgoff@beardsleyzoo.org

Population
Viability
Analyses (PVAs)

PMCA AZA
The Population Management Committee



Photo by Joel Sartore

Projected zoo & aquarium population status in 100 years **WITHOUT** potential

Low Risk

Vulnerable

Endangered

Critical

Projected zoo & aquarium population status in 100 years **WITH** potential

Low Risk

Vulnerable

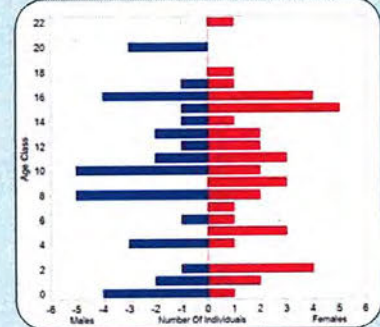
Endangered

Critical

Status as of 2012

- 76 (36.40) Amur leopards at 36 AZA institutions
- 48 (25.23) potentially breeding AZA population
- Population trend over last 10 years: 2% increase ($\lambda = 1.02$)
- Gene diversity (GD) = 84.97%
- Target Population Size (TPS) from RCP = 100
- IUCN status = Critically Endangered
- **AZA Animal Program Challenges:**

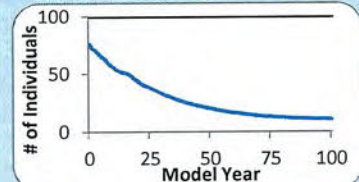
- Low reproduction = ~4 births/year in past 10 yrs
- Loss of gene diversity, difficulty with importations, aging population, and small potentially breeding population



Projected Status **WITHOUT** Potential Changes

CRITICAL in AZA Institutions

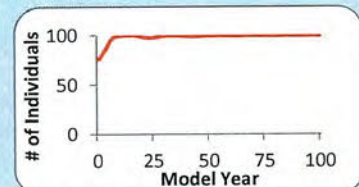
- Baseline scenario = ~4 births/year
- 78% chance of decreasing to extinction in 100 yrs
- 1% chance of increasing to TPS in 100 yrs
- 11 ± 10 (SD) average Amur leopards in 100 yrs
- $48\% \pm 18\%$ (SD) projected GD in 100 yrs



Projected Status **WITH** Potential Changes

VULNERABLE in AZA Institutions

- Scenario R increases reproduction to $p(B) = 20\%$, import 1 every yr for 10 yrs (~9 births/year)
- 0% chance of decreasing to extinction in 100 yrs
- 100% chance of increasing to 100 cats in 100 yrs
- 99 ± 4 (SD) average Amur leopards in 100 yrs
- $87\% \pm 1\%$ (SD) projected GD in 100 yrs



Essential Actions

- Increase reproduction to 8 – 13 births per year
- Recruit new institutions and allocate additional space
- If possible, import young, reproductive-aged animals, ideally unrelated to the existing population, in accordance with federal agencies and international regulations

How to Help

- Pursue breeding recommendations given to your institution and discuss husbandry challenges and successes with Program Leader
- Discuss future institutional plans with Program Leader to make sure cats are available

Amur Leopard (*Panthera pardus orientalis*) Final – 2018

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Executive Summary

Amur Leopard AZA Animal Program Population Viability Analysis

Population Viability Analysis (PVA) model scenarios were developed with members of the Association of Zoos and Aquariums (AZA) Felid Taxon Advisory Group (TAG) and Amur Leopard Animal Program in a meeting in September 2012. The PVA is being conducted under the support of a two-year grant to Lincoln Park Zoo researchers from the Institute of Museum and Library Services (IMLS) to analyze AZA population's long-term viability. The project team is using ZooRisk 3.80 (Earnhardt et al., 2008), a PVA modeling software, to examine what would happen to the AZA population if current conditions remained the same (the baseline scenario), and then assess the impact of changes such as increasing reproduction, importation strategies, increasing potential space, and not utilizing genetic management (alternative scenarios). The current Amur leopard AZA total population size is 76 (36 males, 40 females) individuals at 36 institutions.

MODEL RESULTS

Model results indicate that if conditions remain the same, the AZA Amur leopard population faces an **annual 3% decline over the next 25 years**. This decline is due to the small initial potentially breeding population (25 males and 23 females), low reproductive rates (population has been producing 4 births per year), and a projected increase in deaths over the next decade as the population ages. Under current conditions, the declining population has a 78% chance of reaching extinction and a 1% probability of reaching its number of potential spaces of 100 individuals. Given the level of GD retained in 100 years ($48\% \pm 18\%$) and the projected mean final inbreeding coefficient (0.41) higher than full sibling relatedness, it is likely that these projections are optimistic, as they do not incorporate any effects of inbreeding depression (e.g., lowered fecundity, increased mortality). Currently there are 36 holding institutions in the program; under the baseline scenario, the population would have **one Amur leopard per holding institution (36 individuals) in approximately 26 years**.

The most sustainable model scenarios require an increase in the population's reproduction rate. An increase from the current average of 4 births per year to 8 births per year (Scenario C. $p(B) = 15\%$), would allow the population to increase toward 100 individuals over the next 20 years. If the population can reach an average of 10 births per year, the population can reach the number of potential spaces in approximately 7 to 10 years with 100% of model iterations meeting the space goal. Furthermore, if the population can increase reproduction to an average of 10 births per year, the population is able to retain 78% to 81% gene diversity at the end of 100 years.

If appropriate, young, reproductively-viable leopards could be imported from outside the AZA population in accordance with federal and international regulations. These individuals may be able to benefit the population demographically and genetically. Model scenarios with both improved reproduction and importations illustrate that these management changes could help retain 82% to 88% gene diversity at the end of 100 years, and reduce inbreeding.

MANAGEMENT ACTIONS

The AZA Amur Leopard Animal Program should apply several management strategies in combination with one another to counteract the projected demographic decline, increase to meet the number of potential spaces, and retain long-term genetic health:

- **Increase reproduction:** The program should focus on breeding all reproductively viable females to increase the number of offspring produced per year. Any number of births in excess of the current average (4 births per year) will assist the population in growing towards 100 individuals and retaining gene diversity. To increase to the 100 individuals in the next 10 – 20 years the population must have 8 – 10 births per year. All breeding recommendations are important to the long-term future of this population; institutions should work to get recommended pairs into appropriate breeding situations quickly and work on husbandry to improve breeding success.
- **Import young, reproductively viable, unrelated individuals:** Importation (in accordance with federal and international regulations) could help offset the decline the population is facing in the next several years. In addition, it would increase the capacity of the population to produce offspring, which is limited by the aging population. Imports must be coupled with increased reproduction to successfully grow the population in the long-term and maintain gene diversity. If imports are feasible, the young individuals can help to reverse the decline by offsetting the loss of older individuals.
- **Maintain high-quality husbandry, care, and continue research initiatives:** Collaborate with local and international partners to improve and ensure high-quality husbandry for Amur leopards in our care, especially focusing on reproduction.
- **Recruit new institutions and allocate additional spaces:** If reproduction and/or importation is successful in improving the population's trajectory, it may be hampered by its small number of potential spaces. As a long-term goal, an increased number of potential spaces for the population will allow for a healthier age structure, a more stable population size, and better long-term genetic health.

Population Analysis & Breeding and Transfer Plan

Amur Leopard (*Panthera pardus orientalis*) AZA Species Survival Plan® Yellow Program



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11 July 2018

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Executive Summary

Species Survival Plan® for Amur Leopard (*Panthera pardus orientalis*)

The current Amur Leopard population consists of 86 individuals (40 males and 46 females) distributed among 33 AZA (34.37) and 7 non-AZA institutions (6.9). Four new AZA institutions will be joining the SSP from transfer recommendations in this plan. The Felid Taxon Advisory Group designated the Amur Leopard population as an SSP with a target size of 100 (2017 Regional Collection Plan). The population currently qualifies as a Yellow SSP program under AZA's sustainability designations.

Based on the current studbook, the potentially breeding Amur leopard population is descended from 13 founders and no potential founders remain. Gene diversity in this population is approximately 87%. When gene diversity falls below 90%, reproduction is expected to be increasingly compromised by, among other factors, lower birth weights, smaller litter sizes and greater neonatal mortality in some species. Under current population parameters ($\lambda = 1.001$), long term projections indicate gene diversity will fall to 66.4% at 100 years from present and to about 70% in ten generations ($T_{x10} = 78$ years). Gene retention could be improved by equalization of founder representation, increasing population growth, increasing the population's target size, or importing unrelated individuals.

Demography

Current size of SSP population (N) – Total (Males.Females.Unknown Sex)	86 (40.46.0)
Number of individuals excluded from genetic analyses	13 (2.11.0)
Population size following exclusions	73 (38.35.0)
Target population size (Kt) from <i>Felid</i> TAG 2017 RCP	100
Mean generation time (T, years)	7.8
Population Growth Rates (λ ; lambda)*: Historical / 5 –year / Projected	1.001/ 1.002 / 0.957 <> 0.986 <> 1.011

*Historical from life tables (AmurLeopard_Mar2018.FED: 1975 to present); 5-year from studbook census; Projected from PMx stochastic 20 yr projections including 95% confidence intervals

Genetics**

	Current	Potential
Founders	13	0
Founder genome equivalents (FGE)	3.90	7.99
Gene diversity (GD %)	87.19	93.74
Population mean kinship (MK)	0.1281	--
Mean inbreeding (F)	0.0940	--
Effective population size/potentially breeding population (N_e / N)	0.3097	--
Percentage of pedigree known before assumptions & exclusions	100	--
Percentage of pedigree known after assumptions & exclusions	100	--
Percentage of pedigree certain after assumptions & exclusions	100	--
Projections		
Years To 90% Gene Diversity	Already <90%	Already <90%
Years to 10% Loss of Gene Diversity	43	55
Gene diversity at 100 Years (%)	66.4	70.3
Gene diversity in 10 generations (78 years) (%)	70.4	73.6
	Assuming $\lambda = 1.001$ Target size = 100	Assuming $\lambda = 1.02$, Target size = 100

**Based on studbook "AMLEOP_N"

Demographic projections estimate to maintain the population at its current size of 86 animals ($\lambda = 1.00$), approximately eight births/imports are required in the coming year. To increase to the population target size of 100 individuals in the next ten years, approximately 7 to 11 births are needed per year for a growth rate of 1.5% ($\lambda = 1.0152$). Over the past five years the managed population has had an average of 5.4 births/year and 3.4 imports/year. The SSP has focused on increasing breeding within the managed population, and is also in the process of identifying further individuals for import from EAZA. With this increased focus on breeding and potential imports, it is possible the population could reach a higher number of births in the coming years.

Summary Actions: The SSP recommends twelve (12) females to be placed in breeding pairs with one additional female recommended for artificial insemination. The SSP recommends eight (8) transfers.

Amur Leopard (*Panthera pardus orientalis*) Final – 2018

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Table of Contents

Executive Summary	1
Description of Population Status	
Introduction	4
Status and Conservation	4
Analytical Population	4
Demography	4
Genetics	5
Recommendation Outcomes	7
Management Strategy	7
Recommendations	
Summary Recommendations	9
ATTLEBORO, AUDUBON, BALTIMORE, BINGHAMTO (non-AZA)	12
BRIDGEPORT, CAPE MAY, CHICAGOBR, CHICAGOLP	13
CLEVELAND, COAL VAL (non-AZA), COLO SPRG, DENVER	14
EL PASO, ERIE, FT WAYNE, GARDENCTY	15
GRANBY, GREENVISC, HOGLE	16
JACKSON (non-AZA), JACKSONVL, KANSASCTY, LEON	17
MANHATTAN, MEMPHIS (new AZA institution), MINNESOTA, MINOT	18
MONCTON (non-AZA), NY BRONX (new AZA institution), ORONO (non-AZA), PALM DES, PHILADELP	19
PITTSBURG (non-AZA), PORTLAND, ROLLING H, ROSAMOND (non-AZA)	20
S BARBARA, SANDIEGOZ, SANFORD (new AZA institution)	21
SEDGWICK, SOUTHBEND, ST LOUIS, STATEN IS	22
SYRACUSE (new AZA institution), THURMONT (non-AZA), W ORANGE	23
Appendices	
A. Analytical Assumptions	24
B. Summary of Data Exports	25
C. Animals Excluded from Genetic Analysis	26
D. Life Tables	27
E. Ordered Mean Kinship List	28
F. Descriptive Survival Statistics Report	29
G. Definitions	31
H. Directory of Institutional Representatives	33
I. Population Viability Analysis	36

Acknowledgments

The Amur Leopard planning meeting was held at the Lincoln Park Zoo and via internet conferencing on March 13th, 2018 and attended by:

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Sarah Colman, Lee Richardson Zoo
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Cover photo credit: "Kia & cubs at Erie Zoo" by Nungesser Photography

This plan was prepared and distributed with the assistance of the AZA Population Management Center.
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Description of Population Status

Species Survival Plan® for the Amur Leopard (*Panthera pardus orientalis*)

Introduction: The current Amur Leopard population consists of 86 individuals (40 males and 46 females) distributed among 33 AZA (34.37) and 7 non-AZA institutions (6.9). Four new AZA institutions will be joining the SSP from transfer recommendations in this plan. The Felid Taxon Advisory Group designated the Amur Leopard population as an SSP with a target size of 100 (2017 Regional Collection Plan). The population currently qualifies as a Yellow SSP program under AZA's sustainability designations.

Comprehensive genetic and demographic analyses of the North American Regional Amur Leopard Studbook (current to 21 February 2018) were performed in March and July 2018 using PopLink 2.4, and PMx 1.4.20160804. This is the fifth formal breeding plan for this species, with the last breeding and transfer recommendations distributed in June 2015. Recommendations contained in this plan supersede those made by earlier plans.

Status and Conservation: The wild population of the Amur subspecies of leopard (*P. pardus orientalis*) consists of as few as 80 individuals confined to the border of southwestern Russia's Primorsky Krai and the Chinese provinces of Jilin and Heilongjian (Wang et al. 2017). In 2008, the IUCN listed Amur leopards as Critically Endangered (CR: date assessed 6/30/2008) due in part to continued habitat loss and poaching. CITES lists leopard on Appendix I, although Amur leopards are not specifically listed, and leopards originating within the native range of *P. pardus orientalis* are not listed by the USFWS.

Analytical Population: The Amur Leopard SSP population has a pedigree that is 100% known; therefore, no pedigree assumptions were needed for analysis of this population (Appendix A). Thirteen animals (2.11) were excluded from the genetic analysis and the potentially breeding population due to reasons outlined in Appendix C. Following these exclusions the potentially breeding population consist of 73 (38.35) animals.

Demography: According to regional studbook data, Amur leopards first appeared in North America zoos in 1961. Breeding did not begin in North America until the early 1970s and did not become common until the 1980s. A period of rapid growth began in the 1990s due to increased breeding and importations, reaching a peak in 2004 with 90 individuals (Fig. 1). Since this time, the population has fluctuated between 75 – 88 animals, with zoo breeding and occasional imports maintaining the population. Over the last five years zoo births (mean = 5.4 per year) and imports (mean = 3.4 per year) from the European Association of Zoos and Aquaria (EAZA) and other institutions outside of the SSP, have sustained the population ($\lambda = 1.002$). Births and imports have been able to help maintain the size of this aging population being lost to natural attrition (5 year mean deaths = 8).

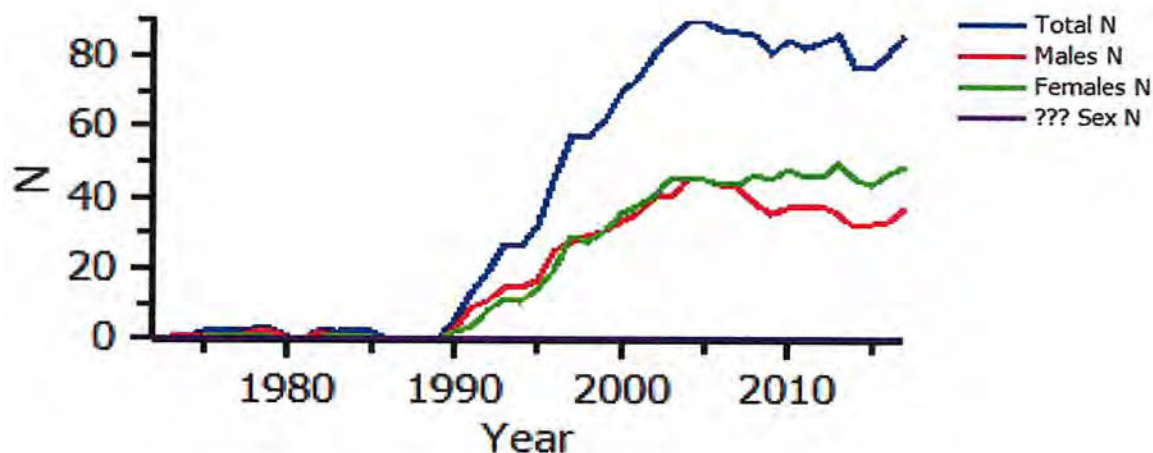


Figure 1. Census of the Amur Leopard SSP population from 1972 to present by sex.

Amur Leopard (*Panthera pardus orientalis*) Final – 2018

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The age structure of the SSP population (Fig. 2) deviates from a stable distribution with some uneven and empty reproductive age classes, relatively few individuals in the youngest age classes and a sex bias. The gaps and unevenness in the younger age classes can be attributed to the fluctuations in births and imports in the recent past. Births in the population have ranged from 0 to 9 per year in the past ten years. As indicated by the high number of individuals excluded from the potentially breeding population due to age, a generation of leopards are approaching the end of their peak reproductive years. This could result in a decline in breeding if the younger individuals cannot breed to replace these older animals as they pass out of the population. Currently, the SSP population is female biased, though many of these females are older and excluded from the potentially breeding population. The population needs to continue to focus on breeding and producing a steady number of births each year to continue to expand the broad base of juveniles to support future reproduction.

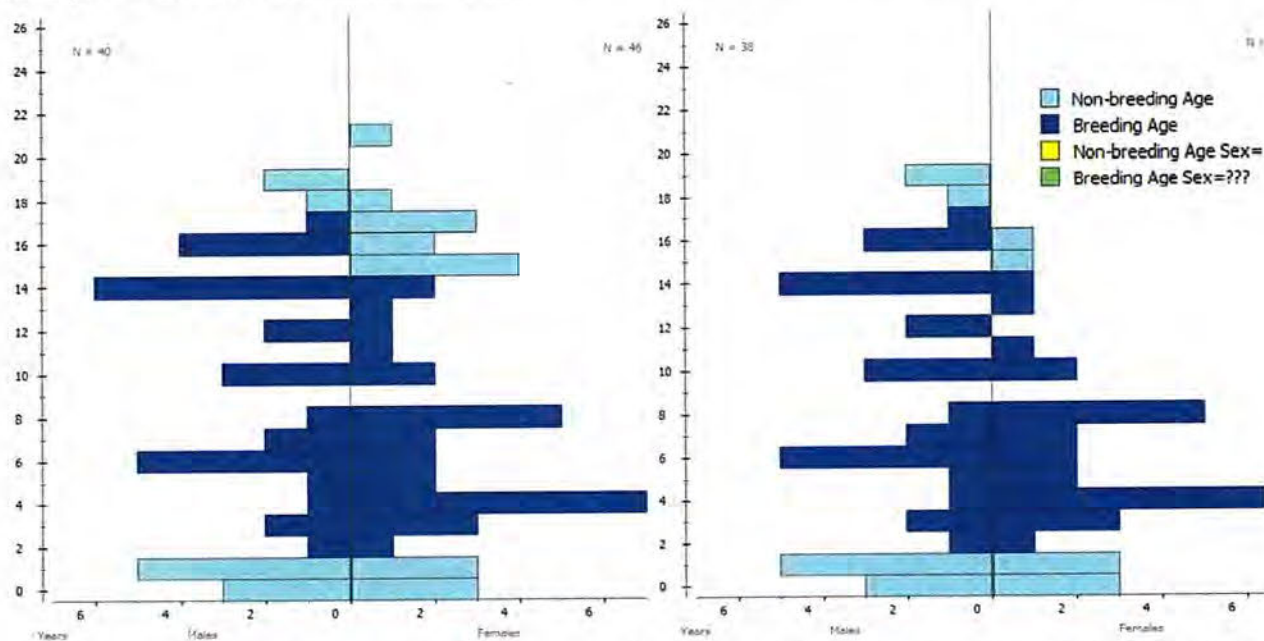


Figure 2 Age distribution of the total Amur Leopard SSP population (N = 86 [40.46.0]) (left) and the potentially breeding population (N = 73 [38.35.0]) (right).

With the North American zoo Amur leopard population only beginning to consistently grow starting in the 1990s, most of the demographic data available come from a single generation of leopards. As the population continues to grow, and more animals age out of the population, demographic statistics may change. Based on the studbook data from 1975 to present, first year mortality is 34% for males and 28% for females. After the first year, mortality for this species is very low until an animal reaches the upper age classes. The oldest recorded male Amur leopard in the SSP lived to be 22 years old with oldest currently living being 19, while the oldest female lived to be 24 years old, with the oldest currently living being 21. Median life expectancy in the SSP population is 18.1 years of age (Appendix F). This indicates that having survived the first year of life, half of all Amur leopards can be expected to die before they reach this age and half will live longer.

Male Amur leopards have bred between the ages of 1 and 17, and females between 2 and 14. Reproductive longevity is not truly known for this species because management strategies do not typically allow older animals to breed. Litter size ranges from one to three cubs with two being most typical. Amur leopard births in zoos have been recorded in all months, but the majority are recorded from April through July. The gestation period for this species is 95 days.

Genetics: Based on the current studbook, the potentially breeding Amur leopard population is descended from 13 founders and no potential founders remain (Fig. 3). Gene diversity in this population is approximately 87%. When gene diversity falls below 90%, reproduction is expected to be increasingly compromised by, among other factors, lower birth weights, smaller litter size and greater neonatal mortality in some species. Under current population parameters ($\lambda = 1.001$), long term projections indicate gene diversity will fall to 66.4% at 100 years from present and to about 70% in ten generations ($Tx10 = 78$ years).

Amur Leopard (Panthera pardus orientalis) Final – 2018

5

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The potential gene diversity for this population is high at 93.7%. Gene retention could be improved by equalization of founder representation, increasing population growth, maintaining and/or increasing the effective size ratio ($N_e/N = 0.3097$, proportion of animals breeding), increasing the population's target size, or importing unrelated individuals. The SSP is currently working with EAZA to import individuals into the AZA population and will choose individuals that will increase the gene diversity of the SSP population as well as assist the population demographically.

Genetics						
	2007	2009	2012	2015	Current	Potential
Founders	10	11	13	13	13	0
Founder genome equivalents (FGE)	3.36	3.37	3.22	3.40	3.90	7.99
Gene diversity (GD %)	85.1	85.2	84.48	85.29	87.19	93.74
Population mean kinship (MK)	0.149	0.1480	0.1552	0.1471	0.1281	--
Mean inbreeding (F)	0.095	0.107	0.0968	0.0988	0.0940	--
Effective population size/potentially breeding population (N_e/N)	0.25	0.32	0.2462	0.1893	0.3097	--
% Pedigree known prior to assumptions and exclusions	100	100	100	100	100	--
% Pedigree known after assumptions and exclusions	100	100	100	100	100	--
% pedigree certain after assumptions and exclusions	100	100	100	100	100	--
Projections						
Years to 90% GD	--	--	Already < 90%	Already < 90%	Already < 90%	Already < 90%
Years to 10% loss of GD	--	--	35	31	43	55
Gene diversity at 100 Years (%)	--	--	61	58.5	66.4	70.3
Gene diversity in 10 generations (78 years) (%)	--	--	--	--	70.4	73.6
	--	--	Assuming $\lambda = 1.03$ Target size = 100	Assuming $\lambda = 1.03$ Target size = 100	Assuming $\lambda = 1.001$ Target size = 100	Assuming $\lambda = 1.02$ Target size = 100

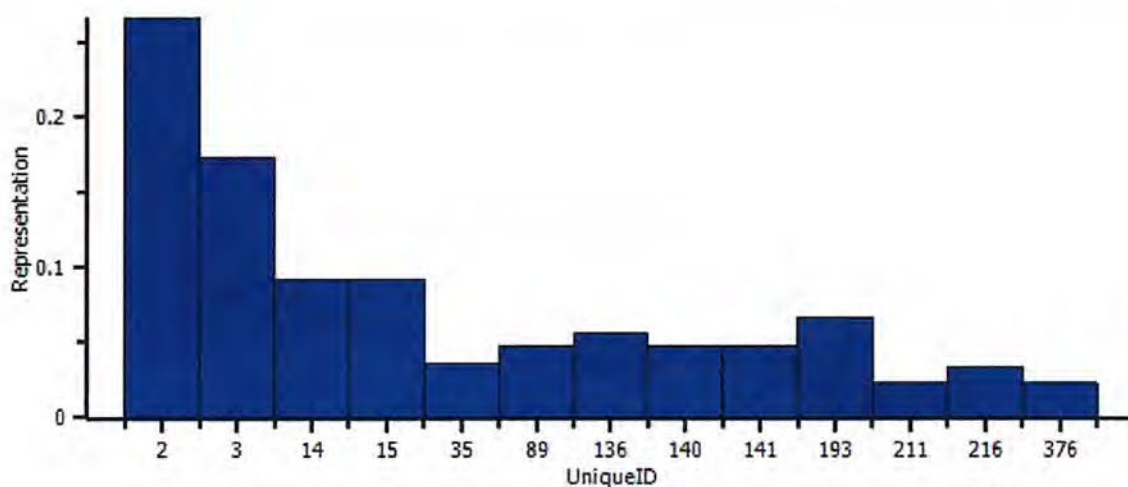


Figure 3. Founder representation graph of the potentially breeding population of Amur Leopard.

Recommendation Outcomes: The website PMCTrack calculates the outcomes of SSP recommendations by comparing Breeding and Transfer Plan recommendations to births and deaths recorded in the studbook. Of the recommendations proposed in the 2015 Amur Leopard Breeding and Transfer Plan, 23.53% of the BREED WITH recommendations were fulfilled, and 70% of SEND TO recommendations were fulfilled as requested by March 2018 (Fig. 4). There are many reasons that recommendations might not be fulfilled, including interim recommendations issued by the SSP Coordinator; these reasons can be captured using PMCTrack Outcomes Surveys. SSP participants are always encouraged to attempt to fulfill recommendations and to communicate successes and failures to the SSP Coordinator.



Figure 4. Recommendation outcome graphs by disposition (left) and breeding (right) for the past Amur Leopard SSP Breeding and Transfer Plans. *N* represents the number of recommendations scored for each recommendation type, per plan, and the number represents the percentage recommendations fulfilled. Please visit PMCTrack.org or contact pmctrack@lpzoo.org for more information or with any questions.

Management Strategy: Demographic projections estimate that to maintain the population at its current size of 86 (40.46.0) animals ($\lambda = 1.00$), approximately eight births are required in the coming year. To increase to the population target size of 100 individuals in the next ten years, approximately 7 to 11 births are needed per year for a growth rate of 1.5% ($\lambda = 1.0152$). Over the past five years the managed population has had an average of 5.4 births/year and 3.4 imports/year. It is possible for the population to reach a higher number of births in the coming years with an increased focus on breeding and potential imports. As with most SSP populations, pairings are prioritized to maintain or increase gene diversity through considerations of mean kinship, avoidance of inbreeding, differences in sire and dam mean kinships, and the degree of uncertainty within a pedigree.

1. Recommend 12 breeding pairs, with one additional female recommended for artificial insemination.
 - a. Breeding recommendations are made with the understanding that breeding institutions will be able to hold offspring for at least two years.
2. Recommend eight transfers to fulfill institutional requests and create new pairings.
3. Institutions are strongly discouraged from hand-rearing cubs because it does not foster safe breeding behaviors and prevents future breeding. Effective population management is difficult without communication with the SSP Coordinator and limitation of the number of program cubs.
4. The SSP is developing consistently successful artificial insemination procedures that would provide flexibility in pairings without the need to move animals and lessen the need to import as many animals.
 - a. Hand-raised males and females with behavioral issues that make natural breeding unlikely, and are genetically valuable, may be considered for AI and semen collection.
5. Zoos have practiced several different methods of introducing leopards over the years with varied results. The ages of the animals play an important role in the success of introductions. It is recommended that breeding pairs be introduced at a young age – preferably before the age of 3 years. It appears that leopards need a period of socialization where they become comfortable with each other, before breeding will occur. The practice

of doing introductions only when the female is in estrus may encourage more aggressive behavior from the male if the female is not readily receptive. Letting the animals become comfortable with each other before the female comes into estrus appears to minimize this aggression. Individual personalities of animals will dictate variances in this practice. It is recommended that the pair go through a reasonable period of being "howdied" until they appear comfortable when in very close proximity. They should then be introduced in as spacious area as possible, but also where they can be quickly separated if needed – normally in a holding area with as many options available as possible for them to retreat. These first introductions must be closely monitored by staff and emergency plans fully understood beforehand. After the initial introduction, the time that the animals are together can then be gradually increased, with the goal of keeping them together 7-8 hours a day where they can still be monitored by staff. Cats should be separated for feeding. Please contact the SSP Coordinator for more information.

6. The AZA Reproductive Management Center has recommended that female leopards be given the opportunity to breed before they reach **5 years of age**. This is in sync with the natural biological age of sexual maturity and a time when the female is the most fertile. Females that breed and produce cubs at a young age are much more likely to be successful in future breeding attempts.
7. Since the majority of all female leopards have the potential of receiving breeding recommendations in this current plan or in the near future, the only form of recommended birth control for all females is separation from the male.
8. As a Global Species Management Program, this population is intensively managed, and the European Association of Zoos and Aquariums actively communicates with the SSP about exporting genetically valuable individuals. Please contact the SSP Coordinator if you are interested in importing animals.
9. More institutions are needed to house Amur leopards. Institutions interested in obtaining or placing this species should contact the SSP Coordinator to coordinate transfers that will facilitate genetic and demographic stability.
10. In 2013, a Population Viability Analysis (PVA) was completed for the Amur Leopard SSP. A PVA is a computer model that projects the likely future status of a population and is used to evaluate the long-term sustainability of a population under various management strategies. Summary results from this analysis can be found in Appendix I and can also be found on the AZA website along with the full report.

References:

- Theis, M. and Kreider, C. 2013. Amur Leopard (*Panthera pardus orientalis*) AZA Animal Program Population Viability Analysis Report. Lincoln Park Zoo, Chicago, IL.
- Wang, Tianming, Limin Feng, Haitao Yang, Boyu Han, Yiheng Zhao, Lin Juan, Xinyue Lü, Liang Zou, Tong Li, and Wenhong Xiao. 2017. "A Science-Based Approach to Guide Amur Leopard Recovery in China." *Biological Conservation* 210. Elsevier: 47–55.

Summary of Breeding and Transfer Recommendations by Studbook ID

SB ID	Location	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
397	ROLLING H	9812BB	F	21	HOLD	ROLLING H	DO NOT BREED		Excluded—Age Died during comment period
427	LEON	MAM146	F	20	HOLD	LEON	DO NOT BREED		Excluded—Age Death reported during comment period
428	ROSAMOND	289	F	20	HOLD	ROSAMOND	DO NOT BREED		Excluded -Age
484	EL PASO	200001	M	19	HOLD	EL PASO	DO NOT BREED		
490	PORTLAND	B00137	M	18	HOLD	PORTLAND	DO NOT BREED		
502	JACKSONVL	806481	F	17	HOLD	JACKSONVL	DO NOT BREED		Excluded -Age
506	ROSAMOND	335	M	17	HOLD	ROSAMOND	DO NOT BREED		See Note
514	JACKSON	200331	F	17	HOLD	JACKSON	DO NOT BREED		Excluded - Age/medical
526	FT WAYNE	98905	M	17	HOLD	FT WAYNE	DO NOT BREED		See Note
529	DENVER	A03061	F	16	HOLD	DENVER	DO NOT BREED		Excluded - Spayed
537	ROSAMOND	331	F	16	HOLD	ROSAMOND	DO NOT BREED		Excluded -Age
541	JACKSONVL	806480	M	16	HOLD	JACKSONVL	DO NOT BREED		
542	SOUTHBEND	23015	F	16	HOLD	SOUTHBEND	DO NOT BREED		
561	SEDGWICK	13594	M	15	SEND TO	MINNESOTA	BREED WITH	829	
565	ROLLING H	111229	M	15	HOLD	ROLLING H	DO NOT BREED		
566	JACKSON	200363	M	15	HOLD	JACKSON	DO NOT BREED		Excluded - Medical
567	PHILADELP	104900	F	15	HOLD	PHILADELP	DO NOT BREED		Excluded - Age
569	KANSASCTY	M13005	F	15	HOLD	KANSASCTY	DO NOT BREED		
585	MONCTON	_____	F	14	HOLD	MONCTON	DO NOT BREED		Excluded - Age
592	DENVER	A05059	M	14	HOLD	DENVER	DO NOT BREED		
593	PITTSBURG	102731	F	14	HOLD	PITTSBURG	DO NOT BREED		
594	ST LOUIS	103263	F	14	HOLD	ST LOUIS	DO NOT BREED		Excluded - Age/medical
595	ORONO	K11010	M	14	HOLD	ORONO	DO NOT BREED		
596	MANHATTAN	201319	M	14	HOLD	MANHATTAN	DO NOT BREED		
597	GARDENCTY	107009	M	14	HOLD	GARDENCTY	DO NOT BREED		
604	PALM DES	413030	F	14	HOLD	PALM DES	DO NOT BREED		Excluded - Spayed
605	EL PASO	201392	F	14	HOLD	EL PASO	DO NOT BREED		Excluded – Age, non-breeder
629	ST LOUIS	111002	M	13	HOLD	ST LOUIS	DO NOT BREED		Excluded - Sterile
630	PITTSBURG	102101	M	13	HOLD	PITTSBURG	DO NOT BREED		
657	GREENVISC	M16031	M	11	HOLD	GREENVISC	BREED WITH	797	
658	MINNESOTA	12164	F	11	HOLD	MINNESOTA	DO NOT BREED		Excluded - Spayed

Amur Leopard (Panthera pardus orientalis) Final – 2018

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SB ID	Location	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
667	GRANBY	M04057	F	13	HOLD	GRANBY	BREED WITH DO NOT BREED	670	Changed during comment period (See Note)
670	GRANBY	M06049	M	12	HOLD	GRANBY	BREED WITH DO NOT BREED	667	Changed during comment period (See Note)
717	MINNESOTA	12548	M	10	HOLD	MINNESOTA	DO NOT BREED		See Note
719	CLEVELAND	160102	M	9	HOLD	CLEVELAND	BREED WITH	755	Male identified as potential AI donor for female 755 at Baltimore.
747	ERIE	1592	F	10	HOLD	ERIE	DO NOT BREED		See Note
749	CAPE MAY	3712	F	10	HOLD	CAPE MAY	DO NOT BREED		See Note
751	ERIE	2318	M	10	HOLD	ERIE	DO NOT BREED		
755	BALTIMORE	7563	F	9	HOLD	BALTIMORE	BREED WITH	719	Female is a candidate for AI with semen from male 719 at CLEVELAND.
769	CHICAGOBR	4535	M	7	HOLD	CHICAGOBR	BREED WITH DO NOT BREED	804	Changed during comment period (See Note)
794	AUDUBON	103009	F	8	HOLD	AUDUBON	BREED WITH	801	See Note
796	SEDGWICK	15060	F	7	HOLD	SEDGWICK	DO NOT BREED		
797	GREENVISC	M11005	F	7	HOLD	GREENVISC	BREED WITH	657	
798	MINOT	579	F	7	SEND TO	BINGHAMTO	DO NOT BREED		
801	AUDUBON	103505	M	7	HOLD	AUDUBON	BREED WITH	794	See Note
804	CHICAGOBR	4433	F	7	HOLD	CHICAGOBR	BREED WITH DO NOT BREED	769	Changed during comment period (See Note)
808	THURMONT	_____	F	7	HOLD	THURMONT	DO NOT BREED		
810	ROSAMOND	469	M	6	HOLD	ROSAMOND	DO NOT BREED		
811	ROSAMOND	470	F	6	HOLD	ROSAMOND	DO NOT BREED		See Note
822	GRANBY	M12016	M	5	HOLD	GRANBY	BREED WITH	893	
825	HOGLE	U15042	F	5	HOLD	HOGLE	BREED WITH DO NOT BREED	828	Changed during comment period (See Note)
827	S BARBARA	700693	M	5	HOLD	S BARBARA	BREED WITH	865	See Note
828	HOGLE	U13002	M	5	HOLD	HOGLE	BREED WITH DO NOT BREED	825	Changed during comment period (See Note)
829	MINNESOTA	13348	F	5	HOLD	MINNESOTA	BREED WITH	561	
830	W ORANGE	6605	M	5	HOLD	W ORANGE	BREED WITH	874	
831	STATEN IS	13008	M	5	HOLD	STATEN IS	BREED WITH	870	See Note
847	BRIDGEPR	102388	F	5	HOLD	BRIDGEPR	BREED WITH	855	
848	SANDIEGOZ	516034	M	5	HOLD	SANDIEGOZ	BREED WITH DO NOT BREED	874	Changed during comment period (See Note)
855	BRIDGEPR	102458	M	4	HOLD	BRIDGEPR	BREED WITH	847	
856	COLO SPRG	2015M0	F	4	HOLD	COLO SPRG	BREED WITH	896	

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SB ID	Location	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
857	PHILADELP	105191	F	4	HOLD	PHILADELP	DO NOT BREED		
865	S BARBARA	700954	F	3	HOLD	S BARBARA	BREED WITH	827	See Note
869	SANDIEGOZ	517062	F	3	HOLD	SANDIEGOZ	DO NOT BREED		
870	STATEN IS	M17003	F	3	HOLD	STATEN IS	BREED WITH	831	See Note
871	SANDIEGOZ	516114	F	3	HOLD	SANDIEGOZ	BREED WITH DO NOT BREED	848	Changed during comment period (See Note)
874	W ORANGE	2191	F	3	HOLD	W ORANGE	BREED WITH	830	
883	ATTLEBORO	114359	F	4	HOLD	ATTLEBORO	DO NOT BREED		See Note
886	COAL VAL	M2362	M	2	HOLD	COAL VAL	DO NOT BREED		
887	ROSAMOND	558	F	2	HOLD	ROSAMOND	DO NOT BREED		See Note
888	CHICAGOLP	23671	F	2	SEND TO	NY BRONX	DO NOT BREED		
893	GRANBY	M15047	F	2	HOLD	GRANBY	BREED WITH	822	
896	COLO SPRG	MO25	M	2	HOLD	COLO SPRG	BREED WITH	856	
905	GRANBY	M15025	M	2	HOLD	GRANBY	DO NOT BREED		
909	PITTSBURG	103011	F	2	HOLD	PITTSBURG	BREED WITH	934	
930	CHICAGOBR	7316	M	1	SEND TO	SANFORD	DO NOT BREED		
934	HOGLE	U17003	M	1	SEND TO	PITTSBURG	BREED WITH	909	
935	SANDIEGOZ	517132	M	1	SEND TO	SYRACUSE	BREED WITH	940	See Note
940	GREENVISC	M17010	F	0	SEND TO	SYRACUSE	BREED WITH	935	
941	GREENVISC	M17011	M	0	SEND TO	MEMPHIS	DO NOT BREED		
944	SANDIEGOZ	517126	M	0	HOLD	SANDIEGOZ	DO NOT BREED		
951	SOUTHBEND	34225	F	1	HOLD	SOUTHBEND	DO NOT BREED		
952	SOUTHBEND	34226	F	1	HOLD	SOUTHBEND	DO NOT BREED		
956	CHICAGOBR	8193	M	0	HOLD	CHICAGOBR	DO NOT BREED		Born during comment period
957	CHICAGOBR	8194	M	0	HOLD	CHICAGOBR	DO NOT BREED		Born during comment period
958	SANDIEGOZ	518024	F	0	HOLD	SANDIEGOZ	DO NOT BREED		Born during comment period
959	SANDIEGOZ	518025	F	0	HOLD	SANDIEGOZ	DO NOT BREED		Born during comment period
960	HOGLE	U18028	F	0	HOLD	HOGLE	DO NOT BREED		Born during comment period
T01	GRANBY	M18039	M	0	HOLD	GRANBY	DO NOT BREED		Born during comment period (See Note)

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Breeding and Transfer Recommendations by Institution

ATTLEBORO

Capron Park Zoo

Attleboro, MA

Institutional Note: Female is a potential AI candidate. Please contact SSP Coordinator for more information.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
883	114359	F	4	HOLD	ATTLEBORO	DO NOT BREED		See Note

AUDUBON

Audubon Zoo

New Orleans, LA

Institutional Note: Attempt breeding current pair over the following year and then contact SSP Coordinator with updates.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
794	103009	F	8	HOLD	AUDUBON	BREED WITH	801	See Note
801	103505	M	7	HOLD	AUDUBON	BREED WITH	794	See Note

BALTIMORE

Maryland Zoo in Baltimore

Baltimore, MD

Institutional Note: Female is being given a breeding recommendation using AI and semen from male 719 at CLEVELAND.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
755	7563	F	9	HOLD	BALTIMORE	BREED WITH	719	Female is a candidate for AI with semen from male 719 at CLEVELAND

BINGHAMTO (non-AZA)

Binghamton Zoo at Ross Park

Binghamton, NY

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
798	579	F	7	RECEIVE FROM	MINOT	DO NOT BREED		

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BRIDGEPRT

Connecticut's Beardsley Zoo

Bridgeport, CT

Institutional Note: Breed current pair; however, female is genetically valuable and may be repaired during next breeding and transfer plan.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
847	102388	F	5	HOLD	BRIDGEPRT	BREED WITH	855	
855	102458	M	4	HOLD	BRIDGEPRT	BREED WITH	847	

CAPE MAY

Cape May County Park Zoo

Cape May Court House, NJ

Institutional Note: Female is a potential AI candidate. Please contact SSP Coordinator for more information.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
749	3712	F	10	HOLD	CAPE MAY	DO NOT BREED		See Note

CHICAGOBR

Chicago Zoological Society

Brookfield, IL

Institutional Note: Institution should contact SSP Coordinator for breeding recommendations once current cubs are placed.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
769	4535	M	7	HOLD	CHICAGOBR	BREED WITH DO NOT BREED	804	Changed during comment period (See Note)
804	4433	F	7	HOLD	CHICAGOBR	BREED WITH DO NOT BREED	769	Changed during comment period (See Note)
930	7316	M	1	SEND TO	SANFORD	DO NOT BREED		
956	8193	M	0	HOLD	CHICAGOBR	DO NOT BREED		Born during comment period
957	8194	M	0	HOLD	CHICAGOBR	DO NOT BREED		Born during comment period

CHICAGOLP

Lincoln Park Zoological Gardens

Chicago, IL

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
888	23671	F	2	SEND TO	NY BRONX	DO NOT BREED		

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CLEVELAND

Cleveland Metroparks Zoo

Cleveland, OH

Institutional Note: Male is being given a breeding recommendation as a semen donor for female 755 at BALTIMORE.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
719	160102	M	9	HOLD	CLEVELAND	BREED WITH	755	Male identified as potential AI donor for female 755 at Baltimore.

COAL VAL (non-AZA)

Niabi Zoo

Coal Valley, IL

Institutional Note: Contact SSP Coordinator about potential imports and placement of male.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
886	M2362	M	2	HOLD	COAL VAL	DO NOT BREED		

COLO SPRG

Cheyenne Mountain Zoological Park

Colorado Springs, CO

Institutional Note: Attempt breeding current pair over the following year (male genetically valuable) and contact SSP Coordinator with updates.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
856	2015M0	F	4	HOLD	COLO SPRG	BREED WITH	896	
896	MO25	M	2	HOLD	COLO SPRG	BREED WITH	856	

DENVER

Denver Zoological Gardens

Denver, CO

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
529	A03061	F	16	HOLD	DENVER	DO NOT BREED		Excluded - Spayed
592	A05059	M	14	HOLD	DENVER	DO NOT BREED		

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EL PASO

El Paso Zoo

El Paso, TX

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
484	200001	M	19	HOLD	EL PASO	DO NOT BREED		
605	201392	F	14	HOLD	EL PASO	DO NOT BREED		Excluded - Age, several attempts have been made to breed this female with multiple males, with no success

ERIE

Erie Zoological Gardens

Erie, PA

Institutional Note: Female is a potential AI candidate. Please contact SSP Coordinator for more information.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
747	1592	F	10	HOLD	ERIE	DO NOT BREED		See Note
751	2318	M	10	HOLD	ERIE	DO NOT BREED		

FT WAYNE

Fort Wayne Children's Zoo

Fort Wayne, IN

Institutional Note: Male could be a potential semen donor for AI. Please contact SSP Coordinator for more information.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
526	98905	M	17	HOLD	FT WAYNE	DO NOT BREED		See Note

GARDENCTY

Lee Richardson Zoo

Garden City, KS

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
597	107009	M	14	HOLD	GARDENCTY	DO NOT BREED		

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GRANBY**Granby Zoo / Zoo de Granby**

Granby, Quebec, Canada

Institutional Note: Institution should contact SSP Coordinator for breeding recommendations of 667 x 670 once current cub is placed. A temporary id number was given to the new male cub until a permanent international studbook number is assigned.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
667	M04057	F	13	HOLD	GRANBY	BREED WITH DO NOT BREED	670	Changed during comment period (See Note)
670	M06049	M	12	HOLD	GRANBY	BREED WITH DO NOT BREED	667	Changed during comment period (See Note)
822	M12016	M	5	HOLD	GRANBY	BREED WITH	893	
893	M15047	F	2	HOLD	GRANBY	BREED WITH	822	
905	M15025	M	2	HOLD	GRANBY	DO NOT BREED		
T01	M18039	M	0	HOLD	GRANBY	DO NOT BREED		Born during comment period (See Note)

GREENVISC**Greenville Zoo**

Greenville, SC

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
657	M16031	M	11	HOLD	GREENVISC	BREED WITH	797	
797	M11005	F	7	HOLD	GREENVISC	BREED WITH	657	
940	M17010	F	0	SEND TO	SYRACUSE	BREED WITH	935	
941	M17011	M	0	SEND TO	MEMPHIS	DO NOT BREED		

HOGLE**Utah's Hogle Zoo**

Salt Lake City, UT

Institutional Note: Institution should contact SSP Coordinator for breeding recommendations once current cub is placed.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
825	U15042	F	5	HOLD	HOGLE	BREED WITH DO NOT BREED	828	Changed during comment period (See Note)
828	U13002	M	5	HOLD	HOGLE	BREED WITH DO NOT BREED	825	Changed during comment period (See Note)
934	U17003	M	1	SEND TO	PITTSBURG	BREED WITH	909	
960	U18028	F	0	HOLD	HOGLE	DO NOT BREED		Born during comment period

JACKSON (non-AZA)**Jackson Zoological Park**

Jackson, MS

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
514	200331	F	17	HOLD	JACKSON	DO NOT BREED		Excluded - Age/medical
566	200363	M	15	HOLD	JACKSON	DO NOT BREED		Excluded - Medical

JACKSONVL**Jacksonville Zoo and Gardens**

Jacksonville, FL

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
502	806481	F	17	HOLD	JACKSONVL	DO NOT BREED		Excluded -Age
541	806480	M	16	HOLD	JACKSONVL	DO NOT BREED		

KANSASCTY**Kansas City Zoo**

Kansas City, MO

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
569	M13005	F	15	HOLD	KANSASCTY	DO NOT BREED		

LEON**Patronato del Parque Zoologico de Leon**

Guanajuato, Mexico

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
427	MAM146	F	20	HOLD	LEON	DO NOT-BREED		Excluded – Age Death reported during comment period

MANHATTAN**Sunset Zoo**

Manhattan, KS

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
596	201319	M	14	HOLD	MANHATTAN	DO NOT BREED		

MEMPHIS (new AZA institution)**Memphis Zoological Garden & Aquarium**

Memphis, TN

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
941	M17011	M	0	RECEIVE FROM	GREENVISC	DO NOT BREED		

MINNESOTA**Minnesota Zoological Garden**

Apple Valley, MN

Institutional Note: Working on importing potential female for male 717.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
561	13594	M	15	RECEIVE FROM	SEDGWICK	BREED WITH	829	
658	12164	F	11	HOLD	MINNESOTA	DO NOT BREED		Excluded - Spayed
717	12548	M	10	HOLD	MINNESOTA	DO NOT BREED		See Note
829	13348	F	5	HOLD	MINNESOTA	BREED WITH	561	

MINOT**Roosevelt Park Zoo**

Minot, ND

Institutional Note: Building new Amur leopard exhibit and would like to receive a new breeding pair via imports or from cubs produced within the next year.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
798	579	F	7	SEND TO	BINGHAMTO	DO NOT BREED		

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MONCTON (non-AZA)**Magnetic Hill Zoo**

Moncton, New Brunswick

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
585	_____	F	14	HOLD	MONCTON	DO NOT BREED		Excluded - Age

NY BRONX (new AZA institution)**Bronx Zoo/Wildlife Conservation Society**

Bronx, NY

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
888	23671	F	2	RECEIVE FROM	CHICAGOLP	DO NOT BREED		

ORONO (non-AZA)**Jungle Cat World Wildlife Park Inc.**

Orono, Ontario, Canada

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
595	K11010	M	14	HOLD	ORONO	DO NOT BREED		

PALM DES**The Living Desert**

Palm Desert, CA

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
604	413030	F	14	HOLD	PALM DES	DO NOT BREED		Excluded - Spayed

PHILADELP**The Philadelphia Zoo**

Philadelphia, PA

Institutional Note: Incoming European male can breed with 857 once imported.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
567	104900	F	15	HOLD	PHILADELP	DO NOT BREED		Excluded - Age
857	105191	F	4	HOLD	PHILADELP	DO NOT BREED		

PITTSBURG (non-AZA)**Pittsburgh Zoo & PPG Aquarium**

Pittsburgh, PA

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
593	102731	F	14	HOLD	PITTSBURG	DO NOT BREED		
630	102101	M	13	HOLD	PITTSBURG	DO NOT BREED		
909	103011	F	2	HOLD	PITTSBURG	BREED WITH	934	
934	U17003	M	1	RECEIVE FROM	HOGLE	BREED WITH	909	

PORTLAND**Oregon Zoo**

Portland, OR

Institutional Note: Male could be a potential semen donor for AI. Please contact SSP Coordinator for more information.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
490	B00137	M	18	HOLD	PORTLAND	DO NOT BREED		

ROLLING H**Rolling Hills Wildlife Adventure**

Salina, KS

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
397	9812BB	F	24	HOLD	ROLLING H	DO NOT BREED		Excluded—Age Died during comment period
565	111229	M	15	HOLD	ROLLING H	DO NOT BREED		

ROSAMOND (non-AZA)**Exotic Feline Breeding Compound Inc.**

Rosamond, CA

Institutional Note: Male 506 is recommended for semen donation for AI. Incoming imported European male should breed with 811, but could also breed with 887 and 811 could receive semen from 506 via AI. Contact SSP Coordinator for more information.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
428	289	F	20	HOLD	ROSAMOND	DO NOT BREED		Excluded -Age
506	335	M	17	HOLD	ROSAMOND	DO NOT BREED		See Note
537	331	F	16	HOLD	ROSAMOND	DO NOT BREED		Excluded -Age
810	469	M	6	HOLD	ROSAMOND	DO NOT BREED		
811	470	F	6	HOLD	ROSAMOND	DO NOT BREED		See Note
887	558	F	2	HOLD	ROSAMOND	DO NOT BREED		See Note

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S BARBARA**Santa Barbara Zoological Gardens**

Santa Barbara, CA

Institutional Note: Breed current pair; however, female is genetically valuable and may be repaired during next breeding and transfer plan.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
827	700693	M	5	HOLD	S BARBARA	BREED WITH	865	See Note
865	700954	F	3	HOLD	S BARBARA	BREED WITH	827	See Note

SANDIEGOZ**San Diego Zoo**

San Diego, CA

Institutional Note: Institution should contact SSP Coordinator for breeding recommendations once current cubs are placed. Send male cub 935 to SYRACUSE when socially ready.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
848	516034	M	5	HOLD	SANDIEGOZ	BREED WITH DO NOT BREED	871	Changed during comment period (See Note)
869	517062	F	3	HOLD	SANDIEGOZ	DO NOT BREED		
871	516114	F	3	HOLD	SANDIEGOZ	BREED WITH DO NOT BREED	848	Changed during comment period (See Note)
935	517132	M	1	SEND TO	SYRACUSE	BREED WITH	940	See Note
944	517126	M	0	HOLD	SANDIEGOZ	DO NOT BREED		
958	518024	F	0	HOLD	SANDIEGOZ	DO NOT BREED		Born during comment period
959	518025	F	0	HOLD	SANDIEGOZ	DO NOT BREED		Born during comment period

SANFORD (new AZA institution)**Central Florida Zoological Park**

Sanford, FL

Institutional Note: Institution is looking for a female to pair with the incoming male (930). Not able to import this year, would be willing to accept a female on loan from another institution.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
930	7316	M	1	RECEIVE FROM	CHICAGOBR	DO NOT BREED		

SEDGWICK**Sedgwick County Zoo**

Wichita, KS

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
561	13594	M	15	SEND TO	MINNESOTA	BREED WITH	829	
796	15060	F	7	HOLD	SEDGWICK	DO NOT BREED		

SOUTHBEND**Potawatomi Zoo**

South Bend, IN

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
542	23015	F	16	HOLD	SOUTHBEND	DO NOT BREED		
951	34225	F	1	HOLD	SOUTHBEND	DO NOT BREED		
952	34226	F	1	HOLD	SOUTHBEND	DO NOT BREED		

ST LOUIS**Saint Louis Zoological Park**

St. Louis, MO

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
594	103263	F	14	HOLD	ST LOUIS	DO NOT BREED		Excluded - Age/medical
629	111002	M	13	HOLD	ST LOUIS	DO NOT BREED		Excluded - Sterile

STATEN IS**Staten Island Zoo**

Staten Island, NY

Institutional Note: Breed current pair; however, female is genetically valuable and may be repaired during next breeding and transfer plan.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
831	13008	M	5	HOLD	STATEN IS	BREED WITH	870	See Note
870	M17003	F	3	HOLD	STATEN IS	BREED WITH	831	See Note

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SYRACUSE (new AZA institution)**Rosamond Gifford Zoo at Burnet Park**

Syracuse, NY

Institutional Note: Male 935 at SANDIEGOZ will be sent when deemed socially ready.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
935	517132	M	1	RECEIVE FROM	SANDIEGOZ	BREED WITH	940	See Note
940	M17010	F	0	RECEIVE FROM	GREENVISC	BREED WITH	935	

THURMONT (non-AZA)**Catoctin Wildlife Preserve and Zoo**

Thurmont, MD

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
808	_____	F	7	HOLD	THURMONT	DO NOT BREED		

W ORANGE**Turtle Back Zoo**

West Orange, NJ

Institutional Note: Breed current pair; however, female is genetically valuable and may be repaired during next breeding and transfer plan.

SB ID	Local ID	Sex	Age	Disposition	Location	Breeding	With	Notes
830	6605	M	5	HOLD	W ORANGE	BREED WITH	874	
874	2191	F	3	HOLD	W ORANGE	BREED WITH	830	

Appendix A

Analytical Assumptions

The current Amur leopard population is 100% known; no pedigree assumptions were needed for this analysis.

Appendix B

Summary of Data Exports

PMx Project: AmurLeopard_03July2018
 Created: 2018-07-03 by PMx version 1.5.20180429
 File: C:\PMxProjects\AmurLeopard_03July2018.pmxproj
 Description: Project for final report

Primary data file

Data File Name: XXAMLEOP_N.ped
 Common Name: AMUR LEOPARD
 Scientific Name: PANTHERA PARDUS ORIENTALIS
 Data Source: PopLink
 Studbook Name: AMLEOP_N
 Exported On: 2018-07-03
 Software version: PopLink 2.4
 Current through: 2018-02-21
 Compiled by: Cynthia Kreider
 Scope: North American regional Erie Zoological Gardens
 Dates: 2018-07-03
 Locations:

Association: AmurLeopard_Mar2018.FED (AZA + BINGHAMTO, COAL VAL, JACKSON, MONCTON, ORONO, PITTSBURGH, ROSAMOND and THURMONT)

Other Filters: Status = Living
 User: alawless

Locations data file
 Data File Name: location.txt

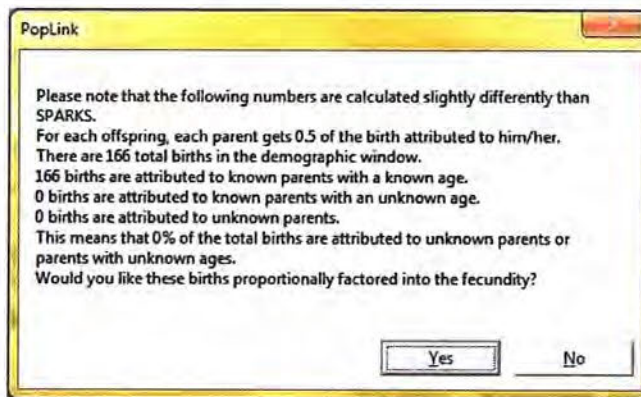
Demographic input files
 MPm file: mXXAMLEOP_N.prm
 FPm file: fXXAMLEOP_N.prm
 Census1 file: Exchcens.txt

Male/Female LifeTable filter:

*Common Name: AMUR LEOPARD
 *Scientific Name: PANTHERA PARDUS ORIENTALIS
 *Data Source: PopLink
 *Studbook Name: AMLEOP_N
 *Exported On: 2018-07-03
 *Software version: PopLink 2.4
 *Current through: 2018-02-21
 *Compiled by: Cynthia Kreider
 *Scope: North American regional Erie Zoological Gardens
 *Dates: 1975-01-01 to 2018-07-03
 *Locations:
 *Association: AmurLeopard_Mar2018.FED (AZA + BINGHAMTO, COAL VAL, JACKSON, MONCTON, ORONO, PITTSBURGH, ROSAMOND and THURMONT)
 *Other Filters: Status = Living
 *User: alawless

Updates Reported during Comment Period (All analyses have been updated):

-SB ID# 397 (F) died at ROLLING H on 04/10/2018
 -SB ID# 427 (F) died at LEON on 09/30/2015
 -SB ID# 956 (M) born at CHICAGOBR on 04/18/2018
 -SB ID# 957 (M) born at CHICAGOBR on 04/18/2018
 -SB ID# 958 (F) born at SANDIEGOZ on 04/05/2018
 -SB ID# 959 (F) born at SANDIEGOZ on 04/05/2018
 -SB ID# 960 (F) born at HOGLE on 05/09/2018
 -Temp ID# T01 (M) born at GRANBY on 06/15/2018
 -Temp ID# T02 (F) born at STATEN IS on 06/28/2018 and died on 6/30/2018



Appendix C

Animals Excluded from the Genetic Analysis

SB ID	Age	Sex	Location	Reason
397	21	F	ROLLING H	Age (Died during comment period)
427	20	F	LEON	Age (Died during comment period)
428	20	F	ROSAMOND	Age
502	17	F	JACKSONVL	Age
514	17	F	JACKSON	Age/medical
529	16	F	DENVER	Spayed
537	16	F	W ORANGE	Age
566	15	M	JACKSON	Medical
567	15	F	PHILADELP	Age
585	14	F	MONCTON	Age
594	14	F	ST LOUIS	Age/medical
604	14	F	PALM DES	Spayed
605	14	F	EL PASO	Age, several attempts have been made to breed this female with multiple males, with no success
629	13	M	ST LOUIS	Sterile
658	11	F	MINNESOTA	Spayed

Appendix D Life Tables

Px = survival; Qx = mortality; Lx = cumulative survivorship; Mx = fecundity; Ex = life expectancy; Vx = expected future reproduction,
At Risk (Qx and Mx) = number of animals corresponding values are estimated from.

MALES									FEMALES								
Age	Px	Qx	Risk Qx	Lx	Mx	Risk Mx	Ex	Vx	Age	Px	Qx	Risk Qx	Lx	Mx	Risk Mx	Ex	Vx
0	0.66	0.34	81.70	1.00	0.00	54.80	13.838	1.21	0	0.72	0.28	95.70	1.00	0.00	70.20	14.456	1.16
1	1.00	0.00	57.80	0.66	0.00	57.80	16.145	1.52	1	1.00	0.00	73.50	0.72	0.00	73.50	16.073	1.39
2	1.00	0.00	61.50	0.66	0.06	61.50	15.145	1.53	2	1.00	0.00	73.50	0.72	0.13	73.50	15.073	1.38
3	1.00	0.00	62.00	0.66	0.15	62.00	14.145	1.48	3	0.97	0.03	73.20	0.72	0.16	72.10	14.287	1.27
4	0.98	0.02	63.50	0.66	0.15	62.70	13.277	1.35	4	0.98	0.02	66.10	0.70	0.14	66.10	13.629	1.13
5	1.00	0.00	61.90	0.65	0.11	61.90	12.403	1.22	5	1.00	0.00	63.00	0.68	0.11	63.00	12.758	1.00
6	1.00	0.00	56.70	0.65	0.11	56.70	11.403	1.11	6	1.00	0.00	59.30	0.68	0.12	59.30	11.758	0.89
7	1.00	0.00	54.60	0.65	0.09	54.60	10.403	1.01	7	0.97	0.03	57.90	0.68	0.19	56.20	10.922	0.78
8	0.98	0.02	52.00	0.65	0.15	51.70	9.498	0.93	8	1.00	0.00	50.30	0.66	0.14	50.30	10.075	0.59
9	1.00	0.00	49.70	0.63	0.13	49.70	8.584	0.79	9	1.00	0.00	48.40	0.66	0.05	48.40	9.075	0.45
10	0.96	0.04	48.50	0.63	0.05	47.00	7.739	0.68	10	1.00	0.00	48.50	0.66	0.13	48.50	8.075	0.40
11	0.98	0.02	46.00	0.61	0.17	45.20	6.949	0.65	11	0.96	0.04	47.10	0.66	0.13	45.80	7.219	0.28
12	1.00	0.00	44.70	0.60	0.08	44.70	6.01	0.49	12	0.93	0.07	44.20	0.64	0.06	43.10	6.579	0.15
13	0.95	0.05	43.00	0.60	0.08	42.80	5.138	0.42	13	0.98	0.02	40.60	0.59	0.07	40.60	5.848	0.10
14	0.95	0.05	37.10	0.57	0.08	36.10	4.356	0.36	14	0.92	0.08	38.30	0.58	0.03	37.50	5.101	0.03
15	0.97	0.03	33.00	0.54	0.12	32.50	3.497	0.30	15	0.97	0.03	31.30	0.53	0.00	30.60	4.345	0.00
16	0.76	0.24	28.70	0.52	0.12	24.60	2.881	0.20	16	0.89	0.11	27.30	0.52	0.00	26.40	3.594	0.00
17	0.76	0.24	20.60	0.40	0.11	18.60	2.475	0.11	17	0.81	0.19	21.20	0.46	0.00	19.30	3.044	0.00
18	0.58	0.42	14.20	0.30	0.00	10.70	2.162	0.00	18	0.74	0.26	15.20	0.37	0.00	13.00	2.624	0.00
19	0.54	0.46	6.50	0.18	0.00	5.30	2.055	0.00	19	0.64	0.36	11.00	0.28	0.00	9.50	2.329	0.00
20	0.67	0.33	3.00	0.09	0.00	2.90	1.802	0.00	20	0.57	0.43	7.00	0.18	0.00	6.00	2.169	0.00
21	0.50	0.50	2.00	0.06	0.00	1.20	1.333	0.00	21	0.37	0.63	3.20	0.10	0.00	2.20	2.35	0.00
22	0.00	1.00	1.00	0.03	0.00	0.20	1.00	0.00	22	1.00	0.00	1.00	0.04	0.00	1.00	2.50	0.00
23	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	23	1.00	0.00	1.00	0.04	0.00	1.00	1.50	0.00
24	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	24	0.00	1.00	1.00	0.04	0.00	0.20	1.00	0.00
25	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	25	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	26	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
r = 0.005, λ = 1.005, Ro = 1.044, T = 8.7, N@20 = 47									r = -0.003, λ = 0.997, Ro = 10.981, T = 6.9, N@20 = 47								

Appendix E

Ordered Mean Kinship List

Note: These lists are current to June 2018 and values are subject to change with any hatch, death, import, export, inclusion, exclusion, or changes in pedigree or pedigree assumptions.

Population MK = 0.1281

MALES					FEMALES				
SB ID	MK	Known	Age	Location	SB ID	MK	Known	Age	Location
717	0.0661	1.0000	10	MINNESOTA	865	0.0810	1.0000	4	S BARBARA
719	0.0798	1.0000	10	CLEVELAND	893	0.0842	1.0000	3	GRANBY
896	0.0877	1.0000	3	COLO SPRG	874	0.0892	1.0000	4	W ORANGE
822	0.0925	1.0000	6	GRANBY	870	0.0925	1.0000	4	STATEN IS
769	0.0957	1.0000	8	CHICAGOBR	871	0.0959	1.0000	4	SANDIEGOZ
657	0.1029	1.0000	12	GREENVISC	825	0.0967	1.0000	6	HOGLE
934	0.1036	1.0000	1	HOGLE	829	0.0991	1.0000	6	MINNESOTA
935	0.1036	1.0000	1	SANDIEGOZ	960	0.1036	1.0000	0	HOGLE
828	0.1041	1.0000	6	HOGLE	958	0.1099	1.0000	0	SANDIEGOZ
561	0.1085	1.0000	16	SEDGWICK	959	0.1099	1.0000	0	SANDIEGOZ
848	0.1176	1.0000	5	SANDIEGOZ	847	0.1144	1.0000	5	BRIDGEPRT
490	0.1193	1.0000	19	PORTLAND	794	0.1231	1.0000	8	AUDUBON
506	0.1193	1.0000	18	ROSAMOND	747	0.1240	1.0000	11	ERIE
526	0.1193	1.0000	17	FT WAYNE	940	0.1324	1.0000	1	GREENVISC
670	0.1224	1.0000	12	GRANBY	749	0.1359	1.0000	10	CAPE MAY
930	0.1252	1.0000	1	CHICAGOBR	569	0.1365	1.0000	15	KANSASCTY
956	0.1252	1.0000	0	CHICAGOBR	808	0.1368	1.0000	8	THURMONT
957	0.1252	1.0000	0	CHICAGOBR	811	0.1368	1.0000	7	ROSAMOND
941	0.1324	1.0000	1	GREENVISC	883	0.1368	1.0000	5	ATTLEBORO
944	0.1346	1.0000	1	SANDIEGOZ	869	0.1368	1.0000	4	SANDIEGOZ
630	0.1349	1.0000	14	PITTSBURG	755	0.1438	1.0000	10	BALTIMORE
810	0.1368	1.0000	7	ROSAMOND	667	0.1459	1.0000	13	GRANBY
905	0.1372	1.0000	2	GRANBY	909	0.1461	1.0000	2	PITTSBURG
T01	0.1372	1.0000	0	GRANBY	856	0.1466	1.0000	4	COLO SPRG
595	0.1396	1.0000	14	ORONO	857	0.1466	1.0000	4	PHILADELP
596	0.1396	1.0000	14	MANHATTAN	804	0.1484	1.0000	7	CHICAGOBR
597	0.1396	1.0000	14	GARDENCTY	593	0.1512	1.0000	14	PITTSBURG
565	0.1429	1.0000	16	ROLLING H	798	0.1527	1.0000	8	MINOT
827	0.1461	1.0000	6	S BARBARA	887	0.1534	1.0000	3	ROSAMOND
855	0.1461	1.0000	4	BRIDGEPRT	888	0.1534	1.0000	3	CHICAGOLP
801	0.1466	1.0000	7	AUDUBON	951	0.1534	1.0000	1	SOUTHBEND
830	0.1466	1.0000	6	W ORANGE	952	0.1534	1.0000	1	SOUTHBEND
831	0.1466	1.0000	6	STATEN IS	796	0.1543	1.0000	8	SEDGWICK
751	0.1527	1.0000	10	ERIE	797	0.1558	1.0000	8	GREENVISC
592	0.1528	1.0000	14	DENVER	542	0.1666	1.0000	16	SOUTHBEND
886	0.1534	1.0000	3	COAL VAL					
541	0.1577	1.0000	16	JACKSONVL					
484	0.1640	1.0000	19	EL PASO					

Amur Leopard (Panthera pardus orientalis) Final – 2018

This Animal Program is currently a Yellow SSP and recommendations proposed are non-binding – Participation is voluntary. Dispositions to non-AZA institutions must comply with each institution's acquisition/disposition policy, in accordance with the AZA policy on Responsible Population Management.

Appendix F

Descriptive Survival Statistics Report

AMUR LEOPARD Studbook
PANTHERA PARDUS ORIENTALIS
North American regional Erie Zoological Gardens YLASTACCSC 705YLASTEDITC 751 Studbook

Studbook data current as of 2/21/2018

Compiled by
Cynthia Kreider

PopLink Studbook filename: AMLEO_PM + Overlay-AmurLeopard_Mar2018
PopLink User Who Exported Report: psenner
Date of Export: 3/20/2018
Data Filtered by: Association = AMLEO_2018.fed AND StartDate = 1/1/1975 AND EndDate = 3/20/2018
PopLink Version: 2.4

REPORT OVERVIEW:

Based on this analysis, if an AMUR LEOPARD survives to its first birthday, its median life expectancy is 18.1 years. Please see the body of the report for more details.

BACKGROUND ON ANALYSES:

These analyses were conducted using animals that lived during the period 1 January 1975 to 20 March 2018 at institutions within AMLEO_2018. The analyses mainly focus on survival statistics from 1 year (e.g. excluding any individuals that did not survive past their first birthday). These statistics most accurately reflect typical survival for animals which can be seen on exhibit in zoos and aquariums.

This report summarizes survival records of individuals housed at zoological facilities for a specific geographic range and time period; these records trace an individual's history from birth or entry into the population to death, exit out of the population, or the end of the time period. As such, this history only reflects standard practices - including management, husbandry, and acquisition/disposition practices - for the specified time period and geographic range. Thus, the report contents should be viewed with some caution as they may not fully reflect current and newly emerging zoo and aquarium management techniques or practices. For example, if the population has not been maintained in zoos and aquariums long enough to have many adults living into old age, median life expectancy will likely be an underestimate until more data accrue in older age classes. Thus, users of these reports should recognize that the results produced will likely vary over time or depending on the subset of data selected.

Although for many species, including humans, survival statistics often differ for males and females, for these analyses male and female statistics were not statistically different¹; these results therefore include pooled data from males, females, and unknown sex individuals.

SUMMARY OF ANALYSES:

SURVIVAL STATISTICS

The dataset used for analysis includes partial or full lifespans of 165 individuals, 64 (38.8%) of which had died by 20 March 2018.

If a AMUR LEOPARD survives to its first birthday, its **median life expectancy**² is **18.1 years of age**. Given the quality of the data - how many animals are in the database and how many have died - there is a 95% chance that the true median falls between 17.3 and 18.5 years of age (i.e., these are the 95% confidence limits). Only 25% of AMUR LEOPARD can be expected to survive to be 19.9 years or older.

First-year (infant) survival³ for AMUR LEOPARD is 66%. The year after birth/hatching is a period of relatively low survival for many species and life histories.

The **maximum longevity**⁴ observed for AMUR LEOPARD is **24.2 years**; this longevity record is based on an individual which was DEAD as of the analysis end date (studbook number 240, sex = Female, origin = Captive Born, birth date estimate = None).⁵

Amur Leopard (Panthera pardus orientalis) Final – 2018

This Animal Program is currently a Yellow SSP and recommendations proposed are non-binding – Participation is voluntary. Dispositions to non-AZA institutions must comply with each institution's acquisition/disposition policy, in accordance with the AZA policy on Responsible Population Management.

The correct interpretation of these statistics is that, if it survives the first year of life, the 'typical' AMUR LEOPARD will live 18.1 years; that half of all AMUR LEOPARD can be expected to die before they reach 18.1 and half will live longer than 18.1; that only 25% of all AMUR LEOPARD can be expected to live 19.9 years; and that it is rare but possible for AMUR LEOPARD to live 24.2 years.

The median life expectancy, confidence interval, first-year survival, and maximum longevity may change as more data are accumulated, the population's age structure changes, or management practices improve.

While both median life expectancy and maximum longevity are discussed in this report, it is more appropriate to rely on median life expectancy to place the age of any one individual in context. To put these statistics in perspective, median life expectancy from age one for people in the United States is 77.5 years and the maximum longevity (documented worldwide) is 122 years⁶. Therefore, if a person lived to be 85 years old, the appropriate context is that they lived well beyond the median life expectancy (77.5), not that they fell short of the maximum longevity (122).

DATA QUALITY

The PopLink Survival Tool uses five data quality measures to determine whether data are robust enough to make reliable estimates of key survival parameters. **This population passed all of the following data quality tests:**

1. Can the median life expectancy be calculated? **PASS**
2. Is the sample size (number of individuals at risk) greater than 20 individuals at the median? **PASS**
3. Is the 95% Confidence Interval (CI) bounded? **PASS**
4. Is the sample size in the first age class of analysis (e.g. the first day of analysis) greater than 30 individuals? **PASS**
5. Is the length of the 95% CI < 33% of the maximum longevity? **PASS**

PopLink data validation has never been run; if errors are present in this studbook, they may affect the data in this analysis.

¹ Statistical significance was determined by comparing 84% confidence intervals around median life expectancy for males and females, with 0 unknown sex individuals proportionally incorporated into the analysis. For this population, overlapping confidence intervals indicated that data could be pooled. See the PopLink manual for more details.

² The statistics analyzed for this report (median life expectancy, 95% confidence limits, and age to which 25% of individuals survive) exclude any individuals who did not survive to their first birthday; these individuals are excluded because this Report is focused on providing median survival estimates for the typical individual that survives the vulnerable infant stage. In other words, this report answers the question, 'how long is this species expected to live once it has reached its first birthday?' For this studbook, 53 individuals died before their first birthday and were excluded from these analyses.

For all animals that survive to their first birthday, 50% will die before the median life expectancy in this report and 50% die after. Note that the median life expectancy obtained from population management software (PM2000, PMx, ZooRisk) or from life tables in Breeding and Transfer Plans (e.g. where $L_x = 0.5$) will be lower because it includes these individuals that did not survive to their first birthday in order to project the correct number of births needed. See the PopLink manual for more details.

³For reference, first-year survival is provided. For this studbook and the selected demographic window, 53 individuals did not survive to their first birthday and were excluded from the estimates provided above (median life expectancy, 95% confidence limits, and age to which 25% of individuals survive).

⁴ Maximum longevity is the age of the oldest known individual for this species, living or dead. It is not necessarily the biological maximum age, but only reflects the individuals included in the dataset.

⁵ Censored individuals are individuals whose deaths have not been observed as of the end of the analysis window, including individuals who 1) are still alive as of the end date, 2) exited the geographic window before the end date (through transfer or release), or 3) were lost-to-follow up before the end date.

⁶ Median life expectancy for people is estimated from: Xu, Jiaquan, Kochanek KD, Murphy SL, and Tejada-Vera B. 2007. Deaths: Final Data for 2007. National vital statistics reports; vol 58 no 19. Hyattsville, MD: National Center for Health Statistics. Jeanne Calment of France was the oldest documented and fully validated human and died at 122 years and 164 days; from: <http://www.grg.org/Adams/Tables.htm>. Accessed August 9, 2007.

Appendix G

Definitions

Management Terms

Green Species Survival Plan® (Green SSP) Program – A Green SSP Program has a population size of 50 or more animals and is projected to retain 90% gene diversity for a minimum of 100 years or 10 generations. Green SSP Programs are subject to AZA's Full Participation and Non-Member Participation Policies.

Yellow Species Survival Plan® (Yellow SSP) Program – A Yellow SSP Program has a population size of 50 or more animals but cannot retain 90% gene diversity for 100 years or 10 generations. Yellow SSP participation by AZA institutions is voluntary.

Red Species Survival Plan® (Red SSP) Program – A Red SSP has a population size of greater than 20 but fewer than 50 animals, at least three AZA member institutions, and a published studbook. Animal Programs that manage species designated as Extinct in the Wild, Critically Endangered, or Endangered (IUCN) do not need to meet minimum population size and number of participating institution criteria to be designated as an SSP Program. Red Program participation by AZA institutions is voluntary.

Full Participation – AZA policy stating that all AZA accredited institutions and certified related facilities having a Green SSP animal in their collection are required to participate in the collaborative SSP planning process (e.g., provide relevant animal data to the AZA Studbook Keeper, assign an Institutional Representative who will communicate institutional wants and needs to the SSP Coordinator and comment on the draft plan during the 30-day review period, and abide by the recommendations agreed upon in the final plan).

All AZA member institutions and Animal Programs, regardless of management designation, must adhere to the AZA Policy on Responsible Population Management and the AZA Code of Professional Ethics. For more information on AZA policies, see <https://www.aza.org/board-approved-policies-and-position-statements>.

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 an 11% per year increase; lambda of 0.97 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.

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.

Mx, Fecundity – The average number of same-sexed young born to animals in that age class. Because studbooks typically have relatively small sample sizes, studbook software calculate 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. $Qx = 1 - Px$. Alternatively, 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").

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.

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).

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

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

Founder Representation – Proportion of the genes in the living, descendant population that are derived from that founder.

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.

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.

Percent Certain – The percentage of the living individuals' pedigree that can be completely identified as *certain*: (exact identity of both parents is known) and traceable back to known founders. Individuals that are 100% *certain* do not have any MULTs or UNKs in their pedigree. *Certainty* represents a higher degree of knowledge than *Known* and therefore is always less than or equal to *Known*.

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 H

Directory of Institutional Representatives

Contact Name (IR)	Institution	Email
Brenda Young	ATTLEBORO - Capron Park Zoo, Attleboro, MA	brenda.asstdirector@cityofattleboro.us
Joe Forys	AUDUBON - Audubon Zoo, New Orleans, LA	jforys@auduboninstitute.org
Erin Cantwell	BALTIMORE - The Maryland Zoo in Baltimore, Baltimore, MD	erin.cantwell@marylandzoo.org
Christina Sheehan	BINGHAMTO - Binghamton Zoo at Ross Park, Binghamton, NY	csheehan@rossparkzoo.com
Chris Pfefferkorn	BIRMINGHAM - Birmingham Zoo, Birmingham, AL	cpfefferkorn@birminghamzoo.com
Don Goff	BRIDGEPORT - Connecticut's Beardsley Zoo, Bridgeport, CT	dgoft@beardsleyzoo.org
Hubert Paluch	CAPE MAY - Cape May County Park Zoo, Cape May Court House, NJ	zvetpaluch@co.cape-may.nj.us
Dina Bredahl	COLO SPRG - Cheyenne Mountain Zoological Park, Colorado Springs, CO	dbredahl@cmzoo.org
Amy Roberts	CHICAGOBR - Chicago Zoological Park, Brookfield, IL	amy.roberts@czs.org
Michael Murray	CHICAGOLP - Lincoln Park Zoological Gardens, Chicago, IL	mmurray@lpzoo.org
Travis Vineyard	CLEVELAND, Cleveland Metroparks Zoo, Cleveland, OH	tgvt@clevelandmetroparks.com
Tammy Schmidt	COAL VAL - Niabi Zoo, Coal Valley, IL	tschmidt@niabizoo.com
Celeste Lombardi	COLUMBUS - Columbus Zoo and Aquarium, Powell, OH	dusty.lombardi@columbuszoo.org
Janee Zakoren	DENVER - Denver Zoological Gardens, Denver, CO	jzakoren@denverzoo.org
John Kiseda	EL PASO - El Paso Zoo, El Paso, TX	kisedajj@elpasotexas.gov
Jenn Salandra	ERIE - Erie Zoological Gardens, Erie, PA	jsalandra@eriezoo.org
Amos Morris	FRESNO - Fresno Chaffee Zoo, Fresno, CA	amorris@fresnochaffeezoo.org
Joseph Smith	FT WAYNE - Fort Wayne Children's Zoological Garden, Fort Wayne, IN	joe.smith@kidszoo.org
Sarah Colman	GARDENCTY - Lee Richardson Zoo, Garden City, KS	sarah.colman@gardencityks.us
Chantal Routhier	GRANBY - Granby Zoo/ Zoo de Granby, Granby, Quebec	crouthier@zoodegranby.com
Keith Gilchrist	GREENVISC - Greenville Zoo, Greenville, SC	kgilchrist@greenvillesc.gov
Jeff Bullock	GREENVISC - Greenville Zoo, Greenville, SC	jbullock@greenvillesc.gov
Gina Phillips	HOGLE - Utah's Hogle Zoo, Salt Lake City, UT	gphillips@hoglezoo.org

Amur Leopard (Panthera pardus orientalis) Final – 2018

This Animal Program is currently a Yellow SSP and recommendations proposed are non-binding – Participation is voluntary. Dispositions to non-AZA institutions must comply with each institution's acquisition/disposition policy, in accordance with the AZA policy on Responsible Population Management.

Contact Name (IR)	Institution	Email
Jeremy Cargo	IEFS - International Exotic Feline Sanctuary, Boyd, TX	office@bigcat.org
Dave Wetzel	JACKSON - Jackson Zoological Park, Jackson, MS	dlwetzel@jacksonzoo.org
Daniel Dembiec	JACKSONVL - Jacksonville Zoo and Gardens, Jacksonville, FL	dembiecd@jacksonvillezoo.org
Sean Putney	KANSASCTY - Kansas City Zoo, Kansas City, MO	SeanPutney@fotzkc.org
Pavlova Sheffield	LEON - Parque Zoologico de Leon, Leon, Mexico	curador@zooleon.org.mx
Kirk Nemechek	MANHATTAN - Sunset Zoo, Manhattan, KS	nemechek@cityofmhk.com
Matt Thompson	MEMPHIS - Memphis Zoological Garden & Aquarium, Memphis, TN	mthompson@memphiszoo.org
Diana Weinhardt	MINNESOTA - Minnesota Zoological Garden, Apple Valley, MN	diana.weinhardt@state.mn.us
Brandi Clark	MINOT - Roosevelt Park Zoo, Minot, ND	bclarkrpz@srt.com
James Carson	MONCTON - Magnetic Hill Zoo, Moncton, New Brunswick	James.Carson@moncton.ca
Donna Doherty	NY BRONX - Bronx Zoo/Wildlife Conservation Society, Bronx, NY	ddoherty@wcs.org
Eddie Witte	OKLAHOMA - Oklahoma City Zoological Park, Oklahoma City, OK	ewitte@okczoo.org
Daniel Houser	OMAHA - Omaha's Henry Doorly Zoo, Omaha, NE	danh@omahazoo.com
Christa Klose	ORONO - Jungle Cat World - Canada	info@junglecatworld.com
Wendy Enright	PALM DES - The Living Desert Zoo and Gardens, Palm Desert, CA	Wenright@livingdesert.org
Donna Evernham	PHILADELP - The Philadelphia Zoo, Philadelphia, PA	evernham.donna@phillyzoo.org
Ken Kaemmerer	PITTSBURG - Pittsburgh Zoo & Aquarium, Pittsburgh, PA	kkaemmerer@pittsburghzoo.org
Amy Cutting	PORTLAND - Oregon Zoo, Portland, OR	amy.cutting@oregonzoo.org
Lynn Tupa	RIO GRAND - Albuquerque Biological Park, Albuquerque, NM	ltupa@cabq.gov
Brenda Gunder	ROLLING H - Rolling Hills Wildlife Adventure, Salina, KS	brenda@rollinghillszoo.org
Kristian Krause	ROSAMOND - Exotic Feline Breeding Compound	purrdoc@gmail.com
Michele Green	S BARBARA - Santa Barbara Zoological Gardens, Santa Barbara, CA	mgreen@sbzoo.org
Carmi Penny	SANDIEGOZ - San Diego Zoo, San Diego, CA	cpenny@sandiegozoo.org
Elena Lamar	SANFORD - Central Florida Zoological Park, Lake Monroe, FL	elenal@centralfloridazoo.org
Michael Quick	SEDGWICK - Sedgwick County Zoo, Wichita, KS	michael.quick@scz.org
Anna Pelc	SOUTHBEND - Potawatomi Zoo, South Bend, IN	apelc@potawatomizoo.org

Amur Leopard (Panthera pardus orientalis) Final – 2018

This Animal Program is currently a Yellow SSP and recommendations proposed are non-binding – Participation is voluntary. Dispositions to non-AZA institutions must comply with each institution's acquisition/disposition policy, in accordance with the AZA policy on Responsible Population Management.

Contact Name (IR)	Institution	Email
Steve Bircher	ST LOUIS - Saint Louis Zoological Park, St. Louis, MO	bircher@stlzoo.org
Sarrah Kaye	STATEN IS - Staten Island Zoo, Staten Island, NY	skaye@statenilandzoo.org
Dan Meates	SYRACUSE – Rosamond Gifford Zoo at Burnet Park, Syracuse, NY	danmeates@ongov.net
Laurie Hahn	THURMONT- Catoctin Wildlife Preserve and Zoo, Thurmont, MD	lhahn@cwzoo.com
Erin Mowatt	W ORANGE - Turtle Back Zoo, West Orange, NJ	emowatt@parks.essexcountynj.org
Brinton Spencer	WILMINGTON - Brandywine Zoo, Wilmington, DE	brint.spencer@state.de.us
Gary Lunsford	WINNIPEG - Assiniboine Park Zoo, Winnipeg, Manitoba	glunsford@assiniboinepark.ca

Russia's Grizzly Coast

How They're Doing



Trapped

As recently as 2008, only 30 Amur leopards were left in the wild. They once ranged throughout a large region in China and the Koreans, but growing human populations have isolated the leopards in a small pocket at the tip of Russia's Far East.

Rising Hope

After stabilizing, this small population of leopards has more than doubled and continues to grow, with new leopards found in adjacent areas of China. New protections in the Chinese range have expanded potential leopard habitat.

Local people are locating, stream and pond of the leopard, causing a positive climate for change.

Ситуация в настоящее время



Before the leopards are returned to its old habitat, the first step is to ensure there are no more threats. The leopards need to be protected. This project is already in the works with the help of Russian and foreign organizations.



The Zoo In Action

The Minnesota Zoo contributes to programs in the Russian Far East to preserve existing populations and increase habitat.

Collapse

Small populations of endangered species cannot exist forever. Even if threats like poaching and habitat loss are eliminated, inbreeding can eventually lead to the collapse of a population. New genes are critical.

Panthera pardus orientalis

Amur leopard

Амурский леопард

Silent, sleek and deadly. Only a small population of Amur leopards remain in the wild, isolated in a small area at the tip of Russia's Pacific Coast and neighboring China. The Amur leopard lives farther north than any other leopard and requires a substantial wild range with lots of prey.

What they eat:

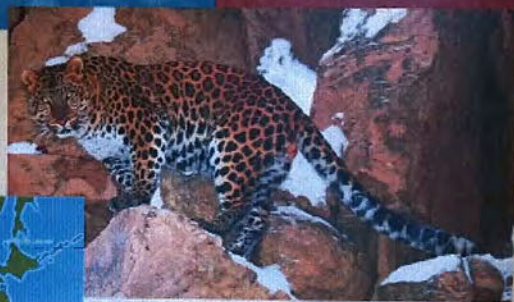
Leopards rely mostly on small deer (sika and roe) for food. They carry their kill to a high point for safe storage; one carcass can feed an adult most of a week. But the number of deer is declining as the habitat changes.

What they do:

These stealthy, speedy hunters excel at climbing and jumping. They're loners, keeping and defending a range of up to 60 square miles.

How they're doing:

Amur leopards are on the brink of extinction. But hope remains: more public campaigns have saved their last refuge, and some old habitat may yet be restored. Someday leopards from zoos may be reintroduced into new protected habitats.



Where they live:

Not long ago, Amur leopards lived over a wide area of northern China, the Koreans, and a small part of Russia's Far East. Expanding human populations have tamed the wilderness and cornered the leopard.

Russia's Grizzly Coast Restore

Восстановление

Bringing them home

The little tip of Russia where leopards remain is only big enough to support about 100 leopards. That's not a viable population. So survival means reintroducing a population in a part of their former range. And that may mean bringing in animals from zoos.

Step 1: Find A Place

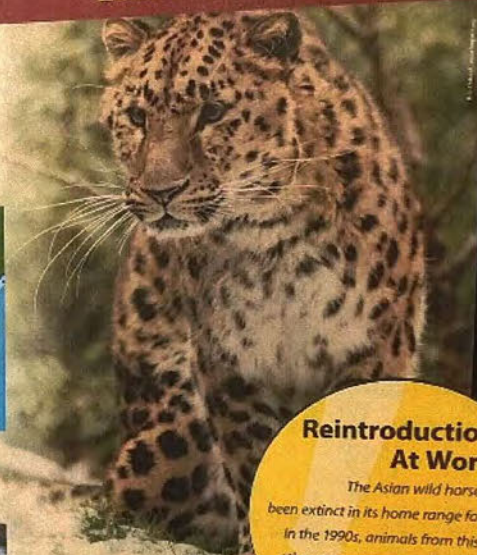
For reintroduction to be successful, the location must be suitable to their adaptations (cold, but with lower snow accumulations; with specific trees and rocky outcrops), not a threat to people, away from domestic animals that carry disease, well-protected by law, and large enough to support the leopards and their prey.

Step 2: Encourage Prey

Even after finding, purchasing, and protecting a location for reintroduction, years may pass before the place is ready. Reintroduced leopards will need food, which means that the place has to have prey. Lots of it. That may require generations for populations to grow.



See the Amur leopard's range in this spot and, in reality, it is a prime area for reintroduction, so long as the human leopard-dispersal can be eliminated.



Reintroduction At Work

The Asian wild horse had been extinct in its home range for years. In the 1990s, animals from this and other zoos were reintroduced on the plains of Mongolia and now the wild population is again growing.

The Zoo In Action

The Minnesota Zoo coordinates Amur leopard breeding throughout North America, maintaining healthy populations that we hope will someday strengthen wild leopard gene pools.



A single Amur leopard will need to eat the equivalent of about 20 deer per year.

There are more Amur leopards in zoos around the world than there are in the wild. Carefully managed breeding has kept the captive population viable, but at some point it may become limited.

Step 3: Bring in the Leopards

Where will the leopards come from? The wild population in the south? That has the advantage of leopards that are used to finding food and avoiding people. But it doesn't increase the gene pool. From zoos? That introduces fresh genes, but it will take years before captive-born animals can be expected to survive by catching prey.



Russia's Grizzly Coast

Save

Сохранение

Protecting land and cats

The three main threats to the big cats, and to most animals on the edge, are loss of habitat, loss of prey, and poaching. Conservation groups in the region tackle each of these aggressively and directly. And they're beginning to see success.



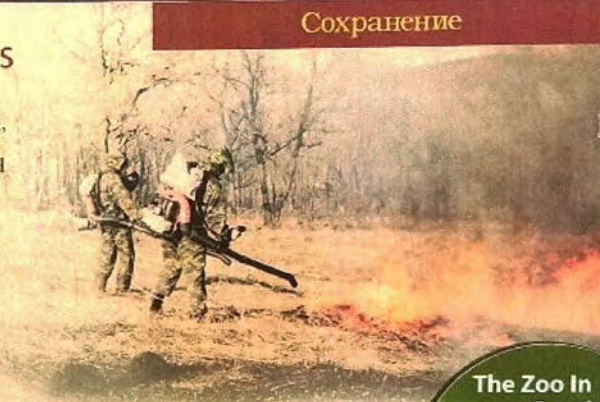
Anti-poaching teams are local people who know the land and animals.

Anti-poaching teams

Local teams travel the roads, watch the forests, and work with local law enforcement to break up black market rings. International conservation organizations support these teams with salaries, radios, and vehicles.

Fighting Fires

Local Russians have developed a habit of burning forests annually. Doing so changes the structure of the forest and makes it inhospitable to cats and prey. Conservation groups have raised awareness about the problem and fought it directly with fire-prevention techniques and firefighting teams.



Fire-fighting teams have successfully reduced damage to the forests that leopards need.



The above photo shows a natural forest in leopard range. The photo on the right demonstrates the changes caused by years of uncontrolled burning. This open savanna doesn't provide the cover that leopards or their prey need.



The Zoo In Action

The Minnesota Zoo is an ongoing supporter of firefighting and anti-poaching teams in Amur leopard and tiger range.

Conservation

Russia's Grizzly Coast

Learn

Getting to know them

Effective conservation begins with understanding. And for secretive animals like Amur leopards and tigers, there's a lot we don't know. Scientists use high-tech equipment and basic tracking skills to gradually piece together information critical to the survival of these big cats.

How we learn

Scientists have a variety of tools, from following prints in the snow to tracking animals by satellite. Each tool offers limited information. Combining the data over time and the big picture slowly comes into focus.

What we learn

What do they eat? What do they need for habitat? How is the prey population doing? How is the habitat? What do they need for reproduction? All of these questions relate to the survival of the species. And the answers help biologists plan effective conservation programs.

The Zoo In Action

The Zoo provides radio collars and other equipment to help track the big cats. Zoo biologists support camera traps that get a possible reproduction site.



Leopards are elusive and difficult to track in the wild. Scientists use a variety of tools to learn more about them.

Изучение

Scientists use a variety of tools to learn more about leopards. Each tool offers limited information. Combining the data over time and the big picture slowly comes into focus.



Leopold 1994

For two years in the 1990s, Russian scientists tracked an Amur leopard and with a radio collar. The data they gathered helped us learn about leopard habitat. Then the batteries died and he disappeared.



Leopards are elusive and difficult to track in the wild. Scientists use a variety of tools to learn more about them.

Leopold 2002

In 2002 a camera trap spotted the first leopard. He was 150 wearing his collar and holding onto his territory.

Russ In

Help

Hungry with interrelated and predator conservation people re

Hunting

Initially, through collaboration groups help increasing protection work to conservation

The

Scientists and other experts support the work in Russia

in Action

Russia's Grizzly Coast

Involve

Helping Local People Succeed

Hungry, fearful people don't mix well with wild carnivores. But centuries of interrelationships have shown that people and predators can be good neighbors. Conservation often means helping local people regain a stake in animal survival.

Hunting Clubs for Conservation

Ironically, hunting could save leopards and tigers. Through education and support, conservation groups help local hunting clubs benefit from increasing populations of deer and other prey while protecting endangered cats. To do this, the hunters work to control poaching and improve habitat.

The Amur leopard and tiger live along the 900-mile-long border between Russia and China. They are the rarest big cats in the world.



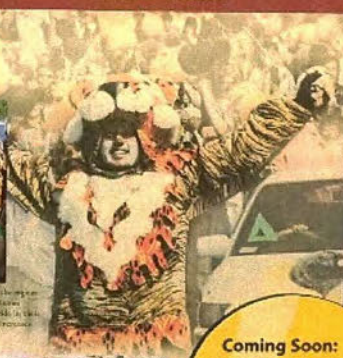
The Zoo In Action

School programs, nature centers, and celebrations about Amur leopards and tigers... the Minnesota Zoo supports these educational programs in Russia's southern Far East.



Traditional leopard and tiger cubs (leopards and tigers) are popular, and many of them are sold and their bones are used in traditional medicine. In the region's unique habitat, the Amur leopard and tiger are still alive.

Вовлечение



Coming Soon: Tiger-Friendly Products

When you buy items certified "Tiger Friendly," you're helping to support sustainable economies in tiger territory that are good for tigers and good for people.

Respect and Pride

Conservation organizations discovered that many people living near the home of the Amur leopard didn't know they were unique to the region and were so endangered. Education campaigns raised awareness and encouraged pride in being the home of these most endangered of wild cats.

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Anti-poaching

Anti-poach

Local teams work with market rings to support these

Fighting F

Local Russian forest annual the forest and Conservation problem and techniques and

Panthera pardus orientalis

Amur leopard

Silent, sleek and deadly. Only a small population of Amur leopards remain in the wild, isolated in a small area at the tip of Russia's Pacific Coast and neighboring China. The Amur leopard lives farther north than any other leopard and requires a substantial wild range with lots of prey.

What they eat:

Leopards rely mostly on small deer (sika and roe) for food. They carry their kill to a high point for safe storage; one carcass can feed an adult most of a week. But the number of deer is declining as the habitat changes.

What they do:

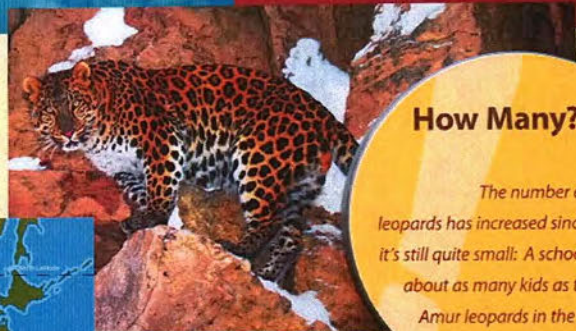
These stealthy, speedy hunters excel at climbing and jumping. They're loners, keeping and defending a range of up to 60 square miles.

How they're doing:

Amur leopards are on the brink of extinction. But hope remains: recent public campaigns have saved their last refuge and some old habitat may yet be restored. Someday leopards from zoos may be reintroduced into new protected habitats.



■ Historic Range ■ Current Range



How Many?

The number of Amur leopards has increased since 2008, but it's still quite small: A school bus holds about as many kids as there are Amur leopards in the world.

Where they live:

Not long ago, Amur leopards lived over a wide area of northern China, the Korea, and a small part of Russia's Far East. Expanding human populations have tamed the wilderness and cornered the leopard.

Make A Difference!

Big Cats

Sea Otters

Brown Bears

Vote for Sea Otters! 22053

Vote for Bears! 21443

Vote for Big Cats! 26025

Give to Vote!

Threat: Loss of Habitat

KEVIN BERNARD WILLIS

Cell: [REDACTED] Office 952.431.9272

Email: kevin.willis@state.mn.us

EMPLOYMENT HISTORY

Vice President for Biological Programs, July 2014 - present
Interim Zoo Director, August 2015 - February 2016
Director of Biological Programs, July 2002-July 2014
Animal Collection Manager, September 1999-June 2002
Avian Conservation Manager, July 1997-September 1999
Minnesota Zoo
13000 Zoo Boulevard
Apple Valley, MN 55124

Assistant Director of Conservation and Science, September 1996-July 1997.
Conservation Biologist, August 1991-September 1996
American Zoo and Aquarium Association
AZA Executive Office/Conservation Center
7970-D Old Georgetown Road
Bethesda, MD 20814

Research Associate III, June 1988-August 1991.
Savannah River Ecology Lab
Aiken, SC 29801

ZOO/AQUARIUM COMMUNITY COMMITTEE INVOLVEMENT:

American Zoo and Aquarium Association (AZA) - Board Level Committees:
Wildlife Conservation and Management Committee - Member and SSP Vice Chair 2000-2006,
2007-2010.
Professional Development Committee - Population Management 1 Course Administrator 1995 -
present
Animal Data Information Systems Committee - Member 2001 - 2005

AZA Conservation and Science Committees:
Small Population Management Advisory Group SSP
Coordinator: Green Aracari
Studbook keeper: Green Aracari

Alliance of Marine Mammal Parks and Aquariums Past
President - April 2015 - present President-
January 2014-April 2015 Board Member
January 2011 - January 2014
Population Management Task Force - Member since 2000, Chair 2006-present

Consulting Editor, Zoo Biology: 2001 - present

HONORS AND AWARDS

Tim O'Sullivan Award for Professional Excellence - 2012
AZA 25-Year Instructor Award - 2016
AZA Outstanding Service Award - 2004, 2005, 2006

EARLY EDUCATION: Elementary and secondary education in St. Paul, MN.
American Field Service Scholarship to the Republic of South Africa, 1979

BACHELOR OF SCIENCE DEGREE:

University of Minnesota
St. Paul, MN 55108
June 1985

Summary of Undergraduate Course Work, G.P.A. = 3.57/4.00

MAJOR - Biology
MINOR - Statistics

MASTERS OF SCIENCE DEGREE IN BIOLOGY:

Texas Tech University
Lubbock, TX 79409
June 1988

Thesis Title: Utility of Binary Data for Analyzing Structure in Island Communities.
Thesis Advisor: Ronald K. Chesser

Summary of Graduate Course Work, G.P.A. = 4.00/4.00

MAJOR - Biology
MINOR - Statistics

TEACHING EXPERIENCE:

Adjunct Assistant Professor George Mason University 2008 - 2015

Administrator/Instructor - American Zoo and Aquarium Association's (AZA): Population Management 1. 1992-present. Instructor: AZA Institutional Records Keeping: 1999-2005. Instructor: AZA Population Management 2: 1992 - 1996. Instructor; AZA Institutional Collection Planning: 2001-2002.

Have also taught courses in animal data records keeping and population management for: the Canadian Association of Zoos and Aquariums (2002), the Central American Zoo Association (1998), the Brazilian Zoo Association (1997), the Australasian Species Management Program (1993, 1995) and the Chinese Association of Zoological Gardens (1994)

Teaching Assistant - University of South Carolina Aiken,
Department of Mathematics, Computer Science, and Engineering.
Intermediate Algebra January 1990 - June 1991.

PUBLICATIONS

- Willis, K. and R.C. Lacy. Use of animals with partially known ancestry in scientifically managed breeding programs. *Zoo Biology*, 35:319-325, 2016.
- Robeck, T., Jaakkola, K., Stafford G., and Willis, K. Killer whale (*Orcinus orca*) survivorship in captivity: A critique of Jett and Ventre (2015). *Marine Mammal Science*, 32, 786--792. 2016.
- Robeck, T. R., Willis, K., Scarpuzzi, M. R., and O'Brien, J. K. Comparisons of life-history parameters between free-ranging and captive killer whale (*Orcinus orca*) populations for application toward species management. *Journal of Mammalogy*, 96, 1055-1070. 2015.
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- Chesser, R.K., K.B. Willis, and N.E. Mathews. Impacts of Toxicants on Population Dynamics and Gene Diversity in Avian Species. Pp. 171-187. in *Wildlife Toxicology and Population Modeling: Integrated Studies of Agroecosystems*, 1994.
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- Willis, K.B. Use of Individuals of Unknown Ancestry in Scientifically Managed Breeding Programs. *Zoo*

Biology 12:161-172, 1993.

Willis, K.B. and R.J. Wiese. Effect of New Founders on Retention of Gene Diversity in Captive Populations: A Formalization of the Nucleus Population Concept. Zoo Biology 12:535-548, 1993.

Willis, K.B. and R.J. Wiese. The Subspecies Dilemma: Splitting and Lumping in Captive Populations. Pp. 115-119 in AAZPA 1993 Annual Conference Proceedings. Wheeling WV. 1993.

Hutchins, M., R. Wiese, and K. Willis. Beyond Genetic and Demographic Management: Toward a Unified AAZPA Conservation Program. Pp. 170-175 in AAZPA/CAZPA 1992 Annual Conference Proceedings. Wheeling WV. 1992.

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Gannon, M.R., M.R. Willig, K.B. Willis, and M.P. Moulton. Intraspecific Comparisons of Diet of Cnemidophorus gularis (Sauria:Teiidae) in Central Texas. Texas Journal of Science 42:263-272, 1990.

Gannon, M.R., and K.B. Willis. Clutch Size and Parasitism of the Texas Spotted Whiptail Cnemidophorus gularis (Sauria:Teiidae), From South Central Texas. Journal of the Southwestern Association of Naturalists 35:215-217., 1990.

Smith, M. H., K. B. Willis, and P. E. Johns. Spatio-Genetic Variation in a White-Tail Deer Herd. Pp. 80-84 in Transactions of the 19th International Union of Game Biologists Congress, 1990.

Lesanna L Lahner DVM, MPH

PROFESSIONAL OBJECTIVE

To promote conservation and improve ecosystem and community health through exceptional veterinary medical care, research, and translational science.

EDUCATION

Doctor of Veterinary Medicine (DVM)

University of Wisconsin – Madison, WI. GPA 3.8, 2006-2011

Master of Public Health (MPH)

University of Wisconsin – Madison, WI. GPA 3.9, 2008-2010

Bachelor of the Arts (BA)

Carleton College, Northfield, MN. Biology, 2000-2004

WILDLIFE VETERINARY and RESEARCH EXPERIENCE

Execute Director and Veterinarian, SR³ Sealife Response, Rehab, and Research Seattle, WA

2016- current, full-time

- Overall strategic and operational responsibility for staff, programs, construction of a new facility, and execution of the mission.
- Develop core scientific and medical programs, operations, and a sustainable business plan.
- Manage field and onsite veterinary care including stranded/injured wildlife response as well as medical aspects of research programs.
- Provide emergency veterinary medical care for marine mammals and birds.
- Develop, maintain, and support a strong Board of Directors and build board involvement with strategic direction.

Veterinarian, Sarvey Wildlife Rehabilitation Center, Arlington, WA

2012-present, part-time

- Provide veterinary medical care, including surgery and intensive care, for a variety of native wildlife species with an emphasis on birds of prey such as bald eagles, hawks, and owls.
- Work with state and federal agencies to ensure priorities are met for wildlife recovery and rehabilitation.
- Perform necropsies and obtain information on local wildlife disease issues for surveillance of important emerging diseases such as highly pathogenic avian influenza, White Nose Syndrome, and more.

Affiliate Professor, University of Washington, Seattle WA

2015-present, part-time

- Lecture for and mentor students from a variety of programs including the MPH, MD, and PhD students associated with the Center for One Health Research and Environmental Health.

AWARDS & HONORS

2017 Nominated and Appointed to the AVMA Steering Committee on Human-Animal Interactions for Wildlife

2016 Nominated by peers to author the Sea Otter Medicine Chapter, CRC Marine Mammal Medicine

2015 NSF Grant recipient, Sea Star Wasting Disease, Boeing Research Award for Marine Mammal Disentanglement

2014 Boeing Research Award for Sea Star Wasting Disease Initiative

2011 Excellence in Avian Medicine and Surgery, UW-Madison

2011 Excellence in Wildlife, Exotics, & Zoo Animal Medicine, & Henry Vilas Zoological Scholarship
Connor DVM/MPH Scholarship

Relief Veterinarian, PAWS Wildlife Center, Seattle WA

2012-present, part-time

- Provide veterinary care, including surgery and intensive care, for a variety of native wildlife species.

Staff Veterinarian, Seattle Aquarium, Seattle, WA

2011-2016, full-time

- Develop and manage new onsite veterinary care program including preventive medicine protocols, treatment plans, medical equipment, animal husbandry, bio-security and nutrition.
- Provide routine and emergency care for marine mammals, birds, fish, and marine invertebrates.
- Create and maintain conservation medicine program that involves field and onsite wildlife health research and grant applications, publishing peer-reviewed literature, and performing translational science.
- Perform mammal and bird necropsies and provide training and oversight of fish and invertebrate necropsies.
- Oversee, teach, and train visiting veterinary students and veterinary technicians.

Part-time and Relief Veterinarian, Point Defiance Zoo and Aquarium, Tacoma, WA

2012-2015, part-time

- Provide routine and emergency veterinary care for terrestrial and marine mammals, birds, fish, and elasmobranchs.
- Provide on-call relief and assist with intensive procedures as needed.

Wildlife Epidemiologist and Veterinarian, Lincoln Park Zoo, Chicago, IL

Davee Center for Epidemiology and Endocrinology, 2011, full-time

- Developed and managed new and existing wildlife disease projects in domestic and international field settings.
- Support new and existing captive breeding and reintroduction programs.
- Provide assistance with infectious disease issues and investigate the role of disease in zoo animal health and sustainable zoo populations.

Wildlife Veterinarian, US Fish and Wildlife Service, Honolulu, HI

Palmyra Atoll Rat Eradication, February 2011-August 2011

- Coordinated and executed shorebird mitigation including capture, aviary design and construction, health monitoring, nutrition, and medical care of vulnerable shorebirds in a remote field setting.
- Monitored non-target mortalities and performed necropsies with tissue collection for analysis of anti-coagulants, contaminants, and histological examination.

Wildlife Biologist, USGS National Wildlife Health Center, Madison, Wisconsin

Research Branch under Drs. Franson and Sileo, January 2007-May 2011, part-time

- Designed and participated in research studies including metallic copper toxicity in raptors as an alternative to lead ammunition, avian influenza, lead toxicity, and West Nile virus.
- Trained staff in, and performed, wildlife capture and handling, sample collection, euthanasia, necropsy, and bio-safety level (BSL) 3 laboratory procedures.

UW-Madison, School of Population Health, Master of Public Health Thesis

Master of Public Health Student, January 2009-June 2010

- Acted as lead coordinator to investigate the spatial and temporal dynamics of the sustained high incidence of human West Nile Virus (WNV) infections in North Dakota.
- Collected and analyzed data on human WNV infections and environmental and social variables using geographic information systems (GIS) and Bayesian (WinBUGS) statistics.

National Wildlife Health Center Honolulu Field Station, Honolulu, Hawai'i

Research Assistant to Dr. Thierry Work, Summer 2008

- Performed chelonian, avian, and fish necropsies and fieldwork including coral health transects and ecological field studies.
- Designed and executed a repeatable experimental model for the assessment of disease in coral species under natural or artificial conditions.

University of Wisconsin –Madison, Large Animal Teaching Hospital

Veterinary medical technician, 2005-2007

- Performed physical examinations, administered medications and treatments, and placed intravenous catheters on large animals including horses, cattle, and camelids.
- Assisted with the care of non-ambulatory large animals including transport, sling placement, float tank usage, and emergency stabilization of critically ill patients.

Minnesota Wildlife Rehabilitation Center, Roseville, Minnesota

Wildlife Rehabilitation Intern, Spring/Summer 2005

- Assisted veterinarians with the examination, stabilization, and treatment of various wildlife species.
- Supervised and trained volunteers, organized supplies and fundraising events.

The Raptor Center, University of Minnesota, St. Paul, Minnesota

Raptor Handler, Veterinary Assist, and Education Volunteer, 1995-2002

- Assisted veterinarians with the examination and treatment of various birds of prey.
- Fed and medicated birds and maintained enclosures.
- Presented educational seminars to children and adults on raptor conservation.

The Wildlife Rehabilitation Center, University of Minnesota, St. Paul, Minnesota

Bat and Avian Caretaker, 1997-2000

- Assisted veterinarians with the examination and treatment of various wildlife species with an emphasis on bats and waterfowl species.
- Fed and medicated bats and birds and maintained enclosures.
- Trained new volunteers in safe handling of bats and various aquatic birds.

SKILLS

Exceptional interpersonal and communication skills

Strong technical and scientific background

Highly productive & hardworking

Proven ability to work remotely & independently

Competent and safe animal handler including wildlife and large animals

Fluent in Spanish & basic skills in Japanese

Trained in SAS, GIS, and WinBUGs statistical software

PUBLICATIONS

Hewson I, JB Button, BM Gudenkauf, B Miner, AL Newton, JK Gaydos, J Wynne, CL Groves, G Hendler, M Murray, S Fradkin, M Breitbart, E Fahsbender, KD Lafferty, AM Kilpatrick, CM Miner, P Raimondi, **LL Lahner**, CS Friedman, S Daniels, M Haulena, J Marliave, CA Burge, ME Eisenlord, and CD Harvell. 2014. Densovirus associated with sea-star wasting disease and mass mortality. *Proceedings of the National Academy of Sciences*.

Lahner LL, JC Franson, CU Meteyer, and BA Rattner. 2011. Absence of toxicity of copper pellets simulating oral exposure to bullet and shot fragments in American kestrels (*Falco sparverius*). *Archives of Environmental Contamination and Toxicology*.

Mans C, D Guzman Sanchez-Migallon, **LL Lahner**, J Paul-Murphy, and KK Sladky. 2011. Intranasal midazolam causes conscious sedation in Hispaniolan Amazon parrots (*Amazona ventralis*). *Journal of Avian Medicine and Surgery*.

Mans C, **LL Lahner**, SM Johnson, and KK Sladky. 2012. Antinociceptive efficacy of buprenorphine and hydromorphone in red-eared slider turtles (*Trachemys scripta elegans*). *Journal of Zoo and Wildlife Medicine*.

Lahner LL and Franson JC. Lead Poisoning in Wild Birds. USGS Fact Sheet. November, 2009.
http://www.nwhc.usgs.gov/publications/fact_sheets/pdfs/lead_poisoning_wild_birds_2009.pdf

CONFERENCE ABSTRACTS

Lahner LL, JH Breeden, R Breeden, and A. Wegmann. The captive care and treatment of brodifacoum toxicosis in a vulnerable shorebird, the Bristle-thighed curlew (*Numenius tahitiensis*), during a rat eradication project, Palmyra Atoll, 2011. Accepted for presentation at the American Association of Zoo Veterinarians. Portland, OR. September, 2015.

Lahner LL, S Wahlstrom, A Newton, M Haulena, M Garner and C Mah. Efficacy of intracoelomic enrofloxacin for the treatment of sea star wasting disease in four species of captive asteroidea. Accepted for presentation at the American Association of Zoo Veterinarians. Portland, OR. September, 2015.

Lahner LL, M Murray, J Rasmussen, E Hofmeister, S Wahlstrom, K Roehl, G Sturgeon, M Garner, T Belting, and S Perry. Safety and antibody response to West Nile Virus vaccination in captive sea otters (*Enhydra lutris*). *International Association of Aquatic Animal Medicine*, Chicago, IL. April 2015.

Wahlstrom S, **LL Lahner**, A Newton, M Garner, and C Mah. Efficacy of intracoelomic enrofloxacin for the treatment of sea star wasting disease in four species of captive asteroidea. *International Association of Aquatic Animal Medicine*, Chicago, IL. April 2015.

Lahner LL, A Newton, M Haulena, M Garner, I Hewson. A multidisciplinary investigation of sea star wasting disease. *International Association of Aquatic Animal Medicine*, Gold Coast, Australia. April 2014.

Lahner LL, T Belting, M Murray. Urolithiasis and perivulvar dermatitis in captive sea otters (*Enhydra lutris*). *Sea Otter Conservation Workshop*, Seattle, WA. March 2013.

Lahner LL, S Larson, SM Boutelle. An evaluation of deslorelin implants for contraception in captive sea otters (*Enhydra lutris*) using fecal gonadal hormone. *American Association of Zoo Veterinarians*. Oakland, CA. October, 2012.

Lahner LL, C Mans, and KK Sladky. Comparison of route and location of administration for induction of injectable anesthesia in red-eared slider turtles (*Trachemys scripta elegans*). *American Association of Zoo Veterinarians*. Kansas City, MO. October, 2011

Lahner LL, Work TH, and Eismueller RL. Health of a Common Scleractinian Coral (*Montipora capitata*) Under Artificial and Controlled Conditions. *European Wildlife Disease Association Student Conference*, Veyrier-du-Lac, France. March, 2009

PROFESSIONAL MEMBERSHIPS

- American Association of Zoo Veterinarians (AAZV), Associate Member, 2011-present
- International Association for Aquatic Animal Medicine (IAAAM), 2013-present
- Wildlife Disease Association (WDA), Member, 2011-present
- American Veterinary Medical Association (AVMA), Member, 2006 to present
- Association of Zoos and Aquariums (AZA), Professional Affiliate, 2011-2016
- National Wildlife Rehabilitation Association (NWRA), 2016-present
- Wisconsin and Illinois Veterinary Medical Associations, 2010-2012
- Washington State Veterinary Medical Association, 2012-present

PROFESSIONAL CERTIFICATIONS

- Certified Veterinary Acupuncturist (CVA) for large, small and exotic animals.
The Chi Institute of Traditional Chinese Veterinary Medicine, Reddick, FL. 2009
- USDA Licensed Veterinarian, 2013-present

TONY FISHER

Director of Animal Collections, Minnesota Zoo A2A
Asian Wild Horse SSP Coordinator
A2A Moose Population Manager

13000 Zoo Blvd Apple
Valley, MN. 55124
Ph. 952-431-9275
Fax. 952-431-9367
tony.fisher@state.mn.us

Education

Minnesota State University- Metropolitan - St. Paul, MN
Individualized Major BA
"Captive Animal Biology and Management"

Central Lakes College, Brainerd, MN
"Natural Resources Management"

Professional experience

2-03 to Present Minnesota Zoo Apple Valley, MN

Director of Animal Collections

- Provide supervisory oversight to Animal Department Curators, and Aquariums and Life Support staff.
- Provide oversight for the Minnesota Zoo's exotic and domestic animal collection and maintain the Institutional Collection Plan for the realization of exhibition, conservation and captive population goals.
- Work proactively with organized breeding programs and other zoological institutions on all aspects of animal husbandry, acquisition and placement of animals.
- Manage animal programs, including animal research and exhibit design. Assist with policy planning and development, personnel management, and budgeting.
- Development and oversight of new temporary exhibits including an African savanna exhibit to include 5 species and 21 animals in a mixed species grassland exhibit in summer of 2006 and 2009.
- Coordinate the design and review of animal holding and exhibit spaces for new exhibits such as the "Russian Grizzly Coast" and "Heart of the Zoo".
- Coordinate the acquisition and international importation of new species for the Minnesota Zoo.
- Serve on the South China Tiger Advisory Team for Hupingshan National Nature Reserve, China. This team has been organized to consult the Chinese government for the eventual release of traditional tiger prey species and the reintroduction of tigers into south China.

2004 to 2014

AZ.A Cervid Taxon Advisory Group Chair

- Serve as the AZA Cervid Taxon Advisory Group Chair from 2004 to present.
- Coordinate and edit Regional Collection Plans in 2005 and 2008. Provide continual oversight of cervid studbooks and PMP's.
- Coordinate cervid financial support and interest towards in-situ conservation and research projects in Tajikistan and Chile.
- Coordinate and edit the AZA "Animal Care Manual" that recommends appropriate animal management and holding area parameters for all cervidae, moschidae and tragulidae taxon being held by AZA institutions.
- Review husbandry guidelines for other AZA ungulate taxon advisory groups.

9-99 to 2-03 Minnesota Zoo Apple Valley.MN

Zoo Farm Supervisor

- Assist with design and development of an 8.5 acre Farm exhibit.
- Selection and acquisition of 29 breeds, consisting of 7 species of domestic animals.
- Oversight of nutrition, medical and reproduction of domestic animals.
- Design and implement area protocols on animal husbandry and exhibition.
- Hiring and supervision of Zoologist, Farm keepers, Tram Drivers and Student Workers.
- Formal presentations for donor groups, special events and local media.
- Oversight of budgeting and interpretive demonstrations.

5-86 to 9-99 Minnesota Zoo Apple Valley.MN

Zookeeper

- Zoo animal and exhibit maintenance in outdoor large hoofstock and big cat areas.
- Assist veterinary staff with animal medical procedures and treatments.
- Conduct interpretive animal demonstrations, guide informative tours, assist with animals in off-site PR functions, and transport.

4-83 to 5-86 White Earth Indian Reservation White Earth.MN

Fisheries and Wildlife Manager

- Supervised full time, part time and seasonal employees.
- Conducted annual wildlife population surveys and advised target harvest quotas and seasons for tribal members.
- Managed artificial propagation of several freshwater fish species for stocking into area reservation lakes and streams.
- Lake, stream habitat and population surveys.
- Interpretive programs on reservation resource management for local citizen groups.
- Annual budgeting, quarterly and annual reporting to Bureau of Indian Affairs.

7-86 to present Fisher Fisheries Northfield.MN

Aquaculture Manager

- Propagate several freshwater fish species for stocking sales to local and out-of-state customers.
- Conduct private scale research projects to maximize production.
- Formal presentations to local sportsman's groups and lake associations.

6-82 to 9-82 Department of Natural Resources Waterville.MN

Fisheries Lake Survey Technician

- Assist with annual lake and stream surveys using test net sample data and electro-fishing techniques.

4-82 to 6-82 University of Minnesota Cloquet, MN

Wildlife Research Intern

- Conduct ruffed grouse population census study in one square mile of habitat in designated research study site.
- Assist with habitat data analysis.
- Assist with grouse live trapping, banding and re-capture.

9-81 to 4-82 Department of Natural Resources Brainerd, MN

Wildlife Work-Study Laborer

- Estimate wildlife habitat vegetation types using dot matrix grids.
- Collect weekly snow depth data for white-tailed deer population model.
- Destruction of problem beaver dams and obstructions on mandatory watersheds.
- Participate in fall white-tailed deer survey collecting pre-molar teeth for age analysis.

Certifications

American Heart Association CPR Certified 2008

American Red Cross First Aid Certified 2005

Minnesota DNR Firearms Safety Certified 1976

Minnesota DNR Firearms Safety Instructor 1982

Minnesota DNR Forest Firefighter Training 1981, 1982, 1983

SSI- Advanced Open Water Scuba Diver 1985

DIANA WEINHARDT-TREANGEN

diana.weinhardt@state.mn.us

Summary

High-energy Manager successful in building and motivating dynamic teams. Cultivates a company culture in which staff members feel comfortable voicing questions and concerns, as well as contributing new ideas that drive team and zoological facility growth. Results-focused management professional offering 40 years of progressive zoological leadership experience with varied species experience.

Core Qualifications

- Diverse and extensive animal experience
- Policy/program development
- Staff training & development
- Effective Public Speaker
- Safety Oriented

Professional Experience

Supervisor of Northern Trail & RGC (Curator) Minnesota Zoo

05/2007 to Current
Apple Valley, MN

- Managed team of 10-15 of staff
- Integral part of team that created & implemented the AZA award winning Russia' Grizzly Coast Exhibit
- Assisted Minnesota Zoo/Minnesota DNR Bison Reintroduction Project
- Created and implemented Pepper Spray policy for staff/keepers in dangerous large animal areas

Program Coordinator Houston Nature Center

05/2015 to Current
Houston, MN

- Coordinate and develop Adult Education Wildlife Speakers Series
- Coordinate, develop and teach Homeschool/ Daycare Wildlife Class
- Develop new exhibits
- Research and write grants for new exhibits and program tools

Director of Conservation & Wildlife Programs Alaska Wildlife Conservation Center

11/2004 to 05/2007
Portage, AK

- Managed team of 25-35 of staff
- Active participant in the Alaska Department of Fish and Game (ADFG) Wood Bison Reintroduction Project
- Advised and assisted ADFG
- Coordinated Orphan wildlife placements in AZA Zoos for ADFG
- Develop Animal Care and Safety Protocols
- Developed and instituted Intern Program and adult lecture programs
- Assisted Local and Federal Agencies with field projects including brown bears, polar bears, moose, wolverine and marine mammals
- Liaison for Cruise Lines and Alaska tour industry guests
- Fulfilled veterinary responsibilities in partnership with consulting veterinarian

Veterinary Technician -Shift Leader

07/2002 to 05/12007

VCA Emergency Animal Clinic

Houston, TX

- Veterinary Technician for this animal hospital emergency clinic
- Shift leader responsible for staff scheduling
- Member of management responsible for preparing the facility for American Association of Animal Hospitals (AAHA) accreditation inspection

Curator of Large Mammals

01/1994 to 12/2003

Houston Zoo

Houston, TX

- Supervised staff of 25 zookeepers
- Created and implemented 13 new and remodeled exhibits in partnership with Zoo Director
- Completed conversion of Zoo's elephant management protocols from a free contact to protected contact
- Coordinated relocation and transport of female Asian Elephant (Shanti) from private sector care to the Houston Zoo
- Supervised international elephant shipment and births under a protected contact system
- Coordinated international polar bear rescue in cooperation with Association of Zoos and Aquariums (AZA)
- Chair of AZA TAG, 2 AZA SSP's and member of 13 Management groups
- Featured curator for bi-monthly Houston Zoo news segment in partnership with Houston NBC-TV affiliate
- Created safety protocol for use of Pepper Spray in Dangerous Animal Areas.

Asst Sr Keeper-Zoo Keeper-Zoo Leader-Volunteer

05/1979 to 01/1994

Lincoln Park Zoo

Chicago, IL

- Keeper and later Large Mammal assistant senior keeper working with primarily carnivores and Asian elephants in a free contact setting
- Team member for first elephant calf produced by ground breaking elephant-breeding protocol involving interstate transport for breeding and return to Lincoln Park for birth, which was Shanti now at the Houston Zoo
- Organized transport of first captive born Spectacled bear to South America to institute captive breeding program in Venezuela
- International Spectacled Bear Studbook Editor (1983-1993)

Education

Zoology/ Animal Science

Southern Illinois University

Carbondale, IL, USA

Associate of Arts: Early Childhood Education

Morraine Valley Community College

1987

Palos Hills, IL, USA

Affiliations

Association of Zoos & Aquariums
American Associations of Zoo Keepers
American Society of Mammalogists
International Bear Association
International Wildlife Rehabilitation Council
National Wildlife Rehabilitation Association

PROFESSIONAL EXPERIENCE

Zoologist, Minnesota Zoo, MN

January 2017 - Present

- Assist the Curator in the operations of the Northern Trail; including oversight of husbandry for the Asian wild horses, pronghorn, bison, wild boar, Sichuan takin, Bactrian camels, moose, reindeer, muskox, gazelle, brown bears, Amur leopards, Amur tigers and dhole.
- Vice Coordinator for the Amur Tiger Species Survival Plan (August 2019 – Present), overseeing the population management and cooperative breeding program of Amur Tigers within AZA facilities.
- Coordinate veterinary procedures and maintain animal health notes.
- Additional responsibilities include those listed in keeper role at the Minnesota Zoo.

Keeper, Minnesota Zoo, MN

June 2016 – January 2017

- Routine husbandry for the carnivore and hoofstock species on the Northern Trail
- Monitor animals' daily diets and consumption. Making suggestions for dietary changes as appropriate.
- Observe and report animal behavioral activities, including abnormalities and health concerns.
- Provide behavioral enrichment per species and individual needs.
- Administer medications as established by the animal health and animal management staff.
- Assist animal health staff with health monitoring and treatments.
- Facilitate medical care of specified animals through the use of operant conditioning.
- Participate in animal training sessions through positive reinforcement techniques.
- Ensure the safety of all visitors, staff and animals.
- Accountable for knowledge and implementation of all safety procedures.
- Inspect all assigned exhibits and holding areas on routine basis.
- Perform regular maintenance of enclosures and facility grounds, maintaining aesthetics for animal areas.
- Provide positive guest experiences through engaging and educational presentations, and conversation through keeper chats and private tours.

Temporary Keeper, Minnesota Zoo, MN

May 2016- June 2016,
May 2015- January 2016,
April 2014 - September 2014

- Provided routine husbandry for the following animals on the Northern Trail: Amur tiger, Amur leopard, brown bear, red panda and dhole.
- Assisted with bottle-feeding of moose calves.
- Assisted with Northern Trail hoofstock husbandry as needed.
- Completed husbandry care and fulfilled responsibilities as listed in above MN Zoo keeper position.

Lead Keeper, Wildcat Sanctuary, MN

January 2007- November 2013

- Responsible for daily oversight of facility operations with 100+ wild feline residents.
- Managed the animal care team including: keepers, interns and onsite volunteers.
- Recruited, hired, supervised, scheduled, conducted performance evaluations for reporting staff.
- Motivated animal care team through daily assignments.
- Facilitated conflict resolution between employees under my supervision.
- Established internship program, which included the management of 16+ interns annually.
- Updated and maintained organization's operations manual to include revised policies, safety standards, crisis action plan, and animal management practices.
- In charge of training reporting staff on such protocols.
- Led safety team through training and preparation. Responsible for conducting safety and crisis drills.
- Accountable for implementing husbandry, veterinary and safety SOPs.
- Maintained chemical immobilization certification and ensured training of appropriate veterinary and keeper staff on proper chemical immobilization techniques for felids. This responsibility included the safe sedation of 40+ felids annually.

- Directed the rescue team through immobilization, capture and transportation of dangerous wildlife during private owner surrendering and seizure situations.
- Trained team in catching, safe handling and restraint of wild felines with aggressive temperaments.
- Coordinated the veterinary team and animal examinations. Assisted in such exams and surgical procedures.
- Administered vaccinations, fluids and additional injection, oral and topical medications on a daily basis.
- Responsible for quarantine practices for all acquired, injured or ill residents.
- Facilitated the acquisition and disposition of all residents.
- Completed inventory and ordering for animal care, veterinary, maintenance and construction supplies.
- Maintained all appropriate animal records including veterinary files.
- Ensured records and management SOPs met and exceeded accrediting agency criteria. This included meeting the standards of Global Federation of Animal Sanctuaries, American Sanctuary Association and ensuring compliance of USDA standards. Point person for inspections and filing all necessary paperwork.
- Conduct daily meetings with animal care team and relay prudent information in upper management meetings.
- Public relation duties included interviews for various news outlets.
- Donor development through private tours, meetings and fundraising events.
- Headed habitat design and construction of facility. This included conceptualization, supervising contractors and time management of projects.
- Collaborate with administration staff for Capital Investment projects and fundraising campaigns.
- Primary caretaker of the greater cats (~30), while completing the above supervisor responsibilities.

Additional work history available upon request

EDUCATION

University of Minnesota , Twin Cities, MN	December 2006
Bachelor of Science, Major in Ecology, Evolution and Behavior	

BOARD MEMBERSHIPS

Director , Wild Paws Midwest Animal Sanctuary, MN	2015- Present
<ul style="list-style-type: none"> • Recruited as board member for my expertise in the field. • Participate in high level decision making for the launch of a new nonprofit. • Animal Care Committee lead. 	

VOLUNTEER EXPERIENCE

Volunteer , Wildcat Sanctuary, MN	2003-2006
<ul style="list-style-type: none"> • Cared for wild cat residents through husbandry practices on routine basis. • Helped maintain facility grounds, equipment and construct enclosures. • Trained new volunteers on safety protocols and routine procedures. • Assisted veterinary care in animal management and health issues. • Provided educational tours for various grade levels and college students. • Assist with fundraising via outreach programs and fundraising events. 	
Kennel Assistant/ Volunteer Trainer , Grayslake Animal Shelter, IL	1998-2002
<ul style="list-style-type: none"> • Cleaned kennels and animal yards. • Prepared diets and medications as needed. • Trained new volunteers in safety and caretaking responsibilities. 	

SKILLS

Certifications: Firearms safety, Chemical immobilization, CPR/AED (adult, child, infant) & first aid

Conferences/Training: Felid TAG husbandry course (2011), Advanced Felid TAG husbandry course (2019) Media training with Cathryn Kennedy Consulting (2014), Leadership training with MN Board of Nonprofits (2010), OSHA training (2019), deepSEE diversity and inclusion training (2019).



MINNESOTA ZOO
Changing how you see the world

ANIMAL TRANSACTION AGREEMENT

Transaction type (check one): ☐ Sale ☒ Donation ☐ Trade ☐ Exhibit Loan ☐ Loan transfer

Recipient:			Date:	
Address:			Contact:	
City:	State:	Zip:	Phone:	
Country:			Fax:	
USDA #			Email:	
CBW				

The Minnesota Zoological Garden (MZG/Provider) agrees to provide the following

Quantity	Scientific Name	Common Name	ID #	Price
1.0				

This is an agreement between the Provider and Recipient regarding animals bought, sold, traded or donated, as listed for this transaction. By signing this form the Recipient agrees to the following conditions.

- Recipient agrees that the acquisition of the animal(s) is on an "AS IS" basis and that Provider makes no representations or warranties of any kind, expressed or implied, with respect to the animals.
- Recipient agrees that Recipient shall at all times provide the animals and their offspring with humane care and living conditions, and that Recipient is financially and otherwise able to provide such care and living conditions. Recipient shall not, nor shall Recipient permit others to, cause mental or physical harm to the animals and their offspring or treat them in an inhumane or cruel manner.
- Animals and their offspring will not be provided to any facility for the purpose of providing game for recreational or subsistence hunting, for use in any research programs inconsistent with MZG policy, or for eventual disposal at any animal auction; nor for any other purpose that is contrary to the AZA Code of Ethics (see reverse, Appendix I). These conditions also apply to non AZA members.
- Recipient represents and warrants that its purpose, goal and use of the animals shall be for propagation and/or education unless otherwise discussed with, and approved by the MZG.
- Recipient represents and warrants that it now has, and will have during its ownership of the animals, all necessary and appropriate licenses, permits and approvals for the purchase, ownership and care of the animals; The recipient agrees and warrants that the acceptance or disposal of these specimens and their offspring is in compliance with any Federal, State or local regulations.
- In the event Recipient desires to dispose of the animals, Recipient agrees that Recipient will not knowingly sell or transfer the animals to any third party for purposes inconsistent with the terms of this agreement.
- Recipient agrees to be responsible for freight charges on the animal(s) it receives unless otherwise arranged. When MZG crates are used, they must be returned within 30 days prepaid or the recipient will be invoiced for the replacement costs.
- Recipient agrees to provide references and documentation of the following to the MZG upon request, prior to the transfer of the animal(s): such documentation might include, but is not limited to, information on the institution's purpose and goals in response to the animals to be acquired, photos and diagrams of the exhibit, copies of USDA inspections, copies of permits, and qualifications/expertise of staff as related to animal care.
- Recipients of nonhuman primates are subject to the conditions set forth by the Center for Disease Control (CDC) (see reverse, Appendix II).

I hereby affirm that I have read, understand, and agree to abide by all the conditions enumerated on both sides of this transaction form. I also declare this transaction has been approved through my institution's acquisition/disposition process and sign this form as a duly authorized representative.

Provider

By: _____

Title: Kevin Willis Vice President for Bio Programs

Date: _____

Recipient

By: _____

Title: _____

Date: _____

Please sign & return one copy to: Laurie Kokkeler, Minnesota Zoo, 13000 Zoo Blvd., Apple Valley, MN 55124

APPENDIX I

AZA CODE OF ETHICS: EXCERPTS

I. OBLIGATIONS OF PROFESSIONAL ETHICS

In order to promote high standards of conduct in our profession, the AZA has formulated the following basic principles for the guidance of its members:

AS A MEMBER OF THE AZA, I PLEDGE TO:

- A. Realize that I have moral responsibilities not only to my professional associates, my fellow employees, and the public, but also to the animals-under my care.
- B. Display the highest integrity, the best judgment or ethics possible, and use my professional skills to the best interests of all.
- C. Deal fairly with members in the dissemination of professional information and advice.
- H. Cooperate with qualified zoos/aquariums and other qualified persons/organizations in breeding programs of endangered and other species.
- I. Aid the professional development of those who enter the zoological park and aquarium profession by assisting them to understand the functions, duties, and responsibilities of the profession.

II. MANDATORY STANDARDS

2. MISCONDUCT

- a. A member shall not knowingly engage in activities contrary to local, state, federal, or international laws as such laws relate to our profession; and a member will, to the best of his or her ability, cooperate with governmental agencies regulating animal welfare and animal transactions.
- e. A member will make every effort to assure that all animals in his/her collection and under his/her care are disposed of in a manner which meets the current disposition standards of the Association and do not find their way into the hands of those not qualified to care for them properly.

3. DISCLOSURE OF INFORMATION

- a. A member shall not knowingly misinform others regarding animal records or specimen disposition, professional information, and advice.
- b. A member shall not alter animal records or alter the facts concerning age, condition, or other material information about any animal in order to affect the sale, trade, loan, or other transaction with respect to such animal.

ADDENDUM

Animal Auctions (1981)

AZA members offering wildlife or sale at auctions attended by the general public are in violation of the

AZA Code of Professional Ethics, specifically Mandatory Standards, 2-e. Use of

Animal Exchange (1984)

Individuals may utilize Animal Exchange to purchase specimens if the following criteria are followed: the individual should, during the initial contact, identify his or her intentions and make the seller aware if the specimen(s) will go to the purchaser's private collection and not the zoo in question.

Procurement of SSP Animals (1986-modified 1990-revised 1993)

Attempts by members to circumvent AZA conservation programs in the procurement and/or disposition of specimens of SSP animals are detrimental to the Association and its conservation programs. Such action may be detrimental to the species involved and could be construed as a violation of the Association's Code of Professional Ethics. All Association members should work through SSP species coordinators and appropriate propagation groups in efforts to procure or dispose of specimens of SSP species.

APPENDIX II

(42 CFR 17.53) (c) Live nonhuman primates may be imported and sold, resold, or otherwise distributed only for bona fide scientific, educational, or exhibition purposes. Importation for use in breeding colonies is also permitted provided all offspring will be used only for scientific, educational, or exhibition purposes. The maintenance of nonhuman primates as pets, hobby, or an avocation with occasional display to the general public is not a permissible use.



MINNESOTA ZOO™

BREEDING LOAN AGREEMENT

between

MINNESOTA ZOOLOGICAL GARDEN and THRIGBY HALL WILDLIFE GARDENS

WHEREAS, the **MINNESOTA ZOOLOGICAL GARDEN** (hereinafter called the OWNER) is concerned with the preservation & propagation of certain animals; and

WHEREAS, **THRIGBY HALL WILDLIFE GARDENS** (hereinafter called the RECIPIENT) is concerned with the preservation and propagation of certain animals;

NOW THEREFORE, the parties hereto agree to the conditions set forth below concerning the loan of:

1.0 Amur leopard (*Panthera pardus orientalis*) GAN: NMC18-00110

1. The OWNER hereby loans to the RECIPIENT the above specimen for the purpose of propagation. In the event the RECIPIENT wishes to exhibit the specimen and progeny to the public at its facilities, such exhibition must be consistent with the best care available at the RECIPIENT's institution, and with a view to protecting the breeding habits of said specimen.
2. The RECIPIENT agrees to provide necessary housing, food, and veterinary care for the specimen and progeny according to the highest acceptable standards prevailing at its institution. The OWNER agrees that in the event of disease, injury, or death of the specimen or progeny allocated to the OWNER pursuant to paragraph 5 herein, the RECIPIENT, and its agents and employees, will be free of all responsibility to the OWNER for such affliction, in the absence of gross negligence.
3. The RECIPIENT agrees to furnish the OWNER with a complete report in case of death of, or injury to, the specimen or progeny allocated to the OWNER pursuant to paragraph 5 herein. At the option and expense of the OWNER, the RECIPIENT shall preserve intact all portions of the carcass for delivery to the OWNER.
4. The OWNER and its officers and employees shall not be responsible for any damage, loss, death, or injury occurring by reason of anything done or omitted to be done by the RECIPIENT under or in connection with the execution of this Agreement if such acts or omissions are not under the direct supervision and control of the OWNER.
5. The RECIPIENT will undertake its best efforts to breed the specimen with mates approved by the OWNER. Any viable young produced by such breeding and born either during the term of this Agreement, or within a period after termination of this Agreement equivalent to the normal gestation term of this particular species, will be divided as follows:

Owner of the female will own offspring 1, 3, 5, 7 etc.

Owner of the male will own offspring 2, 4, 6, 8, etc.

This ownership agreement is for all offspring produced that survive past 30 days.

6. This Agreement will remain in effect for the lifetime of the specimen. Both parties hereto reserve the right to terminate this Agreement unilaterally by giving the other party thirty (30) days prior written notice.

7. The transportation charges for shipping the specimen from the OWNER to the RECIPIENT will be borne by the RECIPIENT. All transportation charges for shipping the specimen and progeny from the RECIPIENT back to the OWNER will be borne by the OWNER.

8. Neither this Agreement, nor any rights or privileges granted hereunder, shall be assigned without prior written consent by both parties hereto.

9. Any conflicts arising from implementation of this Agreement shall be resolved solely in the interest of the welfare of the named specimen and progeny as determined through joint consultation by the parties.

10. This Agreement may be amended or modified in writing by mutual consent of both parties hereto. Such amendments shall be incorporated into this Agreement as addenda.

11. The Minnesota Zoo reserves the right to decline to send any animal covered by this agreement to a hunting facility, animal auction, pet outlet, animal dealer, or a member of the general public, even if requested to do so by the animal's owner. Should any disagreement arise in this regard, the Minnesota Zoo reserves the right to return to the owner any or all of its animals covered by this agreement, subject to the notification clause in the agreement

MINNESOTA ZOOLOGICAL GARDEN

By _____

Title _____

Date _____

THRIGBY HALL WILDLIFE GARDENS

By _____

Title _____

Date _____

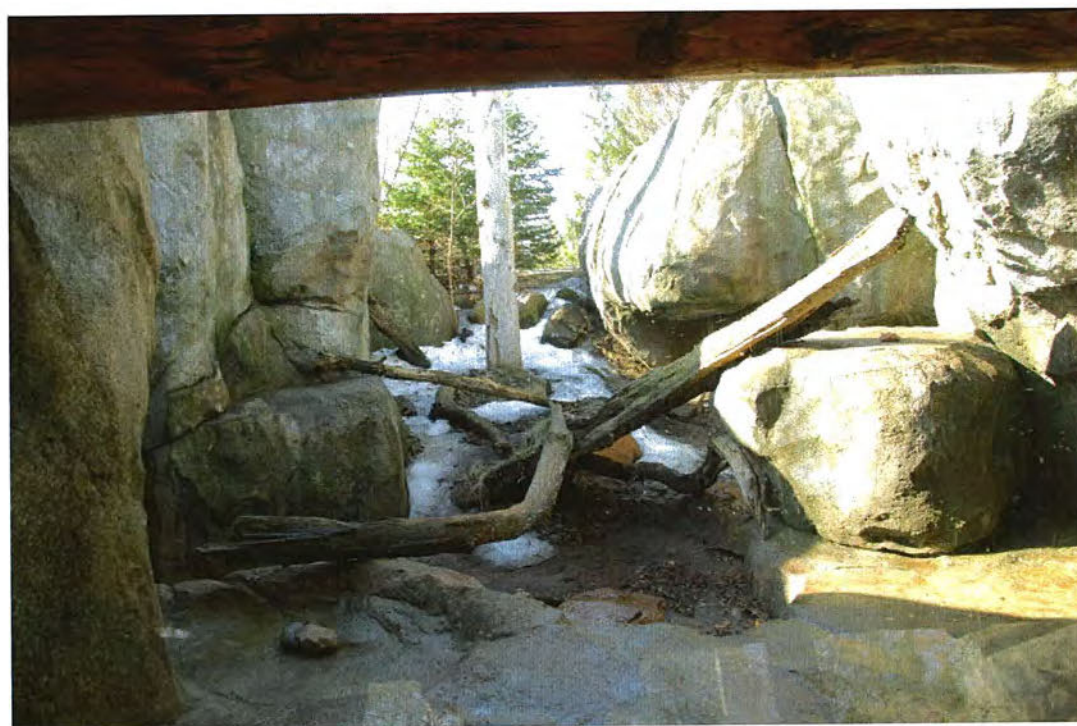
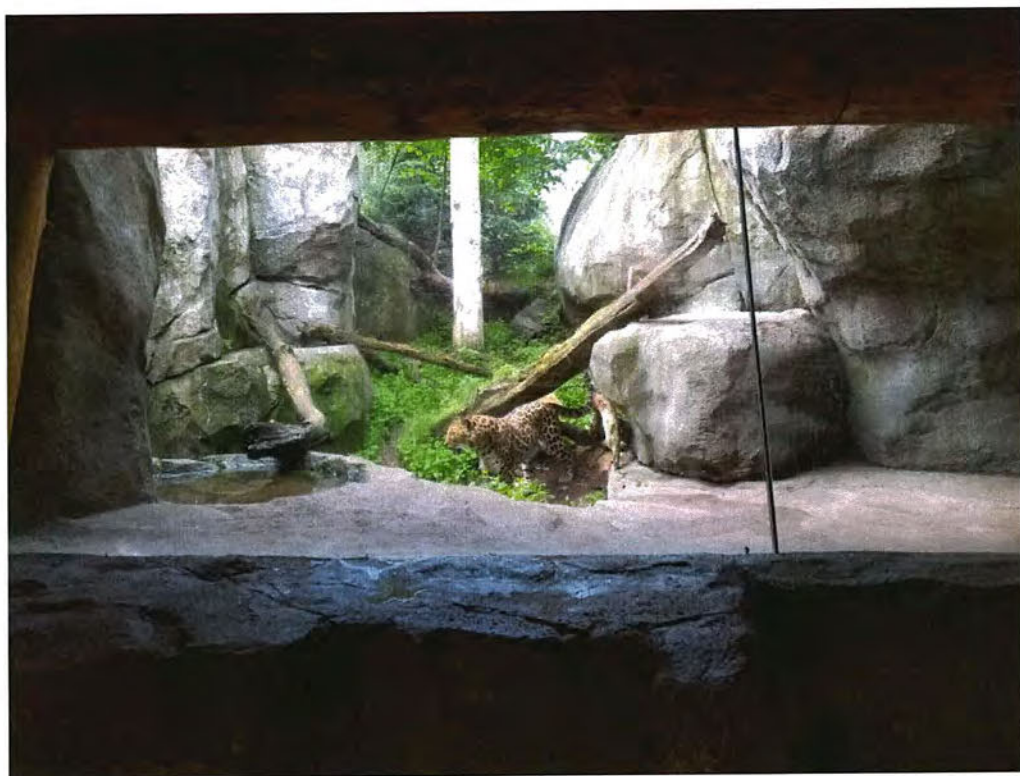
Minnesota Zoological Gardens Amur leopard Exhibit

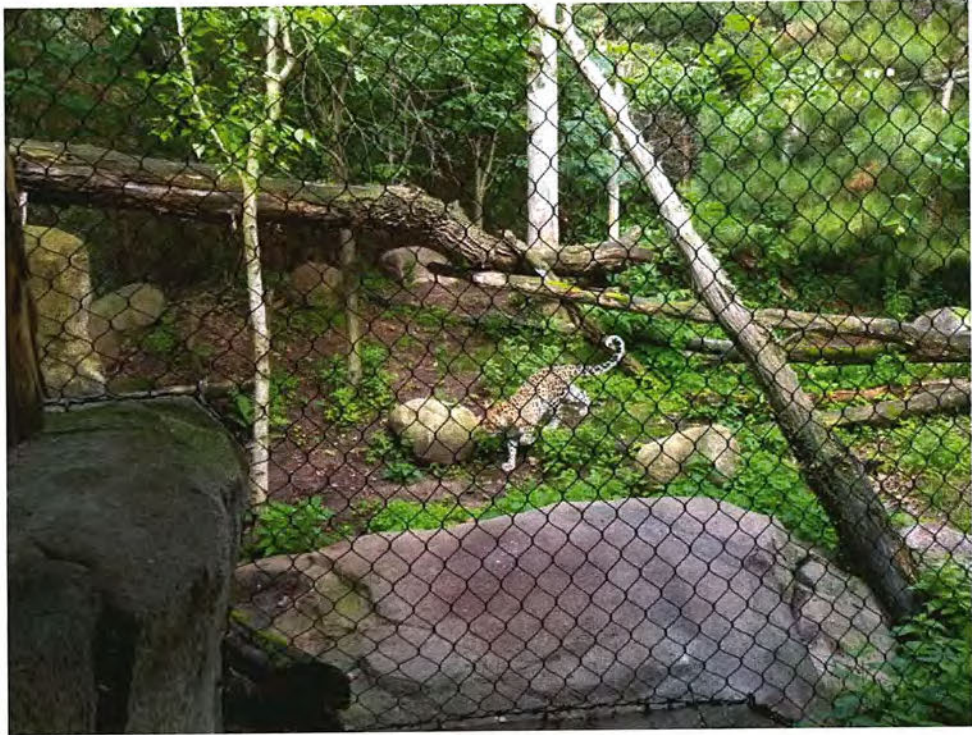
Russia's Grizzly Coast

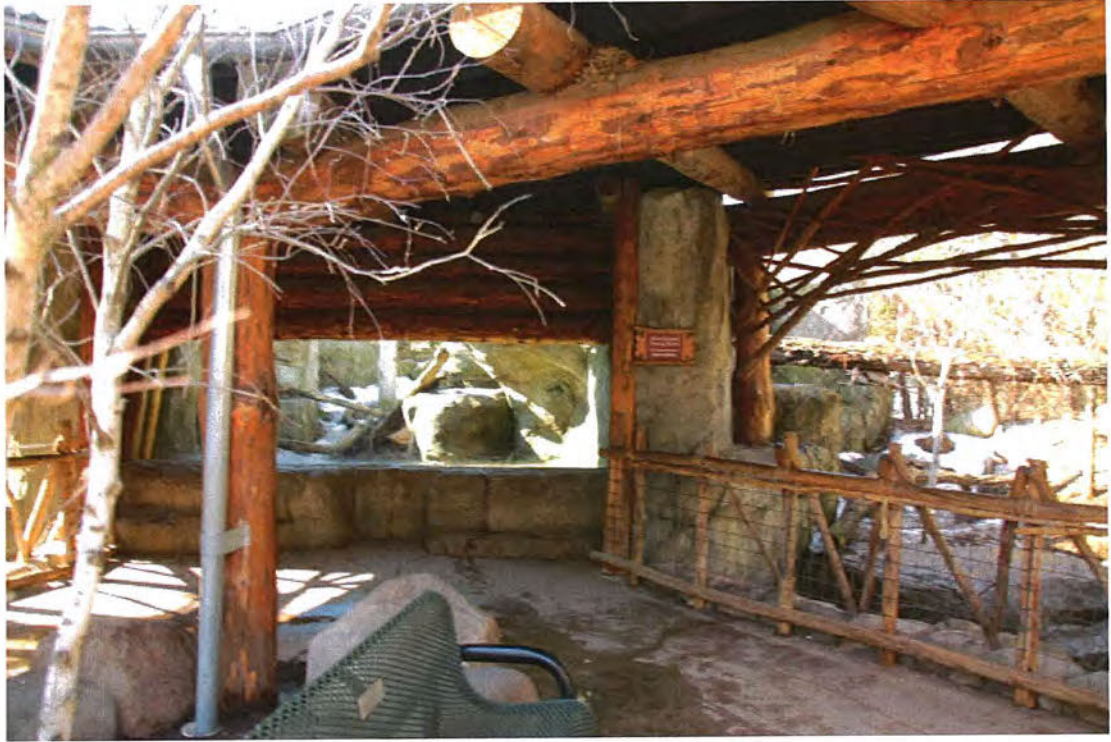


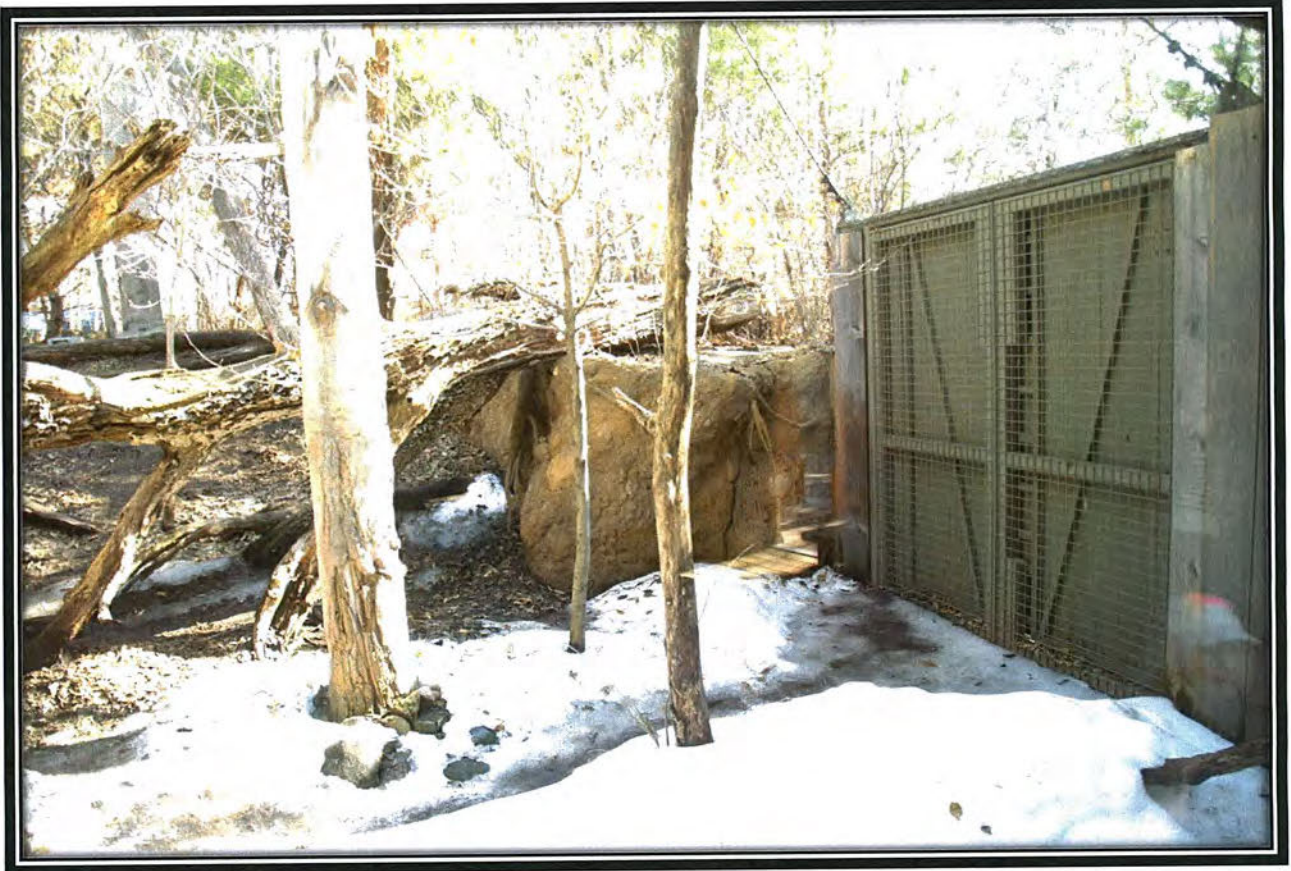
Minnesota Zoological Gardens Amur leopard Exhibit
Russia's Grizzly Coast"



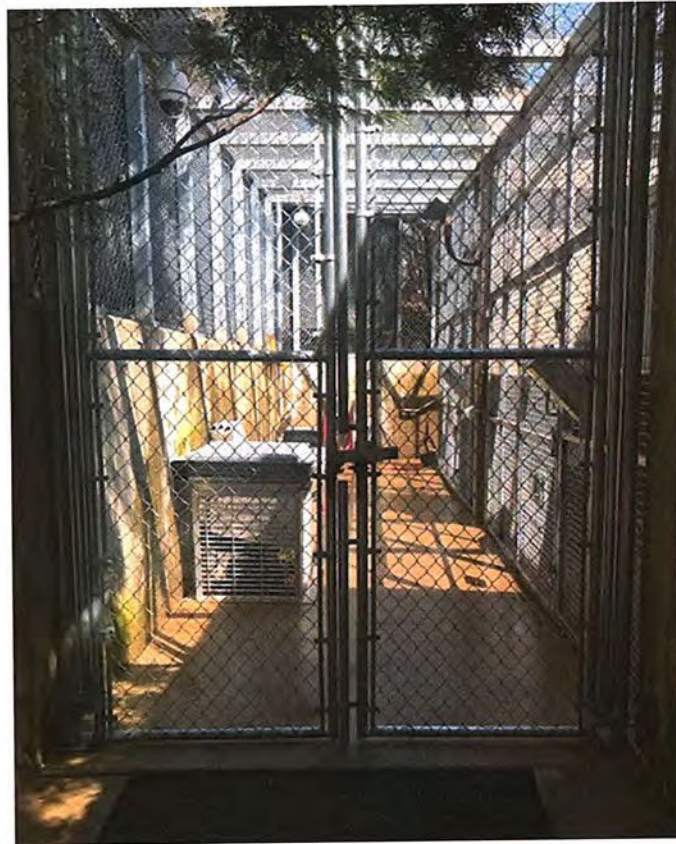


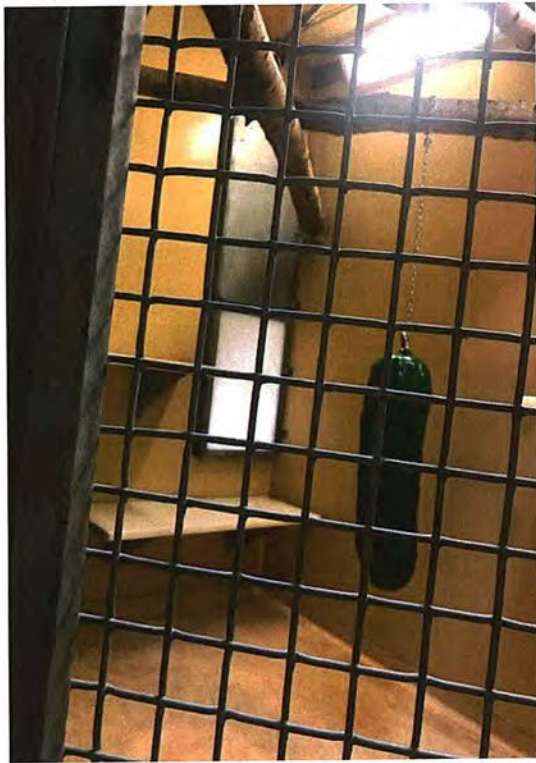


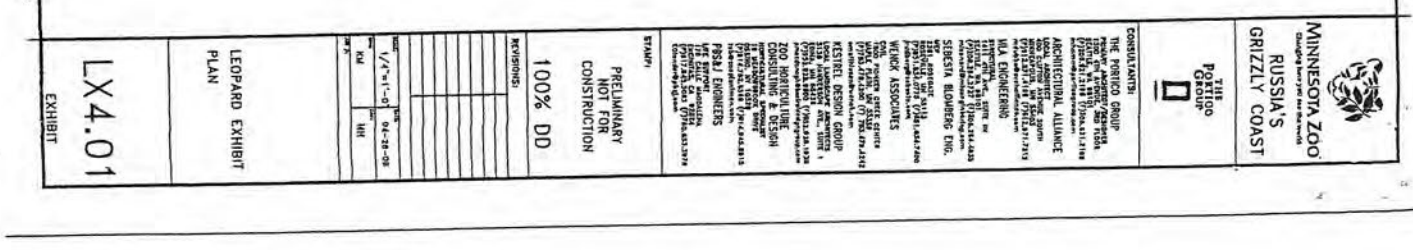




Minnesota Zoological Gardens Amur leopard Holding
Russia's Grizzly Coast







Return Shipment Instructions



Return Shipment Instructions

1. Place the shipping label on the container's most visible side away from seams.

2. Ship your package one of three ways:

- Use your regular scheduled pickup.
- Drop off at FedEx. Find your closest location at fedex.com/locate or by calling 1.800.GoFedEx 1.800.463.3339
- Schedule a pickup. No account number required but label information may be needed. Go to fedex.com/returnpickup for FedEx Ground labels with "G" or "PRP" or call 1.800.GoFedEx 1.800.463.3339 and say:
 - o "Return Manager" or "PRP" for FedEx Ground labels with "G" or "PRP"
 - o "Express Return" for FedEx Express labels with "E" or "Billable Stamp"

Prepare Your Package With Care.

- Use an appropriate container, cushioning materials and at least three strips of packing tape.
- If reusing packaging, remove or black out old shipping labels including their barcode(s).

Special Instructions from the merchant:

[EXTERNAL] RE: CITES Permit App 60225D

Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>

Tue 3/24/2020 3:24 PM

To: Cate, Emily B <emily_cate@fws.gov>

Hi Ms. Cate,

Thank you for your work on this permit applica. on. We would never exchange money for an endangered species such as this. We would only agree to a donation or possibly a loan. I discourage loans for international imports because I would never want to send a live animal back and forth. I think a owner's hesitation of donating would only be for the purpose of retaining some say in the animal's welfare and progeny.

Do you want me to get their commitment on whether they will donate or loan? I can ask that they sign our agreement now rather than later.

I do not think the UK zoo has submit~~ed~~ed their CITES export applica tion yet. I have found that Europe can be quick to issue CITES permits and they also have quick expirations. I once received a CITES export from France that was only valid for 12 weeks. I will check with the Director what the status is and let you know ASAP.

Do you need any of the documents sent electronically?

I'll be in touch soon.

Thanks again.

Laurie

Laurie Kokkeler | Animal Registrar | laurie.kokkeler@state.mn.us

o: 952.431.9271 | c: 651.528.1672 | MNZOO.ORG

13000 Zoo Boulevard Apple Valley MN 55124



Connecng people, animals and the natural world t o save wildlife.

From: Cate, Emily B <emily_cate@fws.gov>

Sent: Tuesday, March 24, 2020 1:54 PM

To: Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>

Subject: CITES Permit App 60225D

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Dear Ms. Kokkeler,

I have your application dated 10/29/2019, received 11/05/2019, regarding the proposed import of one female Amur leopard from Thrigby Hall Wildlife Gardens in the United Kingdom. I apologize for the delay in processing your application.

Please provide the following information so that I may continue processing your application:

1. The application stated that "the terms of the animal transfer agreement will be determined upon your approval of this application" and "we anticipate the transaction to be a donation to our facility". Are you able to clarify whether or not the transaction will involve monetary funds? As you are likely aware, part of the requirements for importing an Appendix -I listed species include that it not be imported primarily for commercial purposes.
2. Alternatively, if the United Kingdom has issued a copy of their export permit, please send me a copy and I will check the source code to see if the CITES requirements have already been fulfilled (in which case I would proceed with this as an ESA only import request).

Please let me know if you have any questions or concerns.

In accordance with 50 CFR 13.11(e), if the requested information is not received by this office by **May 8, 2020**, your application will be abandoned and administratively closed. Once a file is closed you will need to submit a new application and all required fees for the Service to consider your proposed activity. Please refer to permit number 60225D in your correspondence.

Respectfully ,
Emily

Emily Cate | Permits Biologist
U.S. Fish and Wildlife Service | International Affairs
Division of Management Authority | Branch of Permits
5725 Leesburg Pike, MS:IA
Falls Church, VA 22041-3803



RE: [EXTERNAL] RE: CITES Permit App 60225D**Kokkeler, Laurie (MNZOO)** <laurie.kokkeler@state.mn.us>

Thu 4/16/2020 3:32 PM

To: Cate, Emily B <emily_cate@fws.gov> 1 attachments (14 KB)

Amur Leopard Conservation Projects supported by Minnesota Zoological Gardens.docx;

Hi Ms. Cate,

I apologize for my delayed response. You had requested some clarification regarding our conservation reporting for Amur leopard vs Amur Tiger.

The numbers we reported for this current application 60225D were designated for Amur leopard however the grants are given to the Zoological Society of London and dispersed by ALTA. (Now known as the Wildcats Conservation Alliance) The Wild Cats Conservation Alliance website lists a number of Amur leopard projects that we support by funding that organization. (I have attached a list)

My main concern is if we will be required to contribute \$5000 per year in addition to the funds we currently contribute to Tiger conservation. It was my intent to encumber future funds to dedicate directly to field conservation for Amur leopards, but I am no longer certain we can guarantee that level given the uncertainty of the impacts from the COVID-19 pandemic? Our Zoo has been closed for more than a month now causing serious impact on our fiscal year revenues. We will continue to raise and dedicate funds to leopard conservation but will need to take a serious look at the numbers required in order to continue our Amur leopard breeding which would require importing this young female. It is helpful when USFW provides us a good definition of its requirements. Thank you for your consideration and please let me know if we need to discuss this further.

Regards

Laurie

Laurie Kokkeler | Animal Registrar | laurie.kokkeler@state.mn.uso: 952.431.9271 | c: 651.528.1672 | MNZOO.ORG

13000 Zoo Boulevard Apple Valley MN 55124

*Connecting people, animals and the natural world to save wildlife.*

From: Cate, Emily B <emily_cate@fws.gov>**Sent:** Friday, March 27, 2020 11:22 AM**To:** Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>**Subject:** Re: [EXTERNAL] RE: CITES Permit App 60225D

Hi Ms. Kokkeler,

These are great questions. Generally, applications for permits for endangered species must meet certain issuance criteria, defined in our regulations, in order for the applicant to be granted a permit (if you would like, I can send over the link to these). Part of our evaluation process includes examining the proposed "enhancement" activities. Enhancement is met through activities that provide a benefit to the species in the wild. This can be accomplished through a variety of ways, including providing donations to organizations that are providing a benefit to the species in the wild. Therefore, the funding provided through the permit referenced below for the Amur gaur was not necessarily a requirement of the permit itself per se, but rather how the Minnesota Zoo proposed to meet the enhancement criteria.

I would agree that funds being used to benefit habitat conditions, even if primarily for the Amur gaur, could also benefit the Amur leopard; although it should always be clearly stated how the funds will benefit the species in the wild (e.g., as stated in your application, through the closure of logging roads).

I apologize because I did not realize some of the funds listed in this application (60225D) may (or may not) include funds used to meet the enhancement criteria for the previous permit (50613B). Can you please clarify which funds (how much, who they were granted to, what they do to benefit the species in the wild) are being used to support this new application (60225D)? If you are able to commit to future funds, please let me know that as well.

I hope that was helpful. Please let me know if you have any additional questions or concerns. I appreciate your me.

Regards,
Emily

Emily Cate | Permits Biologist
U.S. Fish and Wildlife Service | International Affairs
Division of Management Authority | Branch of Permits
5725 Leesburg Pike, MS:IA
Falls Church, VA 22041-3803



From: Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>
Sent: Wednesday, March 25, 2020 11:44 AM
To: Cate, Emily B <emily_cate@fws.gov>
Subject: RE: [EXTERNAL] RE: CITES Permit App 60225D

Hi Ms. Cate

A few years ago we imported an Amur tiger from the Copenhagen Zoo in Denmark. With that permit MA50613B-0 we were required to donate \$5,000.00 per year for 5 years to ensure in-situ conservation of the species.

If we are granted your authorization to import an Amur leopard do you know if we will have this same requirement? I attached our letter of special conditions for your review.

Some of our conservation efforts for the Amur tiger have to do with habitat conditions. Would this be considered for leopard species as well since they share habitat?

We are currently discussing budgets for the next fiscal year. It would be helpful to know if I should request additional funds.

Thank you.

Laurie

Laurie Kokkeler | Animal Registrar | laurie.kokkeler@state.mn.us

o: 952.431.9271 | c: 651.528.1672 | MNZOO.ORG

13000 Zoo Boulevard Apple Valley MN 55124



Connecting people, animals and the natural world to save wildlife.

From: Cate, Emily B <emily_cate@fws.gov>

Sent: Tuesday, March 24, 2020 2:36 PM

To: Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>

Subject: Re: [EXTERNAL] RE: CITES Permit App 60225D

Hi Ms. Kokkeler,

I appreciate your quick response and figured that was the case - just needed to "cross the t's and dot the i's" on that portion of the application. No need to determine if it will be a loan or donation.

It is not necessary to send the export permit to me, unless you already have it, since it would potentially save a step in the process. An electronic submission directly to me would be preferable.

Please let me know if you have any questions or concerns.

Regards,
Emily

Emily Cate | Permits Biologist

U.S. Fish and Wildlife Service | International Affairs

Division of Management Authority | Branch of Permits

5725 Leesburg Pike, MS:IA

Falls Church, VA 22041-3803



From: Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>

Sent: Tuesday, March 24, 2020 3:24 PM

To: Cate, Emily B <emily_cate@fws.gov>

Subject: [EXTERNAL] RE: CITES Permit App 60225D

Hi Ms. Cate,

Thank you for your work on this permit application. We would never exchange money for an endangered species such as this. We would only agree to a donation or possibly a loan. I discourage loans for international imports because I would never want to send a live animal back and forth. I think a owner's hesitation of donating would only be for the purpose of retaining some say in the animal's welfare and progeny.

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Do you need any of the documents sent electronically?

I'll be in touch soon.

Thanks again.

Laurie

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From: Cate, Emily B <emily_cate@fws.gov>

Sent: Tuesday, March 24, 2020 1:54 PM

To: Kokkeler, Laurie (MNZOO) <laurie.kokkeler@state.mn.us>

Subject: CITES Permit App 60225D

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Dear Ms. Kokkeler,

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Respectfully,
Emily

Emily Cate | Permits Biologist
U.S. Fish and Wildlife Service | International Affairs
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5725 Leesburg Pike, MS:IA
Falls Church, VA 22041-3803



Amur Leopard Conservation Projects supported by Minnesota Zoological Gardens

Project Name: Monitoring Amur Leopards & tigers in Southwest Primorskii Krai, Russia

Location: Russian Far East: southwest Primorskii Krai

Goal: Implementation of a more extensive network across habitat outside the national park and, establishment of a joint database which will be used in analyses of the total leopard population in Southwest Primorskii Krai.

Objective 1: To continue monitoring in Nezhino and the Northern Sectors of Land of the Leopard National Park

Objective 2: To assist LLNP staff to produce park-wide population estimates of leopards and tigers

Objective 3: To facilitate Russia-China data sharing

Wildlife Conservation Society- China Program (WCS China).

Project Name: Monitoring Amur Tiger and Leopard Populations in Northeast China

Location: Hunchun Nature Reserve (HNR) and adjacent lands, Jilin Province, China

Goal: WCS China will continue its monitoring program of Amur leopards and tigers in and adjacent to HNR in collaboration with reserve management and other relevant authorities. We will monitor population numbers via camera trapping, study behaviour patterns of big cats via snow tracking, and carry out SMART (Spatial Monitoring and Reporting Tool) training and assessment to enhance the SMART patrol level in the park.

Objective 1: Continue (and expand) camera trap monitoring of Amur leopards and tigers in and around HNR

Objective 2: Conduct SMART training and assessment to enhance the SMART patrol level in the park.

Objective 3: Snow track Amur leopards and tigers to glean information about movements and behaviour

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