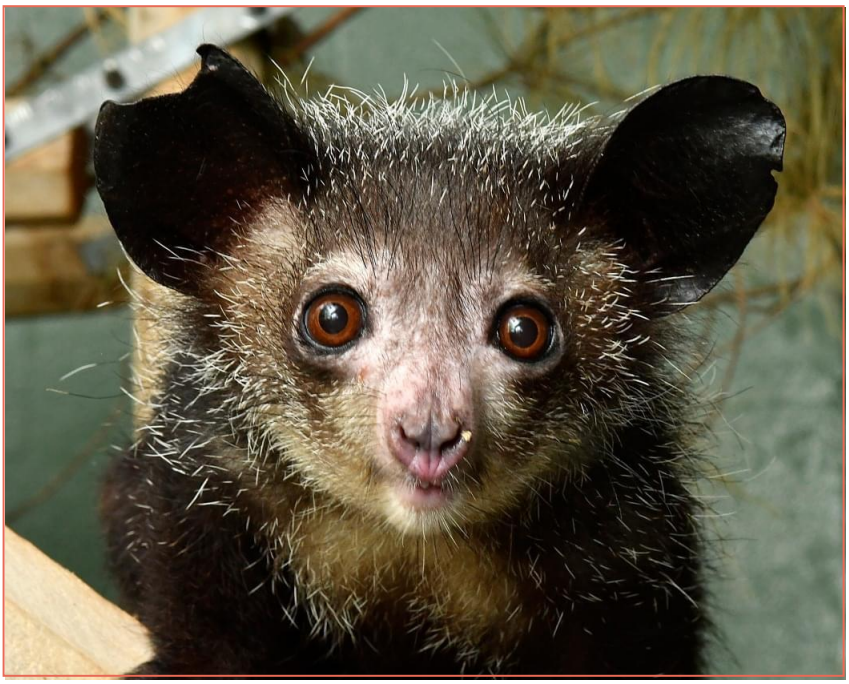
AZA Regional Studbook Publication

Aye-Aye (*Daubentonia madagascariensis*)



AZA Regional Studbook Keeper

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Current to Date

09/14/2023

Date of Publication

09/26/2023 (8th edition)

Photo Credit: David Haring, Duke Lemur Center

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Living Population

30 (13.17.0) at 11 Institutions: Data set includes (3.1) AZA aye-aye transferred to EAZA and JAZA Institutions & Dam and Sire to #176 at JAZA institution.

Stud Book ID	House Name	Current Location	Current Local ID	Sex	Birth Date	Sire	Dam	Event Type	Date	Location	Local ID
175	MEDEA	CINCINNAT	111024	Female	10/Sep/2004	104	141	Birth/hatch	10/Sep/2004	DUKE PRIM	6842
								Transfer	17/May/2011	CINCINNAT	111024
191	NIFY	CINCINNAT	112022	Male	21/Jun/2008	148	168	Birth/hatch	21/Jun/2008	SAN FRAN	108023
								Transfer	25/Apr/2012	CINCINNAT	112022
134	CALIBAN	CLEVELAND	111102	Female	25/Aug/1994	114	105	Birth/hatch	25/Aug/1994	DUKE PRIM	6607
								Transfer	18/Aug/1997	SAN FRAN	197031
								Transfer	9/May/2003	DUKE PRIM	6607
								Transfer	3/Nov/2011	CLEVELAND	111102
188	BELLATRIX	DENVER	A14272	Female	21/Aug/2007	104	141	Birth/hatch	21/Aug/2007	DUKE PRIM	6898
								Transfer	9/Dec/2014	DENVER	A14272
242	TONKS	DENVER	A18173	Female	8/Aug/2018	202	188	Birth/hatch	8/Aug/2018	DENVER	A18173
202	SMEAGOL	DENVER	A15122	Male	14/Jul/2010	157	169	Birth/hatch	14/Jul/2010	PHILADELP	104771
								Transfer	28/May/2015	DENVER	A15122
228	FADY	DUKE PRIM	7339	Female	8/Sep/2015	176	203	Birth/hatch	8/Sep/2015	SANDIEGOZ	515138
								Transfer	18/Sep/2019	DUKE PRIM	7339
245	MELISANDRE	DUKE PRIM	7336	Female	13/Aug/2019	201	137	Birth/hatch	13/Aug/2019	DUKE PRIM	7336
137	ARDREY	DUKE PRIM	6674	Female	15/Apr/1996	104	118	Birth/hatch	15/Apr/1996	DUKE PRIM	6674
237	AGATHA	DUKE PRIM	7279	Female	7/Jun/2017	104	169	Birth/hatch	7/Jun/2017	DUKE PRIM	7279
104	POE	DUKE PRIM	6202	Male	1/Jul/1986 +/- 6 months	WILD	WILD	Birth/hatch	1/Jul/1986 +/- 6 months	Madagascar	-
								Wild Capture	20/Dec/1987	Madagascar	-
								Transfer	30/Dec/1987	DUKE PRIM	6202
201	GRENDEL	DUKE PRIM	6975	Male	23/May/2010	103	119	Birth/hatch	23/May/2010	DUKE PRIM	6975
252	BINX	DUKE PRIM	7413	Male	16/Jan/2022	201	228	Birth/hatch	16/Jan/2022	DUKE PRIM	7413
169	MEDUSA	DUKE PRIM	6821	Female	14/Oct/2003	114	115	Birth/hatch	14/Oct/2003	DUKE PRIM	6821
								Transfer	1/Jul/2009	PHILADELP	104669
								Transfer	11/Nov/2015	DUKE PRIM	6821
158	LUCREZIA	DUKE PRIM	6786	Female	30/Jul/2001	103	119	Birth/hatch	30/Jul/2001	DUKE PRIM	6786
176	NIRINA	DUKE PRIM	7465	Male	8/Dec/2004	145	152	Birth/hatch	8/Dec/2004	TOKYOUENO	927005
								Transfer	2/Jul/2014	SANDIEGOZ	514134
								Transfer	24/May/2023	DUKE PRIM	7465
211	VINNY	FRANKFURT	45115	Male	5/Dec/2011	191	168	Birth/hatch	5/Dec/2011	SAN FRAN	111029

Stud Book ID	House Name	Current Location	Current Local ID	Sex	Birth Date	Sire	Dam	Event Type	Date	Location	Local ID
								Transfer	14/Jan/2015	FRANKFURT	45115
197	PAN	JERSEY	M3259	Male	18/Apr/2009	160	159	Birth/hatch	18/Apr/2009	DENVER	A09050
								Transfer	15/Sep/2014	JERSEY	M3259
159	SALEM	LONDON RP	G01260	Female	5/Sep/2001	103	137	Birth/hatch	5/Sep/2001	DUKE PRIM	6787
								Transfer	10/Jun/2008	DENVER	A08152
								Transfer	15/Sep/2014	LONDON RP	G01260
210	ELPHABA	OMAHA	25714	Female	29/Nov/2011	131	137	Birth/hatch	29/Nov/2011	DUKE PRIM	7071
								Transfer	25/Apr/2019	OMAHA	25714
148	WARLOCK	OMAHA	20263	Male	16/Jun/1998	114	115	Birth/hatch	16/Jun/1998	DUKE PRIM	6737
								Transfer	12/Dec/2007	SAN FRAN	107035
								Transfer	30/Sep/2010	OMAHA	20263
141	KALI	PHILADELP	105195	Female	6/Jan/1998	103	119	Birth/hatch	6/Jan/1998	DUKE PRIM	6721
								Transfer	13/Nov/2015	PHILADELP	105195
157	TOLKEIN	PHILADELP	104668	Male	7/Jan/2001	104	118	Birth/hatch	7/Jan/2001	DUKE PRIM	6772
								Transfer	1/Jul/2009	PHILADELP	104668
233	DAMIEN	PHILADELP	105239	Female	2/Sep/2016	157	141	Birth/hatch	2/Sep/2016	PHILADELP	105239
213	LOKI	PHILADELP	104918	Male	5/Jul/2012	157	169	Birth/hatch	5/Jul/2012	PHILADELP	104918
244	ALOKA	SANDIEGOZ	1000686	Female	7/Jul/2019	176	203	Birth/hatch	7/Jul/2019	SANDIEGOZ	1000686
183	CLAUDIA	SANDIEGOZ	1000325	Female	30/Dec/2005	103	119	Birth/hatch	30/Dec/2005	DUKE PRIM	6870
								Transfer	28/Oct/2009	OMAHA	19550
								Transfer	26/Apr/2019	SANDIEGOZ	1000325
145	MAMYROA	TOKYOUENO	925556	Male	22/Oct/1993 +/- 2 years	WILD	WILD	Birth/hatch	22/Oct/1993 +/- 2 years	Madagascar	-
								Wild Capture	22/Apr/1998	Madagascar	-
								Transfer	3/May/1998	TANANARIV	983810
								Transfer	22/Oct/2001	TOKYOUENO	925556
152	SOAFIAVY	TOKYOUENO	925557	Female	22/Oct/1998 +/- 2 years	WILD	WILD	Birth/hatch	22/Oct/1998 +/- 2 years	Madagascar	-
								Wild Capture	1/Jan/1999	Madagascar	-
								Transfer	20/Jan/1999	TANANARIV	993813
								Transfer	22/Oct/2001	TOKYOUENO	925557
178	HITCHCOCK	TOKYOUENO	940709	Male	22/Feb/2005	104	118	Birth/hatch	22/Feb/2005	DUKE PRIM	6851
								Transfer	5/Oct/2011	SANDIEGOZ	511120
								Transfer	15/Nov/2011	TOKYOUENO	940709

Population Changes (highlighted) Since Last Publication

Date Range: During December 30, 2020 – September 15, 2023
32 (13.19.0)

Stud Book ID	Current Location	House Name	Current Local ID	Sex	Birth Date	Current Status	Sire	Dam	Event Type	Date	Location	Local ID
104	DUKE PRIM	Poe	6202	M	1/Jul/1986 +/- 6 month	Alive	WILD	WILD	Birth/hatch	1/Jul/1986 +/- 6 month	Madagascar	-
									Wild Capture	20/Dec/1987	Madagascar	-
									Transfer	30/Dec/1987	DUKE PRIM	6202
119	DUKE PRIM	Endora	6452	F	1/Jul/1983 +/- 6 month	Dead	WILD	WILD	Birth/hatch	1/Jul/1983 +/- 6 month	Madagascar	-
									Wild Capture	4/Dec/1991	Madagascar	-
									Transfer	13/Dec/1991	YEMASSEE	UNK
									Transfer	19/Jan/1992	DUKE PRIM	6452
									Death	26/Aug/2021	DUKE PRIM	6452
134	CLEVELAND	CALIBAN	111102	F	25/Aug/1994	Alive	114	105	Birth/hatch	25/Aug/1994	DUKE PRIM	6607
									Transfer	18/Aug/1997	SAN FRAN	197031
									Transfer	9/May/2003	DUKE PRIM	6607
									Transfer	3/Nov/2011	CLEVELAND	111102
137	DUKE PRIM	ARDREY	6674	F	15/Apr/1996	Alive	104	118	Birth/hatch	15/Apr/1996	DUKE PRIM	6674
141	PHILADELP	KALI	105195	F	6/Jan/1998	Alive	103	119	Birth/hatch	6/Jan/1998	DUKE PRIM	6721
									Transfer	13/Nov/2015	PHILADELP	105195
145	TOKYOUENO	MAMYROA	925556	M	22/Oct/1993 +/- 2 year	Alive	WILD	WILD	Birth/hatch	22/Oct/1993 +/- 2 year	Madagascar	-
									Wild Capture	22/Apr/1998	Madagascar	-
									Transfer	3/May/1998	TANANARIV	983810
									Transfer	22/Oct/2001	TOKYOUENO	925556
148	OMAHA	WARLOCK	20263	M	16/Jun/1998	Alive	114	115	Birth/hatch	16/Jun/1998	DUKE PRIM	6737
									Transfer	12/Dec/2007	SAN FRAN	107035
									Transfer	30/Sep/2010	OMAHA	20263
152	TOKYOUENO	SOAFIAVY	925557	F	22/Oct/1998 +/- 2 year	Alive	WILD	WILD	Birth/hatch	22/Oct/1998 +/- 2 year	Madagascar	-
									Wild Capture	1/Jan/1999	Madagascar	-
									Transfer	20/Jan/1999	TANANARIV	993813

Stud Book ID	Current Location	House Name	Current Local ID	Sex	Birth Date	Current Status	Sire	Dam	Event Type	Date	Location	Local ID
									Transfer	22/Oct/2001	TOKYOUENO	925557
157	PHILADELP	TOLKEIN	104668	M	7/Jan/2001	Alive	104	118	Birth/hatch	7/Jan/2001	DUKE PRIM	6772
									Transfer	1/Jul/2009	PHILADELP	104668
158	DUKE PRIM	LUCREZIA	6786	F	30/Jul/2001	Alive	103	119	Birth/hatch	30/Jul/2001	DUKE PRIM	6786
159	LONDON RP	SALEM	G01260	F	5/Sep/2001	Alive	103	137	Birth/hatch	5/Sep/2001	DUKE PRIM	6787
									Transfer	10/Jun/2008	DENVER	A08152
									Transfer	15/Sep/2014	LONDON RP	G01260
169	DUKE PRIM	MEDUSA	6821	F	14/Oct/2003	Alive	114	115	Birth/hatch	14/Oct/2003	DUKE PRIM	6821
									Transfer	1/Jul/2009	PHILADELP	104669
									Transfer	11/Nov/2015	DUKE PRIM	6821
175	CINCINNAT	MEDEA	111024	F	10/Sep/2004	Alive	104	141	Birth/hatch	10/Sep/2004	DUKE PRIM	6842
									Transfer	17/May/2011	CINCINNAT	111024
176	DUKE PRIM	NIRINA	7465	M	8/Dec/2004	Alive	145	152	Birth/hatch	8/Dec/2004	TOKYOUENO	927005
									Transfer	2/Jul/2014	SANDIEGOZ	514134
									Transfer	24/May/2023	DUKE PRIM	7465
178	TOKYOUENO	HITCHCOCK	940709	M	22/Feb/2005	Alive	104	118	Birth/hatch	22/Feb/2005	DUKE PRIM	6851
									Transfer	5/Oct/2011	SANDIEGOZ	511120
									Transfer	15/Nov/2011	TOKYOUENO	940709
183	SANDIEGOZ	CLAUDIA	1000325	F	30/Dec/2005	Alive	103	119	Birth/hatch	30/Dec/2005	DUKE PRIM	6870
									Transfer	28/Oct/2009	OMAHA	19550
									Transfer	26/Apr/2019	SANDIEGOZ	1000325
188	DENVER	BELLATRIX	A14272	F	21/Aug/2007	Alive	104	141	Birth/hatch	21/Aug/2007	DUKE PRIM	6898
									Transfer	9/Dec/2014	DENVER	A14272
191	CINCINNAT	NIFY	112022	M	21/Jun/2008	Alive	148	168	Birth/hatch	21/Jun/2008	SAN FRAN	108023
									Transfer	25/Apr/2012	CINCINNAT	112022
197	JERSEY	PAN	M3259	M	18/Apr/2009	Alive	160	159	Birth/hatch	18/Apr/2009	DENVER	A09050
									Transfer	15/Sep/2014	JERSEY	M3259
201	DUKE PRIM	GRENDEL	6975	M	23/May/2010	Alive	103	119	Birth/hatch	23/May/2010	DUKE PRIM	6975
202	DENVER	SMEAGOL	A15122	M	14/Jul/2010	Alive	157	169	Birth/hatch	14/Jul/2010	PHILADELP	104771
									Transfer	28/May/2015	DENVER	A15122
210	OMAHA	ELPHABA	25714	F	29/Nov/2011	Alive	131	137	Birth/hatch	29/Nov/2011	DUKE PRIM	7071
									Transfer	25/Apr/2019	OMAHA	25714
211	FRANKFURT	VINNY	45115	M	5/Dec/2011	Alive	191	168	Birth/hatch	5/Dec/2011	SAN FRAN	111029
									Transfer	14/Jan/2015	FRANKFURT	45115
213	PHILADELP	LOKI	104918	M	5/Jul/2012	Alive	157	169	Birth/hatch	5/Jul/2012	PHILADELP	104918

Stud Book ID	Current Location	House Name	Current Local ID	Sex	Birth Date	Current Status	Sire	Dam	Event Type	Date	Location	Local ID
228	DUKE PRIM	FADY	7339	F	8/Sep/2015	Alive	176	203	Birth/hatch	8/Sep/2015	SANDIEGOZ	515138
									Transfer	18/Sep/2019	DUKE PRIM	7339
233	PHILADELP	DAMIEN	105239	F	2/Sep/2016	Alive	157	141	Birth/hatch	2/Sep/2016	PHILADELP	105239
237	DUKE PRIM	AGATHA	7279	F	7/Jun/2017	Alive	104	169	Birth/hatch	7/Jun/2017	DUKE PRIM	7279
242	DENVER	TONKS	A18173	F	8/Aug/2018	Alive	202	188	Birth/hatch	8/Aug/2018	DENVER	A18173
244	SANDIEGOZ	ALOKA	1000686	F	7/Jul/2019	Alive	176	203	Birth/hatch	7/Jul/2019	SANDIEGOZ	1000686
245	DUKE PRIM	MELISANDRA	7336	F	13/Aug/2019	Alive	201	137	Birth/hatch	13/Aug/2019	DUKE PRIM	7336
248	DUKE PRIM	WINIFRED	7360	F	23/Jun/2020	Dead	201	228	Birth/hatch	23/Jun/2020	DUKE PRIM	7360
									Death	8/Jul/2021	DUKE PRIM	7360
252	DUKE PRIM	BINX	7413	M	16/Jan/2022	Alive	201	228	Birth/hatch	16/Jan/2022	DUKE PRIM	7413

Current Institutions

Institution Name	Mnemonic	Country	State/Province	Species360 Member	ZIMS Institution
Cincinnati Zoo & Botanical Garden	CINCINNAT	United States	Ohio	YES	YES
Cleveland Metroparks Zoo	CLEVELAND	United States	Ohio	YES	YES
Denver Zoological Garden	DENVER	United States	Colorado	YES	NO
Duke Lemur Center	DUKE PRIM	United States	North Carolina	YES	YES
Durrell Wildlife Conservation Trust	JERSEY	Jersey		YES	YES
Omaha's Henry Doorly Zoo	OMAHA	United States	Nebraska	YES	YES
Philadelphia Zoo	PHILADELP	United States	Pennsylvania	YES	YES
San Diego Zoo	SANDIEGOZ	United States	California	YES	YES
Ueno Zoological Gardens	TOKYOUENO	Japan	Tôkyô (ja) [Tokyo] (prefecture) (JP)	YES	YES
Zoologischer Garten Frankfurt	FRANKFURT	Germany	Hessen	YES	YES
ZSL London Zoo	LONDON RP	United Kingdom	London, City of	YES	YES

Historical Institutions

Institution Name	Mnemonic	Country	State/Province	Species360 Member	ZIMS Institution
AlphaGenesis (Lab Animal Breeders Svc)	YEMASSEE	United States	South Carolina	NO	NO
Bristol Zoological Gardens (1836-2022) (see BRISTOLZP)	BRISTOL	United Kingdom	Gloucestershire	YES	YES
Bronx Zoo/Wildlife Conservation Society	NY BRONX	United States	New York	YES	YES
Cincinnati Zoo & Botanical Garden	CINCINNAT	United States	Ohio	YES	YES
Cleveland Metroparks Zoo	CLEVELAND	United States	Ohio	YES	YES
Denver Zoological Garden	DENVER	United States	Colorado	YES	NO
Duke Lemur Center	DUKE PRIM	United States	North Carolina	YES	YES
Durrell Wildlife Conservation Trust	JERSEY	Jersey		YES	YES
Omaha's Henry Doorly Zoo	OMAHA	United States	Nebraska	YES	YES
Parc Botanique et Zool. de Tsimbazaza	TANANARIV	Madagascar	Antananarivo (en) (province) (MG)	NO	NO
Philadelphia Zoo	PHILADELP	United States	Pennsylvania	YES	YES
San Diego Zoo	SANDIEGOZ	United States	California	YES	YES
San Francisco Zoological Gardens	SAN FRAN	United States	California	YES	YES
Ueno Zoological Gardens	TOKYOUENO	Japan	Tôkyô (ja) [Tokyo] (prefecture) (JP)	YES	YES

Institution Name	Mnemonic	Country	State/Province	Species360 Member	ZIMS Institution
Zoologischer Garten Frankfurt	FRANKFURT	Germany	Hessen	YES	YES
ZSL London Zoo	LONDON RP	United Kingdom	London, City of	YES	YES

REPRODUCTIVE REPORT

Aye-aye Studbook
Daubentonia madagascariensis
North American Regional Studbook

Studbook data current as of 9/14/2023 12:00:00 AM

Compiled by
dgibson@sdzwa.org

PopLink Studbook filename: AyeAye
PopLink User Who Exported Report: AChaille
Date of Export: 9/19/2023 12:00:00 AM
PopLink Version: 2.5.2

Species Type: Live Bearing Gestation Period: 172 Days Maximum Birth Date Range For Litter Mates: 3 Days

DAM INFORMATION
13 reported dams, with 22.25.1 (48) offspring (not including 0 offspring of UNK/MULT dams)

Median size: 1 Mean size: 1

Litter Size	Frequency	Percentage
1	48	100.00
Total	48	100.00

Dam Age at First Reproduction
Median age: 6.678 Mean age: 6.953

10 Youngest Dams at First Reproduction:

Studbook ID	Age At Birth	Dam's Birth Date	Estimate	First Offspring's ID	First Offspring's Birth Date	First Offspring's Estimate
137	4.668	4/15/1996	None	163	12/15/2000	None
168	4.736	9/26/2003	None	191	6/21/2008	None
228	4.791	9/8/2015	None	248	6/23/2020	None
203	5.018	9/1/2010	None	228	9/8/2015	None
118	5.27	7/1/1988	Other	128	10/8/1993	None
152	6.13	10/22/1998	Other	176	12/8/2004	None

141	6.678	1/6/1998	None	175	9/10/2004	None
169	6.749	10/14/2003	None	202	7/14/2010	None
159	7.102	9/5/2001	None	193	10/12/2008	None
115	7.313	7/1/1985	Other	122	10/23/1992	None

10 Oldest Dams at First Reproduction:

Studbook ID	Age At Birth	Dam's Birth Date	Estimate	First Offspring's ID	First Offspring's Birth Date	First Offspring's Estimate
105	14.453	7/1/1978	Other	123	12/13/1992	None
119	8.767	7/1/1983	Other	120	4/6/1992	None
188	8.712	8/21/2007	None	230	5/7/2016	None
115	7.313	7/1/1985	Other	122	10/23/1992	None
159	7.102	9/5/2001	None	193	10/12/2008	None
169	6.749	10/14/2003	None	202	7/14/2010	None
141	6.678	1/6/1998	None	175	9/10/2004	None
152	6.13	10/22/1998	Other	176	12/8/2004	None
118	5.27	7/1/1988	Other	128	10/8/1993	None
203	5.018	9/1/2010	None	228	9/8/2015	None

Dam Age for All Reproduction
Median age: 9.614 Mean age: 11.621

10 Oldest Dams to Have Reproduced

Studbook ID	Age At Birth	Dam's Birth Date	Estimate	Offspring's ID	Offspring's Birth Date	Offspring's Estimate
119	26.894	7/1/1983	Other	201	5/23/2010	None
115	25.169	7/1/1985	Other	203	9/1/2010	None
137	23.326	4/15/1996	None	245	8/13/2019	None
119	22.5	7/1/1983	Other	183	12/30/2005	None
118	20.756	7/1/1988	Other	196	4/3/2009	None
141	18.656	1/6/1998	None	233	9/2/2016	None
115	18.286	7/1/1985	Other	169	10/14/2003	None
119	18.081	7/1/1983	Other	158	7/30/2001	None
118	16.646	7/1/1988	Other	178	2/22/2005	None
115	16.318	7/1/1985	Other	160	10/25/2001	None

10 Dams with Most Offspring

Studbook ID	# of Offspring
118	7
115	6
119	6
137	6
188	4

141	3
159	3
168	3
169	3
105	2

10 Shortest Interbirth Intervals
Intervals are calculated from the last of a litter to the first of the next litter.

Studbook ID	Interval (Days)	Offspring1	Birth Date	Birth Date Est.	Offspring2	Birth Date	Birth Date Est.
188	184	230	5/7/2016	None	234	11/7/2016	None
188	187	234	11/7/2016	None	235	5/13/2017	None
159	188	193	10/12/2008	None	197	4/18/2009	None
137	264	163	12/15/2000	None	159	9/5/2001	None
168	449	191	6/21/2008	None	199	9/13/2009	None
188	452	235	5/13/2017	None	242	8/8/2018	None
118	515	168	9/26/2003	None	178	2/22/2005	None
228	572	248	6/23/2020	None	252	1/16/2022	None
159	590	197	4/18/2009	None	206	11/29/2010	None
105	620	123	12/13/1992	None	134	8/25/1994	None

Birth Seasonality
First of litter must have a birth date estimate of None, Day, or Month to be counted.

Month	Number of Litters	Percentage
January	3	6.25
February	2	4.17
March	0	0.00
April	4	8.33
May	3	6.25
June	5	10.42
July	5	10.42
August	4	8.33
September	8	16.67
October	6	12.50
November	3	6.25
December	5	10.42
Total	48	100.01

SIRE INFORMATION
13 reported sires, with 21.25.1 (47) offspring (All ages are at dam conception)

Sire Age at First Reproduction
Median age: 8.753 Mean age: 7.857

10 Youngest Sires at First Reproduction:

Studbook ID	Age At Estimated Conception	Sire's Birth Date	Estimate	First Offspring's ID	First Offspring's Birth Date	First Offspring's Estimate
191	2.984	6/21/2008	None	211	12/5/2011	None
178	3.639	2/22/2005	None	196	4/3/2009	None
202	5.344	7/14/2010	None	230	5/7/2016	None
160	6.494	10/25/2001	None	193	10/12/2008	None
104	6.801	7/1/1986	Other	128	10/8/1993	None
103	6.982	7/1/1985	Other	123	12/13/1992	None
201	8.753	5/23/2010	None	245	8/13/2019	None
157	9.043	1/7/2001	None	202	7/14/2010	None
148	9.544	6/16/1998	None	191	6/21/2008	None
176	10.278	12/8/2004	None	228	9/8/2015	None

10 Oldest Sires at First Reproduction:

Studbook ID	Age At Estimated Conception	Sire's Birth Date	Estimate	First Offspring's ID	First Offspring's Birth Date	First Offspring's Estimate
114	10.842	7/1/1981	Other	122	10/23/1992	None
131	10.782	6/5/1994	None	179	9/5/2005	None
145	10.658	10/22/1993	Other	176	12/8/2004	None
176	10.278	12/8/2004	None	228	9/8/2015	None
148	9.544	6/16/1998	None	191	6/21/2008	None
157	9.043	1/7/2001	None	202	7/14/2010	None
201	8.753	5/23/2010	None	245	8/13/2019	None
103	6.982	7/1/1985	Other	123	12/13/1992	None
104	6.801	7/1/1986	Other	128	10/8/1993	None
160	6.494	10/25/2001	None	193	10/12/2008	None

Sire Age for All Reproduction
Median age: 11.138 Mean age: 12.831

10 Oldest Sires to Have Reproduced

Studbook ID	Age At Estimated Conception	Sire's Birth Date	Estimate	Offspring's ID	Offspring's Birth Date	Offspring's Estimate
104	30.464	7/1/1986	Other	237	6/7/2017	None
114	28.698	7/1/1981	Other	203	9/1/2010	None
103	24.422	7/1/1985	Other	201	5/23/2010	None
114	21.815	7/1/1981	Other	169	10/14/2003	None

104	20.668	7/1/1986	Other	188	8/21/2007	None
103	20.027	7/1/1985	Other	183	12/30/2005	None
114	19.847	7/1/1981	Other	160	10/25/2001	None
104	18.177	7/1/1986	Other	178	2/22/2005	None
104	17.725	7/1/1986	Other	175	9/10/2004	None
131	17.013	6/5/1994	None	210	11/29/2011	None

10 Sires with Most Offspring

Studbook ID	# of Offspring
104	9
103	8
114	7
202	4
131	3
160	3
201	3
157	3
148	2
176	2

Aye-aye*, Daubentonia madagascariensis*
Species information

Compiled by Melody Brooks and Dean Gibson

San Diego Zoo Wildlife Alliance

TAXONOMY & HISTORY

(Andriamasimanana 1994; Feistner and Carroll 1993; Gotch 1995; Gove 1993; Hovarth et al. 2008; ITIS 2014; Mittermeier et al. 2010; Owen 1863; Quinn and Wilson 2004; Richard 1991; Richardson 1885; Schwitzer et al. 2013; Simons 1994; Simons 1995; Tattersall 1982; Tattersall 2006; Winn 1989; Yoder and Yang 2004)

Classification according to ITIS 2014; Schwitzer et al. 2013; Tattersall 2006

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Infraclass: Eutheria
Order: Primates
Suborder: Strepsirrhini (prosimians: lemurs, galagos, and lorises)
Superfamily: Lemuroidae (Malagasy lemurs)
Family: Daubentoniidae (aye-ayes)
Genus: *Daubentonia* (Saint-Hilaire, 1795)
Species: *Daubentonia robusta* (Lamberton, 1934) - Giant aye-aye; extinct
Species: *Daubentonia madagascariensis* (Gmelin, 1788) - aye-aye

Taxonomic History and Nomenclature

- **Common names**
  - Aye-aye, hay-hay, ahay, and aiay (EAZA 2011)
  - Etymology
    - Lemur from the Latin word *lemures* meaning "ghosts or specters" (Gotch 1995)
      - Supposed to derive from the animals' nocturnal habits and stealthy movements (Gotch 1995)
    - Aye-aye (pronounced as 'high high' or 'hay hay') from the Malagasy name *aiay* for the species; several proposed origins for the name (Gotch 1995; Richardson 1885; Simons 1995)
      - Early report suggests derivation from the animal's peculiar cry; unlikely as no known vocalizations resemble this sound (Richardson 1885; Simons 1995)
      - Suggestion that Malagasy people cried out "aiee!-aiee!" in fright when shown the animal (Simons 1995)
      - Proposal that the name is a derivation of the Malagasy *heh heh* or *hey hey* meaning "I don't know"
      - Suggests that the Malagasy people either did not have a name for the animal or did not wish to speak its name because it is fady/taboo (Simons 1995)

- **Scientific name**
  - Etymology
    - Genus *Daubentonia* named after the French zoologist, Louis J.M. Daubenton, who discovered the animal in 1780 (Gotch 1995)
    - Specific epithet *madagascariensis* named after the island nation Madagascar, on which it is endemic
  - Historical classification of the species is confused
    - Originally identified as a rodent by Gmelin in 1788 (Owen 1863)
      - Variably assigned as a relative of squirrels (*Sciurus*), and jerboas (desert rodents of Asia and North Africa) until the mid 19th century (Owen 1863; Schwitzer et al. 2013; Winn 1989)
    - First ascribed to a primate lineage in 1800, by Schreber (Winn 1989)
      - *Lemur psilodactylus* (ITIS 2014; Tattersall 1982)

Portrait, *c.* 1863 by Joseph Wolf (1820-1899), of an aye-aye foraging. Originally believed to be a rodent, the aye-aye has intrigued scientists since it was first described in 1788. Confusion stemmed from its large, chisel-like incisors which grow continuously. It was 12 years before examination of skeletal features led to a proposed reclassification as a primate.

Image credit: Joseph Wolf, from Natural History Museum London. Image within the public domain in the European Union and U.S.

Evolutionary History

- **Lemur origins**
  - 66.9-84.4 million years ago (Mya): lemurs and lorisiformes (lorises and pottos; small arboreal primates of Africa and Asia) split (Hovarth et al. 2008)
  - 50-80 Mya: ancestral lemurs arrive on Madagascar; after separation of the island from other landmasses (Hovarth et al. 2008)
    - Open ocean isolates Madagascar from Africa and India
- **Malagasy lemur diversity and divergence** (from Mittermeier et al. 2010 unless otherwise noted)
  - Account for > 15% of extant (living) primate diversity (Hovarth et al. 2008)
  - 5 major (lemuriform) lineages; all descended from a single common ancestor (Hovarth et al. 2008; Yoder and Yang 2004)
    - Daubentoniidae: represented by the aye-aye; 1 genus
    - Indriidae: indris, sifakas, and their relatives; 19 species in 3 genera
    - Lepilemuridae: sportive lemurs; 26 species in 1 genus
    - Cheirogaleidae: dwarf and mouse lemurs; 30 species in 5 genera
    - Lemuridae: true and bamboo lemurs; 25 species in 5 genera
  - Origin estimates for major lineages

        - *Daubentonia* ancestors arise early in lemur evolution (Hovarth et al. 2008; Yoder and Yang 2004)
            - 1st to diverge, *c.* 54.9-74.7 Mya
            - Sister group to all other lemurs (Hovarth et al. 2008; Schwitzer et al. 2013)
        - Indriidae diverged *c.* 30.33-42.4 Mya, followed by Lepilemuridae *c.* 18.62-29.05 Mya (Hovarth et al. 2008)
        - Lemuridae and Cheirogaleidae began to diversify around the same time (Hovarth et al. 2008)
            - *c.* 18.6-29 Mya
- **Genus *Daubentonia***
    - 2 species; only 1 extant
    - Recently extinct giant aye-aye (*D. robusta*) - (Feistner and Carroll 1993)
        - Fossil remains found in a few locations in southwestern Madagascar (Mittermeier et al. 2010; Quinn and Wilson 2004)
            - Include 4 incisors, a tibia, and postcranial material (Quinn and Wilson 2004)
            - Date to the late-Holocene, likely within the last 2,000 yrs (Feistner and Carroll 1993)
        - 2.5-5 times larger than its living relative (Simons 1994)
            - Estimated mass of *D. robusta c.* 6.7-13.5 kg (15-30 lb) (Mittermeier et al. 2010; Quinn and Wilson 2004)
        - Dental similarities suggest similar diets (Mittermeier et al. 2010)
        - Cause for extinction unclear, though evidence suggests humans hunted the animal (Mittermeier et al. 2010)

Cultural History

- **Malagasy mythology and lore**
    - Capture of the animal believed to cause illness or death (Andriamasimanana 1994; Richardson 1885)
- **Popular culture resources**
    - Books
        - *The Aye-Aye and I* (1992) by G. Durrell; details the journey of Gerald Durrell's search for the elusive aye-aye and his efforts to establish a captive breeding colony
        - *Ako the Aye-Aye* (2005) by A. Jolly; children's book written in Malagasy and English, weaves the story of an aye-aye mother and her son, Ako
        - *Adventures of Riley: Mission to Madagascar* (2005) by A. Lumry; the story of a young boys search for the elusive aye-aye and his encounters with other amazing creatures he meets along the journey
        - *This Book Belongs to Aye-Aye* (2011) by R. Byrne; picture book, tells the comical story of aye-aye and his classmates attending the Academy for Aspiring Picture Book Animals
    - Videos
        - *Madagascar* series (2005, 2008, 2012) produced by DreamWorks; 'a fish out of water' story of four Central Park Zoo animals shipwrecked on the island of Madagascar and their encounters with the island's native species including an aye-aye named Maurice
        - *Nature's Miracle Babies: Episode 3: Aye-aye of the Beholder* (2011), produced by BBC from executive producer S. Ford; episode segment focuses on captive breeding of aye-ayes at Duke Lemur Center
- **Persecution by humans**
    - Human arrival to Madagascar coincides with population decline and extinction of many lemurs (Mittermeier et al. 2010; Richard 1991)
        - 17 species, roughly 15% of all known species, have been extirpated (Mittermeier et al. 2010)
            - Loss of 8 genera and 3 families, no longer represented in the island's fauna (Mittermeier et al. 2010)

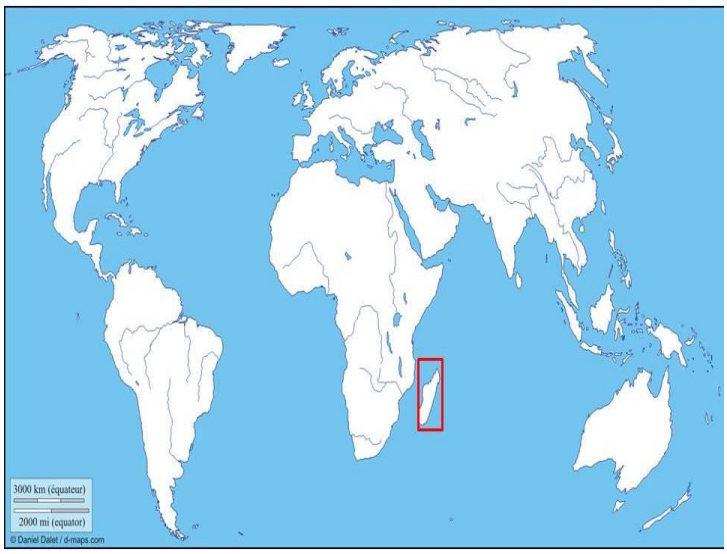
- Historically, large-bodied species encountered greater extinction risk (Richard 1991)

DISTRIBUTION & HABITAT

(Andriaholinirina et al. 2014; Mittermeier et al. 2010; Schwitzer et al. 2013)

Distribution

- **Madagascar** (from Andriaholinirina et al. 2014 unless otherwise noted)
  - Concentrated in eastern, northern and central-western portions of the island
    - Fragmented pockets across nearly all coastal areas
  - Broadest distribution of any living lemur (Mittermeier et al. 2010)
- **Introduced to 2 islands off Madagascar's coast**
  - Nosy Mangabe in the Bay of Antongil
  - Ile Roger, also known as "Aye-aye Island"



Aye-aye distribution.
Adapted from www.d-maps.com
according to IUCN fact sheet
http://www.iucnredlist.org/details/6302/0

Habitat (from Schwitzer et al. 2013 unless otherwise noted)

- **Forest inhabitants**
  - Found in rainforest, deciduous forest, littoral forest, and mature and degraded secondary forest
  - Not found in spiny forest; historically home to the now extinct giant aye-aye species
- **Established in cultivated areas**
  - Sugar cane, coconut, and clove plantations
- **Enter mangrove swamps and dry scrub forest**
- **Adaptable to a range of habitats**
  - Present across a broad range of climates, with marked variation in temperature and rainfall patterns
- **Elevation range: 0-1,875 m** (Andriaholinirina et al. 2014)
  - **Associated with ramy trees, though not exclusively** (*Canarium* spp) (Mittermeier et al. 2010)

PHYSICAL CHARACTERISTICS

(Andriamasimanana 1994; Bartlett 1862; Erickson 1994; Erickson 1995a; Feistner and Sterling 1995; Melin et al. 2012; Milliken et al. 1991; Owen 1863; Schwitzer et al. 2013; Sterling and McCreless 2006; Tattersall 1982)

	Male	Female
Body Weight	2.62 kg (5.8 lb)	2.57 kg (5.7 lb)
Head & Body Length	30-37 cm (12-15 in)	
Tail Length	44-53 cm (17-21 in)	
Body measurements from Feistner and Sterling 1995; Mittermeier et al. 2010; Schwitzer et al. 2013.		

General Appearance

- **Body Shape** (from Schwitzer et al. 2013 unless otherwise noted)
  - Medium-sized lemur
    - Largest of the fully nocturnal prosimians (lemurs, galagos, and lorises)
    - Body slender, bulky appearance due to thick hair
  - Limbs short and slender
    - Hindlimbs longer than forelimbs
  - Forefeet large, relative to body size
    - 5 digits
      - 3rd and 4th fingers elongate (Owen 1863)
      - 3rd extremely thin; skeletal in appearance (Mittermeier et al. 2010)
    - Claw like nails on all fingers except the first, which has a flattened nail
    - "Thumb" flexible, but not truly opposable to other digits
  - Hindfeet
    - 5 digits, less disparate in length than those of the forefeet
    - Claw like nails on all toes except the first (big toe), which has a flattened nail, second toe has a specialized nail called a grooming claw
    - "Big toe" nearly opposable to other digits
  - Tail long and bushy, longer than the head and body
- **Facial Characteristics** (from Mittermeier et al. 2010; Schwitzer et al. 2013 unless otherwise noted)
  - Squirrel-like; face and muzzle short, brow high, and eyes facing forward
  - Ears large, black, and oval-shaped

Each foot contains five digits. Specialized fingers on the forefeet (seen in the above image) are used to forage for and secure food. This slender, elongate 3rd digit is tapped against tree bark in percussive foraging. Aye-ayes listen to the echoed sound to identify the location of subsurface grubs. The finger is then used to fish out the meal through a small, chewed hole.

        - Naked; lack hair (Quinn and Wilson 2004)
        - Protrude laterally
        - Highly mobile, used to locate hollows in decayed wood
    - Eyes prominent
        - Yellow-orange or sandy-brown; surrounded by dark rings (Quinn and Wilson 2004)
        - Nictitating membranes, transparent 3rd eyelids, present (Quinn and Wilson 2004)
            - Moistens and cleans the eye
    - Nose pinkish in color (Quinn and Wilson 2004)
    - Teeth reduced in number (Owen 1863; Schwitzer et al. 2013)
        - 18 in total; a typical lemur has a compliment of 30-36 (Owen 1863; Schwitzer et al. 2013)
        - Incisors large and curved; chisel-like
            - Grow continually throughout life; wear down with use
                - Uncommon in primates
            - Enamel on front surface only
        - Diastema large; gap between the incisor and molars of the lower jaw bones
    - Visit http://humanorigins.si.edu/evidence/3d-collection/aye-aye-madagascar-usnm-305066 to view 3-D model of an aye-aye cranium or jaw
- **Adult Pelage/Coat** (from Schwitzer et al. 2013 unless otherwise noted)
    - Body covered in dark brown or black hair; hairs tipped in white, undercoat of a dense layer of short light brown hair.
        - Brindled appearance (Mittermeier et al. 2010)
        - Guard hairs long and coarse
    - Chest, throat, and facial hairs paler than those of the body
    - Tail monochromatic in color; solid brown or black (Mittermeier et al. 2010)

Sexual Dimorphism (from Schwitzer et al. 2013 unless otherwise noted)

- **Sexes alike** (Feistner and Sterling 1995)
- **Male features**
    - Scrotum naked
    - Baculum/penis bone present
- **Female features**
    - Single pair of mammary glands; located near the groin, not on the chest

Adaptations

- **Nocturnal adaptations**
    - Large eyes, specialized for visual acuity in low light (Andriamasimanana 1994)
        - Reflective tapetum lucidum; specialized reflective cells help deflect light toward the retina
        - Possible blue color vision (Melin et al. 2012)
            - Functional opsin genes, suggest sensitivity to blue wavelength light, though experts disagree
            - 2 proposed explanatory hypotheses: (1) assists with location of blue flowers of the traveler's tree (*Ravenala madagascariensis*) and (2) enables detection of (urine) scent marks in twilight
- **Foraging adaptations**
    - Thin 3rd digit with ball and socket joint (metacarpal) used to search and probe for food (Erickson 1995a; Milliken et al. 1991)
        - Tapping on bark to locate subsurface cavities, often created by insect larvae; see description of percussive foraging below (Erickson 1995a)
        - Used to dig out seeds and insect larvae (Sterling and McCreless 2006)

        - Finger is highly flexible; capable of 360º movement and operates independently of other digits (Erickson 1994; Milliken et al. 1991)
        - Able to fold (nearly flat) under or over the hand; enhances probing
    - Dipping into flowers to secure nectar (Sterling and McCreless 2006)
- Large ears assist with echolocation, helping the animal identify subsurface cavities
- Incisors grow continually; mitigates against wear caused when the animal chews through wood and hard seeds (Erickson 1994; Schwitzer et al. 2013)
    - Pry bark from trees to gain access to subsurface insects (Sterling and McCreless 2006)
    - Scrape fungus and cankers (Sterling and McCreless 2006)
    - Gouge into seeds (Sterling and McCreless 2006)

Other Physical Characteristics

- **Chromosome number**
    - 2n = 30 (Tattersall 1982)
- **Feces resembles that of a rabbit** (Bartlett 1862)
    - Composed of separate, small, nearly round balls

BEHAVIOR & ECOLOGY

(Ancrenaz et al. 1994; Andriamasimanana 1994; Curtis and Feistner 1994; Delbarco-Trillo et al. 2013; Dixson 2012; Erickson 1995a; Feistner and Ashbourne 1994; Mittermeier et al. 2010; Petter and Peyrieras 1970; Pollock et al. 1985; Price and Feistner 1994; Rakotoarison et al. 2010; Richard and Dewar 1991; Richard and Dewar 1991; Schwitzer et al. 2013; Sterling and Richard 1995; Stranger and Macedonia 1994; Winn 1989; Winn 1994b)

Activity Cycle

Daily activity cycle

- Nocturnal; active at night and rest alone in daytime (Ancrenaz et al. 1994; Petter and Peyrieras 1970)
    - Onset of activity variable from one night to another; from 30 minutes before sunset to 3 hours after sunset (Ancrenaz et al. 1994)
    - Decrease activity/rest 4-6 hours after emerging (Ancrenaz et al. 1994)
    - End activity shortly before dawn, though sometime after sunrise (Ancrenaz et al. 1994)

- Sleep in nests, tree forks, or vine tangles; >9 m from the ground (Ancrenaz et al. 1994; Mittermeier et al. 2010; Petter and Peyrieras 1970)
    - Provides protective cover from predators and temperature variation (Petter and Peyrieras 1970)
    - Nests are quickly constructed (*c.* 1 hr) from small tree branches and vines; each is maintained or added to over time (Ancrenaz et

Nest constructed by a captive aye-aye at the Duke Lemur center. Aye-aye sleep in nests at night; often moving from one location to another. Researchers searching for aye-ayes often do so by finding their nests and waiting for the animal to emerge. Image credit: D Haring/Duke Lemur Center. All rights reserved.

al. 1994; Petter and Peyrieras 1970)
        - Bowl-shaped nests (Petter and Peyrieras 1970; Schwitzer et al. 2013)
        - Often placed at a branch fork (Petter and Peyrieras 1970)
        - Frequently move from one location to another and may construct many nests (Ancrenaz et al. 1994; Petter and Peyrieras 1970)
- **Nighttime activity profile** (from Ancrenaz et al. 1994 unless otherwise noted)
    - Move about during much of the night; movement accounts for 1/2 of all observations (Ancrenaz et al. 1994; Andriamasimanana 1994)
    - Rest *c.* 19% of the night
        - Remain high in the canopy during longer periods of rest, though shorter breaks occur at lower levels
        - Wrap tail around the body
    - Feed (*c.* 14%) and self-groom (*c.* 12%)

Home Range Size (from Ancrenaz et al. 1994 unless otherwise noted)

- **Range size is gender specific; males inhabit larger ranges than females** (Ancrenaz et al. 1994; Dixson 2012)
    - Food availability likely influences female range use
    - Socio-sexual activity likely influences male range use
- **Range overlap**
    - Male ranges overlap; no overlap in female ranges
    - Males regularly visit the ranges of females

Social Groups (from Sterling and Richard 1995 unless otherwise noted)

- **Solitary most often, though aggregations occur at some feeding sites** (Ancrenaz et al. 1994; Sterling and Richard 1995)
    - Male-male interactions account for the majority of encounters between aye-ayes
        - Brief encounters are often agonistic resulting in chases, fights, or displacement of one individual by the other
        - Tandem foraging not uncommon; 20% of all encounters
    - Female-female interactions infrequent and aggressive in nature
    - Male-female pairs forage in tandem, on occasion
        - Most frequent form of interaction
        - Accounts for 30% of heterosexual interaction time
- **Groups of 3-4 may forage and travel together**

Territorial Behavior

- **None known** (Andriamasimanana 1994)

Social Interactions

Aggression (from Sterling and Richard 1995 unless otherwise noted)

- **Chase and fight**
- **Physical contact uncommon**
    - In the wild, females never observed to touch conspecifics outside of mating

Affiliative behaviors

- **Few observed in the wild** (Ancrenaz et al. 1994)

        - Mutual grooming (Sterling and Richard 1995)
        - Adult males observed grooming one another when one entered the nest of the other
    - **In captivity, mothers and infants allo-groom** (Winn 1989)
        - Mother and young hang from a limb close to one another
        - Each clasps the other with its hands and licks the partner's face

Affiliative behaviors including play have been observed with compatible pairs, parents/offspring, siblings, juveniles in captivity (D. Gibson, personal communication).

Play (from Feistner and Ashbourne 1994; Winn 1994b unless otherwise noted)

- **Infants play alone and with their mothers**
    - Begin play *c.* 2.5-3 months of age
- **Jump on branches**
- **Run along the ground or over branches**
- **Wrestle**
    - Embrace one another and roll on the ground
    - Nibble on one another's necks
- **Chase**

Communication

Vocalization

- **Males vocalize more frequently than females, one study** (Ancrenaz et al. 1994)
- **Limited vocal repertoire, for a primate** (Stranger and Macedonia 1994)
    - Screech (from Stranger and Macedonia 1994 unless otherwise noted)
        - Affiliative call; audible in close proximity and over longer distances (Sterling and Richard 1995)
        - Highly variable call
        - Heard when individuals feed in close proximity together or prior to movement (Sterling and Richard 1995)
    - Scream/'Creee' (from Andriamasimanana 1994; Stranger and Macedonia 1994 unless otherwise noted)
        - Tonal, high-amplitude calls
            - High-pitched, long-range call
        - Emitted during capture and aggressive interactions, and as communication between mothers and infants (Stranger and Macedonia 1994)
            - Typically given when individuals are > 10 m apart
        - Female may scream to resist sexual advances by a male
    - Plea (from Petter and Peyrieras 1970; Stranger and Macedonia 1994 unless otherwise noted)
        - Structurally variable tonal call; lower-arousal, closed-mouth version of the scream
        - Distress call; emitted during struggle to escape restraint or when encountering another individual at close proximity (Sterling and Richard 1995)
    - Whimper (from Stranger and Macedonia 1994 unless otherwise noted)
        - Brief, tonal call with descending frequency sweeps
        - Emitted during feeding or by females seeking to terminate copulation
    - Sneeze/'Ron-tsit' (from Stranger and Macedonia 1994 unless otherwise noted)
        - Distress call; similar to the ground disturbance alarm given by the sifaka (*Propithecus tattersalli* and *P. verreauxi*)
        - Emitted when encountering humans, conspecifics, or other lemur species
        - Given in alarm or agonism
    - Snort (from Stranger and Macedonia 1994 unless otherwise noted)
        - Broad, atonal call; possibly produced as air is forced through the nostrils

        - Distress call; emitted when pacing and exploring arboreal pathways; particularly when approached by conspecifics
    - 'Ggnnoff' - lower pitch, close range call (Andriamasimanana 1994)
        - Given when individuals are < 10 m apart
    - 'Hai-hai' - loud, two-part call (Stranger and Macedonia 1994)
        - Emitted while fleeing the nest; heard during capture attempts

Olfaction/Scent Marking

- **Urine mark**
    - Deposit urine around the nest either on the ground or on oblique branches (Andriamasimanana 1994; Petter and Peyrieras 1970)
    - Glands along the distal urogenital tract likely contribute to the chemical signal within urine (Delbarco-Trillo et al. 2013)
- **Possible scent marking behaviors**
    - Rub neck, cheeks, and anogenital region against branches (Ancrenaz et al. 1994; Sterling and Richard 1995; Winn 1994a)
- **Able to discriminate scents of conspecifics** (Price and Feistner 1994)

Locomotion

- **Walk**
    - Travel quadrupedally (Ancrenaz et al. 1994)
        - Along branches to move within and between trees; may move along the ground at times (Ancrenaz et al. 1994)
        - Move slowly on the ground; not reaching over 3.6 km/hr (2.2 mi/hr) (Petter and Peyrieras 1970)
    - Stand bipedally on hindfeet to reach a higher branch
- **Climb**
    - Scale vertical tree trunks rapidly (Ancrenaz et al. 1994)
        - Ascend with all 4 limbs; often release forefeet and hop upwards with the hindlimbs (Ancrenaz et al. 1994)
    - Descend either head first or tail first (Curtis and Feistner 1994)
    - Jump to dismount trees, landing on all four feet (Petter and Peyrieras 1970)
- **Leap**
    - Hesitate to jump across distances > 2 m, from one tree limb to another (Ancrenaz et al. 1994)
    - Limited leaping abilities, compared to other lemurs (Petter and Peyrieras 1970; Schwitzer et al. 2013)
        - Often pause after jumping across larger gaps before proceeding (Petter and Peyrieras 1970)

Other Behaviors

- **Self-groom with hands, feet and mouth**
    - Scratch and wipe the face while seated/crouched (Ancrenaz et al. 1994; Winn 1989)
        - Elongate 3rd finger used to clean near the eyes, ear, and nose (Winn 1989)
    - Inspect and clean the body while suspended by the hindlimbs or by both limbs on one side (Ancrenaz et al. 1994; Winn 1989)
        - Hang from the hindfeet and lick the anogenital region (Winn 1989)
        - Suspend laterally (from both limbs on one side) to scratch the belly (Winn 1989)

Interspecies Interaction

- **Predators**
  - Direct evidence for predation by animals other than humans is minimal (Richard and Dewar 1991; Mittermeier et al. 2013)
    - Largest Malagasy carnivores are 7-12 kg
  - Fossa (*Cryptoprocta ferox*) prey on other lemur species of similar size (Richard and Dewar 1991)
  - Possible predation of young by snakes, harrier hawk (*Polyboroides radiatus*) and other raptors (Richard and Dewar 1991)
- **Possible symbiotic interaction with frogs** (Erickson 1995a; Pollock et al. 1985; Rakotoarison et al. 2010)
  - Cavities excavated by aye-aye may be used as breeding sites; more research needed

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DIET & FEEDING

(Andriamasimanana 1994; Ancrenaz et al. 1994; Erickson 1991; Erickson 1994; Erickson 1995a, b; Sterling 1994a, b; Sterling and McCreless 2006; Sterling et al. 1994; Winn 1989)

Diet

- **Omnivores**
  - Feed on sap, nectar, fungus, fruits, nuts, and insects (Andriamasimanana 1994; Erickson 1994; Sterling et al. 1994)
  - 90% of time spent eating 4 food resources; observations of one island population (Sterling et al. 1994; Sterling 1994b)
    - Seed from ramy fruit (*Canarium madagascariensis)*, insect larvae, cankerous growth on *Intsia bijuga* bark, and nectar from traveler's tree (*Ravenala madagascariensis*) flowers
    - Intake of one relative to the other three varies seasonally

- **Plants consumed** (Ancrenaz et al. 1994; Andriamasimanana 1994; Sterling 1994a, b)
  - *Canarium* spp - seeds
  - Traveler's tree (*Ravenala madagascariensis*) - nectar and flowers
  - Ficus tree (*Ficus* spp.) - fruit
  - Banana flower (*Musa* sp.) - nectar
  - *Terminalia catappa* - seeds
  - Breadfruit (*Artocarpus* sp.) - flesh and seeds
  - Barbibanjina (*Passiflora quadrangularis*) - fruit
  - *Chrysalidocarpus* sp. - fruit
  - *Intsia bijuga* -

Specialized fingers allow aye-ayes to access and eat many of their favorite foods. The middle finger drums on bark to locate subsurface cavities. After the teeth tear away the overlying wood, the finger is once again used; this time as a probe to dig out tasty larvae morsels.

cankers
    - Palm (*Orania trispatha*) - fruit
    - Tropical almond (*Terminalia catappa*) - seeds
    - Cultivated crops: Coconut (flesh and milk), banana, mango, and litchi/lychee
- **Insects consumed** (from Erickson 1995a unless otherwise noted)
    - Larval insects, particularly longhorn beetles (Family Cerambycidae)
        - Buprestid, elaterid, scarabid, and tenebrionid beetles
        - Lepidopterans (butterflies and moths) (Erickson 1994)
    - Adult insects: beetles, ants (Erickson 1995a; Sterling and McCreless 2006)
        - Adult beetles, consumed when offered to a captive individual
- **Suspected food items**
    - Amphibians, those which may use small holes in trees for reproduction (Erickson 1994)

Feeding

- **Feed on plant based items most often** (Ancrenaz et al. 1994)
    - *c.* 10% of time spent in search of larval insects (Ancrenaz et al. 1994)
- **Percussive foragers; tap on bark (echolocate) in search for insect larvae** (Erickson 1991; Erickson 1994; Erickson 1995a)
    - Drum with middle finger to locate subsurface cavities created by the feeding prey
        - Ears bent forward (Erickson 1995b)
    - Chew away wood (using incisors) to access the cavity
    - Extract larvae with middle finger, inserted into the cavity
- **Open fruits, nuts and seeds with the incisors** (Andriamasimanana 1994; Winn 1989)
- **Middle finger often used to place food into the mouth** (Andriamasimanana 1994; Winn 1989)
    - Drawn between the lips
- **Daily caloric intake: *c.* 260-342 kcal** (Sterling et al. 1994)

REPRODUCTION & DEVELOPMENT

(Carroll and Haring 1994; Dixson 2012; Feistner and Ashbourne 1994; Gibson and Ivy 2013; Glander 1994; Han and Worobey 2012; Junge and Sauther 2006; Richard and Dewar 1991; Quinn and Wilson 2004; Sterling 1994a; Sterling and Richard 1995;Winn 1989;Winn 1994a,b)

Courtship & Mating

- **Non-seasonal reproduction** (Quinn and Wilson 2004; Sterling 1994a)
- **Individuals may have multiple partners** (Quinn and Wilson 2004)
- **Reproductive behavior**
    - Males cluster around a female; sleep and forage in proximity (Sterling 1994a)
    - Females mate with multiple partners (Sterling and Richard 1995)
    - Increased vocalization and scent-marking, both in males and females (Sterling 1994a; Winn 1994a)
        - Sniff and lick genitals of potential partners, observed in captive animals (Winn 1994a)
    - Copulation coincides with peak estrus swelling (see below) (Quinn and Wilson 2004; Winn 1994a)
        - Advances by males at other times may be rejected (Quinn and Wilson 2004)
        - Changes in female behavior mark receptivity (Winn 1994a)
            - Presenting
                - Female stands sideways next to male, her head turned toward him (Winn 1994a)
                - Female assumes a very still squat on a vertical branch near the male, her head tucked down and forward (D Gibson personal communication)

        - Dorso-ventral mounting; male approaches female from behind and clasps her back (Winn 1994a)
            - In trees partners hang from an obliquely positioned branch, female grasps branch with all four feet and supports the weight of both; an uncommon position for a primate (Quinn and Wilson 2004; Winn 1994a)
            - On ground copulation is less successful (Winn 1994a)
        - Intromission lengthy; lasts nearly an hour (55-65 minutes) (Carroll and Haring 1994; Dixson 2012; Quinn and Wilson 2004; Sterling and Richard 1995)
            - Reports of shorter intromission believed to represent unsuccessful attempts
        - Pair often harassed by nearby males (Sterling and Richard 1995)

Reproduction

- **Polyestrous**
    - Estrus cycle: 21-65 days, mean *c.* 47-50 days (Winn 1994a; Quinn and Wilson 2004)
    - Signs of estrus include changes in the size and color of vulva (Quinn and Wilson 2004; Winn 1994a)
        - In anestrous: vulva small (*c.* 5-6 mm) and gray
        - In estrus: vulva large (*c.* 25 mm) and red
- **Maternal care of offspring; father does not assist** (Carroll and Haring 1994)

Gestation & Birth

- **Gestation: 158-172 days, mean 167** (Glander 1994; Quinn and Wilson 2004; Sterling 1994a)
- **Interval between births**
    - 2-3 years, in the wild (Quinn and Wilson 2004)
    - Shorter periods possible in captivity (D. Gibson personal communication)
        - See studbook reproduction report
- **Birth; occurs within the nest** (Feistner and Ashbourne 1994)
    - 1 infant (Winn 1994a), twins occurred in captivity on one occasion (D. Gibson personal communication)
    - Weight at birth: *c.* 90-140 g (Carroll and Haring 1994; Feistner and Ashbourne 1994; Glander 1994; Quinn and Wilson 2004)
    - Appearance at birth: eyes green, ears floppy, and pelage similar to adult (Feistner and Ashbourne 1994; Quinn and Wilson 2004)

Life Stages

Infants

Infant aye-ayes weigh less than 1/3 lb at birth. They have big, green eyes and floppy ears; their sparse hair is much like that of an adult.

- **Remain in or near the nest for 2-3 months after birth** (Andriamasimanana 1994)
  - Social and motor skills develop slowly, progressing more quickly on leaving the nest (Winn 1994b)
  - Unsteady locomotor skill until > 2 months of age (Winn 1994b)
  - Growth rapid; nearly adult in size by 4-5 months (Andriamasimanana 1994; Quinn and Wilson 2004)
- **Carried by mother from one sleeping location to another** (Carroll and Haring 1994; Feistner and Ashbourne 1994)
  - Gently, held in the mouth, just behind her incisors (Carroll and Haring 1994)
- **Suckle for brief periods** (Andriamasimanana 1994)
  - Mother stands (quadrupedal) or reclines on back (Andriamasimanana 1994; Winn 1989)
  - Milk white in color (Winn 1989)
- **Lose baby/milk teeth *c.* 20 weeks of age** (Quinn and Wilson 2004)
- **Weaned by 28 weeks (*c.* 6-7 months) of age, observation of captive individuals** (Quinn and Wilson 2004; Winn 1989)
  - Begins solid food *c.* 3 months (Carroll and Haring 1994; Winn 1989; Winn 1994b)
- In captivity infants have been known to continue to nurse as long as the female permits. In one case, a juvenile continued to nurse after the birth of another infant (D. Gibson, personal communication).
- **Achieve full locomotor skills by *c.* 9 months** (Quinn and Wilson 2004; Winn 1994b)

Adults

- **Sexually mature between 8 and 36 months of age; larger individuals mature at earlier ages** (Winn 1994a)
- In captivity sexually maturity has varied for both maturing males and females and may be influenced by husbandry and hormonal suppression when housed too long with parents (D. Gibson, personal communication)

- **Longevity**

- **In captivity: > 20 years, typically** (Winn 1989)
  - Oldest male still living at 37 (SB#104) and oldest female lived until 38 years (SB#119), as of September 2023 (see Population Reports)
  - 1 of 8 individuals imported between 1978 – 1988 remains alive (SB#104), as of September 2023 (see Population Reports).

Mortality

- **Humans believed to be responsible for most mortality** (Mittermeier et al. 2013)
- **Parasites and disease** (from Junge and Sauther 2006 unless otherwise noted)
    - Information specific to the aye-aye is minimal; no major epizootics reported
    - Parasitic infections may lead to disease, though most cause little direct harm
        - Ectoparasites: ticks (*Haemophysalis lemuris*), lice (*Trichophylopterus babakotus*), and mites
        - Endoparasites: nematodes and pinworms, protozoans
    - Potential disease threats in wild lemurs
        - Malaria, West Nile virus (arbovirus), toxoplasmosis (*Toxoplasma gondii*), Murine typhus, schistosomiasis, *Angiostrongylus* infection, borreliosis (Lyme disease), rabies, and Rift Valley Fever
- **Predation**
    - Little known regarding natural predators
        - Infants may fall prey to snakes and raptors (Richard and Dewar 1991)
        - Fossa (*Cryptoprocta ferox*) known to prey on other lemur species (Richard and Dewar 1991)

MANAGED CARE

(Bartlett 1862; Carroll and Haring 1994; EAZA 2011; Feistner and Ashbourne 1994; Feistner and Carroll 1993; Gibson 2012; Gibson and Ivy 2013; Quinn and Wilson 2004; Simons 1995; Winn 1989)

- **History in captivity**
    - Early European records

Prior to 1992, there were few opportunities for captive individuals to breed. Efforts to propagate aye-aye by Duke Primate Center (now Duke Lemur Center) have resulted in a healthy captive North American population consisting of over 30 individuals, all of which are descendants of 6 wild caught

        - 1861: 1st aye-aye, an adult female, on display at the London Zoo (Bartlett 1862; Winn 1989)
        - 1862-1927: 19 individuals were held in 8 zoos
            - Most (13) were at the Menagerie du Jardin des Plantes, Paris; 1880-1927 (Winn 1989)
        - 1932-1982: no individuals housed outside of Madagascar (Feistner and Carroll 1993)

founders. Efforts by Duke and a select group of AZA institutions help guard against extinction.

Image credit: D Haring/Duke Lemur Center. All rights reserved.

    - First captive birth April 1992, Duke Primate Center (DPC) (Carroll and Haring 1994; Feistner and Ashbourne 1994; Feistner and Carroll 1993)
        - Wild caught female unexpectedly gave birth to a son, conceived in the wild (Carroll and Haring 1994)
    - Captive breeding
        - Limited opportunities for captive individuals to breed prior to 1992; few facilities housed male-female pairs (Simons 1995)
        - Recent breeding efforts designed to guard against extinction (Feistner and Ashbourne 1994)
- **Current North American population**
    - 24 individuals housed across 7 Association of Zoos and Aquariums (AZA), as of September 2023.
        - 9 males and 15 females
    - All are descendants of 6 (wild captured) founders; originally imported to the DPC and 2 (wild captured) founders imported to Ueno Zoo, Tokyo Japan (Gibson 2012; Gibson 2022)
        - Target population size of 30
- **Reproduction**
    - Age of first reproduction: 2-4 yrs
    - Oldest age at reproduction: sire 30.5 yrs; dam: 26.8 yrs (see Reproductive Report)
- **Diet of fruits, vegetables, nuts and insects** (EAZA 2011; Quinn and Wilson 2004)
    - Pelleted mixture to provide protein, calcium, and vitamins
    - Citrus fruits: orange, grapefruit, satsuma
    - Other fruits: plum, apple, papaya, mango, melons, grapes, lychee, pomegranate, passion fruit, gooseberries, guava, persimmon, coconut
    - Vegetables: cucumber, carrot, sweet corn, cooked potato
    - Nuts: brazil, walnut, pecan, peanut, almond, hazelnut, macadamia, sweet chestnut
    - Insects: wax worms, beetle larvae
    - Other: honey, eggs, nectar
- **Animal enrichment**
    - Opportunities to search for and manipulate food items are offered (Quinn and Wilson 2004)
        - Mealworms hidden in bamboo and rotten logs provide opportunity to tear and probe
    - Structure is provided to encourage travel throughout an exhibit (Quinn and Wilson 2004)
    - Materials for foraging/exploring such as puzzle feeders (wood, bamboo tubes), cardboard boxes, bags, tubes, paper items (cups, containers), coconut shells, naturally aging wood (D. Gibson personal communication).
    - Materials for nesting such as paper bags, fleece, bedding (wood wool), live plant material, browse/branches with leaves (D. Gibson personal communication).

POPULATION AND CONSERVATION STATUS

(Andriaholinirina et al. 2014; Ganzhorn and Rabesoa 1986; Harcourt 1990)

Population Status

- **Little known on population size or dynamics** (Andriaholinirina et al. 2014)
    - Elusive, nocturnal behavior makes study difficult
    - Expected to have extremely low genetic diversity; lowest of all lemur taxa
- **Large-scale habitat loss suggests population decline; exacerbated by hunting**

Conservation

- **IUCN Status**: Endangered version 3.1 (assessed in 2012) (Andriaholinirina et al. 2014)
    - Population decline of 50% or more suspected to have occured over a period of 3 generations (30-36 yrs)
    - Further reductions projected
        - > 50% decline over the next 1-2 generations (10-24 yrs)
        - Primary threats unlikely to cease or are not easily reversible
- **CITES Status**: Appendix I (Andriaholinirina et al. 2014)
- **Other Status**:
    - Class A of the African Convention, 1969 (Harcourt 1990)

Management actions

- **Occurs in numerous protected areas** (Andriaholinirina et al. 2014)
    - 13 national parks, 7 nature reserves, and 13 special reserves
        - Population size in these areas unknown
- **Introduced to Nosy Mangabe island in 1966/1967 in an attempt to help preserve the species** (Ganzhorn and Rabesoa 1986; Harcourt 1990)
    - 9 founding individuals
- **Recommended actions** (from Harcourt 1990 unless otherwise noted)
    - Conservation/education and development programs for local people
    - Improved enforcement of laws against killing aye-ayes (and other lemurs)
    - Compensation for local people with crop damage due to aye-ayes

Threats to survival

- **Habitat loss** (Andriaholinirina et al. 2014)
    - Harvest of trees, such as *Intsia bjuga* and *Canarium madagascariensis*, whose seeds are dietary staples for the species
        - Wood used for construction of boats, houses, and coffins
- **Hunted by humans** (Andriaholinirina et al. 2014)
    - Used as a food source
    - Killed to limit crop loss (e.g. coconuts) and to ward off misfortune as it is seen as a harbinger of evil in some areas

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Data Field Descriptions

The data fields used in this studbook are defined below.

STUDBOOK ID#
Studbook number – unique number assigned to each individual in the studbook. The studbook number is a permanent number. This studbook follows the International Studbook numbering system.

BIRTH DATE
This field indicates the date of an animal's birth. Known birth dates are recorded for captive born animals. Estimated birth dates are recorded for wild-caught animals.

SIRE/DAM
Numbers indicate the Studbook ID of the parents of the captive born animals
WILD indicates that an animal was wild caught and its parents are unknown wild individuals

SEX

M = male
F = female
UNK = unknown sex

EVENT
This field documents the movements of individual animals from the first location to the current or last known location. This includes Capture, Birth, Transfer, Death.

LOCATION
The field indicates the location where the event took place.

LOCAL ID
This is the number assigned by the institution in which the event took place.

DATE
This field documents the date that events occurred. Each event has a date and estimator, if exact date is unknown, associated with it.

NAME
This field indicates the name given to the animal at a specific location. If an infant dies before being named, it will receive the Dam's name followed by a letter (A, B, C etc – depending on the number of infant deaths per that female). The original house name for an animal is recorded in this studbook.

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