

King Penguin Studbook 2003

North American Region



Penguins are beautiful, interesting and funny.
They are a pleasure to watch even though they do smell
And their voices are not melodious.

George Gaylord Simpson

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A Bit of Natural History

The first account of a penguin in a zoological setting was at the Edinburgh Zoo, Scotland, in the early part of this century. Today, most of the 17 species of penguins are on display within 285 institutions around the globe, with new exhibits being unveiled each year.

King Penguins are just one of the popular display penguins. With their stately posture comes a comical, individualistic personality. These large, colorful, and inquisitive birds are adaptable to a wide variety of captive habitats, making them a well-represented member of the Spheniscidae family in zoological collections.

As early as 1911 (Matthews) the species has been separated by some into two distinct subspecies, differing most entirely by size; *Aptenodytes patagonicus patagonicus* breeds on South Georgia and the Falkland Islands, and *Aptenodytes patagonicus halli* breeds on Kerguelen, Crozet, Prince Edward, Heard, and Macquarie Islands (Howard and Moore). Viot (1987) has suggested a further division showing significant variation between the genetically isolated Kerguelen and Crozet populations.

Distribution of Wild Populations

This species is not circumpolar; restricted to the sub-Antarctic zones of the South Atlantic, Indian, and Southern Oceans, it has not been observed in the South Pacific Ocean. Vagrants have been recorded in South Africa, Australia, New Zealand, and on the Antarctic Peninsula (Marchant). Their breeding and wintering grounds extend between 45–55 degrees South Latitude. Breeding occurs on eleven islands, over 81 colonies (Woehler 1993). Main breeding populations occur on Crozet, Prince Edward, Kerguelen, South Georgia, and Macquarie Islands, with smaller populations on Marion, and Falkland Islands (CAMP).

Early in this century, wild populations of Kings were decimated on several Sub-Antarctic islands; penguin oil as fuel was a valuable commodity, and penguin pelts held high value on the market. These areas, notably South Georgia Island, have been recolonized over the last 40 years. Recent data (1998) estimates the world breeding population to be nearly 1,638,445 pairs, although the actual population is probably higher (CAMP). As with South Georgia, most populations with adequate data are known to be increasing in number (van Heezik, 1994).

The species is not listed under CITES, and IUCN categorizes it as *Lower Risk*. A potential threat for this group at one time included overfishing activity near South Georgia Island, but the fishing industry has since shut down in this area. Oil pollution is a constant threat throughout the South Polar Seas.

The Penguin Taxon Advisory Group has recommended that the captive population be managed under a Population Management Plan (PMP).

What makes a King, a King?

Kings are easily identified as they look like no other penguin save the Emperor. They are the second largest penguin, standing 3 feet tall and weighing between 30 and 40 lbs. Their long, slender, black bill is flanked on either side by bright orange mandibular plates, which renew each year with the annual molt. Their plumage is silver grey on back, and white on the front. The striking orange auricular patch narrows to a thin stripe down the sides of the neck, then opens to an orange-yellow field on the breast front. The legs and feet are unfeathered and black. Juveniles, after fledging and before the first molt, are paler than the adults and their mandibular plates are tinged with grey.

We Three Kings

The average age at first breeding is 5.9 years, although birds as young as 3 have been reported to have bred in the wild (Williams, 1990). The birds colonize in valleys, morains, and on beaches and other areas with easy access to the sea. Courtship begins immediately after returning from their post-molt foraging trip and lasts only two weeks; egg laying begins a week later (Williams, 1990). Eggs are laid late-November to mid-April. No nest is constructed, as the singular egg is incubated on the feet, and protected by the brood patch, poking bill, and swinging flippers. The 54 day incubation duty is divided evenly between both male and female, with the female taking the last shift, hatching and brooding the new chick. The semi-altricial chick is cared for by both parents to about 40 days of age, at which time crèches form. As the chick reaches its adult weight in April, it's now faced with a four month fast; it's left by the parents who return to the sea to feed. The parents will return to the colony in September and resume regular feeding of the chicks until fledging, sometime in December. Because the complete breeding cycle takes between 14 and 16 months, Kings are only able to produce two young every three years. It is not uncommon to see rookeries filled with molting birds, incubating birds, small chicks, and crèches. Pairs are monogamous, but mate fidelity tends to be lower than in other penguin species because of the prolonged nature of the breeding cycle. Molt for breeding birds is pre-nuptial; early January for birds having fledged chicks earlier that year, and late November for birds fledging chicks the previous season.

The King and I

I won't attempt to address the husbandry issues of keeping penguins in captive habitats. Instead, I will refer the reader to the work of the Penguin Taxon Advisory Group. They have developed the *Penguin Husbandry Manual*, which outlines in great detail the necessary requirements for maintaining a healthy captive population of not just Kings, but of all penguins. This is the best resource of its kind for creating the recipe for species management, and it is available online at the Penguin TAG website.

Conventions Used in this Studbook

- The North American zoological population has been supplied with animals from collections on both South Georgia and Marion Islands. This has contributed members from each subspecies, sometimes within the same collection. This studbook will be managed at the species level. A User Defined Field indicates the island of origin if known, to track animals at the subspecies level.
- The studbook numbers begin with 100. This has left 99 spaces blank, for those animals which will mysteriously appear from nowhere once the first edition has been published.
- All animals acquired from a dealer were assumed to be in the dealers' possession for no longer than 6 months. If the animal came into a collection Jan. 01 through June 30, I assumed the capture date to be Jan 01 of that same year. If the animal entered the collection July 01 through December 31, then I assumed the collection to be July 01 of that same year.
- I assumed that no animal acquired from a dealer was hand-raised.
- Unless there was specific documentation of an animal entering a collection as a juvenile, I assumed all collected animals were hatched in the wild, at least two years before their capture. All unknown, wild birthdates were entered as June 15 with the range of a year, due to the prolonged breeding cycle of this species.
- When receiving conflicting dates (without substantiating data) in regards to the same event from participating institutions, I assumed that the earliest recording of the event was true.
- The colored banding system is unique to each institution. I reproduced each abbreviation as it had been recorded in each institutions records.
- Successful hand-rearing techniques weren't established until the early 1980's. Any animal hatched in captivity before 1980 was assumed to be parent-reared unless documentation proved otherwise.
- Ownership is not a concern of this studbook. These records reflect ONLY the location of each animal throughout its life.

Institutions Currently Holding Kings

<u>MNEMONIC</u>	<u>INSTITUTION</u>	<u>CONTACT</u>
BIODOME	Biodome de Montreal 4777, Pierre-de-Coubertin Montreal, Quebec, H1V 1B3 CANADA	514-868-3072 Serge Pepin Curator of Aquatic Animals biodome_aquatic@ville.montreal.qv.ca
CHICAGOLP	Lincoln Park Zoo 2001 N. Clark Street Chicago, IL 60614-0903 USA	312-742-2000 Megan Ross Curator of Birds meganr@lpzoo.org
CINCINNAT	Cincinnati Zoo 3400 Vine Street Cincinnati, OH 45220-1399 USA	513-559-7712 John Dinon General Curator
DETROIT	Detroit Zoological Institute 8450 W.Ten Mile Road Royal Oak, MI 48068-0039 USA	810-398-0903 Tom Schneider Curator of Birds tschneider@detroitzoo.org
INDIANAPL	Indianapolis Zoo 1200 W. Washington Street Indianapolis, IN 46222-0309 USA	317-630-2072 Karen Imboden Waters Area Manager kimboden@indyzoo.com
MILWAUKEE	Milwaukee County Zoo 10001 W. Bluemound Road Milwaukee, WI 53226-4384 USA	414-771-3040 Kim Smith Curator of Birds ksmith@milwcnty.com
MOODYGARD	Moody Gardens 1 Hope Boulevard Galveston, TX 77554 USA	800-582-4673 x4102 Suzanne Smith Curator of Mammals and Birds dolphinhotel@hotmail.com
NEWPORTKY	Newport Aquarium One Aquarium Way Newport, KY 41071 USA	606-815-1436 Crystal Phillips Senior Aquatic Biologist cphillips@newportaquarium.com

OMAHA	Omaha's Henry Doorly Zoo 3701 S. 10th Street Omaha, NE 68107-2200 USA	Dan Cassidy Sr Zoological Curator danc@omahazoo.com
ORLANDO	SeaWorld Orlando 7007 Sea World Drive Orlando, FL 32821-8097 USA	407-363-2662 Sherry Branch Curator of Birds sherry.branch@seaworld.com
PITTSBURG	Pittsburgh Zoo One Wild Place Pittsburgh, PA 15206-1178 USA	412-365-2580 Lee Nesler General Curator nesler@zoo.pgh.pa.us
SEA WORLD	SeaWorld San Diego 500 Sea World Drive San Diego, CA 92109 USA	619-226-3975 Wendy Turner Curator of Birds wendy.turner@seaworld.com
SEAWLD TX	SeaWorld San Antonio 10500 Sea World Drive San Antonio, TX 78251 USA	Dudley Wigdahl Curator of Animals dudley.wigdahl@seaworld.com
ST LOUIS	St Louis Zoological Park 1 Government Drive St Louis , MO 63110-1395 USA	314-781-0900x362 Mike Macek Curator of Birds

Other Participating Institutions

<u>MNEMONIC</u>	<u>INSTITUTION</u>	<u>CONTACT</u>
ADV WRLD	Adventure World Shirahamacho Wakayakamen 649-23 JAPAN	
AURORA	Six Flags Worlds of Adventure 1060 N Aurora Rd Aurora, OH 44202-8749 USA	Laura Collins Curator of Birds
BUFFALO	Buffalo Zoological Gardens 300 Parkside Avenue Buffalo, NY 14214-1999 USA	Jean Miller Registrar
BUSCH HOU	Busch Gardens Houston Houston, TX USA	now extinct
CALGARY	Calgary Zoo 1300 Zoo Road NE Calgary, Alberta, T2M 4R8 CANADA	Pam Pritchard
CHICAGOBR	Chicago Zoological Park 3300 Golf Road Brookfield, IL 60513 USA	Debbie Johnson Registrar
CLEVELAND	Cleveland Metroparks Zoo 3900 Wildlife Way Cleveland, OH 44109 USA	Stan Searles Curator of Birds
COLO SPRG	Cheyenne Mountain Zoo 4250 Cheyenne Mtn. Zoo Road Colorado Springs, CO 80906 USA	Randy Barker Registrar

EDINBURGH	Edinburgh Zoo 134 Corstophine Rd Edinburgh, EH12 6TS SCOTLAND, UK	Rob Thomas EAZA Penguin Tag Chair
FRANKLINP	Franklin Park Zoo 1 Franklin Park Road Boston, MA 02121 USA	Linda Rohr Registrar
HAKKEIJIM	Yokohama Hakkeijima Hakkeijima, Kanazawa-ku Yokohama-shi Kanagawa 236 JAPAN	
KAMOGAWA	Kamogawa SeaWorld 1464-18 Higashi-Cho Kamogawa City, Chiba Pref 296 JAPAN	
LAVAL	INTERZOO 652 Herve Beaudry Laval, Quebec H7E 2X6 CANADA	Jean-Luc Bureau DVM
MAMI RARE	Miami Rare Bird farm Miami, FL USA	
NY BRONX	Bronx Zoo 2300 Southern Boulevard Bronx, NY 10460 USA	Dr. Donald Brunning Chairman of Ornithology
NZP WASH	National Zoological Park 3000 Block Connecticut Avenue Washington, DC 20008 USA	Judith Block Registrar
OSAKA	Osaka Municipal Tennoji Zoo 6-74 Chausuyama-cho Osaka-shi 543, Osaka JAPAN	

ROTTERDAM

Rotterdam Zoo
Abraham van Stolkweg
Rotterdam
The Netherlands

SANDIEGOZ

San Diego Zoo
2920 Zoo Drive
San Diego, CA 92112-0551
USA

Toni Giezendanner
Registrar

SAN FRAN

San Francisco Zoo
1 Zoo Road
San Francisco, CA 94132-1098
USA

Peter Shannon
Curator of Birds

TARLTON

Kelly Tarlton's Underwater World
PO BOX 42-021
Auckland
NEW ZEALAND

TENERIFE

Loro Parque S.A.
Punta Brava, Tenerife
Canary Islands
SPAIN

WUPPERTAL

Wuppertal Zoological Garten
Hubertusallee 30
D-42117 Wuppertal
GERMANY

KING PENGUIN Studbook Page 1
 Restricted to: (Aptenodytes patagonicus)
 Locations: N.AMERICA/
 Status: Living on 20 May 2003
 Report ordered by: current/last location (geographic)

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Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event	Band
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Biodome De Montreal, Montreal, Quebec, Canada

457	F	7 Feb 1992	WILD	WILD	ENGLAND	7 Feb 1992	920048	Hatch	BLACK
					LAVAL	~ Jun 1992	920048	Transfer	
					BIODOME	7 Oct 1992	726	Transfer	
458	F	7 Feb 1992	WILD	WILD	ENGLAND	7 Feb 1992		Hatch	WHITE
					LAVAL	~ Jun 1992	920049	Transfer	
					BIODOME	7 Oct 1992	727	Transfer	
459	F	7 Feb 1992	WILD	WILD	ENGLAND	7 Feb 1992		Hatch	RED
					LAVAL	~ Jun 1992	920050	Transfer	
					BIODOME	7 Oct 1992	729	Transfer	
460	F	7 Feb 1992	WILD	WILD	ENGLAND	7 Feb 1992		Hatch	BROWN
					LAVAL	~ Jun 1992	920051	Transfer	
					BIODOME	7 Oct 1992	728	Transfer	
524	F	4 Jan 1997	241	459	BIODOME	4 Jan 1997	1297	Hatch	YELLOW
Totals: 0.5.0 (5)									

Sea World San Diego, San Diego, California, USA

213	M	????	WILD	WILD	ANTARCTIC	~ Jun 1967	NONE	Capture	K-3
					SEA WORLD	1 Jan 1968	KI0002	Transfer	
235	M	????	WILD	WILD	ANTARCTIC	????	NONE	Capture	K-12
					BUSCH HOU	????		Transfer	
					SEA WORLD	17 Mar 1977	KI0005	Transfer	
257	M	10 Feb 1982	MULT	234	SEA WORLD	10 Feb 1982	KI0014	Hatch	K-26
258	M	28 Feb 1982	183	212	SEA WORLD	28 Feb 1982	KI0015	Hatch	K-27
453	F	20 Jul 1991	430	387	SEA WORLD	20 Jul 1991	KI0058	Hatch	K-191
Totals: 4.1.0 (5)									

Sea World Orlando, Orlando, Florida, USA

264	M	18 Feb 1983	186	245	ST LOUIS	18 Feb 1983	183028	Hatch	K-33
					SEA WORLD	6 Jun 1985	KI2506	Transfer	
					ORLANDO	16 Jul 1987	KI2506	Transfer	
270	F	18 Feb 1984	217	209	SEA WORLD	18 Feb 1984	K-17	Hatch	K-17
					ORLANDO	24 Jun 1987	KI2502	Transfer	
273	M	18 Feb 1985	215	234	SEA WORLD	18 Feb 1985	K-30	Hatch	K-30
					ORLANDO	24 Jun 1987	KI2503	Transfer	
289	M	24 Jul 1985	213	212	SEA WORLD	24 Jul 1985	KI2507	Hatch	K-37
					ORLANDO	24 Jun 1987	KI2507	Transfer	

306	M	3 Mar 1988	WILD	WILD	SEA WORLD ORLANDO	3 Mar 1988 12 Feb 1990	KI0026 KI0026	Hatch Transfer	K-48
325	M	14 Mar 1988	WILD	WILD	SEA WORLD ORLANDO	14 Mar 1988 20 Jul 1988	K-67 KI2516	Hatch Transfer	K-67
336	F	1 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	1 Apr 1988 20 Jul 1988	K-79 KI2520	Hatch Transfer	K-79
345	M	5 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	5 Apr 1988 12 Feb 1990	KI0031 KI0031	Hatch Transfer	K-90
363	F	7 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	7 Apr 1988 20 Jul 1988	K-106 KI2526	Hatch Transfer	K-106
387	F	14 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	14 Apr 1988 8 Apr 2001	KI0035 KI0035	Hatch Transfer	K-136
391	F	14 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	14 Apr 1988 20 Jul 1988	K-134 KI2540	Hatch Transfer	K-134
395	F	15 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	15 Apr 1988 12 Feb 1990	KI0038 KI0038	Hatch Transfer	K-144
431	M	22 Apr 1988	WILD	WILD	SEA WORLD ORLANDO	22 Apr 1988 12 Feb 1990	KI0046 KI0046	Hatch Transfer	K-178
439	M	3 Feb 1990	193	212	SEA WORLD ORLANDO	3 Feb 1990 8 Apr 2001	KI0049 KI0049	Hatch Transfer	K-182
444	F	16 Aug 1990	199	363	ORLANDO	16 Aug 1990	KI2549	Hatch	K-184
446	F	4 Feb 1991	310	312	ORLANDO	4 Feb 1991	KI2551	Hatch	K-186
448	M	27 Feb 1991	264	270	ORLANDO	27 Feb 1991	KI2553	Hatch	K-188
449	M	3 Feb 1991	306	432	ORLANDO	3 Feb 1991	KI2550	Hatch	K-185
494	M	24 Jan 1994	419	395	ORLANDO	24 Jan 1994	KI2566	Hatch	K-209
495	M	25 Jan 1994	289	336	ORLANDO	25 Jan 1994	KI2567	Hatch	K-210
514	M	16 Jan 1996	294	333	ORLANDO	16 Jan 1996	KI2571	Hatch	K-223
516	F	27 Jan 1996	419	479	ORLANDO	27 Jan 1996	KI2573	Hatch	K-225
527	M	8 Jan 1997	338	479	ORLANDO	8 Jan 1997	KI2578	Hatch	K-230
531	F	30 Jan 1997	294	299	ORLANDO	30 Jan 1997	KI2580	Hatch	K-232
604	M	24 Jan 1999	289	446	ORLANDO	24 Jan 1999	KI2590	Hatch	K-239
609	F	27 Feb 1999	273	336	ORLANDO	27 Feb 1999	KI2592	Hatch	K-241
611	F	4 Mar 1999	UNK	UNK	SEAWLD TX SEA WORLD ORLANDO	4 Mar 1999 7 Nov 1999 8 Apr 2001	KI5074 KI5074 KI5074	Hatch Transfer Transfer	K-5074
614	M	14 Jul 1999	289	446	ORLANDO	14 Jul 1999	KI2594	Hatch	K-242
617	M	26 Dec 1999	448	333	ORLANDO	26 Dec 1999	KI2596	Hatch	K-243
619	F	22 Jan 2000	449	516	ORLANDO	22 Jan 2000	KI2597	Hatch	K-244
623	F	10 Mar 2000	289	304	ORLANDO	10 Mar 2000	KI2599	Hatch	K-246
635	F	9 Feb 2001	514	363	ORLANDO	9 Feb 2001	KI2601	Hatch	K-248
637	M	18 Feb 2001	264	391	ORLANDO	18 Feb 2001	KI2602	Hatch	K-249

645	F	25 Mar 2001	345	446	ORLANDO	25 Mar 2001	KI2603	Hatch	K-250
649	F	26 Jan 2002	306	381	ORLANDO	26 Jan 2002	KI2607	Hatch	K-251
651	F	7 Feb 2002	325	619	ORLANDO	7 Feb 2002	KI2608	Hatch	K-252
655	M	18 Feb 2002	289	531	ORLANDO	18 Feb 2002	KI2609	Hatch	K-253
659	F	13 Mar 2002	431	MULT	ORLANDO	13 Mar 2002	KI2610	Hatch	K-254
661	M	1 Apr 2002	264	336	ORLANDO	1 Apr 2002	KI2611	Hatch	K-255
672	?	3 Jan 2003	306	619	ORLANDO	3 Jan 2003	KI2614	Hatch	
Totals: 20.19.1 (40)									

Lincoln Park Zoo, Chicago, Illinois, USA

294	M	5 Feb 1986	UNK	UNK	SEA WORLD	5 Feb 1986	KI2509	Hatch	PURPLE
					ORLANDO	24 Jun 1987	KI2509	Transfer	
					CHICAGOLP	27 Apr 1998	B989	Transfer	
299	F	12 Jan 1988	183	262	SEA WORLD	12 Jan 1988	KI0021	Hatch	YELLOW
					ORLANDO	12 Feb 1990	KI0021	Transfer	
					CHICAGOLP	26 Apr 1998	B9811	Transfer	
329	F	22 Mar 1988	WILD	WILD	SEA WORLD	22 Mar 1988	K-72	Hatch	K-72
					AURORA	20 Jul 1988	KI7502	Transfer	
					CHICAGOLP	6 Jun 1990	B9028	Transfer	
338	M	1 Apr 1988	WILD	WILD	SEA WORLD	1 Apr 1988	K-81	Hatch	PINK L
					ORLANDO	20 Jul 1988	KI2522	Transfer	
					CHICAGOLP	27 Apr 1998	B9810	Transfer	
422	F	19 Apr 1988	WILD	WILD	SEA WORLD	19 Apr 1988	K-167	Hatch	GREEN
					ORLANDO	20 Jul 1988	KI2542	Transfer	
					SEAWLD TX	6 May 1990	KI2542	Transfer	
					AURORA	20 Apr 1991	KI2542	Transfer	
					CHICAGOLP	24 May 1991	B91198	Transfer	
498	M	6 Dec 1994	437	429	MILWAUKEE	6 Dec 1994	B3121	Hatch	BLUE
					CHICAGOLP	4 Jun 1996	B94124	Transfer	
Totals: 3.3.0 (6)									

Indianapolis Zoo, Indianapolis, Indiana, USA

538	M	24 Jul 1997	327	474	INDIANAPL	24 Jul 1997	970163	Hatch	K972
540	M	25 Jul 1997	310	491	INDIANAPL	25 Jul 1997	970164	Hatch	
542	F	17 Sep 1997	310	432	INDIANAPL	17 Sep 1997	970165	Hatch	K976
599	F	29 Jul 1998	327	474	INDIANAPL	29 Jul 1998	980132	Hatch	
600	F	3 Aug 1998	490	392	INDIANAPL	3 Aug 1998	980133	Hatch	
Totals: 2.3.0 (5)									

Newport Aquarium, Newport, Kentucky, USA

463	M	10 Apr 1992	WILD	WILD	ADV WRLD	10 Apr 1992	K-24	Hatch	K-24
					NEWPORTKY	25 Mar 1999	K024	Transfer	
464	F	14 Apr 1992	WILD	WILD	ADV WRLD	14 Apr 1992	K-37	Hatch	K-37
					NEWPORTKY	25 Mar 1999	K037	Transfer	
465	M	14 Apr 1992	WILD	WILD	ADV WRLD	14 Apr 1992	K-40	Hatch	K-40
					NEWPORTKY	25 Mar 1999	K-40	Transfer	
466	F	14 Apr 1992	WILD	WILD	ADV WRLD	14 Apr 1992	K-42	Hatch	K-42

					NEWPORTKY	25 Mar 1999	K042	Transfer	
467	F	16 Apr 1992	WILD	WILD	ADV WRLD NEWPORTKY	16 Apr 1992 25 Mar 1999	K-54 K054	Hatch Transfer	K-54
469	F	30 Apr 1992	WILD	WILD	ADV WRLD NEWPORTKY	30 Apr 1992 25 Mar 1999	K-213 K213	Hatch Transfer	K-213
505	F	13 Feb 1995	277	278	ADV WRLD NEWPORTKY	13 Feb 1995 25 Mar 1999	K-222 K222	Hatch Transfer	K222
517	M	2 Feb 1996	279	280	ADV WRLD NEWPORTKY	2 Feb 1996 25 Mar 1999	K-223 K223	Hatch Transfer	K-223
523	M	2 Jan 1997	281	282	ADV WRLD NEWPORTKY	2 Jan 1997 25 Mar 1999	K-226 K226	Hatch Transfer	K-226
529	M	18 Jan 1997	283	284	ADV WRLD NEWPORTKY	18 Jan 1997 25 Mar 1999	K-230 K230	Hatch Transfer	K-230
530	M	20 Jan 1997	285	286	ADV WRLD NEWPORTKY	20 Jan 1997 25 Mar 1999	K-232 K232	Hatch Transfer	K-232

Totals: 6.5.0 (11)

Detroit Zoological Institute, Royal Oak, Michigan, USA

204	M	????	WILD	WILD	ANTARCTIC DETROIT	~ Jan 1968 28 May 1968	NONE 1618	Capture Transfer	K-1
250	M	23 Jul 1979	204	197	DETROIT	23 Jul 1979	1625	Hatch	K-12
310	M	5 Mar 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	5 Mar 1988 12 Feb 1990 14 May 1992	KI0027 KI0027 3648	Hatch Transfer Transfer	K-51
326	F	14 Mar 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	14 Mar 1988 20 Jul 1988 14 May 1992	K-65 KI2514 3650	Hatch Transfer Transfer	K-65
327	M	15 Mar 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	15 Mar 1988 20 Jul 1988 14 May 1992	K-68 KI2517 3651	Hatch Transfer Transfer	K-68
334	F	31 Mar 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	31 Mar 1988 20 Jul 1988 14 May 1992	K-77 KI2518 3652	Hatch Transfer Transfer	K-77
369	M	8 Apr 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	8 Apr 1988 20 Jul 1988 14 May 1992	K-109 KI2529 3655	Hatch Transfer Transfer	K-109
392	F	14 Apr 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	14 Apr 1988 20 Jul 1988 14 May 1992	K-135 KI2541 3656	Hatch Transfer Transfer	K-135
432	F	22 Apr 1988	WILD	WILD	SEA WORLD ORLANDO DETROIT	22 Apr 1988 12 Feb 1990 14 May 1992	KI0047 KI0047 3657	Hatch Transfer Transfer	K-179
474	F	22 Nov 1992	335	312	DETROIT	22 Nov 1992	3810	Hatch	K-14
490	M	27 Jul 1993	207	291	DETROIT	27 Jul 1993	3989	Hatch	K-15
491	F	31 Jul 1993	327	392	DETROIT	31 Jul 1993	3990	Hatch	K-16
492	F	12 Aug 1993	310	326	DETROIT	12 Aug 1993	3998	Hatch	K-17
512	M	1 Aug 1995	367	392	DETROIT	1 Aug 1995	4831	Hatch	K-18

513	F	19 Aug 1995	369	334	DETROIT	19 Aug 1995	4857	Hatch	K-19
597	F	16 Jul 1998	204	513	DETROIT	16 Jul 1998	6668	Hatch	K-20
598	?	19 Jul 1998	250	492	DETROIT	19 Jul 1998	6725	Hatch	K-21
646	?	2 Sep 2001	512	334	DETROIT	2 Sep 2001	9946	Hatch	K-22
647	?	7 Sep 2001	327	474	DETROIT	7 Sep 2001	10035	Hatch	K-23
648	?	12 Sep 2001	369	392	DETROIT	12 Sep 2001	10077	Hatch	K-24
Totals: 7.9.4 (20)									

St Louis Zoological Park, St Louis, Missouri, USA

304	F	2 Mar 1988	WILD	WILD	SEA WORLD	2 Mar 1988	KI0024	Hatch	K-45
					ORLANDO	12 Feb 1990	KI0024	Transfer	
					ST LOUIS	13 Apr 2003	102266	Transfer	
309	F	4 Mar 1988	WILD	WILD	SEA WORLD	4 Mar 1988	K-50	Hatch	K-50
					SEAWLD TX	20 Jul 1988	KI5001	Transfer	
					ST LOUIS	14 Apr 2003	102321	Transfer	
314	M	7 Mar 1988	WILD	WILD	SEA WORLD	7 Mar 1988	K-56	Hatch	K-56
					ORLANDO	20 Jul 1988	KI2512	Transfer	
					SEAWLD TX	6 May 1990	KI2512	Transfer	
					ST LOUIS	14 Apr 2003	102319	Transfer	
357	F	7 Apr 1988	WILD	WILD	SEA WORLD	7 Apr 1988	K-99	Hatch	K-99
					SEAWLD TX	20 Jul 1988	KI5022	Transfer	
					ST LOUIS	14 Apr 2003	102320	Transfer	
390	M	14 Apr 1988	WILD	WILD	SEA WORLD	14 Apr 1988	K-133	Hatch	K-133
					ORLANDO	20 Jul 1988	KI2539	Transfer	
					ST LOUIS	13 Apr 2003	102265	Transfer	
404	M	16 Apr 1988	WILD	WILD	SEA WORLD	16 Apr 1988	K-147	Hatch	K-147
					SEAWLD TX	20 Jul 1988	KI5039	Transfer	
					ST LOUIS	14 Apr 2003	102318	Transfer	
410	M	17 Apr 1988	WILD	WILD	SEA WORLD	17 Apr 1988	K-156	Hatch	K-156
					SEAWLD TX	20 Jul 1988	KI5042	Transfer	
					ST LOUIS	14 Apr 2003	_____	Transfer	
425	M	21 Apr 1988	WILD	WILD	SEA WORLD	21 Apr 1988	KI0044	Hatch	K-174
					ORLANDO	12 Feb 1990	KI0044	Transfer	
					ST LOUIS	13 Apr 2003	102264	Transfer	
567	M	14 Apr 1998	WILD	WILD	MOODY	14 Apr 1998	1150	Hatch	K-017
					ST LOUIS	14 Apr 2003	102298	Transfer	
571	M	16 Apr 1998	WILD	WILD	MOODY	16 Apr 1998	1153	Hatch	K-021
					ST LOUIS	14 Apr 2003	102299	Transfer	
584	F	22 Apr 1998	WILD	WILD	MOODY	22 Apr 1998	1163	Hatch	K-031
					ST LOUIS	14 Apr 2003	102300	Transfer	
627	F	20 Feb 2000	497	359	SEAWLD TX	20 Feb 2000	KI5076	Hatch	K-241
					ST LOUIS	14 Apr 2003	102322	Transfer	
634	M	3 Feb 2001	449	516	ORLANDO	3 Feb 2001	KI2600	Hatch	K-247
					ST LOUIS	13 Apr 2003	102263	Transfer	
666	?	22 Jul 2002	250	513	AURORA	22 Jul 2002	K-3	Hatch	
					ST LOUIS	12 Apr 2003	102306	Transfer	
667	?	31 Jul 2002	310	432	AURORA	31 Jul 2002	K-2	Hatch	
					ST LOUIS	12 Apr 2003	102310	Transfer	

669	?	23 Aug 2002	512	334	AURORA ST LOUIS	23 Aug 2002 12 Apr 2003	K-4 102307	Hatch Transfer
670	?	29 Aug 2002	369	392	AURORA ST LOUIS	29 Aug 2002 12 Apr 2003	K-5 102309	Hatch Transfer
671	?	30 Aug 2002	512	474	AURORA ST LOUIS	30 Aug 2002 12 Apr 2003	K-6 102308	Hatch Transfer

Totals: 8.5.5 (18)

Omaha's Henry Doorly Zoo, Omaha, Nebraska, USA

307	M	3 Mar 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	3 Mar 1988 20 Jul 1988 12 Feb 1995	K-49 KI2511 8255	Hatch Transfer Transfer	K-49
315	F	7 Mar 1988	WILD	WILD	SEA WORLD AURORA SEAWLD TX OMAHA	7 Mar 1988 20 Jul 1988 5 May 1990 16 Feb 1995	K-55 KI7501 KI7501 8271	Hatch Transfer Transfer Transfer	K-55
316	M	8 Mar 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	8 Mar 1988 20 Jul 1988 12 Feb 1995	K-57 KI2513 8256	Hatch Transfer Transfer	K-57
346	M	5 Apr 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	5 Apr 1988 20 Jul 1988 12 Feb 1995	K-91 KI2523 8258	Hatch Transfer Transfer	K-91
358	F	7 Apr 1988	WILD	WILD	SEA WORLD SEAWLD TX OMAHA	7 Apr 1988 20 Jul 1988 17 Feb 1995	K-100 KI5023 8267	Hatch Transfer Transfer	K-100
361	F	7 Apr 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	7 Apr 1988 20 Jul 1988 17 Feb 1995	K-104 KI2524 8259	Hatch Transfer Transfer	K-104
362	F	7 Apr 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	7 Apr 1988 20 Jul 1988 17 Feb 1995	K-105 KI2525 8260	Hatch Transfer Transfer	K-105
364	F	8 Apr 1988	WILD	WILD	SEA WORLD ORLANDO SEAWLD TX OMAHA	8 Apr 1988 20 Jul 1988 17 Mar 1990 16 Feb 1995	K-110 KI2530 KI2530 8265	Hatch Transfer Transfer Transfer	K-110
365	F	8 Apr 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	8 Apr 1988 20 Jul 1988 17 Feb 1995	K-112 KI2531 8257	Hatch Transfer Transfer	K-112
368	M	8 Apr 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	8 Apr 1988 20 Jul 1988 17 Feb 1995	K-108 KI2528 8261	Hatch Transfer Transfer	K-108
375	F	11 Apr 1988	WILD	WILD	SEA WORLD AURORA SEAWLD TX OMAHA	11 Apr 1988 20 Jul 1988 8 May 1990 16 Feb 1995	K-118 KI7511 KI7511 8272	Hatch Transfer Transfer Transfer	K-118
389	M	14 Apr 1988	WILD	WILD	SEA WORLD ORLANDO OMAHA	14 Apr 1988 20 Jul 1988 12 Feb 1995	K-132 KI2538 8262	Hatch Transfer Transfer	K-132
394	M	15 Apr 1988	WILD	WILD	SEA WORLD ORLANDO SEAWLD TX OMAHA	15 Apr 1988 12 Feb 1990 6 May 1990 16 Feb 1995	KI0037 KI0037 KI0037 8266	Hatch Transfer Transfer Transfer	K-143
396	F	15 Apr 1988	WILD	WILD	SEA WORLD SEAWLD TX	15 Apr 1988 20 Jul 1988	K-138 KI5033	Hatch Transfer	K-138

					OMAHA	16 Feb 1995	8268	Transfer	
398	M	15 Apr 1988	WILD	WILD	SEA WORLD	15 Apr 1988	K-140	Hatch	K-140
					SEAWLD TX	20 Jul 1988	KI5035	Transfer	
					OMAHA	16 Feb 1995	8269	Transfer	
413	M	18 Apr 1988	WILD	WILD	SEA WORLD	18 Apr 1988	K-162	Hatch	K-162
					AURORA	20 Jul 1988	KI7517	Transfer	
					SEAWLD TX	5 May 1990	KI7517	Transfer	
					OMAHA	16 Feb 1995	8274	Transfer	
450	M	4 Mar 1991	322	421	SEAWLD TX	4 Mar 1991	KI5048	Hatch	K-190
					OMAHA	16 Feb 1995	8270	Transfer	
482	M	14 Feb 1993	345	304	ORLANDO	14 Feb 1993	KI2562	Hatch	K-197
					OMAHA	12 Feb 1995	8263	Transfer	
489	M	19 Mar 1993	436	301	ORLANDO	19 Mar 1993	KI2563	Hatch	K-198
					OMAHA	12 Feb 1995	8264	Transfer	
535	M	13 Mar 1997	482	364	OMAHA	13 Mar 1997	9549	Hatch	
545	F	1 Feb 1998	316	362	OMAHA	1 Feb 1998	10159	Hatch	K-59
610	F	28 Feb 1999	482	364	OMAHA	28 Feb 1999	10922	Hatch	K-22
613	F	4 Apr 1999	394	358	OMAHA	4 Apr 1999	11008	Hatch	K-08
618	F	15 Jan 2000	398	358	OMAHA	15 Jan 2000	11434	Hatch	K-34
621	F	7 Feb 2000	535	375	OMAHA	7 Feb 2000	11450	Hatch	K-50
633	M	22 Jan 2001	535	365	OMAHA	22 Jan 2001	11947	Hatch	
638	?	20 Feb 2001	482	364	OMAHA	20 Feb 2001	11979	Hatch	
643	?	11 Mar 2001	368	358	OMAHA	11 Mar 2001	11997	Hatch	
Totals: 13.13.2 (28)									

Cincinnati Zoo & Botanical Garden, Cincinnati, Ohio, USA

253	F	9 Mar 1980	187	184	ST LOUIS	9 Mar 1980	180270	Hatch	BLACK
					CINCINNAT	5 Dec 1997	297212	Transfer	
256	F	25 Jan 1982	237	191	ST LOUIS	25 Jan 1982	182001	Hatch	ORANGE
					CINCINNAT	5 Dec 1997	297213	Transfer	
267	M	12 Aug 1983	UNK	169	CLEVELAND	12 Aug 1983	830801	Hatch	
					AURORA	1 Apr 1997	NONE	Transfer	
					CLEVELAND	27 Apr 1997	830801	Transfer	
					CINCINNAT	5 Sep 1997	297156	Transfer	
					CLEVELAND	28 Nov 1997	830801	Transfer	
					CINCINNAT	22 Jan 2002	297156	Transfer	
298	F	6 Oct 1987	UNK	169	CLEVELAND	6 Oct 1987	871036	Hatch	RED-
					CINCINNAT	13 Jun 1996	296171	Transfer	
442	M	13 Mar 1990	188	253	ST LOUIS	13 Mar 1990	190025	Hatch	BLACK
					CINCINNAT	5 Dec 1997	297214	Transfer	
503	F	8 Feb 1995	417	381	SEAWLD TX	8 Feb 1995	KI5064	Hatch	BLACK-
					CINCINNAT	1 May 1996	296059	Transfer	
508	M	18 Feb 1995	349	309	SEAWLD TX	18 Feb 1995	KI5067	Hatch	BLACK-
					CINCINNAT	30 Apr 1996	296058	Transfer	
Totals: 3.4.0 (7)									

Pittsburgh Zoo, Pittsburgh, Pennsylvania, USA

473	F	16 Nov 1992	MULT	178	PITTSBURG	16 Nov 1992	100658	Hatch	BROWN
					MOODY	19 Jan 1999	1179	Transfer	
					PITTSBURG	11 May 2000	100658	Transfer	
537	?	18 Jun 1997	424	178	PITTSBURG	18 Jun 1997	101306	Hatch	BLACK-
					MOODY	19 Jan 1999	1180	Transfer	
					PITTSBURG	11 May 2000	101306	Transfer	
Totals: 0.1.1 (2)									

Sea World San Antonio, San Antonio, Texas, USA

262	F	3 Feb 1983	237	246	ST LOUIS	3 Feb 1983	183027	Hatch	K-34
					SEA WORLD	7 Jun 1985	KI0017	Transfer	
					SEAWLD TX	8 Apr 2001	KI0017	Transfer	
321	F	12 Mar 1988	WILD	WILD	SEA WORLD	12 Mar 1988	K-62	Hatch	K-62
					SEAWLD TX	20 Jul 1988	KI5005	Transfer	
322	M	12 Mar 1988	WILD	WILD	SEA WORLD	12 Mar 1988	K-63	Hatch	K-63
					SEAWLD TX	20 Jul 1988	KI5006	Transfer	
324	M	14 Mar 1988	WILD	WILD	SEA WORLD	14 Mar 1988	K-66	Hatch	K-66
					ORLANDO	20 Jul 1988	KI2515	Transfer	
					SEAWLD TX	6 May 1990	KI2515	Transfer	
330	M	22 Mar 1988	WILD	WILD	SEA WORLD	22 Mar 1988	K-73	Hatch	K-73
					SEAWLD TX	20 Jul 1988	KI5009	Transfer	
332	F	28 Mar 1988	WILD	WILD	SEA WORLD	28 Mar 1988	K-75	Hatch	K-75
					SEAWLD TX	20 Jul 1988	KI5011	Transfer	
348	M	5 Apr 1988	WILD	WILD	SEA WORLD	5 Apr 1988	K-88	Hatch	K-88
					SEAWLD TX	20 Jul 1988	KI5015	Transfer	
349	M	5 Apr 1988	WILD	WILD	SEA WORLD	5 Apr 1988	K-89	Hatch	K-89
					SEAWLD TX	20 Jul 1988	KI5016	Transfer	
353	M	7 Apr 1988	WILD	WILD	SEA WORLD	7 Apr 1988	K-95	Hatch	K-95
					SEAWLD TX	20 Jul 1988	KI5018	Transfer	
355	F	7 Apr 1988	WILD	WILD	SEA WORLD	7 Apr 1988	K-97	Hatch	K-97
					SEAWLD TX	20 Jul 1988	KI5020	Transfer	
359	F	7 Jul 1988	WILD	WILD	SEA WORLD	7 Jul 1988	K-101	Hatch	K-101
					SEAWLD TX	20 Jul 1988	KI5024	Transfer	
380	M	12 Apr 1988	WILD	WILD	SEA WORLD	12 Apr 1988	K-122	Hatch	K-122
					SEAWLD TX	20 Jul 1988	KI5028	Transfer	
381	F	12 Apr 1988	WILD	WILD	SEA WORLD	12 Apr 1988	K-124	Hatch	K-124
					SEAWLD TX	20 Jul 1988	KI5030	Transfer	
385	M	13 Apr 1988	WILD	WILD	SEA WORLD	13 Apr 1988	K-129	Hatch	K-129
					ORLANDO	20 Jul 1988	KI2535	Transfer	
					SEAWLD TX	17 Mar 1990	KI2535	Transfer	
397	M	15 Apr 1988	WILD	WILD	SEA WORLD	15 Apr 1988	K-139	Hatch	K-139
					SEAWLD TX	20 Jul 1988	KI5034	Transfer	
401	M	16 Apr 1988	WILD	WILD	SEA WORLD	16 Apr 1988	K-149	Hatch	K-149
					AURORA	20 Jul 1988	KI7512	Transfer	
					SEAWLD TX	5 May 1990	KI7512	Transfer	
403	F	16 Apr 1988	WILD	WILD	SEA WORLD	16 Apr 1988	K-146	Hatch	K-146
					SEAWLD TX	20 Jul 1988	KI5038	Transfer	
406	F	17 Apr 1988	WILD	WILD	SEA WORLD	17 Apr 1988	K-151	Hatch	K-151

					AURORA	20 Jul 1988	KI7514	Transfer	
					SEAWLD TX	5 May 1990	KI7514	Transfer	
407	F	17 Apr 1988	WILD	WILD	SEA WORLD	17 Apr 1988	K-152	Hatch	K-152
					AURORA	20 Jul 1988	KI7515	Transfer	
					SEAWLD TX	5 May 1990	KI7515	Transfer	
414	M	18 Apr 1988	WILD	WILD	SEA WORLD	18 Apr 1988	K-163	Hatch	K-163
					AURORA	20 Jul 1988	KI7518	Transfer	
					SEAWLD TX	5 May 1990	KI7518	Transfer	
416	F	18 Apr 1988	WILD	WILD	SEA WORLD	18 Apr 1988	K-159	Hatch	K-159
					SEAWLD TX	20 Jul 1988	KI5044	Transfer	
417	M	18 Apr 1988	WILD	WILD	SEA WORLD	18 Apr 1988	K-164	Hatch	K-164
					SEAWLD TX	20 Jul 1988	KI5045	Transfer	
421	F	19 Apr 1988	WILD	WILD	SEA WORLD	19 Apr 1988	K-166	Hatch	K-166
					SEAWLD TX	20 Jul 1988	KI5047	Transfer	
455	F	24 Sep 1991	311	421	SEAWLD TX	24 Sep 1991	KI5049	Hatch	K-192
487	F	9 Mar 1993	379	358	SEAWLD TX	9 Mar 1993	KI5058	Hatch	K-207
497	M	10 Mar 1994	402	315	SEAWLD TX	10 Mar 1994	KI5060	Hatch	K-212
500	M	1 Feb 1995	399	359	SEAWLD TX	1 Feb 1995	KI5062	Hatch	K-215
506	F	14 Feb 1995	401	321	SEAWLD TX	14 Feb 1995	KI5065	Hatch	K-218
507	M	16 Feb 1995	380	407	SEAWLD TX	16 Feb 1995	KI5066	Hatch	K-219
534	F	25 Feb 1997	330	359	SEAWLD TX	25 Feb 1997	KI5069	Hatch	K-234
626	F	30 Jun 1999	353	332	SEAWLD TX	30 Jun 1999	KI5075	Hatch	K-240
631	M	4 Mar 2000	385	455	SEAWLD TX	4 Mar 2000	KI5079	Hatch	K-244
632	M	7 Mar 2000	322	406	SEAWLD TX	7 Mar 2000	KI5080	Hatch	K-245
639	F	24 Feb 2001	417	359	SEAWLD TX	24 Feb 2001	KI5081	Hatch	K-246
640	M	4 Mar 2001	500	455	SEAWLD TX	4 Mar 2001	KI5082	Hatch	K-247
642	M	8 Mar 2001	348	416	SEAWLD TX	8 Mar 2001	KI5084	Hatch	K-249
644	M	15 Mar 2001	397	355	SEAWLD TX	15 Mar 2001	KI5085	Hatch	K-250
652	M	13 Feb 2002	UNK	332	SEAWLD TX	13 Feb 2002	KI5087	Hatch	K-251
653	F	13 Feb 2002	380	321	SEAWLD TX	13 Feb 2002	KI5088	Hatch	K-252
654	M	17 Feb 2002	330	406	SEAWLD TX	17 Feb 2002	KI5089	Hatch	K-253
656	F	18 Feb 2002	417	359	SEAWLD TX	18 Feb 2002	KI5090	Hatch	K-254
657	F	25 Feb 2002	414	506	SEAWLD TX	25 Feb 2002	KI5091	Hatch	K-255
658	M	4 Mar 2002	348	262	SEAWLD TX	4 Mar 2002	KI5092	Hatch	K-256
660	M	21 Mar 2002	349	626	SEAWLD TX	21 Mar 2002	KI5093	Hatch	K-257
665	M	22 Jul 2002	497	421	SEAWLD TX	22 Jul 2002	KI5094	Hatch	K-258
668	F	1 Aug 2002	330	406	SEAWLD TX	1 Aug 2002	KI5095	Hatch	K-259
674	M	18 Feb 2003	UNK	627	SEAWLD TX	18 Feb 2003	KI5096	Hatch	K-260
675	F	18 Feb 2003	385	487	SEAWLD TX	18 Feb 2003	KI5097	Hatch	K-261
676	M	20 Feb 2003	380	321	SEAWLD TX	20 Feb 2003	KI5098	Hatch	K-262

677	M	22 Feb 2003	330	406	SEAWLD TX	22 Feb 2003	KI5099	Hatch	K-263
678	M	24 Feb 2003	UNK	359	SEAWLD TX	24 Feb 2003	KI5100	Hatch	K-264
679	F	28 Feb 2003	348	262	SEAWLD TX	28 Feb 2003	KI5101	Hatch	K-265
681	?	8 Mar 2003	497	421	SEAWLD TX	8 Mar 2003	KI5102	Hatch	K-266
682	?	24 Mar 2003	UNK	332	SEAWLD TX	24 Mar 2003	KI5103	Hatch	K-267
Totals: 29.23.2 (54)									

Moody Gardens, Galveston, Texas, USA

546	M	27 Mar 1998	WILD	WILD	MOODY	27 Mar 1998	1134	Hatch	K-001
548	F	2 Apr 1998	WILD	WILD	MOODY	2 Apr 1998	1135	Hatch	K-002
550	F	5 Apr 1998	WILD	WILD	MOODY	5 Apr 1998	1136	Hatch	K-003
551	F	5 Apr 1998	WILD	WILD	MOODY	5 Apr 1998	1137	Hatch	K-004
552	M	5 Apr 1998	WILD	WILD	MOODY	5 Apr 1998	1138	Hatch	K-005
554	M	6 Apr 1998	WILD	WILD	MOODY	6 Apr 1998	1140	Hatch	K-007
555	M	6 Apr 1998	WILD	WILD	MOODY	6 Apr 1998	1141	Hatch	K-008
558	M	7 Apr 1998	WILD	WILD	MOODY	7 Apr 1998	1142	Hatch	K-009
559	M	7 Apr 1998	WILD	WILD	MOODY	7 Apr 1998	1143	Hatch	K-010
561	F	10 Apr 1998	WILD	WILD	MOODY	10 Apr 1998	1145	Hatch	K-012
562	M	11 Apr 1998	WILD	WILD	MOODY	11 Apr 1998	1146	Hatch	K-013
565	M	13 Apr 1998	WILD	WILD	MOODY	13 Apr 1998	1148	Hatch	K-015
566	M	14 Apr 1998	WILD	WILD	MOODY	14 Apr 1998	1149	Hatch	K-016
568	F	14 Apr 1998	WILD	WILD	MOODY	14 Apr 1998	1151	Hatch	K-018
573	F	17 Apr 1998	WILD	WILD	MOODY	17 Apr 1998	1154	Hatch	K-022
576	F	19 Apr 1998	WILD	WILD	MOODY	19 Apr 1998	1156	Hatch	K-024
577	M	19 Apr 1998	WILD	WILD	MOODY	19 Apr 1998	1157	Hatch	K-025
578	M	21 Apr 1998	WILD	WILD	MOODY	21 Apr 1998	1158	Hatch	K-026
579	F	21 Apr 1998	WILD	WILD	MOODY	21 Apr 1998	1159	Hatch	K-027
583	M	22 Apr 1998	WILD	WILD	MOODY	22 Apr 1998	1162	Hatch	K-030
586	F	23 Apr 1998	WILD	WILD	MOODY	23 Apr 1998	1165	Hatch	K-033
587	M	23 Apr 1998	WILD	WILD	MOODY	23 Apr 1998	1166	Hatch	K-034
588	M	23 Apr 1998	WILD	WILD	MOODY	23 Apr 1998	1167	Hatch	K-035
589	F	25 Apr 1998	WILD	WILD	MOODY	25 Apr 1998	1168	Hatch	K-036
590	M	25 Apr 1998	WILD	WILD	MOODY	25 Apr 1998	1169	Hatch	K-037
591	M	25 Apr 1998	WILD	WILD	MOODY	25 Apr 1998	1170	Hatch	K-038
592	F	25 Apr 1998	WILD	WILD	MOODY	25 Apr 1998	1171	Hatch	K-039
593	M	27 Apr 1998	WILD	WILD	MOODY	27 Apr 1998	1172	Hatch	K-040

594	F	28 Apr 1998	WILD	WILD	MOODY	28 Apr 1998	1173	Hatch	K-041
595	F	28 Apr 1998	WILD	WILD	MOODY	28 Apr 1998	1174	Hatch	K-042
596	F	5 May 1998	WILD	WILD	MOODY	5 May 1998	1175	Hatch	K-043
650	F	4 Feb 2002	591	592	MOODY	4 Feb 2002	2384	Hatch	
673	F	27 May 2002	546	589	MOODY	27 May 2002	2423	Hatch	K-046
680	?	28 Feb 2003	555	589	MOODY	28 Feb 2003	2749	Hatch	K-047
Totals: 17.16.1 (34)									

Milwaukee County Zoological Gardens, Milwaukee, Wisconsin, USA

341	M	2 Apr 1988	WILD	WILD	SEA WORLD	2 Apr 1988	K-84	Hatch	PURPLE
					AURORA	20 Jul 1988	KI7505	Transfer	
					SEAWLD TX	5 May 1990	KI7505	Transfer	
					AURORA	20 Apr 1991	KI7505	Transfer	
					MILWAUKEE	24 May 1991	B2454	Transfer	
					AURORA	30 Jun 2001	NONE	Transfer	
MILWAUKEE	15 Dec 2001	B2454	Transfer						
371	M	9 Apr 1988	WILD	WILD	SEA WORLD	9 Apr 1988	K-114	Hatch	ORANGE
					AURORA	20 Jul 1988	KI7507	Transfer	
					SEAWLD TX	8 May 1990	KI7507	Transfer	
					AURORA	20 Apr 1991	KI7507	Transfer	
					MILWAUKEE	24 May 1991	B2455	Transfer	
					AURORA	30 Jun 2001	NONE	Transfer	
MILWAUKEE	15 Dec 2001	B2455	Transfer						
405	F	16 Apr 1988	WILD	WILD	SEA WORLD	16 Apr 1988	KI0039	Hatch	ORANGE
					ORLANDO	12 Feb 1990	KI0039	Transfer	
					MILWAUKEE	13 Apr 1993	B2803	Transfer	
					AURORA	30 Jun 2001	NONE	Transfer	
					MILWAUKEE	15 Dec 2001	B2803	Transfer	
433	M	24 Apr 1988	WILD	WILD	SEA WORLD	24 Apr 1988	K-180	Hatch	K-180
					ORLANDO	20 Jul 1988	KI2548	Transfer	
					SEAWLD TX	6 May 1990	KI2548	Transfer	
					AURORA	20 Apr 1991	KI2548	Transfer	
					MILWAUKEE	24 May 1991	B2457	Transfer	
437	M	16 Feb 1989	249	293	ST LOUIS	16 Feb 1989	189032	Hatch	RED
					MILWAUKEE	28 May 1991	B2462	Transfer	
					AURORA	30 Jun 2001	NONE	Transfer	
					MILWAUKEE	15 Dec 2001	B2462	Transfer	
543	F	25 Nov 1997	341	429	MILWAUKEE	25 Nov 1997	B3551	Hatch	WHITE
					AURORA	30 Jun 2001	NONE	Transfer	
					MILWAUKEE	15 Dec 2001	B3551	Transfer	
Totals: 4.2.0 (6)									

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TOTALS: 116.109.16 (241)
14 Institutions

Bibliography

Literature Cited

Croxall, J.P. King Penguin Taxon Data Sheet. Penguin Conservation Assessment and Management Plan (CAMP). August, 1998.

Ellis, S. and Branch, S. (1994). *Penguin Husbandry Manual*. Bethesda, MD: American Zoo and Aquarium Association.

Howard, R. and Moore, A. (1991). *A complete checklist of the birds of the world* (2nd edn). London, San Diego, New York: Academic Press.

Matthews, G.M. (1911). *Birds of Australia*, Vol.1. Witherby, London

Marchant, S. and Higgins, P.J. (1990). *Handbook of Australian, New Zealand and Antarctic Birds, Vol. 1A*. Oxford University Press, Melbourne.

North American Regional Collection Plan. Penguin Taxon Advisory Group. 1999–2001.

Williams, Tony D. *The Penguins*. New York. Oxford University Press, 1995.

Woehler, E.J. (1993). *The distribution and abundance of Antarctic and Sub-Antarctic penguins*. SCAR, Cambridge.

Scientific Literature

Blight, Louise K. 2000. Partial Melanism in king penguins *Aptenodytes patagonicus*. *Marine Ornithology* 28:83.

Bost, C.A. 2002. Feeding of diving predators and diel vertical migration of prey: King penguins' diet versus trawl sampling at Kerguelen Islands. *Marine Ecology Progress Series* 227, 51-61.

Chamaille-Jammes, Simon. 2000. A method to assess population changes in king penguins: the use of a Geographical Information System to estimate area-population relationships. *Polar Biology* 23 (8)545-549.

Charrassin, J.-B. 1998. Foraging strategies of incubating and brooding king penguins *Aptenodytes patagonicus*. *Oecologia* 114 (2) 194-201.

Charrassin, J.-B. 1999. Changes in depth utilization to the breeding stage: A case study with the king penguin *Aptenodytes Patagonicus*. *Marine Ornithology* 27:43-47.

Culik, B.M. 1996. Core temperature variability in diving king penguins (*Aptenodytes patagonicus*): a preliminary analysis. *Polar Biology* 16 (5) 371-378.

Dewasmes, G. 2002. Diurnal sleep depth changes in the king penguin *Aptenodytes patagonicus*. *Polar Biology* 25:865-867.

Dewasmes, G. 2001. Effects of weather on activity and sleep in brooding king penguins (*Aptenodytes patagonicus*). *Polar Biology* 24:508-511.

Froget, Guillaume. 1998. Is penguin banding harmless? *Polar Biology* 20 (6) 409-413.

Gauthier-Clerc, M. 2001. Moulting fast and time constraint for reproduction in the king penguin. *Polar Biology* 25:288-295.

Gauthier-Clerc, Michel. 2002. Serological survey of the king penguin, *Aptenodytes patagonicus*, in Crozet Archipelago for antibodies to infectious bursal disease, influenza A and Newcastle disease viruses. *Polar Biology* 25:316-319.

Handrich, Y. 1997. Hypothermia in foraging king penguins. *Nature* 388, 64-67.

Lengagne, Thierry. 1999. Acoustic communication in a king penguin colony: importance of bird location within the colony and of the body position of the listener. *Polar Biology* 21(4):262-268.

Moore, Geoffrey J. 1998. Food requirements of breeding king penguins at Heard Island and potential overlap with commercial fisheries. *Polar Biology* 20 (5) 293-302.

Noren, S.R. 2001. The development of diving in marine endotherms: preparing the skeletal muscles of dolphins, penguins, and seals for activity during submergence. *Journal of Comparative Physiology B* 171: 127-134

Olsson, Olaf. 2002. Survival in king penguins *Aptenodytes patagonicus*: temporal and sex-specific effects of environmental variability. *Oecologia* 132:509-516.

Putz, K. 1999. Foraging areas of king penguins *Aptenodytes patagonicus* breeding at Possession Island, Southern Indian Ocean. *Marine Ornithology* 27: 77-84.

Račlot, T. 1998. Fatty acid evidence for the importance of myctophid fishes in the diet of king penguins, *Aptenodytes patagonicus*. *Marine Biology* 132 (3) 523-533.

Thil, M.-A. 2003. Changes in tissue fatty acid composition during the first month of growth of the king penguin chick. Published Online-*Journal of Comparative Physiology B* DOI 10.1007/s00360-002-0320-x

Thouzeau, Cecil. 2002. Evidence of stress in bacteria associated with long-term preservation of food in the stomach of incubating king penguins (*Aptenodytes patagonicus*). *Polar Biology* 26 (2) 115-123.

Voisin, Jean-Francois. 2002. Colour aberrations and physical deformities in the king penguin *Aptenodytes patagonicus* at the Crozet Islands. *Marine Ornithology* 30:1-4.

Books – for additional reading

Davis, Lloyd S., and John T. Darby, eds. *Penguin Biology*. San Diego: Academic Press, Inc., 1990.

Muller-Schwarze, Dietland. *The Behavior of Penguins: Adapted to Ice and Tropics*. Albany, New York: State University of New York Press, 1984.

Peterson, Roger Tory. *Penguins*. Boston, Massachusetts: Houghton Mifflin Company, 1979.

Simpson, George Gaylord. *Penguins: Past and Present, Here and There*. New Haven, Connecticut: Yale University Press, 1976.

Sparks, John and Tony Soper. *Penguins*. New York: Facts on File Publications, 1987.

Stonehouse, Bernard, ed. *The Biology of Penguins*. Baltimore: University Park Press, 1975.

Best Places on the Web for Penguins

Penguin TAG Learn about the goals of the penguin Taxon advisory group in managing captive populations and conservation initiatives. A detailed species index provides information on all 17 species, and field notes highlight conservation projects. You can also download the 2003 Penguin Husbandry Manual from this site.

<http://www.penguintag.org/>

The Penguin Page By far the most comprehensive site I've seen on penguins. Kevin Welch does a great job of presenting biology, physiology, conservation, and more.

<http://users.capu.net/~kwelch/penguins/>

Pete & Barb's Penguin Pages These folks have visited the SeaWorlds several times from the UK, decked out in their penguin gear. They've traveled to see them in the wild as well, and their pages are a great account of penguins for the novice.

<http://pobox.com/~penguins>

SeaWorld Penguin Page Information about natural history

<http://www.seaworld.org/Penguins/pageone.html>

New Zealand Penguins Conservation efforts and natural history of penguins living in Australia and New Zealand

<http://www.penguin.net.nz/>

The Antarctic Connection Great spot for current Antarctic happenings

<http://www.antarcticconnection.com>

TerraQuest More information about penguins, and the exploration of Antarctica

<http://www.terraquest.com/va/science/penguins/penguins.html>

The Penguin Place Shop for penguin stuff, and browse The Penguin Post, the only "all penguin publication".

<http://www.penguin-place.com/>

