



Compiled by the
Association of Zoos and Aquariums
Bat Taxon Advisory Group

3rd Edition

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MISSION STATEMENT

To provide leadership and guidance in all aspects of animal care, husbandry and management, and support research, education and in-situ conservation efforts for bat species globally.

GOALS

1. To identify which bat species are currently being kept in North American zoological institutions and determine the size and composition of these current populations.
2. To determine the number of spaces available for exhibition and breeding of these taxa in North American zoological institutions.
3. To consider the conservation status and availability of various species (through contact with the IUCN/SSC Chiropteran Specialist Group, field biologists, etc.) and draw attention to species for which the need and opportunity for captive breeding and field conservation efforts exist.
4. To facilitate the work of AZA studbook keepers and SSP coordinators, and assure the attainment of mutual goals and best use of resources.
5. To act as the principal liaison with other regional specialty groups including the European Association of Zoos and Aquariums (EAZA).
6. To seek consensus on research priorities for captive populations in North American zoological institutions.
7. To become a North American regional clearinghouse for information on bats, captive management, propagation, research and conservation.
8. To develop educational curricula and publications on the natural history and conservation of bats in an exciting and engaging manner.
9. Work with international NGOs, schools, and government agencies to share educational information and disseminate materials to communities which coexist with bat species and have limited resources.

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Common vampire bat (<i>Desmodus rotundus</i>)	Studbook keeper	Liz Harmon	Naples Zoo	liz@napleszoo.org	239-262-5409 x141
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Indian flying fox (<i>Pteropus giganteus</i>)	Vacant				

Chiropteran Conservation Status

Chiroptera is the second largest order of mammals after Rodentia, representing about 20% of all classified mammal species worldwide. Currently there are 1306 bat species divided into two suborders: the less specialized and largely fruit-eating megabats, and the highly specialized microbats. Over the past 50-100 years, bat populations have declined in many countries. Approximately 22% of bat species are considered threatened and another 23% are listed as near threatened (Hutson, Mickleburgh & Racey 2001). The primary threats to bats are deforestation, persecution, overconsumption and lack of knowledge. Bats frequently have a negative public image that influences the response to problems such as diseases and conflicts between bats and commercial fruit growers in certain regions of the world. In some areas, bats are persecuted because people are ignorant of the life history of bats and their role in ecosystems, while in other areas bats are overexploited for food (Simon, Hutson, Racey 2002). In the past 150 years the following species have gone extinct: Dusky flying fox (*Pteropus brunneus*) Percy Island, Extinct 1870; Reunion flying fox (*Pteropus subniger*) Mascarene Islands, Extinct 1873; Large Palau flying fox (*Pteropus pilosus*) Palau, Extinct 1874; Nendo Tube-nosed fruit bat (*Nyctimene sanctacrucis*) Solomon Islands, Extinct 1907; Guam flying fox (*Pteropus tokudae*) Guam, Extinct 1968; New Zealand Greater short-tailed bat (*Mystacina robusta*) New Zealand, Extinct 1988; Lord Howe Long-eared bat (*Nyctophilus howensis*) Lord Howe Island, Australia, Extinct 1996; Christmas Island pipistrelle (*Pipistrellus murrayi*) Christmas Island, Extinct 2009. Nearly 40% of American bat species are in severe decline or already listed as endangered or threatened. White-nose syndrome (WNS) which was first discovered in a single New York cave in 2006, has spread to 25 states, 5 Canadian provinces, and killed more than 5.5 million bats (USFWS 2014).

One unintended outcome of the WNS tragedy is the amount of attention afforded bats in the media which helps shape and influence public perception. Numerous articles on the benefits bats provide have been published along with an increase in festivals and online resources for which AZA accredited and certified facilities have contributed (Year of the Bat, BatsLIVE, on-site educational programs). A United States Geological Survey study published in 2011 showed that bats in the U.S. save farmers \$3.7-\$53bn annually. These estimates include the reduced costs of pesticide applications that are not needed to suppress the insects consumed by bats (Boyles, Cryan, McCracken, and Kunz 2011).

Field conservation and education programs funded (wholly or partially) by AZA facilities have led to profound partnerships that encompass *in situ* conservation, community engagement and education, and long-term project sustainability. The Pemba Island flying fox (*Pteropus voeltzkowi*) was listed as CR in the early 1990's, but thanks to intense efforts by researchers, conservation organizations and AZA institutions, the population is listed as VU and increasing, with a current estimate of 19,000 bats (Mickleburgh 2008). The Rodrigues fruit bat (*Pteropus rodricensis*) was listed as CR in the mid-1970's with less than 80 adults remaining in the world. Efforts by Jersey Wildlife Preservation Trust, the people of Rodrigues, Philadelphia Zoo, Lube Bat Conservancy and numerous AZA institutions, have led to the creation of the Rodrigues Environmental Education Project which educates and empowers local communities to safeguard their forests and take decisive action when implementing local laws. Today the population of Rodrigues fruit bats is estimated at 16,000 bats.

AZA accredited and related facilities can have an enormous impact on better understanding of biology & physiology, medical needs and reproduction. Partnerships between organizations, zoos, and communities can change attitudes, create awareness and empower individuals to take action locally and

globally. Species facing extinction have been given a second chance due to partnerships between conservation organizations, AZA institutions and Taxon Advisory Groups.

Table 1. TAG Taxa & Conservation Status

<i>Family</i>	<i>Scientific Name</i>	<i>Common Name</i>	USFWS ¹	IUCN ²	CITES ³
Molossidae	<i>Eumops perotis</i>	Western Mastiff Bat	Not listed	LC	No info
	<i>Tadarida brasiliensis</i>	Mexican Free-tailed bat	No info	LC	No info
Noctilionidae	<i>Noctilio leporinus</i>	Bulldog bat	No info	LC	No info
Phyllostomidae	<i>Artibeus jamaicensis</i>	Jamaican fruit bat	No info	LC	No info
	<i>Artibeus lituratus</i>	Trinidadian fruit bat	No info	LC	No info
	<i>Carollia perspicillata</i>	Seba's Short-tailed bat	No info	LC	No info
	<i>Desmodus rotundus</i>	Common Vampire bat	No info	LC	No info
	<i>Diaemus youngi</i>	White-winged Vampire bat	No info	LC	No info
	<i>Glossophaga soricina</i>	Pallas' Long-tongued bat	No info	LC	No info
	<i>Leptonycteris yerbabuena</i>	Lesser Long-nosed bat	No info	VU	No info
	<i>Macrotus californicus</i>	California Leaf-nosed bat	Not listed	LC	No info
	<i>Phyllostomus discolor</i>	Lesser Spear-nosed bat	No info	LC	No info
	<i>Phyllostomus hastatus</i>	Greater Spear-nosed bat	No info	LC	No info
Pteropodidae	<i>Cynopterus brachyotis</i>	Lesser Short-nosed fruit bat	No info	LC	No info
	<i>Eidolon helvum</i>	African Straw-colored fruit bat	No info	NT	No info
	<i>Pteropus alecto</i>	Black flying fox	No info	LC	Appendix II
	<i>Pteropus conspicillatus</i>	Spectacled flying fox	No info	LC	Appendix II
	<i>Pteropus giganteus</i>	Indian flying fox	No info	LC	Appendix II
	<i>Pteropus hypomelanus</i>	Island flying fox	No info	LC	Appendix II
	<i>Pteropus mariannus</i>	Marianas flying fox	Threatened	EN	Appendix I
	<i>Pteropus poliocephalus</i>	Grey-headed flying fox	No info	VU	Appendix II

	<i>Pteropus pumilus</i>	Little Golden-mantled flying fox	No info	NT	Appendix II
	<i>Pteropus rodricensis</i>	Rodrigues fruit bat	Endangered	CR	Appendix II
	<i>Pteropus vampyrus</i>	Large flying fox	No info	NT	Appendix II
	<i>Rousettus aegyptiacus</i>	Egyptian fruit bat	No info	LC	No info
	<i>Rousettus lanosus</i>	Ruwenzori fruit bat	No info	LC	No info
Vespertilionidae	<i>Antrozous pallidus</i>	Pallid bat	Not listed	LC	No info
	<i>Eptesicus fuscus</i>	Big brown bat	Not listed	LC	No info
	<i>Lasionycteris noctivagans</i>	Silver-haired bat	Not listed	LC	No info
	<i>Lasiurus cinereus</i>	Hoary bat	Not listed	LC	No info
	<i>Myotis lucifugus</i>	Little brown bat	Not listed	LC	No info
	<i>Myotis yumanensis</i>	Yuma myotis	Not listed	LC	No info
	<i>Nycticeius humeralis</i>	Evening bat	No info	LC	No info

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Hutson, A.M., Mickleburgh, S.P. & Racey, P.A. (2001). Microchiropteran Bats: Global Status Survey and Conservation Action Plan. IUCN/SSC Chiroptera Specialist Group, Grand, Switzerland.

Hutson, A.M., Mickleburgh, S.P. & Racey, P.A. (2002). A review of the global conservation status of bats. Oryx, 36, pp 18-34.

Mickleburgh, S., Hutson, A.M., Bergmans, W. & Howell, K. 2008. *Pteropus voeltzkowi*. The IUCN Red List of Threatened Species. Version 2014.3

USFWS White-nose syndrome report, August 2014.

¹ USFWS: U.S. Fish & Wildlife Service Endangered Species Database. <http://www.fws.gov/endangered/>

² IUCN: (The International Union for Conservation of Nature) IUCN Species Survival Commission Red List of Threatened Species, 2014.3. <http://www.iucnredlist.org/>

³ CITES: Convention on International Trade in Endangered Species, Checklist of CITES Species. <http://checklist.cites.org/#/en>

Species Recommendation Summary

The Bat Taxon Advisory Group makes its species selections and determines the management needs for bats included in the Regional Collection Plan by using flow charts which incorporate selection criteria for species selection and management criteria for recommended management program type.

The only two criteria applied to all species are the existence or absence of a captive North American population and the potential viability of this captive population. The existence or lack of a regional or international studbook is not considered a deciding factor for the inclusion of a species in the RCP as it is an outcome that is determined by the selection criteria.

Several criteria were used to recommend species to be cooperatively managed. These criteria cannot be ranked, as priorities are often species dependent and variable. Therefore, we have created a list of "Selection Criteria" to be used to assist with species selection. Those species with captive populations currently in North America must exhibit at least four of these criteria to be considered for a formal, cooperatively managed program. If importation of a new species is being considered, the species must also meet at least four of these selection criteria, and husbandry expertise must be obtainable. None of these criteria is more important, or carries more weight than another.

Selection Criteria:

-Educational/Exhibit value

- Species demonstrates conservation principles or otherwise contributes to visitor education by increasing awareness of the species, its habitat and conservation issues surrounding the species.
- Species demonstrates a high guest appeal, taxonomic uniqueness or a wild population that is at risk.

- Husbandry Expertise

- Level of expertise is available to the management program to meet the species basic biological needs (i.e. nutritional, medical, social, etc.) as related to maintaining and propagating them in AZA member institutions.

- Link to in-situ conservation

- Potential for a managed population to affect in-situ conservation (assurance population, reintroduction program).
- Potential to engage visitors in conservation action for the species and its habitat.
- Existence of a link between a management program and conservation of these taxa in the wild, including field research, conservation capacity building, population and habitat survey work, and in-range educational programs.
- The species has been identified and prioritized by the Bat TAG or IUCN of being of special interest.

-Ex-situ research connection

- Species is currently the focus of, or has potential for, research (e.g. husbandry, biology, reproduction, behavior) that would benefit both the captive and wild populations.
- Species have been identified by the Bat TAG as being of special interest for developing husbandry techniques and/or acting as ambassadors for other species.
- Research on this species is important as it relates to disease ecology and human health.

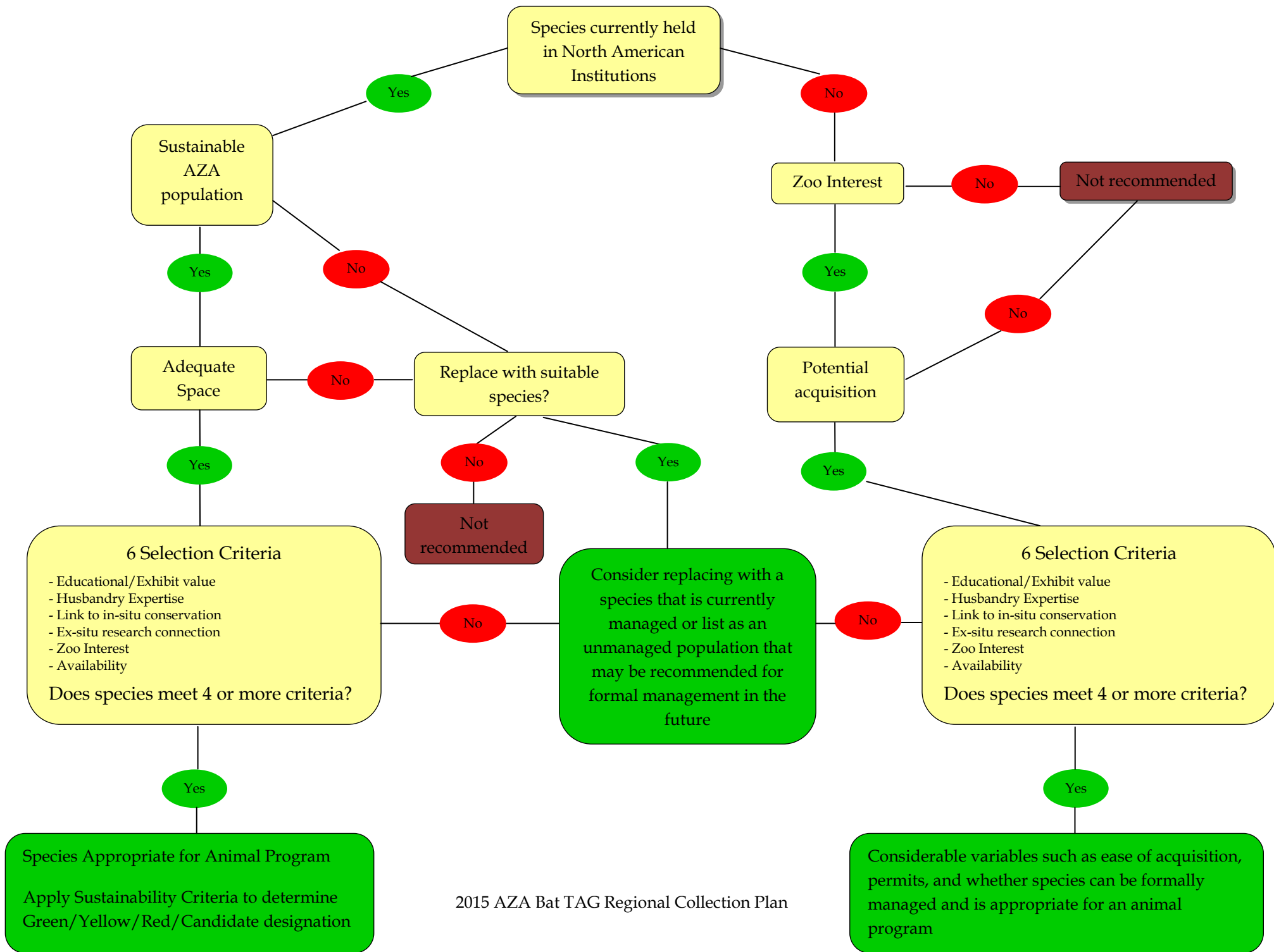
- Zoo Interest

- AZA accredited and related facilities are interested in acquiring this species in the future.
- Interested institutions have the potential to become actively involved in range country conservation and education programs.

- Availability

- Within AZA member institutions
- Outside AZA member institutions
- Potential non-AZA partnerships
- Ongoing programs for intensively building sustainability of the species

Species Selection Decision Tree



Management Criteria/Current Program Status

Once it is determined that a species should be recommended as a formal, cooperatively managed program, it is necessary to decide what type of program would best benefit the species and support the goals of the TAG. AZA manages its Animal Programs within three distinct management levels: Green SSP Programs, Yellow SSP Programs, and Red SSP Programs. An Animal Program's Sustainability Criteria (i.e., population size and sustainability score) directly relate to its management designation. Management designations may change in accordance with the Animal Program's population becoming more or less sustainable over the course of time.

Applying Sustainability Criteria to Designate Animal Program Management Levels

Criterion	Green SSP Program	Yellow SSP Program	Red SSP Program
TAG recommended for cooperative management	Yes	Yes	Yes
Population size (Total N)	50 and above	50 and above	49 or less
Projected % GD at 100 years or 10 generations	90.0% or above	Less than 90.0%	Less than 90.0%

Green SSP Programs, Yellow SSP Programs, and Red SSP Programs operate under three distinct levels of management designations which are described below.

Green SSP

- Green SSP Programs are cooperative population management Animal Programs for selected populations that receive the highest level of formal management to assure their future sustainability.
- Each Green SSP Program Breeding and Transfer Plan manages breeding in order to maintain a healthy and self-sustaining population that is both genetically diverse and demographically stable.
- Green SSP Programs are overseen by an SSP Coordinator, a Vice-Coordinator, and a Management Group (if desired).
- The PMC, PMC Adjuncts, and approved SPMAG Advisors are available to assist Green SSP Programs.
- Green SSP Program participants must abide by the AZA Full Participation Policy in SSPs and, if needed, the AZA Animal Management Reconciliation Policy (See SSP Program Handbook).
- Green SSP Programs may partner only with Sustainability Partners that are approved by the WCMC (See SSP Handbook).

Yellow SSP

- Yellow SSP Programs are cooperative population management Animal Programs for selected populations that receive formal management.
- Each Yellow SSP Program Breeding and Transfer Plan manages breeding in order to maintain as healthy and self-sustaining of a population as possible that is both genetically diverse and demographically stable.

- Yellow SSP Programs are overseen by an SSP Coordinator, a Vice-Coordinator and a Management Group (if desired).
- The PMC, PMC Adjuncts, and approved SPMAG Advisors are available to assist Yellow SSP Programs.
- Although cooperation among AZA member institutions is strongly encouraged for the long-term benefit of the zoo population, participation in Yellow SSP Programs is voluntary.
- Yellow SSP Programs may partner with private participants (organizations that are not AZA member institutions) without completing the WCMC Non-Member Participant approval process. Adherence to the AZA Code of Professional Ethics and AZA Acquisition, Transfer and Transition Policies is still required.
- However, the Yellow SSP Program will not be able to be designated as a Green SSP Program unless those private participants become approved Sustainability Partners by the WCMC.

Red SSP

- Red SSP Programs are those populations that the TAG recommends for cooperative management among AZA member institutions, but are comprised of fewer than 50 individual animals.
- These populations are managed by an AZA Regional Studbook Keeper who maintains an official AZA Regional Studbook for the population.
- If the TAG wants additional population management help for a Red Program, the PMC, PMC Adjuncts, and approved SPMAG Advisors may be available to help if resources are available.
- Although cooperation among AZA member institutions is strongly encouraged, participation in Red SSP Programs is voluntary.
- Red SSP Programs may work with private participants (organizations that are not AZA member institutions) without completing the WCMC Sustainability Partners approval process. Adherence to the AZA Code of Professional Ethics and AZA Acquisition, Transfer and Transition Policies is still required.

AZA also recognizes Candidate Programs which have the following criteria:

- Candidate Programs are overseen by the TAG, with no additional accountability requirements by the AZA Conservation & Science Department or the WCMC.
- Candidate Programs are managed by a Candidate Program Leader.
- Candidate Programs are Animal Programs that the TAG hopes to grow to an SSP Program, and they are not considered AZA cooperatively managed Animal Programs at this time.
- Candidate Programs are those populations that have 19 or fewer individual animals and/or are held only at one or two AZA member institutions.
- Candidate Programs may also be populations which do not currently have a published AZA Regional Studbook.
- Candidate Programs must work with their TAG to identify their role in zoos and aquariums, at least three goals, and essential actions to work towards each goal.
- Once a Candidate Program Leader publishes an AZA Regional Studbook demonstrating that the population meets minimum SSP criteria it will be designated as an SSP.
- Candidate Programs may work with private participants (organizations that are not AZA member institutions) without completing the WCMC Sustainability Partner approval process.

Adherence to the AZA Code of Professional Ethics and AZA Acquisition, Transfer and Transition Policy is still required.

TAG Monitored Populations will include additional species that, although not recommended to be a formal AZA Animal Program, are frequently cared for in AZA member institutions. The TAG tracks and monitors these populations informally, and may recommend them for formal AZA Animal Programs in the future; however, until that time, these will be considered unmanaged.

Phase Out populations are those for which a moratorium on breeding and/or imports is recommended. Most taxa recommended for Phase Out are present in such small numbers or with such low genetic diversity (or unknown heritage) that their populations are unsustainable, and are difficult or impossible to import in sufficient numbers to support a captive population. Where possible, these populations will be recommended for replacement by species that would work well in exhibits currently holding those non-recommended species.

Special Case status remains an option in certain circumstances. Species which are not currently held in AZA institutions, but which become available due to partnerships with range countries should be included due to extenuating situations (IUCN status) and may be considered as special cases.

Space Survey

The AZA Bat TAG was developed in 1991 to facilitate institutional cooperation in bat husbandry, management and conservation. A primary responsibility of any TAG is to evaluate the current space available to a given taxonomic group, and recommend how this space should best be allocated in the future to meet the TAG's goals. Three other important roles of a TAG are to assist member institutions in meeting their collection goals, provide reliable information to institutions about husbandry and medical issues, and facilitate opportunities for involvement in conservation and research.

This Regional Collection Plan was developed to help organize and optimize the TAG's programs and provide guidance to member institutions in making appropriate and well-reasoned species selections. It aims to maximize opportunities for the bat collections of member institutions to aid conservation and education efforts in range countries. The most commonly kept species in this order are the flying foxes (Family Pteropodidae), vampire bats (Family Phyllostomidae) and a number of microchiropteran fruit bats including *Carollia* and *Artibeus* species (Family Phyllostomidae).

Surveys requesting current and projected holding capacity numbers for Chiroptera in AZA facilities were sent to 219 institutions between September 2014 and January 2015. This total included 200 AZA accredited institutions and related facilities. To date 182 institutions (83%) have responded to the survey. AZA accredited facilities account for 173 replies, reflecting an 86% response rate. 111 AZA facilities had an Institutional Representative listed and 94% responded. 19 non-AZA member facilities were sent surveys and 63% responded. Of the 182 responding institutions, 110 currently house bats, and 6 anticipate acquisitions within the next 3-10 years.

Results indicated there were 28 different species held in AZA collections. Of these 28 species, only 12 (~43%) were maintained in numbers (50+ individuals) large enough to consider being managed for any type of genetic variability. Difficulties with captive Chiroptera included colony managed species,

individual animal identification, and transportation permits (import, export or transfer) for Pteropus species due to USFWS injurious species status.

The responses from this survey were analyzed to determine the space that is currently available and that will be available in the future to cooperatively manage bat species in AZA and non-AZA facilities. Based on results of the surveys there are **currently 12,019 spaces held by bats. In 5 years it is estimated that 10,636 spaces will be dedicated to bat species, representing a decline of 1,383 spaces***.

**It must be noted that one zoo which currently holds 600 Carollia perspicillata would like to disposition the entire colony within 5 years.*

Table 2. Results of the RCP Space Survey

Family	Common Name	Scientific Name	Sex ratio of specimens currently in collection (e.g., 1.1.2)			Sex ratio of specimens that you plan to have in collection in five years?		
			Males	Females	Unknown	Males	Females	Unknown
Vespertilionidae	Pallid bat	<i>Antrozous pallidus</i>	7	9		5		1
	Big Brown bat	<i>Eptesicus fuscus</i>	11	11		12	13	9
	Hoary bat	<i>Lasiurus cinereus</i>		1			1	2
	Evening Bat	<i>Nysticeius humeralis</i>		4				
	Silver-haired bat	<i>Lasiorycteris noctivagans</i>	1					
	Yuma myotis	<i>Myotis yumanensis</i>	1					
	Little brown bat	<i>Myotis lucifugus</i>	1					
Pteropodidae	Lesser short-nosed fruit bat	<i>Cynopterus brachyotis</i>	2	9		5	5	
	Straw-colored fruit bat	<i>Eidolon helvum</i>	344	333	9	288	327	24
	Black flying fox	<i>Pteropus alecto</i>					8	
	Spectacled Flying Fox	<i>Pteropus conspicillatus</i>		1			1	
	Indian Flying Fox	<i>Pteropus giganteus</i>	58	54	9	62	63	26
	Island Flying Fox	<i>Pteropus hypomelanus</i>	27	55		35	53	
	Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	9	13		9	13	
	Little Golden-mantled Flying Fox	<i>Pteropus pumilus</i>	12	15		12	15	
	Rodrigues Flying Fox	<i>Pteropus rodricensis</i>	73	91	10	64	100	35
	Large Flying Fox	<i>Pteropus vampyrus</i>	74	74	3	77	108	3
	Egyptian fruit bat	<i>Rousettus aegyptiacus</i>	144	232	240	177	222	246
Ruwenzori fruit bat	<i>Rousettus lanosus</i>	48	79		46	69		
Phyllostomidae	Jamaican fruit bat	<i>Artibeus jamaicensis</i>	598	540	451	349	224	500
	Trinidadian fruit bat	<i>Artibeus lituratus</i>	1					
	Seba's Short-tailed bat	<i>Carollia perspicillata</i>	1271	1144	5095	1302	1132	4292
	Common Vampire bat	<i>Desmodus rotundus</i>	258	206	118	177	233	117
	White-winged Vampire bat	<i>Diaemus youngi</i>	1					
	Pallas' Long-tongued bat	<i>Glossophaga soricina</i>	64	71		32	48	
	California leaf-nosed	<i>Macrotus californicus</i>				5		
	Lesser Spear-nosed bat	<i>Phyllostomus discolor</i>	16	14				
	Greater Spear-nosed bat	<i>Phyllostomus hastatus</i>	23	28		17	17	
	Lesser Long-Nosed Bat	<i>Leptonycteris yerbabuena</i>	11	6				
Noctilionidae	Bulldog bat	<i>Noctilio leporinus</i>	2	1	36	27	26	
Molossidae	Mexican Free-tailed bat	<i>Tadarida brasiliensis</i>						1
	Western Mastiff Bat	<i>Eumops perotis</i>						1
			3057	2991	5971	2701	2678	5257
			TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
				12019			10535	

Animal Program Goals and Objectives

The following list was utilized to recommend TAG Animal Programs and identify and prioritize goals and outline objectives to meet these goals.

Conservation link – Taxa whose recommendation as a formal, cooperatively managed program in the RCP is due in large part to conservation efforts ongoing in range countries, as these animals may serve as examples of the in situ work of AZA member institutions and their partners. Also may indicate a taxon in need of support for recovery programs.

Education and display – Taxa recommended due to the role they can play in educating the visiting public through unique conservation stories, behavior, biology or a combination of the above. Some species are particularly appropriate as ambassador animals used in education programs as well.

Flagship species – Taxa particularly likely to generate attention and financial support for field conservation programs in their native ranges.

Representative taxon – Taxa which are the only (or one of few) examples of a specific taxonomic group maintained in captivity.

Research link – Serve as models for the development of husbandry, reproductive and/or nutrition protocols, behavioral analyses, disease ecology and human health, or censusing efforts which are designed to benefit both captive and wild populations of these and other taxa.

Table 3. Animal Programs Summary Table

Common Name (Genus species)	Date of Last Breeding and Transfer Plan	Current Population Size (N)	Current Number of Participating Institutions	Sustainability Score (retained %GD at 100 years or 10 generations)	Animal Program Designation	Target Population Size (N)	Target Sustainability Score	Space Needed (target population size - current space)	Recent 5 Year Population Trend (increasing, decreasing, or stable)	USFWS IUCN CITES	Goal #1	Goal #2	Goal #3
Rodrigues fruit bat (<i>Pteropus rodricensis</i>)	4/4/2015	174	17	NA	Yellow SSP	250	NA	76	Decreasing	Endangered CR Appendix II	Conservation Action	Maximize breeding potential by utilizing bats that were recently imported into the US	Find additional zoos that would like to exhibit this species
Island Flying Fox (<i>Pteropus hypomelanus</i>)	5/2/2014	82	7	50.8	Yellow SSP	100	90	18	Decreasing	No Info LC Appendix II	Education/Exhibit	Improve breeding husbandry	Consider importation of bats from Zoo Leipzig
Large Flying Fox (<i>Pteropus vampyrus</i>)	5/2/2014	151	8	74.8	Yellow SSP	150	90	-1	Stable	No Info NT Appendix II	Flagship species	Maximize breeding potential with bats that are underrepresented (Calgary males and 1.4 Busch bats)	Find additional zoos that would like to exhibit this species
African straw-colored fruit bat (<i>Eidolon helvum</i>)	Never planned	686	29	Unknown	Yellow SSP	625	Unknown	-61	Increasing	NT	Flagship species	Begin population planning	Rotate male groups between facilities holding large populations to maximize gene
Common vampire bat (<i>Desmodus rotundus</i>)	Never planned	582	21	Unknown	Candidate	500	Unknown	-82	Increasing	LC	Representative taxon	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity
Egyptian fruit bat (<i>Rousettus aegyptiacus</i>)	Never planned	616	23	Unknown	Candidate	600	Unknown	-16	Increasing	LC	Education/Exhibit	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity
Jamaican fruit bat (<i>Artibeus jamaicensis</i>)	Never planned	1589	25	Unknown	Candidate	1000	Unknown	-589	Decreasing	LC	Education/Exhibit	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity
Seba's Short-tailed bat (<i>Carollia perspicillata</i>)	Never planned	7510	37	Unknown	Candidate	6500	Unknown	-1010	Increasing	LC	Education/Exhibit	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity
Indian flying fox (<i>Pteropus giganteus</i>)	Never planned	121	16	Unknown	Candidate	120	Unknown	-1	Increasing	No Info LC Appendix II	Education/Exhibit	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity

Table 4. Roles, Goals, and Essential Actions Table

Common Name / Scientific Name	Animal Program Designation	Primary Role	Goal #1 / Essential Action(s)	Goal #2/ Essential Action(s)	Goal #3/ Essential Action(s)
Rodrigues fruit bat (<i>Pteropus rodricensis</i>)	Yellow SSP	Conservation Action	Maximize breeding potential by utilizing bats that were recently imported into the US	Find additional zoos that would like to exhibit this species	Engage other zoos regarding support for the Rodrigues Environmental Education Project
Island Flying Fox (<i>Pteropus hypomelanus</i>)	Yellow SSP	Education/Exhibit	Improve breeding husbandry by speaking with reproductive specialists if issues persist within the next 2 years	Consider importation of bats from Zoo Leipzig	Engage other zoos regarding support for the SE Asia Bat Conservation Research Unit
Large Flying Fox (<i>Pteropus vampyrus</i>)	Yellow SSP	Flagship species	Maximize breeding potential with bats that are underrepresented (Calgary males and 1.4 Busch bats)	Find additional zoos that would like to exhibit this species	Engage other zoos regarding support for the SE Asia Bat Conservation Research Unit
African Straw-colored fruit bat (<i>Eidolon helvum</i>)	Yellow SSP	Flagship species	Begin population planning	Rotate male groups between facilities holding large populations to maximize gene diversity	Engage other zoos regarding support for the Eidolon Monitoring Network
Common vampire bat (<i>Desmodus rotundus</i>)	Candidate program	Representative taxon	Begin studbook and population planning	Encourage zoos that want to minimize populations to separate sexes (if possible) and select males for breeding at other institutions	Rotate male groups between facilities holding large populations to maximize gene diversity
Egyptian fruit bat (<i>Rousettus aegyptiacus</i>)	Candidate program	Education/Exhibit	Ensure that zoos which hold this species and the Ruwenzori fruit bat (<i>Rousettus lanosus</i>) do not permit breeding between these species	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity
Jamaican fruit bat (<i>Artibeus jamaicensis</i>)	Candidate program	Education/Exhibit	Begin studbook and population planning	Encourage zoos that want to minimize populations to separate sexes (if possible) and select males for breeding at other institutions	Rotate male groups between facilities holding large populations to maximize gene diversity
Seba's Short-tailed bat (<i>Carollia perspicillata</i>)	Candidate program	Education/Exhibit	Begin studbook and population planning	Encourage zoos that want to minimize populations to separate sexes (if possible) and select males for breeding at other institutions	Rotate male groups between facilities holding large populations to maximize gene diversity
Indian flying fox (<i>Pteropus giganteus</i>)	Candidate program	Education/Exhibit	Conduct historical data search on this species to determine level of inbreeding	Begin studbook and population planning	Rotate male groups between facilities holding large populations to maximize gene diversity

Management Update Table

The following table (Table 5) provides a list of all recommended Animal Programs, their designations and Program Leader information.

Table 5. Management Update Table

Common Name	Scientific Name	Previous Recommendation	Current Designation	Program Leader Change?	Program Leader/Species Contact
Rodrigues fruit bat	<i>Pteropus rodricensis</i>	SSP	Yellow SSP	No	SSP Coordinator: Kimberly Lengel Philadelphia Zoo 215-243-1100 Lengel.Kimberly@phillyzoo.org Studbook Keeper: Stephanie Oberlin Philadelphia Zoo 215-243-1100 oberlin.stephanie@phillyzoo.org
Island flying fox	<i>Pteropus hypomelanus</i>	PMP	Yellow SSP	No	SSP Coordinator/Studbook Keeper: Brian Pope Lubee Bat Conservancy 352-485-1250 bpope@lubee.org
Large flying fox	<i>Pteropus vampyrus</i>	PMP	Yellow SSP	No	SSP Coordinator/Studbook Keeper: Brian Pope Lubee Bat Conservancy 352-485-1250 bpope@lubee.org
African Straw-colored fruit bat	<i>Eidolon helvum</i>	Candidate Program	Yellow SSP	N/A	SSP Coordinator: Abigail Varela Houston Zoo 713-533-6875 avarela@houstonzoo.org Studbook Keeper: Eran Brusilow Disney's Animal Kingdom 407-938-3201 Eran.L.Brusilow@disney.com
Common vampire bat	<i>Desmodus rotundus</i>	N/A	Candidate Program	N/A	Studbook Keeper Liz Harmon Naples Zoo 239-262-5409 x 141 liz@napleszoo.org
Egyptian fruit bat	<i>Rousettus aegyptiacus</i>	N/A	Candidate Program	N/A	Studbook Keeper: Josh Tarnowski Kansas City Zoo 414-915-7322 j.tarnowskiKCZ@yahoo.com
Jamaican fruit bat	<i>Artibeus jamaicensis</i>	N/A	Candidate Program	N/A	SSP Coordinator: Suzanne Jurek Houston Zoo 713-533-6875 sjurek@houstonzoo.org
Seba's Short-tailed bat	<i>Carollia perspicillata</i>	N/A	Candidate Program	N/A	Studbook Keeper: Anthony Mason Lubee Bat Conservancy 352-485-1250 amason@lubee.org
Indian flying fox	<i>Pteropus giganteus</i>	N/A	Candidate Program	No current leader	No current leader

Animal Program Status Table

The following table (Table 6) provides details about the current status of each Animal Program recommended for management within the TAG.

Table 6. Animal Program Status Table

Studbook Keepers & SSP Coordinators					
Animal Program	Date Animal Program Initiated	Current Program Leader	Date Leadership Assumed	Date of Last Studbook Update	Date of Last Plan Publication
Rodrigues fruit bat SSP	28 Dec 1992	Kimberly Lengel Philadelphia Zoo	4 Nov 1996	N/A	Apr 2015
Rodrigues fruit bat Studbook	28 Apr 1993	Stephanie Oberlin Philadelphia Zoo	21 May 2013	Dec 2014	N/A
Island flying fox SSP	19 Oct 2007	Brian Pope Lubee Bat Conservancy	7 Apr 2008	N/A	May 2014
Island flying fox Studbook	19 Oct 2007	Brian Pope Lubee Bat Conservancy	7 Apr 2008	Jan 2013	N/A
Large flying fox SSP	19 Oct 2007	Brian Pope Lubee Bat Conservancy	7 Apr 2008	N/A	May 2014
Large flying fox Studbook	19 Oct 2007	Brian Pope Lubee Bat Conservancy	7 Apr 2008	Jan 2013	N/A
African Straw-colored fruit bat SSP	Nov 1996	Abigail Varela Houston Zoo	29 Mar 2013	N/A	Due Feb 2016
African Straw-colored fruit bat Studbook	Nov 1996	Eran Brusilow Disney's Animal Kingdom	29 Mar 2013	April 2015	N/A
Candidate Programs					
Animal Program	Date Animal Program Initiated	Current Program Leader	Date Leadership Assumed	Date of Last Studbook Update	Date of Last Plan Publication
Common vampire bat Studbook	19 Oct 2007	Liz Harmon Naples Zoo	19 Oct 2007	N/A	N/A
Egyptian fruit bat Studbook	Oct 2007	Josh Tarnowski Kansas City Zoo	3 Jun 2013	N/A	N/A
Jamaican fruit bat SSP	Oct 2007	Suzanne Jurek Houston Zoo	7 Mar 2008	N/A	N/A
Seba's Short-tailed bat Studbook	Oct 2007	Anthony Mason Lubee Bat Conservancy	19 Jun 2013	N/A	N/A
Indian flying fox	Jun 2015	vacant			

Replacement Table

The Replacement Table (Table 7) identifies species which the TAG does not recommend for management and suggests recommended Animal Program species that would work well in exhibits currently holding those non-recommended species.

Table 7. Replacement Species Table

Non-recommended species	Recommended Species
Ruwenzori fruit bat (<i>Rousettus lanosus</i>)	Egyptian fruit bat (<i>Rousettus aegyptiacus</i>)
Trinidadian fruit bat (<i>Artibeus lituratus</i>)	Jamaican fruit bat (<i>Artibeus jamaicensis</i>)
White-winged Vampire bat (<i>Diameus youngi</i>)	Common Vampire bat (<i>Desmodus rotundus</i>)

Animal Programs and Candidate Species

Island flying fox (*Pteropus hypomelanus*)

Geographic Range

- India; Indonesia; Malaysia; Maldives; Myanmar; Papua New Guinea; Philippines; Solomon Islands; Thailand; Viet Nam

Conservation status

- IUCN: LC
USFWS:
CITES: Appendix II
- Suffering from hunting pressure and habitat loss in the Philippines, where it may be Near Threatened. On a global scale, it is abundant, and should be considered Least Concern.*
- The AZA Bat TAG could become involved with *in-situ* conservation efforts by partnering with range country NGOs such as the Southeast Asia Bat Conservation Research Unit (SEABCRU), which awards small grants to range country researchers and college students.



Size

- Weight: 500-800g
- Wingspan: 70cm-1m

Survey Results

- Current population: 82
- 5 year projected population: 88
- Target population: 100

TAG Program Recommendations

- Program is currently designated as a **Yellow SSP**
- Current designation is not expected to change
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Link to in-situ conservation, Ex-situ research connection, Zoo Interest

Comments

Historically this species has bred well in captivity but in recent years the population has declined due to a geriatric population and lack of breeding success with younger individuals. Breeding will continue based on pairings from the SSP recommendations but importations from European zoos may be considered to bring additional genetics into the captive population. This species is prone to obesity and dietary requirements should be taken into consideration. Pteropus species are also prone to

cardiomyopathy caused by insufficient levels of vitamin E in their diet. Consultation with a zoo nutritionist is suggested to ensure appropriate levels. *Pteropus* sp. require a USFWS acquisition/transport permit due to Injurious Wildlife status. Importations or international transactions additionally require a CDC importation permit. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Francis, C., Rosell-Ambal, G., Bonaccorso, F. & A., Heaney, L., Molur, S. & Srinivasulu, C. 2008. *Pteropus hypomelanus*. The IUCN Red List of Threatened Species. Version 2014.3.

Rodrigues fruit bat

(*Pteropus rodricensis*)

Geographic Range

- Rodrigues Island (Mascarene Islands)

Conservation status

- IUCN: CR
USFWS: Endangered
CITES: Appendix II
- Listed as Critically Endangered because the global population is restricted to a single location (the island of Rodrigues), has an extent of occurrence is less than 100 km², and undergoes extreme fluctuations due to tropical cyclones. Cyclones have devastating long term effect on number of bats (sometimes causing significant mortality) and remaining areas of the species vulnerable forest habitat.*
- Once numbering less than 80 individuals, this species has witnessed an astonishing comeback thanks to sound conservation efforts and local involvement. Recent surveys found over 16,000 individuals on Rodrigues.
- The AZA Bat TAG could become involved with conservation and education efforts by partnering with the Rodrigues Environmental Education Project which is a model for range country wildlife and habitat education initiatives.



Size

- Weight: 300-400g
- Wingspan: 70-83cm

Survey Results

- Current population: 174
- 5 year projected population: 199
- Target population: 250

TAG Program Recommendations

- Program is currently designated as a **Yellow SSP**
- Current designation is not expected to change
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Link to in-situ conservation, Zoo Interest, Availability

Comments

The TAG intends on maximizing breeding potential by utilizing bats that were recently imported into the US. Additional institutions will be needed to house bats in order to reach the target population. This species is prone to obesity and dietary requirements should be taken into consideration. Fluorosis has been observed in the past and precautions should be taken when utilizing tap water and vitamin/mineral supplements. Pteropus species are prone to cardiomyopathy caused by insufficient levels of vitamin E in their diet. Consultation with a zoo nutritionist is suggested to ensure appropriate levels. Pteropus sp. require a USFWS acquisition/transport permit due to Injurious Wildlife status. Importations or international transactions additionally require a CDC importation permit. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Mickleburgh, S., Hutson, A.M. & Bergmans, W. 2008. *Pteropus rodricensis*. The IUCN Red List of Threatened Species. Version 2014.3.

Large flying fox (*Pteropus vampyrus*)

Geographic Range

- Brunei Darussalam; China; Indonesia; Malaysia; Myanmar; Philippines; Singapore; Thailand; Timor-Leste; Viet Nam

Conservation status

- IUCN: NT
USFWS:
CITES: Appendix II
- Listed as Near Threatened because this species is in significant decline (but at a rate of probably less than 30% over ten years or three generations) because it is being over-harvested for food over much of its range, and because of ongoing degradation of its primary forest habitat, making the species close to qualifying for Vulnerable.*
- The AZA Bat TAG could become involved with *in-situ* conservation efforts by partnering with range country NGOs such as SEABCRU which awards small grants to range country researchers and college students.



Size

- Weight: 900-2000g
- Wingspan: 1.2-1.7m

Survey Results

- Current population: 151
- 5 year projected population: 188
- Target population: 175

TAG Program Recommendations

- Program is currently designated as a **Yellow SSP**
- Current designation is not expected to change
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Link to in-situ conservation, Ex-situ research connection, Zoo Interest, Availability

Comments

The Large flying fox is one of the world's largest bats and can attain a wingspan of over 1.5 m. Husbandry requirements of this species are well known and they breed relatively easily within zoological

institutions. Additional zoos will be required to house this species in the future. Fluorosis has been observed in this species and precautions should be taken when utilizing tap water and vitamin/mineral supplements. Pteropus species are prone to cardiomyopathy caused by insufficient levels of vitamin E in their diet. Consultation with a zoo nutritionist is suggested to ensure appropriate levels. Pteropus sp. require a USFWS acquisition/transport permit due to Injurious Wildlife status. Importations or international transactions additionally require a CDC importation permit. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Bates, P., Francis, C., Gumal, M., Bumrungsri, S., Walston, J., Heaney, L. & Mildenstein, T. 2008. *Pteropus vampyrus*. The IUCN Red List of Threatened Species. Version 2014.3.

Jamaican fruit bat

(*Artibeus jamaicensis*)

Geographic Range

- Anguilla; Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Colombia; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; Grenada; Guadeloupe; Guatemala; Haiti; Honduras; Jamaica; Martinique; Mexico; Montserrat; Nicaragua; Panama; Puerto Rico; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago; Virgin Islands, British



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 35-60g
- Wingspan: 34-38cm

Survey Results

- Current population: 1589
- 5 year projected population: 1073
- Target population: 1000

TAG Program Recommendations

- Program is designated as a Candidate program and is currently being evaluated
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Zoo Interest, Availability

Comments

The TAG recommends that this species continue to be held in North American zoological institutions. A studbook is currently being planned. Ideally the population can be reduced in size. Males will need to be transferred between institutions to maintain genetic diversity. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Miller, B., Reid, F., Arroyo-Cabrales, J., Cuarón, A.D. & de Grammont, P.C. 2008. *Artibeus jamaicensis*. The IUCN Red List of Threatened Species. Version 2014.3.

Seba's Short-tailed bat (*Carollia perspicillata*)

Geographic Range

- Belize; Bolivia; Brazil; Colombia; Costa Rica; Ecuador; El Salvador; French Guiana; Guatemala; Guyana; Honduras; Mexico; Nicaragua; Panama; Paraguay; Peru; Saint Kitts and Nevis; Suriname; Trinidad and Tobago

Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population, it occurs in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 16-20g
- Wingspan: 24-30cm

Survey Results

- Current population: 7510
- 5 year projected population: 6726
- Target population: 6500

TAG Program Recommendations

- Program is designated as a Candidate program and is currently being evaluated
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Zoo Interest, Availability

Comments

The TAG recommends that this species continue to be held in North American zoological institutions. A studbook is currently being planned. Ideally the population can be reduced in size. Males will need to be transferred between institutions to maintain genetic diversity. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Carollia perspicillata*. The IUCN Red List of Threatened Species. Version 2014.3.

Common Vampire bat (*Desmodus rotundus*)

Geographic Range

- Argentina; Belize; Bolivia; Brazil; Chile; Colombia; Costa Rica; Ecuador; El Salvador; Guatemala; Honduras; Mexico; Nicaragua; Panama; Paraguay; Peru; Trinidad and Tobago; Uruguay; Venezuela



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population tolerance of a degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 57g
- Wingspan: 18cm

Survey Results

- Current population: 582
- 5 year projected population: 527
- Target population: 500

TAG Program Recommendations

- Program is currently designated as a Candidate program and is currently being evaluated
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Ex-situ research connection, Zoo Interest, Availability

Comments

The TAG recommends that this species continue to be held in North American zoological institutions. A studbook is currently being planned. Ideally the population can be reduced in size. Males will need to be transferred between institutions to maintain genetic diversity. Consistent and safe mammal blood supplies should be considered when managing this species. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Desmodus rotundus*. The IUCN Red List of Threatened Species. Version 2014.3.

African Straw-colored fruit bat (*Eidolon helvum*)

Geographic Range

- Angola; Benin; Botswana; Burkina Faso; Burundi; Cameroon; Central African Republic; Chad; Congo; Congo, The Democratic Republic of the; Côte d'Ivoire; Equatorial Guinea; Ethiopia; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Kenya; Lesotho; Liberia; Malawi; Mali; Mauritania; Mozambique; Namibia; Niger; Nigeria; Rwanda; Sao Tomé and Príncipe; Saudi Arabia; Senegal; Sierra Leone; South Africa; South Sudan; Sudan; Swaziland; Tanzania; Togo; Uganda; Yemen; Zambia; Zimbabwe



Conservation status

- IUCN: NT
USFWS:
CITES:
- Listed as Near Threatened because this species is in significant decline (but at a rate of less than 30% over three generations (approximately fifteen years)) because it is being seriously over-harvested for food and medicine, making the species close to qualifying for Vulnerable.*
- The AZA Bat TAG could become involved with *in-situ* conservation and education efforts by partnering with the Eidolon Monitoring Network which is dedicated to monitor both the short and long-term fluctuations of Eidolon colonies across sub-Saharan Africa.

Size

- Weight: 280-350g
- Wingspan: 70-83cm

Survey Results

- Current population: 686
- 5 year projected population: 639
- Target population: 625

TAG Program Recommendations

- Program is currently designated as a **Yellow SSP**
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Link to in-situ conservation, Ex-situ research connection, Zoo Interest, Availability

Comments

Of all the Old World fruit species in captivity, this species appears the hardiest in terms of husbandry and medical management. A highly gregarious, colorful fruit bat, *Eidolon helvum* are ideal ambassadors for most zoological enclosures. A studbook has recently been published and a SSP is currently being planned. Ideally the population can be reduced in size. Males will need to be transferred between institutions to maintain genetic diversity. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Mickleburgh, S., Hutson, A.M., Bergmans, W., Fahr, J. & Racey, P.A. 2008. *Eidolon helvum*. The IUCN Red List of Threatened Species. Version 2014.3.

Egyptian fruit bat

(*Rousettus aegyptiacus*)

Geographic Range

- Angola; Burundi; Cameroon; Congo; Congo, The Democratic Republic of the; Côte d'Ivoire; Cyprus; Egypt; Equatorial Guinea; Eritrea; Ethiopia; Gabon; Gambia; Ghana; Guinea; Iran, Islamic Republic of; Israel; Jordan; Kenya; Lebanon; Lesotho; Liberia; Libya; Malawi; Mozambique; Nigeria; Oman; Pakistan; Palestinian Territory, Occupied; Rwanda; Sao Tomé and Príncipe; Saudi Arabia; Senegal; Sierra Leone; South Africa; South Sudan; Sudan; Syrian Arab Republic; Tanzania, United Republic of; Togo; Turkey; Uganda; United Arab Emirates; Yemen; Zambia; Zimbabwe



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population tolerance of a degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 80-200g
- Wingspan: 43-61cm

Survey Results

- Current population: 616
- 5 year projected population: 645
- Target population: 600

TAG Program Recommendations

- Program is designated as a Candidate program and is currently being evaluated
- Species Selection Criteria: Educational/Exhibit value, Husbandry Expertise, Ex-situ research connection, Zoo Interest, Availability

Comments

The TAG recommends that this species continue to be held in North American zoological institutions. A studbook is currently being planned. Ideally the population can be reduced in size. Males will need to be

transferred between institutions to maintain genetic diversity. Hemochromatosis is a medical concern for captive populations and research projects should be conducted to determine dietary factors and nutritional requirements. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Desmodus rotundus*. The IUCN Red List of Threatened Species. Version 2014.3.

Indian flying fox (*Pteropus giganteus*)

Geographic Range

- Bangladesh; Bhutan; China; India; Maldives; Myanmar; Nepal; Pakistan; Sri Lanka

Conservation status

- IUCN: LC
USFWS:
CITES: Appendix II
- Listed as Least Concern in view of its wide distribution, presumed large population, it occurs in a number of protected areas, has a tolerance of a degree of habitat modification, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category. *



Size

- Weight: 700-1000g
- Wingspan: 91cm-1.2m

Survey Results

- Current population: 686
- 5 year projected population: 639

TAG Program Recommendations

- Program is designated as a Candidate program and is currently being evaluated

Comments

Past TAG recommendations have been to phase this species out due to mismanagement and inbreeding, and replace with *Pteropus hypomelanus*. Unfortunately, institutions continue to breed this species and *P. hypomelanus* is not reproducing nearly fast enough to completely replace this species. The TAG recommends *P. giganteus* as a candidate species and a historical studbook be published. If it is found that inbreeding may not be an issue as previously assumed, this species could fall under a managed Animal Program. *Pteropus* species are prone to cardiomyopathy caused by insufficient levels of vitamin E in their diet. Consultation with a zoo nutritionist is suggested to ensure appropriate levels. *Pteropus* sp. require a USFWS acquisition/transport permit due to Injurious Wildlife status. Importations or international transactions additionally require a CDC importation permit. Acquisitions between institutions may require a state import/exhibition permit.

* Reference

Molur, S., Srinivasulu, C., Bates, P. & Francis, C. 2008. *Pteropus giganteus*. The IUCN Red List of Threatened Species. Version 2014.3.

TAG Monitored Populations

Big Brown Bat

(*Eptesicus fuscus*)

Geographic Range

- Barbados; Belize; Brazil; Canada; Colombia; Comoros; Costa Rica; Cuba; Dominica; Dominican Republic; Guatemala; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Panama; Puerto Rico; United States; Venezuela



Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 14-16g
- Wingspan: 28-33cm

Survey Results

- Current population: 22
- 5 year projected population: 34

TAG Program Recommendations

- The TAG recommends that this species is maintained as an Unmanaged Population

Comments

There are currently 7 species of U.S. native insectivorous bats in captivity, none of which are bred or maintained in numbers over 22 individuals. With no guidelines for the long-term propagation and management of insectivorous species to be maintained in a captive setting, institutions will continue to utilize rehabilitated native bats, such as this species, for their programs. Discussions by TAG members have brought up the topic of keeping more insectivorous bats in captivity and picking an abundant species to breed and manage, which could be utilized as a flagship species for native bats and to spread awareness of White-nose syndrome. Based on survey results and interest, perhaps *E. fuscus* could be this species and provide husbandry standards for other native insectivorous bats.

* Reference

Miller, B., Reid, F., Arroyo-Cabrales, J., Cuarón, A.D. & de Grammont, P.C. 2008. *Eptesicus fuscus*. The IUCN Red List of Threatened Species. Version 2014.3.

Pallas' Long-tongued bat (*Glossophaga soricina*)

Geographic Range

- Argentina; Belize; Bolivia; Brazil; Colombia; Costa Rica; El Salvador; French Guiana; Grenada; Guyana; Honduras; Jamaica; Mexico (Sonora, Tamaulipas); Nicaragua; Panama; Paraguay; Peru; Suriname; Trinidad and Tobago; Venezuela



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 10g
- Wingspan: 25cm

Survey Results

- Current population: 135
- 5 year projected population: 80

TAG Program Recommendations

- The TAG recommends that this species is maintained as an Unmanaged Population

Comments

This species has been kept in captivity for numerous years and is currently held in three institutions. The space surveys revealed that only two institutions anticipate holding this species in 5 years. *Glossophaga soricina* represents one of three species of nectarivorous bats currently held in North American populations, the others being *Phyllostomus hastatus* (held in small numbers in three zoos, numbers expected to decrease within 5 years) and *Phyllostomus discolor* (survey results indicate no bats within 5 years). These bats are flagship species for nectarivorous chiroptera and it may be worthwhile to consider options for managing one species between the 4 zoos that want them as part of their future collection. *G. soricina* would be the logical choice as there are more individuals in captivity.

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Glossophaga soricina*. The IUCN Red List of Threatened Species. Version 2014.3.

Greater Bulldog bat (*Noctilio leporinus*)

Geographic Range

- Anguilla; Antigua and Barbuda; Argentina; Aruba; Bahamas; Barbados; Belize; Bolivia; Brazil; Colombia; Costa Rica; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; French Guiana; Grenada; Guadeloupe; Guatemala; Guyana; Haiti; Honduras; Jamaica; Martinique; Mexico; Montserrat; Nicaragua; Panama; Paraguay; Peru; Puerto Rico; Saint Kitts and Nevis; Saint Lucia; Saint Martin (French part); Saint Vincent and the Grenadines; Sint Maarten (Dutch part); Suriname; Trinidad and Tobago; Venezuela; Virgin Islands, British; Virgin Islands, U.S.



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 50-90g
- Wingspan: 1m

Survey Results

- Current population: 39
- 5 year projected population: 53

TAG Program Recommendations

- The TAG recommends that this species is maintained as an Unmanaged Population

Comments

The greater bulldog bat is one of the few bat species that has adapted to eating fish and represents a flagship species in North American populations. This species is currently held in two zoological institutions and both anticipate maintaining this species in 5 years. It may be worth considering the Greater Bulldog bat for candidate status in the future due to its specialized diet, education potential, and uniqueness as the only representative of the Noctilionidae family in zoos. However, with no guidelines for the long-term propagation and management of piscivorous species to be maintained in a captive setting, it is difficult to determine the long term success of this species.

* References

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Noctilio leporinus*. The IUCN Red List of Threatened Species. Version 2014.3.

Phase Out

Greater Spear-nosed bat (*Phyllostomus hastatus*)

Geographic Range

- Bolivia; Brazil; Colombia; Costa Rica; French Guiana; Guatemala; Guyana; Honduras; Nicaragua; Panama; Suriname; Trinidad and Tobago; Venezuela

Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 81g
- Wingspan: 46cm

Survey Results

- Current population: 151
- 5 year projected population: 34

TAG Program Recommendations

- Not recommended

Comments

This species has been kept in captivity for numerous years and is currently held in three institutions. The space surveys revealed that only two institutions anticipate holding this species in 5 years. *Phyllostomus hastatus* represents one of three species of nectarivorous bats currently held in North American populations, the others being *Glossophaga soricina* (held in larger numbers in three zoos) and *Phyllostomus discolor* (survey results indicate no bats within 5 years). These bats are flagship species for nectar feeding bats and it may be worthwhile to consider options for managing one species between the 4 zoos that want them as part of their future collection. *G. soricina* would be the logical choice as there are more individuals in captivity.

* Reference

Barquez, R. & Diaz, M. 2008. *Phyllostomus hastatus*. The IUCN Red List of Threatened Species. Version 2014.3.

Pallid bat (*Antrozous pallidus*)

Geographic Range

- Canada (British Columbia); Cuba; Mexico; United States (Arizona, California, Colorado, Idaho, Kansas, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, Wyoming)

Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern because of its wide distribution, presumed large population, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 25g
- Wingspan: 37-41cm

Survey Results

- Current population: 16
- 5 year projected population: 6

TAG Program Recommendations

- Not recommended

Comments

With no guidelines for the long-term propagation and management of insectivorous species to be maintained in a captive setting, institutions will continue to utilize rehabilitated native bats, such as this species, for their programs. Ideally, an insectivorous species could be managed, bred, and designated as an Animal Program which could be maintained in North American zoos and utilized in educational programs to discuss native bats, ecological/agricultural benefits, and to spread awareness of White-nose syndrome.

* Reference

Arroyo-Cabrales, J. & de Grammont, P.C. 2008. *Antrozous pallidus*. The IUCN Red List of Threatened Species. Version 2014.3.

Hoary bat

(*Lasiurus cinereus*)

Geographic Range

- Argentina; Bolivia; Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland I, Northwest Territories, Nova Scotia, Ontario, Québec, Saskatchewan); Chile; Colombia; Ecuador (Galápagos); Guatemala; Mexico; Panama; Paraguay; United States (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaiian Is., Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming); Uruguay; Venezuela



Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 26g
- Wingspan: 40cm

Survey Results

- Current population: 1
- 5 year projected population: 3

TAG Program Recommendations

- Not recommended

Comments

With no guidelines for the long-term propagation and management of insectivorous species to be maintained in a captive setting, institutions will continue to utilize rehabilitated native bats, such as this species, for their programs. Ideally, an insectivorous species could be managed, bred, and designated as

an Animal Program which could be maintained in North American zoos and utilized in educational programs to discuss native bats, ecological/agricultural benefits, and to spread awareness of White-nose syndrome.

* Reference

Gonzalez, E., Barquez, R. & Arroyo-Cabrales, J. 2008. *Lasiurus cinereus*. The IUCN Red List of Threatened Species. Version 2014.3.

Evening bat (*Nycticeius humeralis*)

Geographic Range

- Argentina; Mexico; United States

Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in because of its wide distribution, occurrence in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 7-15g
- Wingspan: 26-28cm

Survey Results

- Current population: 4
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Arroyo-Cabrales, J. & Álvarez-Castañeda, S.T. 2008. *Nycticeius humeralis*. The IUCN Red List of Threatened Species. Version 2014.3.

Silver-haired bat

(*Lasionycteris noctivagans*)

Geographic Range

- Bermuda; Canada; Mexico; United States

Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 8-12g
- Wingspan: 27-31cm

Survey Results

- Current population: 1
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Arroyo-Cabrales, J., Miller, B., Reid, F., Cuarón, A.D. & de Grammont, P.C. 2008. *Lasionycteris noctivagans*. The IUCN Red List of Threatened Species. Version 2014.3.

Yuma myotis (*Myotis yumanensis*)

Geographic Range

- Canada (British Columbia); Mexico (Baja California, Hidalgo, Michoacán, Morelos); United States (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, Wyoming)

Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 4-8g
- Wingspan: 24cm

Survey Results

- Current population: 1
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Arroyo-Cabrales, J. & Álvarez-Castañeda, S.T. 2008. *Myotis yumanensis*. The IUCN Red List of Threatened Species. Version 2014.3.

Little Brown bat (*Myotis lucifugus*)

Geographic Range

- Canada; Mexico; United States

Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in because of its wide distribution, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 5-14g
- Wingspan: 22-27cm

Survey Results

- Current population: 1
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Arroyo-Cabrales, J. & Álvarez-Castañeda, S.T. 2008. *Myotis lucifugus*. The IUCN Red List of Threatened Species. Version 2014.3.

Mexican Free-tailed bat (*Tadarida brasiliensis*)

Geographic Range

- Anguilla; Antigua and Barbuda; Argentina; Aruba; Barbados; Bolivia; Bonaire, Sint Eustatius and Saba (Sint Eustatius); Brazil; Chile; Colombia; Costa Rica; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; French Guiana; Grenada; Guadeloupe; Guatemala; Guyana; Haiti; Honduras; Jamaica; Martinique; Mexico; Montserrat; Panama; Peru; Puerto Rico; Saint Kitts and Nevis; Saint Lucia; Saint Martin (French part); Saint Vincent and the Grenadines; Sint Maarten (Dutch part); Suriname; Trinidad and Tobago; United States; Venezuela; Virgin Islands, British; Virgin Islands, U.S.



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 12g
- Wingspan: 28cm

Survey Results

- Current population: 0
- 5 year projected population: 1

TAG Program Recommendations

- Not recommended

Comments

With no guidelines for the long-term propagation and management of insectivorous species to be maintained in a captive setting, institutions will continue to utilize rehabilitated native bats, such as this species, for their programs. Ideally, an insectivorous species could be managed, bred, and designated as an Animal Program which could be maintained in North American zoos and utilized in educational programs to discuss native bats, ecological/agricultural benefits, and to spread awareness of White-nose syndrome.

* Reference

Barquez, R., Diaz, M., Gonzalez, E., Rodriguez, A., Incháustegui, S. & Arroyo-Cabrales, J. 2008. *Tadarida brasiliensis*. The IUCN Red List of Threatened Species. Version 2014.3.

California Leaf-nosed bat (*Macrotus californicus*)

Geographic Range

- Mexico; United States

Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in because of its wide distribution, occurrence in a number of protected areas and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 12-20g
- Wingspan: 34cm

Survey Results

- Current population: 0
- 5 year projected population: 5

TAG Program Recommendations

- Not recommended

Comments

With no guidelines for the long-term propagation and management of insectivorous species to be maintained in a captive setting, institutions will continue to utilize rehabilitated native bats, such as this species, for their programs. Ideally, an insectivorous species could be managed, bred, and designated as an Animal Program which could be maintained in North American zoos and utilized in educational programs to discuss native bats, ecological/agricultural benefits, and to spread awareness of White-nose syndrome.

* Reference

Arroyo-Cabrales, J. & Álvarez-Castañeda, S.T. 2008. *Macrotus californicus*. The IUCN Red List of Threatened Species. Version 2014.3.

Western Mastiff Bat (*Eumops perotis*)

Geographic Range

- Argentina; Bolivia; Brazil; Colombia; Ecuador; Mexico; Paraguay; Peru; United States (Arizona, California, Nevada, Texas)

Conservation status

- IUCN: LC
USFWS: Not listed
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 60-70g
- Wingspan: 56cm

Survey Results

- Current population: 0
- 5 year projected population: 1

TAG Program Recommendations

- Not recommended

Comments

With no guidelines for the long-term propagation and management of insectivorous species to be maintained in a captive setting, institutions will continue to utilize rehabilitated native bats, such as this species, for their programs. Ideally, an insectivorous species could be managed, bred, and designated as an Animal Program which could be maintained in North American zoos and utilized in educational programs to discuss native bats, ecological/agricultural benefits, and to spread awareness of White-nose syndrome.

* Reference

Barquez, R. & Diaz, M. 2008. *Eumops perotis*. The IUCN Red List of Threatened Species. Version 2014.3.

Lesser Long-nosed bat (*Leptonycteris yerbabuenae*)

Geographic Range

- El Salvador; Guatemala; Honduras; Mexico; United States

Conservation status

- IUCN: VU
USFWS:
CITES:
- Listed as Vulnerable because of a population decline, estimated to be >30% over the last 10 years, inferred from over-exploitation, shrinkage in distribution, and habitat destruction and degradation.*

Size

- Weight: 15-25g
- Wingspan: 25cm

Survey Results

- Current population: 17
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Arroyo-Cabrales, J., Miller, B., Reid, F., Cuarón, A.D. & de Grammont, P.C. 2008. *Leptonycteris yerbabuenae*. The IUCN Red List of Threatened Species. Version 2014.3.



Lesser Spear-nosed bat (*Phyllostomus discolor*)

Geographic Range

- Belize; Brazil; Colombia; Costa Rica; El Salvador; French Guiana; Guatemala; Guyana; Honduras; Mexico; Nicaragua; Panama; Peru; Suriname; Trinidad and Tobago; Venezuela

Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in because of its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 45g
- Wingspan: 42cm

Survey Results

- Current population: 30
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Phyllostomus discolor*. The IUCN Red List of Threatened Species. Version 2014.3.

White-winged Vampire bat

(*Diaemus youngi*)

Geographic Range

- Argentina; Bolivia; Brazil; Colombia; Costa Rica; Ecuador; El Salvador; French Guiana; Guatemala; Guyana; Mexico; Nicaragua; Panama; Paraguay; Peru; Suriname; Trinidad and Tobago; Venezuela

Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern because, although it is seldom recorded, it has a relatively wide distribution, is tolerant of a broad range of habitats, has a presumed large population, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 35-45g
- Wingspan: 32-35cm

Survey Results

- Current population: 1
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Diaemus youngi*. The IUCN Red List of Threatened Species. Version 2014.3.

Great Fruit-eating bat (*Artibeus lituratus*)

Geographic Range

- Argentina; Barbados; Belize; Bolivia; Brazil; Colombia; Costa Rica; Ecuador; El Salvador; Grenada; Guatemala; Honduras; Martinique; Mexico; Nicaragua; Panama; Peru; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago; Venezuela



Conservation status

- IUCN: LC
USFWS:
CITES:
- This species is listed as Least Concern in view of its wide distribution, presumed large population, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*

Size

- Weight: 65g
- Wingspan: 44cm

Survey Results

- Current population: 1
- 5 year projected population: 0

TAG Program Recommendations

- Not recommended

Comments

* Reference

Barquez, R., Perez, S., Miller, B. & Diaz, M. 2008. *Artibeus lituratus*. The IUCN Red List of Threatened Species. Version 2014.3.

Ruwenzori fruit bat (*Rousettus lanosus*)

Geographic Range

- Congo, The Democratic Republic of the; Ethiopia; Kenya; Malawi; Rwanda; South Sudan; Tanzania, United Republic of; Uganda

Conservation status

- IUCN: LC
USFWS:
CITES:
- Listed as Least Concern in view of its wide distribution, presumed large population, it occurs in a number of protected areas, and because the global population is unlikely to be declining fast enough to qualify for listing in a more threatened category.*



Size

- Weight: 103g
- Wingspan: 43-52cm

Survey Results

- Current population: 127
- 5 year projected population: 115

TAG Program Recommendations

- Not recommended. Replace with *Rousettus aegyptiacus*.

Comments

Although this species is abundant in North American zoos, it has never been properly managed and there is a concern for overcrowding and overpopulation by *Rousettus* sp. The TAG recommends that this species be replaced with *Rousettus aegyptiacus* which is currently designated as a Candidate program. It is highly recommended that this species is not housed in mixed sex exhibits with Egyptian fruit bats (*Rousettus aegyptiacus*) as these species will readily hybridize in captivity.

* Reference

Mickleburgh, S., Hutson, A.M., Bergmans, W. & Howell, K. 2008. *Rousettus lanosus*. The IUCN Red List of Threatened Species. Version 2014.3.

Lesser Short-nosed fruit bat (*Cynopterus brachyotis*)

Geographic Range

- Cambodia; China; India (Andhra Pradesh, Bihar, Goa, Karnataka, Maharashtra, Nagaland, Tamil Nadu); Indonesia (Sulawesi, Sumatera); Lao People's Democratic Republic; Malaysia; Myanmar; Singapore; Sri Lanka; Thailand; Timor-Leste; Viet Nam

Conservation status

- IUCN: LC
USFWS:
CITES:
- Listed as Least Concern because, although it is seldom recorded, it has a relatively wide distribution, is tolerant of a broad range of habitats, has a presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.*

Size

- Weight: 35-40g
- Wingspan: 34-38cm

Survey Results

- Current population: 11
- 5 year projected population: 10

TAG Program Recommendations

- Not recommended

Comments

This species is recommended for no further management due to a non-breeding geriatric population. There are no species with which to replace *Cynopterus brachyotis*.

* Reference

Csorba, G., Bumrungsri, S., Francis, C., Bates, P., Gumal, M., Kingston, T., Molur, S. & Srinivasulu, C. 2008. *Cynopterus brachyotis*. The IUCN Red List of Threatened Species. Version 2014.3.



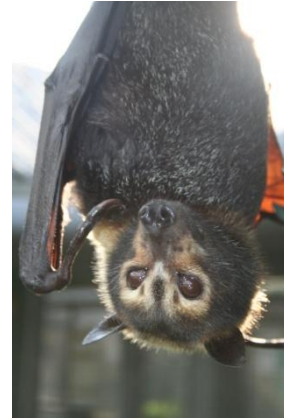
Spectacled flying fox (*Pteropus conspicillatus*)

Geographic Range

- Australia; Indonesia; Papua New Guinea

Conservation status

- IUCN: LC
USFWS:
CITES: Appendix II
- Listed as Least Concern in view of its wide distribution, large population (including very large colonies in many places, including cities), and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category.*



Size

- Weight: 500-1000g
- Wingspan: 1-1.5m

Survey Results

- Current population: 1
- 5 year projected population: 1

TAG Program Recommendations

- Not recommended

Comments

This individual was a donation from a private source. There are no *P. conspicillatus* in AZA facilities outside of this one female and no plans to bring in additional bats.

* References

Helgen, K., Salas, L. & Bonaccorso, F. 2008. *Pteropus conspicillatus*. The IUCN Red List of Threatened Species. Version 2014.3.

Grey-headed flying fox (*Pteropus poliocephalus*)

Geographic Range

- Australia

Conservation status

- IUCN: VU
USFWS:
CITES: Appendix II
- Listed as Vulnerable because of a continuing population decline, estimated to be more than 30% over the last three generations, inferred from direct observations, shrinkage in distribution and loss of overwintering foraging habitat, and probable competition and hybridization with *P. alecto*.*



Size

- Weight: 700-1300g
- Wingspan: 91cm-1.2m

Survey Results

- Current population: 22
- 5 year projected population: 22

TAG Program Recommendations

- Not recommended

Comments

The North American population of this species has never numbered more than 40 individuals at any given time. Based on veterinary recommendations, this species has not bred since 2005. This species is recommended for no further management at this time and no species are listed as replacements. Perhaps in the future this species could be imported as it is the only Australian *Pteropus* sp. to be managed and bred successfully in North American zoos.

* References

Lunney, D., Richards, G. & Dickman, C. 2008. *Pteropus poliocephalus*. The IUCN Red List of Threatened Species. Version 2014.3.

Little Golden-mantled flying fox (*Pteropus pumilus*)

Geographic Range

- Indonesia; Philippines

Conservation status

- IUCN: NT
USFWS:
CITES: Appendix II
- Listed as Near Threatened because populations of *P. pumilus* have undergone declines in the past, although it remains reasonably widely distributed. Populations are predicted to continue to decline due to further habitat destruction and over-hunting at a rate considered to be close to that to qualify the species for inclusion in the Vulnerable category under criteria A2cd+3cd+4cd. This species would benefit from further taxonomic study.*



Size

- Weight: 200-300g
- Wingspan: 70cm

Survey Results

- Current population: 27
- 5 year projected population: 27

TAG Program Recommendations

- Not recommended

Comments

Historically this species bred successfully in North American zoos. Unfortunately, numerous reproductive & parturition issues have occurred since 2004 and the decision was made to no longer breed this species. Females are very prone to obesity and studies have shown that they are intolerant of stress during pregnancy. This species is recommended for no further management at this time and no species are listed as replacements.

* References

Heaney, L., Rosell-Ambal, G., Tabaranza, B., Cariño, A.B., Garcia, H., Pangunlatan, L.M., Ramala, S.P. & Alcalá, E. 2008. *Pteropus pumilus*. The IUCN Red List of Threatened Species. Version 2014.3.

Special Case

Black flying fox (*Pteropus alecto*)

Geographic Range

- Australia; Indonesia; Papua New Guinea

Conservation status

- IUCN: LC
USFWS:
CITES: Appendix II
- Listed as Least Concern in view of its wide distribution, large population, and because it is unlikely to be declining (although hunting is a threat in some regions).*



Size

- Weight: 500-800g
- Wingspan: 1-1.2m

Survey Results

- Current population: 0
- 5 year projected population: 8

TAG Program Recommendations

- Undetermined

Comments

This species is only listed as it reflects an interest from one zoo to import 8 females. The TAG has not recommended importing this species in the past.

* References

Hutson, T., Suyanto, A., Helgen, K., McKenzie, N. & Hall, L. 2008. *Pteropus alecto*. The IUCN Red List of Threatened Species. Version 2014.3.

Marianas flying fox (*Pteropus mariannus*)

Geographic Range

- Japan (Nansei-shoto); Micronesia, Federated States of; Northern Mariana Islands

Conservation status

- IUCN: EN
USFWS: Threatened
CITES: Appendix I
- Listed as Endangered because its extent of occurrence is less than 5,000 km², with all individuals in fewer than five locations (estimated to be three), its distribution is severely fragmented (though there is some movement between islands), and there is continuing decline in: the extent and quality of its habitat (due to humans and to introduced species), and in the number of mature individuals because of illegal hunting (especially after typhoons) and predation by the brown tree snake. Stochastic events are also a potential, direct threat to the species (e.g., typhoons and volcanic eruptions).*



Size

- Weight: 300-550g
- Wingspan: 85cm-1m

Survey Results

- Current population: 0
- 5 year projected population: ?

TAG Program Recommendations

- Special case

Comments

Pteropus mariannus is the only megachiropteran species in the US (protectorate island of Guam), listed as EN by the IUCN and with a USFWS Species Recovery Plan. This species would be an ideal candidate to consider for importation and as an Animal Program due to its link to in-situ conservation, research, education/exhibit value, and potential for an assurance population. However, based on past discussions with range country NGOs, they do not feel that bats should be imported into the US and a captive colony should be initiated in Guam and/or the Northern Marianas Islands. One institution currently holds bats in the area, although the colony has never been properly managed. Perhaps discussions should be initiated between the TAG, USFWS, and local biologists, to determine the best course of action. At the very least, the TAG should resurrect past partnerships with the USFWS and local schools.

* References

Allison, A., Bonaccorso, F., Helgen, K. & James, R. 2008. *Pteropus mariannus*. The IUCN Red List of Threatened Species. Version 2014.3.

Table 8. AZA Institutional Accountability Table

Zoological Institution	Survey Response
Abilene Zoological Gardens	N
Adventure Aquarium	Y
Africam Safari, Mexico	Y
Akron Zoological Park	Y
Alameda Park Zoo	N
Albuquerque Biological Park	Y
Alexandria Zoological Park	N
Aquarium & Rainforest at Moody Gardens Inc.	Y
Aquarium of the Bay	N
Aquarium of the Pacific	Y
Arizona-Sonora Desert Museum	Y
Assiniboine Park Zoo (Winnipeg)	Y
Audubon Aquarium of the Americas	Y
Audubon Zoo	Y
Bergen County Zoological Park	Y
Bermuda Zoo	Y
Binder Park Zoo	Y
Biodome de Montreal	Y
Birch Aquarium at Scripps Inst. of Oceanography	N
Birmingham Zoo	Y
Blank Park Zoo	Y
Bramble Park Zoo	Y
Brandywine Zoo	Y
BREC Baton Rouge Zoo	Y
Brevard Zoo	Y
Bronx Zoo	Y
Brookfield Zoo	Y
Brookgreen Gardens	Y
Buffalo Zoo	Y
Busch Gardens Tampa Bay	Y
Buttonwood Park Zoo	Y
Cabrillo Marine Aquarium	Y
Caldwell Zoo	Y
Calgary Zoo	Y
California Science Center	Y
Cameron Park Zoo	Y
Cape May County Park Zoo	N
Capron Park Zoo	Y
Central Florida Zoo & Botanical Gardens	Y
Central Park Zoo	Y
Chahinkapa Zoo	N
Charles Paddock Zoo	Y
Chattanooga Zoo at Warner Park	N
Chehaw Wild Animal Park	N
Cheyenne Mountain Zoo	Y
Children's Zoo at Celebration Square	Y

Cincinnati Zoo & Botanical Garden	Y
Cleveland Metroparks Zoo	Y
Clyde Peeling's Reptiland	Y
Colorado Wolf & Wildlife Center	N
Columbus Zoo and Aquarium	Y
Como Park Zoo and Conservatory	Y
Connecticut's Beardsley Zoo	Y
Cosley Zoo	Y
CuriOdyssey	Y
Dakota Zoo	N
Dallas World Aquarium	Y
Dallas Zoo	N
David Traylor Zoo of Emporia	Y
Denver Zoo	Y
Detriot Zoo	N
Dickerson Park Zoo	Y
Disney's Animal Kingdom	Y
El Paso Zoo	Y
Ellen Trout Zoo	Y
Elmwood Park Zoo	Y
Erie Zoo	Y
Fort Wayne Children's Zoo	Y
Fort Worth Zoo	Y
Franklin Park Zoo	Y
Fresno Chaffee Zoo	N
Georgia Aquarium	Y
Gladys Porter Zoo	Y
Great Plains Zoo & Delbridge Museum of Natural History	Y
Greensboro Science Center	Y
Greenville Zoo	N
Grizzly & Wolf Discovery Center	Y
Happy Hollow Zoo	Y
Henry Vilas Zoo	Y
Honolulu Zoo	N
Houston Zoo, Inc	Y
Hutchinson Zoo	Y
Indianapolis Zoological Society Inc.	Y
Jackson Zoological Park	Y
Jacksonville Zoo and Gardens	Y
Jenkinson's Aquarium	Y
John Ball Zoological Garden	Y
John G. Shedd Aquarium	N
Kansas City Zoo	N
Knoxville Zoo	Y
Lake Superior Zoo	Y
Lee G. Simmons Conservation Park and Wildlife Safari	N
Lee Richardson Zoo	Y

Lehigh Valley Zoo	Y
Lincoln Children's Zoo	Y
Lincoln Park Zoo	Y
Little Rock Zoo	Y
Living Desert Zoo & Gardens State Park	Y
Los Angeles Zoo and Botanical Gardens	Y
Louisville Zoological Garden	Y
Lubee Bat Conservancy	Y
Maritime Aquarium at Norwalk	Y
Memphis Zoo	Y
Mesker Park Zoo & Botanic Garden	Y
Mill Mountain Zoo	N
Miller Park Zoo	Y
Milwaukee County Zoological Gardens	Y
Minnesota Zoological Garden	Y
Monterey Bay Aquarium	N
Mote Marine Aquarium	N
Museum of Science	N
Mystic Aquarium	Y
Naples Zoo	Y
Nashville Zoo Inc.	Y
National Aquarium in Baltimore	Y
National Aviary	Y
National Mississippi River Museum & Aquarium	Y
New England Aquarium	Y
New York Aquarium	Y
Newport Aquarium	Y
North Carolina Aquarium at Fort Fisher	Y
North Carolina Aquarium at Pine Knoll Shores	N
North Carolina Aquarium on Roanoke Island	Y
North Carolina Zoological Park	Y
Northeastern Wisconsin (NEW) Zoo	Y
Northwest Trek Wildlife Park	Y
Oakland Zoo	Y
Oglebay's Good Zoo	Y
Oklahoma City Zoological Park	Y
Omaha's Henry Doorly Zoo & Aquarium	Y
Oregon Coast Aquarium	Y
Oregon Zoo	Y
Palm Beach Zoo	Y
Peoria Zoo	Y
Philadelphia Zoo	Y
Phoenix Zoo	Y
Pittsburgh Zoo & PPG Aquarium	Y
Point Defiance Zoo & Aquarium	N
Potawatomi Zoo	Y
Potter Park Zoological Gardens, MI	Y
Prospect Park Zoo	N
Pueblo Zoo	Y

Queens Zoo	Y
Racine Zoological Gardens	Y
Red River Zoo	Y
Reid Park Zoo	Y
Ripley's Aquarium of the Smokies	Y
Riverbanks Zoo & Garden	Y
Riverside Discovery Center	Y
Roger Williams Park Zoo	Y
Rolling Hills Wildlife Adventure	Y
Roosevelt Park Zoo	Y
Rosamond Gifford Zoo at Burnet Park	Y
Sacramento Zoo	Y
Safari West Wildlife Preserve	Y
Saint Louis Zoo	Y
Salisbury Zoological Park	N
San Antonio Zoological Society	Y
San Diego Zoo Safari Park	Y
San Francisco Zoological Gardens	Y
Santa Ana Zoo	Y
Santa Barbara Zoo	Y
Scovill Zoo	Y
Seattle Aquarium	Y
Sedgwick County Zoo	Y
Seneca Park Zoo	Y
Sequoia Park Zoo	Y
Six Flags Discovery Kingdom	Y
Smithsonian National Zoological Park	Y
South Carolina Aquarium	Y
Squam Lakes Natural Science Center	Y
St. Augustine Alligator Farm	Y
Staten Island Zoo	Y
Steinhart Aquarium	Y
Sunset Zoological Park	Y
Tampa's Lowry Park Zoo	Y
Tautphaus Park Zoo	N
Tennessee Aquarium	N
Texas State Aquarium	Y
The Boonshoft Museum of Discovery	Y
The Living Desert	Y
The Maryland Zoo in Baltimore	Y
The Wilds	Y
Toledo Zoological Gardens	Y
Topeka Zoo	Y
Tracy Aviary	N
Trevor Zoo	Y
Tulsa Zoo	Y
Turtle Back Zoo	Y
Utah's Hogle Zoo	Y
Vancouver Aquarium Marine Science Centre	Y

Virginia Aquarium & Marine Science Center	Y
Virginia Living Museum	Y
Virginia Zoo	Y
Western North Carolina Nature Center	N
Wildlife Safari	Y
Woodland Park Zoo	Y
Zoo Atlanta	Y
Zoo Boise	Y
Zoo Miami	Y
ZOOAMERICA North American Wildlife Park	Y

Bat TAG Recommendations for Using Live Bats in Educational Programs

Bats are among the most misunderstood animals commonly encountered by people. Education programs are one of the most effective means available to help change public attitudes toward these beneficial animals. The following guidelines have been developed to educate the public while using live, captive bats in educational programs.

1. The Bat TAG recommends that individuals handling bats for educational purposes, including volunteers, be previously immunized against rabies and have an acceptable titer. The audience should also be informed that the presenter has received the recommended pre-exposure rabies immunizations in order to work with wildlife. Bats used in educational programs should have been in captivity at least one year or be the captive-born offspring of bats that have been in captivity for at least one year and should be permanently marked and identifiable. Bats used in education programs should be maintained in separate rooms from rehab animals. The TAG also highly recommends speaking with your institutional veterinarian to discuss immunization for all bats within your zoo.
2. Handlers should wear a glove when holding a bat during a program. No one other than trained handlers should be allowed to touch a bat. This is not a requirement, but a Public Health recommendation. The Bat TAG recommends that handlers follow requirements of local regulatory bodies. The TAG strongly recommends that bats be displayed in a clear box (plastic or Plexiglas) rather than be held in a hand while being carried around a classroom so that the audience can get a close look. This is especially true if the bat is small and difficult to see from a distance of six feet or more.
3. The audience should be told that the bats being used for the presentation are acclimated for presentations and familiar with the presenter. Emphasize that the bats are not tame. Bats in the wild will, like any wild animal, bite in self-defense when handled or frightened.
4. Audiences should be told that while they have nothing to fear from bats feeding in their neighborhoods, bats lying on the ground should never be touched. Not only bats, but ANY wild mammal that can be approached close enough to touch should be avoided. These animals are behaving abnormally, and therefore may be ill.
5. Audience members should be instructed that children should never attempt to touch or handle a bat. Only adults should remove a bat, always while wearing leather gloves or using a container that prevents direct contact with the bat. Preferably, a state wildlife department, local Humane Society, animal control officer, or wildlife rehabilitator should be contacted for help in relocating a bat. Only trained rehabilitators should attempt to "rescue"(hand rear or rehabilitate) a downed bat. See "a bat in my house" under the section, Frequently Asked Questions.
6. It is illegal in most states to keep native wildlife without a permit. Bats are wild animals and should not be kept as pets even though they are sold through pet shops in some parts of the country. Their housing and food requirements alone make them difficult to care for properly in captivity.
7. You can include a story about a child who picked up a bat that appeared to be injured, was bitten and had to receive shots, and the bat had to be destroyed. Then, to reinforce the message, ask the audience what they would have done differently had they been the one to find the bat.
8. Only non-native species or non-releasable native bats should be used in education programs. Non-releasable status is assigned to orphans, captive-born bats and non-suffering permanently injured bats. It is recommended that bats reside in captivity one year or more without any exposure to newly arriving

bats or other potential vectors, such as skunks, raccoons or foxes, before being used in education programs.

9. Using both insectivorous bats along with frugivorous bats is beneficial for demonstrating the diversity of roosting habits, size, color and diet. However, excellent presentations can be given using only one or two of the same bat species. Old World and New World species should not be housed together due to the increased possibility of fatal disease transmission between these groups.

10. Bats should be familiar with the presenters and should have developed a sense of trust before being used for public presentations. Bats that trust their presenters will respond and relax to the sound of their voice during times of stress. Bats that are not accustomed to their presenter will be noticeably frightened during educational programs and should not be used in programs until properly acclimated. Acclimation should include familiarizing the bat(s) with both the display cage (if one is used) and the transport carrier to be used. A normal tone of voice, combined with food rewards should be offered to calm the bat throughout the conditioning/acclimation period.

11. It is preferable that colonial and/or social bat species be accompanied by a familiar roost-mate during the conditioning period and during bat presentations, especially if the bats are to be away from the colony overnight.

12. Never allow any member of the audience to touch the bat. A bat that has been touched by an individual may be subject to euthanasia and testing for rabies by the state health department, regardless of the extent and nature of the exposure or minimal likelihood of the bat being rabies positive.

13. Bats should never be permitted to fly or otherwise be loose during public programs.

Transport Carriers/Display Cages for Program Bats

1. The Bat TAG suggests using a hard-sided display cage or carrying crate, for transporting bats in a vehicle. It is recommended that this carrier be appropriately modified so as to be functional for use with a seat belt. The carrier should be covered on the outside with a properly ventilated cover that provides insulation and a sense of security for the bat. Neither transport carriers nor display cages containing bats should be handled by anyone other than the presenter or a trained assistant. Crevice-dwelling bats may be transported in cloth bags (pillowcases) inside a crate or Styrofoam box or, if being transported indoors, in a rodent carrier with a towel inside for the bat to hang from.

2. Display cages should provide surfaces that allow bats to hang upside down. If a standard Plexiglas animal carrier is used, three sides and the top should have screen attached to provide an adequate surface for the bat to climb and hang. Frame-style display cages without Plexiglas should have a screen or mesh attached to both the outside and the inside of the frame, creating a space between the walls where bats cannot be readily touched from the outside of the cage by curious individuals.

3. Temporary display cages for a "traveling exhibit" used during programs should be clean and enhanced with simulated natural habitat appropriate for the species displayed and in keeping with the wild-animal presentation, state regulations and minimum requirements. Simulated natural habitat may be made of natural or artificial materials and may include fabric, silk foliage, bark, small tree limbs, etc. These materials should be clean, free of odors, sharp edges, dirt or parasites. Simulated habitat should be secured against cage walls. Watch for wire ends in silk foliage. Crevice-dwelling species should be allowed to remain somewhat "hidden" within their simulated habitat, but in a way as to not obscure a view of the bat.

Frequently Asked Questions

1. What do I do if I find a bat in my house? A bat found inside a home should be kept in sight while all doors leading to other parts of the house are closed. Then, windows or doors leading outside should be opened to allow the bat to leave on its own. It is not necessary to turn off the lights in the room. If the bat does not find its way out, or if there are no openings to the outside in the room, the bat should be captured and released outdoors. To do this, watch where the bat goes and let it rest for about 30 minutes. After that period of time, its body temperature will typically drop and it will not be able to fly immediately upon being approached. Approach the bat slowly to avoid frightening it back into flight. Clamp a cardboard box or empty coffee can, etc., over the bat and gently slide a piece of cardboard between the wall/resting spot and the opening to trap the bat inside. ALWAYS WEAR LEATHER WORK GLOVES when trapping the bat. It is advisable that a state wildlife department, reputable pest control company, local Humane Society, animal control officer, or wildlife rehabilitator be contacted for help in relocating a bat.

2. How do I prevent bats from entering my house? Bats that have suddenly appeared in people's living quarters have usually entered through predictable routes: open doors or windows, non-grated chimneys and loose-fitting screen doors. A piece of half-inch mesh hardware cloth over the top of the chimney or a tighter fitting screen door will usually exclude unwanted bat visitors. Young bats are less skilled fliers and will sometimes crawl under doors leading to attics. A draft guard will solve this problem. Bats can also enter through less conspicuous entry points. Any hole more than a half-inch in diameter or any crack of at least a quarter of an inch by a half-inch should be closed, especially those leading to outer walls or an attic. Air intakes may need a screen covering and open spaces around plumbing can be closed by simply stuffing them with steel wool. Even duct tape can be used to exclude bats, because unlike rodents, bats do not chew holes in walls nor do they gnaw electrical insulation.

3. What do I do if I find a bat on the ground? Bats that can be caught, especially those found on the ground, are far more likely to be ill or injured and should never be touched with a bare hand. Children should especially be warned NEVER to pick up a bat. Ideally, only bat rehabilitators should rescue downed bats. If a rehabilitator is not available, contact your local wildlife rescue agency, animal control agency, or Humane Society. If neither agency can help, contact your local zoo. If none of the above can help, proceed per item #1.

4. Don't all bats carry rabies? Like most mammals, bats can contract rabies; however it is a misconception that most bats are rabid. Less than one-half of 1 percent of bats contract rabies, a frequency no higher than seen in many other animals. Like other animals, they usually die quickly from the disease. Unlike dogs and cats, rabid bats seldom become aggressive.

5. What about histoplasmosis? Histoplasmosis is a disease caused by a fungus that prefers soils enriched by bird and bat droppings. Human infection occurs through breathing dust containing contaminated spores. The fungus is occasionally present, but uncommon, in droppings found in hot, dry attics where bats roost and can be common in caves where there are large numbers of bats.

6. Can I attract bats to my neighborhood? Bats are important indicators of a healthy environment. Insectivorous bats are insect-eating machines. Most bats in the United States include mosquitoes in their diet. In lab experiments, it has been proven that bats can catch and eat hundreds of insects in an hour. Bats also eat many other agricultural pests like corn borers, grain and cutworm moths, potato beetles and grasshoppers. One way to invite bats to your yard is by putting up a bat house. Several factors are critical to the success of bat houses, including the daily temperature, the size and shape of internal roosting spaces, roughness of the surfaces to which the bats cling and the distances to drinking and feeding areas. Another roost for a few bats can be provided without a bat house. An 18-inch wide piece of tar paper or

similar material can be wrapped and stapled around a tree trunk so that it is tight at the top and flares out about 2 inches at the bottom. This permits bats to select shady or sunny sides as their temperature needs change over the day and season.

7. Where can I get bat house plans? There are numerous organizations that have design plans and sell houses via their websites. These organizations can also provide a great source of information relating to bats, houses, WNS, conservation, volunteering, and education programs. Please visit these websites for more information:

Lubee Bat Conservancy - www.lubee.org

Bat Conservation International - www.batcon.org

Organization for Bat Conservation - www.batconservation.org

BatsLIVE - www.batslive.pwnet.org

Your local zoo may also have copies of bat house plans.

Bats Recommended for Use in Education Programs

The Bat TAG recommends the following species of bats for use in education programs:

1. Big brown bat (*Eptesicus fuscus*)
2. Evening bat (*Nycticeius humeralis*)
3. Tri-colored bat (*Pipistrellus subflavus*)
4. Silver-haired bat (*Lasiorycteris noctivigans*)
5. Little brown bat (*Myotis lucifugus*)
7. Mexican free-tailed bat (*Tadarida brasiliensis*)
8. Seba's Short-tailed fruit bat (*Carollia perspicillata*)
10. Pallid bats (*Antrozous pallidus*)
12. Egyptian fruit bat (*Rosettus aegyptiacus*)
13. Jamaican fruit bat (*Artibeus jamaicensis*)
14. African Straw-colored fruit bat (*Eidolon helvum*)

Acknowledgements and Sources:

A special thank you to Amanda Lollar for letting us use her "Guidelines For Live Bat Presentations," as the beginning point for these guidelines.

"Guidelines For Live Bat Presentations." Amanda Lollar. In *Rehabilitation and Captive Care of North American Insectivorous Bats*. Amanda Lollar, Barbara French and Patricia Winters

Bats in Captivity. Susan M. Barnard, Wild Ones Animal Library, Springville, CA. 1995.

America's Neighborhood Bats. Merlin Tuttle, University of Texas Press, 198

Bat TAG Recommendations Regarding Bats as Pets

There is an active trade in pet bats in many areas of the U.S, where it is still possible to buy bats in pet stores, from private breeders, online and through animal dealers. Some of these bats have been reported to enter the pet trade through zoological institutions and research facilities that have a surplus of bats. The institutions permitted to hold bats should become responsible for their actions and animal welfare.

The Bat TAG supports the elimination of the trade in pet bats for the following reasons:

- 1) Pet bats pose a risk to public health and safety through communicable illness/ diseases such as rabies, histoplasmosis, Nipah, Hendra, Ebola and Marburg, and injuries sustained during handling and sudden, unpredictable episodes of aggressive behavior;
- 2) Elimination of the trade in pet bats aids enforcement of legislation that prohibits private ownership of those bats as regulated by individual states;
- 3) Pet bats are often maintained in inadequate housing and without consideration for their social and psychological needs;
- 4) There is an adverse impact on wild populations through the smuggling and import of bats which ultimately end up in the pet trade;
- 5) Pet bats are unable to contribute genetically to those conservation programs in which they are needed due to their isolation from the managed population and also in many cases to serious deficits in their social skills related to their rearing and maintenance in isolation from others of their kind.

It is the consensus of AZA's Bat TAG that education about bats and legislation to restrict the trade in bats as pets are likely to be the most effective means of curbing this trade, and the following actions are recommended for AZA institutions to affect an impact:

- 1) Manage zoo collections to control breeding and eliminate the sale, trade or other disposition of zoo bats to individuals or animal dealers known to place bats with private individuals and pet stores;
- 2) Work with the North American Society for Bat Research Board of Directors to develop guidelines for research facilities to provide end of life care or arrangements for the bats to be housed at zoos or sanctuaries once all studies have been completed.
- 3) Recruit educators to develop and produce materials for zoo visitors regarding bat natural history and why they do not make good pets;
- 4) Align with other groups (including regional bat working groups, animal advocacy groups where appropriate, bat rehabilitators, and local municipal and legislative bodies) to influence and enact the legislation needed to restrict the trade in pet bats;
- 5) Investigate existing regulations in place in the U.S. (state by state) relating to privately-owned bats.