

# American Society of Mammalogists

EILEEN A. LACEY, President  
Museum of Vertebrate Zoology  
University of California  
Berkeley, CA 94720-3140  
(510) 642-3567  
Email: ealacey@berkeley.edu

ROBERT S. SIKES, President-Elect  
Department of Biology  
University of Arkansas Little Rock  
Little Rock, AR 72204  
(501) 569-3516  
Email: rssikes@ualr.edu

TOM TOMASI, Vice-President  
Department of Biology  
Missouri State University  
Springfield, MO 65897  
(417) 836-5169  
Email: tomtomasi@missouristate.edu



HAYLEY C. LANIER, Recording Secretary  
Dept. of Zoology and Physiology  
University of Wyoming - Casper  
Casper, WY 82601  
(307) 268-2075  
Email: hlanier@uwyo.edu

MATTHEW E. HOPTON, Secretary-Treasurer  
U. S. Environmental Protection Agency  
Office of Research and Development  
26 W. Martin Luther King Dr., MS 443  
Cincinnati, OH 45268  
(513) 569-7718  
Email: matt.hopton.asm@gmail.com

DOUGLAS A. KELT, Publications Director  
Department of Wildlife, Fish, & Conservation Biology  
University of California  
Davis, CA 95616-5270  
(530) 754-9481  
Email: dakelt@ucdavis.edu

Ameenah Gurib-Fakim, GCSK, CSK, Ph.D.  
President, Republic of Mauritius  
State House  
Le Reduit

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Sir Anerood Jugnauth  
Prime Minister, Republic of Mauritius  
State House  
Le Reduit

RE: Active culling of Mauritian Fruit Bats (*Pteropus niger*)

Dear Dr. Ameenah Gurib-Fakim and Sir Anerood Jugnauth:

The American Society of Mammalogists (ASM) is a non-profit, professional, scientific, and educational Society consisting of nearly 3,000 members representing all 50 states in US as well as 60 other countries worldwide. The ASM was founded in 1919 and is the world's oldest and largest organization devoted to the study of mammals. We strongly support the conservation and responsible use of wild mammals based on current, sound, and accurate scientific knowledge. The Society has a long history of reviewing issues related to mammalian conservation and, as appropriate, adopting positions on issues concerning the conservation and responsible management of mammals and their habitats.

To begin, we would like to commend the Government of Mauritius for its active role in conserving that island's flora and fauna. We note that success stories such as the recovery of the Mauritian kestrel (*Falco punctatus*) would not be possible without a conservation-oriented government that is actively engaged in protecting its nation's biodiversity. Conservation efforts such as this have made Mauritius a leader in the fight against global loss of biodiversity.

Given this record, the ASM was surprised to learn of the Mauritian Government's decision to encourage the killing of nearly 18,000 members of a formerly endangered and now vulnerable species – the Mauritius fruit bat (*Pteropus niger*). The decision to apply lethal control to this endemic Mauritian mammal is of considerable concern for multiple reasons. The island has

already lost 2 of its 3 native species of fruit bats – the extirpated Rodrigues flying fox (*Pteropus rodricensis*) and the extinct Lesser Mascarene flying fox (*Pteropus subniger*). As a result, jeopardizing the last remaining species of *Pteropus* on Mauritius could have dramatic consequences for the island's entire ecosystem. As both a pollinator and seed disperser, the Mauritian fruit bat plays a vital role in maintaining forest diversity on the island, including sustaining 5 endemic species of trees (Nyhagen et al. 2005). Genetic analyses suggest extensive movement of fruit bats across the island, implying that the role of *P. niger* in maintaining forest health is important at a national scale (Larsen et al. 2014). Thus, actions that threaten populations of this species should be approached with extreme caution and should be based on solid scientific evidence – neither of which appears to be the case with regard to the current decision to employ lethal control of Mauritian fruit bats.

The ASM has a long history of monitoring the use of lethal control given strong evidence suggesting that this is not an effective management tactic (e.g., Bergstrom et al. 2014). Based on available information – and in agreement with the international conservation community – we conclude that application of lethal control to *P. niger* represents an inappropriate management strategy for this threatened species and we urge the Mauritian Government to call for the immediate halt of this activity. Specifically, we argue that use of lethal control on populations of *P. niger* on Mauritius is inappropriate for the following reasons:

- 1) The recent change in conservation status of *P. niger* (from endangered to vulnerable) is optimistic and is dependent upon no additional population declines.
- 2) Evidence for fruit crop damage is insufficient to warrant implementation of lethal control.
- 3) The proposed methods of culling are inhumane and place undue risk on the continued survival of *P. niger*.
- 4) Alternative, non-lethal methods have received insufficient consideration, especially with regard to minimizing fruit crop damage and loss via methods such as placing nets over susceptible trees to prevent bat frugivory.

Below, we elaborate on each of these points and why we believe that these concerns must be given further consideration before implementing any control program.

#### Conservation Status of *P. niger*

Although currently listed as Vulnerable by the IUCN, this same organization has noted that the proposed cull would likely lead to a re-listing of the species as Endangered or possibly Critically Endangered. This would represent a substantial step backward for conservation efforts in Mauritius, as *P. niger* was upgraded to Vulnerable in 2013 after having been listed as Endangered in 2008; this recent change in status reflects more appropriate management strategies over the past decade. The current estimate of 90,000 individuals that is being used to justify lethal control is based upon disturbance-based estimation methods that do not reflect best practices for surveying populations of colonial *Pteropus* species such as *P. niger*. Indeed, surveys conducted by the Mauritian Wildlife Foundation provide a quite different estimate of approximately 50,000 individuals currently inhabiting the island. This discrepancy in estimated population sizes suggests that caution must be exercised before implementing any control strategy.

### Insufficient Evidence of Fruit Crop Damage

A recent study conducted in collaboration with Dr. Paul Racey (University of Bristol) and the Mauritian Wildlife Foundation and endorsed by the Mauritian Ministry of Agro-Industry and Food Security found that *P. niger* causes minimal damage to important fruit crops in comparison to physical environmental factors and mismanaged harvesting practices. This study also revealed that estimates of fruit damage reported in the popular media are confounded by other fruit predators, including several invasive mammal species (e.g. *Rattus rattus*). Although damage to commercial fruit crops has been identified as the primary justification for culling *P. niger*, this rationale appears to be unfounded and, indeed, culling efforts may be consuming efforts and resources that would be better targeted toward other activities such as reducing fruit predation by non-native species and improving the efficiency of fruit harvesting strategies.

### Inhumane and Ineffective Control Methods

The intent to (i) allow untrained members of the public to kill bats and (ii) schedule the cull during the breeding season for *P. niger* both raise serious ethical concerns regarding the planned culling program. Indiscriminate killing methods can lead to non-lethal injuries as well as prolonged and painful deaths for these animals. The timing of the cull, which falls in the middle of the breeding season for this species, will result in inhumane deaths of young bats as well as potentially confounding impacts on population sizes. Indeed, the lack of data regarding the reproductive biology of *P. niger* suggests that we do not know how the planned cull may impact the population structure of this species, protection of which is critical, particularly given the specific threats (e.g. stochastic extinction events caused by storms) facing insular populations of mammals. Studies on other *Pteropus* species indicate that low reproductive output and delayed sexual maturity limit population growth and slow response to changes in mortality rates, both of which suggest that *P. niger* may be particularly susceptible to changes in population structure. Further, studies of lethal culling of fruit bats in Australia indicate that the ecology of these species, in particular high rates of dispersal, renders such methods largely ineffective (Roberts et al. 2012). Thus, in addition to generating potentially significant negative demographic consequences, the proposed plan seems unlikely to achieve the intended outcome.

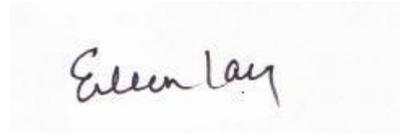
### Lack of Emphasis on Non-lethal Alternatives

Although further research is recommended, current information leads us to conclude that non-lethal control methods such as netting to exclude bats are (i) more humane, (ii) more effective at reducing fruit crop damage by bats, and (iii) pose far less risk to fruit bat populations than lethal control methods. We encourage continued efforts to examine the efficacy of alternative methods to reduce fruit bat-fruit crop conflict in this region. With regard to the current plan to apply lethal control measures to *P. niger*, it appears that potential alternatives are not being considered.

The ASM asserts that culling of any native species – especially those of conservation concern – should be based on quantitative evidence indicating that control measures are required, will be effective, and will not lead to additional conservation concerns. Based upon the concerns outlined above, we are concerned that these conditions have not been met with regard to the planned lethal control of Mauritian fruit bats. We call upon the Mauritian Government to halt the scheduled culling of this species. Mauritius is positioned to play a critical role in global efforts to conserve endemic fauna and thus halting lethal control of the endemic *P. niger* could not be

more important. We encourage the Mauritian Government to heed the concerns of the international conservation community and to put an immediate end to lethal control of the only remaining species of flying fox on Mauritius.

Sincerely,



Eileen A. Lacey, Ph.D.  
President, American Society of Mammalogists

cc: M. Puttoo  
V. Bachraz  
V. Gondeea  
X. Duval  
R. Dayal  
M.K. Seeruttun

#### REFERENCES

BERGSTROM, B.J., L.C. ARIAS, A.D. DAVIDSON, A.W. FERGUSON, L.A. RANDA, AND S.R. SHEFFIELD. 2014. License to kill: reforming federal wildlife control to restore biodiversity and ecosystem function. *Conservation Letters* 7:131-142.

FOX, S., J. LULY, C. MITCHELL, J. MACLEAN, AND D.A. WESTCOTT. 2008. Demographic indications of decline in the spectacled flying fox (*Pteropus conspicillatus*) on the Atherton Tablelands of northern Queensland. *Wildlife Research* 35:417-424.

LARSEN, P.A., C.E. HAYES, M.A. WILKINS, Y. GOMARD, R. SOOKHAREEA, A.D. YODER, AND S.M. GOODMAN. 2014. Population genetics of the Mauritian flying fox, *Pteropus niger*. *Acta Chiropterologica*, 16(2), 293-300.

NYHAGEN, D.F., S.D. TURNBULL, J.M. OLESEN, AND C.G. JONES. 2005. An investigation into the role of the Mauritian flying fox, *Pteropus niger*, in forest regeneration. *Biological Conservation* 122:491-497.

ROBERTS, B.J., C.P. CATTERALL, P. EBY, AND J. KANOWSKI. 2012. Long-distance and frequent movements of the Flying-Fox *Pteropus poliocephalus*: Implications for management. *PLoS ONE* 7:e42532.