A proposal to #SaveMonty
October 2024

The Zoological Society of London
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Recovering the Critically Endangered Mountain chicken in Dominica
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The Zoological Society of London (ZSL)
ZSL is a national institution at the forefront of biodiversity for nearly 200 years. ZSL's two conservation zoos, London and Whipsnade, are world class homes to endangered wildlife that engage the public on addressing the biodiversity crisis we face today. We bring people closer to nature and use our experience to protect wildlife today, while inspiring a lifelong lover of animals into the conservationists of tomorrow.

Climate change and human activity are pushing species to the brink of extinction and many of the natural systems on which we all depend are on the edge of collapse. But there is hope.

ZSL delivers innovative conservation in the UK and around the world, driven by science and supported by our Zoos. Our unique insight and evidence-based approach informs positive change and underpins sustainable solutions that work.

We believe that conservation is most effective when it is driven by science. Through cutting-edge research that shines a light on the causes and effects of biodiversity loss, we deepen understanding and knowledge of our natural world, developing practical routes for wildlife recovery.

ZSL and the amphibian crisis
For more almost 30 years, ZSL has been at the forefront of research on amphibian chytridiomycosis, a disease which has devastated amphibian populations globally.

The global decline of amphibians is one of the most important biodiversity crises facing us today. Amphibian declines have many causes but until the late 20th century, infectious disease had not been identified as a factor. In the mid-1990s, however, an international team of scientists led by Professor Andrew Cunningham, identified a novel infection agent, *Batrachochytrium dendorobatidis* (Bd), a chytrid fungus that produces the amphibian disease chytridiomycosis, and demonstrated that this was a major cause of amphibian mortality and declines on at least two continents.

ZSL scientists have spent three decades working on this disease, including collaborating with researchers from dozens of countries to understand the current status and underlying drivers of the distribution, spread and impacts of Bd. In particular, we have described infection and lethal impacts in dozens of amphibian species across Europe, the Caribbean, South America, Africa and Asia.

Mountain chickens
Once found on at least seven Caribbean islands in the Lesser Antilles, wild populations of the mountain chicken frog (*Leptodactylus fallax*) now remain only on the island of Dominica. Field data indicate that the species was abundant in both Dominica and Montserrat until the 2000s, when the emergence of amphibian chytridiomycosis caused rapid and widespread population crashes on both islands.

In response to this crisis, the Zoological Society of London, in collaboration with key local and international partners who are members of the Mountain Chicken Recovery Programme, launched the Long-Term Recovery Strategy for the Critically Endangered Mountain Chicken in 2014. In 2022, ZSL participated in a workshop in Montserrat that brought together local and international stakeholders to review and update

this conservation strategy. Priority actions identified included a field survey to determine the number of mountain chickens remaining in Dominica.

An unprecedented collaborative effort involving 28 local and international collaborators from 13 organisations conducted this survey in Dominica during 2023. Unfortunately, we detected only 23 mountain chickens across 42 thoroughly surveyed plots, which were widely distributed in the species' two main strongholds on the island. We also identified ongoing threats to mountain chickens in these areas, including chytrid infection, invasive species, and habitat loss. These findings underscore the urgent need for action to prevent the extinction of this species in the wild. In a parallel study, wild mountain chicken frogs from Dominica were found to have genes that appear to confer resistance to the disease chytridiomycosis, sparking hopes that selective breeding of the species in captive facilities might enable the future recovery of the species in the wild.

We propose a 5-year project aimed at initiating the recovery of mountain chickens in situ and ex-situ at London Zoo, with the long-term goal of restoring abundant and widespread populations of the species in both Dominica and Montserrat. Our general objective for this period (2024-2028) is:

> *To establish and maintain a genetically diverse population of mountain chicken frogs with resistance to the fungal disease chytridiomycosis, under human care in wild enclosures in Dominica. This population will serve as a source for selectively breeding frogs, supporting future conservation reintroductions to repopulate both Dominica and Montserrat with this species.*

Our specific objectives for this period are:

1. Conduct widespread monitoring of mountain chickens in Dominica using automated audio recording equipment to detect frog calls, aiming to identify new populations that can serve as a source of genetically diverse individuals for the population kept under human care in wild enclosures. This methodology takes advantage of state-of-the-art technology to robustly survey wild populations will minimising costs and impact to the animals.

2. Establish two wild enclosures in Dominica to maintain and breed a genetically diverse population of frogs with resistance to the fungal disease chytridiomycosis. This will be supported by low-invasive DNA sampling and genomic characterisation to identify resistant individuals that will be selectively bred in the enclosures. The offspring from these animals can then be sent to captive facilities on Montserrat or at London Zoo and partner organisations to introduce the desired genes in the captive breeding population derived from Montserrat, enabling future release into the wild in both Montserrat and Dominica and thus ensuring successful reintroductions in the wild.

3. Continue the management of the breeding population of mountain chicken frogs at London Zoo.

Budget

A summary budget reflecting the key expenditure lines has been included below, for a three-year programme totalling £417,354. As the establishment of the mountain chicken breeding facility on Domenica is a new project for ZSL, we therefore require a minimum of a three-year investment to meet the project outcomes. The cost of the programme of work is higher in Year 1, reflecting the set-up costs for the new activity.

Year 1	**Amount (£)**	**Description**
Staff costs	57,702	New full time technician, new full time local assistant for field research, and analysis delivery by ZSL scientists
Equipment	1,000	Laptop, mobile phone
Travel	3,600	Travel to UK and reciprocal visits to Domenica.
Fieldwork	24,600	Accommodation, subsistence and vehicle
Enclosure design, construction and management	23,400	Materials, labour, live food rearing, leasing
Other expenses and maintenance	16,620	Genetic sampling, utility bills, maintenance and insurance
Ex-situ conservation	15,000	Management of ex-situ breeding at London Zoo
Overhead (15%)	21,290	
Contingency (5%)	8,161	
Total	**171,370**	

Year 2	**Amount (£)**	**Description**
Staff costs	58,053	New full time technician, new full time local assistant for field research, and analysis delivery by ZSL scientists
Travel	6,000	Travel to UK and reciprocal visits to Domenica.
Fieldwork	6,600	Accommodation and subsistence
Enclosure management	4,400	Live food rearing and leasing
Other expenses and maintenance	11,620	Genetic sampling, utility bills, maintenance and insurance
Ex-situ conservation	15,000	Management of ex-situ breeding at London Zoo
Overhead (15%)	15,251	
Contingency (5%)	5,846	
Total	**122,770**	

Year 3	**Amount (£)**	**Description**
Staff costs	58,420	New full time technician, new full time local assistant for field research, and analysis delivery by ZSL scientists
Travel	6,000	Travel to UK and reciprocal visits to Domenica.
Fieldwork	6,600	Accommodation and subsistence
Enclosure management	4,400	Live food rearing and leasing
Other expenses and maintenance	11,620	Genetic sampling, utility bills, maintenance and insurance
Ex-situ conservation	15,000	Management of ex-situ breeding at London Zoo
Overhead (15%)	15,306	
Contingency (5%)	5,867	
Total	**123,213**	

Your support

A three-year investment in ZSL's mountain chicken programme will transform the future of the mountain chicken frog. This project will include the conservation of the ex-situ population at London Zoo and will establish a genetically diverse population with resistance to chytridiomycosis, the deadly fungal disease that is decimating amphibian populations, in Domenica. Your support is vital in securing this species and preventing their extinction. Thank you for your commitment to the conservation of mountain chicken frogs, and we are delighted to share the impact your support will have.

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