

return to SRI LANKA

For decades, civil war isolated this lush tropical paradise from science—now its ready to be explored anew

By DEIRDRE LEOWINATA & VINCENT LUK

Opposite page, clockwise from left:
1 Leschenault's roussette (*Rousettus leschenaultii*) hanging in a tree.
2 Burton Lim and crew at Kumana National Park.
3 Lim and Signe Brinklov collecting.
4 Blood vessels in the wing of a lesser short-nosed fruit bat (*Cynopterus brachyotis*).
5 Lim holding a rufous horseshoe bat (*Rhinolophus rouxii*).
6 Brinklov at Thangamale sanctuary.
7 The Knuckles Mountain Range in Sri Lanka.
8 Lim setting up a harp trap.
9 Vials of silica beads to help preserve the DNA samples collected.
10 #ROMSriLanka team poses for a group photo.
11 Scouting for evidence of bats at Kumana National Park.
12 Taking a wing punch biopsy for DNA study of an Indian pipistrelle (*Pipistrellus coromandra*) from the Kandy region.

Serendipity, the word coined by art historian Horace Walpole in the 18th century meaning “fortunate happenstance” or an aptitude for making desirable discoveries by accident, sums up the feelings and experiences of the ROM’s Sri Lanka expedition to study bat biodiversity. What you may not know about the word serendipity is that it originates from Serendip, an old Arabic name used for the island of Sri Lanka, recorded in use as early as 361 AD.

Just by looking out of the airplane window onto the green hills and valleys of Sri Lanka, you can tell that it’s something special. There’s something about the bright colours painted on the mud-brick houses, and the waving hands and smiling faces of passers-by, that is so genuine it makes you feel at home at once.

The most exciting thing about tropical ecosystems in places like Sri Lanka is the sheer amount of life they harbour. Biodiversity at the equator is incomparable to any other region of the world.

CIVIL WAR

On a hot Sri Lankan summer day you would never know that you were in a country still recovering from a generation of turmoil. Sri Lanka’s civil war was a clash between the Liberation Tigers of Tamil Eelam (more commonly known as the Tamil Tigers) and the largely Sinhalese government. It started in 1983 after a growing separatist movement in the 1970s resulted in a violent anti-Tamil backlash, and lasted for 26 years (until its end in 2009). The human impact was devastating

and the landscape was scarred as government soldiers cleared forests that may have been used for hiding by the Tamil rebels. Biological research in Sri Lanka also suffered during the civil war. The last comprehensive study of the mammalian fauna was published in 1935. Although the fighting meant that parks were less accessible to people, ironically it also created an environment that was less attractive to poachers, allowing for some wildlife to actually flourish.

BRING ON THE BATS

As a country, Sri Lanka is overflowing with attractions, but we were there for a very unique attraction: bats.

Bats don’t have the best reputation. They are most often associated with darkness and disease (or a billionaire-turned-superhero). Contrary to popular belief, bats are not close relatives of rodents, and are quite beneficial to us and the world in general. Their own taxonomic order, *Chiroptera*, was named after the Greek words for “hand” and “wing,” and they are actually closer to shrews than to humans in the tree of life. They help with pollination and seed dispersal, control insect populations, and can be important bioindicators of climate change.

TEAM OF EXPERTS

Our team of *chiropteran* experts was composed of our fearless leader, bat taxonomist and mammal biologist Dr. Burton Lim; world-renowned bat ecologist Dr. Brock Fenton; and echolocation specialist Dr. Signe Brinklov; →





Rufous Horseshoe bat (*Rhinolophous rouxii*), Round-eared Tube-nosed bat (*Murina cyclotis*) and Old World leaf-nosed bat (*Hipposideros speoris*) in flight.

IT MIGHT BE A NEW SPECIES THAT HASN'T BEEN DESCRIBED BEFORE. WE STILL NEED TO DO SOME WORK AND ANALYSIS BEFORE WE CAN SAY FOR SURE EXACTLY WHAT IT IS.

DR. BURTON LIM,
ASSISTANT CURATOR
MAMMALOGY, ROM

and offering support and sage advice was one of Sri Lanka's most eminent environmentalists, Dr. Sarath Kotagama.

There are eight major families of bats in Sri Lanka: *Pteropodidae*, *Vespertilionidae*, *Miniopteridae*, *Molossidae*, *Emballonuridae*, *Megadermatidae*, *Hipposiderodae*, and *Rhinolophidae*. There are 30 known species within these families. During the month we were there, the team caught and identified a total of 16* of those species, including at least one potential discovery that has never been found in Sri Lanka before. Possibly the newest member of Sri Lanka's Pteripodidae family is *Rousettus aegyptiacus*, the Egyptian fruit bat. Originating in Africa, its range was previously thought to extend no further east than Pakistan.



Burton Lim and crew searching for ideal locations for catching bats in the Sinharaja rainforest.

INSIDE THE CAVES

Out of all the exotic places we explored, the caves were by far the most exhilarating, and they were usually a guaranteed place to catch bats. We visited two sites, Nitro Cave in the Knuckles mountain range, and Wavulgalge Cave in the hills of Koslanda. Before you even catch sight of a bat cave, you will know it by the smell. Bats and pinnipeds (seals and walruses) are the only mammals that excrete guano. Birds are the only other animals that produce it, and it's probably a good thing because the smell is overpowering. As we entered the caves, our footprints released clouds of powdery excrement into the air that clogged our senses (even with respirator masks on), and covered each of us in a layer of grey dust. But it's amazing what one can get used to in a short amount of time. Within minutes, the smell was more tolerable, giving us room to appreciate the incredible sights inside.

BATS AND MORE BATS

Inside the bat cave, we found the main chamber and shone our headlamps into the darkness, revealing thousands of yellow gleaming eyes staring right back at us. We were eclipsed by the sound and feeling of beating wings, with the occasional face slap love tap, for the better part of three hours. We were almost overwhelmed by science, literally: The team could not get the bats out of the traps fast enough, to the point where both hands were being used to snatch bats out for a quick species check before releasing them. What we witnessed and experienced in those caves has to be one of the world's most powerful displays of nature. One doesn't normally witness a bat exodus unless one goes looking for it, and for our team of bat experts we did exactly that and were consumed by the majesty of the experience.



Burton Lim and Signe Brinklov identifying and releasing bats caught in a harp trap at Wavulgalge Cave.

EXPLORATION BEYOND THE CAVES

During the expedition, we surveyed a different area every night, so we were never at one location for very long. We traveled through rolling hills to misty cloud forests, humid rainforests, temperate mountains, and arid deserts all with the hope of finding as many different bat species as possible. On the potholed roads winding around the Knuckles mountain range in northern hill country, we passed few other people. When we rounded a corner it suddenly became apparent why the British gave it the name "Knuckles" as we saw the silhouette of what resembled a clenched fist. We then made our way across the flatlands, following rivers filled with people washing clothes and fishing, passing fields of rice and coconut palms. One day we were sweating in the hot and humid rainforest of Sinharaja Forest Reserve; the next we donned our warmest clothes in Nuwara Eliya situated next to Adam's Peak, the highest mountain in the country; and then we were in the famous arid tabletop mountains of ancient Sigiriya. Every day brought something new and unexpected, and we appreciated every moment of it. ■

THE FOLLOWING SPECIES WERE CAUGHT AND IDENTIFIED ON THE #ROMSRILANKA EXPEDITION*

- 1 **INDIAN ROUNDLEAF BAT**
(*Hipposideros lankadiva*)
- 2 **INDIAN PIPISTRELLE**
(*Pipistrellus coromandra*)
- 3 **INDIAN FLYING FOX**
(*Pteropus giganteus*)
- 4 **GREATER SHORT-NOSED FRUIT BAT**
(*Cynopterus sphinx*)
- 5 **ROUND-EARED TUBE-NOSED BAT**
(*Murina cyclotis*)
- 6 **LESSER SHORT-NOSED FRUIT BAT**
(*Cynopterus brachyotis*)
- 7 **RUFIOUS HORSESHOE BAT**
(*Rhinolophus rouxii*)
- 8 **SCHNEIDER'S LEAF-NOSED BAT**
(*Hipposideros speoris*)
- 9 **LESCHENAU'S ROUSETTE**
(*Rousettus leschenaultii*)
- 10 **LEAST PIPISTRELLE**
(*Pipistrellus tenuis*)
- 11 **FULVUS ROUNDLEAF BAT**
(*Hipposideros fulvus*)
- 12 **BLACK-BEARDED TOMB BAT**
(*Taphozous melanopogon*)
- 13 **GREATER FALSE VAMPIRE BAT**
(*Megaderma lyra*)
- 14 **LESSER ASIATIC YELLOW BAT**
(*Scotophilus kuhlii*)
- 15 **EASTERN BENT-WING BAT**
(*Miniopterus fuliginosus*)
- 16 **EGYPTIAN FRUIT BAT**
(*Rousettus aegyptiacus*)

*Between August 23 and September 19, 2015

JOIN US FOR

During our expedition, we engaged followers through Twitter, Facebook, and Instagram with the hashtag #ROMSriLanka and #ROMinthefield. Thank you to everyone who joined us virtually on our expedition! Go to rom.on.ca for videos and additional photos from the expedition.