

CHAPTER 10: Marcelo and his squares

A decent methodology for citizen science that delivers – from Brazil's Atlantic Rainforest in 2006 to the Tien Shan mountains of Kyrgyzstan in 2023



Dr. Marcelo Mazzolli's thing is squares. 2x2 km quadrats to be exact. They are the units along which science progresses. Is an animal present in the quadrat? To find out, you scour the square for signs. Anything will do: A camera trap picture or a sighting are best and most reliable. A scat less so, unless the originator can be identified with certainty by DNA analysis. A track can be even more dubious. Many claim they can identify them with certainty, few actually can. The error margin for many species is huge, with a 50/50 chance to get it wrong. Not good enough if you take your science seriously. And seriously we take it, painstakingly covering and ticking off squares. Which animals are where and why? What are the ecological and conservation conclusions from this? It's serious science and good fun. An expedition team can watch its progress over time and space on a map, tick off, colour in, pin down and compete over squares. How many has group Alpha managed today? How many groups Bravo, Charlie and Delta?

If you know what you are doing, it's not hard to convert laypeople into citizen scientists with a couple of days of intensive training on things such as GPS use, filling in datasheets, navigation, offroad driving, setting and maintaining camera traps, animal ID and more. If you know what you are doing, it's not hard to gather useful data with a team of a dozen enthusiastic people over a week or two. Data that will make a difference by informing management strategies, creating protected areas, helping local people generate income from intact nature, preventing destruction of wilderness and so much more. That's the essence of good citizen science in wildlife conservation. And yet charlatans abound, using and abusing people's enthusiasm and willingness to help with their time and money. Shame on them – the animal cuddling farms tricking people to raise lions destined to be hunted, the "orphanages" with no orphans in them, those who ask (young) people to come to "Africa" to "teach" English. They give volunteering a bad name and they have rightly been called out. Stay away from them (look on page XX how).



Previous page:

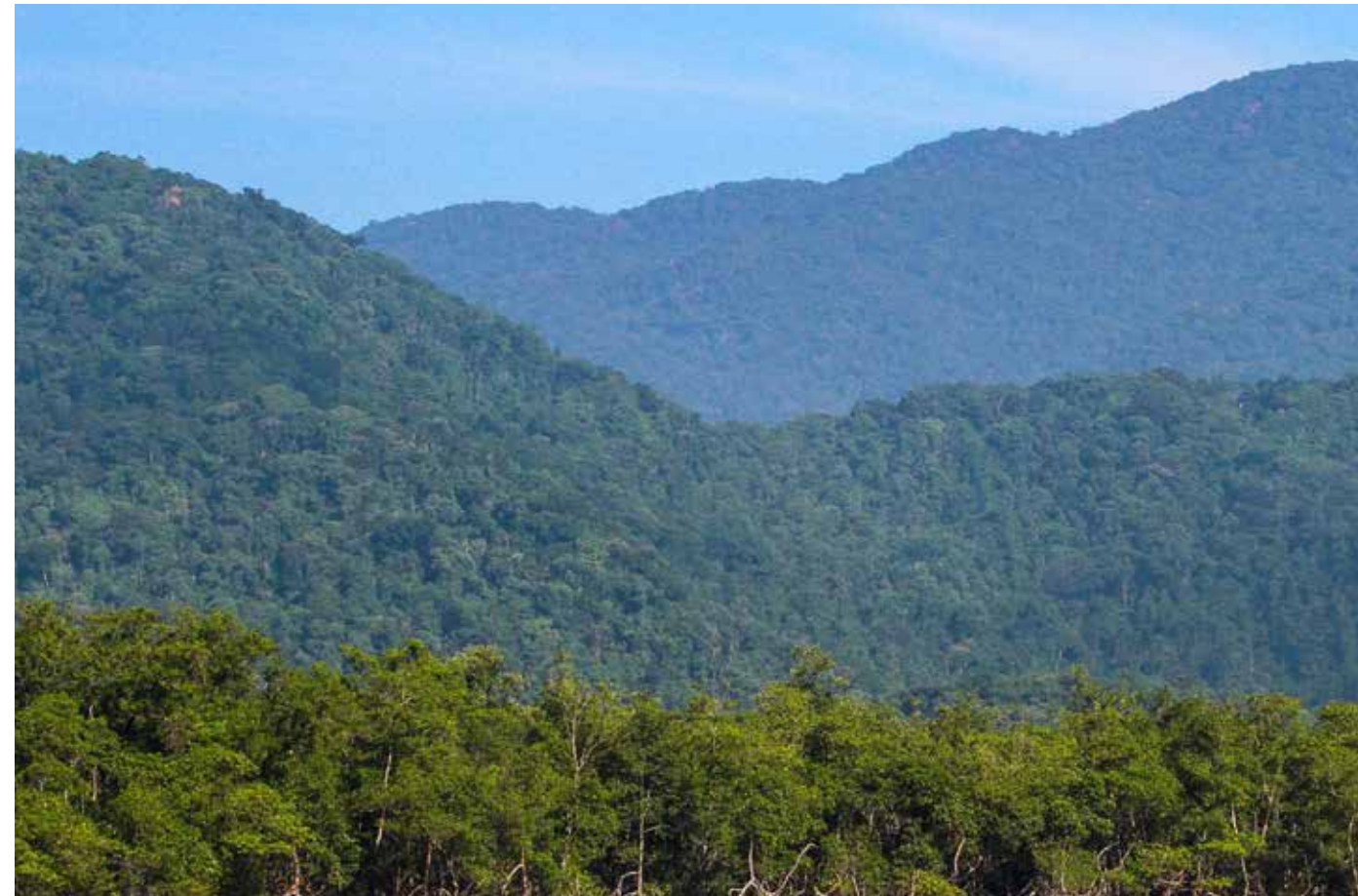
Ticking off quadrats in the hunt for tigers in the jungles of Sumatra.

Opposite page:

Dr. Marcelo Mazzolli setting up a camera trap in his native Brazil's Atlantic Rainforest, 2008.

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Using pins to mark squares covered and species found. Slovakia, 2016.



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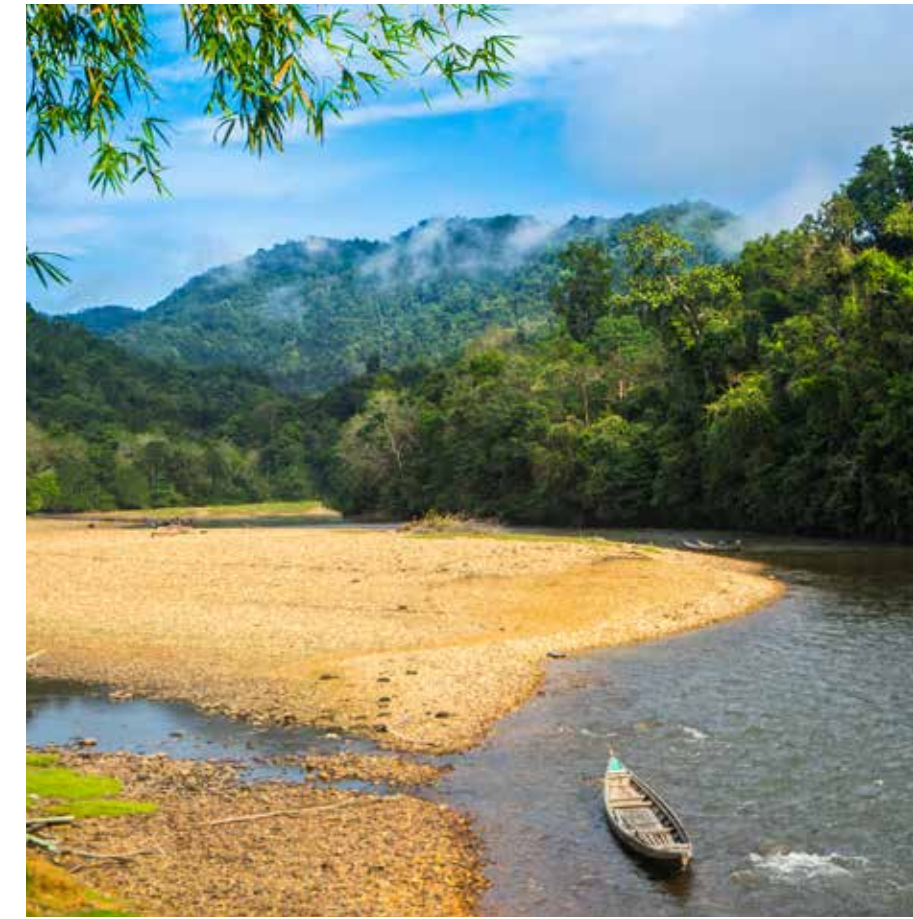
The Atlantic Rainforest of Brazil, although a shadow of its former self, still hosts jaguars, studied by expeditions from 2006 to 2011.

Surveying a wadi in Oman for sign of Arabian leopard.

Opposite page:

The river entrance to Rimbang Baling National Reserve, home of the Sumatran tiger.

Crossing a stream in search of tigers, Sumatra, Indonesia, 2015.



Our square science started with Marcelo introducing us to the methodology in his native Brazil in 2006, on a project to study jaguars in the Atlantic Rainforest. The recommendations that the expeditions from 2006 to 2011 produced for the management and protection of jaguars, were incorporated into national and state-wide jaguar action plans. This is how it can and should work.

Buoyed by this success, Marcelo and I write a manual for other (citizen science) projects to emulate the methodology and we apply it on other expeditions: Slovakia (large carnivores), Oman (Arabia leopard), Sumatra (tiger), as well as the Altai and Tien Shan mountains (snow leopard). The five letters of "apply" belittle what this entails. In Slovakia it sometimes meant battling snow and extreme cold (chapter 9, page XX).

In Oman it was heat, dust, sharp rocks that sliced boot soles, steep, parched hillsides and mountains, but also beautiful vistas over wadis and ancient rock formations. The leopards were there – elusive, hidden, rarely encountered, yet not really appreciated by the government. We banged our heads against that wall for a few years and then realised commerce (e.g. a concrete factory) will always win over conservation (a protected area for the leopard). So we left. You win some, you lose some – in conservation as in life – and sometimes it is important to know when to cut your losses and put your resources elsewhere instead.

In Sumatra (Indonesia) we scoured impossibly steep hills, covered in thick rainforest in Rimbang Baling National Reserve for tigers and their prey. An expeditioner's dream landscape, complete with leeches, river crossings, steaming jungle, strange noises and hidden treasures around each river bend. We found the tigers, hidden and elusive too, and a healthy prey base, far away from human settlements where it always felt like we were the first humans to venture into a wilderness unspoiled by human interference.





And in the great mountain ranges of the Altai and the Tien Shan, where the ghost of the mountain lives, we got what we wanted: a protected area for snow leopards (see chapter 7, page XX), just as Putin's madness made it impossible for us to continue working there. So we moved to Kyrgyzstan, to the Tien Shan mountains, to keep going in snow leopard conservation, and were welcomed with open arms. Another grand landscape, another challenge, another pathless place where ancient petroglyphs tell tales of different landscapes and animals long gone living in the valleys and on the slopes. Where hunters with bows and arrows depicted themselves and their prey eons ago. You find one of those petroglyphs and wonder how many hundreds or thousands of years this has not been looked at with human eyes. And in the here and now, snow leopards survive between the snow and rocks. We catch them on camera traps, but rarely a glimpse in the wild. Ghost of the mountains indeed.



Opposite page:
Squares giving order to pathless mountains in the Tien Shan, 2017.

This page:
Dr. Volodymyr Tytar recording petroglyphs in the Kyrgyz-Alatoo range of the Tien Shan mountains, Kyrgyzstan, 2018.

Ghostly image of a snow leopard caught by an expedition camera trap in the Tien Shan mountains, 2018.

