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Mountain Gold – Conservation in the Chimanimani Mountains, Mozambique

- *Story by Jonathan Timberlake/RBG Kew*

There's gold in the Chimanimani mountains – both real metallic gold and botanical gold. But is the search for one destroying the other? This is the main focus of a CEPF grant under the Eastern Afromontane hotspot investment, to the Royal Botanic Gardens, Kew (UK) and Micaia (a Mozambican NGO), in collaboration with the National Agricultural Research Institute in Mozambique (IIAM). This grant has allowed us to look at the plant endemics and conservation threats arising from artisanal gold mining in the wonderfully scenic Chimanimani mountains.

The Chimanimani mountains are a rugged, if not so high, mountain range forming part of the border between Zimbabwe and Mozambique in south-central Africa. Covering an area of around 1000 km2, mostly in Mozambique, they comprise whitish jagged peaks of ancient white sandstone and quartzite interspersed with broad smooth grassy valleys containing small crystal-clear rivers. On the Zimbabwe side the Chimanimani National Park (176 km2) covers the drier western flanks, while the eastern peaks and forested slopes below constitute the Chimanimani National Reserve in Mozambique (660 km2). Together these form the core of the Chimanimani Trans-Frontier Conservation Area (TFCA), which is almost 2500 km2 in extent.

Artisanal miners panning for gold, northern Chimanimani mountains

In the late 1950s botanists from Zimbabwe such as Rawdon Goodier, Jim Phipps and Hiram Wild set about documenting the flora of the sandstone peaks and upland valleys and started describing a unique flora with many endemics. Today we know there are at least 90 taxa known only from this relatively small area (i.e. true Chimanimani endemics), and an additional 18 near-endemic species that are known only from here and some nearby mountains. However, almost all of this early botanical exploration has been of the smaller Zimbabwe portion, with only some collections from

View over the northern Chimanimani from Mt Nyamadima

adjacent areas in Mozambique. And, surprisingly, there has been rather little plant collecting since the mid-1960s. Does this unique flora, in some ways reminiscent of the fynbos of South Africa's Cape region, extend equally to the slightly wetter eastern side of the Chimanimanis; are there more new species on that side to be discovered and, perhaps most important, what are the threats and conservation issues there?

Flowering orchid (Disa fragrans)

In the mid-2000s, gold was discovered in the alluvial river sands in the upland grasslands, especially along the large broad Mufomodzi valley in Mozambique. Soon there was a mini-gold rush with up to 10,000 small-scale miners, locally called gariemperos and coming from both countries, living in caves and makeshift tents up on the exposed plateau. As the National Parks authorities in Zimbabwe continually harassed them on that side of the border, most operated on the Mozambique side. Large stretches of streambanks and river beds were dug up to the point where it became visible on Google Earth, many of the scarce trees were cut for firewood, and a network of paths ran across the whole area. What effect was this having on the endemics, and were these unique upland habitats being destroyed?

It was to answer these two questions that Kew and Micaia obtained the CEPF grant to visit the Mozambique side of the mountain range. In addition, we would provide training for botanists from both the National Herbarium at IIAM and the National Herbarium in Zimbabwe in field collecting techniques.

Flowering Aloe amongst sandstone boulders

The first expedition was carried out in April 2014 with six botanists from Kew, Meise (the National Herbarium in Belgium), Maputo and Harare walking up from the road-head at Nyabowa and camping out for 14 days, firstly in the area below Mt Peza and then between Mt Binga (the highest point, situated on the international border) and Mt Nyamedimo in the northern section. Amid fantastic scenery, and only the occasional torrential rain-storm, we collected 340 sets of specimens covering around 50 of the known endemics or near-endemics. Dried in the field (despite the rain) using a gas-fired drier, they are now being identified at Kew. There are possibly one or two new species in the collections, but it is clear that many of the recorded endemics are as common in Mozambique as they are on the Zimbabwe side. It also seems that most are confined to the shrubby fynbos-like vegetation amid the sandstone and quartzite boulders; few were recorded from the very extensive valley grasslands. This is significant as it is the grasslands along the streams that have been most heavily impacted upon by small-scale mining activities. Despite the large numbers of gariemperos in the area over the past few years (although the numbers have greatly diminished in the last two or so years, probably as the easily-accessible gold has now gone), it appears that the impact on the endemic plants has been much less than was feared. However, environmental destruction as regards aquatic organisms will have been much greater.

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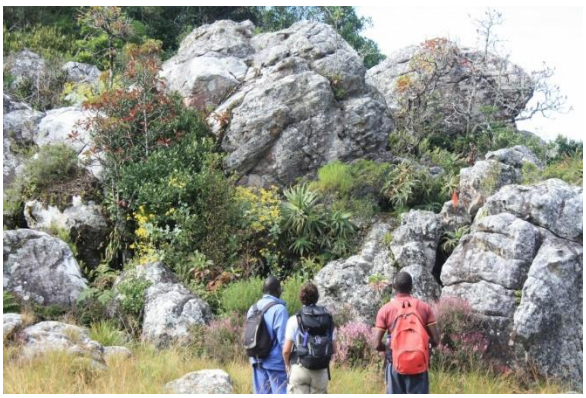
View across the plateau grasslands, with disturbance due to gold panning visible in the background



Sandstone boulders on the Chimanimani plateau, a habitat in which many of the endemics are found

Another expedition is planned for October this year with a similar group of botanists, but this time coming in from the south along the Mufomodzi valley to explore the southern part of the mountain range.

The first expedition was a good example of regional, even international, collaboration, linking NGOs with national institutions. The collections were better than we had expected and may still yield some surprises. Once we have the collections from the second expedition identified, we plan to carry out conservation assessments and get any threatened species listed on the IUCN Red Data List. The good news is that there will be fewer listed than we and others had once feared.

All images by Jonathan Timberlake

The Critical Ecosystem Partnership Fund (CEPF) is a joint initiative of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility, the Government of Japan, the MacArthur Foundation, and the World Bank. A fundamental goal is to ensure civil society is engaged in biodiversity conservation. More information on CEPF can be found at www.cepf.net.

BirdLife International, the International Union for the Conservation of Nature and the Ethiopian Wildlife and Natural History Society form the Regional Implementation Team (RIT) for the Critical Ecosystem Partnership Fund (CEPF) in the Eastern Afromontane Biodiversity Hotspot.