An update on AYOPAYA, Bolivia

John Carr returns to Ayopaya on his quest for some *Sulcorebutia* species which have proved difficult to find over the years since their descriptions

Photos by the author

Since my article in the **Cactus Explorer** 8: 30-36, I have made another visit to the area to further develop my understanding of the plants in the region. I was again accompanied by Johan de Vries and on this occasion we went in late September, as on our previous visit we were too late for the flowers of some species in this area.

We travelled further east than on our previous visit but found no further sites of Sulcorebutia. The road sloped downwards towards the river and the vegetation changed to tropical forest despite being at the same altitude as S. menesesii. We did, however, find a cactus there in the form of Brasilopuntia brasiliensis [Fig.1]. The local farmer [Fig.2] told us that his family ate the fruit when it was ripe.

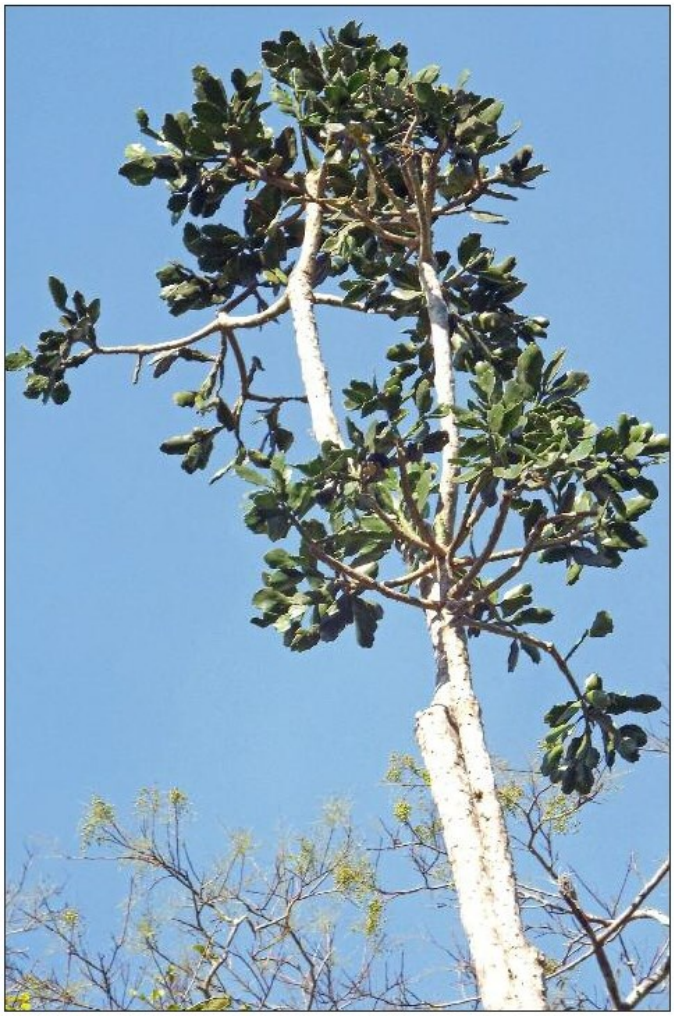

Fig.1 *Brasiliopuntia brasiliensis*

Also seen was a family of Tayra (Eira barbara) [Fig.3] apparently this species is widespead ranging from Mexico to Argentina but it was the first time we had seen it. The locals allegedly encourage these to stay near habitation by feeding them as they keep down the rat population. However, they do not make good pets as the smell can be overpowering! They are often found in threes but little is known about their breeding relationships.

We then returned west to revisit the site of Sulcorebutia glomeriseta discovered on our last visit. This time we were in luck as plants were in flower [Fig.4]. We were surprised however that the flowering season was almost over so the main flowering period must be in late August to early September, quite early for Sulcorebutia. This is probably because the wet season starts earlier in the north and is preceded by weeks of low cloud and limited sun.

Fig.2 The farmer and his family

Fig.3 Tayra, *Eira barbara* at play

Fig.6 Overlooking the site of HJ1289a

Fig.4 *Sulcorebutia glomeriseta* JC 03-12

Fig.7 HJ 1289 (JC 01-13)

Fig.5 Remains of an Inca outpost

Fig.8 *Sulcorebutia menesesii* JC 02 -1

After this location we went on to another previous site where we had seen S. menesesii. We found the population much reduced and when speaking to a local discovered that the site is visited regularly by historians from all over the world as it is close to an Inca settlement [Fig.5] so this, and obvious over grazing, may be the cause of its decline. The local was also able to give the Latin name for the local Parodia (Parodia ayopayana). As the Incas are known to have collected plants and grown them near their settlements it maybe that this is not a natural site for the Sulcorebutia although it is probably the type locality!

Our next site was further west and was first

Fig.9 Site of S. candiae ssp kamiensis JC 06-12 in 2013

Fig.10 *Sulcorebutia* sp. at river level near Kami JC 04-13

found by Hans Jörg Jucker (HJ 1289a). At around 2500m it is a scenic site overlooking a river [Fig.6]. The plants here are somewhat different from other populations in the area with tight slightly curled spines [Fig.7] and it remains to be seen whether another name will be needed for these plants. Further along the road we found a site at a lower altitude and a second site of S. menesesii. The plants here were quite spectacular with spines up to 50mm long [Fig.8]. There were other slopes in the vicinity that also looked promising but access was difficult so we travelled on.

We have developed our travelling arrangements over the years and now spend most nights in the car. We ask our car supplier to remove the rear seats. We then line the floor with cardboard (from the supermarket) and roll out sleeping bags and put all our gear in the front. With the addition of sleeping bags, or blankets in my case as I cannot sleep in a

Fig.11 Power station and polluted river near Kami

tight bag, a reasonable nights sleep can be obtained and we get longer hours in the field each day. An occasional wash in a river and a daily wash of my feet keeps the smell to a mimimum! Altitude is important when selecting a camping spot as the temperature can drop to -5°C at 4000m but may not go below 20°C at 1500m, so 2500m to 3000m is ideal.

We then decided to travel to the western end of the region to take another look at our *Sulcorebutia candiae* ssp. *kamiensis* site from last year. I was somehow not surprised to see that the farmer had ben busy at this site and had effectivly cut the site into two by ploughing the land between two ridges [Fig.9]. Many plants must have been lost from this site and the farmer will no doubt hack a little of the ridges away each coming year until the plants are eradicated. This of course is not a problem if you are a lumper but is disastrous if you are a splitter. Small populations of Sulcorebutia often show distinct differences from adjacent populations so the loss of these often unnamed populations all over the country may well lead to a very different and false picture of the diversity of the genus in the future.

We spent the rest of the day at lower altitudes searching for the plant found by Chris Sherrah and were successful to a limited extent. We saw only 3 of these larger plants on completely inaccessible slopes and cannot be sure of its identity or numbers [Fig.10]. The rivers here are heavily polluted because of mining and refining and the whole area is dotted with small mining operations [Fig.11].

The next day we found further sites of *S. candiae* ssp. *kamiensis*. Here the plants were not the pectinate form found at the first site but more heavily spined plants [Fig.12]. Because of the variability of the plants in this area and its separation from *S. candiae* it would perhaps be better to put all these populations under *S. mushii*, however, I have left them as *S. candiae* ssp. *kamiensis* for the purpose of this article.

The altitude ranged from 3700m to 2500m with plants found at three sites including one cristate plant [Fig.13]. We spent the night near

Fig.12 *S.candiae* ssp *kamiensis* JC 05-13

Fig.13 A cristate plant of *S. candiae* ssp. *kamiensis*

Independencia and it rained most of the night.

The following morning we set off to complete our search in this area but a number of tracks of three point turns led us to get out of the car and examine the next bend despite the continuing rain. The road after the bend was a steep climb with one set of tracks having completed the climb. The tracks, however, showed that the vehicle had come very close to the edge of the cliff and everyone else that morning had turned round rather than attempt the climb. We also decided that It would be foolhardy to go further in the wet and abandoned our attempt to look for *S. candiae* and *S. arenacea* if only to update our photographs to digital. This proved to be the correct decision as the rain continued for the remainder of the day as we returned slowly to Cochabamba.

I guess that means I will have to return one more time to Ayopaya!!!

John Carr

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