



The view from Guanmen Shan.

Berberis in Taiwan

In the early part of the twentieth century Mori Ushinosuke collected two *Berberis* species in Taiwan which were named, by Hayata, *Berberis aristatoserrulata* and *B. brevisepala*, both of which remained known as incomplete herbarium specimens. In April 2014 **JULIAN HARBER** an authority on the genus had the opportunity of joining a young Taiwanese botanist and fellow members of the University Hiking Club on a trek into the mountains, following Mori Ushinosuke's travels, in search of both species.

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The evergreen *Berberis* of Taiwan have either perplexed or confused successive generations of botanists most of whom doubted that such a small island could be host to more than a handful of *Berberis* species.

Some six years ago I was contacted by Kuo-fang Chung of the Taiwan National University who told me that he had obtained funding to fully investigate the evergreen Wallichianae section of Taiwanese *Berberis* and had appointed as his researcher one of his graduate students Yu Chih-Chieh.

Chih-Chieh was the ideal choice for such a project in that he is a leading member of the University's Hiking Club—a longstanding organisation dedicated to long-distance treks in the Taiwan high mountains.

Ever since then I have been in regular email contact with Chih-Chieh as he let me know about his various collections across the island and his struggles to interpret what he found. And in April 2013 he visited us in Foster Clough, in Yorkshire where in the snow he inspected the *Berberis* in our garden.



Mori Ushinosuke who first collected *Berberis aristatoserrulata* and *Berberis brevisejala* in 1910.

Even after five years of study information on two particular Taiwanese *Berberis* species eluded us. These were *Berberis aristatoserrulata* and *Berberis brevisejala*. Both had been collected in April 1910 by the Japanese ethnographer Mori Ushinosuke who had first arrived in Taiwan in 1895 shortly after the island had been ceded to Japan as the result of the first Sino-Japanese war. In furtherance of his studies of the cultures of Taiwan's indigenous peoples Mori made various journeys across the island during the course of which he also collected botanical specimens most of which found their way to the Tokyo herbarium. Two of these specimens based on single specimens were published in 1913 as *B. aristatoserrulata* and *B. brevisejala* by the Japanese botanist

Hayata. The latter species was particularly frustrating in that despite its name indicating it had short sepals the type specimen has neither flowers nor fruit.

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Unfortunately the collection details of these two species given by Hayata were imprecise being limited to "the central mountain range"—a huge area running north-south across much of the country. Eventually Chih-Chieh located Mori's report of his travels. From this he learnt that in April 1910 Mori had crossed the central range via a nineteenth century Qing dynasty trail that led over Guanmen Shan—a remote mountain on the border of Hualien and Nantou counties; this being confirmed by a *Viola* specimen collected by Mori dated April 1910 and specifically stating it was from Guanmen. Importantly Chih-Chieh also established that subsequent to Mori no botanist had ever visited Guanmen.

In late 2013 Chih-Chieh emailed me to say he was intending to visit Guanmen to try to find these two elusive species. I responded by asking whether it would be possible for me to accompany him. He replied saying that would be fine but warning me that it would entail hiking and camping out in a remote area far from any habitation. I then contacted the National Geographical Society who had funded my *Berberis* expedition to China with David Boufford of Harvard in 2013 to ask whether I could use the funding left over from that expedition for this purpose. To my delight they said yes.

I arrived in Taiwan on Thursday 3 April 2014. Once there Chih-Chieh let me know that there would be four other members joining us on the expedition. None of them were botanists but all were experienced members of the University Hiking Club—two men Yang Li-Shing and Yang Su-Hsien



Starting out on their trek in the footsteps of Mori Ushinosuki are (from left to right) Yang Li-Shing, Yang Su-Hsien, Lin Jie-Ting, Julian Harber, Yu Chih-Chieh, Chen Hsueh-Chen.

and two women Chen Hsueh-Chen and Lin Jie-Ting—all in their mid-twenties (i.e. 40 years or so younger than me!).

The following Monday I went with Chih-Chieh to the Interior Ministry (surrounded by riot police deployed as a result of on-going student protests) to register our trek. This was essential for it entitled our party to free rescue should it prove necessary and for that reason if a proposed route is considered too dangerous registering can be refused (an initial proposal to approach Guanmen from the west had already been turned down). The plan was for a seven-day hike.

On the Tuesday Chih-Chieh and I travelled by train down the east coast to the small town of Guangfu where he had booked a hotel for the night. There we met two more of our party, a third arriving in our dormitory-style room long after I had gone to sleep.

At five we were up and back to the station to meet our sixth member and our driver (a member of one of the indigenous minorities who now make up only a miniscule percentage of the Taiwan's population); a cheerful broad-faced man with a substantial people carrier. After a quick breakfast he took us up on a winding narrow concrete road from which we glimpsed a monkey and a wild goat until at around 1400 metres the concrete came to an abrupt end.

At seven o'clock the hike started. This was along what had once been a logging trail built to bring trunks of the huge Taiwan cypress (*Chamaecyparis taiwanensis*) down from the mountains, but had been abandoned once the stocks of these magnificent trees had been exhausted. It was difficult to



The view from first camp in the early morning.

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imagine that 30 years ago this was a trail that had been used by motorised vehicles for it was not only much overgrown but every few hundred metres or so it ceased to exist having been covered by a landslide or washed away by a side stream. We thus had frequent climbs above where the trail once was or (more usually) descents below it. All this was on narrow and usually slippery paths, mostly through dense vegetation.

It was not long after we started that I encountered the biggest hazard of the hike—leeches. I had prudently brought with me some leech-proof socks developed by national park rangers in Thailand. These reached as far as my thighs and were certainly effective for the part of my body they covered. But leeches can climb up your waterproof trousers to your upper body or lurk on branches above your head and drop on top of you; and often did.

This was not however the only hazard there was also Chinese silver grass (*Miscanthus sinensis*) whose sharp leaves can cut your fingers if you grab them in the wrong place when trying to keep your balance.

We began the hike in sunshine, but within a couple of hours we were in mist and I now began to understand what is meant by “warm temperate rain forest”. Essentially it meant that for much of the time in the area we were in, there is a continuous cycle of convectional rainfall that begins with rising clouds in the morning, followed by rain sometime in the afternoon and which lasts until after dark. The clouds then dissipate in time for a clear sunrise the following day.

We hadn’t been going for more than a few hours when much to our surprise at 1576 metres we came across our first *Berberis*. Not only that but the colony



A view of the Qing dynasty trail that Mori Ushinosuke travelled on.

of four plants we found growing amongst the Chinese silver grass were not of any Taiwan species known to us having leaves somewhat like *B. insignis* of the Himalayas. Unfortunately all the plants were without flowers so Chih-Chieh and I are currently at a loss about what (if anything) we can do with this discovery—even with the specimens we made and the photographs we took.

At half-past three the trail came to an end. And having covered 10 kilometres we set up camp for the night. It was here that I really became aware what a remarkable group of people I was with. Within no time (and in pouring rain) our shelter had been erected. This was essentially a plastic tarpaulin open on all four sides and held up by a branch at either end and secured by guy ropes. With a groundsheet covering the whole of the ground underneath it was big enough for the six of us plus our backpacks. Shortly after the shelter was in use and everything stored out of the rain a cup of hot noodle soup was magiced up.

But that was only for starters whilst a proper meal was prepared. And one with four separate dishes including ones with fresh vegetables. A whole different class from what I had been expecting! This was mostly due to our remarkable and unflappable cook Jie-Ting. We ate our supper sitting upright in our sleeping bags. It was completely dark by seven and shortly after with the rain still falling we went to sleep.

At five I woke to find that Hsueh-Chen was already up and preparing a hot drink for us, but also I discovered when we had our breakfast—porridge for me. A complete surprise.

At half-past six we were on our way. And here the hiking skills of my



Above, (left), Author Julian Harber photographing *Berberis aristatoserrulata* (as shown above).

companions really became apparent. For we now had to join the Qing dynasty trail that Mori had travelled on. This was on a ridge some 250 metres steeply above us. Using map (an aerial one which only showed contours) and compass and the partial use of hunters' trails—only marked by sharpened twig ends—we made our way slowly upward through mist and dense wet vegetation for several hours (I didn't time it I was just concentrating on the climb!). Eventually a shout from Su-Hsien who was in the lead indicated he had found it.

Though narrow, running along the top of a ridge and hence not subject to landslides or stream erosion the Qing trail was in much better condition than the much newer logging one. And we hadn't been on it more than a few minutes than at 1973 metres we found a plant of *Berberis aristatoserrulata* growing on the side of the trail. No question about its identification—it looked exactly like the specimen in the Tokyo herbarium that Mori had collected. And like his specimen it was in flower. After our sheer excitement of our discovery we settled down to methodically making notes, taking photographs and making specimens.

As we recommenced our hike we found further examples of the species and took further specimens. The trail then dipped downwards towards a col where we found a hunters' camp complete with a shelter like ours and stocks of food, but no hunters. We then had to climb almost vertically upwards. Soon after this Chih-Chieh announced there was no prospect of us reaching our projected campsite by dark. He put this down to the time we had

*Berberis kawakamii**Berberis brevisepala*

taken botanising, but though he was too polite to say so I think I was slowing down my companions from their normal accelerated pace. In any event it was decided that we would camp early and base ourselves there for two nights. We could then ascend and descend one of Guanmen's peaks without our packs. If we found *B. brevisepala* we could return back to the logging trail. If we didn't we could climb back up Guanmen with packs, camp the other side then move on to a further Guanmen peak.

So we set up camp at 1900 metres near a huge Taiwan cypress that had somehow avoided last century's cull—perhaps because it had a somewhat distorted trunk. The only problem with the site (apart from the mud—which we covered with bracken as per *Scouting for Boys* before putting down our groundsheet) was the lack of running water. But we augmented our own supplies (the rules of the Hiking Club specify hikers should aim to start the day with 3 litres per person) with rainwater—every available container being put out to collect the drips from our shelter with purification tablets being added to the resulting brownish water. The rain however thwarted Li-Shing and Su-Hsien's valiant attempts to light a campfire.

The following day we were once again up before dawn. And in bright sunlight set off on the steep path that led to the first Guanmen peak—some 1000 metres above us. We soon found more *Berberis aristatoserrulata* and also the common *Berberis kawakamii* (plus what looked like natural hybrids between the two). Then as we entered a different vegetation zone dominated by pine and bamboo we found our other quest—*Berberis brevisepala*. Much excitement



The Qing dynasty trail runs along a ridge and is still in remarkably good condition.

again—tempered only by the fact that the various plants we found only had very immature flowers—much too young to dissect—whilst mature flowers were what we were really after.

Chih-Chieh reckoned we were more likely to find these higher up where there was more light. It was at this point that my age and perhaps the altitude began to show and I could see I was going to slow them down. So as four of the party bounded ahead I proceeded at a more leisurely (i.e. fairly fast) pace accompanied by Hsueh-Chen (nicknamed Yeti—Hsueh being the Chinese for snow) where I learnt about her Master’s thesis on the habits of Taiwan’s red flying squirrels. I don’t know how far up we climbed—perhaps to about 2700 metres when we lost the trail. The others were by then too far ahead to respond to our shouts, so after lots of attempts to find the right way, rather than get lost amongst the thick bamboo we decided to go back.

On our way down the others eventually caught up with us. Triumphant—they had reached the top and found an abundant colony of *Berberis brevisepala*—and in flower. We then all descended in the rain back to camp.

Our mission had been accomplished so we could return back the way we had come. And if we started early enough the following day we could be at where we had been dropped by our driver before nightfall. Thus only taking four days instead of the seven we had planned.

After supper we settled down for the night, but Chih-Chieh stayed up until almost midnight processing the day’s specimens so they could be in the best possible condition prior to them being fully dried (using a futon drier) once



Lin Jie-Ting and Chen Hsueh-Chen cooking lunch in the mist on the logging trail.

we had returned to Taipei.

The following day proved to be particularly wet. I found no real problems until we reached the logging trail. Here I worried every time we had to leave the trail, fearful I would slip and break something. But I didn't and the only problem was once again the leeches—seemingly more abundant than ever—and which had to be removed every few hundred metres.

We made very good time—even managing to have an extended lunch break with hot noodles instead of the usual chocolate and biscuits. Via our satellite phone we had contacted our driver and told him we expected to be at the place where he had dropped us previously at about five o'clock. We were early and so was he and so after a wait of 20 minutes or so we were on our way down the mountain—safely out of the rain, but pretty drenched.

Half way down we stopped at an isolated dwelling occupied by forest guardians who were friends of the driver (and also indigenous Taiwanese) and spent an hour drying out around an open fire in their front yard whilst munching cores of roasted bamboo. Our hosts also kindly offered us kaoliangjiu (高粱酒)—a highly potent drink distilled from fermented sorgum—and very good for drowned rats!

By the time we were back in Guangfu it was clear we weren't going to make it to Taipei that night. So we booked ourselves into the same hotel we had started out from, went out for supper and on our return queued up to use the shower.

I don't actually remember my head hitting the pillow that night.