Passiflora

Volume 8, Number 2 Summer 1998

The Official Newsletter of Passiflora Society International

In Search of Jamaican *Passiflora*...

Elma Kay,

Department of Biology, St. Louis University, 3507 Laclede Ave., St. Louis, MO 63103

In search of Jamaican Passiflora*: a worm's eye view of a flower of* P. penduliflora *(photo by Elma Kay)*

In This Issue:

It was my first visit to Jamaica and as I emerged from the aircraft at the Norman Manley Airport in Kingston, it felt good to be greeted by the familiar heat of the afternoon sun. Both the tropical heat and the airport reminded me of my own home—Belize. After clearing customs, one look around the crowded airport was enough for me to spot my friends, Ingrid and Chapman, almost sparkling in their "whites." They are medical students at the University of the West Indies. I soon realized that the voices around me did not sound so unfamiliar. Jamaican *patois* is very similar to Belizean *creole*.

My first stop the following day was a visit to the Herbarium at the Institute of Jamaica, located on East Street in downtown Kingston. Tracy Commock, Director of the Natural History Division at the Institute was most helpful in showing me their specimen collection for *Passiflora*. My interest in endemic Jamaican *Passiflora* was sparked by the fact that this island is the center of distribution for eleven species of *Passifloras* in Killip's subgenera *Murucuja, Pseudomurucuja* and *Astephia,* all in section *Decaloba*. The Jamaican group is comprised of *Passiflora oblongata, P. tacsonioides, P. calcicola, P. perfoliata,* and *P. penduliflora*. I am particularly interested in studying the evolution of vertebrate pollination and reproductive systems in this group for my doctoral dissertation. Tubular, red flowers, except for the Jamaican *P. penduliflora*, characterize these West Indian species. Hummingbirds are probably the legitimate pollinators of these species, again excepting *P. penduliflora*. In fact, up to this point I was unsure as to what might pollinate this green-flowered, non-tubular species. I had heard previous reports that the flower opened in the middle of the day and had no nectar.

After obtaining localities from the herbarium, I was off on my first trip out to the country with Herlitz Davis, a Jamaican working on parrots in the Cockpit Country. I was able to get in touch with him through the Gosse Bird Club, now Bird Life Jamaica. The Cockpit Country is an area of about 446 km^2 covered with sub-

continued on page 12...

The Cockpit Country (photo by Phil Schappert)

Jamaica...*continued from cover*

tropical moist to wet forest. George Proctor has described the Cockpit Country as "steep conical hills, more or less of the same height, of eroded limestone or 'karst', separated by obconic depressions or 'cockpits' that are drained by sinkholes." We entered the Cockpit at the northernmost entrance located in a village called Windsor in the parish of Trelawny. There we spent our first two days at a station called the 'Last Resort', from where we entered the forest.

We set out on our first hike very early on a Sunday morning, wearing the sturdiest boots we owned to face the rocky climb. Within minutes of entering the Windsor to Troy trail we were soaked to our waist with moisture accumulated during the day. *Passiflora oblongata, P. tacsonioides, P. calcicola,* and *P. penduliflora* have all been reported for the Cockpit, so I was unsure as to what I would find that day. We had only hiked about an hour when we spotted the first *Passiflora* in my group, *P. oblongata.* The vine was an old one, some branches stretching five meters or more into the dark canopy, the glands underneath the leaves staring at us like big, round owl eyes. Our 12 mile hike that day was arduous and the afternoon rain drenched us. But we found more individuals of this first species as well as individuals of *P. rubra* and *P. suberosa*. Unfortunately, none of these species were in bloom, though I found some immature fruit on *P. rubra*. It seems that the unusual drought that the island had been experiencing may have affected the flowering phenology of many species.

Foliage of Passiflora calcicola *on limestone (photo by Elma Kay)*

Mid-week saw us traversing the Cockpit Country through an abandoned road leading to the town of Troy, in the southern part of the Cockpit. My delight was immense when I spotted a young plant of *P. calcicola,* the branches and bat-wing-like leaves growing out of an exposed vertical limestone rock face on the side of the road. A black caterpillar with an orange head had been busily chewing on my plant *(subsequently identified as a larva of* Dryas julia *– Eds).* George Proctor described this *P. calcicola* in 1975 and had previously reported this species for only two other localities. In fact, our road trip was on our way to one of those localities, close to a town called Spring Garden. We did not reach Spring Garden area until late afternoon. The minute we saw the exposed vertical limestone rock face on the road, we knew it had to be one of Proctor's localities. Most of the plants in the population were drying out; the more healthy plants were at least 30 feet away from us. Then, Herlitz saw a reddish spot on one of the plants, which we promptly proceeded to identify as a flower. This individual plant seemed to be the biggest and healthiest of the entire population so, of course it was also the highest. Since it was late, we proceeded to our final destination that day, the Crownlands area in the Cockpit. That night at camp I dreamed of how we could get to that *P. calcicola* flower.

We entered a trail in the Crownlands area early that next morning where we spotted a few parrots and found more *P. oblongata*. But we were back in Albert Town, close to Spring Garden by lunchtime. We were enjoying a "rice and peas" lunch in a restaurant overlooking the hills, when Brian Zane, a Peace Corp volunteer working with Southern Trelawny Environmental Agency (STEA) stopped by. I quickly realized that Brian was the rock-climber whom Herlitz had mentioned earlier. I told him about the *P. calcicola* flowering high up on the rock face and he got really excited at the prospect of climbing a new rock. Infused with high spirits and the substances from a "roots" drink (it tastes like chocolate), we set out for the site. First, Brian tried to climb without the

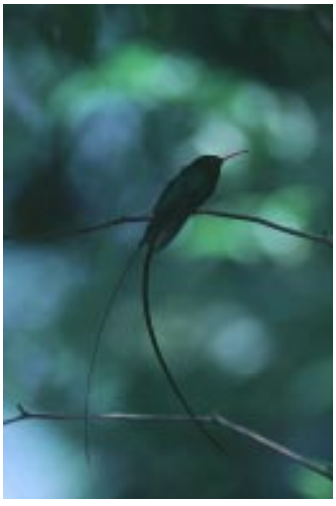
Brian Zane scales a limestone cliff to collect a flowering specimen of P. calcicola *(photo by Elma Kay)*

anchor of ropes. But after climbing about 15 feet he decided the rock was too loose and dangerous. So he tried using the ropes, which were strapped on to Herlitz. By this time a few kids had gathered around the area and one of them, Kev, said there was a way up to the top of the cliff. The "way" was up a gigantic *Clusia* root, to a trail that led to the edge of the cliff. From there Brian tied a rope to a tree and was able to rappel down the side of the cliff to the flowering *P. calcicola*. He cut a specimen for me that had a single intact red-pink flower. The bright-colored corolla of this rare species forms a slight tube at the base. The black corona filaments, which help to hold the nectar at the base, are reduced in size and have orange tips.

After a week in the Cockpit Country, with its warm days and cool nights, I returned to the hustle and bustle of Kingston, riding buses or $50 taxis from Papine to the herbarium until the next opportunity to go out in the field presented itself. The weekend was approaching, so Ingrid, Chapman and I decided to go on a road trip to Manchester, one of the south-central parishes. After escaping the Kingstonian traffic on a Friday afternoon, we headed for Marshall's Pen Estate near Mandeville. The drive was scenic, the mountains always in the distance even when driving through Clarendon, which is considered the flattest parish. We arrived at the beautiful estate, hidden in the outskirts of Mandeville, well after dark. Our hosts, Robert and Anne Sutton, were very helpful in helping me decide which site in the area was most likely to have flowering *P. perfoliata*. They also invited me to look around their 300-acre property, which was once part of an old coffee estate and I spent part of the weekend observing and helping them and Mrs. Audrey Downer (co-author with Robert of the **Birds of Jamaica**), mist net and band birds. The next morning we set out at about 4:30 am as we were driving to Alligator Hole, a site about an hour away in the neighboring parish of Clarendon. Alligator Hole is in the South Coast of Jamaica, an area characterized by xeric scrub. We climbed up some of the hills looking for *P. perfoliata*. Locating the vines was not difficult at all; locating plants in bloom was another matter. It wasn't until about 9 am that we located the first plants in full bloom, close to the Manatee Lookout point by the river. The flowers of this species have a purple-pink corolla and a corona of green, orange-red tipped filaments. I observed a Red-billed Streamertail hummingbird, or 'Doctor Bird' as the locals call it, visiting the flowers. Later, we canoed up the river, past the Manatee Hole in search of more flowering plants. I had previously found individuals of these species in the North Coast, at Discovery Bay, but none had been in bloom.

The visit to Alligator Hole was not my last trip to Clarendon. The Institute of Jamaica owns a field station at a place called Mason River. The protected area encompasses 300 acres of savanna land. Many endemic plants occur in this area including the elusive *P. penduliflora*. This is the green-flowered species that had been reported as opening during the day and having no nectar. During my previous trips I had encountered single individuals of this plant twice, once in the Burnt Hill area in the Cockpit and once at Marshall's Pen Estate. When I saw this plant in the Cockpit the vine had a flowering branch with buds that were hanging down from unusually long peduncles. None of the buds were open and it had been almost midmorning. When I saw it at Marshall's Pen, it was late in the afternoon, about 4:30 pm, and the flowers were just starting to open up and produce nectar. The rest of the story unfolded at Mason River, home to a healthy population of these vines. The first flower in the Mason River population starting opening up at 4 pm. By 5:30 pm, the anthers had popped open to expose cream-colored pollen and the flower was fully open, revealing a re-

Flowers of Passiflora perfoliata *were seen to be visited by hummingbirds (photo by Elma Kay)*



A male 'Doctor Bird', the Red-billed or Western Streamertail, Trochilus polytmus. *(photo by Phil Schappert)*

A buttress-rooted tree in the wet, tropical rainforest of the Cockpit Country (photo by Phil Schappert)

duced corona. The green filaments have swollen orange-yellow tips and hug the androgynophore very tightly, thereby preventing the nectar from leaking out of the flowers that hang upside down. By 6 pm I was able to detect a significant amount of nectar and at 7 pm, having completed a few experimental pollinations, I sat down to wait for the night visitors. I was not disappointed. As soon as darkness descended, the first bats appeared, zooming from one flowering individual to the other in a matter of seconds.

Early the next morning I collected my pollinations and walked around the property, happily nibbling on some coco plum fruits (*Chrysobalanus icaco)* and marvelling at all the beautiful Melastomes (Melastomaceae) in bloom. The entire day was dreary and that cloudy night fewer bats came. I walked up and down the trail watching the flowers. At about 7:30 pm, I happened to glance at a vine with branches hanging about 12 feet above me. My headlight spotted the jewel-like eyes of a moth that was busily feeding on the flowers. Its wings were beating rapidly as it remained at each flower for about 5 seconds. Unlike the bat, it stayed at the same vine until it had visited almost all the open flowers on it. So the question remains: are bats the legitimate pollinators of this species or are moths? I hope to find out when I return to Jamaica. In the meantime, I need to start working on figuring out the ancestry of this group. How is this green-flowered species related to the red bird-pollinated species? I was able to collect seeds from this *P. penduliflora* and these will eventually be available through the P.S.I. seedbank. I also obtained cuttings of all the species I found. These are presently at the Missouri Botanical Garden greehhouses and I'm hoping to use them for my breeding systems studies.

I'm excited at the prospect of returning to Jamaica and collecting *Passiflora* species more extensively. Apart from the beautiful endemics in subgenus *Pseudomurucuja*, Jamaica is also home to two other endemic species, *P. lancifolia* and *P. macfadyenii*. There are many areas I did not get a chance to visit like the John Crow Mountains in the East, the mountains of the West Coast and areas of the Cockpit Country that no-one has explored. Who knows what *Passiflora* species might be found there and what questions they may help answer.

Meeting Report...*continued from page 11*

We are fortunate and privileged to have an efficient and enthusiastic editorial team but their skills are wasted without our contributions.

Living collections

Following discussions in 1996 regarding the formation and maintenance of a P.S.I. living collection somewhere in the tropics, the feeling at the meeting in Florida in 1997 was that this was a "non-starter." Since that time two such collections have been started privately, one by Cor Laurens in French Guyana, where he is building a collection of Guyanan and lowland Amazonian native *Passiflora* species. This, we hope, will be a safe refuge for those species that may be threatened at a later date and are so difficult to cultivate in European or North American greenhouses. Hilaire Annonay is building a more diverse and comprehensive collection on his estate on the island of Martinique which will hopefully include as many species as possible from the lowland tropical forests of northern South America. It was agreed that to have permanently established collections in their native or neighbouring tropical countries was the best way forward and the meeting offered Cor and Hilaire its unanimous support for their projects. Martin Staniforth supported the idea of endemic collections and thought that these may get the support of European botanical gardens, but reminded us of the danger of importing unwanted alien taxa from (*or to! – Eds*.) foreign regions. It was felt that if the Society undertook one or more adventurous projects it would focus and unite members to a cause, and what could be a better cause for us all to support than to investigate and preserve all the known species of *Passiflora,* especially in their native habitat.

On Saturday afternoon the now traditional exchange of cuttings was completed and on Saturday evening we finally got together for an evening meal and the promised pint of real English ale.

(Note: John's address has been changed slightly recently. The correct address is: National Collection of Passiflora, Geenholm Nurseries Limited, Lampley Road, Kingston Seymour, Clevedon, North Somerset, BS21 6XS, U.K. – Eds.)