An Expedition to the Tsitsa, Tina and Mbashe River Gorges

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It was in June 2005 that discovery of a number of populations of Orbea speciosa in southern KwaZulu-Natal prompted a search into the adjoining Transkei region of the Eastern Cape for a sister species, Orbea macloughlinii. Localities from which the latter species are known include the Umtata Falls and the environs of the Tsitsa Falls. The Tsitsa River is a tributary of the Mzimvubu River, the largest in the Transkei region, which exits to the sea at Port St. Johns.

Further south, but north of the better known Kei River, is the poorly botanically explored Mbashe River. The Mbashe (rendered as Bashee by Anglophiles) cuts an enormous and meandering gorge from east of the town of Idutywa to the sea. Prominent convolutions of the gorge are famously known as the Collywobbles, an idiosyncratic name reportedly conferred by a British Army officer stationed there in the later nineteenth century.

A number of taxa have been recently described from the Mbashe Gorge, and it is also home to the largest breeding colony of Cape Vultures, a South African endemic. Approximately 200 of the country's 800 breeding pairs occur here.

So beyond revisiting localities from which Orbea macloughlinii is known, we had our sights firmly set on visiting the Mbashe.

One of the first challenges facing an expedition into the Transkei interior is finding secure overnight accommodation. With the assistance of Elize Cloete we were able to overnight at a homestead at Tsolo, not very far from both the Tsitsa Falls and the Tina Falls which we had also settled on visiting (the Tina is also a tributary of the Mzimvubu River).

A portion of the Mbashe is dammed, and the utility Eskom operates a hydroelectric station nearby. Eskom kindly dusted off disused dormitory accommodation for our use, built for workers prior to construction of the station.

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The Cover Photo:
Crassula cordata, Tsitsa Falls, South Africa.
Photo taken by David Styles

Local Calendar
November 19th, Sunday, 2 pm (Not the last Sunday)
Regular club meeting
Dorrance Hall, Desert Botanical Garden
Guest speaker, Steve Hammer, will give a presentation on Conophytons.

December 10th, Sunday, Noon (Not the last Sunday)
Holiday Party, Elections
Webster Auditorium, Desert Botanical Garden

January 28th, 2007, Sunday, 2 pm
Regular club meeting
Dorrance Hall, Desert Botanical Garden
Guest speaker will be Mark Muradian, topic to be determined.

February 25th, 2007, Sunday, 2 pm
Regular club meeting
Dorrance Hall, Desert Botanical Garden
Tentative guest speaker is Woody Minnick, topic to be determined.

March 25th, 2007, Sunday, 2 pm
Regular club meeting
Dorrance Hall, Desert Botanical Garden
Tentative guest speaker is Jerry Barad topic Stapeliads.

April 20th - 22nd, 2007, Friday - Sunday, 9 am - 5 pm
Annual Show & Sale
Desert Botanical Garden
Dorrance Hall & Boppart Courtyard

May 20th, 2007, Sunday, 2 pm (Not the last Sunday)
Regular club meeting
Dorrance Hall, Desert Botanical Garden
Tentative guest speaker is Tom Van Devender of the Arizona-Sonoran Desert Museum.

June 24th, 2007, Sunday, 2 pm
Regular club meeting
Dorrance Hall, Desert Botanical Garden

July 29th, 2007, Sunday, 2 pm
Regular club meeting
Dorrance Hall, Desert Botanical Garden

August 26th, 2007, Sunday, 2 pm
Regular club meeting
Dorrance Hall, Desert Botanical Garden

Regional Calendar
May 25th - 30th, 2007, Friday - Wednesday, All Day
Cactus & Succulent Society of America's 32nd Biennial Convention
Doubletree Hotel Seattle Airport
Seattle, Washington
For more information, visit www.cssainc.org.

July 5th - 8th, 2007, Thursday - Sunday, All Day
Annual Show & Sale of the Cactus & Succulent Society of America
Huntington Botanical Gardens
Los Angeles, CA

September 1st, 2007, Saturday, All Day
24th Annual Huntington Succulent Symposium
Join the Huntington in celebrating the centennial of the desert garden!
Huntington Botanical Gardens
Los Angeles, CA

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CACSS Board Meeting Minutes for October 26, 2006

Doug Dawson of the Nominating Committee provided a list of candidates for the December election: Doug Dawson for president, Celeste Gornick for vice-president, Julie Plath for secretary with the office of treasurer not yet filled. Running for the Board will be Ingrid Swenson, Leo Martin, Robert Torset, Steve Plath, Dan Sumberg, and Gard Roper. Remaining on the Board for their second year will be Lee Brownson, Cynthia Robinson and Lois Schneberger.

Tom Ballen reported that we now have 284 members. As of October 26, there was $8,918.72 in the checking account with $3,111.04 of that amount in the plant rescue account. Tom reported that we now have the wireless credit card processing machine. He said that after two days of training he finds the process to be "not trivial." He said he would try to have it ready for the Silent Auction. The club's 2006 gift to the DBG was discussed. The Board had okayed an expenditure of $2000 toward the purchase of some two-way radios for the Horticulture Department, however, it has been determined that the DBG was overpaid $1,285.27 due to the cash register problems on the first day of the Show and Sale. Leo Martin has offered to discuss the issue with Ken Schutz.

Leo Martin reported that he has been trying to set up speakers for the coming months. Possible speakers include Steve Hammer, Mark Muradian, Jerry Barad, Woody Minnich, Tom Van Devender and Tim Jackson.

Lee Brownson reported that 340 rescued plants were sold at the DBG's fall sale. No new rescues were set up as of October 26, but he will be working on it. He also reported that there is no news on our non-profit status. Celeste Gornick reported that $198 was made at the Metro Tech event, before expenses, and that it was a fun event. She said that next year we need to have more plants for sale.

Sue Daley

Members who were able to attend Daniel Sumberg's open garden on Saturday, November 4th, enjoyed an afternoon of excellent hospitality and filled with cacti - both literally, and also the main conversational topic of the day. I was happy to see a few token other succulents such as the Alluaudia in the bottom right photo cohabitating happily with all of the cacti. We also got to see many of the barrels from the Verrado rescues which had found their new home in “barrel land" in the corner of Daniel's property (photo to the right).

Open gardens are a great way to get to know your fellow club members and to see the types of plants that the host member enjoys growing. If you are interested in hosting an open garden, contact one of the board members to schedule a date that works best for you!

- Cynthia Robinson

Photos courtesy of Ingrid & Charles
An Expedition to the Tsitsa, Tina and Mbashe River Gorges ...Cont. from page 1

Tsitsa Falls
With these aspects arranged, we had four full days in the field. Our first day was spent near the Tsitsa Falls. The dominant vegetation type hereabouts is valley bush, of which much is severely damaged by overgrazing. Scenery was nonetheless dramatic, and instead of searching for Orbea macloughlinii we were nearly entirely distracted by cliff faces and ravines.

The Eastern Cape is particularly rich in succulent species, and even here at its fringes, there was much for botanists from the north to remark upon. The family Crassulaceae is well represented, the main genera being Crassula and Cotyledon. Some of the Crassula species seen on these faces included C. cordata, C. cultrata, C. intermedia, C. flanaganii, C. lactea, C. planifolia and C. perfoliata var. heterotricha. Both C. arborescens subsp. arborescens and the somewhat similar C. ovata occur. Such a northern distribution for the former is not recorded in literature, and we hope a specimen subsequently collected from the Mbashe and lodged with the KwaZulu-Natal Herbarium will be noted in the revision of Elsa Pooley's tree guide for the KZN and Transkei region.

Cotyledon orbicularis var. flanaganii occurs in the Tsitsa Gorge (which we had also noted en route the day before, along the Umzimvubu River near Thabankulu), together with Gasteria excelsa, another Eastern Cape species near the northern limit of its distribution. Woody Eastern Cape endemics scattered on the krantz edges include Grestia flanaganii and Ozoroa macronota, while in the valley bush the shrub Fluggea verrucosa is abundant. Eirecephalartos altsteinii occurs extensively on sheer dolerite rock faces, where almost always inaccessible to collectors.

By the end of the day Orbea macloughlinii had not been found, but we took some solace in discovery of another Eastern Cape endemic stapeliad, namely Stapelia peglerae. There were certainly many specimens to sort or press that evening.

Tina Falls
The Tina Falls proved to be a disappointment. The area in a broad radius around is a goat-infested wasteland, and while it is not impossible for Orbea macloughlinii to persist in some or other place, we decided to head directly for the falls. The track was appalling. Once there, amidst an otherwise degraded landscape we found one extensive rock face with a more-or-less intact flora, where many hours were spent climbing about. Cuttings were taken of a particularly attractive form of Cotyledon velutina with yellow flowers, and the recently described Adromischus cristatus var. umzimvubuensis (Van Jaarsveld & Van Wyk 2003b), amongst others. We arrived at the Mbashe Hydro Generation Station late that night, where in the darkness abundant white flowers of Bauhinia bowkeri appeared quite ghostly. We were able to rouse Fanie van Schalkwyk, the station's manager based in the area, who ushered us to the dormitory where we fell into an exhausted sleep.

Mbashe Gorge
There is much good habitat in the few kilometers proximate to the hydroelectric station and its dam, and no extensive driving about is necessary on a first-time visit. With only two full days available, the early morning consensus was that in this overall dry gorge system it would be more productive to spend time exploring moister south-facing cliffs and protected ravines, often characterized by dry forest.

The dry forest is not very diverse in its woody constituents. Heywoodia lucens is the overwhelmingly dominant tree, with Commiphora harveyi also common. Acabypha gabrata is the overwhelmingly dominant shrub beneath. The herbaceous layer includes members of the Acanthaceae (such as Justicia capensis and Siphonoglossa leptantha subsp. leptantha), Lamiaceae (Plectranthus spp. including P. fruticosus) and Urticaceae (particularly species of Laportea).

More unusual plants quickly noted in the forest herbaceous layer were Bulbine erectipilosa and Plectranthus aliciae. Two other undescribed but extensively occurring local endemics, earlier reported to us by Ernst van Jaarsveld, included a dry-shade, low-growing Tetradenia with large leaves and tuberous roots, and a Drimia on rock ledges and faces.

The succulent flora on the cliffs is particularly rich. Splashes of red were often seen along them - these being instances of Crassula perfoliata var. minor. The Mbashe Gorge's most famous endemic plant is Aloe reynoldsii, and by late afternoon we had come across this beautiful Aloe on sheer rock faces and ledges. We decided that we could not collect so rare species already in cultivation.
We returned to the dormitory after sunset, to begin again the task of sorting and pressing many specimens.

The next day we made an early descent from a main viewpoint across from the main vulture breeding colony. We soon came across members of the Crassulaceae recently described from Tsolorha - within the same gorge system but many kilometers away (Van Jaarsveld & Van Wyk 2003b). Growing within metres of one another were Cotyledon pendens and Adromischus liebenbergii subsp. orientalis.

Cotyledon pendens, which trails down the rock faces, is a very attractive plant with small, neat, glaucous leaves and the red flowers customary in the genus. The photograph in this article may be the first taken in habitat. It is a wonderful plant for a hanging basket. Adromischus liebenbergii subsp. orientalis is a fairly robust species, and plants seen had strikingly silver-hued leaves. In a pot it will make a fine addition to any succulent collection.

After this we saw many more specimens of Cotyledon pendens, but only a few more of the Adromischus. Other succulents on the rock faces included Bulbine latifolia and the Mbashe Gorge endemic B. thomasiae (Van Jaarsveld & Van Wyk 2003a), many Crassula spp. including C. montana subsp. quadrangularis, Delosperma spp. and a Trichodiadema spp. (both Mesembryanthemaceae), Pelargonium spp. and Senecio spp. Of interest was Haworthia cymbiformis var. setulifera. Eugenia zeyheri is a smaller Eastern Cape endemic tree that forms groves at points along the rocky riverbanks. A ledge within a ravine also gave up Hypoxis membranacea, which has white flowers.

In spite of the glib name dropping up to now, we confess to not being able to give names to many species outside of our more northern experience, which were oftentimes pressed for later identification at the KwaZulu-Natal Herbarium. Some of these will no doubt prove new additions to the herbarium's collection.

The unexplored nature of the Transkei region, particularly in tribal areas back from the coast, is shown by apparent new distribution records (at very least for this quarter degree square) of some large and obvious species. These include Acacia brevispica subsp. dregaeana and Pouzolzia mixta. Schotia afra var. angustifolia (leaves with up to 18 leaflets, each leaflet consistently less than 2 mm broad) is scattered in the vicinity of the hydroelectric station. Small trees with affinity to Cassonia zuluensis were found to be widespread in valley thicket between Tsolo and the Mbashe River, yet field guides presently show only white space for this species south of the KwaZulu-Natal border.

The next morning we began our drive back north. By now we were suffering the effects of long days hiking, late nights working with specimens, and cuts and abrasions of various sorts from the rough terrain. We had seen enough, however, to know that we will make more expeditions into the Transkei region of the Eastern Cape in the months and years to come.

Acknowledgements

Much thanks is expressed to the Durban Botanic Garden Trust for financial support given to this expedition.

The following persons are also thanked for advice or other support which contributed to the success of the expedition: Elize Cloete for assistance organizing accommodation at Tsolo and botanical advice; Vaughan Holmes and Eskom officials Colin Buckle and Fanie van Schalkwyk for assisting with accommodation near the Mbashe Hydro Generation Station; Darrel Plowes for advice on localities for Eastern Cape stapeliads; and finally Ernst van Jaarsveld for unstintingly providing information on plants occurring in the Mbashe Gorge and beyond.

References and further reading


David Styles is the Editor of PlantLife.

Chris Dallzell is the Curator of the Durban Botanic Garden.

Andrew Hankey is a Specialist Horticulturalist at the Walter Sisulu National Botanic Garden in Johannesburg.
Bud Marking vs. Cross Banding in Agaves  

Jim Elliott

Bud marking (or "imprinting") in agaves occurs when the new (lower) leaf of an agave is pressed so tightly to the older leaf before they separate that the pattern of the teeth and/or edges of each leaf is imprinted or marked on the surface of the adjacent leaf. This trait appears in most agaves to some extent but probably reaches its apex in Agave colonata in the blue gray agaves and the delightful white lines on the entire spectrum of Queen Victoria agaves. I have never read that the white lines of the Agave victoriae-reginae complex are bud marking but if you look carefully at your own agave collection I think you will come to that conclusion as I have. How it causes a white line on a green leaf instead of just an indent as it does on the blue-gray family is beyond me. Better minds than mine will have to answer that for you. I am first and foremost just an observer of the plants I love to grow and never have wished to become a botanist. I was bored by plant parts in biology and though the knowledge would be extremely useful now that I am a nurseryman, it still bores me. But bud marking and cross banding excite me as they are so central to the appearance of agaves. Guess I will just always be a Shallow Hal with a concentration on looks.

On to cross banding. That has been much more of a challenge to me as a grower and collector of agaves. "Cross banding," as I am using the term, is when a definite color change goes straight across the leaf of an agave. It may be close to the tip or at mid-leaf or way at the bottom close to the plant's core. How did it get there? And more importantly to the mercenary side of me, how can I cause it to happen? As with so many questions I have about agaves, I stretch my mind to figure it out and then stretch my arm to reach the phone. Hello, Gard Roper, please. Gard how is it that I can produce such beautiful bud marking on many agaves and can't produce cross banding on any? Even Agave zebra! The plant is named for the cross banding and I have several clones, including Gard's "Best in Show." If I were a zoologist instead of a nurseryman, we would have solid white zebras. Why?

Gard then admits: "I don't have it either on my propagated agaves." We proceed from there and I offer that I often find really nice cross banding on agaves from landscapes that are being redone or from private collections where the caregiver has passed away or moved out of the area. Little did I realize that those orphaned plants were telling me how cross banding is done. Gard is of the opinion that the cross banding is the product of alternating seasons of wet and dry. Bingo! Eureka! and Like, Oh My God! That's it! His theory fits all of my own observations over 30 years of growing experience.

Where the plants have a wet season followed by a long period of drought it would figure that the uptake of water and minerals would force an initial bloom of rapid growth. This would account for the relatively light colored section of the leaf as the minerals that create color would be fairly widely spaced (fewer pixels for the digitally conscious). As the availability of water/minerals lessened this growth surge would taper off and the pixels would become more concentrated thus deepening the color band. With the end of the wet season the growth would stop altogether as the agave goes dormant and awaits the next wet season. This dormancy creates a definite band directly across the leaf, the elusive cross banding.

This alternating dormant and growth pattern never happens at Arizona Cactus Sales. We are pushing our plants year round to shorten the lead times to optimal market sizes. In private collections in the Valley most agaves are kept outdoors and our winter rains perform the same function of eliminating a totally dormant period. Only in those very dry years would cross banding occur here naturally. Unless we are willing to stretch an already lengthy preparation period for our products (agaves, in this case) we will never create a zebra with stripes. In short, bud marking is fairly universal across the agave genus, predictable and repeatable. Cross banding on the other hand is not an inherent trait but is brought on by alternating wet/dry seasons.

Continued on page 7...

Detail of "bud marking" on Agave colonata.

Photo taken by the editor.
Cross Banding ...Continued from Page 6

This theory fits my needs and logically answers my questions of how it happens. I have been wrong many times before and will be again but it never will keep me from sharing these thoughts. If you have another explanation please write it up and submit it to our editor so we can grow in knowledge through the club’s newsletter. Call me at 480-732-0307 if you have other theories or examples.

P.S. If you wonder why some nurserymen run for the exit whenever someone announces that they are a “collector,” I will relate my most recent experience. I received an e-mail from an East Coast agave collector who has been looking for cross banding for many years, especially on Agave zebra and Agave colorata. I have had several inquiries from this person over the years and all ended with 'No Sale'. After much back and forth, it always comes down to him wanting a much smaller specimen with mature characteristics and incidentally, a reduced cost. This time I wrote essentially the same article to him and suggested that he already has many agaves that might show cross banding if he would subject them to a boom and bust sequence. He replied: "Thanks for the information. Do you have any Agave zebra with good cross banding? Would I send a list of all my agaves with sizes, cross banding tendencies, shipping costs, etc?"

No good deed goes unpunished.

CACSS News & Updates

What Do You Want to Hear?

January’s speaker will be Mark Muradian of California. Mark is a farmer in the Central Valley of California.

Mark spoke at the 2005 CSSA Convention in Scottsdale. He was one of the highest-rated speakers among Convention attendees. He is also a ceramic artist, and he sold his plant containers at the Convention. He will be bringing some of his works here, as well.

At the Convention, he gave one talk on his trip to Socotra—in costume, with Yemeni music in the background. He showed not only the plants, but also the island’s people and how they live. Mark’s other Convention talk was on building his cactus garden with earthmoving equipment. Mark has a big cactus garden!

He has also been to Chile, photographing Copiapoa, one of his favorite cactus genera. He will travel in November 2006 to Bolivia and Argentina.

Mark asked me what you wanted to hear; I told him I’d ask you. He is not certain he would have enough time to get the Bolivian pictures sorted in time for January. So, please let me know: Socotra, Earthmoving Equipment, or Copiapoa. My contact information can be found in the list of club officers.

Leo A. Martin

Elections are just around the corner!

The nominating committee has compiled a list of candidates for the following offices:

President: Doug Dawson
Vice-President: Celeste Gornick
Secretary: Julie Plath
Treasurer: Open

Board of Directors:
Leo Martin
Steve Plath
Gard Roper
Daniel Sumberg
Ingrid Swenson
Robert Torrest

The office of Treasurer is still open; if you are interested in running for this or any other position, nominations will be accepted from the floor at the Holiday party, December 10th. Members must be present to vote.

Central Arizona Cactus and Succulent Society

JO DAVIS

Interested in one of the name badges you see other members wearing? You can have one of your very own! Talk to Jo Davis at the meeting or send her a check for $7.50, made out to “Jo Davis,” to her home address:

2714 W. Monte Ave.
Mesa, AZ 85202
Plant Questions???

Many CACSS members have experience with different kinds of succulent plants. I hope they will add their names to the following list (just call or e-mail Bob Torrest). For now, the list is simply alphabetical with principle interests. When more members add their information, the list will be cross-referenced by topic.

DOUG DAWSON
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Specialization includes Flora of Namibia, Growing from Seed, Lithops, other Mesembs & Melocactus.

MIKE GALLAGHER
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Specialization includes Aloe, Haworthias, Columnar Cacti & Turbinicarpus.

STEVE PLATH
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Specialization includes Ariocarpus, Astrophytum, Cyphostemma, Echinocereus, Fouquieria, Thelocactus, General Propagation & Desert Revegetation.

CYNTHIA ROBINSON
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Specialization includes Flora of Madagascar, Growing from Seed, Caudiciform & Pachycaul Succulents, Aloe, Apocynaceae, Burseraceae, Euphorbiaceae, Fouquieriaceae, & Succulent Bonsai.

BOB TORREST
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Specialization includes Desert Landscaping, Unusual (including Rare Fruit) Trees & Shrubs, Aloe, Agaves, Columnar Cacti, Trichocereus & Opuntia.