



The Arizona Orchidist

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NEXT OSA MEETING

The next regular society meeting will be

Monday, January 6th at 7:00 P.M.

Meetings are held at the
Training Center
at the

Arizona State Veteran Home
4141 S. Herrera Way, Phoenix.
(Formerly North 3rd Street)

OSA meetings are open to all
plant enthusiasts

Refreshments will be provided by
OSA Board Members

Refreshment Coordinators:

Barbara Parnell (602) 451-5952

Lou Ann Remeikis (602) 803-6889

Jo Anne Waddoups 480-654-9883

Board Meeting
Sunday, January 19th 1PM
at the home of
Barbara Parnell

Grower on Call
Richard Holle
480-202-6923
richard@aerology.com

JANUARY PROGRAM

Cold Weather and Its Effect on Orchids

With our wild temperature swings in a short period of time, even those of us growing orchids in greenhouses have noticed that our plants are "confused". Some plants have bloomed earlier than usual; others bloomed later and faded faster than usual. All members are asked to share their experiences and bring any of their plants about which they have questions, to this meeting.

COMMUNITY SERVICE SCHEDULE

Wilella Stimmell

In early fall, we were invited by the Desert Botanical Garden's Landscape and Gardening Education Coordinator to present an Orchids 101 program in 2014. Of the dates we were offered, we chose January 16. So the first program in the new year is scheduled for **January 16th** at 6:30 PM at the **Desert Botanical Garden**. **Julie Rathbun, Lou Ann Remeikis**, and I will be presenting the program and answering questions. Due to increased security for the Chihuly in the Garden exhibit, the Adult Education Department required an Instructor Photo ID for each instructor, so we will each have a badge.

If anyone is interested in a preview of the Chihuly glass sculptures that are on display, search online for: Chihuly in the Garden.

Our "history" with the DBG dates back to 1990. In 24 years, only the DBG personnel has changed.

NEW MEMBER

Gary Cauble

Seek him out, introduce yourself and make him welcome !

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From the President's Desk

Julie Rathbun

I hope that everyone had a Merry Christmas and a safe New Year celebration. Also, I hope that the new year brings health and happiness to everyone!

This is the start of my 9th year as your President. As long as OSA's board members and non-board members continue to volunteer to help where and when they can, I am willing to serve as President. Even with lots of help from our members, my job is a labor of love and...a lot of physical work!

The weather on December 2 couldn't have been better for our annual fund-raiser, and attendance was excellent, but with two noticeable absences: Lou Ann Remeikis was in a hospital and scheduled for leg surgery the next day (she's recovering at home); Jo Anne Waddoups had a stroke in November but is now home and continuing her rehab with the help of her husband, Ray. Others who were unable to attend our annual auction missed out on purchasing beautiful orchid plants in bud and/or bloom at bargain prices! Thanks to **Karen Barber**, **Randy Ricardi**, and **Wilella Stimmell** for donating plants for our live auction. The donated plants were in addition to the plants that OSA purchased for this event.

Due to circumstances beyond our control, it was necessary for us to call on another duo for our live auction. Thanks to **Joe Bacik** for volunteering to help Wilella Stimmell. This was the first time in years that Aaron Hicks was not available to serve as our auctioneer.

On the silent auction, there were plants donated by **six** vendors. In this newsletter, four vendors are acknowledged for their generosity; two vendors did not wish to be listed by name, but we certainly appreciated their donations. Several of our members also donated items for the silent auction table. We appreciate their generosity. We always have fun at our auction, and this auction was no exception. **Thanks to coordinated teamwork, our fundraiser (both live and silent auctions) was a financial success.**

Thanks to everyone who brought food for the expanded refreshment table. We had a large variety of delicious food from which to choose. And finally, thanks to all members and vendors who generously donated items for our annual fund-raiser.

In case you want to know who won the lap top quilt that was made and donated by Jo Anne Waddoups, OSA member, Karen Barber won it.

Our January board meeting will be held on **January 19th** at 1 PM at the home of Barbara Parnell.

OSA board meetings are open to all members, and all members are welcome. If you are not a board member but want to know more about the business of successfully operating a 501 (c) (3) non-profit organization, feel free to attend one or more board meetings. Please notify the host or hostess that you plan to attend a meeting. Since food is always a part of any OSA meeting, the host/hostess needs to know how many people expect to attend. Also, non-board members are welcome to volunteer their homes as a meeting location for a board meeting.

I am keeping my President's message short in order to accommodate Gustavo Romero's report on his latest orchid expedition in Venezuela.

See you on January 6!

Julie

Donations from Commercial Vendors

(listed in alphabetical order)

GUBLER ORCHIDS

2200 BELFIELD BLVD.
LANDERS, CA 92285
www.gublers.com

JEWELL ORCHIDS

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COLBERT, GA 30628
www.jewellorchids.com

LUCKY GIRL ORCHIDS

19332N. ELLA RD.
RATHDRUM, ID
laimaswan@roadrunner.com

SEATTLE ORCHIDS

928 NW 49TH ST.
SEATTLE, WA 98107
www.seattleorchid.com

Whenever possible, please support these generous vendors!

Membership Renewal Time

Attached to this issue is a membership renewal form. OSA's calendar year ends on December 31st.

At your earliest convenience, please complete all areas of the form and return it with your 2014 membership dues to the Treasurer's address that is listed on the form, or bring your completed form with cash or check to our December or January meeting.

Please do not pay your dues without completing your renewal form!

If you didn't receive a renewal form, contact our newsletter Editor, Keith Mead, at orchidsinabq@gmail.com

W. Stimmell



Pantone announced it's color of the year for 2014 and it's called Radiant Orchid!

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Direct Inquiries to our website at:

www.orchidsocietyaz.org

Or to any of the Board Officers or Trustees:

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The Orchid Society of Arizona, Inc. is a non-profit 501 (C) (3) organization dedicated to community service and the study of orchids. It is affiliated with the American Orchid Society, the Arizona Federation of Garden Clubs, Inc. , and The Nature Conservancy.

The July-August 2013 Pimichín Expedition

I have the pleasure to report that we had another productive expedition to the Venezuelan state of Amazonas.¹ This time we explored orchid habitats along caño *Pimichín*, a small tributary of the *Guainía* River that, after joining the *Casiquiare* some 60 miles down river, becomes the *Río Negro*, one of the largest tributaries of the Amazon River.

To remind readers, the goal of our project, financed in part by the ORCHID SOCIETY OF ARIZONA, is to document all "Orchidaceae of the Autonomous Municipality of Maroa", one of seven municipalities that constitute the Amazonas state of Venezuela (for a description of the overall project, see *The Arizona Orchidist* 42, 5: 4–7, May 2006).

The primary goal of this particular expedition, however, was to reach the Orinoco river basin via the Pimichín, by boat, which my guides claimed could be accomplished when rivers are at their maximum water level. Unfortunately, we were unable to complete this goal because the river levels were lower than expected in July-August 2013. Nonetheless, we encountered almost a hundred species of Orchidaceae, including a new species and two new reports for the orchid flora of the study area. Most orchids in flower were photographed, and herbarium specimens were prepared for species that we had not previously preserved.

As in our 2011 expedition (see *The Arizona Orchidist* 50, 1: 4–9, January 2012), we were accompanied by Dr. Justa M. Fernández, an accomplished ichthyologist, who collected 1459 specimens of fish belonging to six orders, 23 families, 51 genera, and 71 species. The Piranha group was the most diverse group in this collection (more on the fish collected later).

On July 17, I left Boston and arrived in Caracas where I conducted necessary banking for the trip, visited the National Herbarium, the Ministry of the Environment, and visited with family and friends. On July 21, I arrived in *Puerto Ayacucho*.

Venezuela was more chaotic than usual, and my trip to Puerto Ayacucho illustrates the chaos. My flight was scheduled to leave at 2:00 PM. The airport, located near the town of Maiquetía at sea level, is some 18 miles from Caracas, which is in a mountainous valley at about 3000 ft elevation. This time, the normal half hour trip took nearly two hours. Just as I arrived at the airport, the electricity went out. There was enough power for emergency lights, but not enough for the airline terminals or the air cooling system at the airport building. I eventually was issued a boarding pass and got through airport security, but my flight then was delayed until 3:15 PM. We boarded what appeared to be a brand new Embraer 190, an extremely comfortable plane, which took off at exactly 3:25 PM. My excitement to get to Puerto Ayacucho was cut short when quickly thereafter a stewardess announced that the plane had a problem and that we had to go back to the airport. We boarded another Embraer 190 at 4:30 PM, and got to Puerto Ayacucho one hour later. Oh well, my cargo and I did get to Amazonas more or less on schedule!

On July 22, I contacted the air service that would fly us to Maroa,² visited the local herbarium, and purchased miscellaneous supplies.³ While at the local herbarium, delivering labels for my September 2011 and January 2013 collections, a member of the staff, Heber Henao, showed me photographs of an orchid (taken with a cell phone) that he had seen a few days before. It looked like a small species of *Cleistes* Rich., close to *C. tenuis* Rchb.f., but the photograph had been taken in the early afternoon, when the flowers were already wilting.⁴ Although the flower was white with purple stripes in the labellum, typical of *C. tenuis*, I could not ascertain whether the apex of the labellum was truncate, a key character that distinguishes this particular species. The next day, I decided to visit the site where the orchid had been photographed.

It took us⁵ about an hour to get to the savanna where Heber had photographed the *Cleistes* flowers: it turned out to be the same site where we had found *Habenaria huberi* Carnevali & Ramírez in September 2007 (see *The Arizona Orchidist* 44, Number 1: 4–9, January 2008). This particular species could not be found, but we did find a few beautiful specimens in flower of a small *Cleistes*, no doubt a new species. We also found plants of *Habenaria leprieuri* Rchb.f. with fresh flowers, a species I had not had a chance to photograph before. Photographs were taken and herbarium specimens prepared (including flowers in alcohol to complete botanical illustrations), and soon after, under a light rain, we returned to Puerto Ayacucho. We had lunch at the famous Hotel Amazonas⁶ and later I went to my hotel to pack and get ready for the next morning's early flight to Maroa.

On July 24, Justa, Carlos Gómez, and I flew to Maroa. Our flight was supposed to be at 8:00 AM: at 7:15 AM, we presented our documents at Puerto Ayacucho's *Cacique Aramare* International Airport (identification, permits, and receipts for all goods purchased in *Puerto Ayacucho*, the latter a newly required set of documents, of which we had to show originals and photocopies; we also had a second set of photocopies that military authorities would request and keep upon our arrival in Maroa). However, a young national guard lieutenant told us we needed an additional permit signed by a local army general who was supposed to authorize "all travel within the state." I immediately went to the army barracks where the general was stationed to get his signature. Fortunately, his assistant, an army captain, told me that the official flight plan had already been signed by the general, and that no additional paperwork was needed. He was kind enough to call the national guard lieutenant posted at the airport to let him know our documents were in order. The misunderstanding was resolved after an hour or so, and our Cessna 206 plane finally took off at 9:45 AM. The flight was perfect (we encountered no turbulence and had only a little intermittent rain in the last 20 minutes) and an hour and 30 minutes later we landed at Maroa "International" airport. Later that day, I contacted the chief of the local government gasoline depot and, after showing him a permit that I had obtained the day before, authorizing me to purchase 50 gallons of 89 octane gas, he told me I could buy gas early the next day. We spent the rest of the afternoon getting settled at the "Hilton Sandalio", where we have stayed in the past. We spent the evening cleaning equipment stored in Maroa after our last trip, planning our itinerary, and examining satellite images of the areas we planned to explore.

The next morning, I purchased 50 gallons of gas, for which I paid, at the official exchange rate, US\$2.2 (equivalent to a nickel per gallon). Apparently, gasoline was scarce in Maroa, and soon I was approached by several potential buyers offering to pay (at the official exchange rate), up to US\$30 per gallon! Of course I declined.

I keep an outboard motor, a two-stroke, short-shaft, Yamaha 15 H.P. unit, at Sandalio's home. Later that morning, we cleaned it, overhauled the carburetor, and replaced the fuel filters and the oil in the gearbox. Later that afternoon I asked our host, Mr. Valerio Sandalio Camico, to take Carlos and me, in his famous "hybrid" vehicle⁷, to the white sand savanna that serves as the airport. We sampled the local vegetation, but found hardly any plants in flower. The only noticeable exception was *Brewcaria reflexa* (L.B.Sm.) B. Holst, a spectacular terrestrial bromeliad. We also found two species of *Cleistes* that, even without flowers (a few plants had fruits), we could identify as *C. abdita* G.A.Romero & Carnevali and *C. tenuis* Rchb. f.

When sampling a small white-sand savanna near an abandoned hamlet along the San Miguel river⁸ in January 1998, I collected a shrub that was later determined to be a new species of *Paypayrola* Aubl. (Violaceae). This family is mostly represented by herbaceous species in the U.S.A. (e.g., *Viola* spp., the common violets, some of them weeds in our northeast U.S.A. gardens) but also includes woody, arborescent species in the tropics. I had collected flowering material in 1998, but fruits, although not required for a formal description, would have complemented well the material we had at hand. On Friday, July 26, we traveled to the same site in an effort to locate the new species. Justa, Carlos, and I, accompanied by Carlos' son, Oscar, and Emerson "Titino" Aragua, who had previously worked with us, left Maroa in a large dugout canoe powered by our 15 H.P. outboard engine. Justa, Oscar, and Titino planned to collect fish while Carlos and I went to the savanna. We saw a few orchids along the Guainía and the San Miguel, all of which we had seen before, but none were bearing flowers, except a few plants of *Brassavola martiana* Lindl.

In the savanna, we did find a few individual plants in flower of the new *Paypayrola*, but none in fruit. We saved a few flowers in alcohol, prepared herbarium specimens and listed and photographed the most common plants in the savanna, including a terrestrial orchid, *Duckeella adolphi* Porto & Brade.⁹ Meanwhile, Justa and her crew collected 221 samples of fish that she has assigned to four orders, nine families, 18 genera, and 25 species, mostly in the "piranha" group (Characiformes: 17 species). Surprisingly, she collected only one catfish, a group (Siluriformes) that is often as diverse or more diverse than the Pirhanas. We were back in Maroa in the late afternoon and, before going to sleep,¹⁰ we finished packing and getting ready for our next day's early departure for the Pimichín. The outboard motor performed flawlessly.

The morning of July 27, we left Maroa in two dugout canoes. One was powered by our own outboard motor; the second one I rented from our host.¹¹ We also took a much smaller dugout canoe, which was carried on top of the larger craft. Our team consisted of Emerson "Titino" Aragua, Valdez Bueno, Tomás Camico, Justa M. Fernández, Carlos Gómez, Oscar Gómez, José Gregorio Rodríguez, and me. Of this group, Emerson, Tomás, Justa, Carlos, and Oscar had participated in our last expedition (see *The Arizona Orchidist* 50, 1: 4–9, January 2012). Of the two new members, one was Oscar's compadre (Valdez),¹² and the other (José, our host's new son-in-law).

Within a few hours, we reached our immediate goal, *Puerto Pimichín*,¹³. It is located not far from Maroa, but the course of the river has many meanders. Along the way, we detected only a few orchids.

In a few hours, we set up camp, and by the early afternoon a group of us went to a nearby *bana* (shrublands dominated by low trees and shrubs growing on white sand), which we had explored before.¹³ We found several interesting orchids in flower, but *Octomeria gemmula* Carnevali & I. Ramírez was by far the most beautiful one. The crew that stayed behind collected an infructescence of *Seje* (*Oenocarpus* sp., Arecaceae) that was consumed that night with tremendous enthusiasm and delight.

The next day Carlos, Tomás, Valdez, and I went to explore caño *Pemíyani*, a course of water that runs west to east from close to the Colombian border, some 10 miles away, to join the *Pimichín* about a mile upriver from where we had set up our temporary campsite. Tomás told us that about 15 years ago this caño was inhabited by many people, primarily native Indians collecting the fibers of the palm *Leopoldinia piassaba* Wallace, but that eventually it was abandoned and now, as we found out, was practically impenetrable. The channel was deep,¹⁴ but it was obstructed by stems of our old enemy, the Volador palm (*Desmoncus polychantos* Mart.) and Cupi (*Clusia octandra* (Poepp.) Pipoly, Clusiaceae). We worked hard for about five hours but did not get far, less than half a mile in a straight line from the confluence of the *Pemíyani* with the *Pimichín*. We decided to go back to Puerto Pimichín because, at that pace, it would have taken us 1–2 days to reach the easily navigable section that we could see in the satellite imagery. We saw few orchids: some plants of *Sigmatostalix huebneri* Mansf. were the only ones we found in flower. Justa and the rest of the crew had stayed behind sampling the fish around Puerto Pimichín using different nets: they collected almost 400 specimens. Again, the Pirhana group was the most diverse (six families, 16 genera, and 25 species) followed by catfish (four families, four genera, and five species).

Early the next day, July 29, we left Puerto Pimichín and went upstream for three hours until we reached an abandoned hamlet that we called Sitio Valdez, named after Valdez's father in law, who had occupied it until his death two years ago. Not far from Puerto Pimichín the river channel narrowed considerably and the forest canopy covered most of the course of the river. We found many more orchids than in the lower course: a total of 23 genera and 41 species, 17 of which we found in flower. *Epidendrum* L., with eight species, was the most diverse genus. In this section of the *Pimichín* we collected *Brassia neglecta* Rchb.f. in flower, a new report for the state of Amazonas.

We stopped for about an hour at Sitio Valdez so that I could photograph some orchids, and the crew collected limes from a small orchard near the two abandoned huts. We then continued our journey upstream. Within minutes, however, an aluminum boat powered by a loud, 40 H.P. outboard engine with a party from Maroa reached us and brought the news that José Aragua had died early that morning: they came to take his grandson, Emerson, to the funeral. We were all saddened by the news: José Aragua had traveled with us on several previous expeditions, and his amazing endurance and skillfulness in the field were always appreciated. Initially, he had volunteered to come with us, but the day after we arrived in Maroa had sent news that he had caught a cold and could not come. We saw him the day we left Maroa for the *Pimichín* and he looked emaciated, but we never thought it was going to be the last time we would see him alive. José was also our host's (Valerio Sandalio Camico) brother in law.

The party from Maroa and Emerson left us and we continued upstream, reaching another site with an abandoned hut three hours later. We called it Sitio Alfonso, after the name of the owner who lives in Maroa. We found a hut with no walls and a leaky thatch roof, but Justa and I found two dry spots where we could hang our hammocks and mosquito nets without deploying our tarps. The rest of the crew set up camp around the hut, using tarps to keep dry. We found sand fleas on the sandy floor of the hut, and had to spray kerosene to get rid of this terrible pest.¹⁵ We were well established in sitio Alfonso by the late afternoon, where we eventually spent three nights.

We had a light dinner, and later I processed the plant specimens I had gathered earlier. In the evening, Justa collected fish using a hand net, and José Gregorio, Oscar, and Valdez went out in the small dugout canoe to place baited hooks nearby. Justa collected quite a few fish specimens, especially in the submerged vegetation by the edge of the river. Our other fishermen, however, had no luck whatsoever: they caught only a few little catfish, which ended up in Justa's collection.

Early the next day, July 30, Valdez Bueno, Tomás Camico, Carlos Gómez, and I left for the upper *Pimichín* in the small dugout canoe with one of the outboard motors. The rest of the crew was supposed to help Justa collect fish around our camp site. Within a half hour, we encountered a huge fallen tree trunk obstructing our way. Using an axe,¹⁶ it took an hour or so to remove enough of it for us to pass. Soon after we found another, which we also cut, and then another and another ...

We would have avoided these fallen tree trunks had the *Pimichín* been 2–3 meters above the level we found it, and perhaps we would have completed our goal of reaching the Orinoco basin.¹⁷ Evidently, water levels had been 3–4 meters higher in the past few weeks, as indicated by all the debris found in the upper branches of the riverine forest and marks left on the tree trunks: we simply miscalculated when *Pimichín* and other river courses would be at their highest level. Historical records, however, suggested that May, June, and July were the months with the highest rain fall, which indicated that July–August would translate into the highest river level. In 2013 it was not so: it started raining in May–June and then had slowed considerably. The highest river levels were reached in June–July, long before we arrived in the study area. In fact, during our two weeks in the area, we experienced few heavy rains, again in contrast to what we could have predicted based on historical records.

Shortly before dusk, we returned to Sitio Alfonso and found that the "scientific" fishing had gone well, but that fishing "for food" had been poor. Again, we had to resort to our canned tuna and sardines, accompanied by *mañoco* and *katara*.¹⁸ Carlos and I discussed plans for the next day. Since going upriver was pointless, we decided to go eastwards, towards the Temi, to explore on foot different terrestrial habitats we could see in the satellite imagery. Afterwards, I wrote notes before falling asleep in my comfortable hammock.

Early the next morning, our crew was awake, active, and coffee was ready. After our return the previous evening, Valdez had gone out hunting, and apparently the only game he saw were Snakebirds, of which he managed to shoot two.¹⁹ These birds turned out to be the only animals our crew ever shot on this expedition, the meat of which was one of the toughest I have ever tasted (fixed with rice and other miscellaneous ingredients). As for game animals in general, we heard or saw evidence of other birds and mammals (calls, droppings, and tracks), but apparently our hunters, fortunately, never had a chance to shoot them. Overall, the fishing was also poor: I remember having only one fish soup. Why? We all attributed it to being so close to Maroa, a major town: over the years, the fauna (including ichthyofauna – the fish of the region) had been over exploited.

On July 31, in early morning, Carlos, Tomás, Valdez, and I left camp. We navigated upstream for about three quarters of a mile to encounter the beginning of a trail that, according to Tomás, went far in an eastern direction. We walked along the trail for close to five hours, covering approximately six miles, crossing into the *Temí* river basin. We were, in fact, within five miles of this waterway.²⁰ We encountered three different *banas* where we found 30 different orchid species. Along the way, this time in Amazon *catinga*-type forest, we also found a clump of *Palmorchis*, a rare orchid that unfortunately did not have flowers. Close to the *Pimichín* there was an old *rastrojo* (an abandoned farm plot) where, nearby, upon returning, Tomás located a palm (*Leopoldinia piassaba*) with a fully ripe infructescence. Carlos assisted him in weaving two baskets from the leaves of the palm, on the spot, and in a few minutes they harvested all the fruits.

We returned to *Sitio Alfonso* in the late afternoon. Once again, the scientific fishing had been productive, but few edible fish were caught by the crew that stayed behind. Justa collected a total of 576 specimens during the three days we spent at this site, including 32 genera and 36 species. The edible fish were a few catfish and a small Peacock Bass (*Cichla temensis* Humb.) that we cooked the last night in a soup that was barely enough to feed all of us.

On August 1, we left *Sitio Alfonso* for Maroa. The return was swift, and we finished bringing all our equipment to the "Hilton Sandalio" by late afternoon. When we passed Puerto Pimichín, the water level had gone down by more than three feet: the Pimichín was "emptying" fast into the Guainía.

We spent the next two days exploring *banas* near the black water creek *Boca Chico* and the airport, where we observed 37 orchid species, 14 of which were bearing flowers. Four species were particularly interesting: *Bulbophyllum setigerum* Lindl., *Epidendrum micrinocturnum* Carnevali and G.A.Romero (a new report for the state), *Epistephium parviflorum* Lindl., and *E. aff. subrepens* Hoehne. All were in flower except for *E. micrinocturnum* which had fruits. We also found several healthy populations of *Paphinia dunstervillei* Dodson & G.A.Romero, an interesting terrestrial species of this highly ornamental genus. These two days also were productive for Justa, who recorded the third locality for *Nannostomus anduzei* J.M.Fernández & S.H.Weitzman (Lebiasinidae, Characiformes), a miniature, and colorful pencilfish. She also captured several specimens, males and females, of *Rivulus* sp. (Rivulidae, Cyprinodontiformes), one of the so-called annual fish: the males are the most beautiful aquarium fish I have seen.

On August 4, Carlos, Justa, and I flew back to Puerto Ayacucho, and on August 6, I returned to Caracas. The next day I flew to Barinas to visit herbarium PORT in nearby Guanare. I returned to Caracas on August 8, and returned to Boston on August 13.

Overall, we did not reach the primary goal of traveling from the Río Negro to the Orinoco river basins by boat (although we did on foot), but we saw and documented 47 genera and 97 species of Orchidaceae, 32 of which were in flower. Among the orchids encountered, we detected a new species of *Cleistes* and two new reports for the orchid flora of the study area. In addition, collections made during this expedition allowed me to finally identify all the local species, six in total, in the *Epidendrum nocturnum* Jacq. group, one of which we collected for the first time (*Epidendrum micrinocturnum*). The fish that Dr. Fernández captured will no doubt add many reports for the ichthyofauna of the study area, and will eventually be deposited in the collection of the zoology department at *Universidad Central de Venezuela* in Caracas.

We were lucky that we had few "bug problems": besides the sand fleas, we were hardly bothered by black flies, ticks, or chiggers, and we did not see a single kissing bug. We had to rely more than ever before on the food we brought, as "edible" fish and game were scarce, but we did enjoy the fruits of several palms that the locals go out of their way to harvest. We had fruits from *Euterpe* spp. (a new arrival in U.S. markets, where it is known under the Brazilian Portuguese name: *Açaí*), *Leopoldinia piassaba*, and *Oenocarpus* spp. Unlike coconuts, where the content of the nut (endocarp) is the edible portion of the fruit, the natives consume the thin, fleshy mesocarp, the pulp between the outer skin (exocarp) and the nut. The fruits are placed in a container with warm water for 15–30 minutes, and then beaten with a pestle (most houses have dedicated a wooden mortar and pestle for this purpose; we used a large cooking pot and the handles of our wooden paddles). The resulting milky mixture is then strained and drunk as juice or combined with *mañoco*. The juice is oily (especially from fruits of *Leopoldinia piassaba* and *Oenocarpus* spp.) but apparently very nutritious. In fact, the nutritional value of extract from *Oenocarpus* spp. fruits approaches that of human milk, and the oil extracted from the juice has many of the fatty acids found in olive oil.

Our next goal is to explore the Tiriquin river, which joins the Guainía at approximately 2° 20' 57" N, 67° 11' 10" W, the only river within the study area we have never visited. Judging from the available satellite imagery, its basin includes a variety of interesting habitats. We hope to do a first exploration of this river a year from now. We will keep you informed!

This trip would not have been possible without the financial support of the Harvard University Herbaria and the Orchid Society of Arizona (OSA) and the logistic support of Venezuela's Ministerio del Poder Popular para el Ambiente in Caracas and Puerto Ayacucho. The Curator and staff of PORT (Herbario Universitario, UNELLEZ-GUANARE, Programa de Ciencias del Agro y del Mar, Mesa de Cavacas, estado Portuguesa, VENEZUELA 3350), TFAV (Herbarium J. A. Steyermark, Puerto Ayacucho) and VEN (National Herbarium of Venezuela, Caracas) provided invaluable help during my visit.

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NOTES

¹ There are "Amazonas" states or departments in Brazil, Colombia, and Peru.

² The airline, *Wayumi*, had had two plane crashes within one week, fortunately without any loss of life, and it temporarily was banned from flying. While trying to recover their license, they registered another company, "*Piedra Temi*," which I hired to fly me Maroa and back to Puerto Ayacucho. This time, in addition to their payment, they requested copies of the IDs of all passengers as well as any other documentation, such as my officially issued collecting permits.

³ The offer of food in Maroa was particularly critical during the time of our visit. Coffee, sugar, toilet paper, and even *mañoco* the manioc meal (state common and scientific names) we always take with us, had to be bought in Puerto Ayacucho.

⁴ The flowers of most species of *Cleistes* open early in the morning and last only a few hours.

⁵ Carlos Gómez, Heber Henao, Justa Fernández, driving her compact Toyota SUV apparently not marketed in the U.S.A., and me.

⁶ *Gran Hotel Amazonas* was built in 1949 and is part of Venezuela's *Registro General del Patrimonio Cultural*. It traditionally has been the best hotel of Puerto Ayacucho, but it has closed and reopened three or four times in the last 20 years. Lately, it has the best restaurant in town.

⁷ Valerio Sandalio Camico's LUV (Light Utility Vehicle) is a double-cabin Suzuki pick-up truck. The bed of the truck, however, rusted away and it was replaced by one that he took from an old, abandoned Toyota Land-Cruiser pick-up that was abandoned along the Maroa-Yavita road. He also had to replace the back springs of his truck to accommodate the much heavier Toyota bed.

⁸ For a description of the San Miguel or Conoroquite, see *The Arizona Orchidist* 44, No. 1: 4–9 (January 2008).

⁹ *Duckeella pauciflora* Garay, a name we had used in the past for this entity, is most likely a second name for the same species.

¹⁰ Even when staying at the "Hilton Sandalio", a second floor open porch above the Sandalio's household with no walls but under a tin roof, we sleep in hammocks under mosquito netting.

¹¹ Another Yamaha 15 H.P. that has much more wear than our own. We had a hard time starting it the first time, a problem we continued to have throughout our expedition.

¹² In Spanish, "compadre" is the godfather of one's child and, vice versa, the father of one's godchild's; the female equivalent is "comadre".

¹³ Puerto Pimichín (see *The Arizona Orchidist* 44, Number 9, 2008) is an old site that existed even before Humboldt and Bonpland visited the area in May of 1800. Originally, a road ran from Yavita to Puerto Pimichín, but it was mostly abandoned when a path was opened from Yavita directly to Maroa in the 1970s. Puerto Pimichín is about 1.25 miles from Maroa, as the crow flies. During our stay, intermittently, at night we could hear music from the weekend festivities in Maroa.

¹⁴ More than 10 feet (3 m) deep: at some point Valdez lost his machete and we could not find it.

¹⁵ *Tunga penetrans* L. (Insecta, Hectopsyllidae). Female sandfleas can penetrate the skin in areas of contact: around toes and toenails, or even buttocks, to feed on blood and develop eggs. Later, their abdomen swells with eggs and becomes the size of a pea. If not extracted carefully, the wound can become infected; people have lost toes or even part of a foot due to a heavy, unattended sandflea infection. If taken care of early on they can easily be pop-out by exerting pressure with two fingernails, like I did with two I got in my feet during my stay at Sitio Alfonso.

¹⁶ As I have mentioned in previous accounts, after viewing a serious accident I am chainsaw-phobic, to the chagrin of my crew.

¹⁷ . We did get within 5–6 miles of a major tributary of the Guasacabi, a tributary of the Atabapo and therefore of the Orinoco river.

¹⁸ See *The Arizona Orchidist* 45 Number 11: 3–9 (November 2009) for a description of *Catara* or *Katara*. The sauce, without the ants, is also known as *Cassareep* in Guyana, a product commercially available in the United States, and in Brazilian Portuguese as *Tucupi* or *Tucupí*, widely used in recipes in the state of Pará. Bahia, etc.

¹⁹ Also known in English as Darters or Water Turkeys; *Cotúas* in Spanish; *Ahinga anhinga* L. (Anhingidae). A widely distributed cormorant-like bird of which we had seen many during our stay in the Pimichin. accidnt

²⁰ The Temi river, together with Guasacabe or Guasacavi and the Atacave or Atacavi rivers, form the Atabapo river, a black-water tributary of the Orinoco.

APPENDIX

An Appendix listing all of the orchid species found in our expedition including notes and the habitats where they were found is not included here. It is a list of almost 100 species. If readers would like to examine this appendix separately, please contact the author or your newsletter Editor.

OSA January 2014 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 New Year 	2  Dolly Floyd	3	4
5	6 OSA Meeting 7 PM	7	8	9	10	11
12  Kitten Harmon	13	14	15	16	17	18
19 Board Meeting 1 PM	20 Martin Luther King Day	21	22	23	24	25
26	27	28  Kristen Huisinga	29	30	31	



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