

# *Fiddlehead fern*

*Quetzal Biotope, Purulhá, Baja Verapaz, Guatemala*

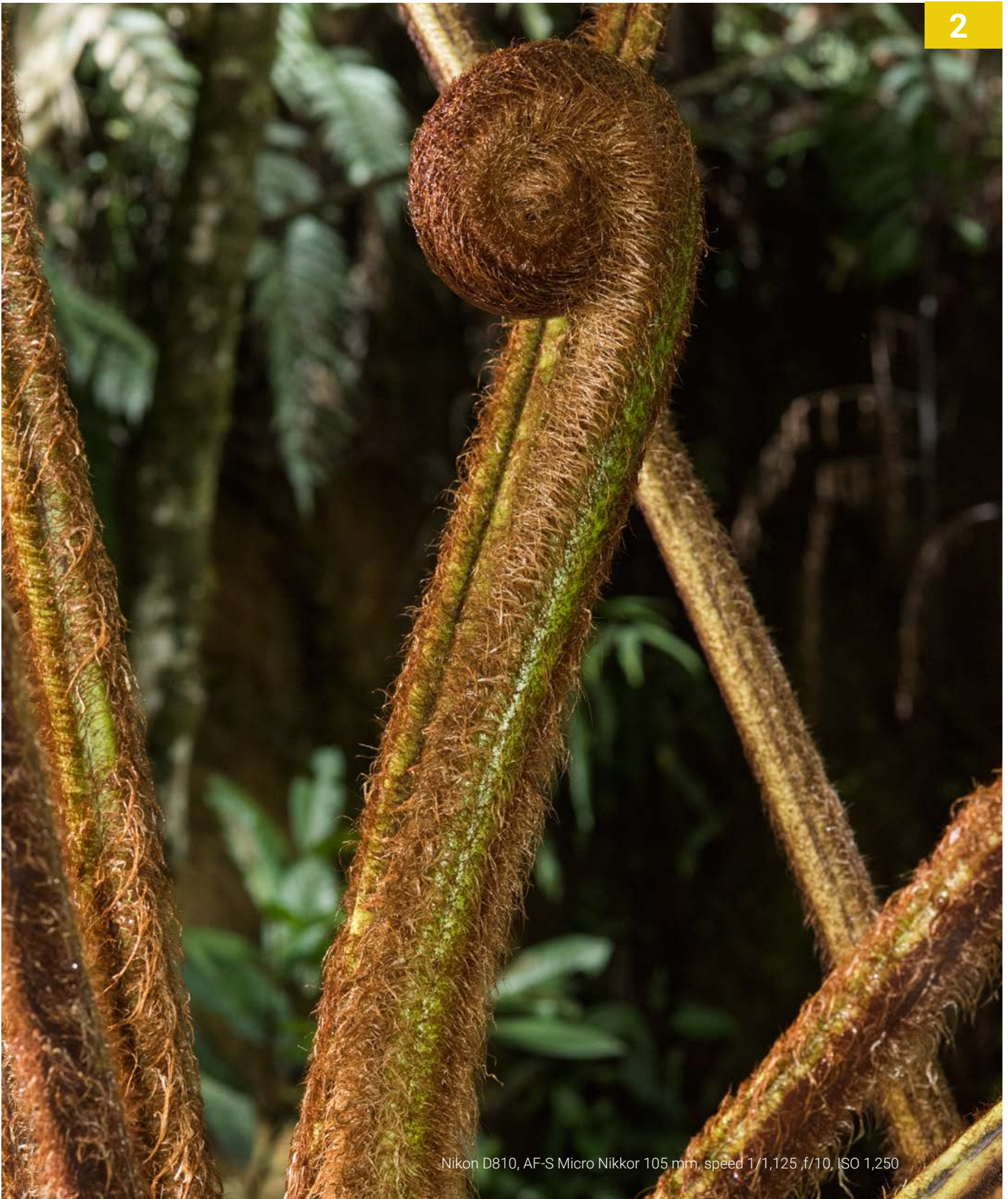


Dr. Nicholas Hellmuth



You can call these a frond or a leaf or a pinnae, I like the unfurling of the leaf because it's the most photogenic part of the tree ferns which can easily be photographed, an entire mature leaf is so large it is tough to photograph.





Nikon D810, AF-S Micro Nikkor 105 mm, speed 1/1,125, f/10, ISO 1,250

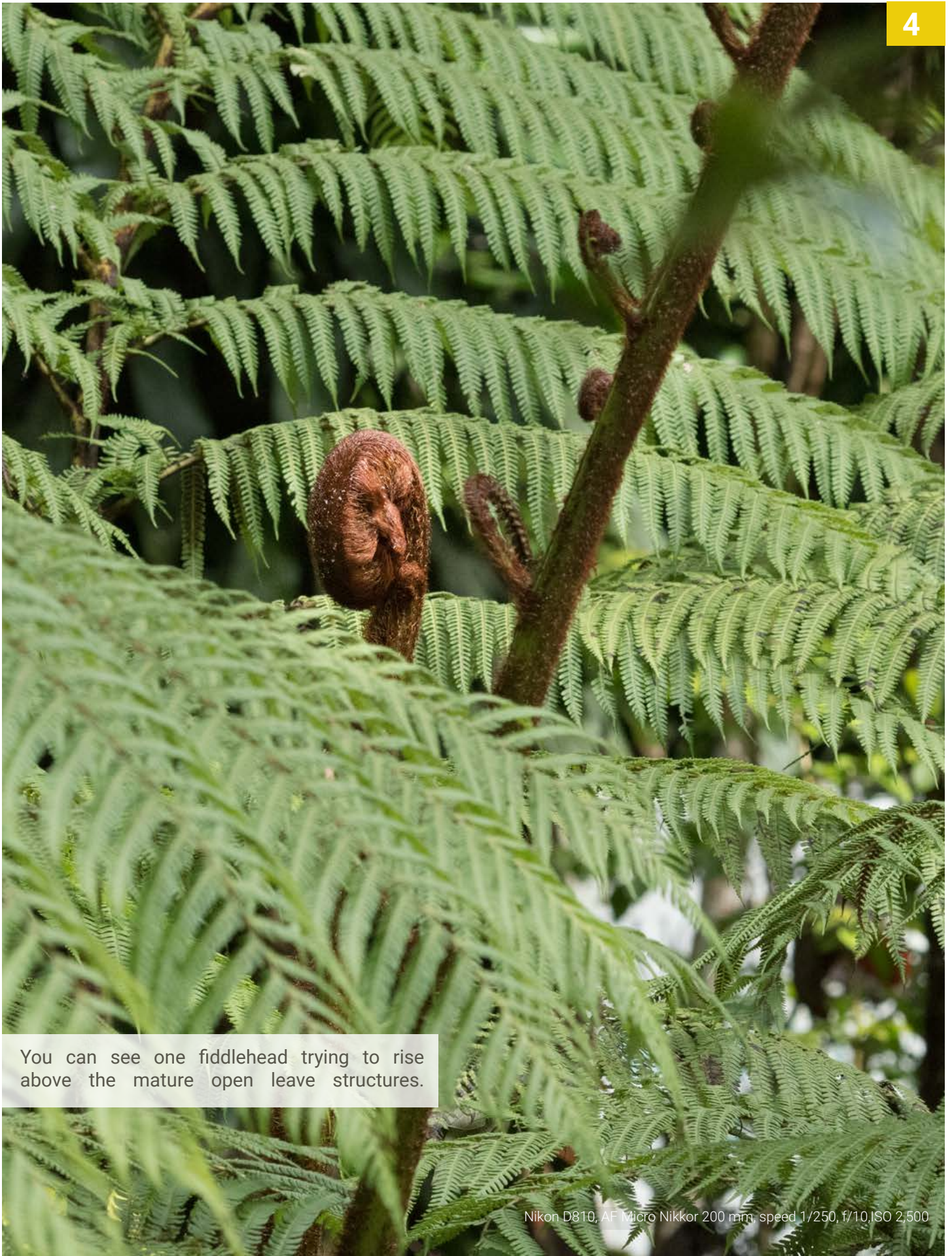
So often we have to photograph the fiddlehead portion from whatever position it is possible to get the tripod into position. This is the same tree fern as the previous page, just that we changed the angle. Since the quetzal reserve areas are on steep hills, we couldn't get the tripod above the tree fern.





This leaf structure still has the fiddlehead top but you can see the sets of twin blobs which will unfurl to form horizontal leaf structures on both sides. You can see more of these blobs in the unfurled portion of the fiddlehead.





You can see one fiddlehead trying to rise above the mature open leaf structures.





This is a close-up photograph of the fiddle-head portion of a young leaf which is not yet opened.





Close-up photograph of the fiddlehead portion of another young leaf which is not yet opened. The band of white marks almost looks like someone has taken a needle-and-thread and stitched this.

The right side is out of focus because the left side and center are closer to the camera. With the wind you can't always achieve stacked focus.





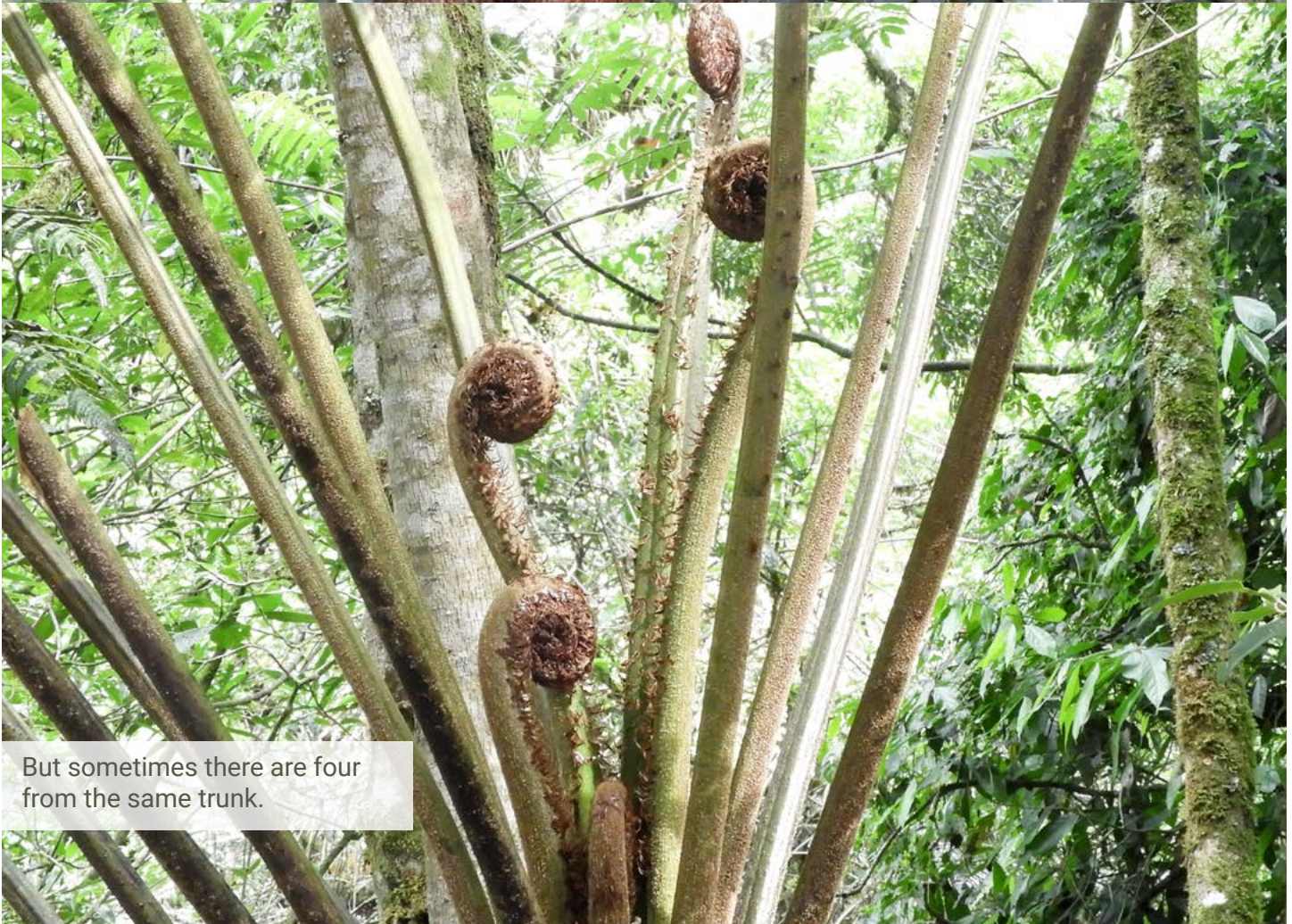
This fiddlestick is twisted (curved).





Sometimes you see only one fiddlestick starting.

Nikon 810 ,Nikkor lens 115mm, speed 1/10, frequency f/ 6.3, ISO 115




But sometimes there are four from the same trunk.





After the fiddlestick opens up what will be the lateral parts of the leaf structure begin to unfurl.






This is the stipe, the top of the “trunk” from which the “leaves” end up as fiddlehead shape after growing a bit. On this tree fern the new leaf structure has not yet sprung out of the stipe.





Here is another view of the top of the trunk where the leaves start. You can see that one fiddle-head portion has already started (in the middle).





This is a separate photograph than the previous one, but a closer view. You can see the curl of the top of the fiddlehead.





Stacked focus of several trunks.





Leaves format a geometric shape, captured with a 200mm tele-macro lens (the macro aspect was not used for something this far away).



# Introductory Bibliography on Tree Ferns

*(used by the Maya)*

## **BREWER, Steven W.**

2013 Plant Diversity & Vegetation. Belize. 42 pages.  
[www.yaaxche.org/files/Oak%20Ridge%20Report%20Final\\_PUBLIC\\_v2013.12.09.pdf](http://www.yaaxche.org/files/Oak%20Ridge%20Report%20Final_PUBLIC_v2013.12.09.pdf)

## **LEMA Costas, Cesar**

n.d. Plantas y frutos silvestres comestibles. A.N.D.R.E.A (Asociación Nacional para la Defensa, Recuperación y Estudio terapéutico de la raza Asnal). Spain.

Available as a free Download:

<https://delokos.files.wordpress.com/2009/05/plantas-y-frutos-silvestres-comestibles-dr-cesar-lema-costas.pdf>

## **LOPEZ Lopez, Jessica Esmeralda, ENRIQUEZ, Eunice and Mario Esteban VELIZ**

2006 Riqueza y usos de helechos arborescentes en diferentes regiones biogeográficas de Guatemala. USAC. 24 pages.

Available on-line // no cost:

[http://sitios.usac.edu.gt/wp\\_edc/wp-content/uploads/2012/07/Jessica-Esmeralda-López-López-BIGU.pdf](http://sitios.usac.edu.gt/wp_edc/wp-content/uploads/2012/07/Jessica-Esmeralda-López-López-BIGU.pdf)

## **MAUDSLAY, Anne Cary and Alfred Percival MAUDSLAY**

1899 A Glimpse at Guatemala, and Some Notes on the Ancient Monuments of Central America. John Murray, London (Taylor and Francis). 289 pages.

Available as free download, but was useless (and they don't bother to correct scanning errors).

<http://www.gutenberg.org/ebooks/47693>

## **VELIZ, Mario and Jorge VARGAS**

2006 Helechos arborescentes de Guatemala distribución, diversidad, usos y manejo. FONACON. 94 pages.

The best opus on tree ferns of Guatemala.

## **WILSON, Michael "Mike"**

1972 A Highland Maya People and their Habitat: The Natural History, Demography and Economy of the K'ekchi'. PhD dissertation, University of Oregon. 475 pages.

Available on-line at no cost.

An outstanding dissertation on plants of the Q'eachi', however his study area, San Pedro Carcha, is very different eco-system than other Q'eqchi' areas of Guatemala (and Belize). Unfortunately he seems to be deceased which is unfortunate since his lists of plants (and animals) is quite good.

## **Web sites that mention the use of tree ferns of Guatemala in constructing Mayan houses**

[www.chelemha.org/bevoelkerung.htm](http://www.chelemha.org/bevoelkerung.htm)

Riqueza y usos de helechos arborescentes en diferentes regiones biogeográficas de Guatemala. USAC. 24 pages.



# Appendix A

## *What Photographic Equipment is Good*

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The Nikon D810 is great if you want to have large file size. The Nikon D5 is significantly better if you need a high ISO without fuzz. The Nikon D5 is also good for burst shooting. But to do fast shooting the file size has to be a bit less.

An advantage of the Canon EOS series is that you can use their 5x macro lens (MP-E, 65mm). There is no Nikon equivalent or even close. Canon also offers a ring flash: there is no Nikon-made ring flash. We use a cheap Chinese ring flash when we are in a hurry or a Metz if we don't mind spending a bit more time.

All professional quality Gitzo tripods made 15 to 30 years ago are long-lasting and well designed. I use only Gitzo tripods. I used a tripod on all photographs in this report which were taken with the Nikon D5 or Nikon D810. Any photos taken with the Nikon B700 (point-and-shoot) did not use a tripod, though if you intend to use it's awesome telephoto ability, most photos do not focus well or get you get an unfuzzy shot unless you would use a tripod.

The Wimberley WH-200 Gimbal Head Version II is great for when we use a 400mm lens. We also sometimes use it for a 200mm. Only quirk is that sometimes the sliding part (up and down) can't be locked (causing it to fall off when you carry it off the tripod).

We bought two of these gimbals in past years (one for the Canon EOS 1DX Mark II (with its 300mm lens) and one for the Nikon D810 (with its 400mm lens) and just bought a third one (for the Nikon 600mm lens we need, which we have a Nikon D5 camera body).



*Gitzo tripod,  
Wimberley  
WH-200 Gimbal  
Head II, Nikon  
D5.*

So when we have a full team we have two Nikons and one Canon camera at work. We also have a Nikon CoolPix B700 for the assistants to take snapshots with. It is great for telephoto but without a tripod is barel usable at telephoto range. And it does not focus close-up whatsoever (so is awful for macro photography).

For telephoto lenses we use only Nikkor or Canon, and only prime lenses (not zoom). We have Nikkor and Canon zoom lenses which are helpful for other kinds of photography, but to get a photograph of a quetzal, or the fiddlehead of a tree fern, I do not want to use a zoom lens and definitely not a Tamron or Tokina or even a Sigma lens. But we do have a solid 50mm Sigma lens and we do also have a 100mm Zeiss lens (which has the world's worst lens cap attachment component).



## Appendix B

### *What Photographic Equipment is NOT Good*

Many of the Arca-Swiss tripod heads (after the first large model which is the best made in the world) are unusable; they have unrepairable defects (they were too complicated and it took Arca-Swiss too many years to admit that perhaps there really was either an engineering design defect or an inappropriate component; normally they blame it on the end-user's inability (to figure out how to use such bewildering dial and pressure points). Ironical that Arca Swiss made the world's best tripod head circa 1960's or 1970's and then the next (smaller) generation was the world's worst.

I have what appears to be a B1 Arca Swiss (they carefully don't put the model designation on it). Whatever model it has been repaired at least twice and then locks within a few days of use. None of the features work (they jam).

Going to Harvard and having had three post-graduate fellowships at Yale does not necessarily mean you can figure out how to make an Arca Swiss early model B1 tripod head work. The fact that they came out with subsequent models is all the more suggestion that perhaps the early model really was potentially badly thought out).

This is what happens when you are too convinced that your engineering capability is superior: sorry, it's the worst engineering (or the worst components) of any tripod I have used in the 40+ years I have been a photographer).

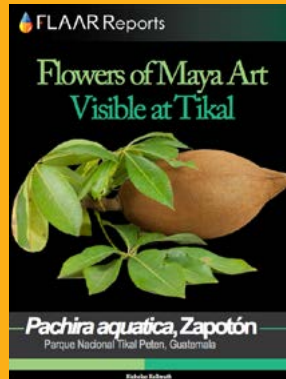
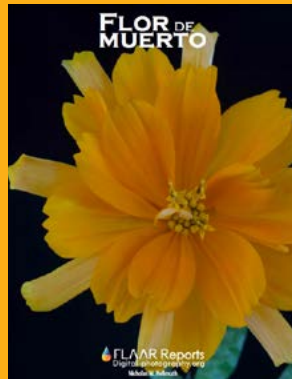
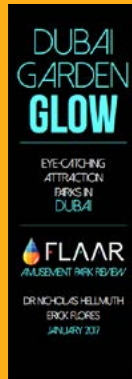
But at least the original Arca Swiss plate (for putting on the bottom of your camera) was a good idea. However avoid any Arca Swiss style plate that don't use a normal screw; when off on a field trip you need to be able to use a coin to tighten it. If it requires a special tool (like an Allen wrench) to tighten the screw, then YOU have been screwed (since you can't screw it with any normal screwdriver).

To survive better with any Arca Swiss ball head, read the helpful info from [www.precisioncameraworks.com/Pages/monoball\\_core.html](http://www.precisioncameraworks.com/Pages/monoball_core.html)

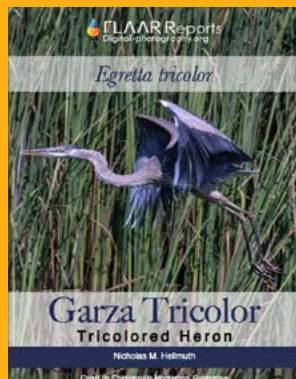
We use Wimberley plant clamps. The first models were awful; we stated so clearly on our [www.digital-photography.org](http://www.digital-photography.org) that Wimberley appears to have listened, and came out with new design. It is better than the old ones but definitely not as good as "Made in Germany (1960's through 1980's)."

The ACRATECH ball head is okay perhaps for a lightweight point-and-shoot camera, but a professional camera like the Nikon D5 simply leans over (the ACRATECH simply can't hold the weight). But the release trigger concept takes less time than attaching and unscrewing any and all Arca Swiss systems from the plate on the bottom of your camera.





[maya-ethnobotany.org](http://maya-ethnobotany.org)



[maya-ethnozoology.org](http://maya-ethnozoology.org)



[digital-photography.org](http://digital-photography.org)