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BOLBITIS HEUDELOTII

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Bolbitis heudelotii, sometimes referred to as the African Water Fern, is one of two members of this genus, along with *B. heteroclita*, that are occasionally seen in the aquarium trade. I purchased a specimen in early 2005 from an on-line resource (www.aquariumplant.com) in the first order for living plants for my 50-gallon aquarium.

This plant is from tropical Africa, and can be found growing as both emersed and submerged individuals, most commonly along the riverbanks (Rataj and Horeman 1977, Tepoot 1998). Being a fern, and thus, a non-vascular plant, it lacks the vascular tissues (xylem and phloem) necessary for more efficient transport of water and other nutrients to the appropriate tissues that the Gymnosperms (conifers and such) and Angiosperms (flowering plants) have (Judd et al. 2002). The most common placement of this plant is in the Lomariopsidaceae (Missouri Aquarium Society 2005), although Judd et. al. (2002) places this family (by virtue of listing another genus in this family, *Elaphoglossum*), as well as the Dryopteraceae, Aspleniaceae, and others under the broad the blanket of the Polypodiaceae (Polypody Family). They do state, however, that this is a more broad usage, and that some of the families within are probably valid.

B. heudelotii is a shade tolerant species, so it works well in tanks with lower light levels (Tepoot 1998). Like *Anubias* or *Microsorium pteropus* (java fern), it grows along the rhizome, the thickened horizontal stem. This rhizome should not be buried, but attached to something in the tank, much like these other plants (Rataj and Horeman 1977). *B. heudelotii* prefers to be attached to wood. The rhizome of my specimen was the perfect size to fit into a natural "nook" in a large piece of Malaysian driftwood, so it was placed there. As the rhizome elongates, it can be clipped and reattached to form a new plant by vegetative growth.

The fronds (fern leaves) look like that of the typical fern seen in the woods here in Michigan, and they are a rich, dark green. Within a few weeks, the fronds of my specimen began to get black patches over them. Upon further reading, I discovered that this plant prefers soft to medium hard water with a more neutral pH (Rataj and Horeman 1977, Tepoot 1998), while the water in my tank has a pH of 7.6 and is very hard. Not surprising, given it's natural habitat, this fern also grows better when placed within flowing water (Rataj and Horeman 1977). As suggested by these authors, I moved the driftwood into the downward current produced by my Aquaclear 500 filter. Since that time, the driftwood has again been moved so that the *B. heudelotii* sits directly above the current from one of the vents of my undergravel jet system, and it is visibly swaying. I pruned the fronds that were withering away, noticing that while they did not look very good, the rhizome was obviously doing very well, with new fronds emerging and unfurling in the classic "fiddlehead" form.

Ferns are spore-producing plants, so you will not obtain seeds from this species. The spores are released from sporangia from the undersides of fronds, and germinate (much like a seed) into a structure called the gametophyte. Upon fertilization, this structure gives way to the sporophyte (the growth form commonly thought of as a fern). I do not know if reproduction is possible in an aquarium in this way, although one may try it by growing the plant emersed.

The plant grows better with CO2 injection, which I do not have in my tank, and can get large enough (Rataj and Horeman [1977] say up to 15", although it could be larger than this) and thick enough to require frequent clippings. Rataj and Horeman (1977) also state that it does not grow well in thickly planted tanks. I fertilize with Seachem's Flourish line, and my tank is sparsely planted, so I am hoping that this plant starts to look a bit better.

While my specimen is currently in the process of re-growing the large fronds I had removed, I hope to report more success with this plant as time goes on. I am in the organizing stage of a new planted tank, and I may move it there, or I may keep it where it is if I can work my current water conditions into something a little more suitable for the fern. Stay tuned for an update (with pics!).

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Tepoot, P. 1998. Aquarium Plants: The Practical Guide. New Life Publications. Homestead, FL.