

Experiencing Urospathas

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In 1988 I visited Dewey Fisk in Miami. Among his magnificent collection of aroids was a specimen of *Urospatha* in flower, the first of this genus I had seen. I immediately fell in love with these plants. Although they lack the bright colors or dramatically patterned leaves of some other aroid genera such as *Antburium* and *Alocasia*, *Urospatha*, with their magnificent, large sagittate leaves with purple and green patterned petioles and elongated spathes in muted colors of bronze and ivory elegantly twisted at their tips, possess a somber beauty you may find hard to ignore or resist.

As far as it is presently known, the genus *Urospatha* is found only along the Caribbean coast of Central America and throughout the tropical lowlands of eastern South America. It is a plant of swamps and wet places, found along rivers and in partially or seasonally wet savannahs, etc. This necessity for "wet feet" presented problems for a potential grower, and my first attempt with a tiny "pup" from Dewey's plant ended suddenly after a year of growth to 45 cm tall, when this beautiful, seemingly healthy plant quickly wilted and died. After this happened a year later to a second plant, careful investigation showed that it was probably caused by the large *Bufo* toads soaking themselves during dry periods in the saucers of water in which my potted plants stood and rapidly replacing the water in the saucer with their too-strong urine. I now prevent this by placing lots of water-filled saucers under my plant benches for the toads to reach easily, as I value their control of snails, slugs, etc. I change the water for them during my regular plant checks.

I managed to replace these lost plants through the generosity of Dewey and Dr. Monroe Birdsey, both of whose mother plants originated from a collection made

along the Tortuguero Canal in northeastern Costa Rica by Fred Berry.

The Central American species is *Urospatha grandis* Schott originally described in 1857 from a specimen collected in Panama. A review of this genus is badly needed, especially in South America. Synonyms of *U. grandis* include *U. tonduzii* Engler described in 1885 from Costa Rica, and *U. tuerckheimii* Engler described in 1905 from Guatemala. *Urospatha friedrichsthali* Schott described in 1853 (and thus the oldest name) from material collected in Nicaragua, an illustration of which accompanies the generic protologue (Schott, Fig. 7) is in fact a *Sagittaria* (possibly *S. montividenis* Cham. & Schlect.) in the Alismataceae, according to Hay (1992).

The specimens of *Urospatha* growing in both Dewey's and Dr. Birdsey's collections seemed healthy and were in flower, but due to the conditions under which they were being grown I felt they had not reached their full potential as horticultural subjects. A search of the available literature turned up little or no information on their cultural requirements except for a comment that the genus was not in cultivation. Aroid growers, when asked, made negative comments that they couldn't be maintained over a period of time as the necessity of growing them with the pots in saucers of water causes the soil mix to quickly sour, thereby killing the plant.

In early 1990 I managed to purchase two small plants of *U. sagittifolia* (Rudge) Schott collected in Venezuela in the Orinoco Delta in the State of Amacuro. I decided to try potting these water-loving plants as follows: I placed 10–15 cm of coarse gravel or lava rock in the bottom of a suitably sized plastic pot, usually between 1–5 gal. depending on the size of the plant; I then potted the plant on this bed of rock using



Fig. 1. *Urospatha grandis* Schott. Tortuguero Canal, Limon Province, Costa Rica. Photo by Robert Skinner.



Fig. 2. *Urospatha sagittifolia* (Rudge) Schott. Orinoco Delta, Amacuro State, Venezuela. Photo by Robert Skinner.

a mixture of approximately three-quarters coarse "play" sand and one-quarter commercial soilless potting mix-the brand does not seem critical, followed by a layer of approximately 1 cm of composted cow manure. The potted plants were placed in large deep saucers containing water between 5-10 cm deep which are refilled as necessary and changed and rinsed every 2-4 weeks to prevent a build-up of fertilizer salts due to evaporation. I am still experimenting using different combinations in my potting mixes.

I grow my *Urospathas* on benches in the partial shade of fruit trees in my yard, using the north side of my house from March to October, when these heat-loving plants really thrive in summer temperatures that reach 90°F during the day and 80°F at night. I then move them to the south side of my house from late October to early March for protection from the cold north winds. If the temperature is forecast to fall below 55°F, I bring them into my garage. I am also alert

for wind, as the plants have received some damage from 60°F temperatures with wind.

I use a weak liquid fertilizer weekly in summer, monthly in winter. Dyna-Gro 7-9-5 seems to give the best results; there has been some "leaf burn," particularly on *U. grandis*, when I have tried other brands. My growing experiments resulted in one of my plants of *U. sagittifolia* receiving the first place Division Award at the 1991 I.A.S. Show in Miami.

An interesting problem that occurred was that during the surge of rapid growth in early summer, the leaves of *U. sagittifolia* were emerging from the plant with one or both of their rear lobes missing, seemingly torn off during rapid growth in their embryonic stage within the plant. This devastating problem which ruins the beauty of these spectacular leaves seems to have been corrected, thanks to a suggestion by Craig Morell, by sprinkling about ½ to 1 teaspoonful of manganese sulfate on top of the soil. This apparently toughens the leaf

texture, and has drastically lessened the incidence of missing posterior lobes.

The inflorescences of *U. sagittifolia* during daylight hours emit an intense pleasant odor of exotic tropical fruit. *U. grandis* emits a not unpleasant faint odor of fresh cantaloupe or old dried fruit. These odors attract fruit flies and various small beetles and wasps which may be the pollinators.

The spadix is bisexual. The female parts are receptive as the spathe opens and remain so for about a week; the circular stigmas are visibly moist and sticky during this stage. Soon afterwards, the spadix begins to produce visible amounts of powdery cream-colored pollen, starting at the top and gradually moving downward for a period of approximately 10 days. If you are fortunate to have one plant in flower at the female receptive stage, and another plant whose inflorescence is producing pollen, it is a simple matter to transfer pollen from one to the moist stigmas of the other, using a slim paintbrush moistened in water.

If not pollinated, the inflorescence of a healthy, mature plant will still develop a few fruits on the spadix. These fruits will each contain from 2 to 8 large kidney-shaped warty seeds. If the inflorescence is pollinated, most of the fruits on the spadix slowly mature within six months and can produce up to 335 viable seeds from one inflorescence. As the fruit develops on the spadix, it becomes larger and heavier within the persistent spathe, causing the entire inflorescence to slowly bend over at the top of the peduncle until both spathe and spadix are pointing downward.

When the fruits are ripe, the entire spadix falls off, separating at the stipe. I place the spadix in a bowl of water where it floats and rapidly absorbs water into its visibly spongy interior through the opening at the stipe, causing it to sink lower into the water. After a few hours, the fruits float free of the spadix in rafts of up to 10 fruits. These rafts also float and rapidly absorb water. The absorption of water seems to cause the development of a large amount of clear gelatin-like substance around each seed, serving to separate the tightly packed seeds from each other, thereby bursting each fruit open at

its sides leaving the "cap" intact and the seeds to float encased in gelatin. The seeds are collected and placed in a large strainer where a strong jet of water separates them from the gelatin and any bits of pulp. I do a final soak of the seeds in a bowl of water containing a few drops of household bleach as an anti-fungal measure, then place them on top of 4–5 cm of very wet sand in a deep-sided tray which I enclose in a clear plastic bag. The tray is placed under fluorescent Gro-Lux bulbs or can be placed in a sunny greenhouse under the shade cloth.

The seeds begin to germinate starting at around 4 weeks. When the seedlings are around 3–4 cm tall, they are transplanted to small pots or a communal tray with about 4 cm of coarse gravel in the bottom and a mixture of sphagnum moss and a little coarse sand on top. The pots or trays are placed in other trays containing 3 cm of water. I fertilize every two weeks with a weak solution of Dyna-Gro 7-9-5. Whitefly and aphids can be occasional problems to the seedlings, but they can be controlled by Safer soap or insecticidal sprays as needed. The seedlings grow rapidly and reach 15 cm tall within 6 months. One of my seedlings produced its first inflorescence in 14 months from seed.

I have seedlings produced from *U. grandis* pollinated by *U. sagittifolia*, from *U. sagittifolia* pollinated by *U. grandis*, and from wild collected seed of *U. sagittifolia* ex: French Guiana. The seedlings produced by the pollination of *U. sagittifolia* by *U. grandis* show very significant differences from each other and from other batches of seedlings and are the first recorded hybrids of this genus.

In addition to propagation by seed, mature plants of both species produce pups at their bases from eyes at the joints of the underground portion of the rhizomes. I leave these pups to develop with their mother plant for about 1 year before removing and potting them separately while at the same time repotting the mother plant to a larger container.

I am trying to obtain other species of *Urospatha* to bring them into cultivation and for study, such as *U. wurdackii* (Bun-

ting) Hay from southwestern Venezuela, a small species with the only linear leaves reported for the genus.

I hope this article will encourage other aroid enthusiasts to collect and grow *Urospatha*, whose huge sagittate leaves, beautifully marbled petioles, and elegant, fragrant flowers rank them among the most attractive, challenging, and interesting of the aroids.

ACKNOWLEDGMENTS

I wish to thank (in alphabetical order): Mr. John Banta of Alva, Florida; Dr. Monroe Birdsey of Miami, Florida; Herr J. Bogner of the Munich Botanical Gardens; Dr. Thomas Croat of the Missouri Botanical Garden; Mr. Dewey Fisk of Ft. Lauderdale, Florida; Mr. Joep Moonen of French Guiana; Mr. Craig Morell of West Palm Beach, Florida; and Mr. Keith Steinberg of Alva, Florida, for their encouragement, advice, specimens, and copies of the pertinent literature. Finally, thanks to Mr. Robert Skinner of West Palm Beach, Florida, for the photography, and to Elizabeth Greawolf of Cambridge,

Massachusetts, and Dr. Lise Winer of Southern Illinois University, for critically revising the draft of the manuscript.

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We still have a good supply of *Aroids, Plants of the Arum Family* available. This book is a good general reference to the Araceae written by Deni Bown.

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