

FIELD NOTES ON *TRIANTHA OCCIDENTALIS* SUBSP. *BREVISTYLA* (C.L.HITCHC.)
PACKER IN WASHINGTON, USA

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Introduction, Taxonomy, and Ranges

Lin *et al.* (2021) argue that *Triantha occidentalis* may be carnivorous. To report their results to the readership of Carnivorous Plant Newsletter, I wrote a short introduction to the genus *Triantha* (Rice 2021). As I wrote that paper, I reflected upon how the work by Lin *et al.* (2021) emphasized the more northerly subspecies, *Triantha occidentalis* subsp. *brevistyla*, but I had only ever seen the more southerly *Triantha occidentalis* subsp. *occidentalis*.

Accordingly, when my wife mentioned that she wanted to travel north to Washington state to attend an artists' workshop, I quickly affirmed my interest in joining her on the trip. I did not intend to learn a new artistic technique—I had my own plans which were centered upon *Triantha occidentalis* subsp. *brevistyla*. And after reviewing my notes and conversations with Kris Hardy (in Washington), I had a full slate of sites to visit. Here I'm going to describe a little of what I saw on two of those days in the field.

King and Kittitas Counties

I visited Washington in September—late season. The first day was spent visiting sites straddling the border of King and Kittitas Counties, at an elevation of about 1100-1200 meters. At this altitude I was up in the clouds—the air was heavy with fog that limited vision and deadened sound, and occasionally transformed into a light, drizzling rain. Everything was wet, wet, wet.

The region consisted of a complicated matrix of habitat types—mixed conifer forest, shrubland, open glades, and the occasional body of water. My goal was to reach a set of wetland clearings where I hoped to find *Triantha*.

I was still driving the dirt roads to my first destination when I encountered a nice roadside population of *Pinguicula macroceras* growing on wet rock. A cute little carnivorous plant site, and I hadn't even reached my destination yet! I knew it was going to be a good day.

Kris Hardy (pers. comm. 2019, 2021) told me he suspects that some of the populations of *Pinguicula* near the ones I saw might be *Pinguicula vulgaris*. It would be interesting to revisit the area when they were in flower, but that would have to wait for another trip.

Parking my car on the edge of the dirt road in Kittitas County, the first site was a pond that was an easy push through about 50 meters of dense shrub. The shrubs were graciously free of spines, but by the time I emerged at the water's edge I was drenched with water from the rain-sodden foliage. The pond surface was dotted with leaves of *Menyanthes trifoliata*, which is a great indicator for an intact clean habitat. Even so, I was unable to find any *Utricularia* in the pond.

The shoreline of the pond was dominated by *Sphagnum* and monocots, as well as plentiful *Drosera anglica* (a short leaf blade form). I was gratified to see plenty of *Triantha occidentalis* in fruit on the margins of the pond, growing in the same sphagnous habitat as the *Drosera* (Fig. 1a). Each plant



Figure 1: (a) *Triantha occidentalis* subsp. *brevistyla* in Kittitas County (Washington). Late season, the leaves are starting to yellow and the fruit are bleached. (b) A bleached inflorescence. Notice that the flowers (now fruit) are grouped in threes; hence the genus name *Triantha*. (c) An old senescing inflorescence in Kittitas County, retaining small bits of detritus on the glandular scape.

consisted of a flat spray of 3-5 leaves about 15 cm tall, and the leaves were starting to yellow at the tips. The *Triantha* was in fruit, and I was surprised to see that the fruit color ranged from cream to bone white (Fig. 1b). Since *Triantha* fruit are usually bright red, these fruit were very old and becoming bleached from the elements. Searching the area, I found some plants with fresher fruit that had a clear red flush. Even though the fruit were so old, the inflorescence axes were covered with gummy glands, making the plants very sticky to the touch. Under close examination I saw the stems had bits of small detritus adhering to the glands, but which appeared to be dried plant matter (Fig. 1c).

I travelled on foot from this site a short distance into King County, to investigate another nearby *Drosera* site. This site was different in character and I was curious if *Triantha* might be found in this habitat. Instead of being a sphagnum lake margin, it was a large sloping clearing in a forest that followed a meandering, braided stream, which had carved itself a small gully in the clearing. *Drosera anglica* grew in the stream flow gully. Since *Drosera anglica* can't resist active stream flows, this region must not be subjected to much seasonal flow variation (the site is fairly close to the top of the watershed). *Triantha* occurred throughout the habitat, usually in slightly higher and drier conditions. In general, the *Triantha* was less picky about acceptable habitat as was *Drosera anglica*. Here, as before, the fruit was bleached white. Breaking open some of the fruit, I examined the seeds. They were slightly less than 1 mm long, ovoid, orange, and each was contained in a tiny, white, baglike structure.

Frustratingly, in later conversations with Kris Hardy, I discovered I was only about 100 m from one of the putative *Pinguicula vulgaris* populations! Reasons for another trip in the future!

Whatcom County

With another day on my hands, I opted to drive to the northern edge of Washington, to explore the region near Mt. Baker and Mt. Shuksan. This is a spectacular area with scattered lakes,



Figure 2: A lovely riparian habitat with *Triantha* and other plants in Whatcom County.

scree slopes, snow fields, and glaciers (the glaciers on Mt. Baker are among the only ones in the USA that are not receding because of climate change). I had data for several *Pinguicula* sites, some of which would require some effort to reach, and I was looking forward to the challenge. I also had data on nearby *Triantha* sites, but since the *Triantha* plants I had seen on my earlier



Figure 3: (a, b) *Triantha* peduncles at a riparian site with captured insects. (c) Bright, red fruit. (d) Peduncle from plants at the base of a wet cliff wall.

trip were past their prime, they were lower priority.

Parking my car, I began my hike. The flora was marvelously unfamiliar to me, and my progress was slow as I photographed my way through the alpine habitats. A stream crossing at about 1300 m was particularly beautiful, rich with *Parnassia fimbriata*, *Platanthera stricta*, and *Vera-trum viride*, all of which were new to me on this trip. As I photographed my way along the stream, I was delighted to find *Triantha occidentalis* (Fig. 2). Clearly this site was a little earlier in the season (the elevation was slightly higher than the sites in King County and Kittitas County). The peduncles were still fresh and green, and with some care I was able to photograph the many captured insects and bright red fruit (Fig. 3a, b, c). These plants were growing in the saturated, mucky soils on the very edge of the riparian habitats. No *Drosera* or *Pinguicula* were visible—this was not a surprise to me, since the stream was probably subject to stronger flows during periods of snowmelt; *Drosera anglica* and *Pinguicula* usually are too weakly rooted to withstand such seasonal flows. In contrast, the *Triantha* was firmly affixed to the soil.

Hiking further, I approached a sheer, south-facing rock wall with water dribbling over its surface. Peering through my binoculars, I could see *Pinguicula* high on the cliff face. I traced the flow of water down the rock face, down to the cliff base, which was fortunately easily accessible. And there, as expected, I found large colonies of *Pinguicula*. It was quite close to the trail, and while I could see people had been knocking plants off the rock face (probably more by accident than plant poaching), there was plenty of seedling activity. Interestingly, the *Triantha* was able to survive in tiny pockets on the wet rock cliff, just like the *Pinguicula* (Fig. 4). Here, as before, the *Triantha* inflorescences were capturing many tiny insects (Fig. 3d). A close look at the *Pinguicula* leaves showed that they were capturing the same type of insect (Fig. 5)! As before, wherever the ground was permanently moist, I also found *Triantha*, with fruit ranging from bright red to bleached (Fig. 6).

Overall, this was a delightful and enlightening trip. It was fascinating to observe how closely the classically recognized carnivorous plants (*Drosera anglica* and *Pinguicula macroceras*) were associated with *Triantha*. Meanwhile, *Triantha* can resist being dislodged by seasonal high water flow, so can persist in places that would be otherwise suitable for weakly rooted *Drosera* and *Pinguicula*.

For those seeking more media from these days in the field, I have posted a twelve-minute *Tri-antha* video on my YouTube channel (<https://www.youtube.com/watch?v=eiX9SqY1PRI>).



Figure 4: *Triantha* growing on a sheer, wet rock wall with *Pinguicula macroceras*.



Figure 5: Close view of insects captured by *Pinguicula macroceras*.



Figure 6: *Triantha occidentalis* subsp. *brevistyla* fruit in various shades of bleaching, growing with *Pinguicula macroceras* and *Parnassia fimbriata*.

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