

The Search for Wild Gaura, Part I

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August is not the best time to travel to Texas. I'd much rather be there in January or February when the weather in Minnesota is too cold to wander outside. However, August is when the fruit was ripening on the plants of interest to Dr. Neil Anderson and myself. We were funded by the Perennial Plant Association to spend a week in Texas collecting seeds and plants for the gaura breeding program. The plants we were looking for included *Gaura lindheimeri*, *G. coccinea*, *G. calcicola*, *G. sinuata*, and *G. drummondii*. All of these plants are native to Texas and *G. lindheimeri* is sold commercially as a perennial throughout the United States. We were collecting these plants in their native habitat to increase the germplasm bank and research new gaura species for possible introductions as annuals or perennials in Minnesota.

Our collection sites throughout Texas were found through a database at the Texas herbarium. These sites had been recorded by previous collectors and included many sites from Raven and Gregory (1972). They recorded several sites where *Gaura coccinea* could be found, which is of particular interest to us since we are using MN populations to introgress winter hardiness into *G. lindheimeri*. *G. coccinea* is a polyploid, ranging from diploid ($2n=2x=14$) to octaploid ($2n=8x=56$). The MN populations are all tetraploid ($2n=4x=28$), while *G. lindheimeri* is a diploid ($2n=2x=14$), which makes crosses between the two difficult. Raven and Gregory (1972) found diploid *G. coccinea* in a region of Texas where we were traveling, so we hoped to collect plants at this site.

Dr. Anderson and I finally arrived in Texas after several delays at the airport due to bad weather in Minnesota, to a warm, sunny afternoon in San Antonio, TX. It took us a little while to gather our bags and find our

rental vehicle, but once everything was taken care of, we hit the road!

We set off north and came across our first site late in the afternoon. It was just outside a small park and was quite scenic. We spent the next hour or so combing the mowed area along a river, on up to the fence separating the park from the neighbors land, looking for *G. coccinea*. Finally, in an un-mowed area at the edge of the park, we came across our first tiny pink flower that looked like *G. coccinea*! Then we found another plant nearby. We searched the area thoroughly and found several more small plants for a total of seven. We were excited and immediately ran for the truck to get our collecting gear and computer for data recording. Dr. Anderson measured the plants and I recorded the data. When we finished measuring and data collection we collected what seeds we could and took stem cuttings of the plants.

We collected data on plant height, inflorescence height, flower color, leaf shape, stem color, rhizome production, fragrance, inflorescence type, plant habit, number of branches, and number of leaves for 5 plants at each site. Plants were labeled with a site number and a plant number, such as 210-1 for the first plant we found at site 210 (our first site). The first plants we found were only one stem, so we were wary to take cuttings, so we decided to harvest about half the plants. We were elated with our early success and proceeded to our next site hoping for similar success. Unfortunately, we didn't get there until after dark, so we mentally marked the spot for the next day.

The next morning we got up early and had a quick breakfast at the hotel. We were eager to continue our search so I managed to get up early enough to leave by 8 (I'm not a morning person!). We headed back to the site we had

marked the night before, looking for *G. calcicola* this time. Neither of us had seen this species before, but we had pictures for comparison. This site was on the side of the road and encompassed a rocky hillside, where we found quite a few plants. Once again, collected data on up to five plants, collected seeds and stem cuttings, and headed on to the next site.

As we traveled further west we began to find sites where we could not locate *Gaura*. One site was along the road out in the middle of nowhere. When we got out of the truck and looked around, the roadsides appeared to have been graded recently. The only plants we found were these scrawny weeds with 3 inch thorns on them, which were difficult to get out of our boots!!! At other sites we found *Gaura* plants that were not listed for those sites, such as *G. calcicola* at a site where we should find *G. coccinea*, or *G. suffulta* where we were looking for *G. drummondii*. On our third day we reached the area where we should find the diploid *G. coccinea*; a mountainous area in western Texas close to Big Bend National Park. We parked the truck on the side of the road and each took a side and began the search. We wandered up and down the road (we were on a hill) and climbed the rocks on the ridge on either side. Finally, we spotted a plant which looked very different from the *G. coccinea* plants we had seen up until then! We collected data, harvested stem cuttings and seeds, and scoured the hills looking for more. We didn't find any there, but, on a hunch, we drove down the road and pulled over again and searched the area. And we found more! They were growing in a rain ditch that still had some water, along with a lot of other plants. These gaura plants looked similar to the one we had

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found on the hill above and we are hoping that all of these plants are diploid.

With all the excitement and success finding diploid *G. coccinea*, we decided to add another species, *G. macrocarpa*, to our list. We were near a site where it had been collected, however, we didn't have much luck, finding only one plant. We stopped for lunch at a rest stop up the road and hit the jackpot with *G. coccinea*. The plants were loaded with seeds! We decided not to collect data since they were not on our original list, but we did collect the seeds.

This concludes the first part of the search for wild gaura. Stay tuned as the adventures continue down the border of Mexico and back east to the hot, humid city of Houston! See what new species we found and take a look at *Gaura lindheimeri* in the wild! Part II will appear in the next issue of the bulletin.

References.

Raven, PH and DP Gregory. 1972. A revision of the genus *Gaura* (Onagraceae). *Memoirs of the Torrey Botanical Club*, (Dec.) 1:1-96. Seeman Printers, Durham, N.C.

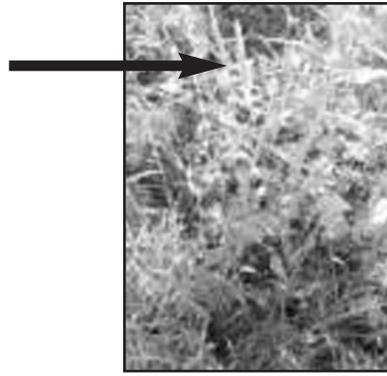


Figure 1 Diploid *Gaura coccinea* (arrow) found growing in the wild.

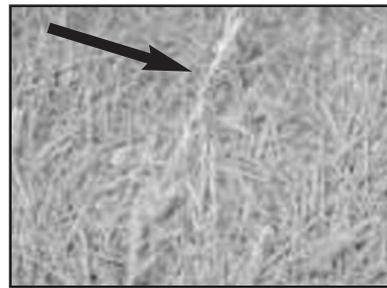


Figure 2 Tetraploid *Gaura coccinea* we found growing at many Texas collection sites.

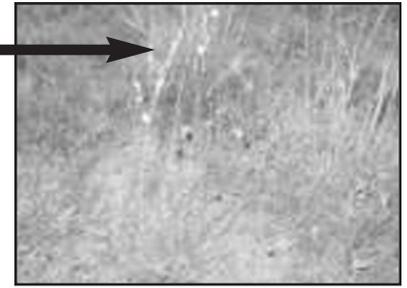


Figure 3 *Gaura calcicola* found at several Texas collection sites.



Figure 4 Our collection route through Texas. The stars indicate collection sites for wild gaura species.

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