

A new color form of *Helianthus angustifolius* L.

John Michael Kelley

Walter Jacobs Nature Park, Caddo Parks and Recreation; Blanchard, Louisiana 71009, USA

jkelley@caddo.org

or

Kelley Botanical Library; Haughton, Louisiana 71037, USA

kelley.johnmichael@gmail.com

ABSTRACT

A uniquely colored form of *Helianthus angustifolius* was discovered by Rob Mcelwee of Coushatta, Louisiana and is described here. *Helianthus angustifolius* f. *bicolor* has ligules which are reddened at their base and darker red stems than typical. Published online www.phytologia.org *Phytologia* 104(3): 40-44. (September 20, 2022). ISSN 030319430.

KEY WORDS: Forma, Louisiana, anthocyanin

Helianthus angustifolius L. is a short-lived perennial sunflower, from fibrous roots, with golden-yellow rays and reddish-brown disks, which inhabits moist grassland habitats throughout the southeastern United States (Correll and Johnson 1970, Steyermark 1963, Weakley 2022).



Lifelong plant enthusiast Rob Mcelwee, of Coushatta, Louisiana, stumbled across a very distinct color-form of *Helianthus angustifolius* in the Fall of 2020 (Fig. 1). The ligules were distinctly reddened toward their bases (see Fig. 2). The plants re-emerged and bloomed in 2021, which afforded me a closer examination.

Figure 1. Rob and his sunflowers at the type locality.

After hearing of Rob's discovery, I examined numerous herbarium sheets of *Helianthus angustifolius* digitized online (SERNEC 2020), but found none with similar pigmentation patterns. I then consulted experienced researchers of the Southeastern flora and spoke with horticulturists in Louisiana who had seen similar plants. The researchers had not encountered this type of coloration in *Helianthus angustifolius* or any other perennial members of *Helianthus*. Similar forms of *Helianthus annuus* are under cultivation, but these resulted from hybridization (Byrne and Marek 2020). One researcher postulates that the mechanism at play in the ligule coloration might be a mutated replacement of anthocyanins in the place of flavonoids. Rick Johnson, longtime curator of Briarwood Nature Preserve in Natchitoches parish, reported that bicolored plants had grown for years in a wildflower meadow onsite, and upon visiting I found a single representative plant. Buddy Lee, a Nurseryman of Tangipahoa parish, reported seeing similar plants in his region around 2009. Nurseryman Rick Webb reported that he successfully grew plants with this ligule coloration for a few years, but they eventually died. These reports suggest that the form is recurring in Louisiana, but no geographic range is yet clear. Though Rob is attempting to grow the plant from seed and clump division, each horticulturist I spoke with remarked on the difficulty of growing this species beyond one or two seasons. Steyermark (1963) also mentioned this difficulty.

Very few subspecific taxa of *Helianthus angustifolius* have been named, and the few previously published were defined by leaf characters (Fernald 1947; Mohr 1901). Based on evidence that this coloration is novel in perennial sunflowers and occurs sporadically in multiple populations, I propose the following name for Rob's discovery:

***Helianthus angustifolius* forma *bicolor* J.M. Kelley f. nov. - TYPE: USA. Louisiana.** Natchitoches Par.: on Rob McElwee's property along a woodline, [25-35] plants scattered in a colony 20'x10', soil mapped as Shatta series, Parish road 110, coord. 31.983608, -93.223673, 2021, J.M. Kelley 784 with R. McElwee (holotype: LSU). (Figs. 2-4).

DIAGNOSIS

Similar to the typical form, except with ligules reddened proximally, somewhat like *Coreopsis tinctoria*, and with stems noticeably more reddened. This form is apparently recurring in Louisiana populations. It should be sought and annotated to clarify its range. The coloration suggests interesting chemical or genetic variance not yet investigated in the species.

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LITERATURE CITED

- Fernald, M. L. 1947. Contributions from the Gray herbarium of Harvard University—NO. CLXIII. Additions to and subtractions from the flora of Virginia. *Rhodora* 49: 85-115.
- Byrne P. and L. Marek 2020. Case Study: Sunflower Domestication and Breeding. In: Volk GM, Byrne P (Eds.) *Crop Wild Relatives in Genebanks*. Fort Collins, Colorado: Colorado State University. (<https://colostate.pressbooks.pub>, Accessed July 2022)
- Correll. D. S. and M. C. Johnston. 1970. *Manual of the vascular plants of Texas*. Texas Research Foundation, Renner, Texas.
- Mohr, C. 1901. Plant life of Alabama. Contributions from the US National Herbarium. VI: 1-921.
- SERNEC Data Portal. 2020. (<http://sernecportal.org/portal/index.php>, Accessed March 2022).
- Steyermark, J. A. 1963. *Flora of Missouri*. Iowa State University press, Ames.
- Weakley, A. S., and Southeastern Flora Team 2022. *Flora of the southeastern United States*. University of North Carolina Herbarium, North Carolina Botanical Garden.



Figure 2. Range in color on plants of forma bicolor. Most plants with reddened ligules have a consistent amount of color on all heads with some plants being very dark and others lighter.



Figure 3. Stem color of typical form (left) and forma bicolor (right).



Figure 4. Type specimen after fully drying.