RECENT DISCOVERY OF A SIGNIFICANT POPULATION OF *DROSERA ROTUNDIFOLIA* (DROSERACEAE) IN NORTHWEST ALABAMA (U.S.A.)

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ABSTRACT

Drosera rotundifolia reaches its southern-most North American extent in Alabama, where it is considered quite rare. Adding to that rarity, previously reported Alabama coastal plain populations are dismissed due to confusion with *D. capillaris*, while northwestern Alabama populations have either been much reduced or completely destroyed.

The recent discovery of a large, robust colony of *Drosera rotundifolia* in a remote area of Winston County represents a significant event in the study of Alabama's carnivorous plants.

RESUMEN

Drosera rotundifolia alcanza su extensión más meridional en Norteamérica en Alabama, donde se considera bastante rara. A esta rareza se añade el hecho de que las poblaciones de la llanura costera de Alabama de las que se había informado anteriormente se han descartado debido a su confusión con *D. capillaris*, mientras que las poblaciones del noroeste de Alabama se han reducido mucho o han sido completamente destruidas.

El reciente descubrimiento de una colonia grande y robusta de *Drosera rotundifolia* en una zona remota del condado de Winston representa un acontecimiento muy significativo en el estudio de las plantas carnívoras de Alabama.

Broadly distributed across North America, Europe, Asia, and Oceania, the Roundleaf Sundew, *Drosera rotundifolia* L. (Droseraceae), occupies wet, boggy habitats in cold temperate and montane regions (Lowrie et al. 2017). Charles Darwin (1875) extensively studied its British populations to "prove" the species' carnivorous habits.

In North America, *Drosera rotundifolia* is best known and most common in northern climes, where it grows in a variety of habitats, from sphagnum bogs to beaver ponds, old borrow pits, and sandy shorelines. Poorly adapted to warmer climates and therefore less abundant in the South, *D. rotundifolia* occupies mainly stream margins and seeps of rock outcrops (Mellichamp 2015).

In North America, three varieties of this species are recognized. *Drosera rotundifolia* L. var. *rotundifolia* occurs throughout the continent; var. *comosa* Fernald has been designated for parts of New England, and var. *gracilis* Laested in Alaska (Mellichamp 2015). For simplicity, we will refer to the Alabama taxon as *D. rotundifolia* throughout this paper.

Alabama Populations – Gulf Coastal Plain

In Alabama, at the extreme southern end of its North American distribution, populations of *Drosera rotundifolia* are considered quite rare, officially ranked as "S1" (ANHP 2023). They fall into the following two categories.

Several internet sources depict the presence of *Drosera rotundifolia* populations in the southern portion of Alabama's Gulf Coastal Plain Province, an area outside its typical range. The Alabama Plant Atlas (Keener et al. 2025) lists a collection dated 21 Jul 1926 from Baldwin County (*W. Wolf s.n.,* AUA). While no image is included on the website, one provided by Auburn University's Curtis Hansen verifies that the specimen instead represents the widespread, pink-flowering coastal plain species, *D. capillaris* Poir.

Other map sources (NatureServe 2024; USDA 2024) show three more coastal plain counties—Escambia,

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Pike, and Washington—with populations of *Drosera rotundifolia*. However, no vouchered specimens or literature citations are presented. Since these counties are well south of the natural range of *D. rotundifolia*, we join Troy University's Alvin Diamond (pers. comm. to DMF) in suspecting confusion with the more common and similar appearing *D. capillaris*.

Alabama Populations – Cumberland Plateau

In contrast to the above, several verified and vouchered specimens of *Drosera rotundifolia* are known from the Cumberland Plateau region of northwestern Alabama. These areas, featuring cool ravines dominated by Canadian Hemlock (*Tsuga canadensis* (L.) Carr.), evoke the Northern regions typical of the species.

For Walker County, the Alabama Plant Atlas (Keener et al. 2024) features one such specimen (with eight flowering plants) of *Drosera rotundifolia,* collected by A.M. Harvill and Charles B. Segars on 10 Jul 1949 (*Harvill & Segars 47*, UNA). The locality was recorded as "sandy, rocky soil under a rock shelter along Duncan Creek" about three miles north of Curry. However, this site no longer exists. The completion of Lewis Smith Lake in 1961 inundated the bluffs along Duncan Creek, extirpating the only recorded population of *D. rotundifolia* in Walker County.

Smith Lake originated from the impounded waters of the Sipsey Fork of the Black Warrior River; as such, much of the lake is found within William B. Bankhead National Forest of Lawrence and Winston counties. This rugged and remote land houses the Sipsey Wilderness Area, the first federal wilderness designated in the eastern United States, in 1975. (For details on the efforts to secure such protected status, see Randolph 2005).

Six weeks after their Duncan Creek expedition, Harvill and Segars visited Kinlock Falls in Lawrence County, immediately west of the future Sipsey Wilderness. (The two University of Alabama biologists formed part of a team studying the distribution of Canadian Hemlock; see Segars et al. 1951). There, on 29 August 1949, they collected ten flowering individuals of *Drosera rotundifolia* (*Harvill & Segars 140*, UNA) from "wet, muddy soil of rock shelters" along Hubbard Creek. (Native American rock shelters are commonly found within the rocky ravines of Bankhead National Forest.) Almost exactly four years later (31 August 1953), Segars returned to the site with Ralph L. Chermock, collecting three flowering *D. rotundifolia* from the "face of sandstone bluffs in water seepages below the falls" (*Chermock & Segars s.n.*, UNA).

Nearly sixty years passed before the next collection of *Drosera rotundifolia* from Lawrence County. On 15 Aug 2010, State Botanist Wayne Barger and Brian Holt collected one small, green, non-flowering specimen (*Barger & Holt SP706*, ALNH) from the Kinlock Falls area. Barger (pers. comm. to LJD) described the locality as "sandy, wet grit on a protected ledge." So few individuals were available that he hesitated to take a voucher specimen.

Based on the above collections, we conducted multiple field trips to the Lawrence County site from 2020 to 2024, surveying ca. two miles of creek bank bluffs upstream and downstream from Kinlock Falls. Despite those attempts, we failed to find a single trace of *Drosera rotundifolia*.

Much has changed in the Kinlock area since the 1950s, and we suspect that the original population is markedly diminished, if still present. Once secluded and pristine, Kinlock Falls is currently highly trafficked by hikers, swimmers, and picnickers, with accompanying pockmarked rockfaces, eroded wooded slopes, and abundant trash heaps. In addition, Hubbard Creek's ravine, which housed sun-demanding *Drosera rotundifolia* colonies seventy years ago, is now deeply shaded, even on south-facing slopes.

New Winston County Record

In November 2023, DMF viewed an iNaturalist post with a photograph clearly depicting *Drosera rotundifolia* from Winston County, Alabama. The author, Leitha Lee, proved to be a local resident and naturalist who enjoys hiking the far reaches of the Bankhead, concentrating on its smaller creeks and tributaries. On 01 Jul 2024, she led us to an extremely remote area along North Fork Caney Creek (Fig. 1).

There, at the base of a sandstone bluff on the sunny northern creek bank, *Drosera rotundifolia* grows in a nearly unbroken horizontal row ca. four feet above normal water level (Fig. 2). The bluff base, kept wet by

Fig. 1. View of North Fork Caney Creek, Winston County, Alabama, with *Drosera rotundifolia* habitat on the right.

Fig. 2. Habitat of *Drosera rotundifolia* (red patches) on vertical Pennsylvanian age quartz sandstone along North Fork Caney Creek.

Fig. 3. *Drosera rotundifolia* growing on moss-covered quartz sandstone.

seepage, houses plants growing on thin rafts of moss and from hairline fractures in the rock, with little to no soil (Fig. 3).

This vibrant, thriving population—estimated to contain more than two thousand individuals—ranges from tiny seedlings to adults reaching 70 mm in rosette diameter, with many in full bloom (Fig. 4). Sundews inhabiting the sunnier portions of the habitat display red leaf coloration (Fig. 5) due to protective compounds, while those from shadier portions are light green (Fig. 6).

Fig. 4. Closeup of *Drosera rotundifolia* flower along North Fork Caney Creek.

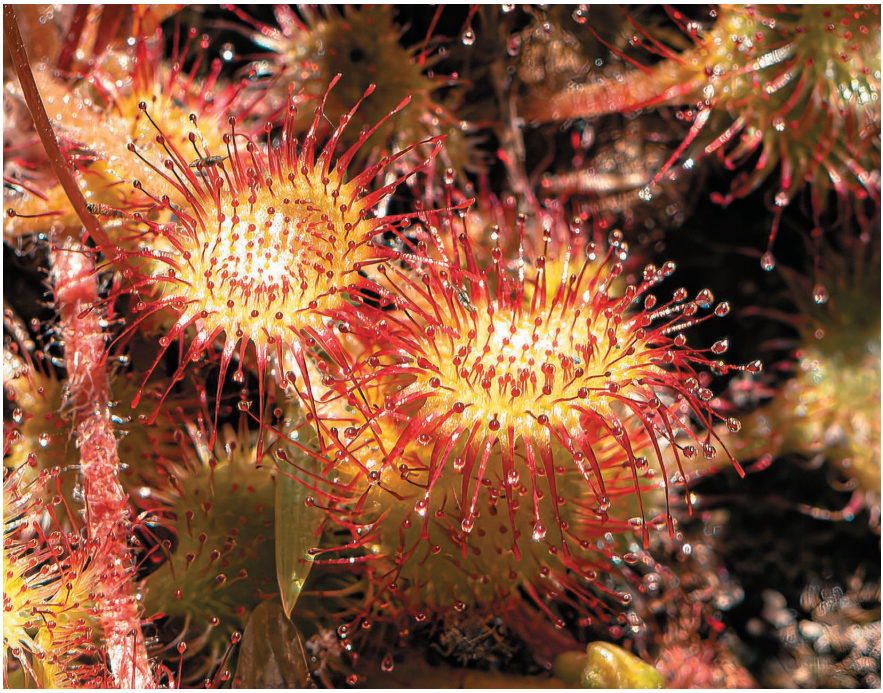

Fig. 5. Bright-red leaves of *Drosera rotundifolia* when growing fully exposed to sunlight.

Fig. 6. Green leaves of *Drosera rotundifolia* growing in shaded areas.

Due to the rarity of this species and its "new" presence immediately south of the protected Sipsey Wilderness, only two voucher specimens were collected (*Davenport 7121*, SAMF, UWA).

RESULTS

Figure 7 shows the current known distribution of *Drosera rotundifolia* in Alabama. The three unvouchered coastal plain "records" are dismissed due to confusion with *D. capillaris*. The Baldwin County population, likewise misidentified, is from "inappropriate" Pleistocene age alluvial sediments (Szabo et al. 1988).

In contrast, the historic and new populations in Walker, Lawrence, and Winston counties are (or were) on quartz sandstone of the Pennsylvanian age Pottsville Formation in the Cumberland Plateau Province (Szabo et al. 1988). The Walker County (Duncan Creek) population was destroyed following the completion of Smith Lake, while the Lawrence County (Kinlock Falls) population—if still extant—is a much-reduced remnant of its former self.

Which makes the "new" Winston County population vitally important. This discovery, the southernmost *Drosera rotundifolia* in North America, represents a relic from post-glacial times, remaining in (and sustained by) cool, protective Canadian Hemlock ravines.

CONCLUSIONS

In his epic treatment of Alabama plants, Charles Mohr (1901) placed the hemlock forests of the Bankhead area on such post-glacial grounds:

> Viewed in this light, the occurrence of the hemlock … on the extreme extension of the Allegheny Mountains, in Winston County, Ala., in a completely isolated spot hundreds of miles distant from the range of its distribution, can be accounted for when they are regarded as the sole remnants of the northern arboreal flora which during the glacial period was pushed to lower latitudes and which on its recession to cooler zones left these trees behind in the narrow valley of the Sipsey River. …

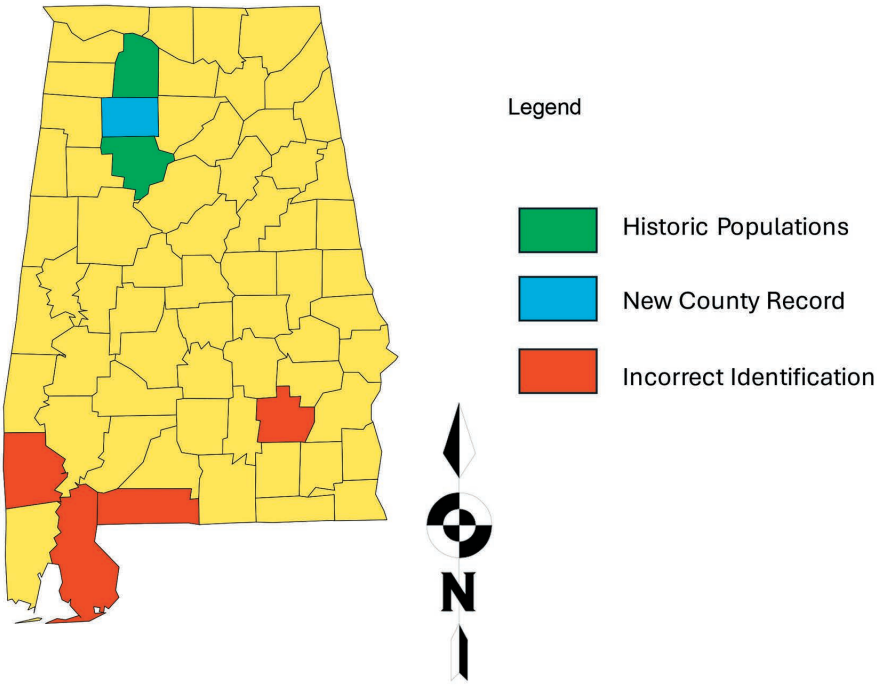

Fig. 7. Distribution map of historical and new populations of *Drosera rotundifolia* in Alabama.

The same can be said for Canadian Hemlock's companion species, *Drosera rotundifolia*, "pushed" south by the glaciers into this remote, rugged, largely unexplored region. And there it remains. How many other populations might we find on wet, sun-drenched sandstone bluff faces, tucked into isolated coves of Alabama's Bankhead National Forest?

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