SUMMARY

Phyllanthus anderssonii or Broom is a shrub endemic to Barbados, commonly found in gullies, with green leaves, zigzag stems, and distinctive 3-lobed fruit. It thrives in rocky, low-soil environments and shows ecological plasticity, growing under both open and closed canopies. The species has limited genetic information and evolutionary study but is adapted to local alkaline soils. Reproduction peaks in wetter months, with seed dispersal likely by gravity or small animals. Habitat degradation, especially gully destruction, threatens its survival despite recent reports of local abundance. *Phyllanthus anderssonii* is not classified in the IUCN Red List of species, however, it is recorded elsewhere as endangered due to its restricted and fragmented range, emphasizing the need for habitat protection. The species holds some cultural significance locally but remains generally poorly known.

Broom (*Phyllanthus anderssonii* Müll. Arg., 1866)
Family: Phyllanthaceae (Seed-under-leaf)
Order: Malpighiales
Class: Magnoliopsida

Broom (*Phyllanthus anderssonii* Arg,1866)

SPECIES CHARACTERISTICS

A species of the Phyllanthaceae (seed-under-leaf) family, *Phyllanthus anderssonii*, is a shrub that is most common in gullies in Barbados, protruding up to two meters from the ground (Carrington, 2023). *Phyllanthus anderssonii* has green leaves up to 5 cm in length and zigzag stems (Howard, 1989). Nodes with several flowers are hanging on fine stalks below the leaves of branches, each bearing six sepals (Howard, 1989). Petals are absent. From the flowers, 3-lobed, globular fruit, which are pale green and up to 6 mm in diameter, are obtained, consistent with the seed-under-leaf designation. Three stamens are fused together in male flowers, and three styles are found in female flowers (Howard, 1989). *Phyllanthus andersoni* Müll. Arg. with its similar spelling can be confused with *Phyllanthus anderssonii* Müll. Arg. but is quite different and is of Asian distribution. (World Flora Online, 2026). However, Broom is significantly smaller in size, being a shrub rather than a tree. In addition, the leaves of *Phyllanthus andersoni* (most recent name: *Glochidion ellipticum* Wight.) are lanceolate, whereas those of *Phyllanthus anderssonii* are elliptic to ovate.

EVOLUTIONARY HISTORY AND GENETICS

To date, no specific evolutionary work has been done on *Phyllanthus anderssonii*, and little genetic information has been recorded for the species. However, much is known about the *Phyllanthus* genus, which reveals the need for its reclassification (Bouman et al., 2021). The evolutionary and genetic characteristics of the broom are closely related to those of other *Phyllanthus* species but are believed to have adapted specifically to the island's alkaline soils conditions. Due to its fragmented and small population size, there are significant concerns regarding the restricted genetic diversity and long-term viability of the species. Investigation into the ethno-pharmaceutical potential and biochemical applications of this endemic species is very limited, representing a critical knowledge gap in its potential medicinal application.

HABITAT AND DISTRIBUTION

Phyllanthus anderssonii is well adapted to gullies and can survive in thin pockets of soil where almost no other plants can grow. This characteristic makes the species a potential lithophytic specialist. Broom also exhibits notable ecological plasticity and grows well in densely vegetated areas that are either rocky cervices or areas with more substantial soil substrates. Broom is not an open-canopy-dependent species and can be found under the shade of tall trees (closed canopy) or under open sunlight (open canopy). In its natural habitat, this plant occurs in clusters rather than singly (solitary).

The distribution of Broom is believed to be limited to coralline regions but is it is also found in the Scotland District with its distinct complex oceanic sedimentary sandstone and shale parent material (Day & Day, 2017).

Presently, much of the Barbados gullies are being cleared; therefore, there is a possibility that the plant’s distribution and density will decrease considerably within the next decade. From an ecological perspective, gullies in Barbados can be considered endangered (Fields & Horrocks, 2009). Broom has been determined to have an IUCN Red List extent of occurrence (EOO) of only 27 km^2 (Carrington, Krupnick, & Acevedo-Rodríguez, 2017; IUCN, 2001), signifying the importance of the species limited distribution.

REPRODUCTION AND PHENOLOGY

Broom exhibits specific reproductive patterns similar to those of other members of the family. Flowering typically peaks during the wetter months, although some individuals may flower year-round, depending on moisture availability. The seeds are likely dispersed by gravity or by small animals. Little to no reproductive and phenological research has been conducted on the species, which offers the opportunity for local Bagan students to investigate.

INTERACTIONS WITH HUMANS

Historically, mass deforestation has occurred in Barbados, resulting in the loss of most native plant species (MARD, 1996; Rogers & McClain, 1998). Therefore, it stands to reason that *Phyllanthus anderssonii* is one of the many plants that have been on the receiving end of mass deforestation but have managed to survive because of its niche preference as a potential lithophytic specialist.

Unfortunately, most locals are not familiar with the species and are not aware of its unique ecological significance; it being only found nowhere else in the world, but on the island of Barbados. Many elders report that the species was commonly used as a broom, hence the local name.

CONSERVATION STATUS AND THREATS

Phyllanthus anderssonii does not appear on the IUCN Red List of Species. Although initially listed as endangered (Carrington et al., 2017), it has recently been reported to be common in gullies (Carrington, 2023). However, Gully ecosystems in Barbados are presently under threat from habitat degradation and pollution, and should be given national protection as protected areas. This will reduce the loss of Broom considerably, and many other unique species.

A list of Caribbean endemic plant species using the IUCN classification criteria was compiled. *Phyllanthus anderssonii* has been classified as endangered, on the grounds that its "area of occupancy (AOO)" has been estimated to be under 500 km^2, as well as being "severely fragmented or known to exist at no more than five locations" (Carrington et al., 2017; IUCN, 2001). The expectations of further and persistent reductions and habitat degradation likewise contributed to this classification (IUCN, 2001) is expected for this species in the future.

It should be noted that local abundance does not negate extinction risk. Under the IUCN Geographical Criterion B, a restricted AOO serves as the primary trigger, but a formal rating requires two additional sub-criteria, such as fragmentation or habitat decline. Although populations may exist beyond current herbarium records, the total AOO remains insufficient to shift the species out of a threatened category.

Significant research gaps exist regarding the island-wide distribution of Broom. Establishing systematic, long-term demographic monitoring is essential to facilitate a rigorous conservation assessment under IUCN Red List Criteria A (population size reduction) and C (small population size and decline).

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Did You Know?

For many plants, their common names can be quite fascinating and send inquirers on long twisting paths to find the reasons for these names. However, this plant does not fall into this category. As the name suggests, Broom (*Phyllanthus anderssonii*) has traditionally been used for sweeping. Branches are collected, plaited together, and used as brooms, reportedly being more durable and in some cases, more effective than storebought brooms.

Broom is a strong woody shrub distinguished by its "phyllanthoid" branching—that have short, lateral stems resemble compound leaves, making the branches ideal for sweeping.

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