A NEW SPECIES OF *EUGENIA* (MYRTACEAE) FROM THE ISLAND OF ANGUILLA

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Abstract. *Eugenia walkerae*, a new species from the island of Anguilla, is described and illustrated. This species is known only from five herbarium collections, and additional fieldwork is needed to determine its current conservation status. It resembles the Puerto Rican endemic *E. woodburyana*, and its seeds are comparable to those described for certain species of *Eugenia* from southern Africa. This is the second species of seed plant currently recognized as endemic to Anguilla.

Keywords: endemic, Lesser Antilles, systematics, taxonomy

In the Flora of the Lesser Antilles, McVaugh (1989) included a brief description of a Myrtaceous plant unknown as to genus and species from the island of Anguilla. The description was based on two sterile collections made by the French botanist Père Casimir Le Gallo in 1955. As reported by Howard and Kellogg (1987), efforts to relocate this distinctive species at the same locality in 1985 were unsuccessful; however, 10 years later, two additional collections of the same species in flower and fruit were made by Mary Morris Walker. An undivided, globular embryo and a single axillary flower that lacks a prolonged hypanthium but has a 4-lobed, open calyx persistent on the mature fruit indicate that the plant in question is a species of *Eugenia* L. Since it is distinct from all others known to me from the Antilles, it is here described as a new species.

Eugenia walkerae J. A. Flickinger, *sp. nov.* TYPE: ANGUILLA. Katouche Valley, 12 February 1995, (flower, fruit), *M. Walker 95-016* (Holotype: A). Fig. 1.

Eugenia ramulis minute hispidis, caeterum glabra; foliis obovatis v. ellipticis, 8.5–18 mm longis × 5–12 mm latis, apice rotundato v. retuso, basi late cuneata v. convexa, margine incrassato, recurvato, nervis lateralibus inconspicuis, crasse coriaceis, dicoloribus, subtus conspicue glandulosis; floribus solitariis ex axillis foliorum, pedicellis 2.5 mm longis, alabastris 3.5 mm longis × 2.5 mm latis, lobis calycis inaequalibus, majoribus rotundatis, minoribus triangularibus; baccis ellipsoidalibus, 6–7 mm diametro, glandulosis; embryone glanduloso, maculam fuscatam praebenti.

Shrub, glabrous except for the young twigs; hairs simple, pale; new growth arising from axillary buds, with a few pairs of decussate, rounded to triangular, dark bud scales at base, slightly flattened, hispidulous, brown; older twigs terete, glabrescent, glandular-verrucose, becoming smooth and developing a lightly fissured, gray bark. *Leaves* opposite, petiolate, glabrous even when young; petioles semiterete, 1–2 mm long × 1 mm wide, leaving a U-shaped bundle scar upon abscission; blades obovate to elliptical, 8.5–18 mm long × 5–12 mm wide, ca. 1.5 times as long as wide, apex rounded to retuse, base broadly cuneate or convex, margin incrassate, recurved, pale and decurrent into petiole, coriaceous, discolorous, drying light brown below, darker above; venation brochidodromous, midvein plane above, slightly prominent proximally below, lateral veins obscure, 4–6 pairs, departing from the midvein at an angle of 45–60°, forming an arching marginal vein ca. 1 mm from the margin; adaxial surface slightly impressed-punctate to plane; abaxial surface prominently and conspicuously glandular. *Inflorescences* axillary on new growth, solitary, 1-flowered. *Flowers* pedicellate; pedicels terete, 2.5 mm long × 0.3 mm wide, sparsely glandular; bracteoles free, ovate, 0.7 mm long in bud, glandular, ciliate, persistent, 1 mm long × 1 mm wide in fruit; buds obovoid, 3.5 mm long × 2.5 mm wide; calyx 4-lobed, open in bud, glandular, ciliate, larger lobes rounded, concave, 1.4 mm long × 1.9 mm wide in fruit, smaller lobes triangular, 0.8 mm long × 1.2 mm wide in fruit, rounded at apex; petals glandular. *Fruits* prolate ellipsoidal to spheroidal, 6–7 mm diam. when dry, crowned by the persistent, erect calyx lobes, glandular, ripening black; pericarp thin and fleshy with longitudinally oriented fibers and a membranous endocarp; 1-seeded. *Seeds* rounded; seed coat yellow-brown, more or less smooth on exterior surface, mottled brown on interior surface, with a hard outer palisade layer, a fibrous middle layer, and a series of inner periclinal layers appearing whitish in cross section; embryo ellipsoidal, 6 mm long × 5 mm diam., undivided, surface yellow-gray, wrinkled, glandular, with a dark spot near one end and a slightly raised stripe 0.5–1 mm wide running lengthwise from the end opposite the spot along the side opposite the same for somewhat greater than 1/2 the length of the embryo.

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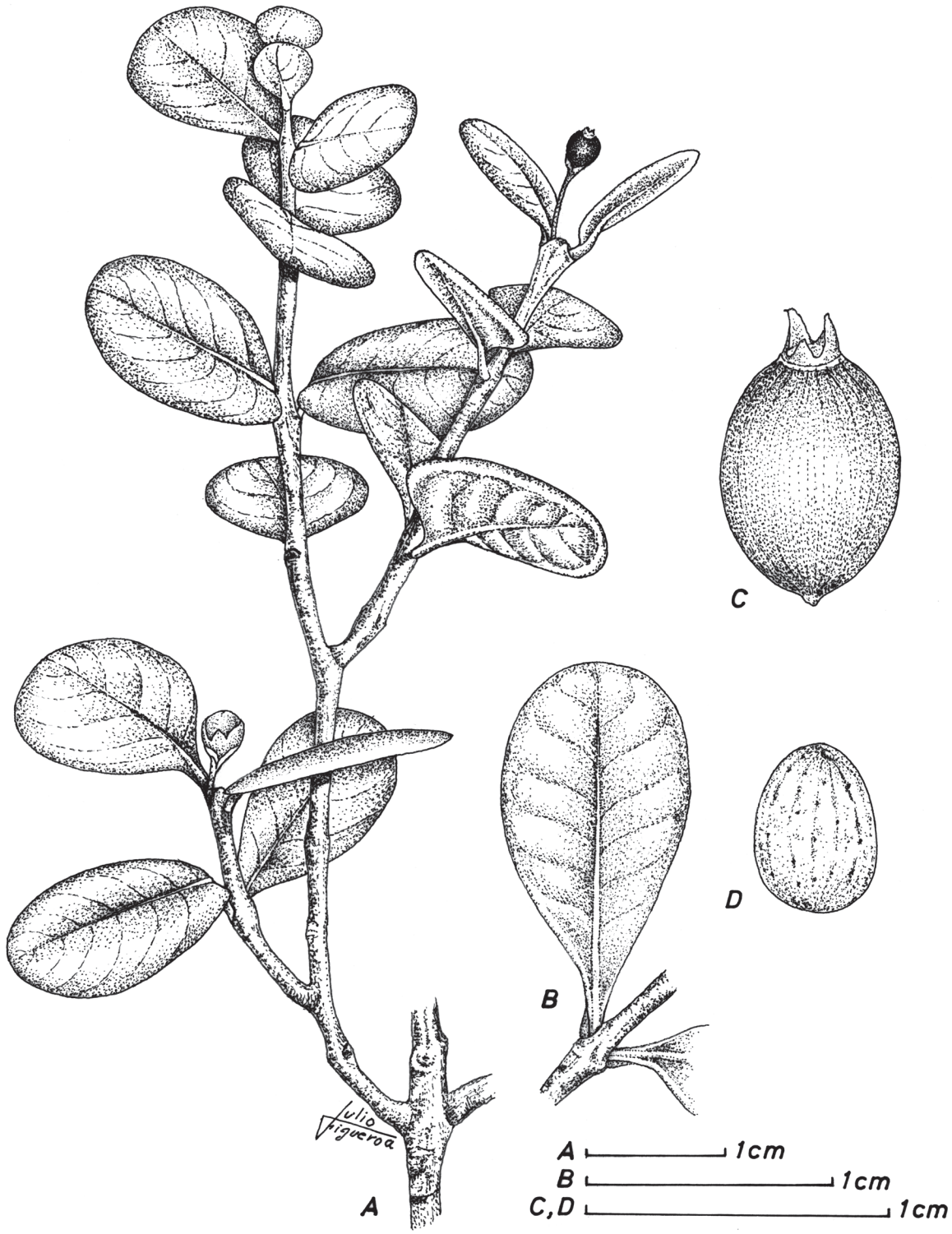

FIGURE 1. *Eugenia walkerae* J. A. Flickinger. **A**, habit; **B**, leaf; **C**, mature fruit; **D**, embryo. From *M. Walker 95-016* (A).

Eponymy: *Eugenia walkerae* is named for the collector of the type specimen, Mary Morris Walker (1923–2012), in recognition of her contributions to the botany of Anguilla through the Anguilla Flora Project (Walker et al., 2005).

Additional specimens examined: ANGUILLA. S rim of Katouche Valley near Governor's House, 4 February 1995, (fruit), *M. Walker 95-04* (A). The Valley, plateau calcaire, près de la chapelle catholique, alt. 15 m, 5 September 1955, (sterile), *C. Le Gallo 2480* (NY [photograph]). The Valley, plateau calcaire, à l'ouest de la chapelle catholique, alt. 15–20 m, 5 September 1955, (sterile), *C. Le Gallo 2483* (WAG [two sheets, photographs]). The Valley, plateau calcaire, alt. 20 m, 5 September 1955, (sterile), *C. Le Gallo 2493* (NY [photograph]).

Phenology: Collected with flowers and fruits in February.

Habitat and distribution: *Eugenia walkerae* is endemic to Anguilla, where it has been found in two separate areas (Fig. 2). The Le Gallo collections were made at low elevation on limestone in The Valley, the island's capital, whereas Walker's collections are from the nearby Katouche Valley. On a note included in the fragments folder of *Walker 95-04* (A), two question marks appear to indicate uncertainty as to the exact locality. The Katouche Valley supports dry evergreen forest vegetation restricted to a few sheltered sites on the island (Walker et al., 2005).

Conservation status: The current status of this species in the wild is unknown. As a single-island endemic with few collections, it is likely of conservation concern; however, the Katouche Valley is being preserved for eco-tourism (O. Hodge, pers. comm.).

The dimensions of the petioles and leaf blades given above are based on physical examination of Walker's two collections. These differ only slightly from the dimensions of the Le Gallo collections reported by McVaugh (1989), which were subsequently confirmed from images of the specimens.

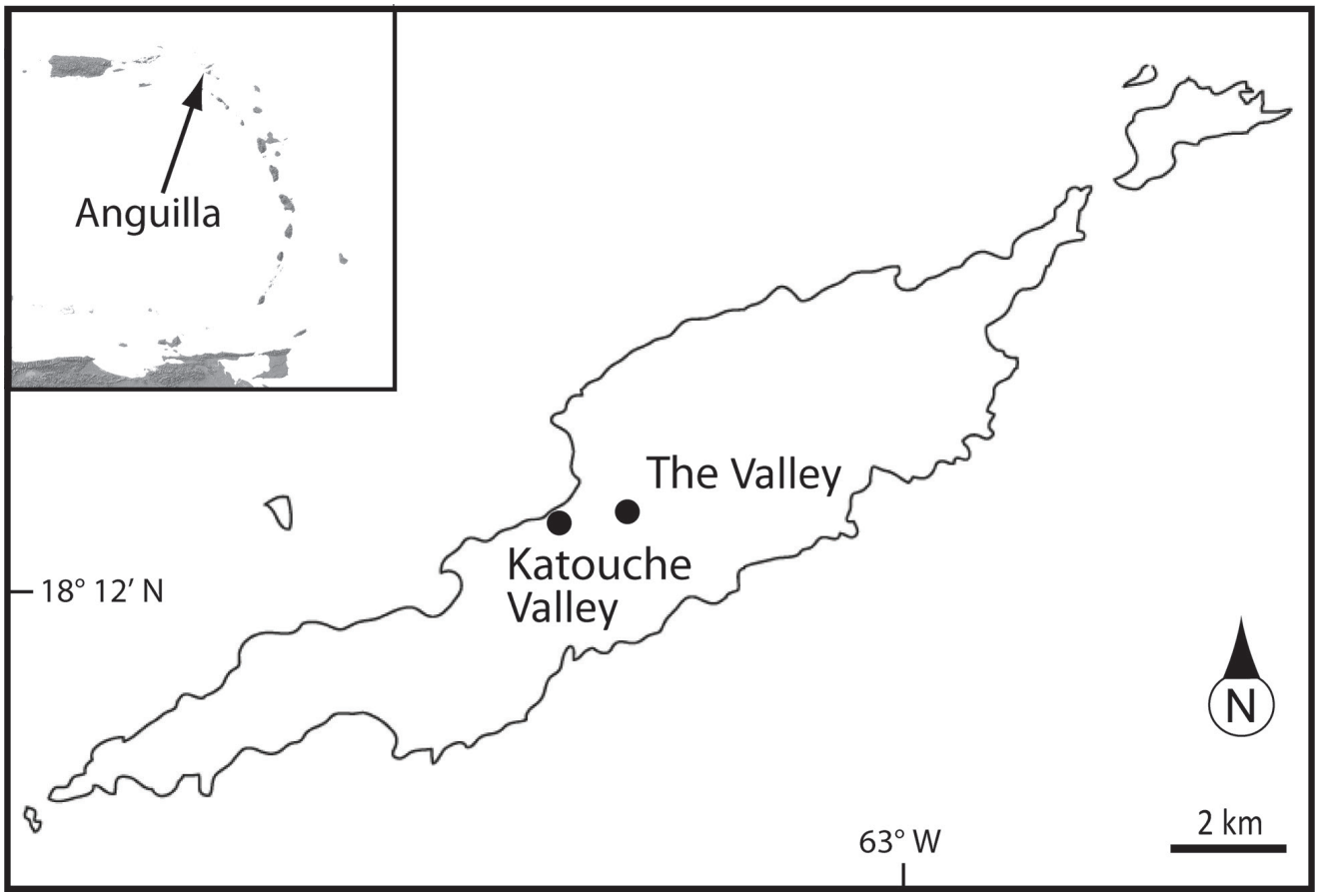

FIGURE 2. Map of collection sites for *Eugenia walkerae* J. A. Flickinger on Anguilla.

Among its congeners in the region, *Eugenia walkerae* resembles *E. woodburyana* Alain of western Puerto Rico in its coriaceous leaves drying darker above and hispidulous twigs. The leaves of *E. woodburyana* are generally larger and more elliptical, and the venation is prominulous. Hairs are also found at least on the petiole and along the margins of the leaves, as well as on the flowers and fruits. In flower, *E. woodburyana* differs in its short axillary racemes of 2–4 flowers with calyx lobes more or less equal in size and a ridged hypanthium. Its fruits are much larger (2 cm diam.) and 8-winged.

Comparison of the seeds of *Eugenia walkerae* with the detailed descriptions available for seeds of species of *Eugenia* native to southern Africa allows for interpretation of some of the features described above. Seed coats of southern African species develop from the outer integument and possess a mesophyll-derived layer consisting of "haphazardly arranged fibre-like sclereids" (van Wyk and Botha, 1984), which corresponds well with the fibrous middle layer observed in *E. walkerae* seeds. The outer palisade layer of the seed coat described above is characteristic of species of group X in southern Africa. In contrast, most group Y species possess an epidermal layer that is poorly differentiated from the mesotesta (van Wyk and Botha, 1984). The embryo of *E. walkerae*, though undivided, also more closely resembles that of group X species in having a glandular surface and possessing a dark spot that probably marks the location of the radicle (van Wyk, 1980). The significance of the raised stripe is unclear. More detailed descriptions of seed and embryo characters, especially for Neotropical species, may prove useful in the classification of this large genus.

Howard and Kellogg (1987) accept only a single endemic species of spermatophyte for the flora of Anguilla, their newly described *Rondeletia anguillensis* R. A. Howard & E. A. Kellogg. The description of *Eugenia walkerae* thus brings the total number of endemics to two. Previously, one other species of Myrtaceae was recognized as endemic to Anguilla, *Myrtus anguillensis* Urb. This taxon is now generally referred to *Mosiera longipes* (O. Berg) Small (Govaerts et al., 2018), a Caribbean species at the edge of its range in the Leeward Islands.

Literature Cited

Govaerts, R., M. Sobral, P. Ashton, F. Barrie, B. K. Holst, L. R. Landrum, K. Matsumoto, F. F. Mazine, E. Nic Lughadha, C. Proença, L. H. Soares-Silva, P. G. Wilson, and E. J. Lucas. 2018. *World Checklist of Myrtaceae*. The Board of Trustees of the Royal Botanic Gardens, Kew; http://www.kew.org/wcsp/ (accessed May 1, 2018).

Howard, R. A. and E. A. Kellogg. 1987. Contributions to a flora of Anguilla and adjacent islets. J. Arnold Arbor. 68: 105–131.

McVaugh, R. 1989. Myrtaceae. Pages 463–532 in R. A. Howard, ed. *Fl. Lesser Antilles* 5. Arnold Arboretum, Harvard University, Jamaica Plain.

Van Wyk, A. E. 1980. A note on the seed morphology of the genus *Eugenia* L. (Myrtaceae) in southern Africa. J. S. African Bot. 46: 115–119.

——— and R. Botha. 1984. The genus *Eugenia* (Myrtaceae) in southern Africa: Ontogeny and taxonomic value of the seed. S. African J. Bot. 3: 63–80.

Walker, M. M., O. Hodge, F. Homer, and W. Johnson. 2005. *A Guide to Common Plants of Anguilla*. Anguilla National Trust and BioDiversity Conservation Inc., The Valley.