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Fruit and seed of *Eriotheca dolichopoda* (Malvaceae) revealed after 45 years: Emended description, typification, new records, and conservation status of a poorly known Atlantic Forest species

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Abstract

Eriotheca dolichopoda (Malvaceae) is a tree species endemic to Atlantic Forest in the state of Bahia, northeastern Brazil. Its fruit and seed were unknown and had not been illustrated. Herein we describe and illustrate for the first time the fruit and seed of *E. dolichopoda*, provide an emended morphological description, designate a lectotype, and designate an epitype to permit a precise application of the name. We also discuss morphological variation in *E. dolichopoda* and its affinities with similar species. Finally, we use fieldwork and herbarium data to provide a distribution map and an updated conservation assessment of *E. dolichopoda* based on IUCN criteria.

Keywords: Bombacoideae, Brazil, Centro Nacional de Conservação da Flora, 'embiruçú', endemism, Flora e Funga do Brasil, IUCN

Introduction

Eriotheca dolichopoda A.Robyns (1979: 457) is a magnificent tree of the Bombacoideae (Malvaceae) that is endemic to the state of Bahia, in northeastern Brazil. It was described by Robyns (1979) from a single collection made in the municipality of Ilhéus, in southern Atlantic Forest (*Mata Atlântica*). As with many other congeners, his description of *E. dolichopoda* was based on phenologically incomplete material, notably lacking fruit and seed. Although Robyns (1979) stated that there was a holotype of this name, there are, in fact, two syntypes: one a flowering branch with loose flowers in a packet and the other a vegetative branch with young leaves, loose leaflets, and flowers in a packet.

For over three decades after the type was collected in 1970 (*J.L. Hage 38*), *Eriotheca dolichopoda* was known only from the two syntypes examined by Robyns. The species first was recollected in 2003 and several other collections have been made since then. The lack of morphological descriptions of its fruit and seed (see Duarte & Yoshikawa 2024) coupled with the complicated taxonomy of *Eriotheca* Schott & Endl. (1832: 15) have hampered the discovery of additional specimens of *E. dolichopoda* that probably exist in herbaria.

In 2017, *Eriotheca dolichopoda* was assessed as threatened with extinction and assigned the Endangered—EN category (Bahia 2017) based on there then being records from only four municipalities, mostly situated in coastal areas in the Atlantic Forest of Bahia. Subsequently, it was considered Vulnerable—VU (Fernandez *et al.* 2021b) based mainly on the following criteria: i) number of locations 6 to 10, ii) population trend decreasing, and iii) continuing decline in area, extent, and/or quality of habitat.

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Basic data on *Eriotheca dolichopoda* for assessing conservation status, such as geographic (including elevational) range and population traits (e.g., number of mature individuals, continuing decline of mature individuals, fragmentation of populations), have been unavailable. Nor have its pollination biology, breeding system, seed germination, and cytogenetics been investigated. Thus, *E. dolichopoda* remains poorly known biologically despite being threatened with extinction.

While the phylogenetic placement of *Eriotheca dolichopoda* is poorly supported, multilocus DNA studies suggest it is more closely related to Atlantic Forest and Cerrado species than to Amazonian or extra-Brazilian species such as *E. longipedicellata* (Ducke) A.Robyns (1963: 167) and *E. roseorum* (Cuatrec.) A.Robyns (1963: 171) (Duarte *et al.* 2011, Carvalho-Sobrinho *et al.* 2016), which present very distinctive flower morphologies (see Robyns 1963: 129, Pl. V). Additionally, Atlantic Forest species of *Eriotheca* have conservative floral morphologic traits and high plasticity in leaf traits, thus demanding further efforts to resolve their taxonomy.

In this context, taxonomy of the genus can be improved through the use of fruit and seed characters, which were demonstrably useful in several recent studies (Carvalho-Sobrinho 2013; Carvalho-Sobrinho *et al.* 2014, 2020; Yoshikawa & Duarte 2021). However, fruit and seed are seldom found on herbarium sheets and when they exist, they rarely have well-curated carpological collections associated with them. Based on searches of online collections, only 15 specimens of six species from ten localities in Atlantic Forest of Bahia have fruit or seed on sheets. Thus, an important consequence of monitoring populations of various species in the field, especially in northeastern Brazil, has been the acquisition of phenologically complete herbarium collections that include fruit and seed and assist in the taxonomy of the group (Carvalho-Sobrinho 2013; Carvalho-Sobrinho & Queiroz 2008, 2010; Carvalho-Sobrinho *et al.* 2012, 2013a,b, 2014, 2015, 2016, 2020, 2021; Carvalho-Sobrinho & Dorr 2017, 2020).

Recent field work in the Atlantic Forest of Bahia yielded collections of *Eriotheca dolichopoda* with fruit and seed. Here we describe and illustrate fruit and seed based on this newly collected material along with previously overlooked (unidentified or misidentified) herbarium specimens. We provide an emended morphological description for *E. dolichopoda*, designate a lectotype, and designate an epitype to permit a precise application of the name. An epitype is necessary because the lectotype has an atypical leaf morphology and lacks seed and fruit, which provide important diagnostic characters for this genus.

We also discuss morphological variation within individuals and among populations of *Eriotheca dolichopoda*, its affinities with similar species, and provide comments on phenology. Finally, we use available occurrence data along with our observations from fieldwork to provide a distribution map and an updated conservation status for *E. dolichopoda* based on IUCN criteria.

Material and methods

This study was based on examination of herbarium collections, digital images of specimens, and field observations of individuals of *Eriotheca dolichopoda*. Specimens were studied by visits to or loans from the following herbaria: ALCB, ASE, CEPEC, F, HUEFS, K, MBM, MO, NY, RB, SP, SPF, and US. A comprehensive analysis of images of herbarium specimens were studied through the following websites: INCT—Herbário Virtual da Flora e dos Fungos (http://inct.splink.org.br/), JSTOR Global Plants (https://plants.jstor.org/), and Reflora Virtual Herbarium (https://floradobrasil.jbrj.gov.br/reflora/herbarioVirtual/).

Fieldwork focused on exploring localities of previously collected specimens of *Eriotheca dolichopoda* and sterile specimens we suspected belonged to this species based on their leaf morphology. Searches also were made in forest remnants near historical collection sites, including reasonably intact fragments along roads.

Descriptions and measurements were based on herbarium specimens unless otherwise explicitly stated. The distribution map was prepared using IBGE (2023) cartographic base in QGIS v.3.12.2 (QGIS 2020) and one record for municipality for better visualization. An extinction risk assessment of the new species was made using the IUCN Red List Categories and Criteria (IUCN 2022). Georeferenced specimen data were imported into GeoCAT (Bachman *et al.* 2011) to estimate the extent of occurrence (EOO) and the area of occupancy (AOO) using 2 × 2 km grid cells. When two or more records were situated within the same grid cell, they were counted as the same location of occurrence for the purpose of assessing conservation status of the species.

Taxonomic treatment

Eriotheca dolichopoda A.Robyns (1979: 457)
Figs 1, 2

Lectotype (here designated):—BRAZIL. Bahia: Ilhéus, CEPEC, 27 December 1970, *J.L. Hage 38* (BR [barcode 000000696126]; Isolectotypes BR: [barcode 000000696159] CEPEC!, NY! [barcode 00133564], R! [barcode R000135412]). Epitype (here designated): BRAZIL. Bahia: Tapiramutá, ca. 7 km na estrada vicinal entrando à direita na BA-131 em direção a BA-052, a cerca 3,6 km da cidade, pasto em área de floresta estacional, 11º51'28"S, 040º43'52"W, 810 m alt., 26 January 2024 (lf, fr), *J.G. Carvalho-Sobrinho 4041* (HUEFS barcode 000239717!, HUEFS barcode 000241020!, HUEFS barcode 000100270221!, a single specimen mounted on three sheets; isoepitypes CEPEC, RB, SP, SPF).

Description:—Emergent trees to 35 m tall, crown partially deciduous when flowering; trunks to 1.5 m dbh, bark vertically furrowed; plank buttresses to 1.70 m tall; branches glabrous, often modified as brachyblasts, often hollowed and frequented by ants. Terminal buds triangular, c. 6–12 mm long. Leaves palmately compound, clustered at branch apices; petioles to 130(–300) mm long, doubly-pulvinate, swollen at base when fresh, dorsiventrally flattened; petiolules absent to greatly reduced; leaflets (3–)5–9(–11), chartaceous, glabrous; leaflets decreasing in length, distal leaflets 120–153 × 47–58 mm, length-to-width ratio 1.7–2.6(–4.5), proximal leaflets (19–)33–81 × (7–)14–47 mm, length-to-width ratio 1.5–2.7(–3.2); leaflets elliptic, largely elliptic, obovate to largely obovate, rarely oblanceolate, apices obtuse, rounded or emarginate, rarely mucronate, bases attenuate, narrowly cuneate, or oblique, margin often slightly and irregularly crenulate, with minute circular and elongate blackish marks (glands?) irregularly distributed especially near margin, discolorous, both surfaces nitid, adaxial surface dark green, abaxial surface light green often reddish-brown when dried, main vein salient on abaxial surface, secondary venation brochidodromous, tertiary veins finely reticulate, secondary veins impressed on both surfaces. Reproductive branches leafless when flowering. Inflorescences 1–8-flowered umbelliform cymes, borne on terminal, leafless branches often modified as brachyblasts, flowers spreading away from the branch of origin, not pendent; pedicels, receptacle, and calyces ferruginous due to dense, pulverulent indument, pedicels to 6 cm long, furrowed/angulate, bracteoles oblong-ovate, often inserted 10–25 mm below the calyx (not inserted at the base of calyces except in very young flower buds), caducous at anthesis. Flower obovoid in bud; receptacle elongate, 10–25 mm long, glands absent; calyx cupuliform (often appearing campanulate in herbarium specimens), 9–14 × 8–10 mm, 5-lobed to inconspicuously lobed at anthesis, internally sericeous, externally often greenish distally due to loss of indument, accrescent in fruit; petals white, obovate, unilaterally apiculate, 25–30 × 10–12 mm (5 mm at base) when fresh, velutinous on both surfaces; staminal tube white, 6–10 mm long, length-to-width ratio 1 × 1, glabrous, slightly constricted near the dilated apex; filaments white, anthers yellow; ovary subglobose, 4 × 6 mm, entirely covered by dense ferruginous indument with stellate trichomes and scales, style white, stigma green. Loculicidal capsules woody, pendent, 38–52 × 33–47 mm, subglobose to widely-obovoid, globose when young, apex rounded to emarginate, exocarp densely covered with pulverulent, ferruginous indument, kapok abundant, light brown. Seeds numerous, 5–7 × 4–5 mm (8 × 6 mm when fresh), striate, striae 4 in number, subglobose to pyriform, glabrous, brown.

Phenology:—*Eriotheca dolichopoda* has been collected with flowers in October (very young flower buds), November and December, and with fruits in January.

Distribution and habitat:—Crown shape of *Eriotheca dolichopoda* varies with habitat: individuals in forest areas have longer boles and smaller, broom-like crowns whereas individuals in open, grazed areas have shorter boles and larger, spreading crowns. *Eriotheca dolichopoda* is known presently from 17 municipalities in Bahia, including the type locality (Fig. 2). It inhabits low elevation wet and semideciduous forest near the coastline up to 900 m in northern Chapada Diamantina (Espinhaço Mountain Range) where it also can be found in riverine forest. The Chapada Diamantina is located within the Caatinga phytogeographic domain but comprises a mosaic of vegetation types influenced also by Cerrado and Atlantic Forest domains (Harley 1995; Kamino *et al.* 2008). In Chapada Diamantina, *E. dolichopoda* inhabits semideciduous forest such as those occurring in Serra do Orobó that were demonstrated to be floristically more related to Atlantic Forest rather than Caatinga vegetation (Cardoso *et al.* 2009). Additional species endemic to Bahia with similar geographic distribution pattern (i.e., occurring in both semideciduous forest in Chapada Diamantina and coastal Atlantic Forest) include *Dahlstedtia bahiana* (A.M.G.Azevedo) M.J.Silva & A.M.G.Azevedo (2012: 104; Fabaceae) and *Eschweilera tetrapetala* S.A.Mori (1981: 467; Lecythidaceae), both of which are threatened with extinction in the category Endangered—EN (Fernandez *et al.* 2020, 2021a).

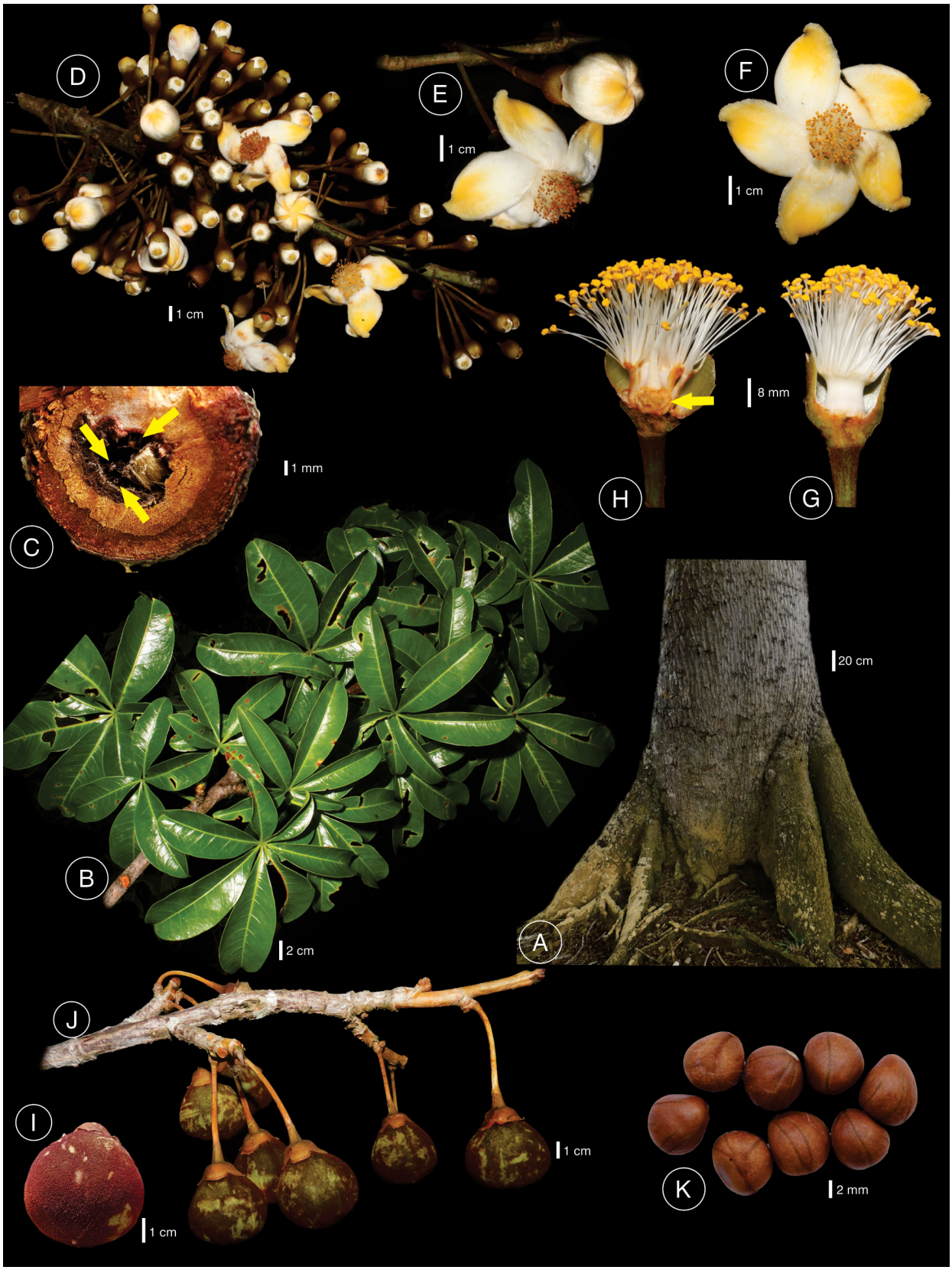

FIGURE 1. Morphological and ecological aspects of *Eriotheca dolichopoda.* **A**: Plank buttresses and furrowed bark. **B**: Vegetative branch with 5–7-foliolate nitid leaves. **C**: Hollow branch with ants (arrows). **D**: Leafless branch with umbelliform cymes. **E**: Flower bud obovate and reflexed petals. **F**: Unilaterally apiculate petals. **G**: Dissected flower showing cupuliform calyx and staminal tube. **H**: Dissected flower showing ovary indument (arrow). **I**: Young fruit exocarp with pulverulent, ferruginous indument. **J**: Leafless branch with pendent, long pedicellate, subglobose to obovoid fruits (note the absence of glands on receptacles). **K**: Numerous, striate seeds. All photos by J. Carvalho-Sobrinho.

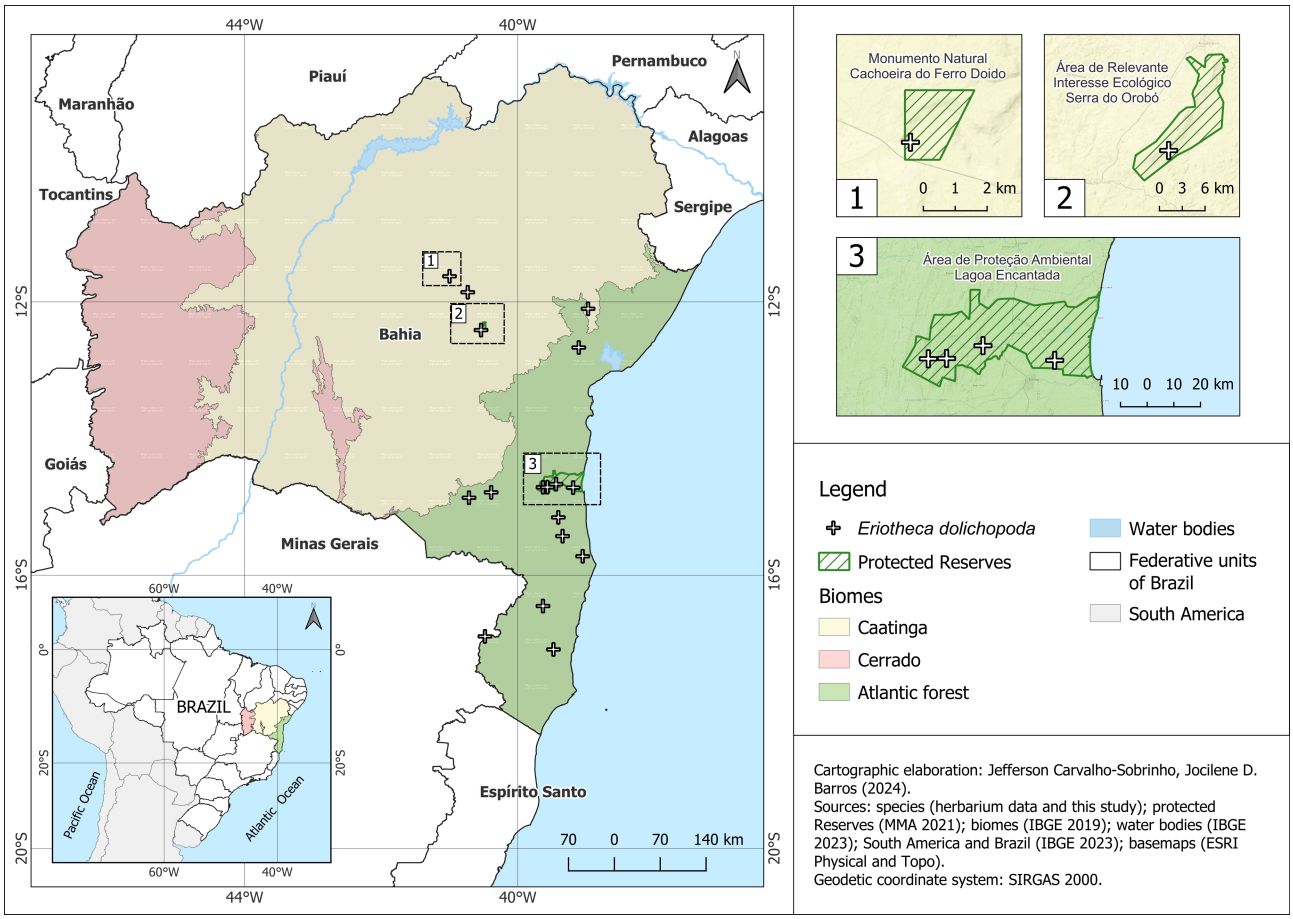

FIGURE 2. Distribution map of *Eriotheca dolichopoda.* Occurrences within Protected Reserves shown in rectangles, including separate insets. See text for vegetation discussion.

Conservation status:—*Eriotheca dolichopoda* is known from 29 individuals from 17 municipalities and 23 different localities, of which six localities are situated inside three state-level protected Reserves (Fig. 2). Nevertheless, the Atlantic Forest habitat has been lost at an accelerated rate due to anthropogenic pressures (Tabarelli *et al.* 2005), the two former protected areas allow sustainable use of natural resources, and none of these reserves are of the highest level of protection (level I or II) described by Dudley (2008). Based on field observations, populations of *E. dolichopoda* are represented by few individuals and often only a single, isolated adult individual in grazed areas as observed in Itanhém, Santa Luzia, and Tapiramutá. No young individuals were found near adult trees during our fieldwork, which suggests demographic decline. The extent of occurrence (EOO) of this species has been calculated to be 106,690.135 km^2, which qualifies the species for the Least Concern (LC) category, and the area of occupancy (AOO) was estimated to be 92 km^2, which qualifies it for the Endangered (EN) category (Bachman *et al.* 2011; IUCN 2022). Therefore, due to the much-fragmented vegetation, habitat in continuing decline, small number of mature individuals, and the small AOO (92 km^2) of *E. dolichopoda*, we categorize this species as Endangered belonging to the EN B1ab(i,iv), B2ab(ii,iii) category based on available data and IUCN criteria (IUCN 2022).

Specimens examined:—BRAZIL. Bahia, Canavieiras, estrada da Ouricana, 15º43’11”S, 39º03’07”W, 10 m alt., 07 November 2023 (lf, fl buds), *J.G. Carvalho-Sobrinho & F. Pereira 4036* (CEPEC!). Barra do Choça, km 20 da rodovia Conquista/Barra do Choça, 15º43’11”S, 39º03’07”W, 29 November 1972 (lf, fl), *T.S. Santos 2554* (CEPEC!, NY barcode 00402474!). Cruz das Almas, Mata Ombrófila secundária no centro da cidade, 10 March 2011 (lf), *J.G. Carvalho-Sobrinho & M.C. Machado 2949* (HUEFS barcode 000133193!); Mata do Cazuzinha próximo à Praça da Ciência, 12º40’03”S, 39º06’19”W, 23 November 2021 (fl, fr), *M.L.L. Martins 2397* (HURB barcode 000026996, in two sheets!); same locality, 04 February 2022 (fr), *M.L.L. Martins 2474* (HURB barcode 27073!); same locality, 04 February 2022 (fr), *M.L.L. Martins 2480* (HURB barcode 27079!). Ilhéus, Área do CEPEC (Centro de Pesquisas do Cacau), km 22 da rodovia Ilhéus/Itabuna (BR 415), Quadra D, 29 December 1982 (lf), *T.S. dos Santos 3839* (CEPEC!, NY barcode 000402439!); Fazenda Serra Grande, ao W do CEPEC, 30 March 1994 (lf), *M. Hummel 55* (CEPEC!); same locality, 27 April 1994, *M. Hummel & B. Spuhler 87* (CEPEC!). Itaberaba, ARIE Serra do Orobó,

entrada da Faz. Leão dos Brejos, 12º25'01"S, 40º30'59"W, 398 m alt., 22 Apr 2006 (lf), *D. Cardoso 1252* (HUEFS barcode 000133700!); ARIE Serra do Orobó, Faz. Gameleira, 12º14'52"S, 40º32'14"W, 675–800 m alt., 14 July 2006 (lf), *L.P. Queiroz et al. 12250* (HUEFS barcode 000138119!); Serra 1, Faz. Gameleira, 12º24'44"S, 40º32'12"W, 783 m alt., 19 August 2005 (lf), *L.P. Queiroz et al. 10776* (HUEFS barcode 000134060!, CEPEC barcode 118401!). Itanhém, depois de Batinga, em direção ao norte, 16º52'50"S, 40º27'51"W, 360 m alt., 07 November 2023 (lf), *J.G. Carvalho-Sobrinho & S. Gois 4031* (CEPEC!). Morro do Chapéu, Cachoeira do Ferro Doido, ca. 15 km E de Morro do Chapéu na Estrada do Feijão, 11º37'32"S, 40º59'53"W, 883 m alt., 05 October 2007 (lf), *L.P. Queiroz et al. 13105* (HUEFS barcode 000133988!); Cachoeira do Ferro Doido, ca. 18 km E de Morro do Chapéu na estrada para Salvador, 11º37'40"S, 40º59'52"W, 850–900 m alt., 09 March 2003 (lf), *L.P. Queiroz et al. 7678* (HUEFS barcode 000138407!); same locality, same date (lf), *L.P. Queiroz et al. 7677* (HUEFS barcode 000133772!). Santa Luzia, BA-270 indo para BR-101, 15º25'10"S, 39º21'51"W, 130 m alt., 06 July 2011 (lf), *J.G. Carvalho-Sobrinho et al. 3123* (HUEFS barcode 000134096); rodovia saindo da BR-101 em direção a Santa Luzia, 3 km antes da cidade, cabruca na beira da estrada, em frente ao Rancho Badico, 15º25'10"S, 39º21'52"W, 130 m alt., 06 November 2023 (lf), *J.G. Carvalho-Sobrinho & F. Pereira 4034* (CEPEC!); rodovia saindo da BR-101 em direção a Santa Luzia, 700 m antes da cidade, cabruca na beira da estrada, 15º25'40"S, 39º20'34"W, 120 m alt., 06 November 2023 (lf, fl buds), *J.G. Carvalho-Sobrinho & F. Pereira 4035* (CEPEC!). São José da Vitória, BR 101 ca. 5km da Fazenda Itacomcau e do córrego das Pratas, 15º09'12"S, 39º24'19"W, 19 December 2005 (lf, fl), *J.G. Jardim et al. 4924* (CEPEC!, HUEFS barcode 000134024!, SP 057740!); BR 101 sentido Jussari, a 10 km da Fazenda Itacomcau e do Rio das Pedras, 28 September 2006 (lf), *M.C. Duarte et al*. 92 (CEPEC!). Tapiramutá, estrada de terra sentido Agropecuária Dona Anísia, 11º51'28"S, 40º43'52"W, 810 m alt., 14 October 2023 (fl buds), *C.L. Ribeiro 174* (HUEFS barcode 000100270192!).

Additional specimens recorded (not vouchered):—BRAZIL. Almadina, 1,1 km antes da cidade na BA-262, 14º42'43"S, 39º37'44"W, 298 m alt., 29 September 2022 (lf), *J.G. Carvalho-Sobrinho* obs. Canavieiras, estrada da Ouricana, 11 March 2022 (lf), 15º40'31"S, 38º59'42"W, 10 m alt., *J.G. Carvalho-Sobrinho* obs.; estrada da Ouricana, 02 Ago 2021 (lf), 15º43'18"S, 39º08'16"W, 10 m alt. Barra do Choça, *J.G. Carvalho-Sobrinho* obs. Coaraci, 1,2 km ao norte do trevo para Almadina na BA-262, 14º42'39"S, 39º33'55"W, 215 m alt., 12 March 2022 (lf), *J.G. Carvalho-Sobrinho* obs. Eunápolis, 5 km ao sul do Parque de Vaquejada, saindo da BR-101 c. 7 km ao sul da cidade, 16º27'02"S, 39º37'46"W, 135 m alt., 08 June 2023 (lf), *J.G. Carvalho-Sobrinho* obs.; 3 km a sudeste do Parque de Vaquejada, 16º27'09"S, 39º36'47"W, 146 m alt., 08 June 2023 (lf), *J.G. Carvalho-Sobrinho* obs. Feira de Santana, margem da rodovia BR-116 em direção a Santa Bárbara, 12º06'00"S, 38º58'09"W, 255 m alt., 25 Apr 2023 (lf), *J.G. Carvalho-Sobrinho* obs. Ilhéus, próximo a fábrica da Mendoá Chocolates, 14º43'03"S, 39º11'17"W, 86 m alt., 13 December 2021 (lf), *J.G. Carvalho-Sobrinho* obs. Itajuípe, saída da BA-262 a 6,7 km de Itajuípe em direção a Coaraci, 14º39'58"S, 39º26'17"W, 156 m alt., 13 December 2022 (lf), *J.G. Carvalho-Sobrinho* obs. Itamaraju, margem da BA-489 em direção a Prado, 17º05'09"S, 39º28'35"W, 25 m alt., 20 January 2024 (lf), *J.G. Carvalho-Sobrinho* obs. Planalto, região de Parafuso, entrada a 13,6 km da cidade na BA-642, 14º47'12"S, 40º23'19"W, 749 m alt., 08 December 2022 (lf), *J.G. Carvalho-Sobrinho* obs.

Affinities of *Eriotheca dolichopoda* based on morphology

Eriotheca dolichopoda is characterized by leafless flowering branches and leaflets that are nitid and often reddish-brown on their abaxial surface when dried. Flowers have a dense, pulverulent, ferruginous indument on their pedicels, receptacles, and calyces; the receptacles lack glands and are elongated such that the bracteoles are situated at least 10 mm below the base of calyces at floral anthesis (i.e., not found adjacent to the base of the calyx except on very young flower buds). Fruits are subglobose to obovoid capsules, enclosing numerous seeds c. 5 mm long. Furthermore, the leaves often exhibit unspecified phytopathogen damage, which is seen as reddish to pinkish dots in fresh material and whitish to brownish ones on herbarium specimens.

Eriotheca dolichopoda presents great variability in leaf morphology. The type has leaflets that are highly variable in number (5–7) and dimensions within a branch. This variability in leaf morphology was verified during fieldwork, which revealed great variation in leaflet number and shape beyond what is apparent in the type. Interestingly, specimens from semideciduous forest at higher elevations (700–900 m) in Chapada Diamantina tend to have fewer (5–7) leaflets whereas leaves on specimens from low elevation individuals often have 7–9(–11) leaflets.

Within its native range, *Eriotheca dolichopoda* could be confused with *E. gracilipes* (K.Schum.) A.Robyns (1963: 145), a Cerrado species occurring in riverine forests in Chapada Diamantina. The confusion is due to an overlap in the number of leaflets (five) and length of pedicels (4 cm), and the fact that leaflets of both species can be irregularly and inconspicuously crenulate. However, *E. dolichopoda* can be readily distinguished from the latter species by its

habit (large trees to 35 m vs. trees to 10 m tall), leafless (vs. often leafy) flowering branches, leaflets chartaceous (vs. coriaceous), receptacles lacking (vs. rarely lacking) glands, pedicels and calyces with ferruginous, pulverulent indument (vs. light brown, sparsely lepidote to glabrescent), calyces cupuliform, lobed to inconspicuously lobed (vs. infundibuliform, truncate), smaller capsules (38–52 vs. c. 70 mm long), and smaller seeds (5–7 × 4–5 mm vs. 8 × 7–10 mm).

Eriotheca dolichopoda is most morphologically similar to *E. pentaphylla* (Vell.) A.Robyns (1963: 138), an Atlantic Forest species endemic to São Paulo and Rio de Janeiro according to Duarte & Yoshikawa (2024), mainly due to the relatively long pedicels and receptacles, absence of nectaries on receptacles, and lobed calyces; however, it can be distinguished by its dense (vs. puberulous) indument on its pedicels, receptacles, and calyces, cupuliform (vs. campanulate) calyces that are narrower (8–10 vs. 13–20 mm), white (vs. often pinkish) filaments, and smaller fruits (38–52 vs. 80–100 mm long) and seeds (5–7 vs. 10–14 mm long). In addition, *E. dolichopoda* flowers from November to December (very young flowers in October) and fruits in January whereas *E. pentaphylla* flowers from February to November and fruits from July to November, January, and February (Table 1).

TABLE 1. Comparison of *Eriotheca dolichopoda* to *E. pentaphylla*, its most morphologically similar species.

Trait	***E. dolichopoda***	***E. pentaphylla***
Color of the abaxial surface of leaflet when dried	often reddish-brown	light brown
Pedicel length (mm)	35–75	15–45
Calyx size (mm)	9–14 × 8–10	7–17 × 13–20
Calyx apex	inconspicuously lobed to lobed	lobed
Calyx shape	cupuliform	campanulate
Calyx indument	dense	puberulous
Calyx in fruit	accrescent	accrescent
Petal size (mm)	25–30 × 10–12	27–35 × 11–16
Staminal tube size (mm)	6–10 × 6–10	5–8 × 3–4
Filament color	white	pinkish
Fruit shape	subglobose to obovoid	obovoid
Fruit length (mm)	38–52	80–100
Seed length (mm)	5–7	10–14
Flowering period	October (very young flower buds), November, December	February to November
Fruiting period	January	July to November, January, and February

Vegetatively, *Eriotheca dolichopoda* and *E. pentaphylla* can be confused due to the glabrous, nitid leaves that overlap in number of leaflets, especially due to the presence of 7-foliolate leaves on specimens from coastal Rio de Janeiro and São Paulo. However, *E. dolichopoda* can be distinguished by the often reddish-brown (vs. light brown) abaxial surface of leaflets; and its leaflets are sessile (vs. often petiolulate), chartaceous (vs. coriaceous), and present both secondary and tertiary venation less raised than *E. pentaphylla.* Furthermore, individuals of *E. dolichopoda* are often huge trees whereas *E. pentaphylla* often are trees to 10 m tall.

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Author contributions

Conceptualization: Jefferson Carvalho-Sobrinho, Aline Costa da Mota; Methodology: Jefferson Carvalho-Sobrinho, Aline Costa da Mota; Formal analysis and investigation: Jefferson Carvalho-Sobrinho, Aline Costa da Mota, Laurence Dorr; Writing—original draft preparation: Jefferson Carvalho-Sobrinho, Aline Costa da Mota; Writing—review and editing: Jefferson Carvalho-Sobrinho, Aline Costa da Mota, Laurence Dorr, William Alverson; Funding acquisition: William Alverson; Resources: Jefferson Carvalho-Sobrinho, Aline Costa da Mota, Laurence Dorr, William Alverson; Supervision: Laurence Dorr.

Competing interests

The authors have no competing interests to declare that are relevant to the content of this article.

Declarations

The authors have no financial or proprietary interests in any material discussed in this article.

Data availability statement

All data generated or analyzed during this study are included in this published article.

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