

# Synopsis of *Ipomoea* (Convolvulaceae) in the state of Paraíba, Brazilian Northeastern

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**Abstract:** *Ipomoea* L. is the largest genus of Convolvulaceae, comprising c. of 635 species, distributed mostly in tropical and subtropical regions. In the Brazilian flora, c. 160 species are recorded, of which 65 are endemic. The Northeastern region is the second with the highest diversity of the genus (89 spp.). This study presents a survey of *Ipomoea* in the state of Paraíba, Brazil, based on field expeditions and herbarium consultations, totaling approximately 700 specimens analyzed. We identified of 39 taxa, 38 species and one variety, including five new records for the flora of Paraíba: *I. calyptrata* Dammer, *I. grandifolia* (Dammer) O'Donell, *I. longibracteolata* Sim.-Bianch. & J.R.I. Wood, *I. mauritiana* Jacq., and *I. meyeri* (Spreng.) G.Don. An identification key, a list of examined materials, data on geographic distribution and habitat, phenology, and taxonomic notes are provided. Additionally, we include a map of *Ipomoea* richness in the study area, highlighting areas of greater richness, particularly within the Intermediate Region of Campina Grande.

**Key words:** Floristic, Neotropical flora, new records, Solanales, species richness

## Introduction

*Ipomoea* L. is the largest genus of Convolvulaceae (Solanales: Asteridae, APG IV, 2016) in terms of species diversity, comprising approximately 635 species (POWO, 2024). The genus is distributed worldwide but is most diverse in tropical and subtropical regions (Wood *et al.*,

2017a), particularly in areas with open vegetation (Moreira & Pigozzo, 2015).

In the Brazilian flora, the genus is represented by approximately 160 species (65 endemic), occurring in all regions and phytogeographic domains, with the greatest richness in the Cerrado, followed by the Atlantic Forest and Caatinga. The Northeastern of Brazil harbors 89 species of *Ipomoea*, making it the second most diverse region in the country, tied with the Southeast, and following the Center-West, which has 95 species (Simão-Bianchini *et al.*, 2024).

This genus comprises numerous species of economic importance, valued for their ornamental, pharmacological, medicinal, industrial or food uses. The best-known example is *I. batatas* (L.) Lam., the sweet-potato, a species cultivated throughout the world for its tuberous roots (Simão-Bianchini, 1998; Ferreira & Miotto, 2009; Meira *et al.*, 2012).

Despite the significance of *Ipomoea* and the extensive body of research focused on this genus, several inconsistencies persist in the identification of its collections in the Northeastern region of Brazil. Simão-Bianchini (1998) highlights that *Ipomoea* is a taxonomically challenging genus due to intraspecific morphological variation and the presence of numerous synonyms. This issue has been addressed in studies focusing on *Ipomoea* in

Pernambuco (Delgado-Junior et al., 2023) and Rio Grande do Norte (Marinho et al., 2023). For the state of Paraíba, 42 species have been recorded (Bandeira et al., 2019; Lima & Melo, 2019; Wood et al., 2020; Simão-Bianchini et al., 2024).

In this context, the present study aims to conduct a taxonomic survey of *Ipomoea* (Convolvulaceae) in the state of Paraíba, Brazil, to update and expand knowledge regarding the richness and geographic distribution of this genus in the state and the Northeastern region.

## Materials & Methods

**Study area:** With an area of 56,467,242 km<sup>2</sup> (IBGE), the state of Paraíba comprises four main urban centers: Cajazeiras, Campina Grande, João Pessoa, and Patos (Fig. 1). The state is located in the Northeastern region of Brazil and has boundaries North with Rio Grande do Norte, South with Pernambuco, the Atlantic Ocean to the East and Ceará state to the West, on the coordinates 06°02'12" - 08°19'18" S, 34°45'54" - 38°45'45" W (Francisco, 2010).

The vegetation in the state of Paraíba is made up of varied morphoclimatic domains, rich in ecosystems. On the coast, to the east of the state, the wettest region is covered with mangroves, *Restinga*, and Atlantic Forest. To the west, the Caatinga predominates, occupying 2/3 of the state and covering semi-arid areas; and in the transition between these two regions, closer to the coast, are located the *Brejos de Altitude*, characterized by being enclaves of the Atlantic Forest, forming islands surrounded by Caatinga vegetation (Borges-Nojosa & Caramaschi, 2003; Atlas Eólico da Paraíba, 2017).

**Data collection and analysis:** Data collection was carried out through our own collections, totaling 15 excursions, between November 2021 to July 2023, focused on obtaining samples of *Ipomoea*. Herbarium specimens were prepared using conventional techniques (Bridson & Formann, 1998; Gadelha-Neto et al., 2013). In addition,

specimens housed in the collections of nine herbaria located in the states of Paraíba (CSTR, EAN, HACAM, HCES, and JPB) and Pernambuco (HST, IPA, PEUFR, and UFP) were examined. Virtual collections of the herbaria ASE, EAC, HUEFS, HVASF, NY, RBR, SPF, UEC, and US were also consulted through the Flora and Funga of Brasil (<http://reflora.jbrj.gov.br/>) and SpeciesLink (<https://specieslink.net>) platforms (acronyms follow Thiers, 2024, continuously updated). Some herbaria, however, are not indexed: CSTR – Herbarium Rita Baltazar de Lima and HACAM – Herbarium Manuel de Arruda Câmara, respectively, belong to UFCG – *Campus Cuité* and UEPB – *Campus Campina Grande*; and the HST – Herbarium Sérgio Tavares belongs to UFRPE – *Campus Recife*.

Approximately 700 specimens were analyzed, with identifications based on specialized literature (e.g., Simão-Bianchini, 1998; Wood et al., 2020; Simão-Bianchini et al., 2024), species protologues, and consultation of type material. For selected specimens, distribution was determined across Intermediate Regions (IR), including material from each IR where the species occurs. Geographic distribution data were derived from our collections, exsiccate labels, and specialized literature.

The species were classified based on the number of occurrences as follows: (1) Possibly extinct in the state: those with 1 to 5 collection records dating back more than 3 decades; (2) Rare: those with 1 to 5 locations with at least one collection in the last 3 decades; (3) Occasional: those with 6 to 15 locations; and (4) Frequent: those present in more than 15 locations. Taxonomic nomenclature follows the Plants of the World Online (POWO, 2024) and the New World *Ipomoea* monograph (Wood et al., 2020).

The geographic coordinates of species records were compiled in a Microsoft Office Excel spreadsheet and then exported to the DIVA-GIS software to perform the richness analysis according to the number of species per cell (size 0.25 × 0.25°) based

on the “points per grid” tool. The final map was generated using QGIS software.

## Results and Discussion

Prior to this study, 42 species of *Ipomoea* were reported in the study area (Bandeira *et al.*, 2019; Lima & Melo, 2019; Wood *et al.*, 2020; Simão-Bianchini *et al.*, 2024). However, our findings demonstrate that this number was overestimated, as we confirmed the presence of 39 taxa, 38 species and one variety. Of the 42 species, 33 were confirmed, while eight were misidentified (*Ipomoea amnicola* Morong, *I. cairica* Sweet, *I. cynanchifolia* Meisn., *I. philomega* House, *I. sericophylla* Meisn., *I. sidifolia* Schrad., *I. setifera* Poir. and *I. subincana* (Choisy) Meisn., and *I. triloba* L.). Furthermore, we recorded the unprecedented occurrence of five species: *I. calyprata* Dammer, *I. grandifolia* (Dammer) O'Donell, *I. longibracteolata* Simão-Bianchini & J.R.I. Wood, *I. mauritiana* Jacq., and *I. meyeri* (Spreng.) G.Don.

*Ipomoea asarifolia* (Desr.) Roem. & Schult., *I. bahiensis* Willd. ex Roem. & Schult., *I. brasiliana* (Mart. ex Choisy) Meisn., *I. longeramosa* Choisy, *I. nil* (L.) Roth and *I. rosea* Choisy are the most frequent species in the study area. The first occurs mostly in anthropic environments, *I. bahiensis*, *I. longeramosa* and *I. nil* are present in both anthropic and preserved environments, while *I. brasiliana* and *I. rosea* are common in preserved areas. *Ipomoea blanchetii* Choisy, *I. brasiliana*, *I. decipiens* Dammer, *I. longibracteolata*, *I. marcellia* Meisn., *I. rosea*, *I. tenera* Meisn. and *I. vespertilia* F.D.Santos, G.C.Delgado-Junior & Buriel, are endemic to Brazil, of which *I. marcellia*, *I. tenera* and *I. vespertilia* are endemic to the Caatinga.

The *Ipomoea* map of richness for the state of Paraíba (Fig. 2) indicates many areas of high specific richness, but two of them stand out, with the presence of 17 species each (Fig. 2a-b). The first (Fig. 2a) is in the Intermediate Regions of

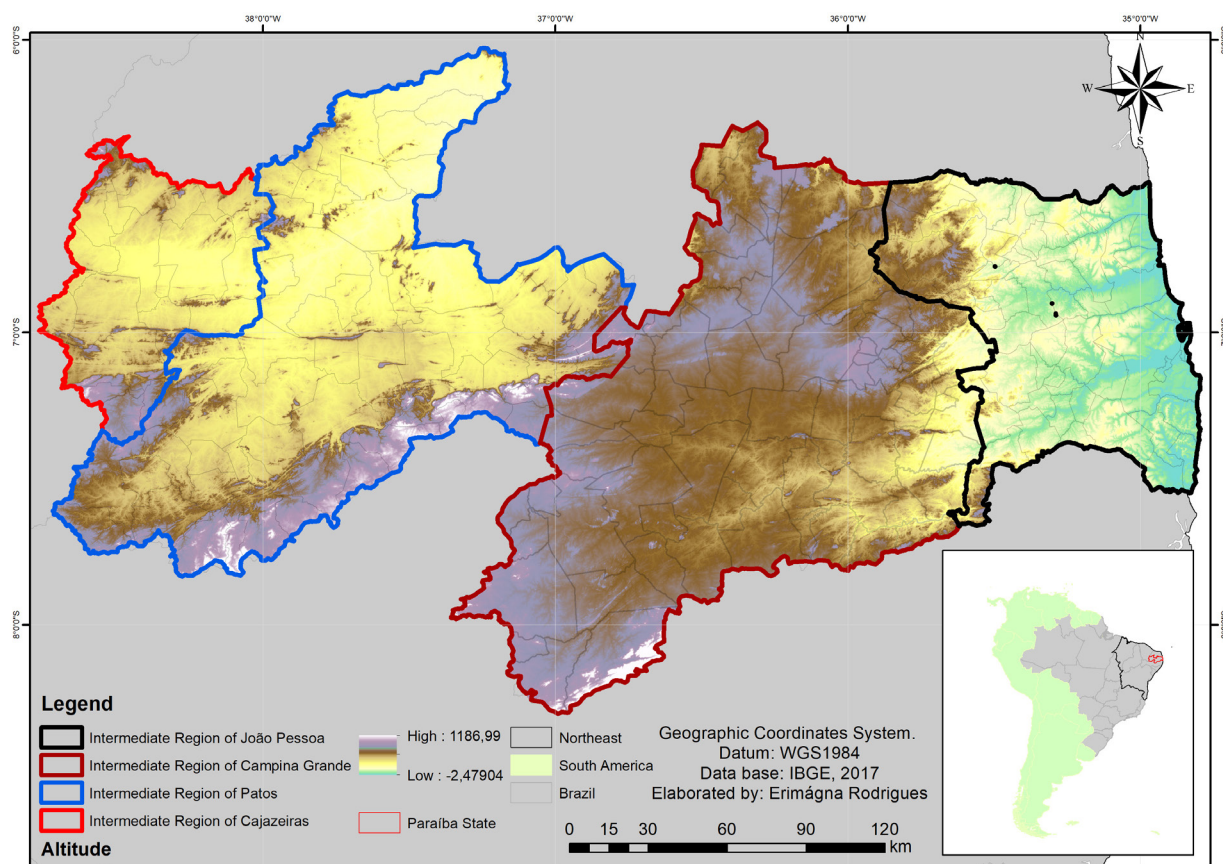


Fig. 1. Map of the study area, Paraíba state, Brazil, divided into Intermediate Regions (Prepared by: RODRIGUES E.M.).

João Pessoa and Campina Grande, covering Areia and surrounding municipalities, and the second (Fig. 2b) is located in the Intermediate Region of Campina Grande, comprising Campina Grande and surrounding municipalities. Both areas are located in the Agreste Zone, characterized by the transition (ecotone) between the limits of the coastal zone, to the East, where forests are abundant, and the drier areas, to the West, in the Brazilian Northeast (Prado, 2003). These ecotone areas tend to develop a mixed set of species characteristic of the areas they are found in and eventually exclusive species (Odum, 2001). At least two more areas with a high degree of *Ipomoea* richness are in the Agreste: Cuité, with 13 species (Fig. 2c), and Pocinhos, with 10 species (Fig. 2m). *Ipomoea aristolochiifolia* G. Don, *I. eremnobrocha* D.F. Austin, *I. longibracteolata* and *I. tiliacea* (Willd.) Choisy, herein considered rare, were only found in these areas. The result of mapping species richness can be attributed to the

collection effort resulting from the work of Lima & Melo (2019) and to the presence of the herbaria EAN (UFPB – *Campus Areia*), HACAM (UEPB – *Campus Campina Grande*) and HCES (UFCG – *Campus Cuité*), which promote several works on the flora of the surrounding municipalities.

Still in the Campina Grande IR, outside the Agreste Zone, three other areas stand out: 1. Serra Branca and part of surrounding municipalities (Fig. 2d) with 13 species. We believe that this result may be due to the collection efforts by our team in Serra do Jatobá, and the survey of the Convolvulaceae of Cariri (Buriel *et al.*, 2013); 2. Municipality of Monteiro, where 11 species are found (Fig. 2f); and 3. An area covering the municipalities of Nova Palmeira and Picuí (Fig. 2l), where 10 species are found.

In the Patos IR, two points have high species richness: 1. Surroundings of Pico do Jabre, with 13 species (Fig. 2e), located in the Serra do

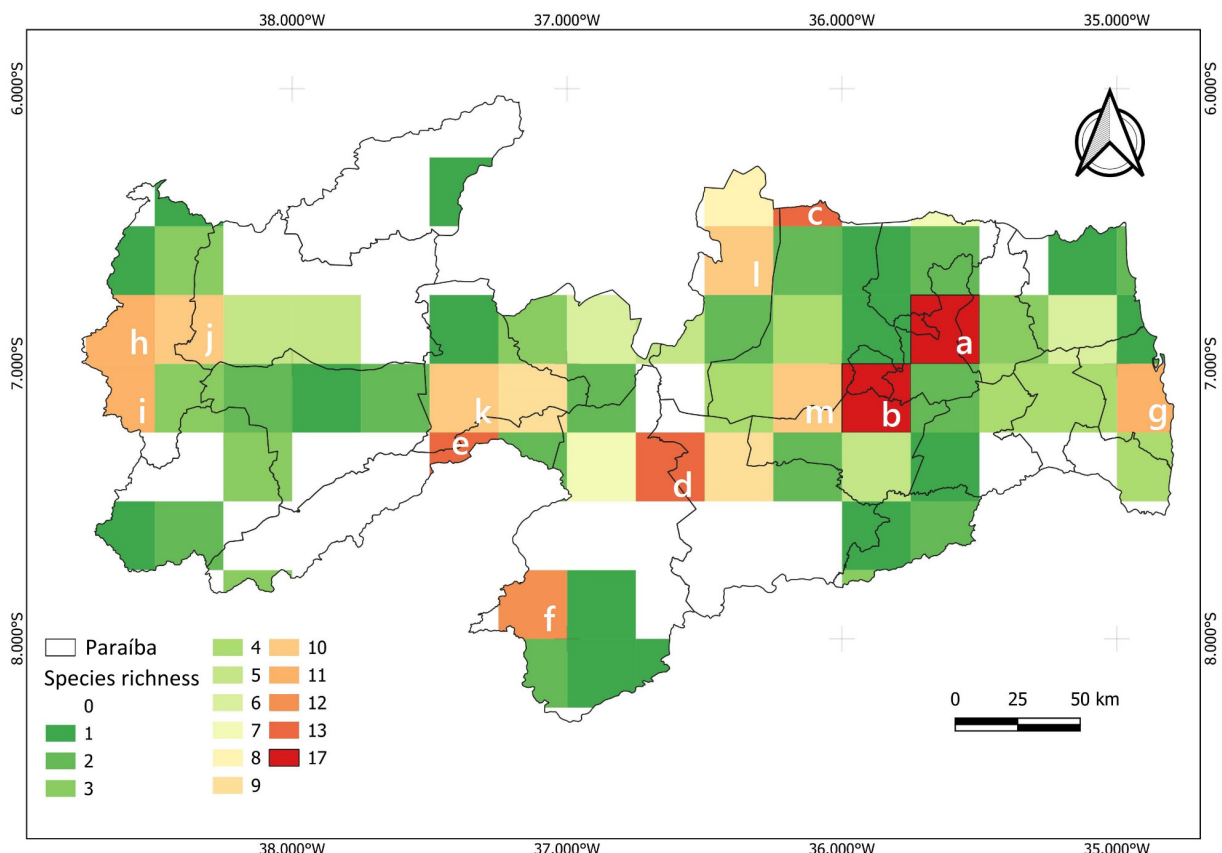


Fig. 2. Map of *Ipomoea* species richness in the state of Paraíba, Brazil (Prepared by: SILVA L.P.).

Teixeira National Park, where there is also a lot of collection effort; 2. The municipality of Patos itself, with 10 species (Fig. 2k), is where the CSTR herbarium team works.

In the Cajazeiras IR, a high richness was found in two areas near to Cajazeiras municipality with 11 species (Fig. 2h) and 10 species (Fig. 2j) each, and another one in the São José de Piranhas municipality (Fig. 2i), with 11 species. This can be explained by the collection efforts carried out during the Convolvulaceae inventory of the Engenheiro Ávidos Ecological Park (Bandeira *et al.*, 2019) and those of the collector V.M. Cotarelli. It is important to highlight that rare species were found in these areas (*I. calyprata*, *I. ramosissima* (Poir.) Choisy, *I. squamosa* Choisy, and *I. vespertilia*).

Finally, for the João Pessoa IR, the municipality of João Pessoa itself stands out (Fig. 2g), with 11 species were detected. We attribute this result to collection efforts to expand the collection at the JPB herbarium, the largest in the state. In this area, only one material of *I. meyeri* was found, a new record for Paraíba, a species that we classify as possibly extinct in the state because it was collected over 50 years ago, in an environment that is now very fragmented and anthropized.

### Taxonomic Treatment

***Ipomoea*** L., Sp. Pl. 1: 159. 1753. Type: *Ipomoea triloba* L.

Climbing herbs or liana, stoloniferous herbs, shrubs or subshrubs, varying in indument type and density. Branches usually striate, herbaceous or woody, latex often present. Leaves petiolate, simple entire or lobate, or compound. Inflorescences axillary cymes, dichasium or monochasium, showy flowers; bracteoles caducous or persistent. Calyx dialysepalous; sepals 5, varying in size, shape and indument, equal or unequal; persistent in fruit. Corolla gamopetalous; petals 5, usually funnelform or campanulate, rarely hypocrateriform or tubular, glabrous or pubescent, varying in color - pink,

lilac, blue, purple, white, yellowish. Stamens 5, different in size, usually included, rarely exerted; anthers basifixed, oblong or narrow-triangular, flat; pollen grains pantoporate, echinate. Ovary superior, 2–4-locular; style entire with com 2 stigmatic lobes, globose. Capsules dehiscent, rarely indehiscent, ovoid, obovoid, oblong or globose, sometimes apiculate (style partially persistent); seeds 1–6, ellipsoid, trigonal.

*Distribution:* The genus comprises 635 species, widespread across all tropical regions; it is the most species-rich genus of Convolvulaceae in Tropical Africa (Mwanga-Mwanga *et al.*, 2022; POWO, 2024).

### Key to the species of *Ipomoea* in the state of Paraíba, Brazil

1. Peduncles arise through the sinus at the base of the leaf ..... 3. *I. aristolochiifolia*
1. Peduncles arise opposite the leaf ..... 2
2. Peduncles twisted in a spiral ..... 3
2. Peduncles straight ..... 4
3. Outer sepals muricate or smooth . 17. *I. heptaphylla*
3. Outer sepals fimbriate ..... 36. *I. tenera*
4. Branches, petioles and pedicels setose .. 34. *I. setosa*
4. Branches, petioles and pedicels glabrescent, sericeous, hirsute, tomentose, or glabrous .. 5
5. Branches aculeate ..... 6
5. Branches smooth or muricate ..... 7
6. Subapical rostrum present on the external sepals; corolla > 5 cm long, hypocrateriform, white limb, exerted stamens ..... 2. *I. alba*
6. Subapical rostrum absent in all sepals; corolla < 5 cm long, funnelform, blue or lilac limb, included stamens ..... 28. *I. parasitica*
7. Sepals with a subapical rostrum ..... 8
7. Sepals without a subapical rostrum ..... 10
8. Corolla hypocrateriform, red, stamens exerted ..... 16. *I. hederifolia*

8. Corolla funnellform or campanulate, lilac or pink, stamens included ..... 9
9. Leaves simple; corolla < 5.5 cm long ..... 5. *I. bahiensis*
9. Leaves compound with 3 leaflets; corolla > 5.5 cm long ..... 31. *I. rosea*
10. Leaf blade pinnatifid, 8–15 pairs of linear segments ..... 30. *I. quamoclit*
10. Leaf blade entire or palmatilobed (sometimes absent, caducous during flowering in *I. vespertilia*) ..... 11
11. Shrubs, subshrubs or herbs, stems erect or prostrate ..... 12
11. Climbing plants, stems twining ..... 16
12. Branches erect; corolla pubescent ..... 12. *I. carnea* subsp. *fistulosa*
12. Branches prostrate; corolla glabrous ..... 13
13. Sepals with trichomes in the margin; ovary hirsute ..... 6. *I. batatas*
13. Sepals entirely glabrous; ovary glabrous .... 14
14. Leaf blade elliptical to oblong; corolla cream with yellowish tube ..... 18. *I. imperati*
14. Leaf blade reniform to suborbicular; corolla pink ..... 15
15. Leaf blade with a rounded or acute apex and a cordate base; sepals unequal, the outers half the size of the inner ones ..... 4. *I. asarifolia*
15. Leaf blade with emarginate apex and truncated or rounded base, sepals subequal, the outer slightly smaller than the inner ones ..... 29. *I. pes-caprae*
16. Branches and peduncles tomentose ..... 17
16. Branches and peduncles glabrous, glabrescent, pubescent, sericeous or hirsute ..... 22
17. Corolla cream or greenish ..... 18
17. Corolla pink or purplish ..... 19
18. Corolla with the base linear, limbus 4-5 cm diameter, stamens exerted ..... 23. *I. marcellia*
18. Corolla with the base geniculate, limbus 2–3 cm diameter, stamens reaching the top of the corolla tube, but not exceeding it ..... 38. *I. vespertilia*
19. Leaf blade cordate to suborbicular, abaxial surface densely sericeous silver; capsules indehiscent ..... 33. *I. sericosepala*
19. Leaf blade ovate, abaxial surface densely tomentose; capsules dehiscent ..... 20
20. Bracteoles oblong to obovate, persistent ..... 11. *I. calyptrata*
20. Bracteoles elliptic or lanceolate, caducous .... 21
21. Pedicels and sepals glabrescent ..... 9. *I. brasiliana* var. *brasiliana*
21. Pedicel and sepals pubescent to tomentose ..... 10. *I. brasiliana* var. *subincana*
22. Sepals sericeous, tomentose or hirsute ..... 23
22. Sepals glabrous, glabrescent, or pubescent with few trichomes restricted to the margins or base ..... 27
23. Sepals with prominent basolateral glands ..... 25. *I. megapotamica*
23. Sepals without basolateral glands ..... 24
24. Sepals with rounded apex; bracteoles oblong ..... 22. *I. longibracteolata*
24. Sepals with acute, acuminate, or caudate apex; bracteoles linear or filiform ..... 25
25. Leaf blade glabrescent or slightly pubescent ..... 26. *I. meyeri*
25. Leaf blade sericeous ..... 26
26. Sepals with attenuated apex, sericeous with trichomes hyaline; corolla > 7 cm long ..... 20. *I. indica*
26. Sepals with caudate apex, hirsute with trichomes opaque orange or yellowish; corolla < 7 cm long ..... 27. *I. nil*
27. Leaf blade palmatilobed ..... 28

- 27. Leaf blade entire ..... 31
- 28. Sepals flat; corolla < 3 cm long, entirely cream or yellow with vinaceous mouth ..... 29
- 28. Sepals convex; corolla > 3 cm long, pink or purple-red ..... 30
- 29. Leaf blade 3-lobed, sericeous, lobes acuminate; corolla cream ..... 14. *I. eremnbrocha*
- 29. Leaf blade 5–7-lobed, glabrescent, lobes rounded; corolla yellow with vinaceous mouth ..... 21. *I. longeramosa*
- 30. Leaf blade 3-lobed; corolla fully purple or white limb with purple tube in natural material ..... 8. *I. blanchetii*
- 30. Leaf blade 5–7-lobed; corolla pink in natural material ..... 24. *I. mauritiana*
- 31. Sepals subequal ..... 32
- 31. Sepals unequal ..... 34
- 32. Leaf blade sagittate; sepals lanceolate, chartaceous, veins conspicuous ..... 19. *I. incarnata*
- 32. Leaf blade oval, cordate or reniform; sepals oblong, membranous or coriaceous, veins inconspicuous ..... 33
- 33. Sepals < 1 cm long, convex; corolla funnelform, pink or purplish ..... 7. *I. batatoides*
- 33. Sepals > 1.5 cm long, flat; corolla hypocrateriform, white with greenish tube ..... 38. *I. violacea*
- 34. Outer sepals longer than the inner ones ..... 15. *I. grandifolia*
- 34. Outer sepals shorter than the inner ones ..... 35
- 35. Sepals with conspicuous scarious margin ..... 36
- 35. Sepals with discrete or absent scarious margin . 38
- 36. Outer sepals shorter, half the size of the inner ones ..... 35. *I. squamosa*
- 36. Outer sepals slightly shorter than the inner ones ..... 37
- 37. Sepals membranaceous, inner oblong to

- obovate, the apex obtuse, rough; corolla 2.5–3.5 cm long ..... 1. *I. acanthocarpa*
- 37. Sepals coriaceous, inner orbicular to suborbicular, the apex emarginate to retuse, smooth or striated; corolla 4–7 cm long ..... 12. *I. decipiens*
- 38. Inner sepals obovate, two shorter outer elliptical ..... 31. *I. ramosissima*
- 38. Inner sepals oblong, one outer oblong-elliptical shorter than the others 37. *I. tiliacea*

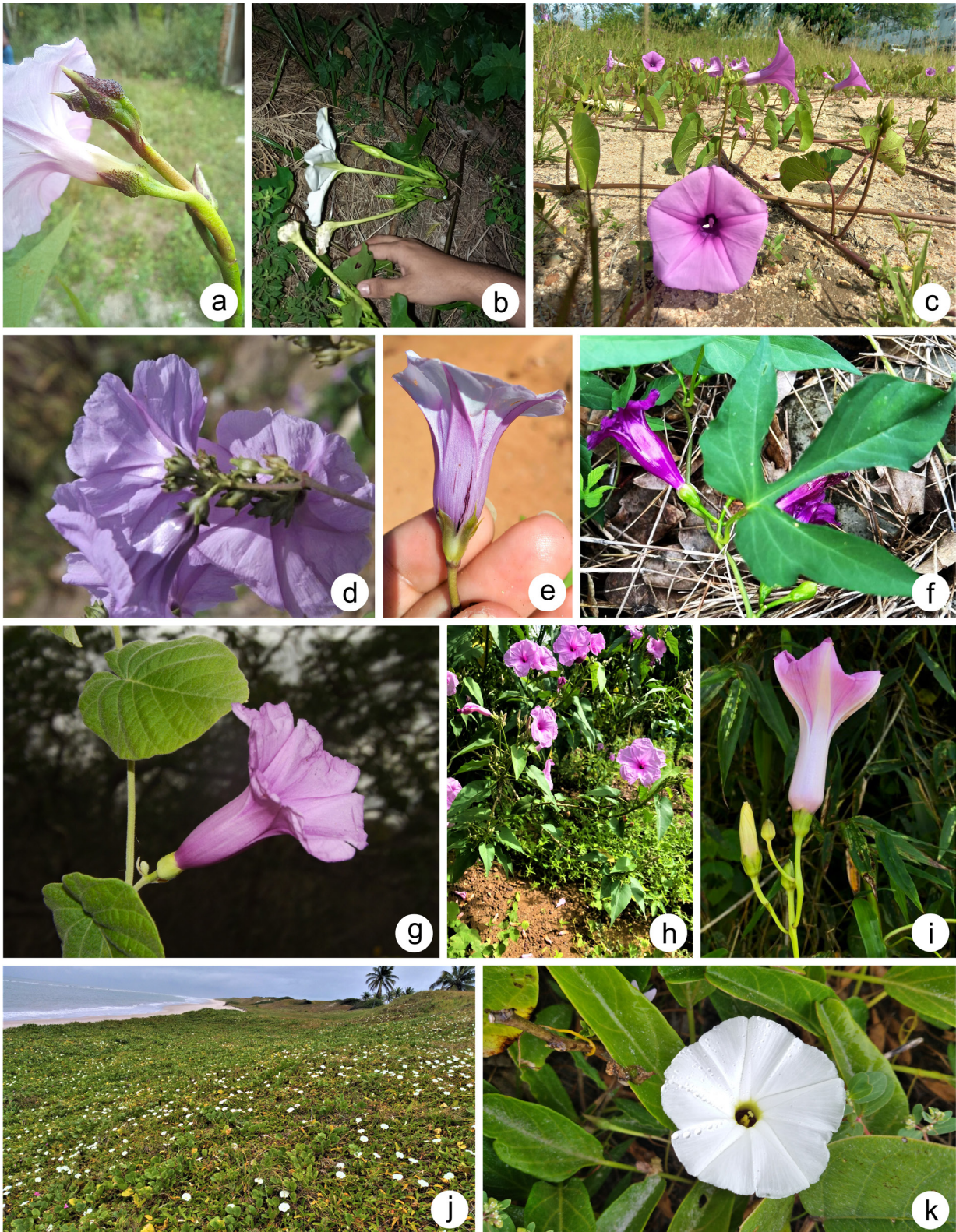
**1. *Ipomoea acanthocarpa*** (Choisy) Hochst. ex Schweinf. & Asch., Beitr. Fl. Aethiop. 277. 1867.  
**Figs. 3a & 4a–b**

*Flowering & fruiting:* Flowering from March to September; fruiting from March to August.

*Distribution:* It is distributed across Africa, South America, and Central America with isolated records in Costa Rica, and on the Asian continent, only in India (Wood *et al.*, 2020; POWO, 2024). In Brazilian territory, it occurs in the North and Northeast associated with the Amazon, Caatinga, and Atlantic Forest domains (Simão-Bianchini *et al.*, 2024). In Paraíba it is common, found in all IRs of the state, especially in Caatinga vegetation, both in preserved and anthropized areas, with few records for the Atlantic Forest.

*Specimens examined:* BRAZIL, **Paraíba**, Araruna, acesso à estrada da Boca, 16.07.2003, fl. & fr., A. Almeida 411 (EAN!); Nova Palmeira, Sítio Esperas, 17.03.2022, fl. & fr., A.P.S. Lima 17 (HACAM!); Patos, Barragem da Farinha, 14.05.2012, fl., C. Torres 307 (CSTR!); São José de Piranhas, Sítio Frade, beira de estrada, 6°58'20.0"S, 38°32'16.8"W, 09.08.2015, fl., Á.N.T. Bandeira 115 (HACAM!).

*Notes:* It can be recognized as a herbaceous vine with simple leaves, cordate, deltoid, or oval leaf blade, entire margins or 1–2-toothed at the base, short pedicels (0.2–0.5 cm) long, sepals with conspicuous scarious margins, the outer ones rough and slightly smaller (*c.* 0.2 cm) than the inner ones, corolla small (2.5–3.5 cm long), pink,



**Fig. 3.** **a.** *Ipomoea acanthocarpa* (Choisy) Hochst. ex Schweinf. & Asch., Inflorescence—side view. **b.** *I. alba* L., Inflorescence—side view. **c.** *I. asarifolia* (Desr.) Roem. & Schult., Habit. **d.** *I. bahiensis* Willd. ex Roemer & Schultes, Inflorescence—lateral view emphasizing the calyx with subapical rostrum. **e.** *I. batatas* (L.) Lamarck, Flower—side view. **f.** *I. blanchetti* Choisy, Habit emphasizing the three-lobed leaf. **g.** *I. brasiliiana* (Mart. ex Choisy) Meisner var. *subincana* (Choisy) J.R.I. Wood & Scotland, reproductive branch. **h.** *I. carnea* Jacq. subsp. *fistulosa* (Mart. ex Choisy) D.F. Austin, Habit. **i.** *I. decipiens* Dammer, Inflorescence. **j–k.** *I. imperati* (Vahl) Grisebach: **j.** Habit; **k.** Flower—top view (Photos a. B.F. Rocha; b–c, e. A.P.S. Lima; d. C.C. Correia; f. M.G.M. Gonçalves; g. E.M. Rodrigues; h. K.A. Gorgônio; i–k. I.C.M. Albuquerque).





**Fig. 4.** a-b. *Ipomoea acanthocarpa* (Choisy) Hochst. ex Schweinf. & Asch.: a. Calyx; b. Fruit. c-e. *I. aristolochiifolia* G. Don: c. Reproductive branch, emphasizing the peduncle arising through the sinus at the base of the leaf; d. Calyx; e. Fruit. f-g. *I. batatas* (L.) Lamarck: f. Sepals; g. Fruit. h. *I. batatoides* Choisy: Reproductive branch. i. *I. blanchetti* Choisy: Reproductive branch. j-k. *I. calytrata* Dammer: j. Reproductive branch; k. Calyx with persistent bracteoles. l. *I. decipiens* Dammer: Open calyx—posterior view. m-p. *I. eremnbrocha* D.F. Austin: m. Reproductive branch; n. Sericeous indument and glands on the adaxial surface of the leaf; o. Flower, emphasizing the campanulate corolla; p. Fruit. q. *I. hederifolia* L., Inflorescence. r. *I. heptaphylla* Sweet, Reproductive branch. s. *I. incarnata* (Vahl) Choisy, Calyx and bracteoles (Drawn by F. Martins).

campanulate, stamens included, and capsules with an elongated apicule c. 0.5 cm long, rigid, thorn-like.

**2. *Ipomoea alba* L., Sp. Pl. 1: 161. 1753. Fig. 3b**

*Flowering & fruiting:* Flowering from February to October; fruiting in October.

Flowering from March to September; fruiting from March to August

*Distribution:* Distributed worldwide, mainly in disturbed areas of shrub vegetation in riparian forests (Wood et al., 2020), but the native distribution of this species is in Tropical and Subtropical America (POWO, 2024). In Brazil, it is found in all regions and phytogeographic domains in humid habitats (Simão-Bianchini et al., 2024), but intolerant to saline habitats on beaches and mangroves (Alencar et al., 2021). It is rare in Paraíba, with few records in the IRs of Campina Grande and João Pessoa, especially in areas of the Atlantic Forest, but when found in the Caatinga area, it occurs near swamps.

*Specimens examined:* BRAZIL, **Campina Grande**, entre os distritos de Lagoa de Dentro e São José da Mata, 7°11'00.5"S, 35°58'56.6"W, 07.10.2022, fl. & fr., A.P.S. Lima 43 (HACAM!). Marcação, Tabuleiro, Aldeia Jacaré de São Domingos, 30.08.2006, fl., G.B. Freitas et al. 125 (JPB!).

*Notes:* *Ipomoea alba*, commonly known as the “lady of the night” due to its nocturnal anthesis, can be confused with *I. violacea* in the study area. Both species share nocturnal flowering, glabrous to glabrescent leaf blades, glabrous or glabrescent sepals, and a hypocrateriform corolla longer than 5 cm, with a white limb and a yellowish to greenish tube. However, they can be distinguished by several key features: *I. alba* has aculeate branches, a leaf blade that varies from entire to 3-lobed with entire or toothed margins at the base, hastate or oval shape, inflorescences in monochasia or dichasia, oblong sepals with elongated subapical rostrum, a corolla 9–16 cm long, and exerted stamens. In contrast, *I. violacea* has smooth or

slightly muricate branches, a leaf blade that is always entire with entire margins, cordiform to suborbicular shape, flowers that are isolated or rarely in clusters of 2–3, oval-rounded sepals with no subapical rostrum, a corolla 5–8 cm long, and included stamens. Furthermore, according to Alencar et al. (2021), *I. alba* is intolerant to saline environments, while *I. violacea* exclusively grows in these environments.

**3. *Ipomoea aristolochiifolia* G.Don, Gen. Hist. 4: 277. 1838. Fig. 4c-e**

*Flowering & fruiting:* Flowering and fruiting from July to October.

*Distribution:* It is distributed throughout the Americas, though it usually not abundant (Wood et al., 2020). In Brazil, it occurs across all regions, albeit in only a few states, found in the Amazon, Cerrado, Atlantic Forest (Simão-Bianchini et al., 2024), and Caatinga domains (Santos et al., 2020a). In the state of Paraíba, it is rare, occurring solely in the Intermediate Region (IR) of Campina Grande. Previously, it was known only from the municipality of Areia (Atlantic Forest vegetation), based on collections made between 1944 and 1958, and could have been considered extinct in the state. However, recent material collected in 2020 from the HCES herbarium was found in an area of Caatinga in the municipality of Cuité, confirming its continued presence in the region.

*Specimens examined:* BRAZIL, **Areia**, Escola de agronomia do Nordeste, 10.09.1944, fl. & fr., J.C. Moraes 106 (EAN!); Cuité, Sítio Maribondo, 10.07.2020, fl. & fr., V.F. Sousa 1198 (HCES!).

*Notes:* *Ipomoea aristolochiifolia* is a climbing herb that stands out in the study area due to its unique peduncle, which arises through the sinus at the base of the leaf—distinct from other species in the area, where peduncles arise opposite the leaf. This species has simple, entire leaves, with a small (1.5–3 × 1–3 cm) oval leaf blade. The sepals are subequal, with the outer ones slightly smaller (about 0.1 cm long) than the inner ones. The sepals

feature warty longitudinal ridges in the median region and prominent scarious margins, which are whitish or cinereous in dried material. The small corolla (1.8–2 cm long) is funnelform, with a bluish or lilac limb and a whitish or yellowish tube. The stamens are included within the corolla.

**4. *Ipomoea asarifolia*** (Desr.) Roem. & Schult., Syst. Veg., ed. 15 bis, 4: 251. 1819. **Fig. 3c**

*Flowering & fruiting:* Flowering throughout the year; fruiting from April to October.

*Distribution:* Widely distributed in West Africa, the Americas and Asia. It often grows in disturbed and humid areas (Wood *et al.*, 2020). In Brazil, it occurs throughout the North and Northeast, including on the Oceanic Island Fernando de Noronha, in the Central-West only in Mato Grosso, and in the Southeast only in Rio de Janeiro, in areas of the Amazon, Caatinga and Atlantic Forest (Simão-Bianchini *et al.*, 2024). In the study area, it is one of the most frequent species, occurring in all IRs, in urban and ruderal environments, roadsides and close to water reservoirs (except in saline environments) in areas of Caatinga and Atlantic Forest.

*Specimens examined:* BRAZIL, **Cajazeiras**, Açude nos arredores da cidade, Sítio Baixio dos Henriques, 01.11.2018, fl., V.M. Cotarelli 2886 (HUEFS, digital image!). Passagem, Fazenda ABA, 17.04.2016, fl. & fr., E.M.P. Fernando 443 (CSTR!). Pirpirituba, 09.09.2016, fl. & fr., A.P.S. Lima 02 (HACAM!). Serra Branca, arredores da Serra do Jatobá, 03.05.2022, A.P.S. Lima 33 (HACAM!).

*Notes:* Due to the stoloniferous herb habit with prostrate branches, reniform leaf blade, pink funnelform and included stamens, we found it misidentified as *I. pes-caprae*, which is a species exclusive from saline conditions. However, *I. asarifolia* has a leaf blade with a rounded or acute apex and a cordate base, and sepals unequal, the outer half the size of the inner ones (vs. leaf blade with apex emarginate and base truncated or rounded, sepals subequal, the outer slightly smaller than the inner ones).

**5. *Ipomoea bahiensis*** Willd. ex Roemer & Schultes, Syst. Veg., ed. 15(bis) 4: 789. 1819. **Fig. 3d**

*Flowering & fruiting:* Flowering throughout the year; fruiting from March to November.

*Distribution:* This species occurs in Bolivia and Brazil, where it is found throughout the country, except in the southern region of the country (Wood *et al.*, 2015; Wood *et al.*, 2020; Simão-Bianchini *et al.*, 2024). In the study area, we consider it one of the most frequent species with records in the four IRs, both in preserved and anthropized areas, in areas of Caatinga and Atlantic Forest.

*Specimens examined:* BRAZIL, **Baía da Traição**, Aldeia São Miguel, 17.05.2008, fl., R.B. Lima *et al.* 2290 (JPB!). Cajazeiras, Parque Ecológico Engenheiros Ávidos, 08.08.2015, fl. & fr., Á.N.T. Bandeira 67 (HACAM!). Catingueira, RPPN Fazenda Major Badú Loureiro, 04.06.2021, fl., J.L.R. Silva *et al.* 84 (CSTR!). Picuí, Reserva Ecológica Olho d'Água das Onças, 11.08.2022, fl., fr., B.F. Rocha *et al.* 63 (HACAM!).

*Notes:* Herbaceous vine easily recognized by its simple leaves, flowers with all sepals presenting a short subapical rostrum (0.2–0.4 cm), corolla lilac infundibuliform, and stamens included. *Ipomoea bahiensis* is highly polymorphic with leaf blades varying from cordate, oval, hastate, or sagittate, entire margins or with a toothed base, and sepals surface varying from smooth, rough, or fimbriated.

**6. *Ipomoea batatas*** (L.) Lamarck, Tabl. Encycl. 1: 465. 1793. **Figs. 3e & 4f–g**

*Flowering & fruiting:* Flowering from March to September; fruiting in March.

*Distribution:* Originally from America, cultivated in all tropical and subtropical regions of the planet. Wild plants are often found on roads near settlements or abandoned fields (Wood *et al.*, 2020). In Brazil, it occurs in all regions and phytogeographic domains (Simão-Bianchini *et al.*, 2024). In the study area, fertile material is rarely collected, found only in 4 municipalities in the

IR of Campina Grande, in areas of Caatinga and Atlantic Forest.

*Specimens examined:* BRAZIL, **Areia**, Mata do Pau Ferro, 28.07.2011, fl., S.A.A. Lima 65 (EAN!); Nova Palmeira, Sítio Porteiras, propriedade de Zé de Pedro, 19.07.2022, fl., A.P.S. Lima 42 (HACAM!).

*Notes:* This stoloniferous herb is easily recognized in the field by its prostrate, muricate branches, storage roots forming the “sweet potato”, robust peduncles, and sepals oblong with a cuspidate apex ending in a thin apical tip, margins ciliate, corolla campanulate, pink or pale lilac with a purple tube, longer than 3 cm, and included stamens.

**7. *Ipomoea batatoides*** Choisy, Mém. Soc. Phy. Genève 8: 58. 1837. **Fig. 4h**

*Flowering & fruiting:* Flowering from May to September; fruiting to May.

*Distribution:* Distributed from Mexico to South America (Wood et al., 2020). In the Brazilian territory it is found in Center-West, North and Northeast, in the Amazon, Caatinga, Cerrado and Atlantic Forest domains (Simão-Bianchini et al., 2024). In Paraíba, we considered as “possibly extinct” because the last collection was made 30 years ago, in the IRs of Campina Grande and João Pessoa in areas of Atlantic Forest.

*Specimens examined:* BRAZIL, **Areia**, Escola de Agronomia do Nordeste, 18.05.1953, fl. & fr., J.C. Moraes 739 (RB, digital image!). Mamanguape, Cabeceira do Rio dos Patos, Sema I, 01.09.1989, fl., L.P. Felix 2238 (EAN, JPB!).

*Notes:* This liana can be confused with *I. blanchetii* and *I. mauritiana* for being completely glabrous to glabrescent, with sepals convex, subequal, convex (equal in shape, but the inner slightly different in size), oblong-orbicular, apex rounded to obtuse, the surface smooth, and corolla infundibuliform with stamens included. It can be distinguished by its simple, leaves entire leaves with a cordate to oval blade, a rare 2-dentate base (*vs.* deeply 3-palmatilobated in *I. blanchetii*, and deeply 5–7-palmatilobated in *I. mauritiana*), it also shares

with *I. mauritiana* the pink corolla with a purplish mouth (*vs.* entirely purplish, sometimes with a whitish tube, in *I. blanchetii*).

**8. *Ipomoea blanchetii*** Choisy, A.P. de Candolle, Prodr. 9: 387. 1845. **Figs. 3f & 4i**

*Flowering & fruiting:* Flowering and fruiting from March to August; fruiting not seen.

*Distribution:* Endemic to Brazil, not found only in the South region. There are records on Amazon, Caatinga, Cerrado, and Atlantic Forest domains (Simão-Bianchini et al., 2024) but is more common in the Dry Forests of the Northeast (Wood et al. 2020). In the study area it is rare, with few records in the IRs of Campina Grande and Patos, in Caatinga vegetation.

*Specimens examined:* BRAZIL, **Cuité**, Sítio Tamanduá, 02.08.2012, fl., V.F. Sousa s.n. (HCES589!); Maturéia, Pico do Jabre, 23.03.2023, fl., A.P.S. Lima 44 (HACAM!).

*Notes* This species was compared to its relatives under the comments of *I. batatoides*.

**9. *Ipomoea brasiliana*** (Mart. ex Choisy) Meisner var. **brasiliana**, Fl. Bras. 7: 261. 1869.

*Flowering & fruiting:* Flowering from January to November; fruiting from February to October.

*Specimens examined:* BRAZIL, **Araruna**, Pedra da Boca, 16.07.2003, fl., S. Pitrez 350 (EAN!); Maturéia, Parque Estadual do Pico do Jabre, 7°15'11"S, 37°23'04"W, 12.04.2019, fl., A.S. Gomes 1730 (PEUFR!). Monte Horebe, Sítio Pinga, 15.V.2000, fl., M.R. Barbosa 2064 (JPB). Serra Branca, arredores da Serra do Jatobá, 03.V.2022, fl., A.P.S. Lima 29 (HACAM!).

**10. *Ipomoea brasiliana*** (Mart. ex Choisy) Meisner var. **subincana** (Choisy) J.R.I. Wood & Scotland, PhytoKeys 143: 254. 2020. **Fig. 3g**

*Flowering & fruiting:* Flowering from February to September; fruiting not seen.

*Specimens examined:* BRAZIL, **Araruna**, Pedra da Boca, 14.04.2002, fl., M.R. Barbosa et al. 2408

(JPB!); Maturéia, Pico do Jabre, 23.02.2023, fl., *A.P.S. Lima* 46 (HACAM!); Serra Branca, arredores da Serra do Jatobá, 03.05.2022, fl., *A.P.S. Lima* 28 (HACAM!, PEUFR!).

*Distribution:* Although they are still treated as distinct species in the Flora and Funga of Brazil (Simão-Bianchini *et al.* 2024), *I. subincana* was reduced to a variety of *I. brasiliiana* by Wood *et al.* (2020). They are both endemic to Brazil in all states of the Northeast, in the Central-West only in the Distrito Federal, and in the Southeast only in Minas Gerais, in open areas of the Caatinga and Cerrado (Simão-Bianchini *et al.*, *l.c.*). Recently, *I. subincana* was also reported in an area of Atlantic Forest by Marinho *et al.* (2023). In the study area, the typical variety is frequently found across all four IRs, whereas var. *subincana* is occasional and has no records in the Cajazeiras IR. Both varieties were observed in areas of Caatinga, often associated with well-preserved habitats, frequently near rocky outcrops.”

*Notes:* Vines of var. *subincana* are characterized by a tomentose indumentum on the branches, peduncles, and leaves, especially on the abaxial surface, which features prominent veins. The adaxial surface varies from sparsely pubescent to tomentose. The sepals are oblong to oval with a rounded to obtuse apex, and the corolla is infundibuliform, entirely purplish or pinkish with a purplish tube, and has included stamens. The varieties can be differentiated by their indumentum: glabrescent on the pedicels, sepals, and corolla in var. *brasiliiana*, and pubescent to tomentose in var. *subincana*.

**11. *Ipomoea calyptrata*** Dammer, Bot. Jahrb. Syst., 57: 40. 1897. Fig. 4j-k

*Flowering & fruiting:* Flowering from February to April; fruiting not seen.

*Distribution:* Disjointly distributed in Bolivia and Brazil (Wood *et al.*, 2020); found in the Caatinga and Cerrado domains, in the states of Minas Gerais, Bahia (Simão-Bianchini *et al.*, 2024), and

Ceará (Santos *et al.*, 2020a); recorded for the first time in Paraíba state. Four populations were found in the Caatinga of the IRs of Cajazeiras, Patos, and Campina Grande.

*Specimens examined:* BRAZIL, **Cabaceiras**, Sítio Bravo, 11 km Sul de Boa Vista, 31.03.1992, fl., *V.L. Nascimento et al.* 70 (JPB!); Cajazeiras, Balneário Bartolomeu, acesso pela PB 400, Jazida Pedreira, 12.04.2012, fl., *V.M. Cotarelli* 1711 (HVASF, digital image!); Cajazeiras, Balneário Bartolomeu, sentido São José de Piranhas, Sítio Timbaúba, 10.04.2012, fl., *V.M. Cotarelli* 1597 (HVASF, digital image!); Maturéia, Pico do Jabre, 07.02.1998, fl., *M.F. Agra et al.* 4957 (JPB).

*Notes:* This species was misidentified in the collections as *I. brasiliiana*. The two species are similar in that both have tomentose branches and leaves, with the abaxial surface densely tomentose and prominent veins. The adaxial surface can vary from sparsely pubescent to tomentose, and both species have an entirely purplish or pinkish corolla with a purplish mouth. However, they differ in that *I. calyptrata* has persistent, oblong to obovate, and wedge-shaped (boat-shaped) bracteoles, while *I. brasiliiana* has deciduous, elliptical or lanceolate bracteoles.

**12. *Ipomoea carnea*** Jacq. subsp. ***fistulosa*** (Mart. ex Choisy) D.F. Austin, Taxon 26: 237. 1977. **Fig. 3h**

*Flowering & fruiting:* Flowering from January to November; fruiting from July to September.

*Distribution:* Pantropical; widely cultivated as ornamental and native to swamps in South America (Wood *et al.*, 2020). In Brazil, it is naturalized throughout most of the territory (Delgado-Júnior *et al.*, 2023; Simão-Bianchini *et al.*, 2024), being native to the Pantanal domain and absent in the South region. In Paraíba it is frequent and found in four IRs, in areas of both Caatinga and Atlantic Forest.

*Specimens examined:* BRAZIL, **Bananeiras**, caminho próximo a Cachoeira do Roncador, 19.05.2022, fl., *A.P.S. Lima* 37 (HACAM!, PEUFR!);

Cajazeiras, Parque Ecológico Engenheiros Ávidos, 28.07.2015, fl. & fr., *Á.N.T. Bandeira* 84 (HACAM!); **São José do Bonfim**, Sítio Cruzeiro, 19.10.2010, fl., *J.S. Diniz* 04 (CSTR); Serra Branca, arredores da Serra do Jatobá, 17.01.2017, fl., *A.P.S. Lima & E.M. Rodrigues* 04 (HACAM!).

*Notes:* Popularly known as “algodão-bravo”, this species is recognized as the only one in the study area with a subshrub or shrub habit, featuring erect branches and a lanceolate leaf blade. Additionally, it has equal, pubescent to tomentelous sepals that are oval-orbicular with a rounded apex, an infundibuliform corolla that is pubescent, pink or pale lilac corolla, with included stamens.

**13. *Ipomoea decipiens*** Dammer, Bot. Jahrb. Syst. 57: 40. 1897. **Figs. 3i & 4i**

*Flowering & fruiting:* Flowering from March to November; fruiting not seen.

*Distribution:* Endemic to Brazil, occurs in the Caatinga and Atlantic Forest domains, in the Southeast, with records only in the states of Minas Gerais and Rio de Janeiro, and in the Northeast, in Bahia (Simão-Bianchini *et al.*, 2024), Ceará (Santos *et al.*, 2020b) and Paraíba (Lima & Melo, 2019). In the study area, it is occasional, with few records in the IRs of Campina Grande, João Pessoa, and Patos, in areas of Atlantic Forest and Caatinga.

*Specimens examined:* BRAZIL, Cuité, Sítio Olho d'Água da Bica, 14.07.2012, fl., *V.F. Sousa s.n.* (HCES540!); Maturéia, Parque Estadual Pico do Jabre, 23.03.2023, *A.P.S. Lima* 49 (HACAM!). Serraria, 18.06.2003, fl., *S. Pitrez* 301 (EAN!).

*Notes:* This liana is recognized by the combination of the following characters: simple, entire leaves with a cordate or oval leaf blade, either entirely glabrous or pubescent with glandular punctuations; a corolla 4–7 cm long, infundibuliform and pubescent, pink with a purplish tube and included stamens. It is distinguished from all other species in the study area by its unequal, coriaceous sepals: the outer ones are oval with an obtuse, mucronate apex, while the inner ones are suborbicular

with an emarginate, mucronate apex and wide, conspicuous scarious margins (yellowish in herbarium material). The intermediate sepal is asymmetrical.

**14. *Ipomoea eremnobrocha*** D.F. Austin, Bot. Soc. 124: 145. 1997. **Fig. 4m–p**

*Flowering & fruiting:* Flowering from May to July; fruiting in July.

*Distribution:* Distributed disjointly in Panama and Brazil, it is recorded in Bahia, Paraíba, Sergipe (Wood *et al.*, 2020) and Ceará. It grows in Caatinga areas (Simão-Bianchini *et al.*, 2024), particularly in Dry Forests and “Brejos de Altitude” (Wood *et al.*, 2017b). In Paraíba, it is rare, with only two populations found in the IRs of Campina Grande and João Pessoa in Atlantic Forest or in transition areas to Caatinga.

*Specimens examined:* BRAZIL, **Areia**, UFPB, CCA, Arboreto Jayme Côelho de Moraes, 06.07.2017, fl. & fr., *P.C. Gadelha-Neto* 4163 (EAN!); Guarabira, Fazenda Getúlio Vargas, 01.06.1988, fl., *L.P. Félix* 1173 (EAN!, HST!).

*Notes:* This herbaceous vine is quite distinct from others in the study area due to the following set of characteristics: a 3-palmatilobed leaf blade, discoloration, abaxial surface densely sericeous-cinereous with glandular punctuations, winged and sericeous pedicels, a small corolla (approximately 2 cm long), campanulate, white with a greenish tube, and included stamens.

**15. *Ipomoea grandifolia*** (Dammer) O'Donell, Arq. Mus. Paranaense 9: 222. 1952. **Fig. 6r**

*Flowering & fruiting:* Flowering from April to September; fruiting not seen.

*Distribution:* It is distributed throughout South America, usually grows on disturbed roadsides at low altitudes. In Brazil, it is found in the Central-West, only in Mato Grosso; North in Acre and Amazonas; Southeast in Minas Gerais and Rio de Janeiro; South in Paraná, Rio Grande do Sul and Santa Catarina; and Northeast in Bahia (Wood

*et al.*, 2020), Pernambuco (Delgado-Júnior *et al.*, 2023), Rio Grande do Norte (Marinho *et al.*, 2023), and in this study, we are expanding its distribution to the state of Paraíba, where it is occasional, with few records in the IRs of Cajazeiras, Campina Grande and Patos in areas of Caatinga.

*Specimens examined:* BRAZIL, **Maturéia**, Pico do Jabre, 05.06.2021, fl., *C.H.S. Oliveira* 62 (CSTR). Picuí, terreno abandonado, 16.04.2023, fl., *A.P.S. Lima* 50 (HACAM). São José de Piranhas, Reservatório Morros, 19.05.2011, fl., *F.F.S. Silva* 443 (HVASF).

*Notes:* This herbaceous vine is recognized by its simple leaves with entire or 2-toothed blades at the base, ciliate sepals, with the outer ones elliptical or oval-lanceolate and the inner ones oval and shorter (0.1–0.2 cm in length). The corolla is diminutive (1.5–2 cm long), infundibuliform to campanulate, pink or pale lilac with a purple tube, and has included stamens.

This species is often misidentified as *I. triloba* L. and is treated as a synonym in the Flora and Funga of Brazil (Simão-Bianchini *et al.*, 2024). However, the authors follow Wood *et al.* (2020) and consider it as distinct.

**16. *Ipomoea hederifolia* L.**, Syst. Nat., ed. 10, 2: 925. 1759. Fig. 4q

*Flowering & fruiting:* Flowering from January to October; fruiting from April to August.

*Distribution:* Widespread in Tropical America, from the southern United States to the northernmost part of Argentina (Wood *et al.*, 2020), this species has a confirmed presence throughout almost all of Brazil, except in the states of Acre and Amapá (both in the North region). It occurs in the Amazon, Caatinga, Cerrado and Atlantic Forest domains (Simão-Bianchini *et al.*, 2024). In the state of Paraíba it is occasional, occurring in the four IRs, in both preserved and anthropized areas in the Caatinga and Atlantic Forest.

*Specimens examined:* BRAZIL, **Bom Jesus**, 21.05.2014, fl., *J.L. Costa-Lima* 1254 (HTSA,

HUEFS, RB, digital images!); Monteiro, indo para a Serra do Peru, 21.05.2008, fl. & fr., *M.C. Pessoa* 395 (JPB); Rio Tinto, Reserva Biológica Guaribas, Área III, Mata do maracujá, 22.08.2002, fl., *A.C. Sevilha* 2350 (CEN, digital image!); São Mamede, 11.07.2007, fl., *M.F. Agra* 6934 (JPB!).

*Notes:* In the study area, this vine can be compared to *I. quamoclit* due to its red, hypocrateriform corolla with exserted stamens. However, they differ in the leaf shape and sepal characteristics: *I. hederifolia* has entire or 3-lobed leaves and sepals with a subapical rostrum, whereas *I. quamoclit* has pinnatisect leaves divided into 8–15 pairs of linear segments and sepals that are smooth, without a subapical rostrum.

**17. *Ipomoea heptaphylla* Sweet**, Hort. Brit., 2: 372. 1830. Fig. 4r

*Flowering & fruiting:* Flowering from February to October; fruiting from February to September.

*Distribution:* This species is distributed throughout the Neotropics, with a discontinuous occurrence, often found in dry areas such as the Brazilian Caatinga and Chaco (Wood *et al.*, 2020). In Brazil, it occurs in the Central-West, North, Northeast, and Southeast regions, in areas of Caatinga, Cerrado, and Atlantic Forest domains (Simão-Bianchini *et al.*, 2024). In Paraíba it is occasional, found in all four IRs in areas of Caatinga or Caatinga-Atlantic Forest transition.

*Specimens examined:* BRAZIL, **Cajazeiras - Brejo das Freiras**, 15.08.1979, fl. & fr., *C.A.B. Miranda s.n.* (JPB4424!). Gurinhém, 08.07.1994, fl., *L.P. Felix* 6528 (PEUFR!). Patos, Açude Jatobá, 12.09.2012, fl. & fr., *C. Torres* 363 (CSTR!, PEUFR!). São João do Cariri, Fazenda Experimental, 05.05.1987, fl., *L.P. Felix* 552 (HST). Uiraúna, Açude na comunidade Sítio Porcina, 05.09.2018, fl. & fr., *L.F. Lima*, 1257 (RB, digital image!).

*Notes:* This species can be compared to *I. tenera* due to their shared characteristics of being completely glabrous, having compound leaves with 5–7 leaflets, spirally twisted peduncles, and a tiny corolla (1–2.5

cm long), infundibuliform to campanulate, pink with a purplish mouth, and included stamens. However, they differ in the branches and sepals: *I. hederifolia* has muricate branches and muricate or smooth outer sepals with an acute to obtuse apex, while *I. tenera* has smooth branches and fimbriated outer sepals with an attenuated apex.

**18. *Ipomoea imperati*** (Vahl) Grisebach, Cat. Pl. Cub., 203. 1866. **Fig. 3j-k**

*Flowering & fruiting:* Flowering from January to December; fruiting not seen.

*Distribution:* Pantropical, present in the coastal strips (Wood et al., 2020). In Brazil, it is found along the coasts (Simão-Bianchini et al., 2024). In the state of Paraíba, it is occasional, occurring in sandbanks and coastal dunes in the IR of João Pessoa.

*Specimens examined:* BRAZIL, **Rio Tinto**, APA da Barra do Rio Mamanguape, 24.11.2011, fl., F.V. Rocha 75 (JPB!).

*Notes:* Stoloniferous herbs with prostrate branches, do not develop storage roots, easily recognized by the simple, elliptical to oblong, uniflorous (rare 2-flora), infundibuliform corolla, cream with yellowish tube, and stamens included.

**19. *Ipomoea incarnata*** (Vahl) Choisy in DC., Prodr. 9: 360. 1845. **Figs. 4s& 5a**

*Flowering & fruiting:* Flowering from March to December; fruiting in June.

*Distribution:* Distributed in South America (Simão-Bianchini et al., 2024), often in arid regions (Wood et al., 2020). In Brazil, it occurs in the Northeast and Southeast regions, in areas of Caatinga and Atlantic Forest (Bandeira et al., 2019; Simão-Bianchini et al., 2024). In Paraíba, it is occasional, occurring in the four IRs in Caatinga and Caatinga-Atlantic Forest transition areas, in more preserved areas.

*Specimens examined:* BRAZIL, **Cajazeiras**, Parque Ecológico Engenheiros Ávidos, beira de estrada, 9.06.2015, fl. & fr., A.N.T. Bandeira 71 (HACAM!); Gurinhém, 8.07.1994, fl., L.P. Felix 6529 (EAN!);

Monteiro, estrada para a Serra do Peru, 01.06.2017, fl., J.L.M. Melo 29-2017a (HACAM!); Passagem, Fazenda ABA, 19.04.2015, fl., E.M.P. Fernando 292 (CSTR!).

*Notes:* Herbaceous vine easily identified by its simple, entire, glabrous, leaves sagittate, sepals convex, hyaline, subequal, oblong-lanceolate with 5–8 veins conspicuous, and a large corolla (7.5–8 cm long), infundibuliform, lilac or pink with a purple tube, and stamens included.

**20. *Ipomoea indica*** (Burm) Merril, Interpr. Herb. Amboin 445. 1917. **Fig. 5b**

*Flowering & fruiting:* Flowering from February to October; fruiting not seen.

*Distribution:* Native to the Neotropics, naturalized in tropical and subtropical zones (Wood et al., 2020). This species occurs throughout Brazil, in the Amazon, Caatinga, Cerrado, Atlantic Forest and Pampa domains (Simão-Bianchini et al., 2024). In the study area, it is rare, with few records in the IRs of Campina Grande and Patos in areas of Caatinga, Atlantic Forest and Caatinga-Atlantic Forest transition.

*Specimens examined:* BRAZIL, **Lagoa Seca**, 08.02.2017, fl., A.P.S. Lima et al. 05 (HACAM!). Patos, Bodocongó, 28.09.1982, fl., A. Fernandes & F.J.A. Matos (EAC11676, RB, digital images!).

*Notes:* Herbaceous vine with pubescent or sparsely sericeous branches. It can be confused with *I. nil* due to the compact cymes, persistent bracteoles, lanceolate, long acuminate sepals, and infundibuliform corolla bluish or purple, stamens included. But it can be distinguished by the lanceolate bracteoles, sepals sparsely sericeous with hyaline trichomes, and corolla 7.5–8 cm long (vs. linear bracteoles, sepals densely hirsute with orange or gold trichomes at the base, and corolla 3.5–6 cm long in *I. nil*).

**21. *Ipomoea longeramosa*** Choisy, Prodr. 9: 3845. 1845. **Fig. 5c**

*Flowering & fruiting:* Flowering from March to



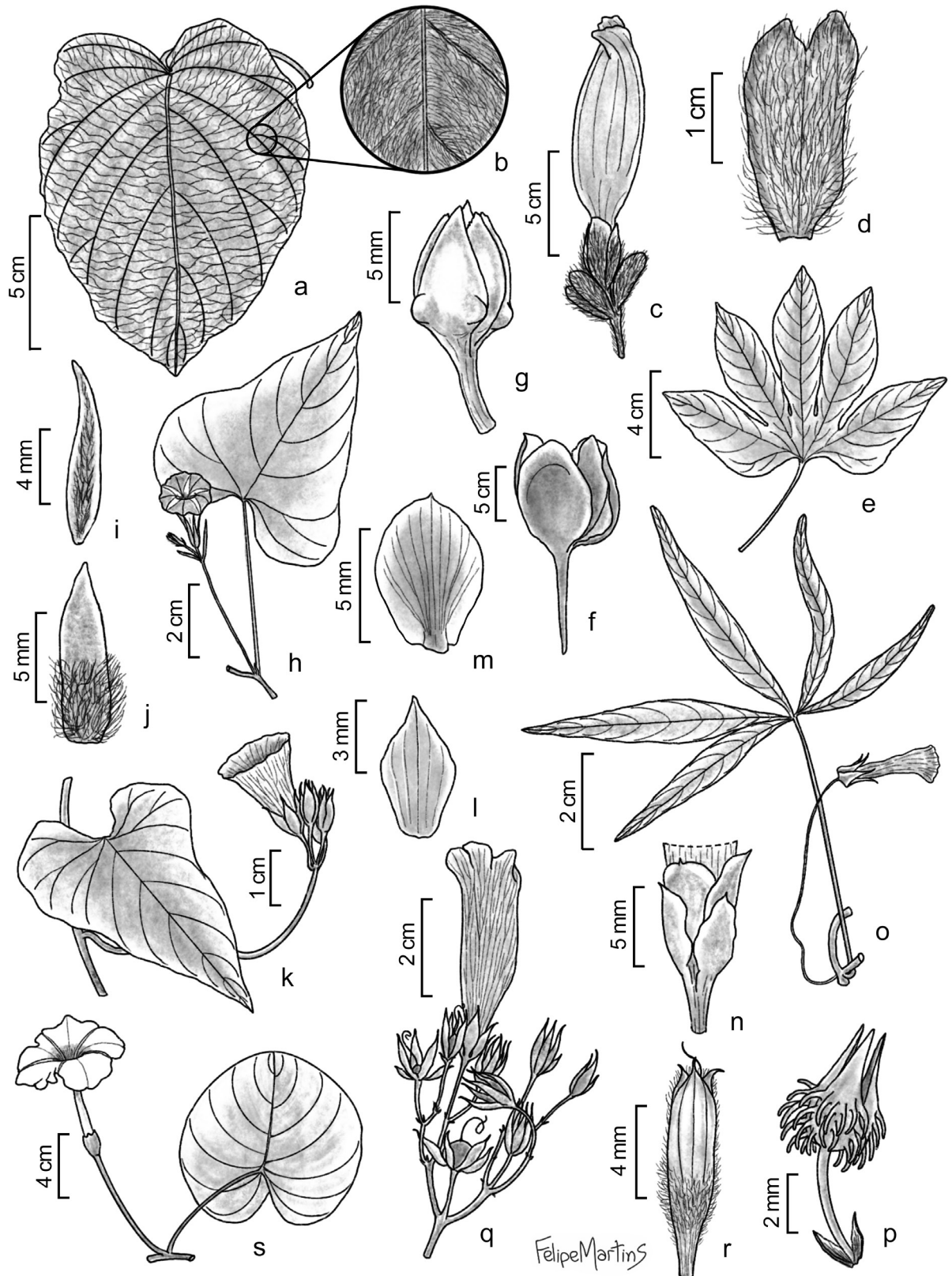
December; fruiting from April to September.

*Distribution:* It occurs in Bolivia, Brazil, Cuba, Guyana, Dominican Republic and Venezuela,

being more frequent in Brazil, mainly in the Northeast region (Wood *et al.*, 2020). In Brazil, it is found in the Amazon, Caatinga and Cerrado



**Fig. 5.** a. *Ipomoea incarnata* (Vahl) Choisy: Habit. b. *I. indica* (Burm) Merrill, Flower–side view. c. *I. longeramosa* Choisy, Habit. d. *I. marcellia* Meisner: Flower, emphasizing the funnellform corolla with extended stamens. e–f. *I. nil* (L.) Roth: e. Flower, top view; f. Flower, side view. g. *I. parasitica* (Kunth) G. Don: Habit. h. *I. pes-caprae* (L.) R.Br.: Flower, top view. i. *I. quamoclit* L.: Pinatisect leaf and hypocateriform corolla with exerted stamens. j. *I. rosea* Choisy: Inflorescence. k & m. *I. sericosepala* J.R.I.Wood & R.W.Scotland: k. Reproductive branch; m. Fruits. l. *I. setosa* Ker-Gawl.: Reproductive branch. n. *I. vespertilia* F.D. Santos, G.C. Delgado–Júnior & Buril: Inflorescence, emphasizing the geniculate corolla (Photos a. J.I.M. Melo; b, g, i, m. F.K.S. Monteiro; c, f, j. A.P.S. Lima; d–e, k. M.G.M. Gonçalves; h. I.C.M. Albuquerque; l, n. F.C. Pinheiro).



**Fig. 6.** a-d. *Ipomoea longibracteolata* Sim.-Bianch. & J.R.I. Wood: a. Leaf; b. Leaf indument; c. Flower with closed corolla; d. Bracteole. e-f. *I. mauritiana* Jacq.: e. Leaf; f. Calyx. g. *I. megapotamica* Choisy, Calyx emphasizing the prominent basolateral glands. h-j. *I. meyeri* (Spreng.) G.Don: h. Reproductive branch; i. Inner sepal; j. Outer sepal. k-m. *I. ramosissima* (Poir.) Choisy: k. Reproductive branch; l. Outer sepal; m. Inner sepal. n. *I. squamosa* Choisy: Calyx. o-p. *I. tenera* Meisner: o. Reproductive branch; p. Calyx. q. *I. tiliacea* (Willd.) Choisy: Inflorescence. r. *I. grandifolia* (Dammer) O'Donnell: Calyx. s. *I. violacea* L.: Reproductive branch (Drawn by F. Martins).

domains, with no records only in the southern region of the country (Simão-Bianchini *et al.*, 2024). In Paraíba, it is common in the 4 IRs in areas of Caatinga, from preserved to anthropic areas, but always with small populations. It is a creeper, but sometimes grows on bushes.

*Specimens examined:* BRAZIL, **Araruna**, estrada de acesso à Pedra da Boca, 16.07.2003, fl. & fr., A. Almeida *et al.* 410 (EAN!); Nova Palmeira, Sítio Porteiras, propriedade de Zé de Pedro, 19.07.2022, fl., A.P.S. Lima 41 (HACAM!); Patos, Sítio Farinha dos Gatos, 21.04.2011, fl. & fr., F. Lucena *et al.* 38 (CSRT!); Sousa, 22.04.1982, fl., M.A. Sousa 1119 (JPB).

*Notes:* Herbaceous vines easily recognized by the combination of the following characters: simple leaves, deeply 5–7-palmatilobed, uniflorous (sometimes 2-flowered), flowers with lanceolate sepals, corolla 1.5–3 cm long, infundibuliform, glabrous, yellow with a vinaceous tube and stamens included.

**22. *Ipomoea longibracteolata*** Sim.-Bianch. & J.R.I. Wood, Kew Bull. 71(1)-8: 15. 2017. **Fig. 6a-d**

*Flowering & fruiting:* Flowering from May to June; fruiting not seen.

*Distribution:* Endemic to Brazil, found in the Cerrado and Caatinga domains, in sandy or rocky soil. It was only recorded in the Center-West in Goiás, in the Southeast in Minas Gerais, and in the Northeast occurring in Bahia (Wood *et al.*, 2017c; Simão-Bianchini *et al.*, 2024), and Ceará (Santos *et al.*, 2020a). Here we recorded it for the first time in Paraíba, where it is a rare species, with restricted distribution in the Campina Grande IR in Caatinga and Caatinga-Atlantic Forest transition vegetation.

*Specimens examined:* BRAZIL, **Lagoa Seca**, 17.06.2001, fl., C.E.L. Lourenço 204 (JPB!). Puxinanã, 20.V.1992, fl., L.P. Félix 4981 (EAN!, HST, RECIFE!).

*Notes:* This species is a liana, with branches

hirsute, adaxial surface of the leaf blade sparsely sericeous, peduncles hirsute, bracteoles persistent, oblong to obovate, sepals sericeous, and corolla campanulate, pink with the tube purple.

**23. *Ipomoea marcellia*** Meisner, Fl. Bras. 7: 257. 1869. **Fig. 5d**

*Flowering & fruiting:* Flowering from May to November; fruiting from June to November.

*Distribution:* Endemic to the Caatinga, occurring throughout almost the entire Northeast, except in the states of Maranhão and Piauí (Wood *et al.*, 2020; Simão-Bianchini *et al.*, 2024). In the study area, it is common in the IRs of Campina Grande, Cajazeiras, and Patos, in preserved areas.

*Specimens examined:* BRAZIL, **Monte Horebe**, Sítio Braga, 08.07.2010, fl., Fontana 6967 (HVASF, digital image!); Nova Palmeira, Sítio Passagem, 27.05.2023, fl., A.P.S. Lima 56 (HACAM!); Passagem, Fazenda ABA, 16.06.2016, fl., E.M.P. Fernando 457 (CSTR!).

*Notes:* This liana has simple, oval leaves with discoloration, the adaxial surface sparsely tomentose, the abaxial surface densely tomentose with prominent veins. It is morphologically similar to *I. vespertilia*, as both species have sepals that are canescent or cinereous and velutinous, and a cream or greenish corolla. However, *I. marcellia* differs in that its leaves are persistent during flowering and the stamens are exerted, whereas in *I. vespertilia*, the leaves are caducous and the stamens are included, reaching the mouth of the tube but never exceeding it.

**24. *Ipomoea mauritiana*** Jacq., Collectanea 4: 216. 1791. **Fig. 6e-f**

*Flowering & fruiting:* Flowering in January; fruiting not seen.

*Distribution:* Common in the equatorial region of the globe. In Brazil, it grows in the Amazon, Caatinga and Atlantic Forest domains but has not been recorded in the South region (Wood *et al.*, 2020; Simão-Bianchini *et al.*, 2024). This is the

first record for Paraíba. However, we consider it possibly locally extinct, as we found only one record, dating back more than 30 years, in the IR of João Pessoa, located in a municipality with a Caatinga-Atlantic Forest transition area.

*Specimens examined:* BRAZIL, **Itapororoca**, Fazenda Macacos, 23.01.1987, fl., *L.P. Félix* 1509 (EAN!, HST!).

*Notes:* It was often misidentified in the herbaria as *I. cairica*, which does not occur in the study area. The two species are completely different: *I. cairica* has compound leaves and pseudostipules, while *I. mauritiana* has simple, deeply 5–7-palmatilobated leaves and lacks pseudostipules.

**25. *Ipomoea megapotamica*** Choisy, Prodr. 9: 375. 1845. **Fig. 6g**

*Flowering & fruiting:* Flowering from January to September; fruiting from May to September.

*Distribution:* Very common in South America (Wood *et al.*, 2020). In Brazil, it was recorded in the North region (only in Tocantins), throughout the Northeast and Central-West, and in the Southeast, in the states of Minas Gerais and São Paulo, in the Caatinga, Cerrado and Atlantic Forest domains (Simão-Bianchini *et al.*, 2024). It is frequent Paraíba, with occurrences in the four IRs, mainly in areas of preserved Caatinga, and in transition areas.

*Specimens examined:* BRAZIL, **Arara**, 25.05.1959, fl., *J.C. Moraes* s.n. (EAN2126!); Cajazeiras, Povoado Caiçara, 12.04.2012, fl., *V.M. Cotarelli* 1675 (HVASF, digital image!); Maturéia, Pico do Jabre, 22.05.2021, fl. & fr., *C.H.S. Oliveira* 066 (CSTR!); Monteiro, estrada para a Serra do Peru, 01.06.2017, fl. & fr., *J.I.M. Melo* 29-2017b (HACAM!).

*Notes:* Herbaceous vines with simple, entire leaves, the leaf blade cordiform or reniform, discolorous, with the adaxial surface sparsely sericeous or glabrous, and the abaxial surface densely sericeous-cinereous. The corolla is campanulate, pubescent, pale pink with a purplish tube, and has included

stamens. In the study area, it is the only climbing species with basolateral glands on the sepals.

**26. *Ipomoea meyeri*** (Spreng.) G.Don, Gen. Hist. 4: 275. 1838. **Fig. 6h-j**

*Flowering & fruiting:* Flowering in October; fruiting not seen.

*Distribution:* It occurs in moist forest areas of disturbed locations (Wood *et al.*, 2020) of Central America (Mexico only) and South America (Brazil, Colombia, Ecuador, Peru, and Venezuela). In Brazil, its distribution is restricted to the North (Acre and Amazonas) and Northeast regions, in Ceará, Maranhão (Simão-Bianchini *et al.*, 2024) and in this study, we expanded its distribution to the state of Paraíba. However, we consider that it is locally extinct, as only one record dating back more than 50 years was found, from the municipality of João Pessoa, an environment that is highly fragmented due to urbanization.

*Specimens examined:* BRAZIL, **João Pessoa**, Balaustrada, 07.10.1971, fl., *I.L. Correa* 39 (JPB!).

*Notes:* This material was misidentified in the herbarium as probable *Ipomoea ericalyx*, which we did not find in the study area. But *I. meyeri* has branches glabrescent, bracteoles linear, outer sepals oblong-lanceolate, densely hirsute at the base with rigid golden trichomes, inner sepals lanceolate, hirsute only in the longitudinal midline, and corolla 1.5–1.8 cm long, glabrous (vs. branches pubescent, bracteoles lanceolate, sepals lanceolate, entirely pubescent, and larger corolla, c. 5 cm long, pubescent).

**27. *Ipomoea nil*** (L.) Roth, Catal. Bot. 1: 36. 1797. **Fig. 5e-f**

*Flowering & fruiting:* Flowering from January to December; fruiting from April to December.

*Distribution:* Pantropical, usually found near disturbed vegetation (Wood *et al.*, 2020). In Brazil, it is widely distributed, not recorded only in the States of Amapá and Roraima, both in the North region, occurring in the Amazon, Caatinga,

Cerrado, Atlantic Forest and Pampa domains (Simão-Bianchini *et al.*, 2024). In the study area, it is common in the four IRs, in lower altitude.

*Specimens examined:* BRAZIL, **Araruna**, Estrada de acesso à Pedra da Boca, 16.07.2003, fl., A. Almeida 409 (EAN!); Nova Palmeira, Beira de estrada na entrada da cidade, 20.05.2023, fl., A.P.S. Lima 53 (HACAM!); Patos, Serra Negra das Onças, 01.05.2011, fl. & fr., P.D. Angelis 60 (CSTR!); Sousa, Vale dos Dinossauros, 22.05.2003, fl., P.C. Gadelha-Neto 912 (JPB!).

*Notes:* The morphological similarities with *I. indica* were discussed under the comments of that species.

**28. *Ipomoea parasitica*** (Kunth) G. Don, Gen. Hist. 4: 275. 1838. Fig. 5g

*Flowering & fruiting:* Flowering from April to October; fruiting from May to October.

*Distribution:* Distributed from Mexico to Bolivia, it usually grows in disturbed vegetation (Wood *et al.*, 2020). In Brazil, it is naturalized in the Caatinga, Cerrado and Atlantic Forest domains. It occurs in the Northeast region, except in Alagoas and Piauí states, in the Center-West, in Goiás, and in the Southeast in Minas Gerais (Simão-Bianchini *et al.*, 2024). It is occasional in Paraíba, found in all IRs in areas of Caatinga, Atlantic Forest or ecotones.

*Specimens examined:* BRAZIL, **Conceição**, Ponte dos Gatos, 18.05.2019, fl. & fr., W. Izidro 09 (CSTR!); Lagoa Seca, 09.10.2017, fl. & fr., A.P.S. Lima *et al.* 13 (HACAM!); São José de Piranhas, 11.07.2015, fl., E. Araújo 51 (HUEFS, digital image!); Solânea, Curimataú, 13.09.2001, fl., T.M.G. Veloso 301 (IPA!, JPB!).

*Notes:* This species is similar to *I. alba*, in its aculeate branches. However, they are easily distinguished by the rostrate sepals and hypocrateriform corolla, which is white in *I. alba* (*vs.* smooth sepals and infundibuliform corolla, which is bluish in *I. parasitica*).

**29. *Ipomoea pes-caprae*** (L.) R.Br., Narr. Exped.

Zaire, 58: 477. 1818. Fig. 5h

*Flowering & fruiting:* Flowering from January to November; fruiting from July to August.

*Distribution:* It is a tropical species occurring on beach sand, similar to *I. imperati*. However, *I. pes-caprae* also has rare records in saline conditions far from the coast (Wood *et al.*, 2020). Both species are pioneers and fixers of coastal sands and dunes (Santos & Arruda, 1995). In Brazilian territory, *I. pes-caprae* occurs in Restinga areas in all coastal states, except Amapá (Simão-Bianchini *et al.*, 2024). In the study area, it is occasional, with a distribution limited to the IR of João Pessoa in seaside areas, where it generally forms large populations.

*Specimens examined:* BRAZIL, **Cabedelo**, 20.07.1987, fl. & fr., L.P. Félix 1674 (HST!).

*Notes:* See the notes under *I. asarifolia*.

**30. *Ipomoea quamoclit*** L., Sp. Pl. 159. 1753. Fig. 5i

*Flowering & fruiting:* Flowering from January to May; fruiting not seen.

*Distribution:* A species widely distributed throughout the tropics, its origin in the New World is uncertain, but it may be from the Amazon region due to the presence of apparently natural populations there (Wood *et al.*, 2020). In Brazilian territory, it occurs in the Amazon, Caatinga, Cerrado, Atlantic Forest, and Pampa domains (Simão-Bianchini *et al.*, 2024). In Paraíba, it is rare, occurring in the IRs of Campina Grande and João Pessoa in Caatinga and Atlantic Forest areas.

*Specimens examined:* BRAZIL, **Campina Grande**, próximo ao Ceasa, 25.04.2017, fl., A.P.S. Lima & F.K.S. Monteiro 09 (HACAM!); João Pessoa, Mata Ciliar do Rio Cabelo, 12.05.2011, fl., L.A. Pereira & E.C.O. Chagas 241 (JPB!).

*Notes:* Popularly known as “cipó-esqueleto”, it is easily recognized by being the only species with pinatisect leaves.

**31. *Ipomoea ramosissima*** (Poir.) Choisy, Prodr. 9: 377. 1845. **Fig. 6k-m**

*Flowering & fruiting:* Flowering and fruiting from April to July.

*Distribution:* It is distributed throughout tropical America until South Argentina, being more common in the south of Ecuador, rare in Central America. It grows along forest edges and other disturbed areas (Wood *et al.*, 2020). Its occurrence is confirmed throughout almost the entire Brazilian territory, in the Amazon, Caatinga, Cerrado, Atlantic Forest and Pampa domains (Bandeira *et al.*, 2019; Simão-Bianchini *et al.*, 2024). In the state of Paraíba, it is a rare species, occurring in just two municipalities in the IR of Cajazeiras in Caatinga vegetation.

*Specimens examined:* BRAIL, **Cajazeiras**, Parque Ecológico Engenheiros Ávidos, Platô da Serra do Cruzeiro, 6°59'33,8"S, 38°28'41,4"W, 24.04.2008, fl. & fr., Á.N.T. Bandeira 94 (HACAM!); São José de Piranhas, Açude Engenheiro Ávidos, 07.07.2010, fl., *A.P. Fontana* 6935 (HVASF digital image!).

*Notes:* Herbaceous vine recognized for being completely glabrous or glabrescent, with umbellate cymes, sepals, unequal, chartaceous, the outer elliptical and the inner obovate, and corolla c. 2 cm long, infundibuliform to campanulate, glabrous, pink to pale lilac and included stamens.

**32. *Ipomoea rosea*** Choisy, Prodr. 9: 384. 1845. **Fig. 5j**

*Flowering & fruiting:* Flowering from January to October; fruiting from February to September.

*Distribution:* Endemic to the Brazilian Northeast, occurring in almost its entire area, except in the state of Maranhão. It is found in the Caatinga, Cerrado, and Atlantic Forest domains, being more common in the Caatinga (Wood *et al.*, 2020; Simão Bianchini *et al.*, 2024). Frequent in the state of Paraíba, it has been recorded in the four IRs in preserved Caatinga areas, often forming large populations.

*Specimens examined:* BRAZIL, **Araruna**, Pedra da Boca, 16.07.2003, fl., *S. Pitrez et al.* 357 (EAN!). Barra de Santana, Fazenda Vereda Grande, 05.10.2017, fl. & fr., *A.P.S. Lima & A.S. Pinto* 12 (HACAM!); Catingueira, RPPN Fazenda Major Badú Loureiro, 12.05.2021, fl. & fr., *J.L.R. Silva et al.* 77 (CSTR!); São José de Piranhas, 14.01.2009, fl., *J.R. Andrade et al.* 91 (PEUFR!).

*Notes:* A herbaceous vine, recognized as the only one in the study area with compound leaves consisting of only 3 leaflets. The peduncles are erect, the sepals have a short subapical rostrum, and the corolla is large (5.5–8 cm long), showy, pink, with included stamens.

**33. *Ipomoea sericosepala*** J.R.I.Wood & R.W.Scotland, Kew Bull 70: 21. 2015. **Fig. 5k-l**

*Flowering & fruiting:* Flowering from April to September; fruiting from May to September.

*Distribution:* It occurs in Brazil and Bolivia (Wood *et al.*, 2020) where it is widely distributed, with records in all regions, in the Amazon, Caatinga, Cerrado, and Atlantic Forest domains (Simão-Bianchini *et al.*, 2024). In the study area, it is common, distributed across the IRs of Campina Grande, João Pessoa, and Patos, especially in more preserved Caatinga areas.

*Specimens examined:* BRAZIL, **Araruna**, descida para o Campo de Santana, 6°41'0"S, 35°44'59"W, 13.04.2002, fl., *M.R. Barbosa* 2393 (JPB!); Maturéia, Parque Estadual do Pico do Jabre, 13.05.2019, fl., *A.S. Gomes* 252 (PEUFR!); Monteiro, Tungão, 7°53'22"S, 37°07'11"W, 11.04.2008, fl. & fr., *M.C. Pessoa et al.* 408 (JPB!).

*Notes:* Until recently, this species was circumscribed into the genus *Turbina* Raf., as *Turbina cordata* (Choisy) D.F.Austin & Staples. However, based on molecular studies, Wood *et al.* (2015) combined it in the genus *Ipomoea*. Some herbarium specimens were misidentified as *I. brasiliiana* var. *subincana*, sharing characteristics such as tomentose branches, petioles, and peduncles, a leaf blade with a cordate base, oblong sepals, and a pink

infundibuliform corolla with included stamens. However, *I. sericosepala* differs by its cordiform to suborbicular leaf blade, densely sericeous-cinereous below, densely sericeous sepals, and oblong, tomentose, indehiscent capsules (*vs.* oval leaf blade, densely tomentose below, pubescent sepals, and dehiscent, globose, glabrous capsules).

**34. *Ipomoea setosa*** Ker-Gawl., Bot. Reg., 4: 335. 1818. **Fig. 5m**

*Flowering & fruiting:* Flowering from March to November; fruiting from July to November.

*Distribution:* It is distributed across tropical America (Wood *et al.*, 2020). In Brazil, it occurs in the Caatinga, Cerrado and Atlantic Forest domains, with no records for the North region (Simão-Bianchini *et al.*, 2024). In the state of Paraíba, it is occasional in the IRs of Cajazeiras, Campina Grande and João Pessoa, in Caatinga, Atlantic Forest and transitional vegetation.

*Specimens examined:* BRAZIL, **Lagoa Seca**, 09.10.2017, fl. & fr., *A.P.S. Lima et al.* 14 (HACAM!); Serraria, Brejo, Zona de Capoeira, 28.11.1942, fl. & fr., *L.P. Xavier* s.n. (JPB1195!); Sousa, DNOCS, 1931-1938, fl., *Luetzelburg* 26518 (IPA!).

*Notes:* This liana species is distinct as it is the only one in the study area exhibiting branches, petioles, peduncles, pedicels, and sometimes the outer sepals with a ferruginous setose indument. It also has 3–5-lobed leaves with irregular lobes and toothed margins, a pink, infundibuliform corolla, and included stamens.

**35. *Ipomoea squamosa*** Choisy, Prodr. 9: 376. 1845. **Fig. 6n**

*Flowering & fruiting:* Flowering in November; fruiting not seen.

*Distribution:* It is distributed throughout the Neotropics (Wood *et al.*, 2020). In Brazil, it is found in nearly all regions except the South. In the Northeast, it occurs only in Bahia, Maranhão (Simão-Bianchini *et al.*, 2024), and Paraíba (Lima & Melo, 2019). According to the Flora and Funga

of Brazil, it is present in the Amazon, Cerrado, Atlantic Forest, and Pantanal domains. In Paraíba, however, we encountered this species growing in the Caatinga area, marking the first record of *I. squamosa* in this phytogeographic domain. It is considered a rare species in the IR of Cajazeiras.

*Specimens examined:* BRAZIL, **Cajazeiras**, Sítio Javigor, Fazenda o Paraíso, 01.11.2018, fl., *V.M. Cotarelli* 2897 (RB digital image!).

*Notes:* This species is recognized by its simple and entire leaves with a sagittate or oval leaf blade, entire or toothed margins, outer sepals half the size of the inner ones, with conspicuous scarious margins, corolla infundibuliform, glabrous, and pinkish, and stamens included.

**36. *Ipomoea tenera*** Meisner, Fl. Bras. 7: 289. 1869. **Fig. 6o–p**

*Flowering & fruiting:* Flowering and fruiting in June.

*Distribution:* Endemic to the Caatinga domain, with records in the Northeast, in the States of Bahia, Ceará, Paraíba, Pernambuco, and Rio Grande do Norte, and Southeast, in Minas Gerais (Simão-Bianchini *et al.*, 2024; Wood *et al.*, 2020). In the state of Paraíba, we did not find any recent material, just a collection dating back almost 90 years, in a municipality in the IR of Cajazeiras and we believe that it is possibly extinct in the state.

*Specimens examined:* BRAZIL, **Sousa**, na pastagem, 21.06.1935, fl. & fr., *B. Pickel* 3894 (IPA!).

*Notes:* It was compared morphologically to *I. heptaphylla* under the comments of that species.

**37. *Ipomoea tiliacea*** (Willd.) Choisy, Prodr. 9: 375. 1845. **Fig. 6q**

*Flowering & fruiting:* Flowering from July to November; fruiting from October to November.

*Distribution:* Found in secondary forests and disturbed shrublands near the coast throughout South America, and in some coastal locations in Central America while in the Old World, it is

reported to be naturalized (Wood *et al.*, 2020). In Brazilian territory, its occurrence is confirmed in almost all regions, except in the Central-West, in the Amazon, Atlantic Forest and Pampa domains (Simão-Bianchini *et al.*, 2024). In Paraíba it is rare, found in the municipality of Areia (IR of Campina Grande) in Atlantic Forest vegetation.

*Specimens examined*: BRAZIL, **Areia**, estrada de acesso ao Engenho Triunfo, 13.11.2015, fl. & fr., *G. Staples et al.* 1729 (PEUFR!).

*Notes*: This species is recognized by the following set of characters: herbaceous vine, completely glabrous or glabrescent, leaves simple, entire, blades cordate to oval, margins entire, rarely 2-toothed at the base, inflorescence a dichasium, sepals glabrous, unequal, one outer oblong-elliptical shorter than the others, the inner oblong, all with a cusped apex ending in a thin apical tip originating from the prominent central vein, corolla 3.5–4.5 cm long, infundibuliform to campanulate, pale pink to pale lilac and stamens included.

**38. *Ipomoea vespertilia*** F.D. Santos, G.C. Delgado-Júnior & Buriel, *Brittonia* 71: 191. 2019. **Fig. 5n**

*Flowering & fruiting*: Flowering and fruiting from June to December.

*Distribution*: Endemic to the Caatinga in Northeast Brazil, it occurs only in the states of Ceará and Paraíba (Santos *et al.*, 2019; Wood *et al.*, 2020; Simão-Bianchini *et al.*, 2024). We found it in three municipalities in Campina Grande and Cajazeiras RI, being considered a rare species, but possibly its distribution is underestimated, given the difficulty of differentiating it from *I. marcellia* in dried material.

*Specimens examined*: BRAZIL, **Cachoeira dos Índios**, Serra do Quati, 6°54'48"S, 38°42'6"W, 03.06.2017, fl. & fr., *F.C. Pinheiro* 795 (HACAM!); São José dos Cordeiros, RPPN-Fazenda Almas, estrada para sede, 16.12.2002, fl. & fr., *I.B. Lima et al.* 16 (HUEFS digital image!).

*Notes*: See the notes under *I. marcellia*.

**39. *Ipomoea violacea*** L., Sp. Pl., 161. 1753. **Fig. 6s**

*Flowering & fruiting*: Flowering in August; fruiting not seen.

*Distribution*: Pantropical in distribution, this species is typically found on or near the sea or growing in mangroves. In the Americas, despite its wide distribution, it is not commonly abundant, being more frequent in the Caribbean and almost absent from the Pacific coast (Wood *et al.*, 2020). In Brazil, it is recorded only in coastal areas, with occurrences in Amapá (North region), Bahia, Paraíba, Pernambuco, including Fernando de Noronha Island, and Espírito Santo (Southeast). These gaps may be attributed to the lack of collections from beaches and mangrove ecosystems along the Brazilian coastline (Alencar *et al.*, 2021; Delgado-Júnior *et al.*, 2024). In Paraíba, it is rare, with only one recorded population on Tambaba Beach in the IR of João Pessoa.

*Specimens examined*: BRAZIL, **Conde**, Tambaba, 23.08.2011, *L.A. Pereira et al.* 299 (JPB!).

*Notes*: It is commonly known as the “beach moon flower” and can be confused with *I. alba* in the field. A comparison has already been presented under this species.

## Acknowledgments

The authors are grateful to the State University of Paraíba (UEPB) for providing the facilities and logistical support, and to the curators and technicians of HCES, CSTR, EAN, HACAM, HST, IPA, JPB, PEUFR, and UFP for their hospitality and granting permission to consult the herbarium collections. The authors also wish to acknowledge FKS Monteiro for creating the photography boards, Felipe Martins for producing the Indian ink boards, Luan Pedro for creating the richness map, and Erimágná Rodrigues for designing the map of the study area. The first author acknowledges the support of CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) for granting a master's degree scholarship (Process



No. 159921/2021-0) through the Postgraduate Program in Biodiversity at the Federal Rural University of Pernambuco (PPGBio-UFRPE). JIM Melo expresses gratitude to CNPq for the Research Productivity Grant (PQ-2, Process No. 306658/2022-4).

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