

**MEXICAN SPECIES OF THE GENUS *BARTLETTINA*
(ASTERACEAE: EUPATORIEAE), AND ERECTION OF
THREE NEW SPECIES**

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ABSTRACT

The Mexican species of *Bartlettina* are revised. Three new species from the state of Oaxaca, ***B. juxtlahuaca***, ***B. serboana*** and ***B. yaharana***, are proposed. As currently conceived, Mexico contains 21 species of *Bartlettina*, most of these occurring in southern portions of the country. A key to the taxa is provided, along with maps showing their distribution, all of this in the format of my previously published Eupatorieae of Mexico (Phytologia Memoirs, Vol. 11, 1997). *Phytologia* 92(3): 279-303 (December 1, 2010).

KEY WORDS: Asteraceae, Eupatorieae, *Bartlettina*, Mexico, Oaxaca

BARTLETTINA King & H. Rob.

Neobartlettina King & H. Rob. (not *Neobartlettina* Schlecht.)

Robust suffruticose herbs, shrubs, or small trees, 1-7 m high. Stems densely hirsute-velvety to glabrous, pithy or rarely hollow, the nodes sometimes flattened. Leaves opposite; petioles well-developed; blades pinnately veined to 3-9 nervate from the base, glandular-punctate or not. Heads usually numerous in broad rounded or pyramidal corymbose-panicles, less often 1-15 in lax corymbs. Involucres (2)3-7 seriate, gradate, or rarely not, usually closely appressed and persistent. Receptacles convex or plane, pubescent or glabrous, epaleate, often alveolate. Corollas lavender (rarely white), tubular or funnelform, glabrous, or the lobes pubescent. Anther appendages mostly well-developed. Style branches slender, the apices scarcely enlarged.

Achenes 4-5 ribbed, the pappus of 30-50 persistent bristles. Base chromosome number, $x = 16$ (or perhaps both $x = 10$ and 16).

Type species, *Eupatorium tuerckheimii* Klatt

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In North America, a largely natural group of 25-30 species (King and Robinson 1987), mostly confined to montane cloud forests. In South America, however, the complex appears to grade into yet and other poorly known groupings such as *Hebeclinium* and *Guayania* (Turner, unpubl.). King and Robinson (1971a) relate *Bartlettina* to *Decachaeta*, both of which possess base chromosome numbers of $x = 16$ and, usually, pubescent receptacles. Indeed, a case might be made for the expansion of *Decachaeta* to include the *Bartlettina* group, especially since *Decachaeta perornata*, with a haploid chromosome number of $n = 16$, appears to link the two taxa, possessing most of the attributes of *Bartlettina*, but having the reduced anther appendages of *Decachaeta*. The *Hebeclinium* and *Peteravenia* groups may also

possess pubescent receptacles but both possess base numbers of $x = 10$. *Bartlettina*, as presently conceived (including the Critonioid elements projected into the genus by Whittemore, 1985), is clearly polyphyletic. I have keyed the monotypic genus *Amolina*, also with a base of $x = 10$, in the following accounting because it superficially resembles a species of *Bartlettina*. The taxonomic lines between these various taxa are in much need of clarification.

KEY TO SPECIES

1. Involucres 4-9 mm high.....(4)
1. Involucres 10-20 mm high.....(2)
2. Involucral bracts herbaceous, pubescent.....**B. constipatiflora**
2. Involucral bracts scarious, glabrous or nearly so.....(3)
3. Leaves broadly ovate to deltoid; heads ca 2 cm high.....**B. lanicaulis**
3. Leaves lanceolate, widest near the middle; heads ca 1.2 cm high....
.....**B. platyphylla**
- 4(1) Involucral bracts subequal; leaves prominently atomiferous-glandular beneath, and very reticulate-veiny; Hid
.....**B. ehrenbergii**
4. Involucral bracts graduate; leaves not as above; widespread.....(5)
5. Stems, capitulescence and foliage variously puberulent, hirsute or glabrous but not as described below.....(9)
5. Stems, capitulescence and foliage densely and conspicuously brownish- or purplish-velutinous.....(6)
6. Achenes 3.5-4.5 mm long; heads turbinate with 15-25 florets; Cps
.....**Amolina heydeana**
6. Achenes 1.5-2.5 mm long; heads campanulate with 50-200 florets.(7)
7. Leaves variously ovate to subcordate or flabellate, not equally tapering at both ends; petioles 1 cm long or more.....**B. sordida**
7. Leaves elliptical, equally tapering at both ends; petioles 0.5-1.0 cm long; Oax.....(8)

8. Petioles 0.5-1.0 cm long; Oax.....**B. calderonii**
8. Petioles 1.0-2.5 cm long; Tam, San, Hid.....**B. xalapana**
- 9(5). Heads 8-12 mm wide, arranged in small, 5-18-headed, terminal corymbs; Hid, Pue, Ver.....**B. karwinskiana**
9. Heads 4-10 mm wide, arranged in numerous-headed usually broad, rounded or pyramidal corymbs.....(10)
10. Leaf blades variously elliptical, widest at or near the middle, 3-6 times longer than wide.....(15)
10. Leaf blades ovate to deltoid, widest below the middle, 1.5-2.5 times longer than wide.....(11)
11. Leaf blades acute or rarely obtuse at the base; capitulescence a large, rounded, numerous-headed, compact, corymbose-panicle 2-3 times as wide as long; Cps.....**B. pansamalensis**
11. Leaf blades cordate, truncate to obtuse at the base (very rarely acute); capitulescence various, about as long as wide or longer..(12)
12. Innermost involucre bracts densely puberulent throughout, mostly acute at the apex; mature leaves readily seen to be pellucid-punctate; florets conspicuously pubescent on the lobes and extending onto the throat.....**B. breedlovei**
12. Innermost involucre bracts merely ciliate or very sparsely puberulent, mostly obtuse at the apex; mature leaves inconspicuously pellucid-punctate; florets (5)10-30, inconspicuously pubescent, the hairs confined to the lobes.....(13)
13. Florets 50 or more per head; leaves 15-30 cm wide.....**B. yaharana**
13. Florets 5-30 per head; leaves 5-12 cm wide.....(14)
14. Florets 5-13 per head; blades of leaf often with lateral flanges**B. ornata**
14. Florets 15-30 per head; blades without flanges.....**B. oresbia**
- 15(10). Corollas, upper part, densely puberulent; branches of capitulescence glabrous or nearly so.....(18)
15. Corollas, upper part, glabrous; branches of capitulescence rather evenly puberulent.....(16)

16. Receptacles pubescent.....**B. tamaulipana**
 16. Receptacles glabrous.....(17)
17. Leaf blades 7-9 cm wide, widest at the middle; petioles 5-6 cm long; Oax.....**B. serboana**
 17. Leaf blades 3-4 cm wide, widest off-center; petioles 3-4 cm long; Cps.....**B. pinabetensis**
- 18(15). Heads 20-40 flowered; body of achene variously sparsely pubescent or setiferous; receptacle 1.0-1.5 mm wide, glabrous or prominently pubescent.....(20)
 18. Heads 50-150 flowered; body of achene glabrous; receptacle 1.5-2.5 mm wide, pubescent.....(19)
19. Leaves markedly evenly serrate; heads with ultimate peduncles 1-5 mm long.....**B. juxtlahuaca**
 19. Leaves entire to undulate, not serrate; ultimate peduncles 5-10 mm long.....**B. tuerckheimii**
20. Heads white; peduncles mostly ebracteate and 6 mm long or longer; leaves narrow, undulate to nearly entire, without well-developed serrations; petioles 1-3 cm long.....**B. cronquistii**
 20. Heads lavender to purple; peduncles mostly 6 mm long or less; leaves variously serrate, usually with well-developed marginal venations; petioles 0.5-1.0 cm long.....(21)
21. Petioles, and often the mid-ribs, puberulent; receptacle pubescent.....**B. hintonii**
 21. Petioles and mid-ribs glabrous; receptacle glabrous..**B. macdougalii**

BARTLETTINA BREEDLOVEI King & H. Rob., Phytologia 28: 286. 1974. **Map 1**

Eupatorium breedlovei (King & H. Rob.) B.L. Turner (1989); not *E. breedlovei* (King & H. Rob.) B.L. Turner (1987)
Eupatorium tenejapanum B.L. Turner

Cps and adjacent Guatemala, evergreen montane cloud forests, 1300-3000 m; Dec-Feb.

Robust, suffruticose herbs or shrubs 1-3 m high; superficially very similar to *B. oresbia* but distinguished by its longer involucre bracts (the inner series of which are densely puberulent throughout with mostly acute apices), conspicuously pellucid-punctate leaves, and more numerous florets per head (30-50 vs 10-30); chromosome number, $n = 16$ pairs.

Although *B. breedlovei* and *B. oresbia* are sympatric in Cps it appears that they occupy largely different habitats: the former in cloud forest at mostly higher elevations (2000-3000 m), the latter in lower cloud forests (1000-2200 m).

BARTLETTINA CALDERONII (B.L. Turner) B.L. Turner,
Phytologia 82: 385. 1997. **Map 1**
Eupatorium calderonii B.L. Turner

Known only from north-central Oax, 800-1600 m; Mar-Apr

Perennial suffruticose herb or subshrub to 2-3 m high; very similar to *B. sordida* but the leaves elliptic, about equally tapered at both ends, the petioles 1 cm long or less and the heads only ca 30-flowered, the achenes decidedly hispid above.

A poorly known taxon that might ultimately prove to be but a form of *B. sordida*; the characters enumerated above which distinguish between them suggest a distinct species.

BARTLETTINA CONSTIPATIFLORA (Klatt) King & H. Rob.,
Phytologia 22:160. 1971. **Map 2**
Eupatorium constipatiflorum Klatt
Neobartlettina constipatiflora (Klatt) King & H. Rob.

Known only from central Oax, cloud forests, 2500-2900 m; Jan-Feb.

Shrubs 2-3 m high; leaves mostly 15-20 cm long, 6-9 cm wide; petioles 3-5 cm long, densely purplish-puberulent; blades broadly ovate to somewhat trullate, penninervate, sparsely pubescent and atomiferous-glandular beneath, the margins minutely serrulate; heads relatively large, 5-20 in stiffly-arranged terminal corymbs, the ultimate peduncles mostly 1-3 cm long; involucre campanulate, 12-13 mm high, 15-20 mm wide, the bracts 5-6 seriate, strongly gradate, the

middle and outer series ovate, herbaceous; corollas numerous (100+), the lobes puberulous; achenes ca 3 mm long, glabrous, the pappus of 50-60 white bristles ca 6 mm long.

Type material (largely fragmentary) of this taxon shows the heads to be congested; recent collections from or near the type locality show the capitulescence to be a stiffly-branching corymb, the ultimate peduncles 1-3 cm long.

BARTLETTINA CRONQUISTII King & H. Rob., Phytologia 38:108. 1977. **Map 2**

Eupatorium cronquistii (King & H. Rob.) B.L. Turner

Montane regions along the Pacific slopes, se Jal, Mic? Gue?, and Oax, 1600-1800 m; Nov-Mar.

Erect glabrous shrubs to ca 2 m high; vegetatively very similar to *B. tuerckheimii* but the heads white, turbinate (3-5 mm wide), the involucre with fewer bracts and only 18-22 florets.

Related to, but clearly distinct from, *B. tuerckheimii* and *B. macdougallii*, the latter from the Gulf slopes of Ver and Oax. Though not reported for Jal by McVaugh (1984), recent collections of what appear to be *B. cronquistii* have been obtained from Sierra Manantlan (Villalobas 192, WIS).

BARTLETTINA EHRENBERGII (Hemsl.) King & H. Rob., Phytologia 22: 160. 1971. **Map 2**

Bartlettina macrocephala (Benth.) King & H. Rob.

Eupatorium ehrenbergii Hemsl.

Known only from the vicinity of Pachuca and Zimapan, Hid, where it mostly occurs on steep slopes and canyon walls, ca 1000 m; Feb-Mar.

Suffruticose perennial herb or shrublet to 1.4 m high; stems densely grey-hirsute, with age corky; leaves opposite, 8-15 cm long, 3-6 cm wide; petioles 1.5-3.0 cm long; blades ovate to ovate-elliptic, densely grey-pilose, abundantly nervose and atomifeous-glandular beneath, the margins dentate; heads 3-13, pale lavender, in terminal corymbose-panicles somewhat wider than high; involucre 3-4 seriate, the bracts subequal, 6-8 mm long, 1.0-1.3 mm wide, pubescent; receptacle

convex, densely pubescent; florets 50-100 or more, the corolla lobes pubescent; achenes ca 2.5 mm long, densely hispidulous, the pappus of 30-40 bristles 3-5 mm long, not at all expanded at the apices.

A very distinct species not easily confused with another in the *Bartlettina* complex.

BARTLETTINA HINTONII King & H. Rob., Phytologia 31: 62. 1975. **Map 3**

Eupatorium hintonii (King & H. Rob.) B.L. Turner

Known only from two collections; the type, Distr. Galeana, Piedra Ancha - Tres Cruces, Gue, in oak forests, 2500 m and from Tlacotepec, ca 10 km NE of Atoyac, 2580 m in pine-oak forests; Dec.

Shrubs 1.5-5.0 m high; superficially similar to *B. tuerckheimii* but the leaves closely serratulate, pubescent beneath along the veins and the heads pale lavender or lilac, arranged in neatly rounded terminal corymbs about as wide as long; chromosome number, $n = \text{ca } 16$ pairs.

BARTLETTINA JUXTLAHUACA B.L. Turner, **sp. nov.** **Fig. 1., Map 3**

Bartlettina tuerckheimii (Klatt) King & H. Rob. Similis sed differt laminas foliorum valde aequaliter serratis (vs. integris vel paene integris) apicibus parum attenuates (vs. valde attenuates) et pedunculis ultimis plerumque brevioribus (1-5 mm longis vs. 6-10 mm).

Shrubs 3-4 m high. **Stems** purplish, glabrous, or nearly so. **Leaves** 10-18 cm long, 3.0-4.5 cm wide; petioles 5-10 mm long; blades lanceolate, grading into the petioles, their margins rather evenly and markedly serrate. **Heads** numerous in congested terminal corymbs, their ultimate peduncles 1-5 mm long. **Involucral bracts** 4-5 seriate, imbricate, ovate (outer) to linear-lanceolate (inner), pubescent. **Receptacle** convex, 2-3 mm across, pubescent. **Florets** 30-40; corollas lavender, the lobes pubescent. **Achenes** glabrous, ca 3.5 mm long; pappus of 40-50 persistent white bristles 4-5 mm long.

TYPE: MEXICO. OAXACA: Distr. Juxtlahuaca, Mpio. San Martin Peres, "1 km de la desviacion para el pobldo La Escopeta, carretera Santiago Juxtlahuaca-San Martin Peres," pine-oak forests, ca 2625 m, 16 Dec 1996, *J.I. Calzada 20854* (Holotype, MEXU; isotype, TEX).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. OAXACA: Mpio. San Martin Peres, "1 km de la desvacion del poblado de Escopeta, km 24 carretera San Sebastian Tecomoxtlahuaca, ca 2655 m, 29 Nov 1994, *Calzada 19562* (TEX); **Mpio. Santiago Juxtlahuaca**, "Entrada al pobla de El Manzanal," ca 2255 m, 16 Dec 1995, *Calzada 20664* (TEX).

Bartlettina juxtlahuaca superficially resembles *B. cronquistii* of the Pacific slopes, but is readily distinguished from the latter by its shorter petiolate, uniformly serrate, leaves.

The species is named for the Distr. Juxtlahuaca, whence the type.

BARTLETTINA KARWINSKIANA (DC.) King & H. Rob.,
Phytologia 21: 161. 1971. **Map 4**
Eupatorium karwinskianum DC.
Jaumea tenuifolia Klatt

Hid, Ver, Pue and Oax in montane cloud forest along barrancas from 1500-2000 m; Jan-May.

Robust perennial, suffruticose herb, or small shrub, 0.6-2.0 m high; stems puberulent to glabrate; leaves opposite, 4-14 cm long, 2-5 cm wide; petioles 1-5 cm long; blades ovate to rhombic-ovate, penninervate to 3-nervate from above the base, glandular-punctate beneath; heads lavender (5)10-18, arranged in relatively loose, terminal, corymbs; involucre 5-6 seriate, imbricate, 6-8 mm long, 8-10 mm wide; florets 60-100 per head, the corollas with pubescent lobes; achenes 1.5-2.0 mm long, glabrous or nearly so, the pappus of 40-50 bristles 4-6 mm long, not, or but slightly, dilated at the apex.

This species was excluded from Standley's Trees and Shrubs of Mexico, but recent collections indicate the plant to be, upon occasion, a shrub. It resembles *B. oresbia* in habit but possesses fewer, larger, heads with more numerous florets.

BARTLETTINA LANICAULIS (B.L. Rob.) B.L. Turner, Phytologia 82: 386. 1997. **Map 4**

Critonia lanicaulis (B.L. Rob.) King & H. Rob.

Eupatorium lanicaule B.L. Rob.

Cps and adjacent Guatemala southwards, seasonal evergreen forests, 300-1200 m; Dec-Feb.

Slender suffruticose tall herbs or shrubs 1-5 m high; stems tawny-hirsute, leaves opposite throughout, 10-28 cm long, 3-6 cm wide; petioles 1-10 mm long; blades lanceolate to lanceolate-elliptical, pinnately nervate, the margins serrate to serrulate; heads mostly 3-12 in a terminal capitulescence, the ultimate peduncles 2-12 mm long; involucre broadly campanulate, 12-16 mm high, 6-8 seriate, the bracts markedly gradate with obtuse or rounded apices, the inner bracts readily disarticulating with age; corollas white; achenes linear, 5-6 mm long, glabrous, 4-5 ribbed, the pappus of 35-40 tawny bristles 7-8 mm long.

This species, what with its large turbinate heads and markedly gradate involucre, superficially resembles a member of the genus *Chromolaena* but, as noted above, King and Robinson position it in *Critonia*, whereas Whittemore (1985) would relegate it to the *Hebeclinium* group of *Eupatorium*. The taxon clearly needs additional study.

BARTLETTINA MACDOUGALII King & H. Rob., Phytologia 38: 107. 1997. **Map 4**

Pue, Ver and Oax in montane cloud forests with tree ferns, Gulf slopes, 1200-3000 m; Aug-Mar.

Suffruticose, perennial, glabrous herbs or shrubs, 1-3 m high; much resembling *B. tuerckheimii* but differing by its broader leaves (mostly 4-8 cm wide vs 2-4 cm) and glabrous or very sparsely pubescent, alveolate, receptacles; chromosome number, $n = \text{ca } 16$ pairs.

More extensive collections in the border areas of Oax and Cps may show this taxon to be but variety distinct from *B. tuerckheimii*.

BARTLETTINA ORESBIA (B.L. Rob.) King & H. Rob., Phytologia 22: 161. 1971. **Map 5***Bartlettina guatemalensis* King & H. Rob.*Bartlettina hylobia* (B.L. Rob.) King & H. Rob.*Bartlettina oresbioides* (B.L. Rob.) King & H. Rob.*Eupatorium hylobium* B.L. Rob.*Eupatorium oresbioides* B.L. Rob.*Eupatorium oresbium* B.L. Rob..

Sin, Dur, Jal, Hid, Mex, Mor, Pue, Ver, Gue, Oax and Cps, Guatemala to El Salvador in pine-oak forests; 1200-2600 m; Dec-Apr.

Perennial suffruticose herbs, shrubs or small trees, 1-5 m high; stems puberulent to glabrate; leaves 10-20 cm long, 3-12 cm wide; petioles 3-7 cm long; blades broadly ovate, rhomboid, deltoid to narrowly ovate, penninervate, pubescent at first but soon glabrate, except for the hirsute venation, the margins serrate to crenate, weakly pellucid-punctate beneath; heads lavender, turbinate, numerous, in pyramidal or rounded corymbose panicles; involucre 3-4 seriate, unevenly imbricate, (4)5-7 mm high, the outer series subtended by 3-5 calyculate bracts; florets 15-30 per head, the corollas 4-6 mm long, the lobes sparsely pubescent to glabrate; achenes 1.6-2.2 mm long, glabrous, the pappus of 30-40 bristles, 4-6 mm long, the apices not dilated; chromosome number, $n = 16$ pairs.

This is an exceptionally widespread, variable species, especially in Cps and Guatemala where, perhaps, it hybridizes with other taxa. I can find no justification for the recognition of *B. hylobia* from Cps, the type of which scarcely differs from *B. oresbia* as I sense the group. *Bartlettina oresbia* might also be compared with *B. ornata*, the latter being distinguished by its smaller heads with fewer florets.

BARTLETTINA ORNATA (B.L. Rob.) King & H. Rob., Phytologia 22: 172. 1991. **Map 5***Eupatorium ornatum* (King & H. Rob.) B.L. Turner

se Cps and Guatemala, montane rain forests, 2000-3000 m; Nov-Apr.

Much resembling *B. oresbia* but readily distinguished by its smaller, nearly cylindrical involucre with fewer florets (5-13 per head vs. 14-25).

BARTLETTINA PANSAMALENSIS (B.L. Rob.) King & H. Rob.,
Phytologia 22: 161. 1971. **Map 5**

Eupatorium pansamalense (B.L. Rob.) B.L. Turner

Bartlettina ruae (Standley) King & H. Rob.

Eupatorium ruae Standley

Cps and Guatemala to Honduras; in montane cloud forest, 1500-2500 m; Feb-Apr.

Shrubs or small trees, 2-7 m high; stems terete, pithy or hollow; very similar to *B. oresbia* and *B. breedlovei* but the heads larger, campanulate, with more numerous florets per head (30-60 vs 10-30).

Bartlettia pansamalensis, *B. oresbia* and *B. breedlovei* are sympatric in Cps and perhaps hybridize in this region upon occasion, although I have seen no clear intermediates. However, occasional intermediates between the former two taxa have been seen in Guatemala, and they can be expected in Cps. I agree with King & Robinson (1974) in the synonymy of *E. ruae* with *B. pansamalensis*. Williams (1976) treated both of the latter as synonymous with *Eupatorium luxii*.

BARTLETTINA PINABETENSIS (B.L. Rob.) King. & H. Rob.,
Phytologia 22: 161. 1971. **Map 6**

Eupatorium pinabetense B.L. Rob.

Neobartlettia pinabetensis (B.L. Rob.) King & H. Rob.

Cps and adjacent Guatemala in montane cloud forests, 700-2850 m; Jan-Mar.

Erect shrubs or spindly trees, 2-6 m high; leaves 10-20 cm long, 2-4 cm wide; stems evenly brown-puberulent to glabrate, petioles 1-4 cm long; blades pinnately veined, linear-elliptical to elliptical, glabrous or nearly so, the margins closely serrulate, heads lavender-blue, numerous, arranged in broad, rounded, terminal corymbs, 15-30 cm across; involucre narrowly turbinate, 2-3 seriate, unequally gradate, 5-

7 mm long, the bracts relatively few (12-18); receptacles glabrous; florets 10-15 per head, the corollas 3.5-4.5 mm long, the lobes glabrous or glandular; achenes 1.9-2.1 mm long, glabrous, the pappus of 30-40 bristles, 3-5 mm long.

The narrow involucre with relatively few florets distinguish this species from related taxa. Vegetatively, it is similar to *B. hintonii* of Gue, but the latter has more numerous florets per head (20-30 vs 10-15) and its receptacles and corolla lobes are glabrous.

BARTLETTINA PLATYPHYLLA (B.L. Rob.) King & H. Rob.,
Phytologia 22: 161. 1971. **Map 6**

Eupatorium platyphyllum B.L. Rob.

Pue, Ver, Oax, Cps, and Guatemala southwards, cloud forests, 400-1200 m; Jan-Apr.

Shrub or small tree, 2-10 m high; stems densely sordid or tawny-puberulent; leaves 10-25 cm long, 5-15 cm wide; petioles 2-7 cm long; blades broadly ovate to rarely cordate, 3-nervate from the base, puberulous above and below, especially along the major veins, moderately pellucid-punctate beneath, the margins serrate to nearly entire; heads campanulate, white, numerous in pyramidal corymbose panicles 10-30 cm across; involucre 6-7 seriate, evenly imbricate, 10-18 mm high, the bracts ovate (outer series) to linear-oblong (inner series), chartaceous to marginally scarious, 3-8 costate, the apices rounded; florets 50-90 per head, the corollas 6-9 mm long, glabrous; achenes 2.0-2.5 mm long, glabrous or rarely glandular, the pappus of 50-65 bristles, 8-10 mm long.

A very distinct species of *Bartlettina* and not readily confused with another.

BARTLETTINA SERBOANA B.L. Turner, **sp. nov.**, **Fig. 2, Map 7**

Oax, known only from Distrito Juchitan, montane forests, ca 1710 m, ; Dec.

Bartlettinae pinabetensi similis sed laminis foliorum late ellipticis majoribus (7-9 cm latis vs. 3-4 cm), petiolis longioribus (5-6 cm longis vs. 3-4 cm), et corollis albis (vs. lilacini-azureis) differt.

Resembling *Bartlettina pinabetensis* but the leaf blades broadly elliptic, larger (7-9 cm wide, vs 3-4 cm), petioles longer (5-6 cm long vs 3-4 cm) and the corollas white (vs lavender-blue)

Shrublet or suffruticose herbs to 2 m high. **Stems** pubescent with brown puberulent hairs. **Leaves** opposite, ca 22 cm long, 5-7 cm wide; petioles 5-6 cm long; blades elliptic, glabrous, widest at or near the middle, the margins weakly serrate. **Capitulescence** a numerous-headed, corymbose panicle, ca 20 cm wide, and as long, the ultimate peduncles 2-3 mm long. **Involucre**s ca 4 mm high, 3-4 mm wide, glabrous, the bracts imbricate in 2-4 series. **Receptacle** ca 2 mm across, alveolate, glabrous. **Florets** ca 15 per head; corollas "white," glabrous. **Achenes** ca 1.5 mm long, glabrous; pappus of 40-45 white bristles, 3-4 mm long.

TYPE: MEXICO. OAXACA: Distrito Juchitan, Mpio. San Miguel Chimalapa, "Benito Juarez, rumbo a cerro Salomon," ca 1710 m, 7 Dec 2008, *Jose Luis Lucas 146* (Holotype TEX).

The name is derived from an acronym of Sociedad para el Estudio de los Recursos Bioticos de Oaxaca.

Bartlettina serboana is closely allopatric with its seemingly closest relative, *B. pinabetense*, as noted in the above diagnosis.

BARTLETTINA SORDIDA (Less.) King & H. Rob., *Phytologia* 22: 161. 1971. **Map 7**

Bartlettina brevipetiolata (Sch.-Bip. ex Klatt) King & H. Rob.

Bartlettina matudinae King & H. Rob.

Eupatorium megalophyllum (Lem.) Klatt

Eupatorium miradoreense Hieron.

Eupatorium raffillii Hemsl.

Eupatorium sordidum Less.

Eupatorium thesesiifolium DC.

Mex, Mor, Pue, Ver, Gue, Oax and Cps in montane cloud forests and lower seasonal evergreen forests, 600-200 m; Dec-Apr.

Perennial, robust herbs or shrubs 1-3 m high; stems pithy, terete, densely soft-velutinous with purplish or brownish hairs; leaves opposite, 10-30 cm long, 4-20 cm wide; petioles 2-10 cm long; blades exceedingly variable, broadly ovate to cordate or elliptic-ovate, (3)5-7-nervate from below, velutinous-pubescent beneath, inconspicuously pellucid-punctate, the margins irregularly dentate to entire; heads purple, numerous, in terminal, rounded, corymbose panicles, ca as wide as long; involucre campanulate, 3-5 seriate, graduate, densely pubescent; receptacle convex to plane, glabrous to pubescent; florets (50)75-200, the lobes glabrous (rarely a few hairs); achenes 1.5-2.0 mm long, glabrous or a few hispid hairs near apex, the pappus of 30-40 bristles, 4-6 mm long, the apices not enlarged; chromosome number, $n=16$ pairs.

This is an extremely variable species, taken into cultivation early-on and introduced into tropical regions the world over where it occasionally escapes. In Mexico the species is native from Ver southwards to Cps, but the variation in this region might now be confounded with escaped cultivars. *Bartlettina matudinae*, the type from Acultzingo, Ver, is a form of the species with broad blades abruptly tapering upon the petiole. Indeed, as noted in the above description, leaf shape is exceptionally variable, even within a single population.

BARTLETTINA TAMAULIPANA (B.L. Turner) King & H. Rob.,
Phytologia 65: 63. 1988. **Map 8**

Eupatorium tamaulipanum B.L. Turner

Tam, San and Hid, montane cloud forests, 1500-1700 m; Dec-Feb.

Suffruticose perennial herbs or subshrubs to 3 m high; stems softly appressed-pubescent; leaves opposite, 10-20 cm long, 2.5-5.5 cm wide; petioles 1-2 cm long; blades elliptic, pinnately nerved, densely soft-pubescent and atomiferous-glandular beneath; the margins weakly dentate to entire or nearly so; heads purple, 6-numerous in terminal, pyramidal, corymbose panicles; involucre hemispheric, 4-5 seriate, imbricate, the bracts thin, linear-lanceolate, acuminate; receptacle convex, sparsely pubescent; florets numerous, the corollas glabrous;

achenes ca 2 mm long, glabrous, the pappus of 40-50 bristles, 4-5 mm long.

An anomalous species, closely related to *B. xalapana*, but readily distinguished by its somewhat larger heads with pubescent receptacles. These two taxa are not readily related to yet other taxa of the Eupatorieae. On total characters they appear as closely related to the *Chromolaena* complex as perhaps any, but involucre and receptacular characters suggest a relationship with the *Hebeclinium* and *Bartlettina* groups.

BARTLETTINA TUERCKHEIMII (Klatt) King & H. Rob.,
Phytologia 22: 162. 1971. **Map 8**

Eupatorium tuerckheimii Klatt

Neobartlettina tuerckheimii (Klatt) King & H. Rob.

e Oax, Cps, adjacent Guatemala and Honduras; montane cloud forests with *Quercus* and *Liquidambar*, 1500-3000 m; Dec-Apr.

Suffrutescent robust, glabrous herbs or shrubs 1-5 m high; leaves firm, pinnately veined, 10-20 cm long, 2-4(5) cm wide; petioles 1-2(3) cm long; blades lance-ovate to narrowly elliptic, about equally narrowed at both ends, without punctations, the margins undulate with remote apiculations; heads lavender, thimble-shaped, numerous in a terminal corymbose panicle 2-3 times as wide as high; involucre 3-4 seriate, evenly gradate, 5-6 mm high; receptacles plane to convex, 2.5-3.5 mm across, prominently pubescent with hairs 0.5-1.5 mm long; florets 75-150 per head, the corollas tubular, the lobes densely pubescent; achenes 1.5-2.0 mm long, glabrous, the pappus of 35-40 bristles, 4-5 mm long, the apices not enlarged; chromosome number, $n = 16$ pairs.

This is a common species in Cps, well represented in herbaria and easily recognized by its numerous-flowered heads, glabrous foliage, narrow, pinnately veined, leaves and prominently pubescent receptacles.

BARTLETTINA XALAPANA (B.L. Turner) B.L. Turner, Phytologia
82: 306. 1998. **Map 8**

Eupatorium xalapenum B.L. Turner

Known only from Ver in barrancas near Xalapa; Mar-Apr.

Shrub to 2 m high with terminal, numerous-headed, stiffly-pyramidal, capitulescences; superficially very similar to *B. tamaulipana* but the heads smaller, having pubescent receptacles, and the pappus bristles more numerous, more ciliate, and shorter (3-4 mm long vs 4-5 mm); chromosome number, $n = 10$ pairs.

The species is locally common below Puente Seden in the small barranca along the western edge of Xalapa. King & Robinson (1987) placed this taxon and *B. tamaulipana* in synonymy with their concept of *B. brevipetiolata*, which I consider to be a synonym of *B. sordida*. *Bartlettina tamaulipana* is difficult to position among the segregates of *Eupatorium* (s.l.). King & Robinson (1988) subsequently recognized *B. tamaulipana* as valid, but retained *B. xalpana* as synonymous with the latter. I originally positioned both species within the *Chromolaena* complex of *Eupatorium* (Turner 1997), but subsequently transferred these to *Bartlettina*.

✓ **BARTLETTINA YAHARANA** B.L. Turner, sp. nov. Fig. 3, Map 8

Bartlettinae hastiferae Standley & Steyerf. similis sed foliis majoribus nervis principalibus 5-9 (vs. 3) et capitulis majoribus bracteis involucribus imbricationibus flosculis numerosioribus (+ 50 vs. 10-20) differt.

Resembling *Bartlettina hastifera* Standley & Steyerf. but the leaves, larger with 5-9 principal nerves (vs 3), and the heads larger, more imbricate, with more numerous florets (over 50 vs 10-20).

Robust perennial herbs, subshrubs or possibly clambering vines. **Stems** terete, 4-5 mm across, glabrous or nearly so. **Leaves** opposite, 15-20 cm long, 20-30 cm wide, 5-9 palmately nervate from or near the base; petioles perfoliate, 6-8 cm long, callous-winged throughout; blades broadly cordate with 5-7 prominent lobes, between these an irregular serration, the surfaces glabrous. **Capitulescence** a terminal, numerous-headed corymbose panicle ca 25 cm long, 20 cm across, the ultimate peduncles puberulent, 2-5 mm long. **Involucres** campanulate, ca 6 mm high, 6 mm across, the bracts imbricate in 4-6 series.

Receptacle convex, ca 1.5 mm across, glabrous. Florets ca 80 per head. **Corollas** lavender, slender or filiform, glabrous, 4-5 mm long, the throat indistinct; lobes 5, ca 0.2 mm long, atomiferous glandular. **Stamens** with broadly ovate apical appendages, broader than long. **Achenes** glabrous, 4-5 ribbed, ca 1.5 mm long; pappus of ca 40 readily deciduous slender white bristles ca 4 mm long.

TYPE: **MEXICO. OAXACA: Mpio. San Juan Lachao**, "25 km N of Mixtepec, on the way from Puerto Escondido to Oaxaca. Half-shaded rocky slope along a stream, upstream of Rio Salado, 1355 m." latitude given as 16 11.6 N, 13 Nov 1997, *T. Yahara, M. Mishima, T. Kajita & K. Ooi 1129* (Holotype: TEX).

Among Mexican species this is a very distinct taxon, what with its very large, palmately nervate leaves, and many-flowered heads, resembling nothing previously collected in that country. Vegetatively, it most resembles the Guatemalan species, *B. hastifera*, with which it is compared in the above diagnosis.

The eponym derives from Prof. T. Yahara of Kyushu Univ., Fukuoka, Japan, principal collector of the type, and exceptional field collector and scholar of the genus *Stevia* (cf. numerous papers in collaboration with his colleagues, these mostly cited in Watanabe et al. (2001),

ACKNOWLEDGEMENTS

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LITERATURE CITED

See citations listed under above **REFERENCES**.



Fig. 2. *Bartlettina serboana*. holotype.

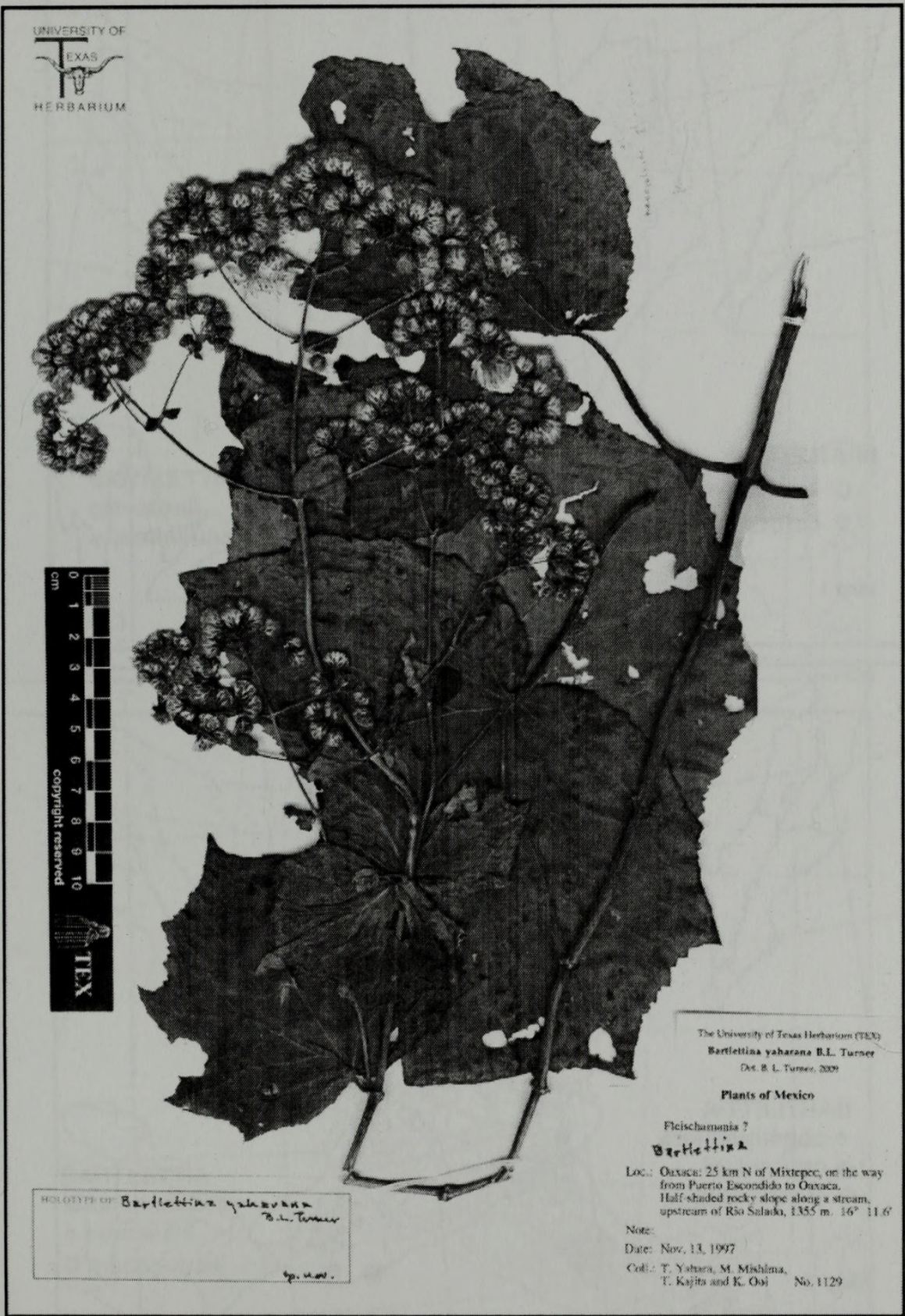
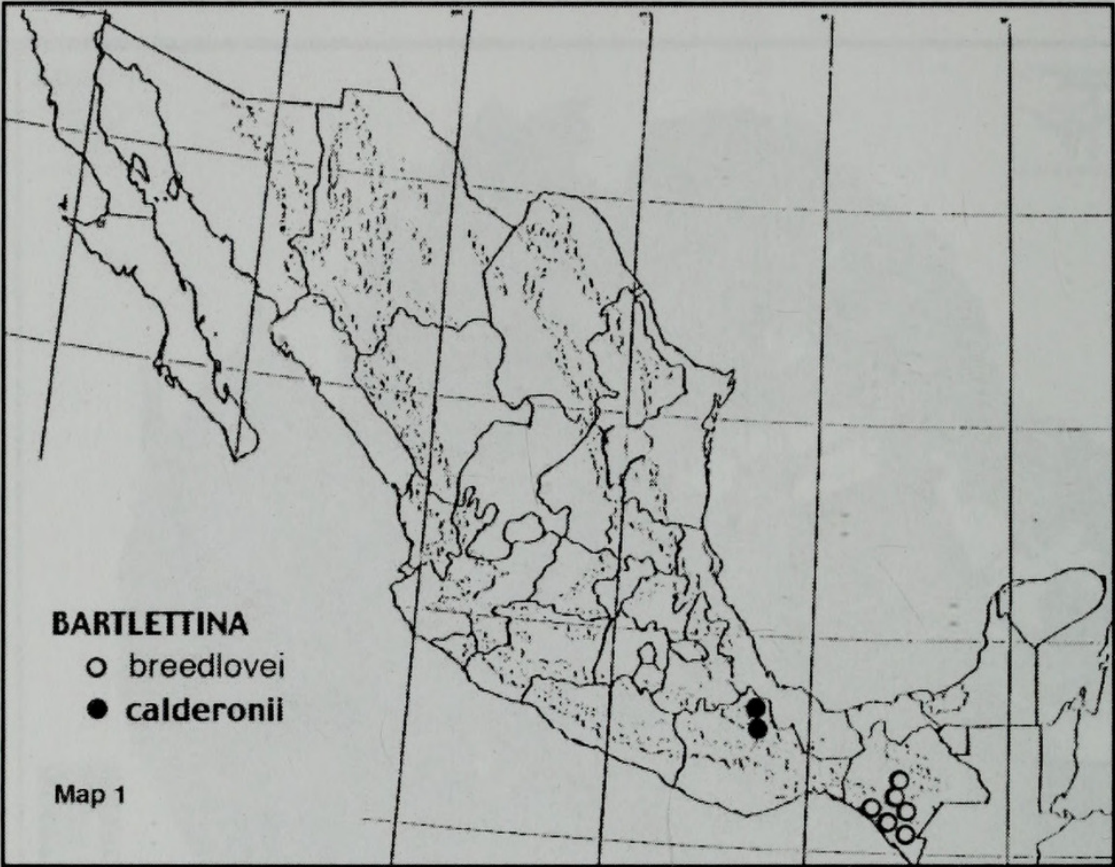
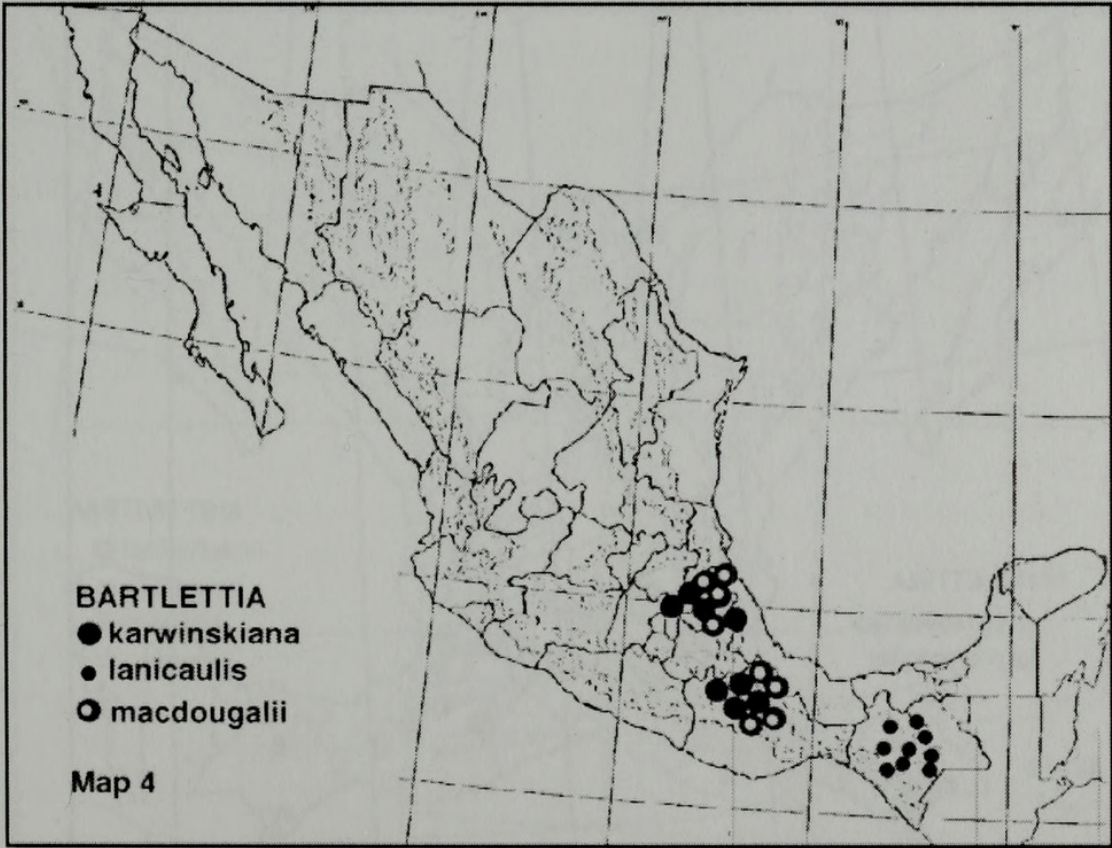
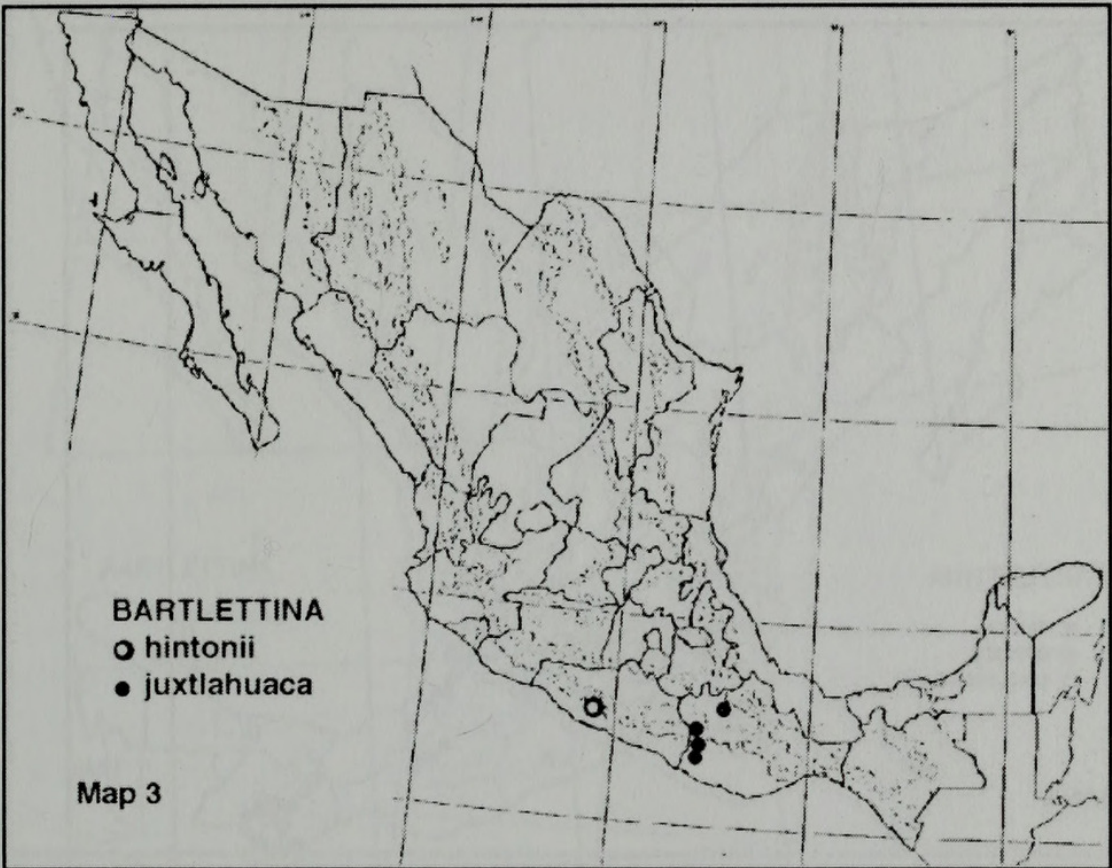
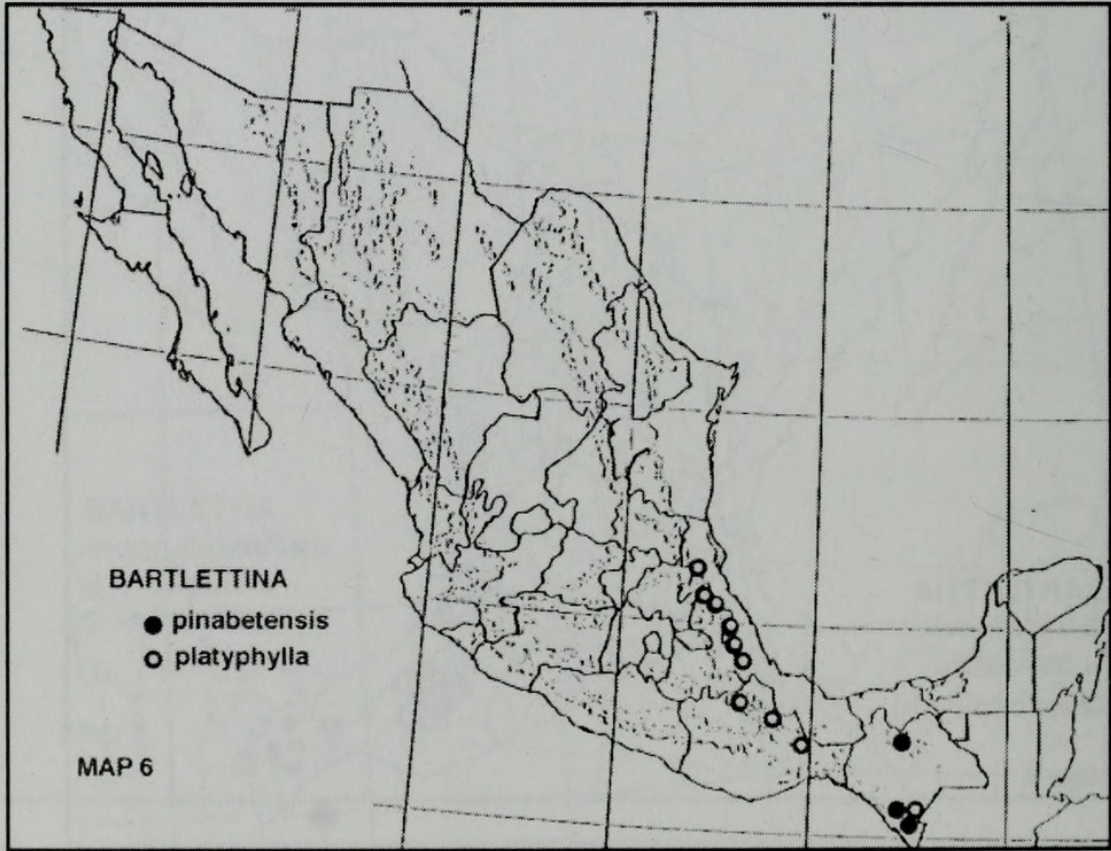
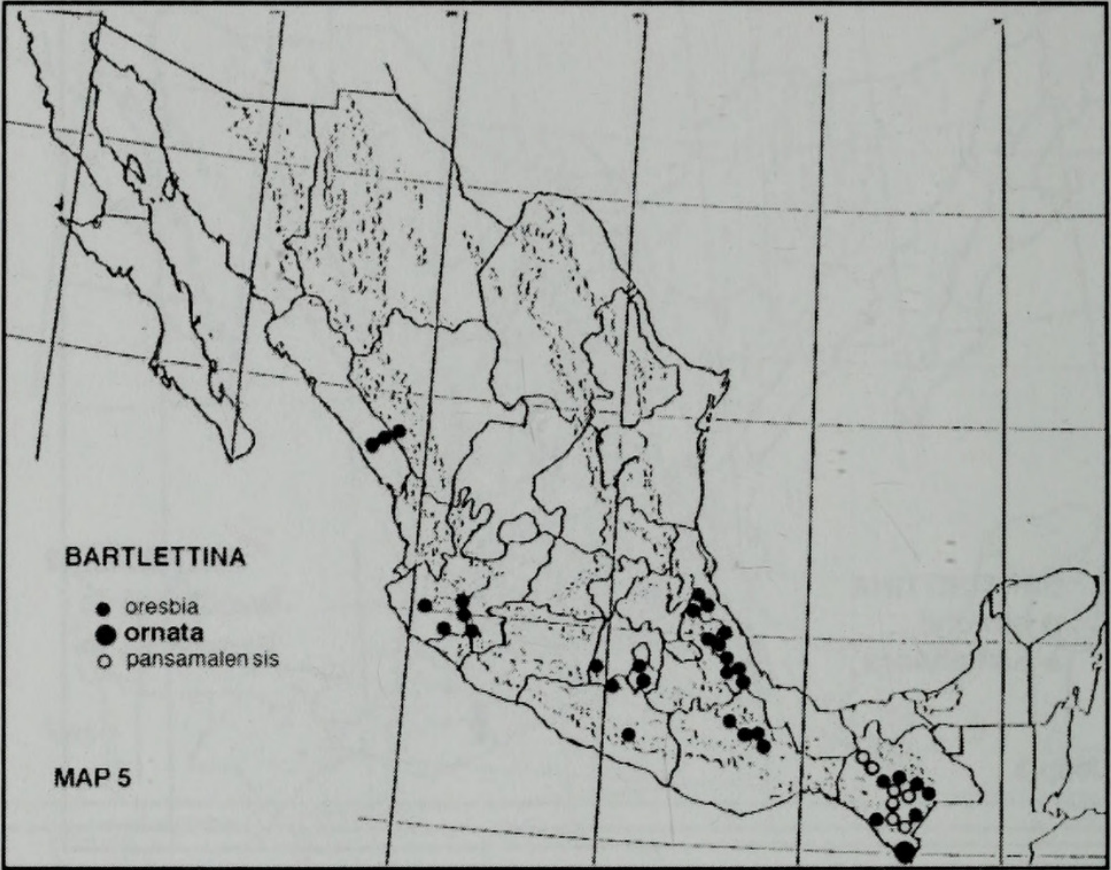
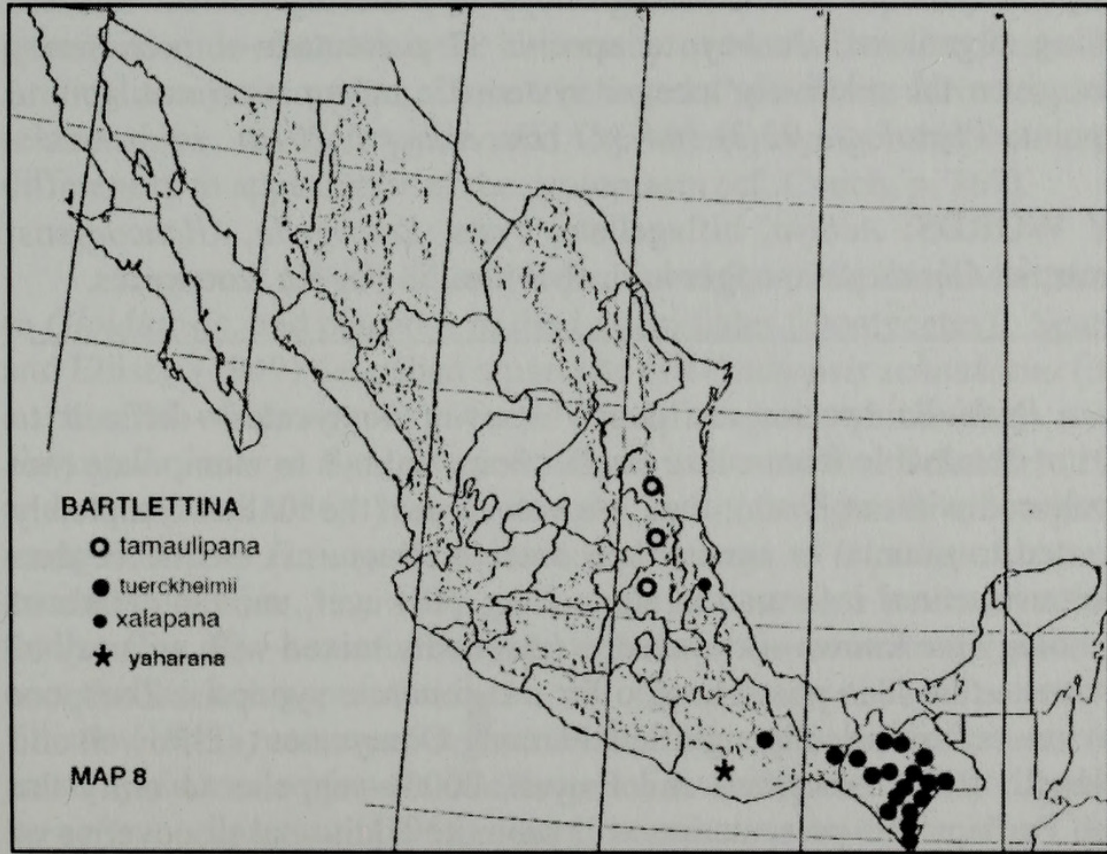
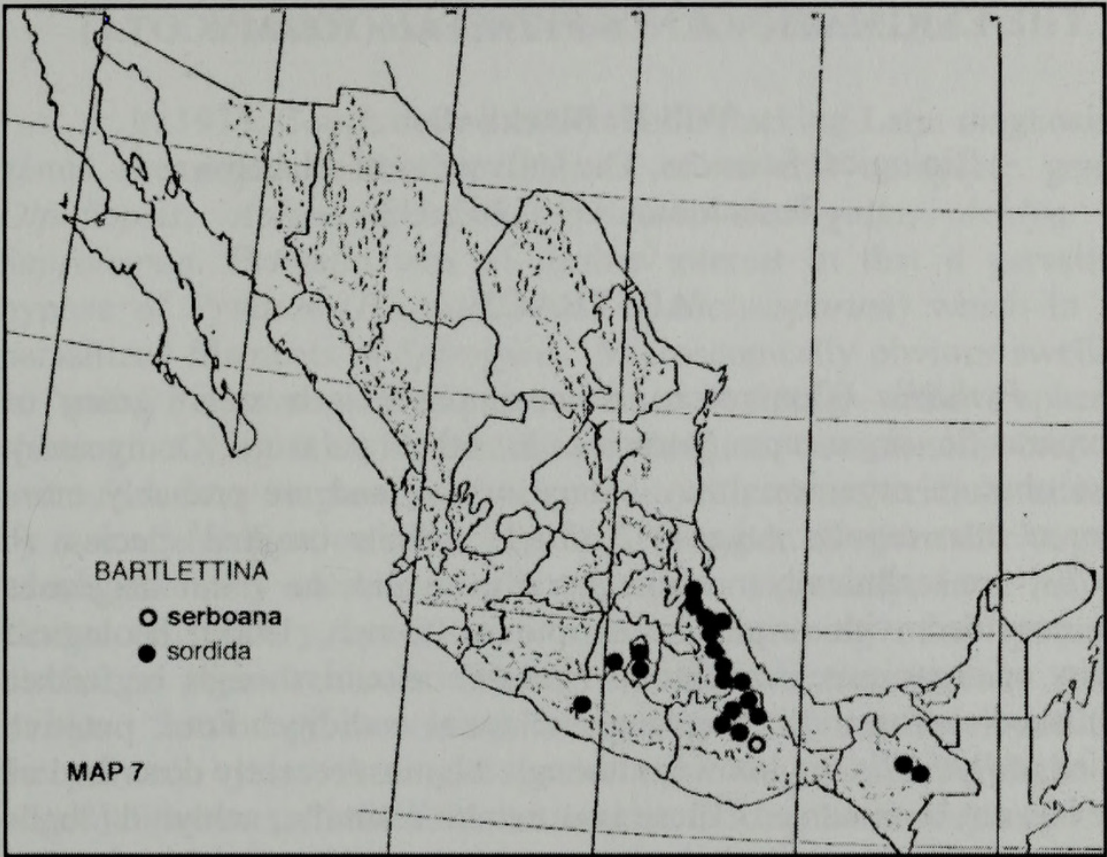


Fig. 3. *Bartlettina yaharana*, holotype.











Turner, B. L. 2010. "Mexican species of the genus *Bartlettina* (Asteraceae: Eupatorieae), and erection of three new species." *Phytologia* 92(3), 279–303.

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