

Synopsis of the genus *Atriplex* (Amaranthaceae, Chenopodioideae) for South America

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Abstract. This is the first integrative synopsis of the genus *Atriplex* L. for South America, based on the study of compared external morphology of extensive collections from South American herbaria, type material, digital images, original publications and field observations. The South American *Atriplex* flora includes 55 species, 45 of which are native species, mainly distributed in Argentina and Chile (a few of them growing in Bolivia, Ecuador, Paraguay, Peru, Uruguay and Venezuela), and 10 are adventive species. We accept two subspecies for *Atriplex cordubensis* Gand. & Stuck., namely, subsp. *cordubensis* and subsp. *grandibracteata* Múlgura, two varieties for *A. imbricata* D.Dietr., var. *imbricata* and var. *foliolosa* Rosas, proposed one new synonym for *A. deserticola* Phil., one nomenclatural change for *A. mucronata* Phil., and designate 19 lectotypes and one second-step lectotype for *A. nummularia* Lindl. This synopsis also includes a key to the 55 South American species, three new figures for *A. asplundii* Standl., *A. oestophora* S.F.Blake and *A. rusbyi* Britton, references for previous figures of the remaining species, illustrations of different positions of the radicle in the seeds, maps of distribution, taxonomic and morphological notes, and a complete list of material studied.

Additional keywords: Caryophyllales, salt bushes, salt weeds, taxonomy.

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Introduction

Atriplex L. is one of the largest and more diverse genera of Amaranthaceae, with ~300 species of herbs, small shrubs or subshrubs that usually inhabit arid or semi-arid environments, and environments with saline or alkaline soils worldwide (APG III 2009; Kadereit *et al.* 2010) except Antarctica (Bassett *et al.* 1983). *Atriplex* species can behave as weeds, or be used as fodder (Flores Olvera 1992; Zacharias and Baldwin 2010); they can also be dominant elements of the vegetation, as *A. lampa* (Moq.) D.Dietr. in north-western Patagonia, Argentina (Busso and Bonvissuto 2009). Four centres of diversity of species of *Atriplex* have been identified respectively, in temperate South America, North America, Eurasia and Australia (Kadereit *et al.* 2010). Temperate South America has the highest percentage of endemic species of *Atriplex* (McArthur and Sanderson 1983) in comparison with other regions of the world. Particularly, Mendoza province (Argentina) is an area with both the highest concentration of species and the highest percentage of endemic species (Del Pero Martínez *et al.* 2002).

North American species of *Atriplex* have been studied in terms of their taxonomy and phylogeny (Welsh 2003; Kadereit *et al.* 2010). However, taxonomic work on the South American

species of *Atriplex* is fragmentary, with only partial treatments in regional works from Argentina (Múlgura de Romero 1981, 1982, 1984; Giusti 1997), Bolivia (Múlgura and Galarza 2014), Chile (Rosas 1989), Ecuador (Jørgensen 1999), Peru (León and Monsalve 2006) and Venezuela (Carneiro 2008). On the basis of the literature cited above, the South American flora includes a total of 55 species of *Atriplex*, 10 of which are adventive species and 45 native species (16 endemic to Argentina, 15 endemic to Chile, two species endemic to Bolivia, one to Peru, one to Venezuela, three species shared between Argentina and Chile, two shared between Argentina and Paraguay, one shared between Argentina and Bolivia, one shared between Argentina, Bolivia and Chile, one distributed in Argentina, Bolivia, Chile and Peru, one extended in Argentina, Bolivia, Paraguay and Uruguay, and one shared between Bolivia, Chile, Ecuador and Peru). As the initial step for a future phylogenetic study, we present here the first integrative taxonomic synopsis of the South American species of *Atriplex*, including accepted names, new synonyms, and detailed data on type material, lectotype designations, both taxonomic and morphological notes, distribution maps, a key to the species, and original figures.

A brief history of the genus *Atriplex*

The genus *Atriplex* was erected by Linnaeus (1753) and later divided by Gaertner (1791) who segregated the genus *Obione* Gaertn., with a single species, *O. muricata* Gaertn., on the basis of just one discriminatory character, namely, the inverted embryo (i.e. the embryo within the sole, basal seed in the fruit, has the radicle pointing upwards, towards the base of the style, Fig. 1A). *Obione* has variously been treated as a distinct genus (Ulbrich 1934), included in *Atriplex* at infrageneric rank (e.g. Hall and Clements 1923; Reichenbach 1828) or treated as synonymous with *Atriplex* (e.g. Dietrich 1852; Bentham and Hooker 1880).

In regional treatments of *Atriplex* from Argentina and Chile respectively, Múlgura de Romero (1981, 1982, 1984) and Rosas (1989) claimed that it is impossible to define natural infrageneric groups in South American *Atriplex* until the genus has been studied worldwide, and both authors did not recognise *Atriplex* and *Obione* as separate genera.

In the present paper, we have not accepted the division of Ulbrich (1934) into *Atriplex* and *Obione*, because of the intermediate conditions and crossed, conflicting character combinations (e.g. downward radicle and perianth presence in some female flowers of *A. hortensis* L., the type species of *Atriplex*), making segregation of these genera unwarranted (Hall and Clements 1923; Bassett *et al.* 1983) and unsupported by molecular evidence (Kadereit *et al.* 2010). We do not follow the infrageneric classifications proposed by Ulbrich (1934) and Welsh (2003) either, because phylogenetic analyses based on molecular data suggest that the infrageneric taxa recognised by those authors are polyphyletic, and a larger sample of taxa is required to develop an infrageneric classification (Kadereit *et al.* 2010).

Materials and methods

Classical methods in taxonomy were followed. Approximately 900 specimens from different herbaria were studied (from BA,

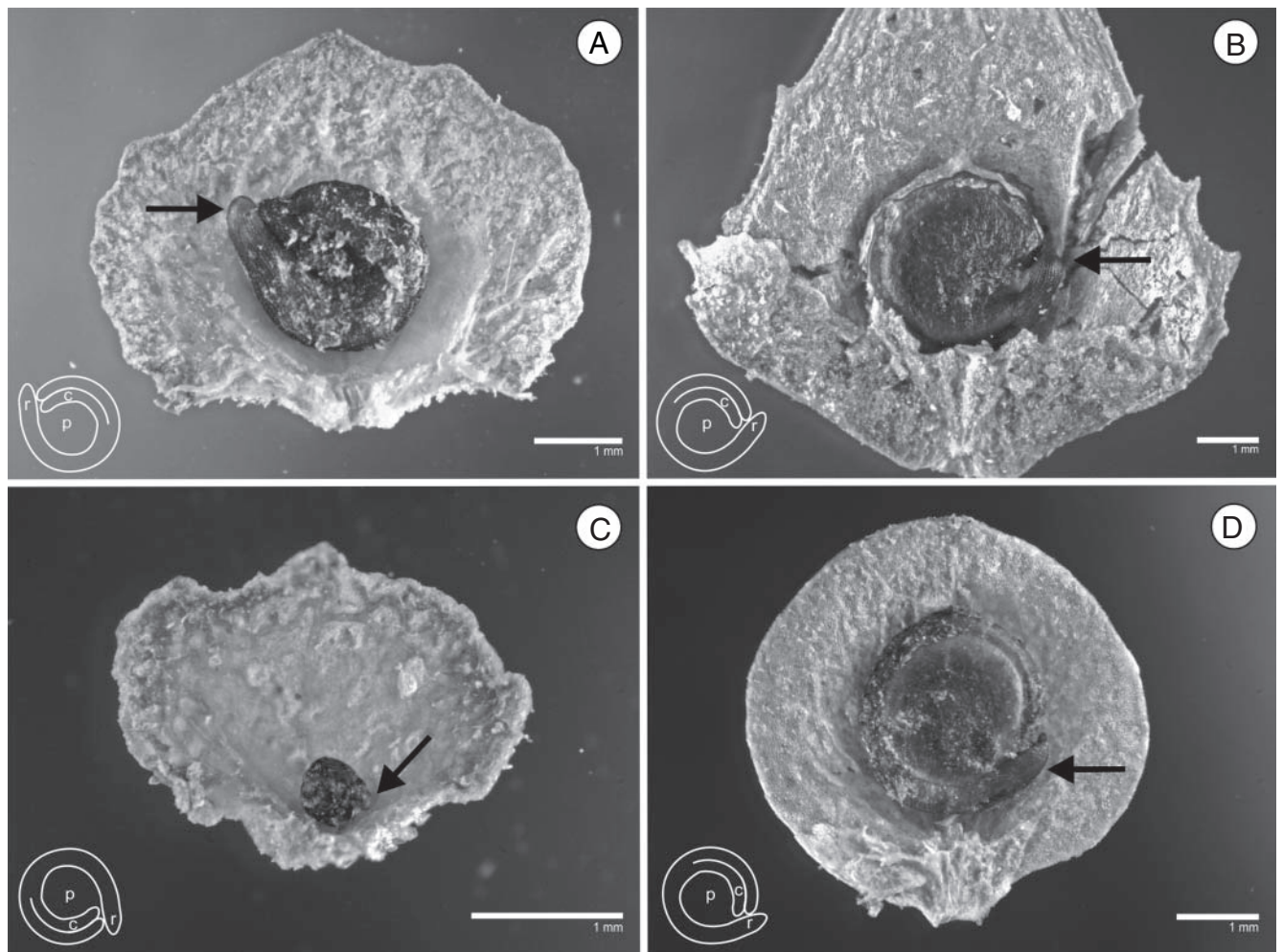


Fig. 1. Different positions of the radicle in *Atriplex*. A. Ascending (*Atriplex cordubensis* subsp. *cordubensis*). B. Lateral (*Atriplex chilensis*). C. Descending (*Atriplex chizae*). D. Basal (*Atriplex heterosperma*). Schematic interpretation of each type is shown in the lower-left corner. Arrows indicate the radicle. c, cotyledons; p, perisperm; r, radicle. Scale bar: 1 mm. From Hunziker *et al.* 12345 (A); Pfister *s.n.* (B); Calderón 15 (C); Roig 5839 (D). Photo credits: N. F. Brignone.

BAA, BAB, CORD, CONC, CTES, HUT, LIL, LPB, MERL, MCNS, SI, VEN), complemented with some field observations. The protologues of every name were gathered, and type specimens were studied directly or through digital images available at JSTOR Global Plants Initiative website, <http://plants.jstor.org/> (accessed June 2016) or obtained from NY, P, US, W. The taxonomic identity of each specimen was established following Múlgura de Romero (1981, 1982, 1984), Giusti (1997) and Rosas (1989). The classical method of comparative external organography (Davis and Heywood 1963, see pp. 74–258) was taken into account, especially in the morphology of the leaves and fruiting bracteoles. Barcode number is preferred to identify type material (e.g. LP barcode 003091). Otherwise, the number corresponds to the accession number on the herbarium sheet (e.g. CONC 83749). The different types of the radicle position in the seed were photographed under a stereomicroscope with MICROMETRICS (Accu-scope Inc., Commack, NY, USA). For distribution data, biogeographic provinces follow Cabrera and Willink (1973), and distribution maps were performed using Diva-Gis 7.5 (Hijmans *et al.* 2001) and Corel Draw X6 (Corel Corporation, Ottawa, ON, Canada).

Taxonomic treatment

The taxonomic and nomenclatural update presented here includes 55 accepted species, one new synonym, and 20 lectotypifications.

Key to the South American species of *Atriplex*

1. Fruiting bracteoles fused only at base.....2
Fruiting bracteoles fused at base and along margins to various extents.16
2. Plants with uniform, smooth fruiting bracteoles.....3
Plants with uniform, ornamented bracteoles or plants with both smooth and ornamented bracteoles.....8
3. Embryo radicle descending or basal in the seed. Shrubs or herbs.....4
Embryo radicle ascending in the seed. Shrubs6
4. Erect shrubs. Leaves with Kranz anatomy, differing in shape according to their size: the smallest ones linear, entire; the largest ones narrowly ovate, auriculate *A. chizae*
Erect or partially decumbent herbs. Leaves with non-Kranz anatomy, uniform in both size and shape5
5. Lower leaves opposite, cordate to triangular-hastate; upper leaves alternate, triangular or oblong-lanceolate, without basal lobes.....
.....*A. hortensis*
Both lower and upper leaves alternate, ovate-hastate, with two basal lobes*A. heterosperma*
6. Leaf blade induplicate.....*A. lampa*
Leaf blade flat7
7. Fruiting bracteoles papery..... *A. cordubensis* subsp. *cordubensis*
Fruiting bracteoles leathery.....*A. atacamensis*
8. Embryo radicle basal.....*A. prostrata*
Embryo radicle ascending.....9
9. Fruiting bracteoles with two dorsal wings, entire or divided10
Fruiting bracteoles without dorsal wings11
10. Leaves flat or slightly undulate: the lowest ones ovate-rhomboid or ovate-triangular; the upper ones ovate. Fruiting bracteoles orbicular or rhomboid, margin sinuate*A. lithophila*

- Leaves usually induplicate: both the lowest and the upper ones with the same shape, ovate to oblong. Fruiting bracteoles transversely elliptic, margin entire.....*A. sorianoi*
11. Herbs. Fruiting bracteoles dorsally crested, tuberculate or smooth12
Shrubs. Fruiting bracteoles dorsally crested13
 12. Fruiting bracteoles suborbicular, with two dorsal, 3–5-toothed crests at base; margin dentate at apex.....*A. rotundifolia*
Fruiting bracteoles rhomboid, dorsally smooth . . . rarely tuberculate at base; margin entire at apex..... *A. peruviana*
 13. Plants monoecious.....*A. clivicola*
Plants dioecious.....14
 14. Fruiting bracteoles woody at base, herbaceous at apex .*A. nummularia*
Fruiting bracteoles with uniform texture, woody or herbaceous throughout15
 15. Leaves ovate or ovate-angled; fruiting bracteoles widely suborbicular, crustaceous, with margin entire at apex, and two lateral angles. Chile*A. madariagae*
Leaves obovate or triangular; fruiting bracteoles transversely elliptic, papery, with margin undulate at apex, and no lateral angles. Argentina*A. cordubensis* subsp. *grandibracteata*
 16. Fruiting bracteoles laterally fused half of their length.....17
Fruiting bracteoles laterally fused to a different extent, but never half of their length.....32
 17. Plants with uniform, smooth, fruiting bracteoles.....18
Plants with uniform, ornamented fruiting bracteoles, or plants combining both smooth and ornamented fruiting bracteoles.....21
 18. Dioecious shrubs.....19
Monoecious herbs20
 19. Fruiting bracteoles rhomboid or suborbicular, entire. Central and southern Mendoza province*A. boecheri*
Fruiting bracteoles subtriangular, 3-lobed. Patagonia region
.....*A. vulgatissima*
 20. Leaves with margin entire throughout. Axillary glomerules combining both staminate and pistillate flowers..... *A. asplundii*
Leaves with margin entire in the basal half, toothed in the apical half. Basal axillary glomerules with pistillate flowers, apical axillary glomerules combining both staminate and pistillate flowers
.....*A. suberecta*
 21. Shrubs22
Herbs.....26
 22. Individuals with uniform, ornamented, dorsally crested fruiting bracteoles23
Individuals with both smooth and ornamented, tuberculate-warty fruiting bracteoles24
 23. Fruiting bracteoles obtriangular, apex 3-toothed. Leaves elliptic to suborbicular. Plants monoecious..... *A. hystrix*
Fruiting bracteoles rhomboid, apex entire. Leaves oblong or lanceolate. Plants dioecious.....*A. patagonica*
 24. Ornamented bracteoles with 1 or 2 basal tubercles. Continental Chile . . . Regions I, II, III and IV25
Ornamented bracteoles with 1 or 2 basal warts. San Félix Island, Chile*A. chapinii*
 25. Leaves ovate-deltoid or broadly ovate, cordate*A. taltalensis*
Leaves ovate to elliptic, not cordate*A. vallenarensis*
 26. Plants with uniform ornamented, crested fruiting bracteoles.....27
Plants combining both smooth and ornamented, crested, tuberculate or warty fruiting bracteoles.....29
 27. Leaves with margin entire. Argentina.....28
Leaves with margin toothed. Venezuela.....*A. pentandra*
 28. Leaves usually linear-lanceolate, up to 3 mm wide....*A. montevidensis*
Leaves usually oblong or obovate, wider than 3 mm.....*A. pamparum*
 29. Lower leaves different in shape to the upper ones*A. tatarica*
Both lower and upper leaves similar in shape30
 30. Leaves with margin toothed.....*A. rosea*

- Leaves with margin entire.....31
31. Erect herbs; leaves triangular or rhomboid.....*A. ameghinoi*
Prostrate herbs; leaves spatulate to oblong, orbicular or obovate.....
.....*A. myriophylla*
32. Fruiting bracteoles laterally fused from base to apex.....33
Fruiting bracteoles laterally fused from the base to below or above the
midpoint of their length, never fused up to the apex or to the midpoint
of their length.....37
33. Fruiting bracteoles with two apical, triangular wings.....34
Fruiting bracteoles without wings.....35
34. Leaves spatulate or oblanceolate, apex obtuse. Fruiting bracteoles
smooth or warty. Argentina.....*A. argentina*
Leaves obovate, apex retuse. Fruiting bracteoles smooth. Venezuela....
.....*A. oestophora*
35. Shrubs. Leaves rhomboid or deltoid, margin toothed.....*A. rusbyi*
Herbs. Leaves ovate, margin entire.....36
36. Fruiting bracteoles elliptic, smooth or with bulges; Patagónica
biogeographic province.....*A. braunii*
Fruiting bracteoles angled-obovate, smooth. Punaña biogeographic
province.....*A. nitophiloides*
37. Fruiting bracteoles laterally fused from base to beyond the midpoint of
their length.....38
Fruiting bracteoles laterally fused from base to below the midpoint of
their length.....43
38. Herbs.....39
Shrubs.....40
39. Fruiting bracteoles elliptic, with longitudinally elongated tubercles, and
slightly 3-toothed apex.....*A. frigida*
Fruiting bracteoles obtriangular, smooth or warty, with apex truncate or
2-lobed (sometimes mucronate).....*A. oreophila*
40. Leaves spatulate. Argentina and Paraguay.....*A. eximia*
Leaves oblong, ovate or elliptic. Chile.....41
41. Fruiting bracteoles obovate or rhomboid, apex lobed.....*A. leuca*
Fruiting bracteoles obtriangular, apex toothed.....42
42. Leaves with margin entire or slightly toothed. Fruiting bracteoles
3-toothed at apex.....*A. coquimbana*
Leaves with margin repand-toothed. Fruiting bracteoles 3–7-toothed at
apex.....*A. costellata*
43. Plants with uniform, smooth fruiting bracteoles.....44
Plants with uniform ornamented fruiting bracteoles, or plants combining
both smooth and ornamented fruiting bracteoles.....47
44. Monoecious herbs.....*A. semibaccata*
Shrubs, usually dioecious.....45
45. Leaves with margin toothed.....*A. crenatifolia*
Leaves with margin entire or slightly lobed.....46
46. Leaves triangular-hastate or sagittate. Fruiting bracteoles rounded-
ovate.....*A. sagittifolia*
Leaves ovate, obovate or oblong. Fruiting bracteoles broadly rhomboid
or orbicular.....*A. undulata*
47. Embryo radicle basal or lateral in the seed.....48
Embryo radicle ascending in the seed.....49
48. Embryo radicle basal in the seed. Leaves linear-lanceolate or ovate-
lanceolate.....*A. patula*
Embryo radicle lateral in the seed. Leaves triangular, hastate.....
.....*A. chilensis*
49. Leaves with margin entire.....50
Leaves with margin not entire.....55
50. Herbs.....*A. philippii*
Shrubs.....51
51. Plants monoecious.....52
Plants dioecious.....54
52. Fruiting bracteoles ovate.....*A. glaucescens*
Fruiting bracteoles rhomboid to orbicular.....53

53. Shrub with erect or prostrate branches. Punaña and Del Desierto
biogeographic provinces.....*A. imbricata* var. *imbricata*
Shrub with decumbent branches. San Ambrosio Island, Chile.....
.....*A. imbricata* var. *foliolosa*
54. Fruiting bracteoles with margin toothed to lacinate. Las Quijadas Hills,
San Luis province, Argentina.....*A. quixadensis*
Fruiting bracteoles with margin entire. Altoandina, Punaña and Del
Desierto biogeographic provinces.....*A. deserticola*
55. Leaves obovate to oblong. Chile.....*A. repanda*
Leaves triangular or triangular-hastate. Argentina.....56
56. Fruiting bracteoles broadly ovate.....*A. mendozaensis*
Fruiting bracteoles fan-shaped or obtriangular.....*A. spegazzinii*

Synopsis

1. *Atriplex ameghinoi* Speg., *Anales Mus. Nac. Buenos Aires*, 7: 143 (1902)

Type: Argentina, Chubut, Rawson, June 1899, *A. Tonellier s.n.* (lecto: LP barcode 003091, photo! designated by Múlgura de Romero (1984, p. 240); isolecto: LP barcode 003092, photo!).

Nomenclatural notes

Remaining syntypes are: Río Chico, Chubut, 1900, *C. Ameghino s.n.* (K barcodes 00583206 and 00583207, LP barcode 003090); Chubut, 1900, *H.C.C. Burmeister s.n.* (LP barcode 003093); Chubut, aest. 1900, *F. Basaldua s.n.* (LP barcode 003094).

Iconography

Múlgura de Romero (1984), p. 241, fig. 2; Giusti (1984), p. 103, fig. 70.

Distribution

Atriplex ameghinoi grows in Argentina in Chubut, Río Negro and Santa Cruz provinces (Patagónica biogeographic province; Fig. 2).

Specimens examined

ARGENTINA. Chubut: Departamento Biedma, Puerto Madryn, *C. M. Hicken & L. Hauman* 47, 7 March 1914 (SI); *L. Hauman & C. M. Hicken* 10, 6 April 1914 (SI); *L. Hauman & C.M. Hicken* 48, 7 January 1914 (SI); *L. Hauman & C.M. Hicken* 215, 7 January 1914 (SI); Departamento Sarmiento, Lago Colhué Huapi, *A. Ruiz Leal* 24047, 6 July 1965 (MERL). Río Negro: Departamento General Roca, valle de Río Negro, *W. Fischer* 35, 26 December 1914 (US). Santa Cruz: Departamento Güer Aike, Río Gallegos, *L. Hauman & C.M. Hicken* 220, 27 March 1914 (SI).

2. *Atriplex argentina* Speg., *Comun. Mus. Nac. Buenos Aires* 1: 346, pl. 7, figs 6–11 (1901)

Type: Argentina, Mendoza, February 1901, *C. Spegazzini s.n.* (holo: LP barcode 003097, photo!).

Morphological notes

Despite the wide range in fruit size, *A. argentina* can be distinguished by its woody fruiting bracteoles, fully fused along the margins (leaving a hole at the apex from where the styles emerge) with leathery, triangular, expanded upper wings.

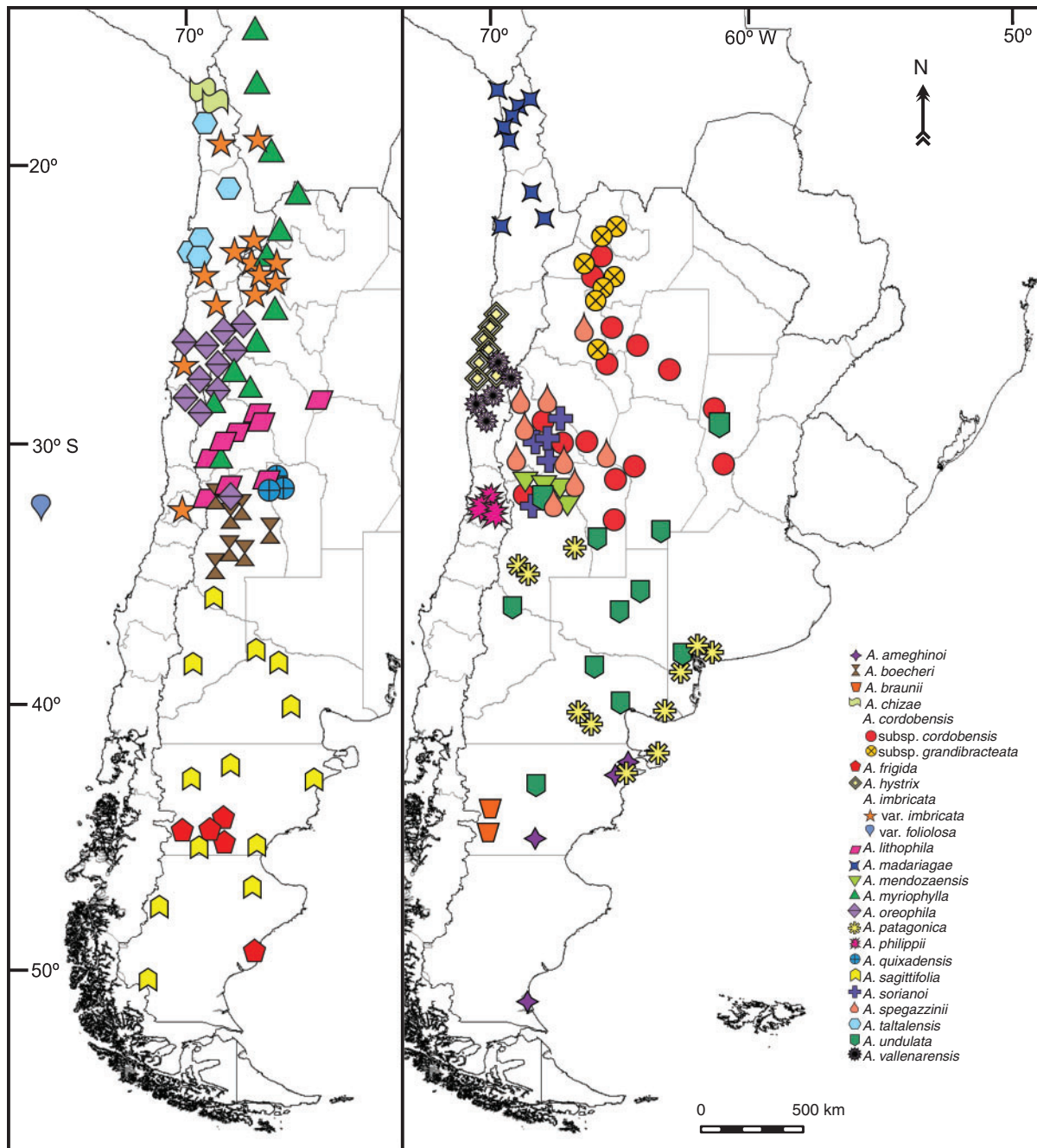


Fig. 2. Geographic distribution of 24 South American species of *Atriplex*. References on the map.

Iconography

Múlgura de Romero (1981), p. 124, fig. 1a–i.

Distribution

Atriplex argentina is a very well known species, recorded from central and western Argentina, in Chaqueña, Del Monte, Prepuneña and Puneña biogeographic provinces (Fig. 3). It usually grows with *Halophytum ameghinoi* Speg. and

Polygala hieronymi Chodat, forming an association that indicates chalky soils (Morello 1951).

Specimens examined

ARGENTINA. Catamarca: Departamento La Paz, Salinas Grandes, km 639, *A. Burkart* 20376, 21 January 1957 (SI). Córdoba: Departamento Tulumba, Salinas Grandes por el camino a Santiago del Estero, *A. Soriano* 25785, 9 October 1948 (SI). La Rioja: Departamento Independencia, Patquía, *A. Ruiz Leal* 16253, 7 September 1957

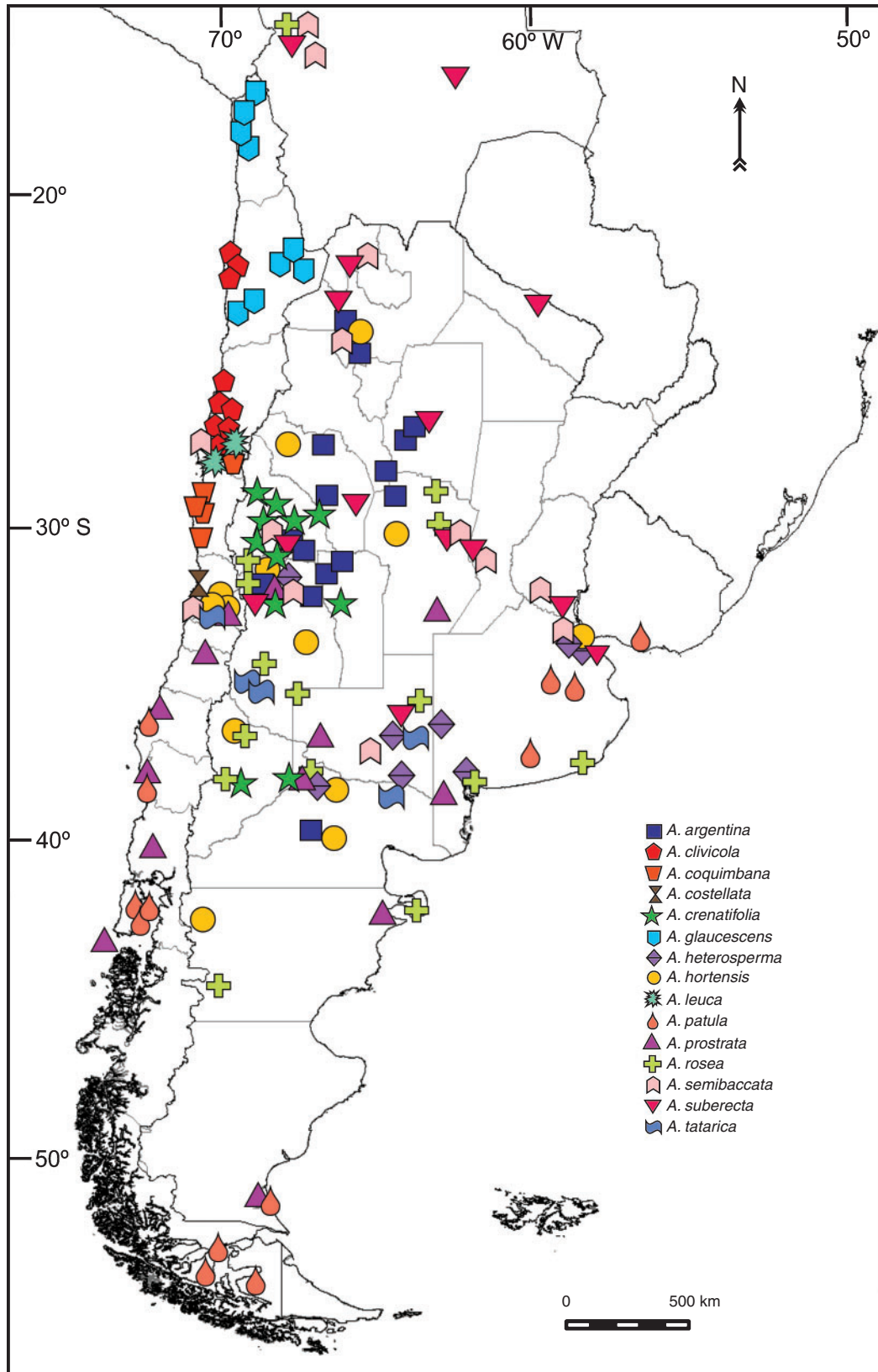


Fig. 3. Geographic distribution of 15 South American species of *Atriplex*. References on the map.

(MERL); Departamento Famatina, Famatina, *J. Hunziker 9738*, 16 March 1980 (SI). Mendoza: Departamento Las Heras, Ruta Nacional 40, near the provincial boundary, *T.M. Pedersen 11750*, 12 April 1977 (CTES); Departamento La Paz, Estancia El Chalet, 20 km S de Desaguadero, *J.L. Saenz JL & D.L. Anderson 700*, 11 July 1984 (MERL). Río Negro: *s. loc.*, *W. Fischer 247*, 12 January 1915 (SI). Salta: Departamento Cachi, Parque Nacional Los Cardones, Pampa del Tin-Tin, serranías 5–6 km al SW de Ruta Provincial 33, km. 78–80, *J.A. Tolaba et al. 5050*, 28 March 2008 (CTES); Departamento Cafayate, 300 m N del puente sobre Río Santa María, *L. Novara 4622*, 6 August 1985 (MCNS). San Juan: Departamento Caucete, Pozo de los Algarrobos, 38 km SE de la ciudad de San Juan, *H.H. Bartlett 19536*, 31 January 1943 (SI); Departamento Rivadavia, Ravines at Dique Nivelador, *H.H. Bartlett 20527*, 22 June 1943 (SI). San Luis: Departamento Belgrano, Hualtarán, entrada al Parque Nacional Sierra de las Quijadas, *L.A. Del Vitto et al. 6105*, 11 April 1991 (SI); Departamento Ayacucho, La Chañarienta, camino a Santa Rosa, *F.A. Roig 8165*, 16 July 1974 (MERL). Santiago del Estero: Departamento Atamisqui, 35 km al S del desvío a Isla Verde por Ruta Nacional 9, *R.H. Fortunato & R. Micheli 5120*, 27 November 1995 (CTES); Departamento San Martín, Ruta Nacional 34, km 571, al costado de la ruta, *S. Aliscioni et al. 685*, 22 March 2006 (SI).

3. *Atriplex asplundii* Standl., *Publ. Field Mus. Nat. Hist., Bot. Ser.* 11: 125 (1931)

(Fig. 4)

Type: Bolivia, Ulloma, 26 February 1921, *E. Asplund 6295* (holo: US barcode 00102583!).

Morphological notes

This is the first description other than that presented in the protologue, comparing and complementing the original description with specimens examined.

Herbs perennial, monoecious. Branches lax, terete, thin, 10–26 cm, with short internodes 3–15 mm long. Leaves alternate, grayish-green; petioles short, 1–4 mm; blades ovate or suborbicular, 3–17 mm long × 5–10 mm wide, base cuneate, apex obtuse, margin entire. Both staminate and pistillate flowers in bisexual, axillary glomerules; staminate flowers with 5-lobed calyx, lobes oblong, obtuse, anthers exserted. Fruiting bracteoles sessile or short-pedicellate, broadly ovate, wide, 2–3 long × 2–4 mm wide, base cuneate, apex tridentate with unequal teeth, dorsally smooth or with 2 or 3 tubercles at base, sometimes one bracteole is smooth, the other tuberculate; margin fused from the base up to halfway. Seeds brown, embryo with radicle ascending.

Distribution

Atriplex asplundii is endemic to Bolivia, in La Paz, Oruro and Tarija departments (Altoandina, Chaqueña and Puneña biogeographic provinces, Fig. 5).

Specimens examined

BOLIVIA. Departamento La Paz: *s. loc.*, *A. Ceballos et al. 144* (SI). Departamento Oruro: Provincia Cercado, entre Caracollo y Oruro, cerca de Pasto Grande, *S.G. Beck 22678*, 1 April 1996 (SI); 10 km hacia Caracollo, *S.G. Beck 14368*, 4 July 1987 (SI).

4. *Atriplex atacamensis* Phil., *Fl. Atacam.* 48 (1860)

Type: Chile, Atacama, January 1854, *R.A. Philippi s.n.* (lecto: SGO barcode 000001582, photo! designated by Rosas (1989, p. 21); isolecto: SI barcode 001259! fragment).

Morphological notes

This species is related to *A. madariagae*; both show a wide polymorphism in the shape of the leaves, but they differ in the morphology of the fruiting bracteoles. *Atriplex atacamensis* has fruiting bracteoles that are smooth dorsally, with an entire distal margin, whereas in *A. madariagae* the bracteoles are dorsally smooth or with two basal crests, and the distal margin is entire or angled (with two upper or lateral obtuse-pointed lobes).

Iconography

Rosas (1989), p. 22, fig. 5.

Distribution

Atriplex atacamensis is endemic to I Region-Tarapacá and II Region-Antofagasta in Chile (Del Desierto biogeographic province, Fig. 5).

Specimens examined

CHILE. I Región-Tarapacá: Provincia del Tamarugal, Pisagua Viejo, Quebrada de Camiña, *M. Ricardi et al. 319*, 10 May 1972 (CONC); Huara, *L. Figueroa 322*, 22 October 1979 (CONC); Pampa del Tamarugal, 5 km E de Huara, *M. Rosas 655*, 16 September 1985 (CONC). II Región-Antofagasta: Provincia El Loa, Hostería San Pedro de Atacama, *E. Werdermann 985*, 5 February 1967 (SI); Salar de Atacama, *G. Baumann 164*, 13 February 1993 (CONC); Provincia Antofagasta, Mantos Blancos, *M. Ricardi & C. Marticorena 4647*, 18 September 1958 (CONC); Provincia Tocopilla, Quillagua, *O. Matthei 444*, 22 September 1996 (CONC); bombas de captación de agua para Maria Elena, a orillas del Río Loa, *O. Matthei 421*, 20 September 1996 (CONC).

5. *Atriplex boecheri* Aellen, *Dansk Bot. Ark.* 22(2): 180 (1968)

Type: Argentina, Mendoza, Malargüe near El Molino, ~30 km NE of Malargüe, December 1955, *T.W. Böcher, J.P. Hjerting et K. Rahn 1354* (holo: C barcode 10009333, photo!).

Morphological notes

Fruiting bracteoles often vary between rhomboid to suborbicular or depressed elliptic. They are smooth dorsally, although in some specimens (e.g. *A.E. Ragonese & B.C. Piccinini 7590*, BAB) fruiting bracteoles are tuberculate.

Iconography

Aellen (1968), p. 180, fig. 85c; p. 182, fig. 87; Múlgura de Romero (1981), p. 141, fig. 5a–f.

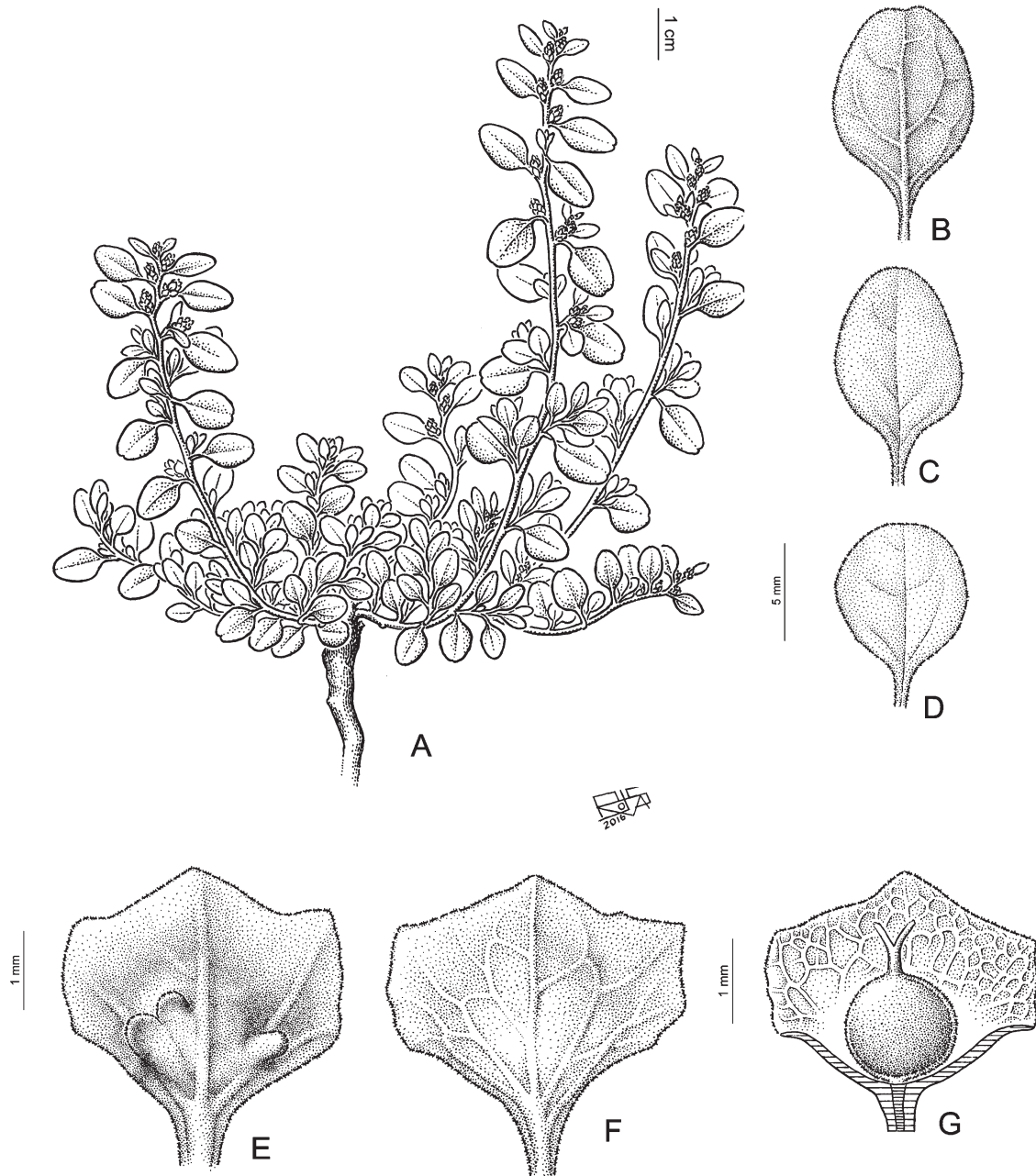


Fig. 4. *Atriplex asplundii* Standl. A. Habit. B–D. Leaves. E, F. Fruiting bracteoles, dorsal view. G. Fruiting bracteole, internal view and seed. From Ceballos *et al.* 144 (A); Beck 22678 (B–G).

Distribution

Atriplex boecheri occurs in Argentina, in Mendoza province (Del Monte biogeographic province), Capital, Las Heras, Malargüe and San Rafael departments (Fig. 2).

Specimens examined

ARGENTINA. Mendoza: Departamento Capital, Parque General San Martín, CRICYT, C.B. Passera *s.n.*, 20 October 1983 (MERL); C.

B. Passera *s.n.*, 19 July 1983 (MERL); CRICYT, IADIZA, C. B. Passera *s.n.*, 25 March 1986 (MERL); Departamento Las Heras, Yalguaráz, G. Covas 15051, 16 January 1946 (SI); Ciénagas de Yalguaráz, A. Ruiz Leal 11118, 27 July 1947 (MERL); Uspallata, bañados de Yalguaráz, F.A. Roig 8754, 5 September 1975 (SI); Departamento Malargüe, extremo S de la Laguna Llancanelo, A. Dalmaso 64, 16 July 1982 (MERL); Departamento San Rafael, Pampa del Medio, A. Burkart *et al.* 14004, 20 March 1942 (SI); Nihuil, a orillas del lago, J.A. Ambrosetti 28826, 11 January 1977 (MERL); Salinas del Diamante, C.B. Passera *s.n.*, 21 July 1981

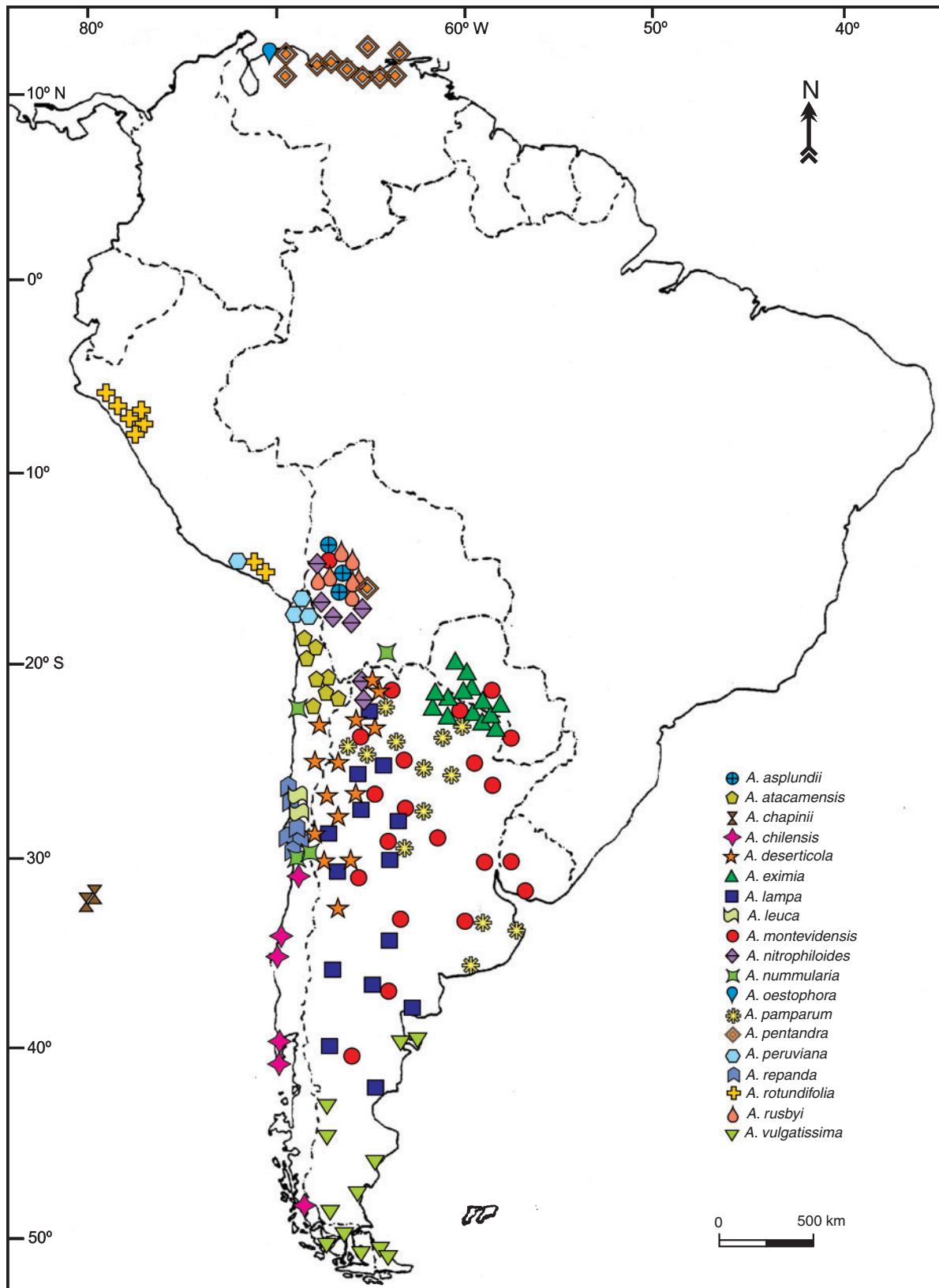


Fig. 5. Geographic distribution of 19 South American species of *Atriplex*. References on the map.

(MERL); *A.E. Ragonese y B.C. Piccinini* 7590, 25 January 1951 (BAB); Campo de Los Tolditos, Santa Elena, *A. Ruiz Leal* 7669, 27 January 1942 (BAB).

6. *Atriplex braunii* A.Soriano, *Darwiniana* 7: 396 (1947)

Type: Argentina, Chubut, Tehuelches, 8 leguas al Sur [8 leagues, ~38.6 km, S] de Nueva Lubecka, Estancia Laurita, February 1945, *A. Soriano* 1450 (lecto: BAB barcode 00000084! designated here; isolecto: BAB barcode 00000107!, SI barcode 001261!).

Nomenclatural notes

There are two specimens of *Soriano* 1450 in BAB and a duplicate in SI. We selected as lectotype BAB barcode 00000084 because is the most complete.

Iconography

Soriano (1947), p. 397, fig. 1; Giusti (1984), p. 103, fig. 71; Múlgura de Romero (1981), p. 245, fig. 5a–d.

Distribution

Atriplex braunii is a poorly collected species, endemic to the salty soils of western Chubut province (Patagónica biogeographic province) in Argentina (Fig. 2).

Specimens examined

ARGENTINA. Chubut: Departamento Río Senguer, Estación Zootécnica Río Mayo, *A. Soriano* 4564, 4 February 1954 (SI).

7. *Atriplex chapinii* I.M.Johnst., *J. Arnold Arbor.* 16: 443 (1935)

Type: Chile, San Félix, ‘low bush ~2.5 dm tall and 3–9 dm broad’, February 1935, *J. P. Chapin* 1104 (holo: GH barcode 00037159, photo!; iso: NY barcode 02361619, photo!)

Nomenclatural notes

The following paratypes were also located: *Chapin* 1105 (NY barcode 02361620), *Chapin* 1106 (NY barcode 02361618).

Iconography

Horst (1949), p. 15, fig. 6; Rosas (1989), p. 24, fig. 6.

Distribution

Atriplex chapinii is a very restricted species endemic to the San Félix Island, from the Desventuradas Islands group, located 850 km off the coast of Chile, north-west of Santiago in the Pacific Ocean (Fig. 5).

Specimens examined

CHILE. V Región-Valparaíso: Provincia Valparaíso, Isla San Félix, Archipiélago de Las Desventuradas, *A. Hoffmann* 2, 29 July 1989 (CONC); *H. Gunkel* 21078, 5 October 1896 (CONC).

8. *Atriplex chilensis* Colla, *Mem. Reale Accad. Sci. Torino* 39: 7, t. 49 (1836)

Type: Chile, Valparaíso, ‘in fruticetis rupestribus ad mare, loco dicto La Caletilla’, January 1830, *D. Bertero* 1415 (holo: G-DC barcode 00458995, photo!)

Morphological notes

This is the only native South American species with non-Kranz leaf-anatomy and seeds with lateral radicle in the embryo (Fig. 1B), which would correspond with *Atriplex s.s.* (*sensu* Hall and Clements 1923).

Iconography

Rosas (1989), p. 25, fig. 7.

Distribution

Atriplex chilensis is endemic to the Chilean coast in V Region-Valparaíso, VII Region-Biobío and IX Region-Araucanía, X Region-Los Lagos and XII Region-Magallanes, in the the Subantártica biogeographic province (Fig. 5).

Specimens examined

CHILE. VII Región-Biobío: Provincia Concepción, Hualpen, Playa Blanca, *A. Pfister s.n.*, 23 February 1947 (CONC); Talcahuano, Caleta del Soldado, *A. Pfister s.n.*, 3 April 1948 (CONC); Provincia Arauco, Isla Mocha, dunas entre el Faro Oeste y Los Natris, *E. Weldt & R. Rodriguez* 1017, 13 March 1971 (CONC). IX Región-Araucanía: Provincia Cautín, Playa Cheuque, cerca de Queule, *M. Rosas* 94, 19 February 1984 (CONC). X Región-Los Lagos: Provincia Chiloé, Isla Grande de Chiloé, Cucao, a orillas del Desaguadero, *O. Matthei & M. Quezada* 919, 16 March 1990 (CONC); Isla Grande de Chiloé, Huicha, *O. Matthei & M. Quezada* 877, 15 March 1990 (CONC); Isla Quilán, costa sector SW, *C. Villagrán and A. Leiva* 7236, 1 February 1986 (CONC). XII Región-Magallanes: Provincia Ultima Esperanza, Puerto Natales, Predio Juan Barria, *J. Soto* 2092, 17 February 2005 (CONC).

9. *Atriplex chizae* Rosas, *Gayana, Bot.* 46(1–2): 26 (1989)

Type: Chile, I Región, Provincia de Arica, Quebrada de Chiza, 10 November 1982, *E. Bastias* 18 (holo: CONC 55718, photo!).

Morphological notes

Atriplex chizae has seeds with a lateral or descending radicle in the embryo (Fig. 1C) and Kranz leaf anatomy. *Atriplex chilensis* also has a lateral radicle, but the leaves have non-Kranz anatomy.

Iconography

Rosas (1989), p. 27, fig. 8.

Distribution

Atriplex chizae is endemic to northern Chile, in I Region-Tarapacá and XV Region-Arica y Parinacota (Del Desierto biogeographic province, Fig. 2).

Specimens examined

CHILE. I Región-Tarapacá: Provincia del Tamarugal, Huara, *M. Calderón 15*, 12 November 1982 (CONC). XV Región-Arica y Parinacota: Provincia Arica, Caleta Camarones a metros de la playa, *E. Belmonte 89001*, 3 January 1989 (CONC).

10. *Atriplex clivicola* I.M.Johnst., *Contr. Gray Herb.* 85: 31 (1929)

Obione clivicola (I.M.Johnst.) Ulbr., in A. Engler *et al.* (eds), *Nat. Pflanzenfam.*, edn 2, 16c: 508 (1934).

Type: Chile, II Región-Antofagasta, Departamento Taltal, Punta Buitre, December 1925, *I.M. Johnston 5239* (holo: GH barcode 00037160, photo!; iso: BA 1305!; K barcode 000583214, photo!; S-R-546, photo!; US barcode 00102587!).

Atriplex clivicola var. *lopholepis* I.M.Johnst., *Contr. Gray Herb.* 85: 31 (1929).

Type: Chile; III Región-Atacama, Departamento Chañaral, Aguada Grande, December 1925, *I.M. Johnston 5766* (holo: GH barcode 00037161, photo!; iso: K barcode 000583213, photo!; S-R-547, photo!; US barcode 00102588!).

Morphological notes

Specimens of this species may have some fruiting bracteoles dorsally smooth, and others with crests; also some fruits may have one bracteole dorsally smooth and the opposite one with crests.

Iconography

Rosas (1989), p. 29, fig. 9.

Distribution

Atriplex clivicola is endemic to northern Chile, in II Región-Antofagasta and III Región-Atacama (Del Desierto biogeographic province, Fig. 3).

Specimens examined

CHILE. II Región-Antofagasta: Provincia Antofagasta, Quebrada La Chimba, *C. Arriagada s.n.*, 21 February 1953 (CONC); *J. Martínez s.n.*, 6 August 1962 (CONC); *G. Mann s.n.*, September 1955 (CONC). III Región-Atacama: Provincia Copiapó, Caldera, *H.C. Martín 273*, September 1927 (SI); Travesía Norte, *C. Jiles 4937*, 6 October 1966 (CONC). Provincia Huasco, 9 km N de Algarrobal, *M. Rosas 402*, 4 February 1985 (CONC); 38 km N de Vallenar, *C. Marticorena & M. Rosas 9529*, 11 October 1982 (CONC); *C. Marticorena & M. Rosas 9539*, 11 October 1982 (CONC); 75 km N de Vallenar, *C. Marticorena & M. Rosas 9531*, 11 October 1982 (CONC).

11. *Atriplex coquimbana* Phil., *Anales Univ. Chile* 91: 425 (1895)

Type: Chile, Coquimbo, Ovalle, 22 January 1883, *R.A. Philippi s.n.* (lecto: SGO barcode 000001588, photo! designated by Rosas (1989, p. 30); isolecto: K barcode 000583215, photo!; K barcode 000583216, photo!; SGO barcode 000001586, photo!; SGO barcode 000001587, photo!; SI barcode 001312!)

Morphological notes

This species is closely related to *A. costellata* in regard to the leaves and fruiting bracteoles (specimens of *A. coquimbana* have leaves with the margin entire or slightly toothed, and fruiting bracteoles slightly toothed at the apex).

Iconography

Rosas (1989), p. 31, fig. 10.

Distribution

Atriplex coquimbana is recorded for the coast and mountain hills of IV Región-Coquimbo in Chile (Rosas 1989). We extend the geographical distribution to Southern III Región-Atacama (Chilena and Del Desierto biogeographic provinces, Fig. 3). According to Rosas (1989), this species is apparently rare.

Specimens examined

CHILE. III Región-Atacama: Provincia Huasco, Valle El Tránsito, *E. Pisano E & R. Bravo 1053*, 13 July 1941 (CONC). IV Región-Coquimbo: Provincia Choapa, entre Huentelauquén y Punta Totoral, *S. Teillier & J. Delaunoy 6112*, 1 April 2006 (CONC). Provincia Limarí, Fray Jorge, cumbre cordón Talinay, *M. Faúndez 21*, 7 January 1985 (CONC); Fray Jorge, *S. Gómez s.n.*, 1 July 1979 (CONC); Fray Jorge, 3.7 km N del sendero interpretativo, *C. Arriagada 311*, 11 January 2005 (CONC).

12. *Atriplex cordubensis* Gand. & Stuck., *Bull. Soc. Bot. France* 54: 584 (1908) subsp. *cordubensis*

Type: Argentina, Córdoba, Río Seco, February 1897, *T. Stuckert 2318* (lecto: CORD barcode 00002363! designated here; isolecto: W barcode 1965-0021105, photo!).

Atriplex hjertingii Aellen, *Dansk Bot. Ark.* 22(2): 183 (1968).

Type: Argentina, Salta, Payogasta, February 1956, *J.P. Hjerting, E. Petersen & K. Rahn 336* (holo: C barcode 10009336, photo!).

Nomenclatural notes

In the protologue, Gandoger (1907) mentioned two collections for *A. cordubensis*: *Stuckert 2318* and *Stuckert 10187*. We found two specimens of *Stuckert 2318*, and we selected the duplicate in CORD as lectotype because we could examine the specimen in the herbarium and it is complete and well preserved. A remaining syntype of *Stuckert 10187* is held in W (barcode 1965-0020990).

Iconography

Aellen (1968), p. 183, fig. 88; Múlgura de Romero (1981), p. 145, fig. 7a–f.

Distribution

Atriplex cordubensis subsp. *cordubensis* is a very well collected species in northern and central Argentina (Chaqueña, Del Espinal, Del Monte, Prepuneña and Puneña biogeographic provinces, Fig. 2). Additionally, there are some records in Oruro department in Bolivia (Múlgura and Galarza 2014).

Specimens examined

ARGENTINA. Catamarca: Departamento Ambato, 5 km N de Catamarca, *C. Saravia Toledo et al. 13072*, 29 March 1995 (CTES). Córdoba: Departamento San Javier, Las Tapias, *H.H. Bartlett 20639*, 9 August 1943 (SI). La Rioja: Departamento Ángel Vicente Peñaloza, 10 km al N de Carrizal por la Ruta 29, *R. Corzo & F. Biurrun 788*, 26 May 1977 (SI). Mendoza: Departamento Uspallata, Uspallata, *A. Soriano 1073*, 12 March 1944 (SI). Salta: Departamento Cachi, Cachi, alrededores de Payogasta, *A.T. Hunziker et al. 12345*, 16 February 1992 (SI); Departamento General Güemes, camino a El Algarrobal a 16 km de Güemes, *E. Parada 619*, 6 February 1978 (MCNS). San Juan: Departamento Jáchal, Jáchal, *R.A. Spegazzini 34*, 28 February 1937 (SI); Departamento Valle Fértil, 9 km antes de llegar al Río Bermejo en camino a Valle Fértil, *F.A. Roig 8020*, 13 April 1974 (SI). San Luis: Departamento General Pedernera, Villa Mercedes, *H.H. Bartlett 20596*, 7 July 1943 (SI); Departamento Junín, Santa Rosa del Conlara, *N. B. Deginani et al. 2095*, 14 March 2011 (SI). Santa Fe: Departamento San Cristobal, San Cristobal, *A. Krapovickas 649*, 26 December 1944 (SI); Departamento San Jerónimo, Arroyo Colastiné, 15 km S de Coronada, RN 11, *A. Krapovickas & J. Irigoyen 17799*, 27 January 1971 (CTES). Santiago del Estero: Departamento General Taboada, Añatuya, *A. Soriano 565*, 27 January 1944 (SI); Departamento Río Hondo, Termas de Río Hondo, Ruta 9 km 1211, *A.L. Cabrera et al. 27781*, 11 September 1976 (SI). Tucumán: Departamento Tafí del Vale, Antiguo Quilmes, *T.M. Pedersen 15334*, 25 March 1989 (CTES).

13. *Atriplex cordubensis* subsp. *grandibracteata* Múlgura, *Darwiniana* 23 (1): 147 (1981)

Type: Argentina, Tucumán, Tafí, Las Arcas, 2.000 m above sea level, 24 April 1936, *S. Venturi 4458* (holo: LP barcode 011155, photo!; iso: US barcode 01269333!).

Morphological notes

Atriplex cordubensis subsp. *grandibracteata* differs from subsp. *cordubensis* by the larger fruiting bracteoles, which are dorsally smooth or with crests, with an undulate margin. Fruiting bracteoles in subsp. *cordubensis* are smaller, always smooth and typically with an entire margin.

Iconography

Múlgura de Romero (1981), p. 145, fig. 7g, h.

Distribution

The distribution of this subspecies is more restricted than that of the type subspecies. It inhabits the Prepuneña and Puneña biogeographic provinces of north-western Argentina (Catamarca, Jujuy and Salta provinces), occurring in salty soils. Múlgura de Romero (1984) also records this subspecies for La Rioja and Tucumán provinces, also in Prepuneña and Puneña biogeographic provinces (Fig. 2).

Specimens examined

ARGENTINA. Catamarca: Departamento Paclín, Balcozna, *S. Venturi 7090*, 19 January 1928 (SI). Jujuy: Departamento Tilcara, Tilcara, *A. L. Cabrera et al. 34331*, 8 March 1987 (SI); *A.L. Cabrera et al. 34332*, 8 March 1987 (SI); Departamento Tumbaya, Ruta Nacional 52, Salinas Grandes, *M.E. Múlgura et al. 4222*, 25 February 2006 (SI). Salta: Departamento Cachi, San José de Cachi, *A.L. Cabrera et al. 30770*, 28 March 1979 (SI); Payogasta, *A.L. Cabrera et al. 30767*, 27 March 1979 (SI); Departamento Cafayate, entre Tolombón y Colalao,

A.L. Cabrera et al. 30791, 29 March 1979 (SI); *A.L. Cabrera et al. 30792*, 29 March 1979 (SI); desde Tolombón a Hualinchay, *C.A. Zanotti et al. 843*, 12 February 2016 (SI); Departamento Rosario de Lerma, 3 km de El Golgota, rumbo a Cerrillos, *C. Saravia Toledo & R. Neuman 933*, 11 March 1984 (MCNS); Departamento San Carlos, Ruta 40, entre Animaná y San Carlos, *L. Novara & E. Zardini 4194*, 22 January 1984 (MCNS).

14. *Atriplex costellata* Phil., *Anales Univ. Chile* 91: 424 (1895)

Type: Chile, Algarrobo, February 1867, *R.A. Philippi s.n.* (lecto: SGO barcode 000001589, photo! designated by Rosas (1989, p. 30); isolecto: SGO barcode 000001590, photo!; SI barcode 001262!).

Morphological notes

This species is closely related to *A. coquimbana* in regard to the leaves and fruiting bracteoles (*A. costellata* has leaves and fruiting bracteoles strongly toothed), and the two taxa may be synonymous. Further collections of *A. coquimbana*, a scarce and poorly collected species (Rosas 1989), are required to determine its status.

Iconography

Rosas (1989), p. 32, fig. 11.

Distribution

Atriplex costellata is a rare, poorly collected species, endemic to the IV Region-Coquimbo and V Region-Valparaíso in Chile (Del Desierto biogeographic province, Fig. 3).

Specimens examined

We were able to study only the type specimens.

15. *Atriplex crenatifolia* Chodat & Wilczek, *Bull. Herb. Boissier Ser. II. 2: 537* (1902)

Type: Argentina, Mendoza, 'plantes de environs de St Raphael et de la Vallée du Rio Atuel', January 1897, *E. Wilczek 338* (holo: G – not seen, photo ser. Field Mus. 27798!; iso: BAA barcode 00004350! fragment).

Atriplex sagittifolia var. *macrophylla* Speg., *Anales Mus. Nac. Buenos Aires vol. 7, 4: 146*. (1902).

Type: 'Prope Mendoza' (?LP – not seen).

Nomenclatural notes

The holotype of *A. crenatifolia* is housed in G, but we were able to study only the photo kept in F. For *A. sagittifolia* var. *macrophylla*, we checked the collections of LP, where Spegazzini's original material is housed, but we were unable to locate any type material of this name. Although we could not locate type material of *A. sagittifolia* var. *macrophylla*, we follow Múlgura de Romero (1981) in treating this taxon as synonymous with *A. crenatifolia*, because the leaf description in the protologue of *A. sagittifolia* var. *macrophylla* perfectly agrees with *A. crenatifolia*.

Morphological notes

Atriplex crenatifolia and *A. sagittifolia* share a similar leaf shape (sagittate or triangular-hastate), but *A. crenatifolia* has rather curled leaves, with toothed margins, whereas *A. sagittifolia* has flat leaves, with entire or slightly lobed margins.

Iconography

Múlgura de Romero (1981), p. 141, fig. 51–o.

Distribution

Atriplex crenatifolia grows in Córdoba, Mendoza, Neuquén, San Juan and San Luis provinces in Argentina (Chaqueña, Del Monte and Del Espinal biogeographic provinces; Fig. 3).

Specimens examined

ARGENTINA. Mendoza: Departamento Capital, entre Mendoza y El Challoo, *G. Covas 1027*, 20 February 1943 (SI). Departamento Lavalle, Nueva California, cerca del Médano del Puesto de los Ahumados, *F.A. Roig 7997*, 15 August 1968 (SI). Departamento Las Heras, Cerro de la Cal, en un antiguo horno de cal abandonado, *F.A. Roig 5624*, 1 August 1968 (MERL). Departamento Maipú, Laguna de los Álamos, *M.E. Múlgura 49*, 1 May 1978 (SI). Departamento Santa Rosa, a medio camino desde Alto Verde a Santa Rosa, *H.H. Bartlett 20666*, 10 August 1943 (SI). Departamento Tupungato, Anchoris, *G. Covas 24*, 12 September 1942 (SI). Neuquén: Departamento Confluencia, Confluencia del Limay, *C.M. Hicken 15752*, 10 April 1913 (SI). Departamento Zapala, Zapala, *A. Burkart 9761*, 9 March 1939 (SI). San Juan: Departamento Angaco, Sierra de Pie de Palo, ruta cerca de Angaco, *R. Kiesling et al. 4829*, 23 November 1984 (SI). Departamento Calingasta, Hilario, *F.A. Roig 9473*, 17 May 1978 (SI). Departamento Iglesia, Pismanta, *A.L. Cabrera 30099*, 22 March 1979 (SI). Departamento Jáchal, Jáchal, alrededores del Río Jáchal, *E.R. Guaglianone et al. 2400*, 9 April 1989 (SI). Departamento Sarmiento, Ruta 40, Villa Media Agua, *E.G. Nicora et al. 8337*, 26 February 1981 (SI). Departamento Ullúm, Quebrada de Talacasto, *A.D. Rotman et al. 335*, 21 April 1980 (SI). Departamento Valle Fértil, 9 km antes del Río Bermejo, camino a Valle Fértil, *F.A. Roig 8021*, 13 April 1974 (SI). San Luis: Departamento Capital, Salinas del Bebedero, *M.E. Múlgura 1*, 17 February 1978 (SI).

16. *Atriplex deserticola* Phil., *Fl. Atacam.* 47 (1860)

Type: Chile, Quebrada de la Encantada, ‘in deserto atacamensi frequens’, February 1854, *R.A. Philippi s.n.* (lecto: SGO barcode 000001592, photo! designated by Rosas (1989, p. 33); isolecto: SI barcode 001267! fragment).

Atriplex retusa Gay, *Fl. Chil.* 5: 240 (1849). *Obione retusa* (Gay) Ulbr., in A. Engler *et al.* (eds), *Nat. Pflanzenfam.* ed. 2 16c: 508 (1934).

Type: Chile, Provincia Coquimbo, Guamalata, *C. Gay 1302* (holo: P barcode 00606466, photo!; iso: P barcode 00606467, photo!; SGO barcode 000001623, photo!), *syn. nov.*

Atriplex podocarpa Phil., *Anales Univ. Chile* 91: 427 (1895).

Type: Chile, Vegas del Toro, February 1883, *F. Philippi s.n.* (holo: SGO barcode 000001615, photo!; iso: SI barcode 001279! fragment).

Atriplex transandina I.M. Johnst., *Physis (Buenos Aires)* 9: 303 (1929).

Type: Argentina, San Juan, Río de la Tagua below Vega del Cadillo, January 1926, *I.M. Johnston 6148* (holo: GH barcode

00037167, photo!; iso: K barcode 000583238, photo!; US barcode 00102653!).

Nomenclatural notes

Gandoger (1907) recorded *A. retusa* for Argentina, on the basis of a series of specimens collected by Stuckert. Múlgura de Romero (1981) could not confirm those records of *A. retusa* for Argentina. Rosas (1989) excluded *A. retusa* from Chilean flora, as he did not find the type specimen, and was not able to confirm the identity of the Chilean specimens labelled as *A. retusa*. Rosas (1989) also suggested a close morphological relationship between *A. retusa* and *A. deserticola*. We located the holotype of *A. retusa* (*C. Gay 1302*) in P, and two isotypes in P and SGO. We also confirm the congruence between the morphology and the protologue, taking into account the shape of the leaves (oblong or elliptic, with entire margin, truncate base and obtuse apex) and the characteristics of fruiting bracteoles (rhombic or ovate, with an entire margin, fused along the lower third). The study of images of type material supports Rosas’ (1989) suggestion, and, therefore, we establish *A. retusa* as a new synonym of *A. deserticola*.

Iconography

Múlgura de Romero (1981), p. 145, fig. 7i–n; Rosas (1989), p. 34, fig. 12.

Distribution

Atriplex deserticola grows in Argentina and Chile (Fig. 5) throughout the northern and central mountains from Argentina (Altoandina and Puneña biogeographic provinces), and from the seashore to the mountains of II Region-Antofagasta and III Region-Atacama (Del Desierto biogeographic province) in Chile.

Specimens examined

ARGENTINA. Catamarca: Departamento Ambato, 5 km N de Catamarca, *C. Saravia Toledo et al. 13072*, 29 March 1995 (SI). Departamento Tinogasta, Paso de San Francisco, *F.O. Zuloaga et al. 12881*, 14 February 2011 (SI). Jujuy: Departamento Tilcara, RN 9, a 16 km de Tilcara camino a Volcán, *O. Morrone et al. 4351*, 25 April 2003 (SI). Departamento Tumbaya, a lo largo de la costa E de las Salinas Grandes, *C.M. Taylor et al. 11227*, 15 March 1994 (SI). La Rioja: Departamento Vinchina, Jagüé, alrededores del destacamento de guardafaunas, *F. Biurrun et al. 5213*, 10 February 1998 (SI). Mendoza: Departamento Las Heras, Paramillo de Uspallata, *J. A. Ambrosetti 3092*, 8 March 1974 (MERL); Quebrada de Santa Elena, *L.A. Del Vitto & L. Titiro 30721*, 25 November 1980 (SI). Departamento Malargüe, El Zampal, *F.A. Roig 6310*, 16 November 1969 (MERL). Salta: Departamento La Poma, Ruta 40, de Cachi a la Poma, 3 km antes de La Poma, *A.M. Cialdella et al. 236*, 13 February 2002 (SI). Departamento Rosario de Lerma, Santa Rosa de Tastil, ruinas indígenas, *J. Tolaba 302*, 27 December 1991 (MCNS). San Juan: Departamento Calingasta, N de Barreal, *R. Kiesling 3084*, 18 January 1981 (SI). Departamento Iglesia, El Toro, *T.S. Tombsi 210*, 2 March 2002 (SI); Parque Nacional San Guillermo, cerca del refugio, *R. Kiesling 2955*, 3 November 1980 (SI). CHILE. II Región-Antofagasta: Provincia Antofagasta, Agua Verde, Quebrada de Taltal, *J. Hunziker 9842*, 5 February 1981 (SI). III Región-Atacama: Provincia Copiapó, Río Figueroa, Cerro Paredones, *E. Werdermann 143*, 1926 (SI).

17. *Atriplex eximia* Soriano, *Darwiniana* 7: 398 (1947)

Type: Argentina, Formosa, Departamento Patiño, Comandante Fontana F.C.E., 5 January 1945, *A. Krapovickas 904* (holo: SI barcode 001268!).

Nomenclatural notes

A paratype of this name, *Krapovickas 900* from Ibarreta (Formosa province), mentioned by Soriano (1947) is held in K (barcode 000583212).

Morphological notes

The species is characterised by obtriangular, dorsally reticulate fruiting bracteoles, and spatulate, retuse leaves.

Iconography

Soriano (1947), p. 399, fig. 2; Múlgura de Romero (1981), p. 124, fig. 1k–n.

Distribution

Atriplex eximia is a frequent, well sampled species through its distribution in Formosa province (Argentina), and Boquerón and Presidente Hayes departments in Paraguay (Chaqueña biogeographic province; Fig. 5).

Specimens examined

ARGENTINA. Formosa: Departamento Patiño, Bartolomé de las Casas, *A.G. Schulz 17628*, 9 October 1970 (CTES); Ibarreta, *A. Krapovickas 901*, 5 January 1945 (SI); al W de San Pablo, *R.E. Guaglianone et al. 568*, 11 January 1980 (SI); 17 km del cruce con Ruta 86, por ruta a El Cogoik, *R.H. Fortunato et al. 2305*, 15 December 1991 (SI); 10 km W de General M. Belgrano, *R.A. Palacios et al. 714*, 7 January 1978 (SI). Departamento Pilagas, 69 km W de Laguna Blanca por Ruta 86, *R.H. Fortunato et al. 2996*, 21 March 1992 (SI). Departamento Pilcomayo, Ruta 86, alrededores de Laguna Blanca, *A. Schinini & G. Cuadrado 30541*, 29 March 1996 (CTES); Sol de Mayo, 14 km SO de Laguna Blanca, *A. Schinini & G. Cuadrado 30347*, 25 October 1985 (CTES). PARAGUAY. Departamento Presidente Hayes: Estancia Laguna Porá, *F. Mereles & R. Degen 5225*, 21 June 1993 (SI); Estancia La Perla, *T. Pedersen et al. 14630*, 14 October 1986 (SI); Estancia Zalazar, *E. M. Zardini & L. Guerrero 47018*, 28 July 1997 (SI); entre Cruce hacia Loma Plata y Río Salado, cerca de Pozo Colorado, *E.M. Zardini & M. Vera 40438*, 9 August 1994 (SI); Ruta Trans-Chacho, *A. Schinini & E. Bordas 16580*, 14 March 1979 (CTES). Departamento Boquerón, Colonia Fernheim, Estancia Laguna Porá, *R. Vanni et al. 2602*, 1 March 1991 (SI).

18. *Atriplex frigida* Speg., *Anales Mus. Nac. Buenos Aires*, 7: 142 (1902)

Type: Argentina, Santa Cruz, San Julián, 1899, *C. Ameghino s.n.* (holo: LP barcode 003106, photo!)

Morphological notes

Atriplex frigida can be confused with *A. braunii*, differing by the tuberculate fruiting bracteoles with three, noticeable upper teeth, and the triangular-ovate leaves.

Iconography

Múlgura de Romero (1984), p. 244, fig. 4; Giusti (1984), p. 103, fig. 69.

Distribution

Atriplex frigida grows in Patagonica biogeographic province (Fig. 2). It is unclear whether *A. frigida* is infrequent in the field or poorly collected (cf. Múlgura de Romero 1984).

Specimens examined

ARGENTINA. Chubut: Departamento Río Senguer, Ruta 40, a unos 15 km S del desvío a Alto Río Senguer, *J.A. Ambrosetti & E. Méndez 597*, 13 January 1978 (SI). Departamento Sarmiento, 2° Laguna antes de Laguna Palacios en camino de Sarmiento a Paso de Indios, *A. Ruiz Leal 25703*, 28 December 1967 (MERL); *A. Ruiz Leal 25704*, 28 December 1967 (MERL); approx. 20 km de Sarmiento, *A. Ruiz Leal 25695*, 22 December 1967 (MERL). Santa Cruz: *s. loc.*, *A. Donat 235*, 13 January 1930 (SI).

19. *Atriplex glaucescens* Phil., *Anales Mus. Nac. Santiago de Chile* 2,8: 74 (1891)

Type: Chile, Antofagasta, Quelana, 3 February 1885, *R.A. Philippi s.n.* (lecto: SGO barcode 000001596, photo! designated by Rosas (1989, p. 35); isolecto: SGO barcode 000001595, photo!; SI barcode 001313! fragment).

Atriplex polyphylla Phil., *Anales Mus. Nac. Santiago de Chile* 2,8: 73 (1891).

Type: Chile, Antofagasta, Salinas, January 1885, *R.A. Philippi s.n.* (holo: SGO barcode 000001616, photo!; iso: SI barcode 001280! fragment).

Nomenclatural notes

Múlgura de Romero (1981) treated *A. glaucescens* as a synonym of *A. imbricata*, indicating that there were no significant morphological differences between the species. Rosas (1989) recognised *A. glaucescens* as a distinct taxon based on the dimorphism between the proximal and distal leaves on the same branch (*A. imbricata* has only one, uniform leaf morphology). Our study of herbarium specimens confirms Rosas' observations (*A. imbricata* has all sessile leaves, cordate at the base; *A. glaucescens* has proximal leaves ovate-triangular, petiolate and truncate at the base and distal leaves smaller, sessile, and cordate at the base. Therefore, we accept *A. glaucescens* as a distinct taxon.

Iconography

Rosas (1989), p. 36, fig. 13.

Distribution

Atriplex glaucescens is widely distributed in northern Chile (Del Desierto biogeographic province) in I Region-Tarapacá, II Region-Antofagasta and XV Region-Arica y Parinacota (Fig. 3). This taxon may also occur in Argentina, Bolivia and Peru (Rosas 1989).

Specimens examined

CHILE. I Región-Tarapacá: Provincia de Iquique, Mamiña, *M. Ricardi & C. Marticorena 4698*, 22 September 1958 (CONC). Provincia del Tamarugal, Pica, quebrada Quisma, camino al Salar de Huasco, *S. Teillier 4805*, 5 July 2000 (CONC). II Región-Antofagasta: Provincia El Loa, camino a Río Grande, poco antes de Bajada Colorada, *M. Arroyo et al. 97712*, 16 April 1997 (CONC); camino a Guaitiquina, Quebrada Honda, *M. Arroyo et al. 97796*, 17 April 1997 (CONC); 14 km N de Socaire, a los pies del cerro entrando al Salar de Atacama, *R. Rodríguez & E. Ruiz 3733*, 8 May 1997 (CONC); Quebrada de los Baños de Puritama, *M. Ricardi et al. 350*, 13 May 1972 (CONC); camino de San Pedro de Atacama a Calama, altura km 31, *M. Ricardi et al. 400*, 15 May 1972 (CONC); camino de San Pedro de Atacama a Calama, altura km 58, *M. Ricardi et al. 410*, 15 May 1972 (CONC). XV Región-Arica y Parinacota: Provincia de Arica, FFCC de Arica a la Paz, km. 108–106, *M. Ricardi 3519*, 21 September 1955 (CONC). Provincia de Parinacota, Tignamar, *F. Schlegel 4886*, 11 September 1963 (CONC).

20. *Atriplex heterosperma* Bunge, Beitr. Fl. Russl. 272 (1852)

Atriplex hastata var. *heterosperma* (Bunge) Regel ex Iljin, *Fl. Iugo-Vost.* 4: 161 (1930); *Atriplex hortensis* subsp. *heterosperma* (Bunge) Meijden, *Gorteria* 4(6/8): 105 (1968).

Type: Russia, ‘An salzhaltigen Flecken in der nördlichen Steppe zwischen Busuluk und Uralsk’, 29 August 1840, *A. Lehmann s.n.* (holo: LE barcode 01013813, photo!)

Morphological notes

The epithet ‘heterosperma’ refers to the two types of seeds in this taxon: larger seeds, with brown, smooth, thin integument (Fig. 1D), and smaller seeds, with black, tuberculate, integument.

Iconography

Frankton and Bassett (1968), p. 1311, fig. 2a, b; Múlgura de Romero (1982), p. 55, fig. 2.

Distribution

Atriplex heterosperma is native to the Russian steppes, being adventive in South America (only in Argentina). It is distributed in Buenos Aires, La Pampa, Mendoza and Río Negro provinces (Del Espinal, Del Monte and Pampeana biogeographic provinces; Fig. 3).

Specimens examined

ARGENTINA. Buenos Aires: Partido Adolfo Alsina, Gorriti, *J.C. Gamarro 233*, 25 April 1953 (SI); Partido Avellaneda, Isla Maciel, *A. Burkart 1325*, 30 April 1927 (SI); Partido Bahía Blanca, Región de Bahía Blanca, *J.F. Molino 80583*, January 1940 (SI); Partido Tigre, Tigre, *A.E. Lanfranchi 646*, 13 March 1947 (SI). La Pampa: Departamento Utracán, Utracán, *H.O. Troiani & P.E. Steibel 4204*, 16 March 1976 (SI); Departamento Caleu Caleu, Río Colorado, cerca del pueblo, *F.A. Roig 5839*, 5 April 1968 (MERL). Mendoza: Departamento Lavalle, Tocolí, *G. Covas 15023*, 5 February 1946 (SI). Río Negro: Departamento General Roca, Allen, a orillas de canales y lugares inundables, *A. Ruiz Leal 26781*, 5 January 1970 (MERL).

21. *Atriplex hortensis* L., Sp. Pl. 2: 1053 (1753)

Type: ‘Sheet N° 1 marked ‘*Atriplex hortensis*’ in Hortus Siccus Cliffortianus’, *G. Clifford s.n.* (lecto: BM barcode

000647538, photo! designated by Bassett *et al.* (1983, p. 20); isolecto: BM barcode 000647539, photo!).

Morphological notes

This is the type species of the genus *Atriplex*. The distinctive characteristic is the dimorphic pistillate flowers: some flowers ebracteate with five-lobed perianth, and fruits with horizontal seed; and some others without a perianth, but with two rounded bracteoles, and vertical seed in the fruit.

Iconography

Múlgura de Romero (1982), p. 52, fig. 1; Bassett *et al.* (1983), p. 22, fig. 3; Rosas (1989), p. 62, fig. 26.

Distribution

Atriplex hortensis is native to Asia, and is now widely naturalised throughout the world. It grows as an adventive species in Argentina (Buenos Aires, Chubut, Córdoba, La Rioja, Mendoza, Neuquén and Salta provinces) and in Metropolitan Región-Santiago in Chile (Chilena, Del Espinal, Del Monte, Pampeana, Patagónica and Prepuneña biogeographic provinces; Fig. 3).

Specimens examined

ARGENTINA. Buenos Aires: Partido La Plata, La Plata, Facultad de Agronomía, campo de horticultura, *A. Burkart 17816*, 18 January 1950 (SI). Chubut: Departamento Futaleufú, Esquel, *A. Krapovickas 3988*, 10 January 1948 (SI). Córdoba: Departamento Punilla, La Cumbre, *A. Burkart 20394*, 20 February 1957 (SI). La Rioja: Departamento Vinchina, Jagüe, *A. Burkart 12302*, 22 February 1941 (SI). Mendoza: Departamento Capital, Facultad de Ciencias Agrarias, *A. Ruiz Leal 15808*, December 1952 (MERL); Departamento Godoy Cruz, Gobernador Benegas, *A. Ruiz Leal 9978*, 22 February 1945 (MERL); Departamento General Alvear, cerca de Alvear, *leg. ign. 15732*, May 1931 (SI); Departamento Guaymallén, en calles rurales, *A. Dalla Torre 5495*, 5 December 1938 (MERL). Neuquén: Departamento Chos Malal, Chos Malal, *A.L. Cabrera 34156*, 19 March 1984 (SI). Río Negro: *s. loc.*, *W. Fischer 259*, 18 January 1915 (SI); Departamento General Roca, Fuerte General Roca, *C.A. O'Donnell 1984*, 11 December 1944 (LIL). Salta: Departamento Cachi, Valle de Tronco, *L.A. Marmol 223*, 15 November 1990 (MCNS). CHILE. Metropolitan Región-Santiago: Provincia Chacabuco, Batuco, *B. Sparre 10962*, 4 November 1954 (CONC); *M. Rosas 310*, 23 January 1985 (CONC); Batuco, frente a la radioestación, *O. Matthei & M. Quezada 594*, 15 November 1987 (CONC).

22. *Atriplex hystrix* Phil., Anales Univ. Chile 91: 424 (1895)

Obione hystrix (Phil.) Ulbr., *Nat. Pflanzenfam.*, ed. 2. 16c: 508 (1934).

Type: Chile, Caldera, September 1876, *R. A. Philippi s.n.* (holo: SGO barcode 000001599, photo!; iso: SI barcode 001271! fragment).

Atriplex mucronata Phil., *Fl. Atacam.* 47 (1860) *nom. illeg., non Raf.* (1817); *Obione mucronata* Ulbr., *Nat. Pflanzenfam.*, ed. 2. 16c: 508 (1934).

Type: Chile, ‘Cachinal de la Costa, 1700 p.s.m. [~518.1 m above sea level]’, *R.A. Philippi. s.n.* (holo: SGO barcode 000001610, photo!; iso: SI barcode 001273! fragment).

Nomenclatural notes

Rosas (1989) used the name *A. mucronata* Phil. for this taxon, but this is an illegitimate later homonym of *A. mucronata* Raf. The correct name to use is *A. hystrix* Phil. Additionally, Rosas designated an unnecessary lectotype for *A. mucronata*, because there is only one specimen mentioned by Philippi (housed in SGO), with a fragment (an isotype) at SI.

Iconography

Rosas (1989), p. 45, fig. 17.

Distribution

Atriplex hystrix is endemic to the III Region-Atacama in Chile (Del Desierto biogeographic province; Fig. 2).

Specimens examined

CHILE. III Región-Atacama: Provincia Chañaral, 5 km N de Chañaral, *M. Rosas 456*, 10 February 1985 (CONC). Provincia Copiapó, Camino de Copiapó a Caldera, km 37, cerca de Punta Picaso, *C. Marticorena et al. 1856*, 24 October 1971 (CONC); km 58, orilla del camino, *M. Rosas 627*, 10 September 1985 (CONC); Valle de Copiapó, *F. Schlegel 6002*, 24 July 1967 (CONC); Quebrada El León, al N de Caldera, *M. Rosas 586*, 18 February 1985 (CONC). Provincia Huasco, Carrizal Alto, *M. Ricardi 2273*, 30 September 1952 (CONC); camino de Carrizalillo a Domeyko, km 14, *C. Marticorena et al. 1815*, 23 October 1971 (CONC); Vallenar, *E. Werdermann 384*, 21 November 1923 (SI).

23. *Atriplex imbricata* (Moq.) D.Dietr., *Syn. Pl.* 5: 536 (1852) var. *imbricata*

Obione imbricata Moq., in A.P. de Candolle (ed.), *Prodr.* 13(2): 108 (1849).

Type: Bolivia, *A. D’Orbigny s.n.* (holo: P – not found; iso: photo ser. Field. Mus. 40100!).

Atriplex microphylla Phil., *Fl. Atacam.* 222 (1860), *nom. illeg., non Willd.* (1805).

Type: Chile, Desierto de Atacama, *F. Philippi s.n.* (lecto: SGO barcode 000001608, photo! designated by Múlgura de Romero (1981, p. 133), corrected from ‘typus’; isolecto: SI barcode 001315! fragment).

Atriplex axillaris Phil., *Anales Mus. Nac. Santiago de Chile*: 73 (1891), *nom. illeg., non Ten.* (1815).

Type: Chile, Caishape, February 1885, *F. Philippi s.n.* (lecto: SGO barcode 000001584, photo! designated by Múlgura de Romero (1981, p. 133), corrected from ‘typus’; isolecto: SGO barcode 000001585, photo!; SI barcode 001260! fragment).

Atriplex salaris Phil., *Anales Mus. Nac. Santiago de Chile*: 74 (1891).

Type: Chile, ‘Ad Salinas’ (?SGO – not seen).

Nomenclatural notes

Philippi (1860) cited several different locations in the protologue of *A. microphylla*: Cerro Pingo Pingo, Tilopozo, Puquios and Barrancas Blancas. We found only one specimen from Cerro

Pingo Pingo (SGO barcode 000001609) that agrees with the original description of this taxon, and it is considered a remaining syntype.

Rosas (1989, p. 37) mentioned that the type of *A. salaris* has been lost. We were unable to locate any type material for this taxon. The inclusion of *A. salaris* in synonymy of *A. imbricata* var. *imbricata* is based on the original description, because we were unable to locate any type material for this name.

Iconography

Múlgura de Romero (1981), p. 131, fig. 3i–p; Rosas (1989), p. 38, fig. 14.

Distribution

Atriplex imbricata var. *imbricata* has wide distribution in north-western Argentina, southern Bolivia (Puneña biogeographic province) and in Chile and Peru, in Del Desierto biogeographic province (Fig. 2).

Specimens examined

ARGENTINA. Catamarca: Departamento Antofagasta de la Sierra, Antofagasta de la Sierra, *A.L. Cabrera et al. 32563*, 26 February 1981 (MERL). Salta: Departamento Los Andes, camino a Tincalayo, 20 km S del Salar de Puestos Grandes, *L. Novara et al. 5745*, 3 December 1965 (MCNS); Salar de Arizaro, 70–80 km S de RP 27, 3–5 km S del Cono de Arita, *J.A. Tolaba et al. 4693*, 19 April 2007 (CTES); Salar del Hombre Muerto, *A.L. Cabrera et al. 31827*, 18 February 1980 (SI); Santa Rosa de los Pastos Grandes, Campos de la Paciencia, *A.L. Cabrera 8772*, 15 February 1945 (SI); Ruta 59, Salar de Pocitos, *A.L. Cabrera et al. 31810*, 18 February 1980 (SI). CHILE. I Región-Tarapacá: Provincia del Tamarugal, Quebrada de la Chacarilla, 85 km SE de Pica, *J. Hunziker 9837*, 2 February 1981 (SI). II Región-Antofagasta: Provincia Antofagasta, camino Caleta El Cobre–Paposo, *R. Rodríguez 3102*, 13 November 1996 (CONC). Provincia El Loa, camino de San Pedro de Atacama a Paso Jama, *M. Arroyo et al. 97095*, 4 April 1997 (CONC); camino a Quimal, *M. Arroyo et al. 97875*, 20 April 1997 (CONC); a la entrada del Salar de Carcote, *R. Rodríguez 3250*, 26 November 1996 (CONC); camino de Salar de Imilac a Estación Monturaqui, *R. Rodríguez & E. Ruiz 3564*, 1 May 1997 (CONC). III Región-Atacama: Provincia Chañaral, cercanías de El Salvador, *M. Rosas 471*, 10 February 1985 (CONC); Provincia Huasco, Vallenar, *E. Werdermann 1003*, 2 December 1923 (SI). Metropolitan Región-Santiago: Provincia Chacabuco, Batuco, *E. Werdermann 995*, 1 December 1928 (SI). BOLIVIA. Departamento Potosí: Provincia Nor Lipez, cerca del sur del salar de Uyuni, Aquaquiza, Gruta de Galaxias, *S.G. Beck 32398*, 22 September 2006 (SI). PERÚ. Departamento Arequipa: Provincia Islay, parte baja del cerro San Andrés, a 200 m de la carretera hacia Matarani, *V. Quipuscoa & C. Tejada 5246*, 25 November 2012 (HSP).

24. *Atriplex imbricata* var. *foliolosa* Rosas, *Gayana, Bot.* 46: 39 (1989)

Atriplex foliolosum Phil., *Bot. Zeitung (Berlin)* 28: 500 (1870), *nom. illeg., non Link* (1800); *Atriplex sanambrosiana* Sparre, *Lilloa* 20: 267 (1949).

Type: Chile, Insula San Ambrosio, 1869, *Simpson s.n.* (lecto: SGO barcode 000001594, photo! designated by Rosas (1989, p. 39); isolecto: SGO barcode 000001593, photo!; SI barcode 001269! fragment).

Morphological notes

Atriplex imbricata var. *foliolosa* differs from the type variety by its decumbent habit, smaller leaves and larger fruiting bracteoles.

Iconography

Horst (1949), p. 12, fig. 4; p. 13, fig. 5; Skottsberg (1963), p. 467, fig. 2, Taf. IV, Taf. V, 3.

Distribution

Atriplex imbricata var. *foliolosa* is a very restricted taxon endemic to San Ambrosio Island, from the Desventuradas Islands group, in western Chile (Fig. 2).

Specimens examined

We were able to study only the type specimens.

25. *Atriplex lampa* (Moq.) D.Dietr., *Syn. Pl.*
5: 536 (1852)

Obione lampa Moq., in A.P. de Candolle (ed.), *Prodr.* 13(2): 110 (1849); *Atriplex lampa* (Moq.) Gillies ex Small., *Fl. S.E. USA*, ed. 2, 1333 (1913).

Type: Argentina, 'Mendoza et San Luis', *J. Gillies s.n.* (lecto: E barcode 00296893, photo! designated here; isolecto: K barcodes 000583221, photo!; 000583222, photo!; 000583223, photo!).

Atriplex ceratophylla Kuntze, *Revis. Gen. Pl.* 3(3): 266 (1898).

Type: Argentina, Río Salado, Patagonia, *E.P. Moreno y Tonini* 375 (holo: ?LP — not found; iso: NY barcode 00324296, photo! fragment ex LP?).

Nomenclatural notes

Three of the original specimens of *Atriplex lampa* (*J. Gillies s.n.*) are housed in K, and one in E. We selected as lectotype E barcode 00296893, as it is the most complete.

The isotype of *A. ceratophylla*, housed in NY, has an original label with the legend 'Museo de La Plata' (LP herbarium). We assume that the holotype may be housed in LP, but the staff of that herbarium could not find the specimen, which is probably lost.

Morphological notes

One of the characteristics of *A. lampa* is the induplicate leaf blades.

Iconography

Cabrera (1939), p. 15, fig. 18d; Múlgura de Romero (1981), p. 127, fig. 2.

Distribution

Atriplex lampa has a wide distribution in north-western and southern Argentina (Chaqueña, Del Espinal, Del Monte, Patagónica, Prepuneña and Puneña biogeographic provinces; Fig. 5).

Specimens examined

ARGENTINA. Catamarca: Departamento Andalgalá, Mollecito, 20 km S de Andalgalá, *H.H. Bartlett* 20237, 23 May 1943 (SI). Chubut: Departamento Escalante, Comodoro Rivadavia, *A. Soriano* 1547, 21 February 1945 (SI); Departamento Languiñeo, Ruta 12 pasando Paso del Sapo hacia Paso del Indio, *F. Biganzoli & C. Larsen* 1919, 31 October 2008 (SI). Córdoba: Departamento Tulumba, entre San José de las Salinas y Las Cañas, *A.E. Ragonese* 6085, 20 November 1947 (SI). La Pampa: Departamento Lihuel Calel, Salitral Lavalle, *E.R. Guaglianone* 783, 19 October 1979 (SI). La Rioja: Departamento Chamental, Chamental, *G. Martínez* 971, 12 October 1962 (SI). Mendoza: Departamento Las Heras, camino a Villavicencio, *A.F. Wulff et al.* 1001, 13 February 2006 (SI). Neuquén: Departamento Zapala, RN 22 al E de Zapala, *F.O. Zuloaga et al.* 14986, 27 November 2014 (SI). Río Negro: Departamento Avellaneda, cerca de Chelforó, *A. Burkart* 15921, 15 February 1948 (SI); Departamento San Antonio, camino Viedma, 25 km E of San Antonio, *W.J. Eyerdam et al.* 23498, 19 December 1938 (SI). Salta: Departamento Rosario de Lerma, Santa Rosa de Tastil, *O.G. Martínez* 441, 12 February 1997 (MCNS). San Juan: Departamento Iglesia, camino a Angualasto, *M.E. Múlgura & N. B. Deginani* 193, 27 November 1980 (SI). San Luis: Departamento La Capital, Ruta 7 km 813, *M.E. Múlgura* 11, 28 April 1978 (SI). Santa Cruz: Departamento Tehuelches, *s. loc.*, *A. Donat* 175, 6 October 1929 (SI). Tucumán: Departamento Tafi del Valle, Colalao del Valle, médanos vecinos al Río Santa María, *J. Morello* 1261, 28 May 1949 (SI).

26. *Atriplex leuca* Phil., *Anales Univ. Chile* 91: 428 (1895)

Type: Chile, Bandurrias, near Chañarcillo, 1886, *G. Geisse s. n.* (lecto: SGO barcode 000001603, photo! designated by Rosas (1989, p. 40); isolecto: GH barcode 00295607, photo!; SGO barcodes 000001600, photo!; 000001601, photo!; 000001602, photo!).

Atriplex densifolia Phil., *Anales Univ. Chile* 91: 428 (1895).

Type: Chile, Chañarcillo in provincia Atacama, October 1874 (holo: SGO barcode 000001591, photo!; iso: SI barcode 001266! fragment).

Iconography

Rosas (1989), p. 41, fig. 15.

Distribution

Atriplex leuca is recorded for IV Region-Coquimbo in Chile (Rosas 1989), reaching the south of III Region-Atacama (Del Desierto biogeographic province; Fig. 5). According to Rosas (1989), *A. leuca* is a rare species, with only one collection other than the type specimen.

Specimens examined

CHILE. III Región-Atacama: Provincia Huasco, 5 km S de Vallenar, *M. Ricardi & C. Marticorena* 4865, 9 October 1958 (CONC).

27. *Atriplex lithophila* A.Soriano ex Múlgura, *Hickenia*
1(36): 199 (1979)

Type: Argentina, Mendoza, Las Heras, Cerro de la Cal, 3 September 1978, *F.A. Roig* 9543 (holo: SI barcode 001272!; iso: K barcode 000583224, photo!; MERL 37509, photo!).

Nomenclatural notes

A paratype of this name (*F.A. Roig 9544*) is housed in SI (barcode 068400).

Morphological notes

This species can be confused with *A. spegazzinii*, but that taxon has curled leaves, not as flat as *A. lithophila*.

Iconography

Múlgura de Romero (1979), p. 200, fig. 1.

Distribution

Atriplex lithophila inhabits La Rioja, Mendoza, San Juan and San Luis provinces in Argentina. It is very frequent in salty soils of the Del Monte biogeographic province (Fig. 2).

Specimens examined

ARGENTINA. La Rioja: Departamento Rosario Vera Peñaloza, Salina de Mascasin, *B.C. Piccinini & A. Leguizamón 1725*, 7 November 1970 (SI). Mendoza: Departamento Las Heras, Cerro de La Cal, *F.A. Roig 9544*, 3 September 1978 (SI); Uspallata, sobre el Río Mendoza, *F.A. Roig 7983*, 10 September 1969 (SI); Departamento Luján de Cuyo, Potrerillos, *R. Sanzin 36*, 25 July 1913 (SI). San Juan: Departamento Angaco, Sierra de Pie de Palo, camino al Mogote de los Corralitos, *R. Kiesling et al. 4820*, 23 November 1984 (SI); Departamento Calingasta, Hilario, Mina Don Juan, *F.A. Roig 9474*, 16 May 1978 (SI); Tamberías, *R. Kiesling et al. 6797*, 15 February 1988 (SI); Departamento Jáchal, Quebrada de Jáchal, *A.L. Cabrera et al. 31211*, 14 December 1979 (SI); Departamento Ullúm, Alto de las Burras, *A.L. Cabrera et al. 31072*, 8 December 1979 (SI); de Talacasto a Alto del Colorado, *R. Kiesling & A.A. Saenz 4235*, 17 November 1982 (SI); Departamento Valle Fértil, Ischigualasto, *F.A. Roig 8039*, 13 April 1974 (SI); *M.E. Múlgura et al. 905*, 19 December 1987 (SI). San Luis: Departamento Belgrano, Sierra de las Quijadas, El Mirador, *L.A. Del Vitto et al. 6507*, 19 May 1992 (SI); 3 km desde Hualtarán hacia El Mirador, *L.A. Del Vitto et al. 6561*, 12 May 1992 (SI).

28. *Atriplex madariagae* Phil., *Anales Mus. Nac. Santiago de Chile* 2, 8: 73 (1891)

Type: Chile, Región de Tarapacá, Chacarilla, March 1885, *C. Rahmer s.n.* (lecto: SGO barcode 000001604, photo! designated by Rosas (1989, p. 42); isolecto: SGO barcode 000001607, photo!).

Nomenclatural notes

Philippi cites specimens collected by C. Rahmer and F. Philippi in the protologue. We found two Philippi specimens in SGO (barcodes 000001605 and 000001606), and a fragment of another syntype, *Philippi s.n.* (SGO 38837) housed at SI (barcode 001316). The specimen from SGO could not be found.

Iconography

Rosas (1989), p. 43, fig. 16.

Distribution

Atriplex madariagae is a well known species from northern Chile, in I Region-Tarapacá, II Region-Antofagasta and XV

Region-Arica y Parinacota (Del Desierto biogeographic province, Fig. 2).

Specimens examined

CHILE. I Región-Tarapacá: Provincia Iquique, Quebrada Seca, camino de Huara a Colchane, *C. Villagran et al. 9000*, 2 September 1997 (CONC); Pozo Almonte, Quebrada Sipuca, *S. Teillier 4794*, 7 July 2000 (CONC); camino de Huara a Pachica, cerca de Huara, *M. Ricardi et al. 348*, 2 April 1961 (CONC); Mamiña, *A. Pfister s.n.*, 12 January 1950 (CONC); desembocadura del Río Loa, entre la carretera y el mar, *M. Rosas 2417*, 5 May 2005 (CONC); Provincia del Tamarugal, Huara, 5 km S, *M. Rosas 652*, 16 September 1985 (CONC). II Región-Antofagasta: Provincia Antofagasta, Quebrada La Chimba, *H.C. Martin 605*, 20 September 1940 (SI); Provincia El Loa, entrada a Calama, lado del camino, *M. Baeza et al. 347*, 13 May 1997 (CONC); Salar de Atacama, frente a Peine, *G. Arancio 92225*, 15 March 1992 (CONC). XV Región-Arica y Parinacota: Provincia Arica, Quebrada de Cuya, *M. Ricardi 45*, 15 February 1969 (CONC); Quebrada Camarones, *A. Bravo 46*, 9 July 1967 (CONC).

29. *Atriplex mendozaensis* Speg., *Comun. Mus. Nac. Buenos Aires* 1: 348 (1901)

Type: Argentina, Mendoza, Mendoza–Villavicencio road, 23 February 1901, *C. Spegazzini s.n.* (lecto: LP barcode 003110, photo! designated here).

Nomenclatural notes

Two syntypes were located in LP. We selected LP barcode 003110 as the lectotype of this name is annotated as '*Atriplex mendozaensis*' in Spegazzini's hand, and locality data agreeing with that cited in the original description. There is no certainty that LP barcode 003111 is a duplicate of LP barcode 003110, because the label only says 'Mendoza' and 'Feb. 1901'.

Iconography

Spegazzini (1901) Lám. 7, figs 17–20; Múlgura de Romero (1981), p. 143, fig. 6.

Distribution

Atriplex mendozaensis is endemic to northern Mendoza province, Argentina, in salty soils (Del Monte biogeographic province; Fig. 2).

Specimens examined

ARGENTINA. Mendoza: Departamento Capital, Parque de la Ciudad, *C. Spegazzini 68384*, 20 February 1901 (SI); Mendoza, *C. Spegazzini 68385*, February 1901 (SI); Departamento La Paz, Mendoza, Ruta 7, km 913, *M.E. Múlgura 7*, 28 April 1978 (SI); Departamento Las Heras, Uspallata, *F.A. Roig 7987*, 10 September 1968 (SI); al pie del Cerro La Cal, *C.B. Passera s.n.*, 6 December 1984 (MERL); Departamento Lavalle, 5 km E de Lavalle (Villa Tulumaya), *H.H. Bartlett 20580*, 3 July 1943 (SI); Departamento Maipú, Fray Luis Beltrán, proximidades de la laguna Los Álamos, *J.A. Ambrosetti & L.A. Del Vitto 29005*, 20 July 1977 (MERL).

30. *Atriplex montevidensis* Spreng., *Syst. Veg.* 3: 918 (1826)

Obione montevidensis (Spreng.) Moq., in A. P. de Candolle (ed.), *Prodr.* 13(2): 113 (1849).

Type: Uruguay, Montevideo, *F. Sellow s.n.* (lecto: P barcode 04602534, photo! designated here).

Atriplex grisebachii Kurtz ex Gand., *Bull. Soc. Bot. France* 54: 585 (1907).

Type: Argentina, Córdoba, San Justo, Sacanta, November 1900, *T. Stuckert 9933* (lecto: CORD barcode 00002364! designated here).

Atriplex montevidensis f. *conferta* Hicken, *Physis (Buenos Aires)* 4: 301 (1918).

Type: Argentina, San Luis, Alto Pencoso, February 1914, *C. Bruch y E. Carrette 15* (lecto: SI barcode 001314! designated here).

Nomenclatural notes

We found in P all three collections cited in the protologue of *A. montevidensis*: Montevideo (*F. Sellow s.n.*, P barcode 04602534), Brasil – Río Grande (*C. Gaudichaud 2*, P barcode 04602535) and Peru (*J.A. Pavon s.n.*, P barcode 04930120). We have selected the Sellow specimen as lectotype, because it is annotated as ‘type’, and it has another label with original drawings of the fruiting bracteole and seed by Sellow.

In the protologue of *A. grisebachii*, the following five Stuckert specimens are cited, collected from different locations in Córdoba province: Río Cuarto, 9 December 1905 (15248); Córdoba, 29 November 1901 (10291); San Justo, April 1899 (7079 and 9933); Río Segundo a Villa del Rosario, 12 November 1902 (11985); and another one in La Rioja, November 1905 (15190). *Stuckert 15190* from La Rioja is *A. cordubensis* subsp. *cordubensis*, not *A. montevidensis*, because it has oblong leaves with an obtuse apex and sinuate margin, and fruiting bracteoles dorsally smooth, characters corresponding to *A. cordubensis* subsp. *cordubensis*. We selected as lectotype *Stuckert 9933* (CORD barcode 00002364) as it is the most complete of the available syntypes.

Hicken (1918) cited *Scala 14* and *Bruch y Carrete 15* in the protologue of *A. montevidensis* f. *conferta*. We were unable to locate *Scala 14* in LP, and have selected *Bruch y Carrete 15* (SI barcode 001314) as lectotype as it is the only extant type material available.

Morphological notes

Atriplex montevidensis is related to *A. pamparum*, sharing an herbaceous habit, linear-lanceolate leaves, and fruiting bracteoles with a dentate distal margin and dorsal crests. *Atriplex montevidensis* differs in its narrower leaves and larger, broader fruiting bracteoles.

Iconography

Bettfreund (1898), p. 60, fig. 43, under *Obione montevidensis*; Cabrera (1939), p. 16, fig. 8c; Múlgura de Romero (1984), p. 247, fig. 6.

Distribution

Atriplex montevidensis is one of the most widespread species of *Atriplex* in South America; it is distributed mainly in north and central Argentina and also occurs in Bolivia, Paraguay and

Uruguay (Chaqueña, Del Espinal, Del Monte, Pampeana and Punaña biogeographic provinces; Fig. 5).

Specimens examined

ARGENTINA. Buenos Aires: Partido Guaminí, Guaminí, Isla del Monte, Laguna del Monte, *E.G. Nicora 4149*, 18 January 1946 (SI). Chaco: Departamento San Fernando, Ruta 16, 4 km del puente General M. Belgrano, *A. Schinini 16030*, 23 November 1978 (SI). Chubut: Departamento Paso de Indios, entre Las Plumas y Los Altares, *A. L. Cabrera et al. 33276*, 19 December 1981 (SI). Córdoba: Departamento Tulumba, Salinas Grandes, Ruta 60, km 907, *A. Soriano 757*, 21 November 1944 (SI). Corrientes: Departamento Lavalle, 2 km N de Cerrito, sobre ruta 152, *A. Schinini et al. 19012*, 23 November 1979 (SI). Entre Ríos: Departamento Gualaguaychú, 2–3 km N de Ceibas, *N. Troncoso et al. 2634*, 12 November 1979 (SI). Formosa: Departamento Patiño, Fortín Leyes, *E.R. Guaglianone et al. 627*, 12 January 1980 (SI). Jujuy: Departamento Santa Bárbara, RP 1, de Aguas Calientes a El Piquete, Laguna San Miguel, *F.O. Zuloaga et al. 2833*, 14 December 1986 (SI). La Pampa: Departamento Maracó, Gral Pico, *A. Burkart 9807*, 9 November 1939 (SI). La Rioja: Departamento Chamental, Ruta 79, entre Chamental y Olta, a 3 km de Chamental, *F. Biurrin et al. 7229*, 11 February 2002 (SI). Mendoza: Departamento Santa Rosa, km 952, camino de Desaguadero a Mendoza, *E.G. Nicora 4265*, 29 January 1946 (SI). Río Negro: Departamento Avellaneda, Ruta 250, 126 km antes de llegar a General Conesa, *N. Bacigalupo & E. G. Nicora 11679*, 7 November 1972 (SI). Salta: Departamento Cerrillos, Ruta Prov. 26, km 15, pasando Santa Helena, 1 km antes fin de pavimento, *J.A. Tolaba 3481*, 28 February 2004 (MCNS). San Luis: Departamento Junín, Santa Rosa, *A. Burkart 13954*, 29 January 1944 (SI). Santa Fe: Departamento Castellanos, RN 34, próximo al INTA en FFCC, *J. Pensiero et al. 3878*, 25 November 1991 (SI). Santiago del Estero: Departamento Gral Taboada, Añatuya, *A. Soriano 555*, 27 January 1944 (SI). BOLIVIA. Departamento La Paz: Provincia Murillo, La Paz, Cota Cota, Campo Universitario, *S.G. Beck 11128*, 23 February 1985 (SI). PARAGUAY. Departamento Central: Estero del Ypoá, Puerto Guyratí sobre el Río Paraguay, *E.M. Zardini & L. Guerrero 36356*, 22 June 1993 (SI); Departamento Presidente Hayes, entre Río Aguará-Guazú y Cerrito, *E.M. Zardini & L. Guerrero 40323*, 30 July 1994 (SI). URUGUAY. Departamento Montevideo, Montevideo, *B.M. Berro 2329*, March 1900 (SI). Departamento Río Negro, Estancia Nueva Mehlem, *O. Del Puerto 5825*, 30 December 1965 (SI).

31. *Atriplex myriophylla* Phil., *Anales Mus. Nac. Santiago de Chile* 2, 8: 74 (1891)

Obione myriophylla (Phil.) Ulbr., in A. Engler *et al.* (eds), *Nat. Pflanzenfam.*, ed. 2. 16c: 508 (1934).

Type: Chile, Vegas del Diablo, January 1885, *R.A. Philippi s.n.* (lecto: SGO barcode 000001612, photo! designated by Múlgura de Romero (1984, p. 250); isolecto: GH barcode 00037163, photo!).

Obione pusilla Wedd., *Chlor. andina* 2: tab. 90 (1858–61), *nom. inval.*, *nom. nud.*

Atriplex pusilla Phil., *Anales Mus. Nac. Santiago de Chile* 2, 8: 73 (1891), *nom. illeg.*, *non* S. Watson (1874).

Type: Bolivia, Potosí, Calcalhuay, January 1886, *C. Rahmer s.n.* (lecto: SGO barcode 000001620! designated here; isolecto: LP barcode 003096, photo! fragment; SI barcode 001281! fragment).

Atriplex cristata var. *pulvinata* Kuntze, *Revis. Gen. Pl.* 3(3): 266 (1898).

Type: Bolivia, Oruro, 4000 m, 14 March 1892, *C.E.O. Kuntze s.n.* (holo: NY barcode 01404780, photo!; iso: SI barcode 001265! fragment)

Atriplex cristata var. *depauperata* Kuntze, *Revis. Gen. Pl.* 3(3):266 (1898).

Type: Bolivia, Cochabamba, 2600 m, March 1892, *C.E. O. Kuntze s.n.* (holo: NY barcode 01404781, photo!; iso: SI barcode 001263! fragment).

Atriplex andina R.E.Fr., *Nova Acta Regiae Soc. Sci. Upsal. ser.* 4, 1(1): 157 (1905).

Type: Argentina, Jujuy, Moreno, loco salso, 3500 m, 15 November 1901, *R. E. Fries 780* (holo: S 16-20848, photo!).

Atriplex lilloi Hauman, *Anales Mus. Argent. Ci. Nat. 'Bernardino Rivadavia.'* 32: 84 (1923), *nom. inval.*, *nom. nud.*; *Anales Mus. Nac. Hist. Nat. Buenos Aires* 32: 425 (1923).

Type: Argentina, Jujuy, Yaví, La Quiaca, February 1916, *L. Hauman s.n.* (holo: BA 27/1096!; iso: BAA barcode 00004352!, fragment).

Atriplex herzogii Standl., *Publ. Field Mus. Nat. Hist., Bot. Ser.* 11: 125 (1931); *Atriplex serpyllifolia* Herzog, *Meded. Rijks-Herb.* 27: 11 (1915), *nom. illeg.*, *non* Bunge (1877).

Type: Bolivia, Cerro de Oruro, November 1911, *T. Herzog 2520* (holo: L barcode 0038802, photo!).

Nomenclatural notes

Rosas (1989) lectotypified *A. myriophylla*, but this designation is superfluous, because the specimen selected as lectotype by Rosas had already been designated by Múlgura de Romero (1984). We found two syntypes of *A. pusilla* in SGO, and we select as lectotype SGO barcode 000001620 because it is the most complete, and the isolectotype, a fragment housed in SI, also has an illustration. A remaining syntype is SGO barcode 000001619.

Iconography

Múlgura de Romero (1984), p. 251, fig. 7; Rosas (1989), p. 47, fig. 18.

Distribution

Atriplex myriophylla inhabits the Puneña biogeographic province (Fig. 2) in Argentina, Bolivia, and Chile (Rosas 1989). It is also recorded by Rosas (1989) as occurring Peru, but we were not able to examine any specimens from that country.

Specimens examined

ARGENTINA. Catamarca: Departamento Belén, Laguna Blanca, Cerro La Angostura, *A.L. Cabrera et al. 32515*, 25 February 1981 (SI); Departamento Tinogasta, de Paso de San Francisco a Fiambalá, *F. O. Zuloaga et al. 12897*, 14 February 2011 (SI). Jujuy: Departamento Susques, Ruta 16 hacia Paso de Jama, a 45 km de Susques, *M.E. Múlgura et al. 1258*, 16 March 1994 (SI); Departamento Yaví, alrededores de La Quiaca, *J. Hunziker & O. Caso 6080*, 13 February 1953 (SI). La Rioja: Departamento Vinchina, Peñoncito, precordillera, en la quebrada del Río del Peñón, *J. Hunziker H 2129*, 2 February 1947 (SI); Departamento Lamadrid, Ruta Provincial 76, de Punta de Agua a Laguna Brava, *F. O. Zuloaga et al. 13766*, 24 January 2012 (SI). Salta: Departamento Los Andes, Abra de Navarro, *A.L. Cabrera et al. 31806*, 16 February 1980

(SI). San Juan: Departamento Calingasta, alrededores de Observatorio El Leoncito, *E.R. Guaglianone et al. 2336*, 4 April 1989 (SI); Departamento Iglesia, Reserva de San Guillermo, Puesto Agua del Godo, *E.G. Nicora et al. 8464*, 13 January 1983 (SI). BOLIVIA. Departamento La Paz: *s. loc.*, *O. Buchtien 514*, 14 December 1918 (SI). Departamento Oruro: Provincia Cercado, 10 km desde Oruro hacia Caracollo, *S.G. Beck 14369*, 4 December 1987 (SI). Departamento Potosí: Provincia Antonia Quijarro, Uyuni, *C.M. Hicken s.n.*, 23 February 1903 (SI).

32. *Atriplex nitrophiloides* Soriano ex Múlgura, *Darwiniana* 25: 238 (1984)

Type: Bolivia, Potosí, Uyuni, 23 February 1903, *C.M. Hicken s.n.* (holo: SI barcode 001274!).

Morphological notes

Atriplex nitrophiloides is close to *A. myriophylla*, with both inhabiting the Puneña biogeographic province, but it differs from *A. myriophylla* because of the opposite, decussate, ovate leaves, and elliptic fruiting bracteoles (*A. myriophylla* has alternate leaves, and orbicular or rhombic fruiting bracteoles).

Iconography

Múlgura de Romero (1984), p. 239, fig. 1.

Distribution

Atriplex nitrophiloides is a poorly collected species, growing in salty soils of Jujuy and Salta provinces, in Argentina, and in Bolivia, in La Paz, Oruro and Potosí departments (Puneña biogeographic province; Fig. 5)

Specimens examined

ARGENTINA. Jujuy: Departamento Rinconada, Laguna de Pozuelos, *N. B. Deginani et al. 605*, 10 February 1995 (SI). Salta: Departamento Los Andes, San Antonio de los Cobres, *A.L. Cabrera 91a*, 24 January 1949 (BAB). BOLIVIA. Departamento La Paz: Provincia Pacajes, Corocoro, *A. Ceballos et al. 155*, February 1979 (SI). Departamento Oruro: Provincia Avaroa, planicie salina a 10 km de Challapata, antes de Oruro, *E. García et al. 597*, 4 October 1985 (SI); Provincia Cercado, 31 km hacia la Barca (Huancaroma) Valle salado del Río Desaguadero, *S. G. Beck 981*, 1 April 1979 (SI); salida de Caracollo hacia Oruro, *A. Ceballos et al. 202*, February 1979 (SI); Provincia Ladislao Cabrera, aproximadamente 10 km E de Salinas de Garci Mendoza, *S. G. Beck 11826*, 1 March 1986 (SI); Provincia Sajama, ladera N-E del nevado Sajama, en área salina, cerca del Río Tomarapi, *M. Liberman 362*, 9 May 1981 (SI).

33. *Atriplex nummularia* Lindl., *J. Exped. Trop. Australia* 64 (1848)

Type: Australia, Subtropical New Holland, 1846, *T.L. Mitchell s.n.* (lecto: K designated by Aellen (1938, p. 378, first-step), corrected from 'original'; second-step lecto: K barcode 000898581, photo! designated here; isolecto: K barcode 000898580, photo!; MEL barcode 607106, photo!).

Nomenclatural notes

Aellen made an inadvertent lectotypifications when mentioning 'Kew; Original von *A. nummularia*?' (ICN Art. 7.10, McNeill et al. 2012). We found two Mitchell specimens seen by Aellen at

K, and we selected as second-step lectotype (ICN Art. 9.17, McNeill *et al.* 2012) the specimen K barcode 000898581 for possessing a larger number of fruiting bracteoles.

Morphological notes

Fruiting bracteoles have a distinctive, hard, globose, basal body, with a tiny beak-shaped excrescence on it.

Iconography

Aellen (1938), p. 377, fig. 2(g1–g6); Rosas (1989), p. 63, fig. 27.

Distribution

Atriplex nummularia is native to Australia, being adventive in South America, recorded for Tarija department, in Bolivia, and also for Chile, in II Region-Antofagasta and IV Region-Coquimbo (Del Desierto biogeographic province) growing with *A. repanda* (Fig. 5).

Specimens examined

BOLIVIA. Departamento Tarija: Provincia Aniceto Arce, Padcaya, 11 km hacia Bermejo, *S.G. Beck 31668*, 21 March 2006 (LPB). CHILE. II Región-Antofagasta: Provincia Antofagasta, Península Moreno, cerros al O de Juan López, *G. Baumann 46*, 18 October 1992 (CONC). IV Región-Coquimbo: Provincia Choapa, 45 km N de Los Vilos, *C. Marticorena & M. Rosas 9522*, 11 October 1982 (CONC); *9523*, 11 October 1982 (CONC); *9524*, 11 October 1982 (CONC).

34. *Atriplex oestophora* S.F.Blake, *Contr. Gray Herb.* 53: 32 (1918)

(Fig. 6)

Type: Venezuela, Estado Falcón, Vela de Coro, 1 April 1917, *H.M. Curran & M. Haman 451* (holo: GH barcode 00037164, photo!; iso: A barcode 00295508, photo!; NY barcode 00324297, photo!; SI barcodes 001276! fragment, and 001277! fragment; US barcodes 00102623! and 00102624!)

Distribution

Atriplex oestophora is endemic to Venezuela, in Falcón and Zulia (Jáuregui *et al.* 2014) and Guárico states (Carneiro 2008), in Guajira and Venezolana biogeographic provinces (Fig. 5).

Specimens examined

We were able to study only the type specimens.

35. *Atriplex oreophila* Phil., *Anales Univ. Chile* 91: 427 (1895)

Type: Chile, Atacama, Quebrada de Codocedo, 1884, *F. San Román s.n.* (lecto: SGO barcode 000001613, photo! designated by Múlgura de Romero (1984, p. 240); isolecto: SI barcode 001275! fragment).

Atriplex humilis Phil., *Anales Mus. Nac. Santiago de Chile* 2,8: 74 (1891), *nom. illeg., non* F.Muell (1863).

Type: Chile, Atacama, Juntas, January 1885, *F. Philippi s.n.* (lecto: SGO barcode 000001598, photo! designated by Múlgura

de Romero (1984, p. 243); isolecto: SGO barcode 000001597, photo!; SI barcode 001270! fragment).

Atriplex hypsophila I.M.Johnst., *Physis (Buenos Aires)* 9: 302 (1929).

Type: Argentina, San Juan, Quebrada de la Ortiga, 14 January 1926, *I.M. Johnston 6168* (holo: GH barcode 00037162, photo!; iso: BA 30/1094!; BAA barcode 00004351, photo!; K barcode 000583220, photo!; LIL barcode 001984!, S-R-548, photo!; US barcode 00102608!).

Atriplex chenopodioides Aellen, *Dansk Bot. Ark.* 22(2): 179 (1968).

Type: Argentina, Mendoza, San Rafael, Valle del Río Atuel, 1 January 1956, *T.W. Böcher et al. 2023* (holo: C barcode 10009334, photo!)

Nomenclatural notes

Múlgura de Romero (1984) designated SGO barcode 000001613 as the lectotype for this name. Rosas' (1989) subsequent lectotypification (SGO barcode 000001614) is superfluous.

Morphological notes

Atriplex oreophila is related to *A. myriophylla*. *Atriplex oreophila* has triangular-ovate leaves with an acute apex on long internodes, whereas *A. myriophylla* has suborbicular leaves with a rounded apex on short internodes.

Iconography

Múlgura de Romero (1984), p. 242, fig. 3; Rosas (1989), p. 49, fig. 19.

Distribution

Atriplex oreophila grows in Altoandina and Del Desierto biogeographic provinces, Catamarca, La Rioja, Mendoza and San Juan provinces (Argentina), and III Región-Atacama and IV Región-Coquimbo (Chile; Fig. 2). Múlgura and Galarza (2014) cited this species as a doubtful record for Bolivia, and Rosas (1989) did the same for Perú. We have been unable to confirm these records.

Specimens examined

ARGENTINA. Catamarca: Departamento Tinogasta, 1.5 km SO del puesto de vialidad, Las Grutas, *N. Ratto s.n.*, 10 February 1994 (SI). La Rioja: Departamento Vinchina, entre la Laguna Brava y el Paso Pircas Negras, 18 km E de Peña Negra, *F. Biurrun et al. 5306*, 26 March 1998 (CTES). Mendoza: Departamento Las Heras, Cruz de los Paramillos, *H. Sleumer 382*, 3 January 1950 (LIL). San Juan: Departamento Iglesia, Reserva de San Guillermo, Río Macho Muerto, alrededores del refugio, *E.G. Nicora et al. 8497*, 14 January 1983 (SI). CHILE. III Región-Atacama: Provincia Copiapó, Quebrada Paipote, La Puerta, *O. Zollner 941*, October 1927 (SI); Quebrada Ciénaga Redonda, *S. Teillier 4197*, February 1997 (CONC); Laguna del Negro Francisco, *G. Arancio 92228*, 8 March 1992 (CONC); Quebrada Yeguas Heladas, *M. Rosas 500a*, 11 February 1985 (CONC); camino internacional de Copiapó a Tinogasta, Cuesta de los Colorados, *C. Villagran & M. Kalin Arroyo 4581*, 15 March 1983 (CONC); Provincia Huasco, Río Sancarron, just below Corrales, *I. M. Johnston 6209*, 16 January 1926 (CONC); Río Laguna Grande, entre Quebrada Candelilla y el O de Laguna Grande, *C. Marticorena et al. 83414*, 21 January 1983 (CONC). IV Región-Coquimbo: Provincia Elqui, Cordillera Doña Ana, Quebrada del Toro Muerto, *G. Arancio*

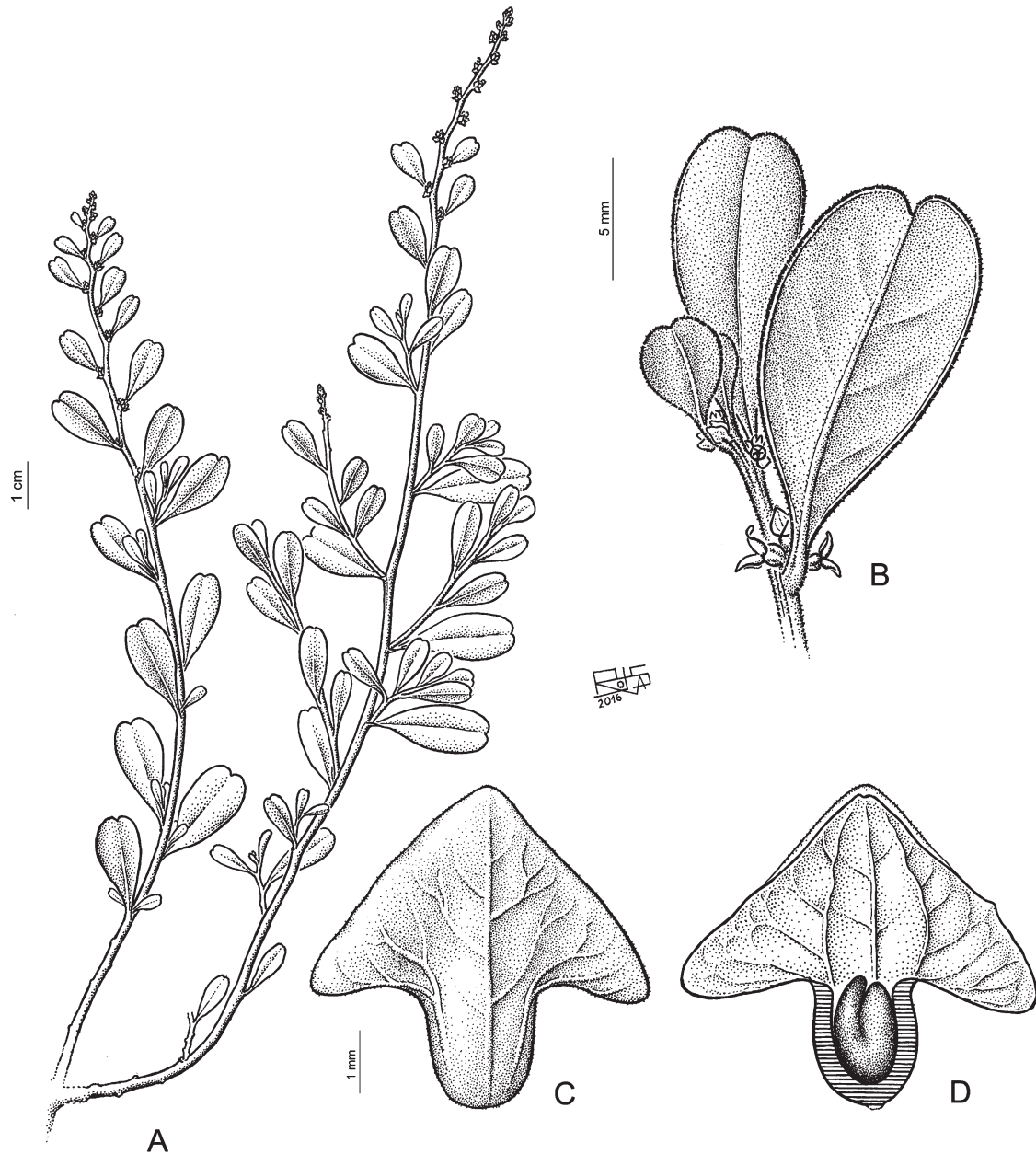


Fig. 6. *Atriplex oestophora* S.F.Blake. A. Habit. B. Leafy branch. C. Fruiting bracteole, dorsal view. D. Fruiting bracteole, internal view and seed. From Curran and Haman 451, holotype GH (A); isotype SI001276 (B); isotype SI001277 (C, D).

92023, 10 January 1992 (CONC); Cordillera de Elqui, Doña Ana, *C. Jiles* 6499, January 1979 (CONC).

36. *Atriplex pamparum* Griseb., *Abh. Königl. Ges. Wiss. Göttingen* 19: 84 (1874)

Type: Argentina, Santiago del Estero, Río Saladillo, December 1871, *P.G. Lorentz* 62.48 (lecto: GOET barcode 000839, photo! *p.p.*, designated by Múlgura de Romero (1984, p. 249); isolecto: CORD barcode 00004818!, GOET barcode 000840, photo! *p.p.*, SI barcode 001278!).

Nomenclatural notes

Múlgura de Romero (1984) lectotyped this name on GOET barcode 000839, comprising two branches. They indicated that the upper specimen is *A. pamparum*, and the lower specimen is *A. argentina*. The GOET isolectotype has several branches; the two lower branches belong to *A. pamparum*, and the upper branches belong to *A. argentina*. The isolectotype at CORD has the legend 'Lorentz 62', and we consider that this specimen is a duplicate of *Lorentz* 62.48, because the data on the labels are the same.

Iconography

Múlgura de Romero (1984), p. 245, fig. 5e–h.

Distribution

Atriplex pamparum is well a collected species from salty soils of northern and central Argentina (Chaqueña, Del Espinal, Pampeana and Prepuneña biogeographic provinces; Fig. 5). It is also recorded for Paraguay (Múlgura and Marticorena 2008).

Specimens examined

ARGENTINA. Buenos Aires: Partido General Alvarado, Miramar, *F.A. Roig 7595*, 27 January 1973 (SI); Partido General Lavalle, Arroyo del Chanco, *A.L. Cabrera 8487*, 20 November 1944 (SI); Partido Las Flores, entre Las Flores y Rosas, *L.R. Miccio 760*, 5 December 1939 (SI). Catamarca: Departamento Fray Mamerto Esquiú, Piedra Blanca, *C. Spegazzini 164043*, January 1910 (SI). Chaco: Departamento General Güemes, 1 km de Castelli en dirección E, por ruta que une Castelli–El Asustado, *R.H. Fortunato et al. 1265*, 14 November 1990 (SI). Córdoba: Departamento San Justo, Marull, *A. Burkart 20446*, 27 February 1957 (SI); Departamento San Javier, Los Pozos, *A. Burkart 13826*, 21 January 1944 (SI). Formosa: Departamento Patiño, alrededores de General Belgrano, *R.H. Fortunato & E.R. Guaglianone 2267*, 14 November 1991 (SI). Jujuy: Departamento Tumbaya, Quebrada de Coiruro, 2–3 km N de Volcán, *L. Novara & S. Bruno 9264*, 29 December 1982 (MCNS). La Rioja: s.loc., *A. Giacomelli 938*, January 1901 (SI). Santa Fe: Departamento 9 de Julio, Cañada Las Vívoras, *J.P. Lewis 1298*, 2 December 1981 (SI). Santiago del Estero: Departamento Río Hondo, Chañar Pozo, *S. Venturi 400*, September 1919 (SI). Tucumán: Departamento Burruyacú, El Puestito, *S. Venturi 7685*, 5 December 1928 (SI); Departamento Trancas, Tapia, *S. Venturi 1071*, 28 November 1920 (SI).

37. *Atriplex patagonica* (Moq.) D.Dietr., *Syn. Pl.* 5: 536 (1852)

Obione patagonica Moq., in A. P. de Candolle (ed.), *Prodr.* 13(2): 111 (1849).

Type: Argentina, Patagonia, *J. Tweedie s.n.* (lecto: K barcode 000583230, photo! designated here).

Nomenclatural notes

We found two specimens collected by J. Tweedie in Patagonia, one in K and other in E, and both agree with the description in the protologue. We selected as lectotype the specimen from K, because it has the legend ‘Patagonia, Tweedie’, as in the protologue, and because Tweedie’s specimens are housed in K. The other syntype is E barcode 00296892.

Iconography

Múlgura de Romero (1981), p. 136, fig. 4l–o; Giusti (1984), p. 109, fig. 77.

Distribution

Atriplex patagonica is very well known species from Chubut, Río Negro, Santa Cruz, south-central Mendoza, southern La Pampa and southern Buenos Aires provinces in Argentina (Del Espinal, Del Monte, Pampeana and Patagónica biogeographic provinces; Fig. 2).

Specimens examined

ARGENTINA. Buenos Aires: Partido Bahía Blanca, Bahía Blanca, Isla Bermejo, *O. Boelcke et al. 11910*, 7 December 1964 (SI); Partido Coronel de Marina L. Rosales, camino a Punta Alta, Bahía Blanca, *A. Soriano 993*, 5 January 1944 (SI); Partido Villarino, cruce Rutas 3 y 22, *G. Seijo 1417*, 13 January 1999 (CTES). Chubut: Departamento Biedma, Estación Meteorológica Golfo Nuevo, CENPAT, Puerto Madryn, *A.M. Beeskon 511*, 16 January 1986 (SI); Península Valdez, Punta Norte, *J. Daciuk 103*, 11 February 1968 (SI); Península Valdez, *B.C. Piccinini 1233*, 15 November 1968 (SI). La Pampa: Departamento Lihuel Calel, Laguna Salada, cerca de los cerros de Lihué Calel, *A. Burkart 15971*, 18 February 1948 (SI); a orillas del salar, pasando Lihué Calel, *O. Boelcke 3134*, 18 February 1948 (SI); Laguna Asturiana, *N. Bacigalupo 20529*, 29 November 1959 (SI). Mendoza: Departamento. Malargüe, Laguna de Llancanelo, *A. Prina et al. 1769*, 26 November 2002 (CTES); Departamento San Rafael, Salinas del Diamante, *A. Ruiz Leal 20991*, 13 May 1960 (MERL); lagunas y esteros de Llancanelo, *A. Ruiz Leal 11285*, 21 December 1947 (MERL). Río Negro: Departamento Adolfo Alsina, Viedma, Lobería, *G. Seijo 1438*, 14 January 1999 (CTES).

38. *Atriplex patula* L., *Sp. Pl.* 2: 1053 (1753)

Type: ‘patula 6’ (lecto: LINN-HL1221-19, photo! designated by Tschereau (1972, p. 1574).

Iconography

Múlgura de Romero (1982), p. 59, fig. 4(a–e); Bassett *et al.* (1983), p. 28, fig. 6; Rosas (1989), p. 65, fig. 28.

Distribution

Atriplex patula is native to Europe, and adventive in Asia, North America and South America. In Argentina, *A. patula* grows in Buenos Aires (Pampeana biogeographic province) and Santa Cruz provinces (Patagónica biogeographic province). It occurs in the central-southern regions (Subantártica biogeographic province) in Chile, and there is also a collection from Canelones department in Uruguay (Fig. 3).

Specimens examined

ARGENTINA. Buenos Aires: Partido Las Flores, Bañado de Flores, *A.T. Hunziker 3516*, 8 April 1942 (SI); Partido Roque Pérez, Arroyo Saladillo y Ruta Nacional 205, *M.E. Múlgura 4585*, 7 May 2010 (SI); Partido Tres Arroyos, Tres Arroyos, *A. Burkart 15797a–b*, 9 February 1948 (SI). Santa Cruz: Departamento Güer Aike, Río Gallegos, *F.A. Roig 10203*, 31 January 1978 (MERL). CHILE. VIII Región-Biobío: Provincia Concepción, Laguna Lo Galindo, *P. López 717*, 30 March 1990 (CONC). IX Región-La Araucanía: Provincia Cautín, camino de Nueva Imperial a Carahue, Predio San Luis, *F. Pardo 12*, 29 February 1984 (CONC). X Región-Los Lagos: Provincia Chiloé, Castro, Punta de Chonos, *M. Ricardi & C. Marticorena 4142*, 11 February 1957 (CONC); Isla Alao, entre La Capilla y Punta Apiao, *C. Villagran & C. Aguila 6051*, 13 January 1985 (CONC); Isla Chaulinec, alrededores de Villa Nueva, *C. Villagran & C. Aguila 6555*, 21 January 1985 (CONC). XII Región-Magallanes: Provincia Magallanes, Puerto Zenteno, *E. Pisano 4264*, 31 January 1974 (CONC); Punta Arenas, a 1 km del Estrecho de Magallanes, *A. Landero 450*, 30 January 1985 (CONC); Provincia Tierra del Fuego, Sector Río Condor, Forestal Trillium, delta del río, orilla sur, *E. Pisano et al. 7935*, 5 February 1995 (CONC). URUGUAY. Departamento Canelones, Solís Chico, orilla E, cerca de ruta interbalnearia, *B. Rossengurt 10872*, 23 March 1967 (SI).

39. *Atriplex pentandra* (Jacq.) Standl., *N. Amer. Fl.* 21(1): 54 (1916)

Axyris pentandra Jacq., *Select. Stirp. Amer. Hist.* 244 (1763); *Obione pentandra* (Jacq.) Ulbr., in A. Engler et al. (eds), *Nat. Pflanzenfam.*, ed. 2, 16c: 507 (1934).

Type: Cuba, 'Habitat in littoribus maritimis Cubae', *N. Jacquín s.n.* (lecto: N. J. von Jacquín, *Select. Stirp. Amer. Pict.* pl. 235, photo! designated here).

Atriplex cristata Humb. & Bonpl. ex Willd., *Sp. Pl.*, ed. 4(2): 959 (1806); *Obione cristata* (Humb. & Bonpl. ex Willd.) Moq., *Chenop. Monogr. Enum.* 73 (1840).

Type: Venezuela, Cumaná, 1799, *A. Humboldt & A. Bonpland 123* (lecto: B-W18914010, photo! designated here; isolecto: P barcode 00136036, photo!).

Atriplex texana S. Watson, *Proc. Amer. Acad. Arts* 9: 113 (1874); *Obione elegans* var. *tuberculosa* Torr., *Rep. USA Mex. Bound., Bot. [Emory]* 183 (1858); *Atriplex tuberculosa* (Torr.) J.M.Coult., *Contr. USA Natl. Herb.* 2: 368 (1894).

Type: United States, Western Texas, *C. Wright s.n.* (lecto: GH barcode 00066865, photo! designated by Flores Olvera (1992, p. 189); isolecto: GH barcode 00036931, photo!).

Atriplex cristata var. *parvifolia* (Kunth) Kuntze, *Revis. Gen. Pl.* 3(3): 266 (1898); *Atriplex parvifolia* Kunth, *Nov. Gen. Sp.* (quarto ed.) 2: 192 (1817); *Obione parvifolia* (Kunth) Moq., *Chenop. Monogr. Enum.* 73 (1840).

Type: Bolivia, Carcaje, 3000 m, 1182, *C.E.O. Kuntze s.n.* (iso: SI barcode 001264! fragment).

Atriplex wardii Standl., *N. Amer. Fl.* 21(1): 56 (1916).

Type: United States, Texas, Galveston, 16 September 1877, *L.F. Ward s.n.* (holo: US barcode 00008257!; iso: US barcode 00008256!).

Nomenclatural notes

Flores Olvera (1992) suggested that type material of *A. pentandra* might be in BM, LINN or W; however, we were unable to locate type material of this name in these herbaria or in any other institutions (see also D'Arcy 1970 for a discussion of Jacquín type material). For this reason, we select as lectotype the plate with the original drawing in the protologue.

Flores Olvera (1992) treated *A. cristata* as synonymous with *A. pentandra*. After reviewing material of both species, we accept and follow this concept. We located two syntypes of *A. cristata* in B, in the Willdenow herbarium (B-W): *A. Humboldt & A. Bonpland 123* and *1175*. We have selected as lectotype *A. Humboldt & A. Bonpland 123* (B-W barcode 18914010) because it is the largest and most complete. Duplicates of both *A. Humboldt & A. Bonpland 123* and *1175* are also housed in P (barcodes 00136036 and 00136037 respectively).

Iconography

Flores Olvera (1992), p. 184, fig. 16.

Distribution

Atriplex pentandra occurs on the Gulf of Mexico coast in the United States (Texas and Florida); the eastern coast of Mexico

and also in the Caribbean Islands (Flores Olvera 1992). In South America, it grows in coastal Venezuela and in its dependent islands (Fig. 5). Welsh (2003) included this species for Colombia and Peru; however, we have not yet located collections from these countries.

Specimens examined

VENEZUELA. Estado Anzoátegui: Isla Chimana del Sur, N de Puerto La Cruz, *J. Teyermark 107980*, 2 September 1973 (VEN). Dependencias Federales: Isla La Orchila, *B. Garofalo et al. 915*, 12 February 1982 (VEN). Estado Distrito Capital: alrededores de Cabo Blanco, *H. Pittier 10322*, 18 May 1922 (VEN); playas de Cabo Blanco, al W de Maiquetía, *H. Pittier 12424*, 7 August 1927 (VEN). Estado Falcón: carretera El Supi-Adicora, *L. Cárdenas 1720*, 12 August 1974 (VEN); en las cercanías de Coro, *T. Lasser 2919*, 11 August 1952 (VEN); Península de Paraguaná, Las Cumaraguas, *T. Ruiz et al. 571*, 24 February 1977 (VEN). Estado Lara: El Ujano, *R. Moreno 12*, 16 April 1955 (VEN). Estado Nueva Esparta: Monumento Nacional Tetos de María Guevara, *F. Delascio & A. Gonzalez 12173*, June 1984 (VEN). Estado Sucre: Punta de Araya, *L. Aristeguieta et al. 6531*, January 1968 (VEN); lagunas litorales de Cumaná, *L. Cumana & W. Lampe 528*, 22 January 1974 (VEN); Parque Nacional Mochima, Islas Caracas del Este, *B. Garofalo 1036*, 9 September 1982 (VEN); Islas Caracas del Este, parte SW, playa El Corral, *J. Steyermark et al. 108341*, 9 September 1973 (VEN). Estado Vargas: La Guaira, *A. Burkart 17029*, 23 June 1946 (SI).

40. *Atriplex peruviana* Moq., in A. P. de Candolle (ed.), *Prodr.* 13(2): 102 (1849)

Chenopodium cinereum Moq., *Chenop. Monogr. Enum.* 27 (1840), non *Atriplex cinerea* Poir. (1811).

Type: Peru, *C. Gaudichaud 68* (holo: P barcode 04952095, photo!).

Iconography

Rosas (1989), p. 51, fig. 20.

Distribution

Atriplex peruviana occurs in northern Chile in XV Region-Arica y Parinacota and southern Peru (Del Desierto biogeographic province; Fig. 5). It is also recorded for Bolivia (Múlgura and Galarza 2014) and for the Galápagos Islands, Ecuador (Jørgensen 1999).

Specimens examined

CHILE. XV Región-Arica y Parinacota: Provincia Arica, camino de Poconchile a Zapahuira, km 36, *M. Ricardi et al. 42*, 3 May 1972 (CONC); Valle de Lluta, km 15, después de Molinos, *H. Escobar 10327*, 29 October 1979 (CONC); camino de Arica al Portezuelo de Chapiquiña, km 40, *M. Ricardi et al. 27*, 24 March 1961 (CONC). PERÚ. Departamento Arequipa: Provincia Caraveli, Quebrada de La Tramoya, *F. Perinell 13088*, 8 April 1920 (SI).

41. *Atriplex philippii* R.E.Fr., *Nova Acta Regiae Soc. Sci. Upsal. ser.* 4, 1(1): 157 (1905)

Atriplex prostrata Phil., *Anales Univ. Chile* 43 : 535 (1873), *nom. illeg.*, non Boucher ex DC. (1805) *nec* R.Br. (1810).

Type: Chile, Santiago, 'Pampa salobre entre Colina y Batuco', November 1864, *R.A. Philippi s.n.* (lecto: SGO barcode

000001618, photo! designated by Rosas (1989, p. 50); isolecto: SI barcode 001311!).

Nomenclatural notes

A remaining syntype of the original collection is: Batuco, November 1864, *R. A. Philippi s.n.* (SGO barcode 000001617).

Iconography

Rosas (1989), p. 53, fig. 21.

Distribution

Atriplex philippii is restricted to salty soils in the Metropolitan Region-Santiago in Chile (Chilena biogeographic province; Fig. 2).

Specimens examined

CHILE. Región Metropolitana de Santiago: Provincia Chacabuco, Batuco, *H. GH. Gunckels.n.*, 25 September 1951 (CONC); *H. Gunckel s.n.*, 6 November 1954 (CONC); *H. Gunckel s.n.*, 15 April 1950 (CONC); *H. Gunckel s.n.*, 14 September 1950 (CONC); *H. Gunckel s.n.*, 9 October 1951 (CONC); *Riegel W.s.n.*, 15 October 1954 (CONC); *M. Rosas 313*, 23 January 1985 (CONC).

42. *Atriplex prostrata* Boucher ex DC., *Fl. Franc.* ed. 3. 3: 387 (1805)

Type: 'Env. du Havre', Herb. D.C. 386, marked '*A. prostrata* Boucher' (lecto: G-DC, designated by Gustafsson (1976, p. 21) – not seen).

Atriplex hastata L., *Sp. Pl.* 2: 1053 (1753), *nom. rej.*; *Atriplex patula* var. *hastata* (L.) A.Gray, *Manual*, ed. 5. 409 (1867); *Atriplex patula* subsp. *hastata* (L.) H.M.Hall & Clem., *Phylogenet. Meth.* 249, pl. 37 (1923).

Type: Europe (lecto: LINN-1221.17, photo! designated by Rauschert 1974, p. 643).

Atriplex triangularis Willd., *Sp. Pl.*, ed. 4(2): 963 (1806).

Type: Italy, 'Ipse legi 1804 in Lido di Venezia' (lecto: B-W18926030, photo! designated by Taschereau (1972, p. 1583); isolecto: B-W18926010, photo!; B-W18926020, photo!).

Atriplex platensis Speg., *Anales Soc. Ci. Argent.* 92: 91 (1921).

Type: Argentina, Buenos Aires, La Plata, between Tolosa and Ensenada, April 1917, *C. L. Spegazzini s.n.* (lecto: LP barcode 003114, photo! designated by Múlgura de Romero (1982, p. 57); isolecto: K barcode 000583232, photo!).

Nomenclatural notes

The accepted binomial of this species has changed over time, and that timeline can be seen in Múlgura de Romero (1982), Bassett *et al.* (1983) and Rosas (1989).

Iconography

Múlgura de Romero (1982), p. 56, fig. 3; Bassett *et al.* (1983), p. 41, fig. 12; Rosas (1989), p. 66, fig. 29.

Distribution

Atriplex prostrata is native to Europe and is widely naturalised throughout the world. It grows as an adventive species in central and southern Argentina (Del Espinal, Del Monte, Pampeana and Patagónica biogeographic provinces), and also in Chile (Chilena and Subantártica biogeographic provinces, Fig. 3). There is also a record for La Paz department, in Bolivia (Múlgura and Galarza 2014).

Specimens examined

ARGENTINA. Buenos Aires: Partido Villarino, Laguna La Salada, Pedro Luro, *A.L. Cabrera 4442*, 21 May 1938 (SI). Chubut: Departamento Biedma, Estación Meteorológica Golfo Nuevo, Puerto Madryn, *A.M. Breskow 517*, 16 January 1986 (SI). Córdoba: Departamento Presidente Roque Saenz Peña, Ruta 7 entre Rosales y Laboulaye, *E.G. Nicora et al. 8417*, 8 April 1983 (SI). La Pampa: Departamento Puelén, Colonia 25 de Mayo, *H.O. Troiani & P.E. Steibel 5356*, 13 December 1977 (SI). Mendoza: Departamento Maipú, Laguna de los Alamos, *M.E. Múlgura 48*, 1 May 1978 (SI). Río Negro: Departamento Gral Roca, Allen, *leg. ign. 26782*, 5 January 1970 (SI). Santa Cruz: Departamento Güer Aike, Río Gallegos, *M.N. Correa & R. Pérez Moreau 2039*, 31 January 1960 (SI). CHILE. Región Metropolitana de Santiago: Provincia Chacabuco, Colina, *H. Gunckel 29967*, November 1956 (CONC). VII Región-Maule: Provincia Curicó, Iloca, *H. Gunckel 43367*, February 1965 (CONC). VIII Región-Biobío: Provincia Concepción, Camino de Concepción a Florida, a 2 km de Puchacay, *E. Ugarte 66*, 20 March 1979 (CONC). IX Región-Araucanía: Provincia Cautín, Puerto Saavedra, maleza en cultivo de papas, *F. Pardo 9*, 29 February 1984 (CONC). X Región-Los Lagos: Provincia Chiloé, Isla Guafo, trayecto desde Caleta Samuel al Faro, *C. Villagran & A. Leiva 7514*, 25 February 1986 (CONC); Provincia Osorno, Misión Quilacahuín, orillas del Río Rahue, *O. Matthei & M. Quezada 1042*, 19 March 1990 (CONC).

43. *Atriplex quixadensis* Del Vitto, Múlgura & Peten., *Hickenia* 2(17): 77 (1993)

Type: Argentina, San Luis, Departamento Belgrano, Sierra de Las Quijadas, El Mirador, ~8 km W of Hualtarán, 2 September 1991, *L.A. Del Vitto, E. Petenatti & M. Petenatti 5821* (holo: UNSL – not seen; iso: SI barcode 001282!).

Nomenclatural notes

A. Lutz 181 (SI) from Caucete department in San Juan province, Argentina, agrees with the description of *A. quixadensis* in the protologue, except for the fruiting bracteoles, which are dorsally smooth instead of two lobed wings.

Iconography

Del Vitto *et al.* (1993), p. 78, fig. 1.

Distribution

Atriplex quixadensis is endemic to Sierras Las Quijadas, in San Luis province, Argentina (Chaqueña and Del Monte biogeographic provinces; Fig. 2). According to Del Vitto *et al.* (1993), *A. quixadensis* is a threatened species owing to its extremely restricted distribution.

Specimens examined

ARGENTINA. San Luis: Departamento Belgrano, Sierra de las Quijadas, *L.A. Del Vitto et al.* 6768, 19 May 1992 (SI); *L.A. Del Vitto et al.* 5822, 11 April 1991 (SI); *L.A. Del Vitto et al.* 6049, 11 April 1991 (SI); *E. Haene 1001*, 6 September 1990 (SI).

44. *Atriplex repanda* Phil., *Anales Univ. Chile* 91: 425 (1895)

Type: Chile, Coquimbo, October 1878, *R.A. Philippi s.n.* (lecto: SGO barcode 000001622, photo! designated by Rosas (1989, p. 52); isolecto: SI barcode 0012831).

Atriplex angustifolia Phil., *Anales Univ. Chile* 91: 426 (1895) *nom. illeg., non* Smith (1804).

Type: Chile, Ovalle, Quebrada del Ingenio, January 1883, *F. Philippi s.n.* (lecto: SGO barcode 000001581, photo! designated by Rosas (1989, p. 54); isolecto: SGO barcode 000001580, photo!; SI barcode 001317! fragment).

Iconography

Rosas (1989), p. 55, fig. 22.

Distribution

Atriplex repanda is endemic to III Region-Atacama and IV Region-Coquimbo in Chile (Del Desierto biogeographic province; Fig. 5).

Specimens examined

CHILE. III Región-Atacama: Provincia Huasco, costa de Boratillo, *G. Mieres s.n.*, 27 March 2012 (CONC); Huasco bajo, cerca del puente, *M. Rosas 603*, 21 February 1985 (CONC). IV Región-Coquimbo: Provincia Choapa, Totoral, km 295 de la Panamericana Norte, *O. Zollner 10135*, 12 November 1978 (CONC); Provincia Elqui, Juan Soldado, a la salida de La Serena, *M. Rosas 361*, 2 February 1985 (CONC); Pañuelas Alto, *M. Rosas 72*, 29 December 1983 (CONC); La Serena, frente a la Universidad, *M. Rosas 302*, 27 September 1984 (CONC); camino de Coquimbo a Ovalle, km 6, Cerro Pan de Azúcar, *M. Rosas 86*, 30 December 1983 (CONC); Provincia Limarí, Ovalle, *H. Gunckel 22133*, September 1946 (CONC); Cordillera de Ovalle, Serón, *C. Jiles 3344*, 24 November 1957 (CONC); Ovalle, Quebrada Ingenio, *C. Jiles 1480*, 2 October 1949 (CONC).

45. *Atriplex rosea* L., *Sp. Pl.* 2 ed. 2: 1493 (1763)

Type: 'Ex horto proprio. Semen a Zinio, sub nomine *Atriplex seminis capsula aculeate*. In Linnaei speciebus non requiro. Admodum affinis videtur Atriplici fructu roseo compresso, quem semen recentim non vide' (neo: P-HA, designated by McNeill *et al.* (1983, p. 553) – not seen).

Atriplex spatiosa A.Nelson, *Bot. Gaz.* 34: 360 (1902).

Type: United States, Wyoming, Sweetwater County, Granger, 29 August 1900, *A. Nelson 8140* (lecto: RM barcode 0002224, photo! designated here; isolecto: COLO barcodes 00350892, photo!; 00350900, photo!; GH barcode 00066859, photo!; K barcode 000898721, photo!; MIN barcode 1000393, photo!; NEB-V barcode 0000264, photo!; NY barcodes 00324275, photo!; 00324274, photo!; RENO barcode 009605, photo!;

RM barcodes 0002222, photo!; 0002223, photo!; 0002225, photo!; OSC barcode 0000458, photo!; US barcodes 00102643!; 00946254!).

Atriplex arenicola Hauman, *Anales Mus. Nac. Hist. Nat. Buenos Aires* 24: 382 (1913).

Type: Argentina, Río Negro, *L. Hauman s.n.* (holo: BA 8888 – not seen).

Atriplex arenicola var. *albescens* Hauman, *Anales Mus. Nac. Hist. Nat. Buenos Aires* 24: 382 (1913).

Type: Argentina, Río Negro, *L. Hauman s.n.* (holo: BA 8889!; iso: BR barcode 0000006986032, photo!, fragment).

Nomenclatural notes

Nelson (1902) cited *Nelson 8140* as the 'type' collection. We found many duplicates of it and selected as lectotype RM barcode 0002224 because it is a complete and well preserved specimen. We could not locate the holotype of *A. arenicola* in BA.

Iconography

Múlgura de Romero (1982), p. 59, fig. 4f–j; Bassett *et al.* (1983), p. 48, fig. 16; Rosas (1989), p. 68, fig. 30.

Distribution

Atriplex rosea is native to southern Europe, and widely naturalised through Eurasia, northern Africa, Australia, Canada and the United States. In Argentina, it grows in central and southern regions (Del Espinal, Del Monte, Pampeana and Patagónica biogeographic provinces). In Bolivia, it occurs in La Paz department. Rosas (1989) recorded this taxon in IV Region-Coquimbo, in Chile (Fig. 3).

Specimens examined

ARGENTINA. Buenos Aires: Partido General Alvarado, Miramar, *A. Burkart 18218*, 26 January 1951 (SI); Partido Bahía Blanca, Bahía Blanca, *A. Soriano 1799*, January 1941 (SI). Chubut: Departamento Tehuelches, Estancia Laurita, Nueva Lubecka, *A. Soriano 1489*, 6 February 1945 (SI); Departamento Biedma, Salina Chica, Península Valdés, *B.C. Piccinini & A. Leguizamón 1935*, 19 March 1971 (SI). Córdoba: Departamento San Justo, 13 km E de La Francia, *A. Krapovickas et al. 18519*, 2 May 1971 (LIL). La Pampa: Departamento Chical Co, Agua de Torres, *P.E. Steibel & H. O. Troiani 5722*, 13 April 1978 (SI); Departamento Catrilo, Uruburu, *J. Fortuna 11*, 22 December 1944 (LIL). Mendoza: Departamento General Heras, Uspallata, *M.E. Múlgura 85*, 23 February 1979 (SI); Departamento Malargüe, Ruta 40, 2 km al sur de Agua Botada, *J. A. Ambrosetti 29981*, 12 February 1980 (SI). Neuquén: Departamento Zapala, Zapala, *C.M. Hicken 25*, 12 February 1919 (SI). Neuquén: Departamento Chos Malal, Chos Malal, en acequias, *O. Boelcke 11690*, 5 February 1964 (SI). Río Negro: Departamento General Roca, Fuerte General Roca, *A. Soriano 1228*, 10 January 1945 (SI). San Juan: Departamento Calingasta, camino a las vertientes del Arroyo Las Cabeceras, *E.R. Guaglianone et al. 2353*, 5 April 1989 (SI). BOLIVIA. Departamento La Paz: Provincia Murillo, colinas del lado S de Calacoto, *J.C. Solomon 6689*, 9 January 1982 (SI).

46. *Atriplex rotundifolia* Dombey ex Moq., *Chenop.*
Monogr. Enum. 70 (1840)

Type: Peru, 1778–88, *J. Dombey s. n.* (lecto: P barcode 04952142, photo! designated here).

Atriplex espostoi Speg., *Physis (Buenos Aires)* 2: 241 (1916).

Type: Peru, April 1912, *N. Esposito s.n.* (holo: LP barcode 003107, photo!; iso: LP barcode 003108, photo!)

Nomenclatural notes

We found three *J. Dombey* collections in P that agree with the original description. We selected as lectotype the specimen P barcode 04952142, because it has staminate inflorescences and fruiting bracteoles. Remaining syntypes are P barcodes 04952143 and 04952144.

Iconography

There is no illustration of *A. rotundifolia*, but one of its synonyms *A. espostoi* is illustrated by Spegazzini (1916, p. 242).

Distribution

Atriplex rotundifolia is endemic to Peru, occurring along the coasts of Arequipa, Cajamarca, Lambayeque and La Libertad departments (Del Desierto biogeographic province; Fig. 5).

Specimens examined

PERU. Departamento Arequipa: Provincia Caraveli, Lomas de Jahuay, ~33 km WNW of Chaviña, *M. Dillon et al.* 3234, 7 February 1983 (HUT); Loma cerca de Lomas, *N. Angulo s.n.*, 13 November 1957 (HUT). Departamento Cajamarca: Provincia Contumazá, Ascope-Algarrobal, *A. Sagástegui & J. Mostacero* 11345, 29 December 1983 (HUT). Departamento La Libertad: Provincia Ascope, al borde de la Laguna de Macabí, *M. Fernández et al. s.n.*, 24 November 1994 (HUT); Provincia Trujillo, base del Cerro Campana, *J. Mostacero et al.* 697, 9 June 1985 (HUT); Cerro Cabezón, *A. Sagástegui & S. López* 10995, 4 November 1985 (HUT); Cerro Negro, *A. Sagástegui et al.* 10995a, 16 December 1983 (HUT); Cerro Prieto, *J. Mostacero et al.* 801, 10 July 1985 (HUT); Cerro Chiputur, *A. Sagástegui & J. Mostacero* 11034, 11 November 1983 (HUT); Trujillo, *D. Chacón Jara s.n.*, 15 May 2001 (HUT). Departamento Lambayeque: Provincia Chiclayo, Puerto Eten, *S. Llatas Quiroz* 3375, 23 September 1993 (HUT).

47. *Atriplex rusbyi* Britton, *Mem. Torrey Bot. Club* 4:
250 (1895)

(Fig. 7)

Type: Bolivia, Yungas, 1885, *H. Rusby* 1529 (lecto: NY barcode 00324298, photo! designated here; isolecto: NY barcode 00324299, photo!).

Nomenclatural notes

Two collections were cited in the protologue: *Rusby* 1529 and *Bang* 181. We selected as lectotype one specimen of *Rusby* 1529 (NY barcode 00324298). Remaining syntypes are: Bolivia, La Paz, 1890, *Bang* 181 (CORD barcode 00002372, E barcode 00296894, GH barcode 00037165, K barcode 000583204, MIN barcode 1000392, PH barcode 00005778, US barcodes 01101062 and 00102637).

Distribution

Atriplex rusbyi is endemic to Bolivia (Las Yungas and Puneña biogeographic provinces; Fig. 5).

Specimens examined

BOLIVIA. Departamento La Paz: Provincia Aroma, de la carretera La Paz-Oruro, 43 km hacia Luribay, *S.G. Beck* 17945, 4 January 1991 (LPB). Provincia Loayza, Cantón Caracato, comunidad Isquircani, *S. J. Zenteno* 22, March 2007 (LPB); Valle de Luribay, *S.G. Beck* 105PG94, 5 April 1994 (LPB); cerca a la comunidad de Luribay, *M. Atahuachi et al.* 1034, 30 August 2005 (LPB); Urmiri, abajo del baño termal, *S.G. Beck* 30395, 12 December 2004 (SI); Maca Maca, 1 km hacia Ayo Ayo, *S. G. Beck* 24915, 21 October 2000 (SI). Provincia Murillo, La Paz, 40 km río La Paz abajo, *S.G. Beck* 2217, 22 July 1979 (LPB); colinas del lado S de Calacoto, *J.C. Solomón* JC 8223, 15 September 1982 (LPB); 5 km SW of Palca, *S.G. Beck* 11335, 21 July 1985 (LPB); Següencoma, *M. Cárdenas* 4363, July 1949 (SI); La Paz, Calacoto, al S del río Huañajahuira, *S.G. Beck* 2360, 4 December 1979 (SI); colina a lo largo del lado W de Alto Següencoma, *J.C. Solomón* 15024, 1 March 1986 (SI); colinas del lado S de Calacoto, *J.C. Solomón* 6653, 9 January 1982 (SI); 2 km SE de Mecapaca, *J.C. Solomón* 5838, 17 July 1981 (SI); La Paz, Calacoto, *E. Valenzuela* 329, 17 April 1982 (SI); zona Cota Cota, a 300 m del lado derecho del río Jillusaya, *E. Vargas* 608, 1 June 1989 (SI); Mecapaca, ~20 km SE de La Paz, a lo largo del río La Paz, *J.C. Solomón & M. Nee* 16074, 14 February 1987 (SI).

48. *Atriplex sagittifolia* Speg., *Revista Fac. Agron. Univ. Nac. La Plata* 3: 568 (1897)

Type: Argentina, Santa Cruz, February 1882, *C. Spegazzini s.n.* (lecto: LP barcode 003117, photo! designated by Múlgura de Romero, 1981, p. 137).

Atriplex sagittifolia var. *microphylla* Speg., *Anales Mus. Nac. Buenos Aires* 7: 146 (1902).

Type: ARGENTINA, Patagonia, Río Chico, *C. Ameghino s.n.* (lecto: LP barcode 003123, photo! designated here).

Atriplex sagittifolia var. *heterophylla* Speg., *Anales Mus. Nac. Buenos Aires* 7: 146 (1902).

Type: ARGENTINA, Río Negro, Colonia Valcheta, 1900, *C. Larguía s.n.* (lecto: LP barcode 003121, photo! designated here).

Nomenclatural notes

A remaining syntype for *A. sagittifolia* is: Argentina, Santa Cruz, Isla de los Leones, 1874, *C. Berg* 141 (LP barcode 011154). We found two collections of type material for *A. sagittifolia* var. *microphylla* in LP: Río Chico (*C. Ameghino s.n.*, LP barcode 003123) and Chubut, 1896 (*E. Fischer s.n.*, LP barcode 003124). We selected *C. Ameghino s.n.* as lectotype, because it has the largest amount of fruiting bracteoles. We also found four collections of type material for *A. sagittifolia* var. *heterophylla*: Río Chico, January 1897, *C. Ameghino s.n.* (LP barcode 003120); Colonia Valcheta, 1900, *C. Larguía s.n.* (LP barcode 003121); Río Chubut, November 1899, *N. Illin s.n.* (LP barcode 003119) and Carrenleofú, 1 March 1900, *N. Illin s.n.* (LP barcode 003118 and K barcode 000583236). We selected *C. Larguía s.n.* as lectotype, because it has the largest amount of fruiting bracteoles, and noticeably differently shaped leaves, for which the variety is named. A further specimen

(LP barcode 003122), lacking locality, date and collector data, labelled '*Atriplex sagittifolia* Speg. var. *heterophylla*' may also represent (syn)type material.

Morphological notes

Varieties *microphylla* and *heterophylla* cannot be distinguished from the type variety, because the diagnostic character of var. *microphylla* (small, sagittate leaves, more or less close along branches) is also observed in young branches of the type variety. The shape of the leaves in var. *heterophylla* is a highly variable character, even on the same branch, and does not differ from leaf shape in the typical variety.

Iconography

Cabrera (1939), p. 15, fig. 8a; Múlgura de Romero (1981), p. 136, fig. 4a–d; Giusti (1984), p. 111, fig. 80.

Distribution

Atriplex sagittifolia is widely distributed in Chubut, Mendoza, Río Negro and Santa Cruz provinces in Argentina (Del Espinal, Del Monte and Patagónica biogeographic provinces; Fig. 2).

Specimens examined

ARGENTINA. Chubut: Departamento Escalante, Comodoro Rivadavia, *A. Soriano 1527*, 20 February 1945 (SI); Departamento Languiño, Ruta 12 entre Paso del Sapo y Piedra Parada, *F.O. Zuloaga et al. 15539*, 29 November 2015 (SI); Departamento Rawson, Trelew, *A. Soriano 1561*, 22 February 1945 (SI); Departamento Sarmiento, alrededores de Sarmiento, *A.L. Cabrera et al. 33199*, 15 December 1981 (SI); Departamento Telsen, Ruta 4 de Telsen a Gan Gan, *F.O. Zuloaga et al. 15516*, 28 November 2015 (SI). Mendoza: Departamento Malargüe, cruce del arroyo Mütrenquel y Ruta 40 vieja, *J.A. Ambrosetti & L.A. Del Vitto 30022*, 13 February 1980 (SI); Ranquil Norte, *F.A. Roig 8893*, 3 December 1975 (MERL). Neuquén: Departamento Catan Lil, de Catan Lil a Zapala: La Negra, *C. Ezcurra 98*, 21 January 1980 (SI). Río Negro: Departamento Avellaneda, cerca de Chelforó, *A. Burkart 15922*, 15 February 1948 (SI); Departamento Gral Roca, Chinchinales, *A. Burkart 15926*, 15 February 1948 (SI); Departamento Valcheta, entre Aguada de Cecilio y Valcheta, *F.A. Roig 6339*, 10 April 1968 (SI). Santa Cruz: Departamento Deseado, Estancia El Mangrullo, junto al río, *E. Urubey 799*, 15 January 2013 (SI); Departamento Lago Argentino, Lago San Martín, *C. Hogberg 78*, 3 February 1903 (SI); Departamento Río Chico, 64 km de Bajo Caracoles a Lago Posadas, *O. Boelcke 12838*, 26 January 1967 (SI).

49. *Atriplex semibaccata* R.Br., *Prodr.* 406 (1810)

Type: Australia, New South Wales, Port Jackson, 1802, *R. Brown 3022* (lecto: K barcode 000898601, photo! designated by Aellen (1938, p. 411), corrected from 'original'; isolecto: BM barcode 001015825, photo!).

Atriplex semibaccata var. *melanocarpa* Aellen, *Bot. Jahrb. Syst.* 68: 411 (1938).

Type: Chile, Limache (Pangal), 1927, *A. Gararenta 458* (?G-Herb. Looser 3341 – not seen).

Atriplex stuckertii Gand., *Bull. Soc. Bot. France* 54: 584 (1907).

Type: Argentina, Córdoba, Departamento Capital, vicinity of Córdoba city, 30 August 1901, *T. Stuckert 10134* (lecto: CORD barcode 00002374! designated here; isolecto: B barcode

100242021, photo!; CORD barcodes 00002373!; 00002375!, MA barcode 771375, photo!, NY barcode 00324300, photo!)

Nomenclatural notes

Brown (1810) did not cite any particular specimens in the original description of *A. semibaccata*. Aellen (1938) inadvertently, but effectively, lectotypified this name by citing a sheet from K as 'original' material for *A. semibaccata*.

Two collections were mentioned in the protologue of *A. stuckertii*: *T. Stuckert 10134* from Córdoba, and *T. Stuckert 4572* from Tucumán (W1965–0021134), which is sterile. We have selected as lectotype *T. Stuckert 10134* (CORD barcode 00002374) as it is fertile.

Iconography

Cabrera (1939), p. fig. 8h; Múlgura de Romero (1982), p. 61, fig. 5; Giusti (1984), p. 111, fig. 83; Rosas (1989), p. 72, fig. 32.

Distribution

Atriplex semibaccata is an Australian species, introduced into several South American countries for its value as fodder in arid areas (Fig. 3). In Argentina, it grows from Jujuy to Chubut provinces (Del Espinal, Del Monte, Pampeana, Patagónica and Puneña biogeographic provinces). In Chile, it is common as a weed in III Region-Atacama and V Region-Valparaíso, and Rosas (1989) also cited this species for II Region-Antofagasta and IV Region-Coquimbo (Chilena and Del Desierto biogeographic provinces). In Bolivia, it grows in La Paz department, and Múlgura and Galarza (2014) recorded *A. semibaccata* for Cochabamba, Potosí and Tarija departments.

Specimens examined

ARGENTINA. Buenos Aires: Partido Tigre, camino de Tigre a Benavidez, *A.E. Lanfranchi 1751*, 24 May 1970 (SI). Córdoba: Departamento San Justo, Marull, *A. Burkart 20458*, 27 February 1957 (SI). Entre Ríos: Departamento Gualeguay, Puerto Ruiz, *A. Burkart & N. Troncoso 24157*, 13 April 1963 (SI). Jujuy: Departamento Tilcara, Angosto del Perchel, *F.O. Zuloaga & N.B. Deginani 3717*, 22 January 1988 (SI). La Pampa: Departamento Lihuel Calel, Sierras de Lihuel Calel, *H.O. Troiani & P.E. Steibel 5373*, 12 December 1977 (SI). Mendoza: Departamento Capital, Parque General San Martín, *M.E. Múlgura 40*, 1 May 1978 (SI). Salta: Departamento Guachipas, Alemania, alrededores del pueblo, *L. Novara 4848*, 14 December 1985 (MCNS). San Juan: Departamento Zonda, Estancia Maradona, *R. Kiesling et al. 5999*, 7 February 1986 (SI). Santa Fe: Departamento San Martín, Las Bandurrias, Ruta 34, *A.D. Rotman et al. 91*, 11 April 1979 (SI). BOLIVIA. Departamento La Paz: Provincia Loayza, valle seco del Río Sapahaqui, cerca de Taruni, *S.G. Beck 21953*, 28 January 1996 (SI); Provincia Murillo, La Paz, zona Següencoma, *E. García 160*, 14 March 1982 (SI). CHILE. III Región-Atacama: Provincia Huasco, 19–20 km N de la carretera del sur de Carrizal Alto y Canto del Agua, *C.M. Taylor & A. Pool 11617*, 15 April 1994 (SI). V Región-Valparaíso: Provincia Valparaíso, Concón, *F.A. Roig 8311*, 6 January 1975 (MERL).

50. *Atriplex sorianoi* Múlgura, *Hickenia* 1(36): 201 (1979)

Type: Argentina, San Juan, Departamento Ullúm, Quebrada de Talacasto, 10 October 1978, *A.L. Cabrera et al. 29542* (holo: SI barcode 001284!).

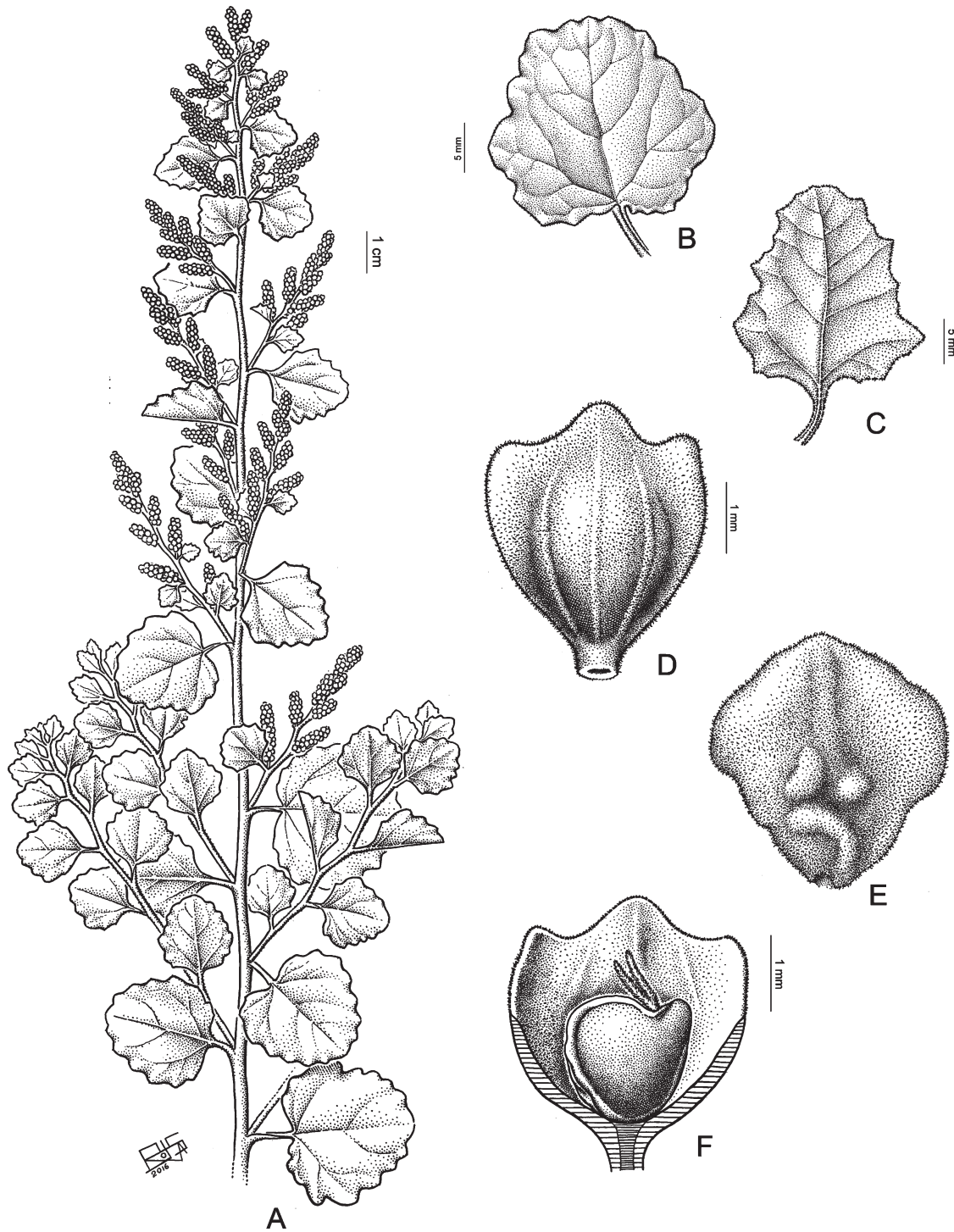


Fig. 7. *Atriplex rusbyi* Britton. A. Leafy branch. B, C. Leaves. D, E. Fruiting bracteoles, dorsal view. F. Fruiting bracteole, internal view and seed. From Zenteno 022 (A); Beck 30395 (B); Beck 24915 (C); Solomon 15024 (D and F); Solomon 5838 (E).

Morphological notes

Atriplex sorianoi is related to *A. lampa* with which it shares oblong or ovate-triangular leaves with a sinuate margin. However, *A. sorianoi* has expanded (flat) leaves (induplicate

in *A. lampa*), and fruiting bracteoles with two dorsal wings (wings absent in *A. lampa*).

Iconography

Múlgura de Romero (1979), p. 202: fig. 2.

Distribution

Atriplex sorianoi is a well known species occurring in Mendoza and San Juan provinces in Argentina (Del Monte biogeographic province, Fig. 2).

Specimens examined

ARGENTINA. Mendoza: Departamento Las Heras, Quebrada de la Mina La Atala, *F.A. Roig 5620*, 9 July 1968 (SI); Cerro de la Cal, *F.A. Roig 6683*, 20 October 1970 (SI); Departamento Maipú, Maipú, huayquerías de Barrancas, *F.A. Roig 8098*, 28 November 1974 (SI). San Juan: Departamento Angaco, Sierra de Pie de Palo, camino al Mogote de los Corralitos, *R. Kiesling et al. 4824*, 23 November 1984 (SI); Departamento Jáchal, camino a Mogna, *R. Kiesling 2997*, 9 November 1980 (SI); Departamento Ullúm, Quebrada de Talacasto, *R. Kiesling et al. 5030*, 1 December 1984 (SI); *M.E. Múlgura & N. B. Deginani 131*, 24 November 1980 (SI); *A.D. Rotman et al. 341*, 21 April 1980 (SI); *A.L. Cabrera et al. 29537*, 10 October 1978 (SI); Departamento Valle Fértil, Ischigualasto, *F.A. Roig 8016*, 14 April 1974 (SI).

51. *Atriplex spegazzinii* Soriano ex Múlgura, *Hickenia* 1(36): 199 (1979)

Atriplex flavescens Speng., *Comun. Mus. Nac. B. Aries*. 1: 347 (1901), *nom illeg., non* Dumort. (1827).

Type: Argentina, Mendoza, Villavicencio road, 23 February 1901, *C. Spegazzini s.n.* (holo: LP barcode 003098, photo!).

Morphological notes

Fruiting bracteoles have two prominent and conspicuous wings dorsally, which can be entire or divided, and are sometimes larger than fruiting bracteole body.

Iconography

Múlgura de Romero (1981), p. 131, fig. 3a–h.

Distribution

Atriplex spegazzinii occurs in Catamarca, La Rioja, Mendoza, San Juan and San Luis provinces in Argentina (Del Monte biogeographic province; Fig. 2).

Specimens examined

ARGENTINA. Catamarca: Departamento Andalgalá, 20 km S de Andalgalá, *H.H. Bartlett 20234*, 23 May 1943 (SI). La Rioja: Departamento Rosario Vera Peñaloza, Salinas de Mascasín, *B.C. Piccinini & A. Leguizamón 1718*, 7 November 1970 (SI). Mendoza: Departamento Lavalle, Ruta 34, entre Ruta 34 y Costa de Arroyo, *J.B. Cavagnaro JB & J.A. Ambrosetti 34847*, 12 February 1983 (MERL); Departamento La Paz, La Represita, 9 km NO de Pampita, *H. H. Bartlett 20649*, 5 August 1943 (SI); Departamento Las Heras, Cerro de la Cal, *M.E. Múlgura 26*, 28 April 1978 (SI); Departamento Uspallata, Río Mendoza, cerca de Uspallata, *F.A. Roig 7987*, 10 September 1968 (MERL). San Juan: Departamento 25 de Mayo, Ruta 147, km 1020, al O de Encón, *A.D. Rotman et al. 314*, 20 April 1980 (SI); Departamento Calingasta, de Sorocayense a Calingasta, S de Tamberías, *R. Kiesling et al. 6163*, 14 February 1986 (SI); Departamento Caucete, entre Marayes y Bermejo, *C.B. Passera 37885*, 15 April 1984 (SI); Departamento Iglesia, entre Rodeo y Angualasto, *J. Hunziker & O. Caso 4680*, 9 March 1951 (SI); Departamento. Jáchal, Jáchal, *G. Covas 1344*, 19 May 1942 (SI); Departamento Ullúm, Ruta 149, de La Ciénaga a Iglesia, *F.*

O. Zuloaga et al. 12728, 10 February 2011 (SI); Departamento Valle Fértil, Ischigualasto, *F.A. Roig 8016*, 14 April 1974 (SI). San Luis: Departamento Belgrano, Sierra de las Quijadas, cercanías de El Mirador, *L.A. Del Vitto et al. 6509*, 19 May 1992 (SI).

52. *Atriplex suberecta* L.Verd., *Bothalia* 6: 418 (1954)

Type: South Africa, Orange Free State, Fauresmith, 6 November 1944, *M. Henrici 3854* (holo: PRE0368098–0!; iso: K000243893).

Morphological notes

Atriplex suberecta is morphologically similar to *A. rosea*, but differs from that species by the leaf margin (entire in the basal half and dentate in the apical half in *A. suberecta*, completely dentate in *A. rosea*), and by the fruiting bracteoles (smooth and spongy in *A. suberecta*, tuberculate and leathery in *A. rosea*).

Iconography

Múlgura de Romero (1982), p. 66, fig. 7; Rosas (1989), p. 74, fig. 33.

Distribution

Atriplex suberecta is native to South Africa, being adventive in South America. It is widely distributed in northern and central Argentina, as weed in urban areas and on roadsides (Chaqueña, Del Espinal, Del Monte and Pampeana biogeographic provinces). Rosas (1989) also cited *A. suberecta* for III Region-Atacama and IV Region-Coquimbo (Del Desierto biogeographic province). In Bolivia, it grows in La Paz department, and Múlgura and Galarza (2014) also record *Atriplex suberecta* from Cochabamba department (Fig. 3).

Specimens examined

ARGENTINA. Buenos Aires: Partido Ensenada, Punta Lara, camino a Villa Elisa, *A.M. Cialdella et al. 138*, 15 December 1992 (SI). Córdoba: Departamento San Justo, Marull, 8 km S de Mar Chiquita, *A. Burkart 20448*, 27 February 1957 (SI). Entre Ríos: Departamento Gualaguaychú, Ceibas, camino a Médanos, *N. Troncoso & N. Bacigalupo 3132*, 2 November 1981 (SI). Formosa: Departamento Patiño, Ruta 86, 10 km O Gral Manuel Belgrano, *R.A. Palacios et al. 711*, 7 January 1978 (SI). Jujuy: Departamento Tumbaya, Laguna Calera de Volcán, *A.L. Cabrera et al. 34736*, 23 March 1992 (SI). La Pampa: Departamento. Capital, Anguil, *P.E. Steibel 1457*, 24 April 1968 (SI). La Rioja: Departamento Chamental, Chamental, *F. Biurrun 245*, 9 August 1976 (SI). Mendoza: Departamento Las Heras, Las Heras, precordillera, Jagüel de La Pampa, *F.A. Roig 5517*, 1 May 1967 (MERL). Salta: Departamento Rosario de Lerma, Quebrada del Toro, Chorrillos, *L. Novara 4002*, 17 February 1985 (MCNS). San Juan: Departamento Rawson, *R. Kiesling et al. 4858*, 26 November 1984 (SI). Santa Fe: Departamento Caseros, Laguna Santa Lucía, a 300 m del límite con Córdoba y a 20 km E de Camilio Aldao, *A. T. Hunziker 18979*, 1 December 1966 (SI). Santiago del Estero: Departamento Sarmiento, Ruta 34, cerca de Garza, *A.L. Cabrera et al. 28066*, 24 September 1976 (SI). BOLIVIA. Departamento La Paz: Provincia Murillo, La Paz, zona Santa Bárbara, *E. Valenzuela 176*, 10 March 1982 (SI). Departamento Santa Cruz: Provincia Caballero, de Comarapa a San Isidro, 3 km NW del puente de San Isidro, *M. Nee et al. 52176*, 17 April 2002 (SI).

53. *Atriplex taltalensis* I.M. Johnst., *Contr. Gray Herb.*
85: 30 (1929)

Type: Chile, Departamento Taltal, Aguada de Miguel Díaz, 4 December 1925, I.M. Johnston 5379 (holo: GH barcode 00037166, photo!; iso: K barcode 000583237, photo!; S-R-549, photo!; US barcode 00102649!).

Nomenclatural notes

A paratype (*E. Werdermann* 859) of this name is housed in B (barcode 100242020).

Iconography

Rosas (1989), p. 57, fig. 23.

Distribution

Atriplex taltalensis is endemic to I Region-Tarapacá and II Region-Antofagasta, mainly near Taltal, in Chile (Del Desierto biogeographic province; Fig. 2).

Specimens examined

CHILE. I Región-Tarapacá: Provincia Iquique, Alto Patache, *E. Belmonte* 97712, 23 November 1997 (CONC). II Región-Antofagasta: Provincia Antofagasta, Aguada Miguel Díaz y quebradas al sur, *C. Marticorena et al.* 693, 8 October 2005 (CONC); Taltal, Quebrada Los Changos, *G. Montero* 2958, 10 September 1936 (CONC); Quebrada de Taltal, faldeos, *C. Jiles* 5481, 10 November 1969 (CONC); alrededores de Taltal, *R. López* 22252, September 1938 (CONC); Paposo, El Rincón, *M. Ricardi* 2680, 27 September 1953 (CONC); Paposo, *A. Hoffmann & X. Rodríguez* 105, 10 November 1987 (CONC); Paposo, Quebrada Bandurrias, *F. Schlegel* 7853, 5 November 1985 (CONC); al S de Paposo, orilla del mar, *C. Jiles* 4970, 7 October 1966 (CONC); Quebrada Paposo, en laderas y entre los rodados, *M. Quezada & E. Ruiz* 212, 4 October 1991 (CONC); Provincia El Loa, Chuquicamata, *E. Werdermann* 372, 21 June 1970 (SI).

54. *Atriplex tatarica* L., *Sp. Pl.* 2: 1053 (1753)

Type: 'In Tataria, Hort. Ups. 303' (lectotype LINN1221.10, photo! designated by Hedge 1997, p. 75)

Iconography

Múlgura de Romero (1982), p. 65, fig. 6; Rosas (1989), p. 70, fig. 31.

Distribution

Atriplex tatarica is a Euro-asiatic species, adventive in Africa, North America, Argentina and Chile, where it behaves as a weed (Fig. 3). It occurs in central and southern Argentina (Del Espinal, Del Monte, Pampeana and Patagónica biogeographic provinces) and the Metropolitan Region-Santiago (Chilena biogeographic province) in Chile.

Specimens examined

ARGENTINA. Buenos Aires: Partido Coronel Rosales, Punta Alta, *A. Soriano* 1599, 27 February 1945 (SI). La Pampa: Departamento Atreuco, Macachin, *H.O. Troiani & F. Peres* 3799, 11 February 1976 (SI). Mendoza: Departamento Malargüe, Malargüe, *E. Martínez Carretero* 2177, 10 December 2001 (MERL); *D. Dalmasso* 952, 16 February 1989 (MERL). Río Negro: Departamento Pichi Mahuida, Río Colorado, *leg. ign.*

25953, 16 December 1977 (SI). CHILE. Región Metropolitana de Santiago: Provincia Santiago, en la base del Cerro San Cristobal, *E. Navas* 683, 14 May 1954 (CONC).

55. *Atriplex undulata* (Moq.) D. Dietr., *Syn. Pl.* 5: 536 (1852)

Obione undulata Moq., in A. P. de Candolle (ed.), *Prodr.* 13(2): 110 (1849).

Type: Argentina, Patagonia, *A. D'Orbigny* 252 (lecto: P barcode 04952220, photo! designated here).

Nomenclatural notes

We located the original collections of D'Orbigny and Tweedie in Patagonia in P, K and E. Two specimens housed in P (barcodes 04952220 and 04603457) are labelled 'Patagonia. Voyage de A. D'Orbigny dans l'Amérique Méridionale'. We selected as lectotype P barcode 04952220 because it is the most complete. D'Orbigny *s.n.* (P barcode 04952222), collected in Bolivia, does not correspond to *A. undulata*, and it may be assigned to *A. imbricata*, on the basis of leaf morphology (base cordate and imbricate arrangement, versus base cuneate or truncate and loose arrangement). In addition, the distribution area of *A. undulata* does not reach to Bolivia. Remaining syntypes of this name are: *Tweedie s.n.* (E barcode 00296930, K barcodes 000583239 and 000583240).

Iconography

Cabrera (1939), p. 15, fig. 8e; Múlgura de Romero (1981), p. 141, fig. 5g-k.

Distribution

Atriplex undulata is a well known species, growing in salty soils from Córdoba province to northern Patagonia in Argentina (Del Espinal, Del Monte, Pampeana and Patagónica biogeographic provinces; Fig. 2).

Specimens examined

ARGENTINA. Buenos Aires: Partido Bahía Blanca, Balneario Villa del Mar, *O. Boelcke* 3021, 9 February 1948 (CTES). Córdoba: Departamento Juárez Celman, Ruta 8, 23 km E de La Carlota, *M.E. Múlgura* 1118, 11 December 1991 (SI); Departamento Roque Sáenz Peña, Gavilán, Ruta 7, *A.D. Rotman et al.* 283, 21 April 1980 (SI). La Pampa: Departamento Capital, Santa Rosa, camino a Parque Luro, *C. Ezcurra* 20, 29 December 1979 (SI); Departamento Utracán, entre A. Roca y P. Buodo, *H.O. Troiani et al.* 3779, 11 February 1976 (SI). Mendoza: Departamento Capital, CRICYT-IADIZA, *C.B. Passera s.n.*, 25 March 1986 (MERL); Departamento Las Heras, Potrerillos, *R. Zanzia* 726, 25 January 1916 (MERL). Neuquén: Departamento Pehuenches, Buta Ranquil, *C. Ezcurra* 186, 25 January 1980 (SI). Río Negro: Departamento Avellaneda, Ruta 22, 25 km O de Chimpay, *A.D. Rotman & S. Botta* 84, 28 February 1978 (SI); Departamento San Antonio, San Antonio Oeste, *F. Anderson et al.* 3225, 28 November 1984 (SI). San Luis: Departamento La Capital, entre La Costa y Beazley, *D.L. Anderson et al.* 3605, 22 February 1979 (SI). Santa Fe: Departamento San Cristobal, Bajo La Cesarina, La Cabral, *S. Stofella* 352, 23 March 1985 (CTES).

56. *Atriplex vallenarensis* Rosas, *Gayana, Bot.* 46(1–2): 54 (1989)

Type: Chile, III Región, Provincia Huasco, 5 km S of Vallenar, 16 February 1985, *M. Rosas* 575 (holo: CONC 83749, photo!).

Iconography

Rosas (1989), p. 58, fig. 24.

Distribution

Atriplex vallenarensis occurs from southern III Region-Atacama to Limarí province in IV Region-Coquimbo in Chile (Chilena and Del Desierto biogeographic provinces; Fig. 2).

Specimens examined

CHILE. III Región-Atacama: Provincia Huasco, 5 km S de Vallenar, *M. Rosas* 575, 16 February 1985 (CONC); *M. Rosas* 578, 16 February 1985 (CONC); *M. Rosas* 577, 12 February 1985 (CONC); *M. Rosas* 576, 16 February 1985 (CONC). IV Región-Coquimbo: Provincia Elqui, La Serena, *E. Werdermann* 372, August 1924 (CONC); Provincia Limarí, Ovalle, Fray Jorge, *E. Werdermann* 895, November 1925 (CONC).

57. *Atriplex vulgatissima* Speg., *Revista Fac. Agron. Univ. Nac. La Plata* 3: 569 (1897)

Type: Argentina, Santa Cruz, Isla de los Leones, February 1892, *C. Spegazzini s.n.* (lecto: LP barcode 003128, photo! designated by Múlgura de Romero (1981, p. 134); isolecto: K barcode 000583241, photo!; SI barcodes 001285! and 001286!)

Atriplex reichei Volkens in Dusén, *Wiss. Ergebn. Schwed. Exped. Magellansl.* 3(5): 190 (1900).

Type: Argentina, Tierra del Fuego, Río Grande, Bahía San Sebastián, 9 January 1896, *P. Dusén* 355 (probable syntypes: UPS 228487, photo!; MO 216269, photo!).

Atriplex macrostyla Speg., *Anal. Mus. Nac. Buenos Aires* 7: 144 (1902).

Type: Argentina, Santa Cruz, Río Chico, 1897–98, *C. Ameghino s.n.* (lecto: LP barcode 003104, photo! designated here).

Nomenclatural notes

Remaining syntypes for the name *A. vulgatissima* are: Golfo San Jorge, February 1896, *C. Ameghino s.n.* (LP barcode 011152) and Isla de los Leones, 1874, *C. Berg* 142 (LP barcode 011153).

In the protologue of *A. reichei*, Dusén stated: ‘Hab. Fuegia orientalis: Bahía San Sebastian; Río Grande’. Also, in the introduction of his work (p. 82), he named many places in Tierra del Fuego where he collected, including Río San Martín. We found a specimen in UPS from Río San Martín, which agrees with the original description, and we consider it a possible syntype. There is a specimen in MO with the same collector, collector number, locality information and date, with the legend ‘Ex Herbario Musei Botanici Upsaliensis’.

Syntypes of *A. macrostyla* in LP, collected by *C. Ameghino*, are Río Chico, January 1897 (LP barcodes 003103 and 003104),

December 1897 (LP barcode 003101), January 1898 (LP barcode 003102) and Río Deseado, 1899 (LP barcode 003105). We selected as lectotype LP barcode 003104, because it is the most complete, and with long, exerted styles, is in agreement with the original description, and the diagnostic feature of the species.

Iconography

Múlgura de Romero (1981), p. 136, fig. 4l–o; Giusti (1984), p. 111, fig. 81; Rosas (1989), p. 60, fig. 25.

Distribution

Atriplex vulgatissima occurs in the Patagónica biogeographic province in Argentina. In Chile, it is distributed in XII Region-Magallanes, in Magallanes and Tierra del Fuego provinces (Subantártica biogeographic province; Fig. 5).

Specimens examined

ARGENTINA. Chubut: Departamento Biedma, Península Valdez, Punta Norte, *J. Daciuk* 107, 19 November 1969 (SI); Isla de los Pájaros, Golfo San José, Istmo San Carlos, *B.C. Piccinini* 1185, 9 November 1968 (CONC); Departamento Río Senguerr, Bajo de la Salina, *E.G. Nicora* 7524, 18 February 1970 (CTES). Santa Cruz: Departamento Corpen Aike, Isla de los Leones, *A. Soriano* 5699, 28 January 1958 (CONC); Departamento Güer Aike, Estación Experimental Río Chico, *O. Boelcke et al.* 12331, 13 January 1967 (SI); Departamento Magallanes, San Julián, playa en camino a Comandante Piedra Buena, *F.B. Vervoort* 5686, 27 January 1958 (SI); Puerto San Julián, *O. Boelcke et al.* 12230, 12 January 1967 (SI). Tierra del Fuego: Departamento Río Grande, Río Grande, *D. M. Moore & N. Goodall* 392, 6 January 1972 (SI); *N. Goodall* 3302, 8 January 1971 (SI). CHILE. XII Región-Magallanes: Provincia Magallanes, Punta Delgada, Buque Quemado, *O. Dollenz* 500, 3 December 1978 (CONC); Estrecho de Magallanes, *T. Tsujii* 658, Jan. 1966 (CONC); Provincia Tierra del Fuego, Punta Espora, *E. Pisano & O. Dollenz* 4521, 27 November 1975 (CONC).

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