

## Some notes on the flora of northern Chile

By

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Gray Herbarium of Harvard University

During a recent trip to Europe I was again able to study in a number of the large herbaria there. It was possible, hence, to examine certain critical material and to attempt to settle some of the questions which had arisen while working over my own Chilean collections and preparing to publish concerning them. I now find it possible, accordingly, to put on record in this paper some critical notes bearing upon the distribution and identity of a few particular plants of northern Chile.

**Hoffmanseggia gracilis** (R. & P.) H. & A. Bot. Misel. iii. 209 (1833); Johnston. Contr. Gray Herb. LXXXV. 49 (1929).

Hooker & Arnott, l. c., reported this species from Coquimbo upon the basis of a collection made by Cuming (no. 880). As the species does not appear to have been subsequently reported in Chile from south of Taltal there has been some doubt as to the correctness of the identification made by these authors. Recently I have examined Cuming's collection in the Hooker Herbarium which is now part of the great herbarium at the Royal Botanic Gardens at Kew. This examination shows the plant to be obviously conspecific with those which Philippi and later I collected in northern Chile and determined as *H. gracilis*. Although there can no longer be any doubt as to the identity of Cuming's plant, I am inclined to believe that its published source should be doubted. According to the manuscript plant-list prepared by Cuming his specimens numbered 853-911 and 1436 are from "Coquimbo". I have

however, had other occasions to doubt if all these collections actually came from the port of that name or even from any part of the Province of Coquimbo. I strongly suspect that some of them may have been collected much farther north about some of the small ports which Cuming no doubt visited as he cruised northward and carried on his conchological collecting.

*Astragalus coquimbensis* (H. & A.) Reiche, Anal. Univ. Chile xcvi. 566 (1897). *A. vasticola* Johnston, Contr. Gray Herb. lxxxv. 51 (1929).

I have examined the type of *A. coquimbensis* and find it is indistinguishable from the plant of the coastal area between Caldera and Taltal which I recently separated as *A. vasticola*.

**Tetreilema** Turcz. Bull. Soc. Nat. Moscou xxxvi. pt. 2, 199 (1863.)

When he described the genus *Tetreilema* Turczaninow placed it in the *Verbenaceae* and seems to have thought that its relatives were in the section *Glandularia* of the genus *Verbena*. Two species were described, one from the port of Coquimbo and another from Cobija. Despite the fact that the flora at both these places is well known and that the localities have been visited by many botanists no one has succeeded in identifying Turczaninow's two species. His genus has remained a complete puzzle. Bentham & Hooker, Gen. Pl. ii. 1137 (1876), and Briquet, E. & P. Nat. Pflanzenfam. iv. Abt. 3.<sup>a</sup>, 182 (1895), were unable to place *Tetreilema* and were forced to list it among the genera doubtfully or incorrectly placed in the *Verbenaceae*. This uncertainty as to the identity and position of *Tetreilema* I believe to have been due to the fact that the genus was based, at least in part if not entirely, upon material of *Frankenia* incorrectly described.

The two species of *Tetreilema* proposed by Turczaninow are *T. articulatum* Turcz., l. c. 200, based upon Bridges 1385 from Coquimbo and *T. (bolivienense sic!) bolivienense* Turcz., l. c. 200, based upon d'Orbigny 276 from Cobija. The types of these species are pro-

bably in Krakau, Poland. During a recent visit to Europe I hunted for duplicates of these collections in the herbaria at Kew, Berlin and Geneva. At Kew I found a specimen of *d'Orbigny* 276; it is clearly a *Frankenia*. This material of d'Orbigny's is, in fact, quite like the *Frankenia* collected at Cobija by Gaudichaud and subsequently described as *Frankenia farinosa* Remy, a species which I consider synonymous with *F. chilensis*, var. *aspera* (Ph.) Johnston, Contr. Gray Herb. lxxxv. 77 and 152 (1929). Turczaninow's description of *T. bolivicense*, except that the corolla is said but slightly to surpass the calyx, agrees well with material of *Frankenia* from Cobija. It thus seems reasonable to believe that at least *T. bolivicense* was based upon material of *Frankenia*.

The identity of *Tetrcilema articulatum*, unfortunately, remains rather uncertain although it too may have also been based upon specimens of *Frankenia*. I have consulted a manuscript plant-list which Bridges prepared in Chile and sent along with his specimens to England and have ascertained that his specimens numbered 1384 and 1385 were collected in "valleys near the town of Coquimbo". The collection numbered 1385 (the one cited by Turczaninow) is indicated as being doubtfully a species of *Boerhaavia* and as being a purple-flowered perennial. While at Kew I spent considerable time searching in the herbarium for this collection since it is known definitely that the first and best set of Bridges's plants are in that herbarium. Although I looked for it in every likely genus that I could imagine I failed to find the collection bearing Bridges's number 1385. Over fifty years ago Bentham & Hooker, l. c. also reported their inability to locate this particular collection.

Perhaps it may be only a remarkable coincidence, but nevertheless I have been impressed by the fact that I did find, both in the Kew and the Delessert Herbarium, specimens of *Frankenia chilensis* Presl bearing Bridges's number 1384, the number next to that cited

by Turczaninow. There are numerous cases of confusion of labels and material in Bridges's collections, cf. Miers, Ill. So. Am. Pl. ii. 25, adnot. (1857). It is not impossible that some confusion has occurred and that the specimens of the *Frankenia* (under no. 1384) at Kew and Geneva are part of the same material which was described by Turczaninow (under no. 1385) as *T. articulatum*. In Bridges's plant-list no. 1384 is listed, unquestioned, as a species of *Tetragonia* with the additional note that the plant is doubtfully perennial. In the plant-list the numbers 1381, 1382 and 1383 are also indicated as being species of *Tetragonia*. These collections I readily located in the Kew Herbarium and found that they represented *Tetragonia macrocarpa* Ph. and the narrow-leaved and the broad-leaved forms of *Tetragonia maritima* Barn. Bridges obviously had a good idea as to the habit and general characters of *Tetragonia*. It scarcely seems possible that he should misidentify a *Frankenia*, with its relatively conspicuous and colored corolla, tubular calyx and very different habit, as a *Tetragonia*. One can readily suspect, therefore, that Bridges no. 1384 belongs to some succulent species and that, in the manner described by Miers, l. c., the number has become improperly associated in the herbaria at Kew and Geneva with the *Frankenia* which should properly bear the number 1385. It is not impossible, hence, that *Tetrolema articulatum* was also based upon material of *Frankenia*.

**Eremocharis fruticosa** Ph. Fl. Atac. 25 (1860); Johnston, Contr. Gray Herb. lxxxv. 90 (1929).

This species must be added to my list of the "Flora of the Nitrate Coast". In the herbarium at Berlin I have seen a thoroughly typical collection of it made in July 1836 at Cobija by Gaudichaud.

**Nolana filifolia** (H. & A.), comb. nov. *Convolvulus* ? *filifolius* H. & A. Bot. Beechey voy. 35 (1830); Hallier, Bull. Herb. Boiss. vi. 720 (1898). *Alona glandulosa* Lindl. Bot. Reg. xxx. sub t. 46 (1844). *Ipomoea* ? *Cruckshanksii* Choisy in DC. Prodr. ix.

389 (1845). *C. linifolius* H. & A. ex. Choisy in DC. Prodr. ix. 389, sub no. 271 (1845). *N. glandulosa* Miers ex Dunal in DC. Prodr. xiii, pt. 1, 14 (1852). *Fabiana grandiflora* Dunal in DC. Prodr. xiii. pt. 1, 591 (1852).

Halier, l. c., has correctly indicated that *Convolvulus filifolius* H. & A. is a synonym of *Nolana glutinosa*. Since Hooker & Arnott named their plant nearly fifteen years before Lindley proposed *Alona glutinosa* the latter name must subside into synonymy. The type material of *N. filifolia* came from Coquimbo as did also the type of *N. glandulosa*. The type of *Fabiana grandifolia*, which I examined in Geneva, is merely given as from "prov. Coquimbo". As the type of this latter species seems to be part of the same collection by Gay that has been distributed from Paris identified as *Alona glandulosa*, it is very probably from the hills near La Serena (adjacent to Coquimbo), the source given for his material of *A. glandulosa* by Gay, Fl. Chile v. 111 (1849).

**Bargemontia peruviana** Gaud. Voy. Bonite, Bot. Atlas tab. 8 (1839-42).

I have seen authentic material of this species in the herbaria at Berlin and Geneva. The type was collected at Cobija in July 1836 by Gaudichaud. It was correctly interpreted by me in a recent paper, Cont. Gray Herb. lxxxv. 159 (1929). At Berlin and Leiden I also examined the material of *Herzog* 2455 from Antofagasta which was reported as *Dolia macrocalyx* by Herzog, Meded. Rijks Herb. no. 29, pág. 22 (1916). This material is typical *B. peruviana*. Pearce's plant mentioned by Bentham & Hooker, Gen. Pl. ii. 880 (1876), is also typical *B. peruviana*. The label accompanying Pearce's collection states that it came from "rocks about Cobija near the sea, Aug. 1864" and that it was "the only plant seen here".

**Nicotiana breviloba** Jefferys, Kew Bull. 1894: 102 (1894).

While at Kew I examined the type of *N. breviloba* and now feel confident that the species belongs among the synonyms of *N. solanifolia* Walp. The type of Jeffreys's species was collected by Cuming, no. 860, and is given as from Coquimbo which is very much further south than any indubitable station for the species known to me.

**Fabiana squamuligera** Dunal in DC. Prodr. xiii. pt. 1, 591 (1852).

I examined the type of this species at Geneva and found that it represents, not a *Nolanacea* as suggested by Reiche, Fl. Chile v. 377 (1909), but a species of *Phrodus*, apparently one referable to *Phrodus nodosus* Miers, Ann. & Mag. Nat. Hist. ser. 2, iv. 35 (1849) and 111. So. Am. Pl. ii. 26, t. 42b (1857). Dunal's species is based upon collections from the "prov. Coquimbo" by Gay and by Bridges (no. 1333). Gay's collection was distributed as a "*Nolana*" and was apparently unplaced in his Flora de Chile. Bridges's collection no. 1333 was not only cited by Dunal as representing his *F. squamuligera* but also by Miers and is, in fact, the type collection of *Phrodus nodosus* Miers. This collection by Bridges was not collected at Coquimbo, as originally given, but, as shown by Bridges's plant-list, in the the "Valley of Copiapó"!

**Fabiana viscida** H. & A. Bot. Beechey Voy. 36 (1830). *F. ericoides* Dunal in DC. Prodr. xiii. pt. 1, 590 (1852). *F. cordifolia* Dunal, 1. c. *F. Barriosi* Ph. Anal. Univ. Chile xc. 763 (1895). *F. coridifolia* Dunal ex Reiche, Fl. Chile v. 375 (1910), lapsu calami. *F. densa* of Ph. 1 c.

I have seen the the types of all the species mentioned above. The type of *F. viscida* was collected by Cruckshanks "near Barasca", that of *F. ericoides* by Gay "prope del Tendente (Barrosa)" and that of *F. Barriosi* by the younger Philippi "in monte Frai Jorje

ad ostium fuminis Limari". These types appear to have come from the same region, if not from the same locality, as the similarity in the names of the collecting-localities and Philippi's selection of a specific name would suggest. The locality concerned is no doubt that now called Barraza, a small village on the Rio Limarí near the east base of the fog-bathed coastal hills near Fray Jorge. Formerly it was a stopping place on an old stage-road between Coquimbo and Santiago. The type of *F. ericoides* is very probably part of the collection from "Barasa" reported by Remy, Gay Fl. Chile v. 43 (1849), as *F. viscida*. As already intimated the specific name selected by Philippi for *F. Barriosi* also suggests that the type of that species came from the vicinity of Barraza. In this connection it will be noted that Reiche, Fl. Chile v. 376 (1910), gives the source of *F. Barriosi* as from the "pié oriental del monte de Frai Jorge", which is exactly where the town of Barraza is located. The notes given by Remy, l. c., under *F. viscosa* seem to be sufficient to identify the type material of *F. cordifolia* as parte of that material collected by Gay "circa del mal paso de Guanto". The species varies somewhat in the abundance of its leaves and in the length of its calx-lobes but these variations are minor ones. It ranges at altitudes below 1500 m. from southern parts of the Province of Coquimbo to the lower cordilleras southeast of Copiapó. The species is very distinct.

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