

The Genus *Coluria*, R. Br.

BY

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With Plates Nos. CCXIII, CCXIV.

THE facts presented in this paper were brought together while studying the relationships of the plant previously known as *Potentilla Purdomii*, N. E. Brown, and are here published in the hope that they may, in their present form, be of use to those interested in the Chinese flora.

The genus *Coluria* was erected by Robert Brown in the year 1824 for the reception of the single eastern Siberian species *C. geoides*. Three additions have since been made to it,* all from Chinese territory, namely *C. longifolia*, Maxim. in 1881, *C. Henryi*, Batalin in 1893 and *C. elegans*, Cardot in 1916; while it is now proposed to add a further species, also from China, under the new combination *Coluria Purdomii*.† Unfortunately the exact affinity of one of these, *C. longifolia*, is altogether doubtful at present owing to quite inadequate diagnosis; it is, however, a form probably quite closely related to *C. elegans* and possibly identical with it, in which case the latter name may have to give place to the former.

It might be well to give here a brief statement of those characters at present held to distinguish the genus *Coluria* from certain allied genera which occupy the same distributional area and are consequently liable to be confused with it:—

Ovule (and later the seed) *pendulous*; epicalyx present,
stamens and carpels indefinite, receptacle dry

POTENTILLA.

Ovule *ascending*:—

Style, on maturity, *deciduous at its base*:—

Carpels *not exceeding 6*, filaments *soon withering*.

WALDSTEINIA.

Carpels *numerous*, filaments *persistent*. COLURIA.

Style, or at least its lower part, *permanently attached to the achene*:—

Upper part of the style ultimately deciduous. GEUM.

Entire style persistent on the achene. SIEVERSIA.

* *Coluria mongolica*, Maxim., cited in Index Kewensis, i, 587, is an error for *Potania mongolica*, Maxim.

† For the full account of this plant see p. 52.

From the key to the species of *Coluria* given below it will be seen that these fall into two quite distinct groups. In the first and, since it contains the genotype, the more typical of these, are included *C. geoides*, Ledeb. and *C. Henryi*, Batalin, both distinguished by the possession of scurfily papillose achenes and leaves in which the terminal leaflet or lobe is large and the lateral leaflets rather few and of smaller size. The remaining species form the second and less typical group, characterised by glabrous or slightly hispid achenes, devoid of scurfiness, and leaves with a terminal lobe not conspicuously larger than the numerous lateral leaflets. So similar in general appearance is the Himalayan *Geum* (*Sieversia*) *elatum*, Wall. to the members of this second group that it is scarcely surprising to find them, in the past, usually identified with one of its varieties; indeed, in every case where Chinese records of *Geum elatum* have been revised they have been found to refer to *Coluria elegans*, Cardot, and it is therefore at present doubtful whether the distribution of the former plant actually extends into China.*

The genus *Coluria* would seem to have its maximum development, so far as can be judged at present, in the central and southern Provinces of China, the aggregate distribution of the four species endemic to that country ranging from Yunnan northwards through Szechuan and eastern Tibet to Kansu and westwards as far as Hupeh and Shensi.†

Key to the Species.

After examining many flowers I have found the number of stamens altogether too variable to allow of its satisfactory use as a key character in separating some of the species. With regard to the staminodes, stated by Maximowicz to occur in *C. geoides*, Ledeb., these have not been observed by other botanists nor could they be seen in the very few flowers available to me for dissection. Should their constant presence in that species be demonstrated, however, they would give a strong character by which to separate it from the allied *C. Henryi*, Batalin.

A. Surface of the achenes covered with *distinct scurfy papillae*, devoid of hairs:—

1. Radical leaves in outline *rather gradually narrowed* below the moderately large *not cordate* terminal leaflet or lobe, the uppermost lateral lobes well developed; cauline leaves arising throughout the length of the stem, *all alternate* *C. GEOIDES* (p. 49).

* See Cardot in Notul. System. Paris, (1916), 225 and my own 'Note on the Varieties of *Geum elatum*, Wall.' in Notes, Roy. Bot. Gard. Edin., xiv (1923), 27.

† Dr. Diels' record of *Geum elatum*, var. *humile* in Engl. Bot. Jahrb., xxix, Heft ii (1900), 404 refers probably to a *Coluria*.

2. Radical leaves suddenly contracted below the large broadly ovate more or less cordate terminal leaflet or lobe, lateral leaflets all much reduced in size, lowest cauline leaves an opposite pair inserted at about the middle of the stem C. HENRYI (p. 50).
- B. Surface of the achenes smooth, glabrous or sparingly hispid:—
3. Flowering stem branched only in its upper part, bearing few (1-4) flowers which vary from 1.5 to 2.75 cm. in diameter; stamens usually very numerous C. ELEGANS (p. 50).
4. Flowering stem branched throughout, bearing numerous flowers (in the type about 20) which do not exceed 1.7 cm. in diameter; stamens rather few (not above 25 in the type) C. PURDOMII (p. 52).

Enumeration of the Species.

1. *Coluria geoides*, Ledeb. Fl. Alt., ii (1830), 263.
Dryas geoides, Pall. Reise, iii, App. (1776), 732; tab.
Caryophyllata potentilloides, Lamk. Encycl., i (1784), 395.
Geum Laxmanni, Gaertn. Fruct., i (1788), 352; t. 74.
Geum potentilloides, Ait. Hort. Kew., Ed. 1, ii (1789), 219.
Coluria potentilloides, R. Br. in Parry, 1st Voy., Suppl. to App. (1824), cclxxvi.
Sieversia geoides, Spreng, Syst. Veg., ii (1825), 543, no. 4.
Laxmannia geoides, Fisch. MSS. apud Ledeb. Fl. Alt., ii (1830), 263.

SOUTHERN SIBERIA: *Altai, Tomsk and Yeniseisk.*

Maximowicz states,* in comparing his *Coluria longifolia* with the present species, that staminodes are present in the latter. "Altera species, *Coluria geoides*, R. Br.," he writes, "praeter tomentum densum foliola habet pauciora in folium oblongo-ovatum collecta, rachin dentatam, flores minores, petala rotunda, stamina circiter 30, staminodia ampla inflexa." I am unaware of any other reference to these staminodes and in the very few flowers, all from cultivated plants, which I have had an opportunity of examining they did not appear to exist. Should the study of more copious material demonstrate their regular occurrence, they would form a very characteristic feature of the present species since they are certainly wanting in all other members of the genus.

Coluria geoides was, according to Aiton,* introduced into cultivation so long ago as 1780 by Dr. Peter Simon Pallas.

2. *Coluria Henryi*, Batalin, in Act. Hort. Petrop., xiii (1893), 94.

CHINA: "Western China, Patung" (E. H. Wilson, 261), Szechuan (Farges, 785) Hupeh (Henry, 5400).

The specimens collected by Farges in Szechuan have been made by Cardot† the basis of two named varieties:—var. *pluriflora*, characterised by the possession of stouter stems bearing from 2 to 4 flowers distinctly overtopping the leaves, which have less evidently petiolate leaflets, the terminal one being also less broad than in the type; and var. *grandiflora*, distinguished by its more slender stems with only one or two somewhat larger blooms.

Plants gathered by Wilson at Patung, of which I have seen those examples preserved at Kew, are, as Cardot states, intermediate between the type and his var. *pluriflora*. Farges indicates, moreover, that he obtained the types of both the proposed varieties growing together; it would, therefore, seem doubtful whether the differences found in the few gatherings at present known will prove sufficiently stable to allow of their being regarded as even of varietal significance.

3. *Coluria elegans*, Cardot, in Notul. System. Paris, iii (1916), 225.

Geum elatum, var. *humile*, Franch. Pl. Delav., i (1889), 208; Diels, Fl. v. Cent.-China in Engl. Bot. Jahrb., xxix, Heft ii (1900), 404 et Pl. Chin. Forrest, in Notes, Roy. Bot. Gard., Edin., vii (1912), 108, no. 2212.

Plate CCXIII.

CHINA: Yunnan; Lichiang Range (Delavay, 34).

"Mountain pasture land on the eastern flank of the Lichiang Range. Lat. 27° 12' N. Alt. 11-12,000 ft. Plant of 3-5 inches. Flowers yellow." In flower, May 1906. G. Forrest, 2212!

"Open, rocky pasture, eastern flank of the Lichiang Range. Lat. 27° 20' N. Alt. 11-12,000 ft. Plant of 4-9 inches. Flowers golden yellow." In flower, May 1910. G. Forrest, 5692!

"Mountain pasture, eastern flank of the Lichiang Range. Lat. 27° 30' N. Alt. 12-14,000 ft. Plant of 6-10 inches.

* Alt. Hort. Kew., Ed. 1, ii (1789), 219.

† Notul. System. Paris, iii (1916), 227.

Flowers deep orange yellow." In flower and fruit, August 1910. G. Forrest, 6402!

Szechuan;* Yargong, Batang. Soulié, 3150, 3155, and 3979.

Kansu; Tatung Alps, Sining. "Alpine turf and becksides, 10,500-13,000 ft." In flower, June 1915. R. Farrer et Purdom, 517!

Coluria elegans, Cardot bears a strong superficial resemblance to that form of the Himalayan *Geum* (*Sieversia*) *elatum*, Wall. known as var. *humile*, Royle and, as has already been pointed out, all those Chinese records of the latter which it has as yet been possible to put to the test have proved to be the present species. Though described as glabrous, it is a curious coincidence that the achenes of *C. elegans*, both in plants received from Yunnan and from Kansu, not infrequently bear a more or less strongly developed apical tuft of hairs exactly similar to that elsewhere described by me† in the case of the vars. *leiocarpum* and *humile* of *G. elatum*. Its fruits can at once be separated from those of the Himalayan plant, however, by their possession of a short stipe and their loss at maturity of the whole style.

In comparing *C. elegans* with the imperfectly known *C. longifolia*, Maxim., M. Cardot considers‡ that his species may be distinguished by its having fewer—from 40 to 60—stamens. I have carefully examined numerous flowers of the former and have found that, even among plants collected in the same locality, there is great variation in this respect, the androecium being composed in some cases of 120 or more stamens. This supposed difference therefore falls to the ground; but there are reasons, for example the description of the leaf-rachis in *C. latifolia* as naked, for still regarding the identity of the two forms as doubtful.

Coluria Purdomii, comb. nov. (*Potentilla Purdomii*, N. E. Br.) is an extremely closely allied plant; so much so, indeed, that the late Reginald Farrer concluded that his Kansu specimens, which are very typical examples of *C. elegans*, were identical with it and provisionally named them accordingly. "*Potentilla Purdomii* (Farrer 517)," he writes,§ "was not known by this name till I saw it thus labelled at Chelsea Show in 1916. Evidently Purdom had got it unbeknownst, on his former expedition for Veitch. We certainly both thought of it as *Geum* in 1915, when we came upon it gilding the greener level stretches of flat and rather damp lawn high in the upmost

* M. Cardot has regarded Yargong (or Yaragong), which is situated S.W. of Batang in lat. 29° 29' N., long. 99° 22' E., as being in western Tibet; it seems, however, more correct to regard it as falling within Szechuan.

† Notes, Roy. Bot. Gard. Edin., xiv (1923), 27.

‡ Notul. System. Paris, iii (1916), 226.

§ "Report of Work in 1916 in Kansu and Tibet" in Journ. Roy. Hort. Soc., xlii (Sept., 1917), 340.

sweeps of the alps with a solid sweep of its yellow flowers." Purdom's plant, grown from seed by Messrs J. Veitch and Sons, differs in its much more branched and prolific flowering-stems as well as in its rather smaller blooms with fewer stamens, and it is worthy of emphasis that the numerous seedlings raised from Farrer and Purdom's no. 517 in the Royal Botanic Garden, Edinburgh, have retained in every detail the characteristics of *C. elegans* showing, even after the lapse of years, no tendency whatever to assume under garden conditions those features which distinguish *C. Purdomii*, as represented in the type sheets at Kew.

Soulié no. 3979 has been made the basis of a variety of the present species, var. *imbricata*, Cardot,* characterised by its very close and imbricated leaflets and by the possession of larger, apically crenate lobes upon the rachis between the leaflets. It is specially noted by the collector, however, that the specimens in question were obtained from high mountains and it seems possible that they should be regarded as no more than a high-alpine form of the plant.

In cultivation *C. elegans* is quite hardy and being of neat, compact growth with foliage pleasing both in form and colour, its yellow blooms moreover being borne in sufficient profusion, it is without doubt a desirable acquisition to our gardens. In the Royal Botanic Garden, Edinburgh, it has thriven equally well treated as a rock plant or grown in the open border.

4. *Coluria Purdomii*, comb. nov. et descr. emend. W. E. Evans.

Potentilla Purdomii, N. E. Brown in Kew Bull., 1914, 184.

Geum Purdomii, Hort.
Plate CCXIV.

Species *C. eleganti*, Cardot valde affinis, caulibus floriferis parte inferiore ramosis, multifloris, floribus minoribus atque staminibus paucis sat distincta.

Herba perennis ad 30 cm. alta. Folia radicalia pinnata 8-15 cm. longa 1.5-2.7 cm. lata erecta apice recurva; foliola 11-20-juga valde approximata 0.6-1.5 cm. longa 0.7-1.7 cm. lata suborbicularia basi latissime sessilia (haud contracta) 5-11-dentata, alterna foliorum parte superiore minora ovata integra, supra glabra subtus pilis perpaucis conspersa utrinque viridia; folia caulina 2-3 sessilia pinnatisecta 1.5-3.5 cm. longa segmentis lanceolatis acutis integris; stipulae pinnatifidae. Caules floriferi ad 30 cm. alti utrinque multi-ramosi ramis circ.

* Notul. System. Paris, iii (1916), 226.

7 sub-corymbose dispositis apice laxe 2-5-floris minute puberulis rubescentibus. Pedicelli 1.0-3.5 cm. longi glanduloso-puberuli. Sepala exteriora 3 mm. longa lineari-lanceolata sub-acuta, interiora 4.5-6.0 mm. longa anguste deltoidea acuta glanduloso-pubescentia. Corolla 1.5-1.7 cm. diametro lutea; petala 6.0-6.5 mm. longa 7-8 mm. lata late obcordata basi biauriculata. Stamina 16-25. Discus glaber. Receptaculum breviter conicum glabrum. Carpella staminibus sub-isomera breviter stipitata 1.5 mm. longa apice tantum pilosa; stylus oblique terminalis 3 mm. longus filiformis maturitate basi delabens, stigmatibus acuto. Fructus maturus ignotus.

CHINA: "North China," without precise locality. Purdom, 563. Described from cultivated plants from the garden of Messrs Veitch, May 1914.

This interesting plant, known only from cultivated specimens raised by Messrs J. Veitch and Sons from seed collected by the late Mr W. Purdom, presumably in Kansu, was exhibited along with other alpine plants by Mr J. C. Allgrove at the Chelsea Show held in May 1916, under the name *Potentilla Purdomii*, N. E. Br., which it had meantime received.*

An examination of the type, for the loan of which I have to thank the Director of the Royal Botanic Gardens, Kew, where it is preserved, shows that it is not a *Potentilla*, but, as M. Cardot has pointed out,† a *Coluria* closely allied to his *C. elegans*. It appears to me, however, to be a distinct species, characterised by having flowering-stems which are copiously branched throughout their entire length and which are very floriferous, as well as flowers which are on the average smaller and possess fewer stamens. I feel myself fortified in this opinion by the fact that plants of *C. elegans*, numbers of which have been grown in various situations in the Royal Botanic Garden, Edinburgh, for several years, show not the slightest tendency to develop under cultivation those features just enumerated, but remain remarkably true to type, thus discounting the possibility that *C. Purdomii* might be only a garden form of *C. elegans*. The two species are figured in Plates CCXIII and CCXIV, which give a good idea of the general appearance of each.

Since, in the original diagnosis of *Potentilla Purdomii*, N. E. Br., no mention is made of certain important generic and specific characters, I have taken the liberty of giving above an amended description of the plant, based on the type; I have, however, retained Mr Brown's wording almost unaltered, remembering that he had the advantage of examining the plant

* Kew Bull., 1914, 184.

† Notul. System. Paris, iii (1916), 226, footnote.

in life, and have merely inserted, in their appropriate order, the additional data.

It seems certain that, whatever it may be proved to be, *Coluria longifolia*, Maxim., is not the present form, from which it apparently differs in its larger flowers with much more numerous stamens, its leaf-rachis devoid of lobules between the leaflets, etc.

As has already been stated, when dealing with *C. elegans*, Cardot, that species not infrequently has achenes showing an apical tuft of rather long hairs, quite similar to that found in the present species. Attention is here drawn to this, since the diagnosis of the former plant gives the impression that its fruits are always glabrous and thus is liable to suggest a difference which does not, in fact, exist.

SPECIES DUBIA, *Coluria longifolia*, Maxim. in Bull. Akad.

Petersb., xxvii (1881), 466 et Mém. Biol., xi (1881), 215.

“Viridis pilosa, foliis radicalibus linearibus multijugopinnatisectis, rachi nuda, segmentis orbiculatis grandicrenatis imbricantibus, foliis caulinis paucis ad segmenta 1–3 reductis; cauliculis plurifloris; petalis obcordatis, staminibus ultra 100, staminodiis nullis.”

CHINA: Kansu; “pratis alte alpinis, rara.” Przewalski.

I have quoted above the rather meagre description of this form for comparison with what has been written regarding its allies. Nothing more is known of it except that, by implication, its flowers must have been of somewhat large size for a *Coluria*, since those of *C. geoides*, Ledeb., are stated to be smaller and the whole plant less showy. Probably *C. longifolia* is one of the group containing *C. elegans*, Cardot and *C. Purdomii*, comb. nov., characterised by having glabrous or sparsely hispid but not scurfily papillose achenes and radical leaves in which the terminal leaflet or lobe is not conspicuously larger than the rather numerous lateral ones. Even this is, however, uncertain from the diagnosis and the species can only, for the present at least, be treated as doubtful.

EXPLANATION OF PLATES.

Illustrating Mr Evans' Paper on the Genus *Coluria*.

(Photographs by R. M. Adam, Assistant in Studio, Royal Botanic Garden, Edinburgh.)

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- PLATE No. CCXIII. *Coluria elegans*, Cardot. Typical examples. Farrer and Purdom, 517. $\times \frac{1}{4}$.
 PLATE No. CCXIV. *Coluria Purdomii*, comb. nov. Type specimen in Herb. Kew, Purdom, 563. $\times \frac{1}{4}$.

N



Herbar. no. 514.

Dissection of flower.

Hedysarum
11/12/22.

Coluria elegans, Cardot
det. *Hedysarum*

F. 517

Geum sp.

Alpine turf & becksides of the Dargach, 10500—13000 ft.

Coluria elegans, Cardot



Coluria Pardomii (N. E. Br.), W. E. Evans