

## Note on the Varieties of *Geum elatum*, Wallich.

BY

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With Plates Nos. CXCv and CXCvi.

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WHILE working out certain Chinese specimens, which had been regarded as forms of the well-known Himalayan *Geum elatum*, Wall., I had occasion to examine somewhat critically a considerable number of authentic examples of that species. In the hope of helping to elucidate its varieties, the results obtained are here set down.

The sub-genus *Sieversia* of the genus *Geum*, distinguished by the permanent attachment of the whole style to the achene, is represented in the Himalaya by two alpine species only, which may be recognised as follows:—

Radical leaves having well-developed lateral leaflets; the terminal leaflet or lobe not greatly exceeding the upper lateral ones, not cordate. . . . . *G. elatum*, Wall.

Radical leaves having only very much reduced lateral leaflets; the terminal leaflet or lobe very greatly exceeding the lateral ones, deeply cordate . . . . . *G. sikkimense*, Prain.\*

Of these, the latter seems to be both rare and local, having apparently been collected only on three occasions, always in Sikkim; the former, on the other hand, has a wide range throughout alpine Himalaya, extending from Kashmir to Sikkim at least; while Dr L. Diels in his "Flora von Central China"† states that the form of it known as var. *humile*, Royle is distributed through China from Kansu and Shansi to Yunnan, and Franchet records that it was collected by Delavay in the latter province.‡

The Chinese distribution, just referred to, seems to be based, largely at least, on misidentification and will in consequence require careful revision.§ I have, it is true, seen only three Chinese gatherings of reputed *Geum elatum*, all from Yunnan

\* Journ. As. Soc. Beng., lxxiii (1914), p. 200, Pl. 7.

† Engler's Jahrbuch., xxix (1900), p. 404.

‡ Plantae Delavayanae, p. 208.

§ See Cardot in Notul. System. Paris, iii (1916), p. 225.

and only one of them vouched for by Dr Diels\*, but since all these specimens have ascending ovules and basally deciduous styles and are thus referable to the genus *Coluria* not *Geum*, the area, if any, occupied in China by the species now under consideration must, for the present, be regarded as doubtful.

In the account of the varieties of *Geum elatum*, Wall. which follows, it will be seen that the type number Wall. Cat. 711 covers two of these. From the Catalogue itself it would appear that two distinct gatherings, one from Kumaon and one from Sirmore, were distributed under this number and it is therefore likely that all the specimens from one of these localities were what I here name var. *typicum*, those from the other being the full-statured form with almost glabrous achenes for which I propose the varietal name *leiocarpum*. Unfortunately, it is quite impossible to say from which locality any given specimen originated, but it is worthy of note that the whole of the type sheet from the Kew Herbarium (Plate No. CXCV), kindly lent me for examination, is the former, while the whole of that in the Edinburgh Herbarium is the latter. Owing to this uncertainty it has not been possible to include either in the distributional notes, though the specimens in question will form the types of the respective varieties should further investigation prove their validity.

With regard to the third variety (var. *humile*, Royle) I am of the opinion that it may prove merely a stunted state of var. *leiocarpum*. The plant from Gossain Than, distributed as Wall. Cat. no. 712, may be regarded as the best available example of *Geum elatum*, Wall. var. *humile*, Royle as understood by Sir J. D. Hooker.† The only description of this, which does more than refer to its reduced size and generally solitary flowers, is that of Lehmann.‡ From this we learn that the few Nepalese specimens in question were in fairly advanced condition, the petals being much withered or fallen and that, in the portion received by him, the inflorescence did not exceed the leaves and the achenes were glabrous. An examination of the single representative specimen in the Kew Herbarium (Plate No. CXCVI) shows that it agrees with Lehmann's account, except that the inflorescences are almost twice the length of the leaves and the achenes are tipped with a very few, short, bristly hairs. From this it seems clear that var. *humile*, Royle has achenes which show just the same characters and degree of variation as do those of var. *leiocarpum* and in addition that its stature is subject to at least some variation towards the taller-growing forms of the species. In this connection it should be borne in mind that almost equally reduced forms with the densely hispid achenes of var. *typicum* also occur, as an

\* Notes, Roy. Bot. Gard. Edinb. vii (1912), p. 108.

† Flora of British India, ii, p. 343.

‡ Pugill. ix, p. 9; Revis. Potentill., p. 47, t. 17.

example of which I may cite a Sikkim specimen in the Edinburgh Herbarium (W. W. Smith No. 3451). For the reasons above detailed, then, I am inclined to regard var. *humile*, Royle as merely a reduced state of the tall-growing var. *leiocarpum*; I have, however, retained it pending fuller investigation.

I wish here to express my thanks to the Director of the Royal Botanic Gardens, Kew, for the loan of the type specimens figured and to Professor Wright Smith for help in various ways.

### Enumeration of the Varieties of *Geum elatum*, Wall.

with Synonymy, etc.

Varietates tres sequentes-fortasse ita sunt distinguendae :—

1. Var.  $\alpha$  *typicum* W. E. Evans (Plate No. CXCv); foliorum pinnis lateralibus haud approximatis, caulibus floriferis elongatis vulgo 2-6-floris, carpellis dense hispidis recognita. *Geum elatum*, Wall. Cat. no. 711 p. p.; Hook. f. Flor. Brit. Ind., ii, p. 343 (excl. var. *humile*).  
*Sieversia elata*, Royle Ill., p. 207 (excl. var. *humilis*), t. 39.  
 ALPINE HIMALAYA; generally distributed. Kashmir, J. F. Duthie s.n. !; Chamba, J. H. Lace no. 1233 ! Bashahr, J. H. Lace no. 314 !; Sikkim, W. W. Smith no. 4289 !

2. Var.  $\beta$  *leiocarpum*, W. E. Evans; quae cum varietate  $\alpha$  foliorum atque inflorescentiarum forma quadrat, carpellis glaberrimis vel apicem versus parcissime hispidis differt. *Geum elatum*, Wall. Cat. no. 711 p. p.

ALPINE HIMALAYA; apparently much less frequent than var.  $\alpha$ . I have seen only two specimens, one distributed under Wall. Cat. no. 711 and another collected by J. R. Reid, Esqre., C.I.E.; both are in the Edinburgh Herbarium and have almost or quite glabrous achenes. Unfortunately, in each case, the place of origin is uncertain.

Var.  $\gamma$  *humile*, Royle (Plate No. CXCvi); foliorum pinnis approximatis, caulibus floriferis 1-(rarissime 2-) floris folia haud vel paulo excedentibus, carpellis glabris vel subglabris ab var. *typico* divergit.

*Geum elatum* var. *humile*, Hook. f. Flor. Brit. Ind. ii, p. 343.

*Geum adnatum*, Wall. Cat. no. 712.

*Sieversia elata*, var. *humilis*, Royle Ill., p. 207.

*Sieversia humilis*, Royle MSS, apud Royle l.c.

*Potentilla adnata*, Wall. MSS. apud Wall. Cat.; Lehm. Pugill. ix, p. 9; Revis. *Potentill.*, p. 47, t. 17.

ALPINE HIMALAYA :—Nepal, Wallich no. 712 !; Sikkim, W. W. Smith no. 3174 !

Key to the Varieties of *Geum elatum*, Wall.

Lateral lobes of the radical leaves generally distant; the reduced alternate ones generally numerous; flowers 2-6; plant tall-growing (Plate No. CXCIV).

Achenes densely hispid. . . . . var.  $\alpha$  *typicum*.

Achenes glabrous or very sparsely hispid above . . . . .

var.  $\beta$  *leiocarpum*.

Lateral lobes of the radical leaves more close-set, the reduced alternate ones fewer; flowers generally solitary; plant low-growing. (Plate No. CXCVI): . . . . . var.  $\gamma$  *humile*.

## EXPLANATION OF PLATES.

Illustrating Mr Evans' Paper on the Varieties of *Geum elatum*, Wall.

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

PLATE NO. CXCIV.—*G. elatum*, Wall. var. *typicum*, W. B. Evans. Wall. Cat no. 711 in Herb. Kew. Whole plant  $\times \frac{1}{2}$ ; showing form of leaves and inflorescence.

CXCVI.—*G. elatum*, Wall. var. *humile*, Royle. Type of *G. adnatum*, Wall. in Herb. Kew. Whole plant slightly reduced, showing form of leaves and inflorescence.



*Geum elatum*, Will. var. *typicum*, W. E. Evans,





*Geum elatum*, Wall, var. *humile*, Royle.