

XVII. *Observations on the Linnean Genus Juncus, with the Characters of those Species, which have been found growing wild in Great Britain.* By James Ebenezer Bicheno, Esq., F.L.S.

Read June 18, Nov. 5, and Dec. 3, 1816.

OF all the objects to which the pages of the Linnean Transactions have been devoted, none has contributed more to the progress of science than the monographs which have appeared of the different genera of animals and plants. With a view, therefore, of contributing a small share to the labours of the Society, I have ventured to communicate a few remarks for the purpose of elucidating the obscure and uninviting genus *Juncus*: for though an inaugural dissertation has been dedicated to the subject by Rostkov, intitled "*Monographia Generis Junci, cum Tabulis binis æneis,*" *Berolini*, 1801, it is a work not to be found in any of our botanical libraries; and, though containing much useful information, does not supersede the necessity of a further illustration of the genus. His arrangement of the species is indeed altogether unnatural and objectionable, as he has brought together into close connexion some of those which have the most distant relation in the whole genus. The French botanists have commemorated the author by naming after him a new genus, naturally related to the objects of his essay.

The old herbalists seem to have had no other character for the *Junci* than their grassy appearance, and their internal spongy structure. This comprehended an heterogeneous assemblage of

plants of various genera, e. g. *Scirpi*, *Schæni*, *Cyperi*, *Triglochines*, *Butomus*, *Eriophora*, and others. Nevertheless, with all this confusion, they divided the real *Junci*, which are included in the first subdivision of the genus in the *Species Plantarum*, into two families, the *hard* and the *soft*; the former being all called *acutus*, and the latter *lævis**. The *Gramina hirsuta*, which are those *Junci* described as plane-leaved by Linnæus, were kept entirely distinct, and were arranged among the Grasses.

Our systematic countryman Ray gives this description, “de Junco et Gramine Junceo †:”—“*Juncus caulibus teretibus, fungosis, panicula vel in summo caule existente, vel ex ejus latere inferius exeunte, et multis seminibus majusculis compositâ à reliquis graminifoliis distinguitur. Gramina juncea à juncis distinguuntur caulibus foliosis articulatis. Folia etiam in his non semper teretia sunt, sed in nonnullis speciebus compressa, in omnibus tamen fungosa.*” The latter part of this description alludes to such as have jointed leaves: but Ray confesses that he has admitted under his definition, in conformity to the opinion of other botanists, plants which he did not know how to dispose of otherwise. He has placed the *Gramina hirsuta* in a distinct division. In the second edition of his *Synopsis*, the *Gramina juncea* are said to differ merely in their having a leafy stem. Ray's definition, it must be confessed, very much lessened the number of plants which were at first admitted, though it still embraced the *Eriophora*, *Triglochines*, and some of the *Schæni* and *Scirpi*. No improvement of the character appears, as might be expected, in the *Methodus Graminum*, published afterwards; but on the contrary, it is more loosely defined. Dillenius, in his edition of the *Synopsis*, introduced considerable correction both in the character of the genus and the synonyms, and the true *Juncus* is

* *Bauh. Pin.*, p. 11.

† *Historia Plantarum*, p. 1302.

thus

thus described: "Calyce hexaphyllo, staminibus totidem, quot sunt calycis folia, et semine multo in vasculo seminali recondito a Scirpo differt*." The species are also divided into those which are *leafy* and those which are *leafless*.

Scheuchzer and Haller have included the *Gramina juncea* and the *Gramina hirsuta* in their *Juncoides*, rejecting at the same time from the former family the *Eriophora* and some other genera which Ray had retained. The real *Junci*, such as *acutus*, *glaucus*, *effusus*, &c. rank under a separate division, with this definition: "Flosculi hexapetali, rosacei, sex scilicet petalis in orbem positae constantes."—"Vascula seminalia triquetra aut ex triquetra rotundata, trivalvia, septoque per medium cujusque valvæ longitudinem procedente, in tria loculamenta divisa, seminibusque plurimis plerumque, ac minutissimis repleta, a *Juncoide* autem specialiter differt, scirpis teretibus, prorsus enodibus †," &c. Tournefort, whose attention was chiefly arrested by the corol, has included in his character all three of these strongly-marked families, because he found their petals, otherwise called the leaflets of the calyx, to correspond. The penetrating Micheli, however, led more by the internal structure of plants, adopted two distinct genera; the first, *Juncus*, which he describes as having a trilocular, many-seeded capsule; the other, *Juncoides*, with a unilocular, three-seeded capsule. The great Linnæus, guided by Tournefort, re-joined them; and at the same time adopted in his generic character the peculiarity of the *Gramina hirsuta*, as being unilocular;—by which inconsistency the real *Junci* are all excluded! Jussieu does not describe the cells in his generic definition; but at the head of the natural family he calls them trilocular.

The *Gramina hirsuta* seem to have been first taken up by J. Bauhin under the name of *Luzula*. Cesalpinus calls the *Jun-*

* *Raii Syn.* 3d ed. 431.

† Scheuchzer's *Agrostographia*, p. 337.

cus campestris, Linn. "Herba Luziola vulgo;" and the reason, as Gerard informs us, is, that the heads of the flowers shine in the night; "wherefore in Italy they call it *Luciola quia noctu lu- cet.*" Tabernæmontanus and Ruppian call the family *Cyperella*; Scheuchzer, Haller, and Micheli, *Juncoides*; Willdenow (*Hort. Berol.*), Lamarck and Decandolle (*Flor. Franc.*), and Desvaux, have established the genus under the name of *Luzula*. The last-named botanist has published a paper on the subject in the *Journal de Botanique*, vol. i. p. 131; and the alteration has been recognised by our own learned and indefatigable countryman, Mr. Brown, in his *Prodromus Floræ Novæ Hollandiæ*. The different habit and striking character of the two families would have been enough to have caused their separation; but, sanctioned by these weighty authorities at home and abroad, it can no longer be a subject of doubt.

In distinguishing the species of *Luzulæ*, I have derived great assistance from observing the shape of the seeds, and of what I have ventured to call the *Coruncula*, attached to them; the figure of which, if well observed, will set at rest any hesitation that may exist about the British species. The same appendage is incident to many of the real *Junci*, and may be particularly remarked in *J. acutus*, *maritimus*, *triglumis*, *castaneus*; and in the foreign *J. grandiflorus*, Linn., now made a new genus by Desvaux, on account of this striking character, under the name of *Marsippospermum*. The seeds of *Narthecium ossifragum*, which is nearly allied to the plants under discussion, have an integument of the same nature.

Besides the attempt to adopt a new genus into the *British Flora*, I have given in the following pages what I conceive to be amended characters of all the species of *Juncus* and *Luzula* yet discovered in Great Britain; and have added some few new ones, which were either imperfectly known, or regarded only as varieties.

varieties. The synonyms I have introduced are not numerous; but they have been collated with care, and I trust may be relied on.

The Linnean genus *Juncus* includes a great variety of species. In the third edition of the *Species Plantarum*, eighteen are described, besides a great number of varieties. Murray has twenty-two; Gmelin thirty-five; Lamarck, in the *Encyclopædia Methodique*, thirty-two; Willdenow, forty; and Rostkov, fifty-two. Almost all the new ones belong to the true *Junci*; and it is fortunate for science that so numerous a tribe may be so naturally and easily subdivided: 1st, into those with LEAFLESS STEMS, including the original and true Rushes, beginning with *Juncus acutus* and ending with *J. filiformis*: 2dly, Such as have CHANNELLED LEAVES, embracing among the British species the Linnean *bulbosus*, *bufonius*, *trifidus*, and *uliginosus*; *J. squarrosus* belongs to this series, but does not follow any other species with a very close affinity; *J. trifidus* connects itself with the *leafless* subdivision by its entire want of leaves in some situations, and in some degree with the *Luzule* by its fimbriated scales: it is nearly allied to *uliginosus*, with which it is linked by the *supinus* of Hoffman and Don's *Herbarium Britannicum*: 3dly, Those with JOINTED LEAVES succeed, a most distinct and natural family, connected with the last subdivision by *J. triglumis* and *biglumis*, which have cellular-knotted leaves, and ending in the new species, which were included by Linnæus in his *articulatus*. This series, in order to connect it with the former, begins with those which are least complete in the joints of the leaves, and ends with such as have the most distinct and perfect articulations. It would seem, indeed, as if the channelled leaves of this genus were imperfect articulate leaves.

It is necessary to add a word or two in explanation of some terms I have used in my descriptions differently from some other botanists.

botanists. That which they have denominated the leaves of the true *Junci*, beginning with *glaucus* and ending with *filiformis*, I have regarded as barren stems, and for these reasons:—the species which are most nearly allied to them, having leaves, produce them from a membranous integument sheathing the base of the stem, as in *J. acutus* and *maritimus*. They are generally indeed setaceous, channelled, and of a totally different appearance from the culm which they accompany. Examples may be found in their congeners *J. bulbosus* of Linnæus, *squarrosus*, and *bufonius*; and in many plants more remotely allied, such as many of the *Eriophora*, *Schani* and *Scirpi*. Of the last genus, some of the species produce leaves constantly, as *Scirpus fluitans*, *acicularis*, *setaceus*, &c.: others sparingly, as *cæspitosus*; and others none at all, as *palustris* and *multicaulis*. But the manner in which the leaves are developed in *Juncus trifidus* and *filiformis*, shows in a satisfactory manner that the scales and the awns at the bottom of the stem of *J. glaucus*, and the other leafless species, are of the same nature as those in the plants just named. The scales, which are first produced at the base of the stem of *J. trifidus*, are awnless. As the plant advances the new scales become awned, and afterwards the awns of the following scales are successively enlarged, until at last a complete leaf is developed. The *J. filiformis* produces awns of the same peculiar nature; but they are seldom elongated into leaves. A similar structure is present in some of the *Scirpi*. The *Nardus stricta*, and many others of the Grasses, show at first, in the development of their leaves, the same unsuccessful attempts.

Linnæus and his successors have described the panicle of *J. acutus* and *maritimus* as terminal, accompanied by a two-leaved, spinous, involucre; while they have called the panicle of *J. glaucus*, *effusus*, *conglomeratus*, and *filiformis*, lateral. This involves their
descrip-

descriptions in needless obscurity; and especially since no difference of organization is apparent among any of these species. Why the panicle of *J. maritimus* should be described as terminal, and that of *conglomeratus* as lateral, is irreconcilable with any theory of inflorescence which the Linnean terms countenance. If the elongation beyond the panicle be an involucreal leaf in the one, it ought to hold good in the whole of the leafless subdivision. The more consistent and more natural method seems to be, to describe the panicle as lateral, where a similar structure of the stem is continued above the panicle as exists below it; and to denominate the spinous support at the base a bracte. Its analogy to a similar production in *J. bulbosus*, Linn., *squarrosus*, *trifidus*, and many of the *Scirpi* and *Eriophora*, where the support is indisputably called a bracte, justifies the opinion. The membranous scales at the base of the flowers are for convenience called flower-scales.

Specimens of the plants* here described accompany this Memoir.

J U N C U S.

R U S H.

Cal. hexaphyllus. *Cor.* nulla. *Caps.* supera, trivalvis, trilocularis: loculamenta polysperma.

* *Culmo nudo.*

1. JUNCUS ACUTUS.

JUNCUS culmo nudo pungente, paniculâ laterali, bracteâ spinosâ, capsulis mucronatis subrotundis calyce duplo longioribus.

J. culmo nudo, panicula terminali, involucro diphylo spinoso, capsula subrotunda acuta, petalis duplo longiore. *Rostkov Monograph.* 14.

* These are deposited in the Museum of the Linnean Society.

J. culmo

- J. culmo nudo tereti, paniculâ terminali, involucro diphylo spinoso, capsulis subrotundis mucronatis. *Fl. Brit.* 374. *Engl. Bot.* xxiii. 1614.
- J. *maritimus*, culmo nudo apice bivalvi, paniculâ terminali subumbellatâ, capsula calyce duplo longiore. *Lamarck Encycl.* iii. p. 253. *Flor. Fran.* iii. 162.
- J. culmo subnudo tereti mucronato, paniculâ terminali, involucro diphylo spinoso. *Sp. Pl.* 463. *Huds.* 148. *With.* 346.
- J. pungens, sive acutus capitulis Sorghi. *Bauh. Hist.* ii. 520. *Moris. s. viii. t. 10. f. 15.*
- J. *maritimus* capitulis Sorghi. *Park.* 1193. 4.
- J. acutus capitulis Sorghi. *Bauh. Pin.* 11. *Raii Syn.* 431.

Angl. ACUTE RUSH. Sea Rush, Great sharp Sea Rush, Pricking large Sea Rush.

In arenosis maritimis, præcipuè cumulis, rariùs.

Peren. July.

Root fibrous, running deep into the sand. *Stem* three feet high, erect, straight, simple, leafless, cylindrical, even, terminating in a very sharp and rigid point. *Leaves* like the stem, but smaller and shorter. *Panicle* lateral, compound, many-flowered, first branch the longest. *Bracte* membranous, and dilated at the base, very pungent. *Flowers* clustered. *Calyx-leaflets* ovate, obtuse. *Capsule* broad-oval, somewhat three-sided, mucronate, shining, three-celled; each cell many-seeded. *Seeds* ovate, attached to the dissepiment, shining: *Coruncle* elongated at each end.

This plant and the following, though separated by the old botanists, have been considered as the same species by Linnæus and many of his disciples. The character first applied by Lamarck—*capsula calyce duplo longiore*—is excellent; and by observing

serving this, and the large, shining, roundish capsule and blunt calyx, the botanist will be at no loss to distinguish the species.

Sir James E. Smith, *Eng. Bot. l. c.*, conjectures that Homer, in his *Battle of the Frogs and Mice*, had this Rush in view as the weapon with which to arm his imaginary champions. It is not so common in England as the next species, and is not found in any country further to the North. It is one of those useful plants, which Providence has ordained to bind the loose sands of the shore together as a barrier to the ocean.

2. *JUNCUS MARITIMUS.*

JUNCUS culmo nudo pungente, paniculâ laterali subproliferâ, bracteâ spinosâ, capsulâ oblongâ acutâ longitudine calycis.

J. culmo nudo, panicula terminali prolifera, involucro diphylo spinoso, capsula oblonga acuta petalis æquali. Rost. Monograph. 16.

J. culmo nudo tereti, paniculâ terminali proliferâ, involucro diphylo spinoso erecto, capsulis oblongis. Flor. Brit. 375. Eng. Bot. xxiv. 1725.

J. acutus, culmo nudo mucronato pungente, panicula involucrata laterali, capsula longitudine calycis. Lamarck Encycl. iii. p. 253. Flor. Fran. iii. 163.

J. acutus β. Sp. Pl. 464. Huds. 148. With. 346. Willd. Sp. Pl. 205.

J. acutus maritimus Anglicus. Park. 1193. 7. Moris. s. viii. t. 10. f. 14. Raii Syn. 431.

Angl. SEA RUSH. Lesser Sharp Sea Rush. English Sea Hard Rush.

In paludibus maritimis copiosè, præcedentis socius.

Peren. August.

Root fibrous, thick. Stem two feet or more high, leafless, erect,

glaucous, rigid, tapering to a stiff point; sheaths at the base brown, polished, even. *Panicle* erect, decomposed, as if proliferous, shorter than the stem; branches very unequal, the first much longer than the rest. *Bracte* membranous at the base, spinous, subulate. *Flower-scales* lanceolate, acuminate. *Calyx-leaflets* lanceolate, acute, zagged towards the point. *Capsule* linear-oblong, triangular, three-celled, light brown. *Seeds* ovate; coruncle elongated at each end.

The *J. maritimus* is a slenderer, lower plant, with an oblong and smaller capsule than the last. The panicle is also much more branched, the first branch far overtopping the others, and the calyx-leaflets lanceolate and acute. The two species cannot be mistaken if seen together when ripe. It is common on most parts of the coast; and, like the last, prevents the sea from making incursions on the land. The flower-scales in this species, and in most of the others, are very much disposed to become foliaceous.

3. JUNCUS GLAUCUS.

JUNCUS aphyllus, paniculâ laterali erectâ angustâ, capsulis ellipticis acutiusculis calyce brevioribus.

J. culmo nudo glauco apice inflexo tereti, panicula laterali erecta, capsulis oblongis acutis. *Rost. Monograph.* 9.

J. culmo nudo glauco apice inflexo, panicula laterali effusa, ramis elongatis, floribus acuminatis. *Willd. Sp. Pl.* ii. 206.

J. culmo nudo stricto glauco, panicula laterali erecta, capsulis ellipticis acutis. *Eng. Bot.* x. 665. *Flor. Brit.* 375.

J. culmo striato glauco, basi stipulis fuscis, panicula laterali sparsa. *Sibth. Fl. Ox.* 113.

J. effusus β . *Huds.* 149.

J. inflexus. *Leers* 88. t. xiii. f. 3. (*char. spec. dub.*) *Relh.* 141. *With.* 345. *Abbot,* 78. *Huds. Fl. Angl.* 1st ed. 130.

J. acutus

J. acutus vulgaris. Park. 1193. 1. *Moris.* s. viii. t. 10. f. 13.

J. acutus. Ger. Em. 35. *Raii Syn.* 432.

Angl. HARD RUSH. Common Hard Rush. Sharp Rush.

Peren. July, August.

Root creeping, black. *Stem* from one to two feet high, striated, glaucous, rigid, terminating in a sharp, tapering, frequently incurved summit; sheathed at the base with large, brown, shining scales. *Panicle* lateral, bursting about one-third the length of the stem below the top, erect, loose, branched. *Calyx-leaflets* striated, very acuminate; three inner leaflets shorter. *Flowers* hexandrous. *Capsule* elliptical, three-sided, narrower towards the top, mucronate, shining.

However easily distinguished this plant may be on examination, it is uncertain whether it was known to Linnæus, although a production of Sweden, or he has included it in his *J. inflexus*, which no botanist since his time has understood. Willdenow has suffered the latter species to remain in his edition of the *Species Plantarum*, and adds from his own observation this remark: "Culmi suprema pars non est teres, sed folii ad instar compressus*." Sibthorp, who seems to have taken the *J. glaucus* up from Ehrhart (*Gram.* 85.), first introduced the trivial name into the *British Flora*. It may be known even at a distance from the soft Rushes, by its rigid stem, of a glaucous hue, and scanty panicle; and, on a closer view, by its pointed capsule. Wahlenburg (*Flor. Lapp.* p. 79.) says of those specimens he found in Lapland, that the flowers were larger than those figured in *English Botany*.

* The authors of the *Flore Française*, vol. v. have expressed their opinion that the *J. inflexus* of their third volume is nothing more than *J. glaucus*; adding at the same time, that the real *J. inflexus*, Linn. has but three stamina.

4. JUNCUS CONGLOMERATUS.

JUNCUS aphyllus, paniculâ laterali conglobatâ, floribus triandris, capsulis retusis.

J. culmo nudo stricto, paniculâ laterali conglobatâ, capsulis retusis, floribus triandris. *Flor. Brit.* 376. *Eng. Bot.* xii. 835. *Rost. Monograph.* 7.

J. culmo nudo stricto, panicula laterali coarctato-capitata. *Willd. Sp. Pl.* ii. 205.

J. culmo nudo stricto, capitulo laterali. *Sp. Pl.* 464. *Flor. Dan.* 1094. *Leers* 87. t. xii. f. 1. *Huds.* 148. *Relh.* 140. *Sibth.* 113.

J. lævis vulgaris panicula compactiore. *Raii Syn.* 432.

J. lævis panicula non sparsa. *Bauh. Pin.* 12. *Moris. s. viii. t.* 10. f. 7.

Angl. ROUND-HEADED RUSH. Clustered Rush. Conglomerated Rush. Common Rush. Soft Rush.

In pascuis et ad vias, locis humidioribus.

Peren. July, August.

Root horizontal, creeping, fibrous. *Stem* two feet high, sheathed at the base with large black scales, minutely striated, very acute, but not pungent. *Panicle* lateral, many-flowered, densely conglomerate. *Calyx-leaflets* lanceolate, two-nerved. *Stamens* three. *Stigma* very much fringed. *Capsule* obovate, retuse, almost three-lobed, about as long as the calyx.

The dense panicle distinguishes this species at once from its congeners. It is used in common with *J. effusus* to make the wicks of rush-lights, pith in toys, mats, little baskets, chair-bottoms, ropes and lines. Mr. White in his *Natural History of Selborne*, (Letter 26.) has given a pleasing account of its uses to the thrifty housewives of Hampshire. Rushes are employed by
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the cleanly peasantry to strew their floors; and Shakespeare, whose observation was alive to the most insignificant incidents, has many allusions to this custom.

5. *JUNCUS EFFUSUS.*

JUNCUS aphyllus, paniculâ laterali effusâ supradecompositâ, capsulis turbinatis apice subtruncatis.

J. culmo nudo stricto, panicula laterali supradecomposita effusa, capsulis clavatis apice truncatis. *Rost. Monograph.* 10.

J. culmo nudo stricto, paniculâ laterali effusâ, floribus oblongis. *Willd. Sp. Pl.* ii. 205.

J. culmo nudo stricto, paniculâ laterali effusâ supradecompositâ, capsulis obtusis. *Flor. Brit.* 376. *Eng. Bot.* xii. 836.

J. culmo nudo stricto, paniculâ laterali. *Sp. Pl.* 464. *Flor. Dan.* 1096. *Leers* 88. *t.* xiii. *f.* 2. *Huds.* 148. *Relh.* 141. *Sibth.* 113.

J. lævis vulgaris, paniculâ sparsâ, nostras. *Raii Syn.* 432.

J. lævis vulgaris, paniculâ sparsâ, major. *Park.* 1191. 2. *Moris.* s. viii. *t.* 10. *f.* 4.

J. lævis. *Ger. Em.* 35.

Angl. SOFT RUSH. Common Soft Rush. Common Rush. Seaves.
In pascuis humidis, copiosè.

Peren. July, August.

Root creeping, black. *Stem* two feet or more high, pale-green, soft, pliable, very finely striated. *Panicle* effuse, divaricate, very much branched, with numerous flowers. *Calyx-leaflets* subulato-lanceolate, acuminate, two-nerved. *Flowers* frequently triandrous. *Capsule* small, obovate, slightly retuse, nearly truncate, pale brown, with no persistent style.

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This plant is better adapted than the last for use in all the little arts of weaving and platting:—

“*Viminibus mollique detexere junco.*”

It is cultivated in Japan for the purpose of making mats of an extremely delicate texture, which are used in the place of carpets. Both this and *conglomeratus* indicate a better soil where they grow than *glaucus*. From the latter it is easily separated by the absence of the glaucous hue about the stems, and the obtuse capsule: and its effuse and decomposed panicle at once distinguishes it from *J. conglomeratus*. There are intermediate appearances when young, between *effusus* and *conglomeratus*, which are most easily disposed of by observing the distance the panicle breaks forth from the summit; the former having frequently one-third of the stem above the panicle, while the latter has not more than three or four inches. When further advanced, the shape of the capsule is a sure criterion. The *J. lævis alter* of *Moris. s. viii. 231. 5.* is probably nothing more than this “*brevior et crassior.*”

6. *JUNCUS FILIFORMIS.*

JUNCUS aphyllus, culmo filiformi nutante, paniculâ laterali subsimplici pauciflorâ, capsulis subrotundis.

J. culmo nudo filiformi nutante, umbella laterali subsimplici pauciflora, pedunculis subbifloris, capsulis obtusis. *Rost. Monograph. 12.*

J. culmo nudo filiformi nutante, paniculâ laterali bracteâtâ subsimplici, capsulis subrotundis. *Flor. Brit. 377. Eng. Bot. xvii. 1175.*

J. culmo filiformi nudo, paniculâ brevissimâ pauciflorâ laterali. *Lamarck Encycl. iii. 254.*

J. culmo

J. culmo nudo filiformi nutante, paniculâ laterali. Sp. Pl. 465.

Leers 89. t. xiii. f. 4. Huds. 149. Smith Spicileg. t. 3.

J. parvus, calamo supra paniculam compactam longius producto.

Raii Syn. 432.

Angl. LEAST RUSH. Thread-form Rush.

In irriguis alpinis, inque Anglia præcipuè ad ripas lacuum borealium.

Peren. July, August.

Root creeping, horizontal, fibrous. *Stem* soft, generally a few, rarely ten inches high, very slender, tapering towards the summit, frequently drooping, sheathed at the base with scales, which are light-brown, obtuse, remarkably awned. *Panicle* from three- to eight-flowered, nearly simple, remarkable for bursting from about the middle of the stem. *Flowers* sessile, supported by a small bracte. *Fruit* peduncled. *Calyx-leaflets* lanceolate, acute, very nearly equal; keel three-nerved. *Capsule* globose, about the length of the calyx.

This plant has never been found in England, excepting on the margin of the lakes in the North, being a similar situation to that in which it is found on the Continent. Pursh states it to be frequent in boggy mountain-meadows in North America. Its diminutive size, and long slender summit above the panicle, sufficiently mark its character; though in habit it approaches very nearly to the two last described. Indeed, I anticipated a closer resemblance when I found three stamens to be common to both the other soft Rushes *conglomeratus* and *effusus*; and I examined numerous fresh specimens of *filiformis*, with the view to discover the same numerical structure, but could never observe it. The small awn at the point of the radical sheaths appears to be an attempt towards
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the production of leaves; a circumstance which is seen more completely developed in *J. trifidus*. The English name, by which it is generally known, is objectionable on account of its having been applied by the old botanists to *Scirpus setaceus*; but it is better to retain the commonly-received name, if it is at all tolerable, than to introduce a new one.

** *Folia canaliculata.*

7. JUNCUS SQUARROSUS.

JUNCUS culmo nudo, foliis setaceis canaliculatis, paniculâ terminali elongatâ, capsulis obovatis.

J. culmo nudo, panicula terminali elongata, capsulis obtusis, foliis setaceis canaliculatis. *Rost. Monograph.* 17.

J. culmo nudo, foliis setaceis, paniculâ terminali compositâ glomeratâ. *Flor. Brit.* 378. *Eng. Bot.* xiii. 933.

J. culmo nudo, foliis setaceis, capitulis glomeratis aphyllis. *Sp. Pl.* 465. *Flor. Dan. t.* 430. *Huds.* 149. *Relh.* 142. *Sibth.* 114.

J. montanus palustris. *Raii Syn.* 432.

Gramen junceum palustre humilius, folia et spica Junci. *Moris.* s. viii. t. 9. f. 13.

J. acutus Cambro-britanicus. *Park.* 1193. 2.

Angl. Moss Rush. Heath Rush. Welsh Rush. Ragged Rush. Goose Corn.

In montosis et ericetis sterilibus, præcipue solo spongioso, copiosè. *Peren.* June, July.

Root fibrous. Stem a foot or more high, straight, rigid, striated, leafless. Leaves in tufts, setaceous, channelled, rigid, pointed, smooth, dilated and sheathing at the base, not half so long as
the

the stem. *Panicle* terminal, erect, branched, clustered. *Bractes* membranous, sheathing, brown, striated, terminating in a stiff setaceous point. *Calyx-leaflets* chocolate-coloured, scariose at the edge. *Capsules* obovate, shining, obscurely three-sided, obtuse, mucronate.

This plant fully justifies the proverbial worthlessness of the Rush. It indicates a most unprofitable soil, and is well known from the harshness of its herbage. Lime is recommended by agriculturists as the means of destroying it. What relation it has to Geese in Ray's English name I know not; excepting, indeed, that they may frequent some places where it grows. The figures in *Ger.* 18. 4. *Gramen junceum maritimum*, which Ray quotes with a doubt, and in *Ger. em.* 21. 4., copied by Parkinson, p. 1270., although referred to this plant by modern authors, cannot be cited with any certainty, since they have the male spikes of a *Carex* delineated at the top, and the capsules bear little resemblance. The leaves and root, indeed, are faithfully represented. This species has but little affinity with any other; and, when once known, is not likely to be mistaken.

8. *JUNCUS COMPRESSUS*.

JUNCUS culmo simplici folioso compresso, foliis linearibus marginate incurvis, capsulis rotundis calyce longioribus, paniculâ terminali bracteâ brevioribus.

J. foliis linearibus canaliculato-concavis, capsulis ovatis, culmo compresso. *Jacq. Vindb.* 235.

J. bulbosus, culmo folioso simplici compressiusculo, foliis canaliculatis, corymbo terminali foliis floralibus brevioribus, capsula subrotunda obtusa petalis longiore. *Rost. Monograph.* 23.

J. bulbosus, culmo compresso indiviso, foliis linearibus canaliculatis, corymbo terminali, calycinis foliolis obtusis, capsula subrotunda obtusa brevioribus. *Willd.* ii. 213.

J. bulbosus, foliis linearibus canaliculatis, culmo basi folioso, paniculâ cymosâ, capsulis obtusis. *Flor. Brit.* 381. *Eng. Bot.* xiii. 934.

J. bulbosus, foliis linearibus canaliculatis, capsulis obtusis. *Sp. Pl.* 466. *Huds.* 150. *Relh.* 143. *Sibth.* 115. *Abbot*, 79. *Leers Fl. Herb.* 89. t. xiii. f. 7.

J. parvus cum pericarpis rotundis. *Raii Syn.* 433.

Gramen juncoides junci sparsa panicula. *Park.* 1190. 7.?

Gramen junceum aquaticum. *Ger.* 11. 2. *Ger. Em.* 12. 2. *Park.* 1269. 3.

Angl. ROUND-FRUITED RUSH. Rushie Water Grass.

Habitat in pascuis humidis.

Peren. July, August.

Root creeping, horizontal, fibrous, not bulbous. *Stem* erect, from six to twelve inches high, simple, cylindrical at the base, compressed upwards, smooth, leafy, particularly at the base. *Leaves* linear, channelled, dilated and involute at the base, striated. *Panicle* inclining to a corymb, compound, many-flowered, the first branch longer than the others. *Bractes* foliaceous, channelled; the lowermost longer than the panicle. *Calyx-leaflets* obtuse, brown, scariose at the edge, shorter than the capsule. *Capsule* rotund, very obtuse, mucronate.

I have ventured to separate Linnæus's *Juncus bulbosus* into two species, and to abolish the trivial name altogether, in consequence of the confusion of synonyms that it has occasioned, and its total want of appropriateness. The plant bearing this name in the first edition of the *Species Plantarum*, is the *uliginosus* of Smith and of the present paper (which has a bulbous root), as appears from the remarks of Ehrhart; and the transfer of it in the succeeding editions to the present plant, seems to have originated in an oversight of the illustrious Swede. The name given by Jacquin is
very

very significant ; for which reason I have adopted it. I think there can be little doubt of the figures which I have quoted belonging to this species, though that in *Eng. Bot.* has the capsule badly represented, and more like *J. bottnicus* of Wahlenburg. *J. compressus* is to be distinguished from *J. cœnosus*, the next species, by its lighter colour, broader and more concave leaves, the capsule being longer than the calyx, and the lower bracte longer than the panicle. The leafy stem and blunt calyx-leaflets are sufficient marks to separate it from the rest of this subdivision. It is generally an inland plant ; whereas *cœnosus* is confined to the shore. The authors of the *Flore Française* seem to have observed the difference of the two plants, and have, I conceive, described the sea-shore species under their *bulbosus*, and the inland one under *J. Gerardi*, v. 5. p. 308.

9. JUNCUS CÆNOSUS.

JUNCUS culmo simplici folioso, foliis setaceis canaliculatis, capsulis obovatis obtusis longitudine calycis, paniculâ terminali subsimplici bracteâ longiore.

Angl. MUD RUSH.

Habitat in salsis copiosè.

Peren. July, August.

Root creeping, fibrous. *Stem* from two inches to a foot high, erect, leafy, simple, smooth. *Leaves* setaceous, channelled, slightly striated. *Panicle* inclined to a corymb, terminal, erect, few-flowered, longer than the bracte. *Bracte* at the base of the panicle setaceous. *Calyx-leaflets* obtuse, dark chocolate-coloured, as long as the capsule ; three inner leaflets scariose at the margin. *Capsules* somewhat unilateral, obovate, very obtuse.

I rely principally on the shape of the capsule, the proportion it bears to the calyx, the more rigid nature of the stem and leaves, the length of the bracte, and the altogether darker colour of the

plant, as marks to distinguish this from the preceding species. It is very plentiful in those places on the coast subject to be overflowed by the sea, and varies very much in size. Virgil's epithet, "limosus juncus," applies to most of this family, but to none more forcibly than this. The *Flor. Dan.* figure 431, and Morison's *sect. viii. t. 9. f. 11.* resemble this more than the last. The names of *Lob. 18.*, *Ger. 18. 1.*, *Ger. em. 21. 4.*, and *Park. 1270. 6.*, correspond much better with *J. cœnosus* than with *J. squarrosus*; and indeed Ray, in the first edition of his *Synopsis*, so applied them; but was afterwards induced to change his opinion by the observations of Dr. Plukenet (vid. *Philosophical Letters* of Ray, p. 232.), who says, "I must needs acknowledge that I am not a little entangled in my thoughts about the *Juncus parvus cum pericarpis rotundis*, J. B., which though you are pleased to make the same with the *Gram. junc. marit.* Lob., I cannot easily obtain with myself a compliance herein, but do rather accept it as the *Juncus acutus Cambro-britannic.* Park., and which I take to be a true and genuine Rush, as you most truly have observed. But unto this you are pleased to apply the *Junc. Cambro-brit.*, Park. (*h. e.*), *Gr. junc. maritim.*, Lob., whose *Icon* of it (and indeed so do those of all other authors) agrees exactly with our *Moss-Rush*, the capsules whereof are somewhat elongated and pinched in towards the top, resembling more a cone than a globe, the capsules of the former being more accurately round, according as its name imports." Ray, however, in his second edition of the *Synopsis*, states, that though he agrees with Dr. P. in rejecting the synonyms of Bauhin, which he had before quoted, he could not assent to this being the *Juncus acutus alpinus Cambro-britannicus*, Park. It induced him, nevertheless, to omit this synonym under *J. squarrosus*, to which, in the first edition, he had appropriated it—a change which I cannot but think was erroneous. If the distinction of the two plants *J. compressus* and *cœnosus* be admitted,

the

the difficulty, perhaps, may be explained ; since the synonyms of Bauhin are all applicable to the latter species, and the figures of Gerard, C. Bauhin, Parkinson, and Johnson are not to be depended on, seeing that they represent the male spike of a *Carex* terminating the panicle, and that Gerard's is the only original figure among them, the rest being merely copied from him. Vailant (*Botan. Paris.* 109, 110.) has arranged the synonyms of the old authors, as far as relates to *J. squarrosus* and *bulbosus* Linn. in a more satisfactory manner than any person I have consulted.

10. *JUNCUS BUFONIUS.*

Juncus culmo dichotomo, foliis angulatis, floribus solitariis sessilibus, calycibus setaceis capsulâ duplo longioribus. *Wahlenburg. Flor. Lap.* 81.

J. culmo folioso subramoso, foliis linearibus canaliculatis panicula dichotoma, ramis multifloris, petalis acuminatis capsula obtusa longioribus. *Rost. Monograph.* 20.

J. culmo dichotomo, foliis angulosis, floribus solitariis sessilibus. *Sp. Pl.* 466. *Flor. Dan.* 7. t. 1098. *Leers* 90. xiii. 8. *Huds.* 150. *Relh.* 144. *Sibth.* 115. *With.* 348.

J. foliis linearibus canaliculatis, culmo dichotomo racemoso, floribus solitariis. *Flor. Brit.* 381. *Eng. Bot.* xii. 802.

J. palustris humilior erectus. *Raii Syn.* 434.

Gramen junceum vulgare capitulis paleaceis. *Moris. s. viii. t. 9. f.* 14.

Gramen junceum parvum sive *Holostium Matthioli.* *Park.* 1190.

Gramen junceum. *Ger.* 4. *Ger. em.* 4.

β. Gramen juncoides minimum Anglo-britannicum, *Holosteo Matthioli* congener, aut *Bufonis Gramini Flandrico.* *Raii Syn.* 434.

Gramen junceum minimum, *Holosteo Matthioli* congener. *Park.* 1270.

Angl.

Angl. TOAD RUSH. Toad Grass. Rush Grass.

Habitat in humidis et aquosis.

Annr. June, July, August.

Root fibrous. *Stems* from an inch to a foot high, numerous, dichotomous, upright, cylindrical, smooth, striated, leafy. *Leaves* linear, channelled, acute, dilated at the base, not jointed. *Flowers* solitary, rarely in pairs, sessile, erect, growing in somewhat of a spike on the terminating branches. *Calyx-leaflets* setaceous, acuminate, with the keel green and the remainder scariose. *Bractes* ovate, scariose. *Capsules* elliptical, rather obtuse, shorter by half than the calyx. *Seeds* very numerous.

The solitary flowers and long silky calyx sufficiently mark the character of this species. Like others of its congeners, it is occasionally gemmiparous. It is subject to great variation in size, owing to the soil in which it grows. Sometimes it may be observed on a sandy coast not an inch high, with a capsule not quite obtuse; at other times, in a richer soil, where water has stood during the winter, it may be seen shooting into a long simple culm exceeding a foot in height. The var. β is thus described by Dillenius: "Priori simili (*i. e.* the common one), sed multo minus, et minus ramosum, coloris plerumque rubentis: florendi etiam tempore differt, nam mensis et sesquimensis spatio illud antecedere solet." I could never perceive that it was worth much attention. The old botanists, from whom Linnæus adopted his trivial name, imagined some affinity to exist between this species and the toad, because this animal inhabits similar places. A seedling plant is figured in Rose's *Elements of Botany, Appendix, t. 2. f. 5. A. and B.*

The *Juncus gracilis*, published in *Eng. Bot.* xxxi. 2174., has an inflorescence and fructification the most like this, but that has broader and emarginate valves to the fruit.

11. *JUNCUS GRACILIS.*

JUNCUS foliis linearibus planis, caule dichotomo racemoso foliis
altiore, floribus solitariis. *Compend. Flor. Brit.* 56.

Juncus gracilis. *Eng. Bot.* xxxi. 2174.

Angl. SLENDER RUSH. Slender spreading Rush, *E. B. l. c.*

Habitat in paludibus alpinis Scotieis, rariùs.

Peren. July.

“The *Root* consists of woolly fibres, and has the appearance of being perennial. *Stem* very slender, a foot or more in height, naked, except at the base and summit. *Radical leaves* but one or two, much shorter than the stem, narrow, flat, slightly thickened, or somewhat involute, at their edges, not channelled. The top of the *Stem* terminates in a few racemose forked branches, with two or three leaves at the base. *Flowers* solitary, mostly sessile. *Calyx-leaves* sharp-pointed. *Valves* of the *Capsule* blunt and emarginate.

“Found by Mr. G. Don in 1795 or 1796, by the side of a rivulet in marshy ground, among the mountains of Angus-shire, but very rarely. It appears to us to be a nondescript: but we received from Mr. Dickson, some years before the above date, a specimen not so far advanced towards maturity, of what seems to us the same species.

“The inflorescence and fructification of this Rush come nearest to *bufonius*, *t.* 802.; but the fewness of the flowers, taller stem, and flatter leaves, as well as the broader and emarginate valves of the fruit, serve well to distinguish it; not to mention the probably perennial root. *Eng. Bot. l. c.*”

This species is unknown to me, except from the description I have here quoted. I may however add, that it is not the *gracilis* of *Roth Germ.* i. 155. ii. 402., which is *J. capitatus*, Willd.; nor
of

of Brown's *Prod. Flor. Nov. Holl.*; and whose name, therefore, being first applied to another species, ought to take precedence of that in *Eng. Bot.* Plants brought from the Cambridge garden as authentic specimens are, I think, a variety of *J. pygmaeus* of the French botanists; but they are so unlike the figure in *English Botany*, that I cannot persuade myself but that there is some mistake.

12. JUNCUS TRIFIDUS.

JUNCUS culmo nudo, capsulâ oblongâ calycem æquante, bracteis foliaceis canaliculatis floribusque tribus terminalibus.

J. culmo basi nudo, apice triphylo subtrifloro. Rost. Monograph. 54.

J. culmo nudo, foliis floribusque tribus terminalibus. Sp. Pl. 465. Flor. Dan. 107. Huds. 149. Lightf. 183. t. 9. f. 1. With. 345. Flor. Brit. 378. Eng. Bot. xxi. 1482.

J. monanthos. Jacq. Obs. 33. t. 4. f. 1.

J. acumine reflexo, minor et trifidus. Bauh. Prod. t. 22.

Angl. THREE-LEAVED RUSH. Trifid Rush. Three-cleft Rush. Habitat in paludibus alpinis Scoticis, rariùs.

Peren. July.

Root creeping, fibrous. *Stems* very numerous, from a few inches to a foot in height, filiform; at the base sheathed with numerous awned brown-scales, which are terminated abruptly with a membranous and fringed border; awns in the upper scales more or less leafy. *Flowers* from one to three, terminal, accompanied by three foliaceous channelled bractes, two of them near the flower, the third sometimes at a distance, membranous at their base, fringed at their border. *Calyx-leaflets* scarcely so long as the capsule. *Capsule* oblong, large, shining, acuminate; cells few-seeded.

Lightfoot says that he found the Scotch specimens all with a single flower, corresponding with Jacquin's *J. monanthos*. On the

the contrary, Wahlenburg informs us that he never met with the one-flowered variety in Lapland. It is also worthy of remark, that *Linnaeus's* plant does not produce radical leaves; whereas ours possesses them more or less, showing at the same time by the awn, which terminates the scales, many fruitless attempts at perfecting them, though they are more completely produced at every new effort. It is the connecting link between the *Junci* and the *Luzulæ*. "Mira omnino mihi videtur species," says Wahlenburg, *Flor. Lap.* 81, "ad radicem prorsus aphylla. Radix repens culmos multos fasciculatos exserens squamis tantum brevibus interstinctos. Vaginæ culmi basin vestientes brevi mucrone ornatae, de cætero in fimbrias partitæ. Folium in suprema parte culmi plerumque adest, bracteis simillimum; ligula fimbriata alba. Bracteæ canaliculatae; marginibus serrulatis. Semina in singula capsula pauca: de cætero quoque structura capsulæ inter *Juncum* et *Luzulam* ambigit. Capsula oblonga. *J. monanthos*, *Jacq.* differre mihi videtur: foliis radicalibus; et capsula ovali, duplo majore, calycem excedente."

13. *JUNCUS ULIGINOSUS.*

JUNCUS, foliis setaceis canaliculatis, floribus ternis sessilibus, capsulâ obtusâ calycem excedente, culmo bulboso radicante.

J. foliis setaceis subnodoso-articulatis, capitulis trifloris subproliferis, culmo bulboso radicante. *Flor. Brit.* 380. *Eng. Bot.* xii. 801.

J. culmo folioso, floribus fasciculatis, fasciculis proliferis, foliis setaceis articulato-nodosis. *Sibth.* 115.

Gramen junceum minimum, capsulis triangularibus. *Raii Syn.* 434.

Gramen junceum capsulis triangulis minimum. *Moris. s.* viii. t. 9. f. 3.

β. capitulis foliaceis et gemmiparis. Var. *Raii Syn.* 434. 11.

J. uliginosus. *With.* 348.

Gramen junceum minimum, paniculis foliaceis. *Moris. s. viii. t. 9. f. 4.*

G. junceum aquaticum paniculis cum foliis capillaribus. *Pluk. Phyt. t. 32. f. 3.*

Juncoides calyculis paleaceis, glomeratis folio varians. *Scheuch. Agrost. 330. t. 7. f. 30.*

γ. culmo longiore, foliis caulinis subnodoso-articulatis, capitulis proliferis.

J. fluitans, culmo bulboso tenui radicante, foliis setaceis subnodoso-articulatis, capitulis trifloris subproliferis. *Lamarck Dict. iii. 270. Flor. Gal. 152.*

J. uliginosus. *Flor. Dan. 817.*

Angl. BULBOUS RUSH. Little bulbous Rush. The least triangular-seeded Rush.

Peren. July, August.

Habitat in ericetis humidis arenosis, vel turfosis; *γ* in stagnis.

Root fibrous. *Stem* bulbous at the base, erect, leafy, slender, branched upwards; branches divaricate. *Leaves* setaceous, smooth, channelled, cellular; cells in a double row, the partitions of one being opposite to the middle of another in the corresponding series; in *γ* some are articulate. *Flowers* three together, lateral and terminal, sessile. *Bractes* small, scariose, shorter than the flowers, excepting in the viviparous variety as it is improperly called, in which they are lengthened out like the leaves. *Calyx-leaflets* all of the same length, scariose at the edge, chocolate-coloured; keel green. *Capsule* three-sided, obtuse, opaque, somewhat longer than the calyx.

This plant has, till lately, been in a very unsettled state, as may be seen by the numerous synonyms quoted by most authors. It is not readily distinguishable in some states from other species ;
but

but its blunt capsule will enable the botanist to separate it from *J. lampocarpus* and *acutiflorus*; and, besides the diagnostic marks mentioned under *supinus* and *subverticillatus*, the opaque chocolate-coloured calyx and capsule are very constant characters. This is Haller's 1320, which he says he received from Dillenius as his *Gramen junceum capsulis triangulis minimum*; so that this clears up all doubt about the synonym; and most probably the *J. supinus* of the *Flore Française* iii. 168. The var. β has its little flower-heads more or less foliaceous and gemmiparous,—a monstrosity to which this and its near affinities are very liable. Wahlenburg, *Fl. Lap.* 82., suspects, erroneously, the figure of it in *Eng. Bot.* t. 801. to be the *acutiflorus* of Ehrhart, and of the present paper. The var. γ , which is not uncommon, is very likely to prove a species.

14. *JUNCUS SUPINUS.*

JUNCUS foliis canaliculatis filiformibus, capitulo trifloro terminali secundo, bracteis setaceis foliaceis.

J. culmo dichotomo, foliis canaliculatis filiformibus, capitulo triphylo. Mærch. Enum. Plant. 296. t. 5. *Fl. Dan.* 1099. *Hoff. Germ.* 125. *Don's Herb. Brit. f.* 4. 85.

J. capitatus, foliis setaceis, capitulis terminali alarique subfoliosis, petalis acutis integris pericarpio æqualibus. Weigel. Obser. Bot. p. 28. t. 2. f. 5.

Schænus minimus, culmo tereti nudo, capitulo dimidiato involu-crato, involucris 3—5-phyllis, valvula altera subulata flores superante. Symon's Synop. Plant. 197.

J. subverticillatus β : *Willd.* ii. 212.

Angl. DWARF RUSH.

Habitat in uliginosis.

Peren. July.

Root fibrous, bulbous at the base. *Stem* erect, simple, two or three inches high. *Leaves* filiform, channelled, cellular. *Flowers*

three together, terminal, clustered. *Bractes* setaceous; one or more frequently foliaceous, longer than the flowers, and forcing them on one side. *Calyx-leaflets* lanceolate, chesnut-coloured. *Capsule* oblong, rather obtuse, three-sided, not quite so long as the calyx.

The synonyms I have quoted may I think be depended on. The figure in *Flor. Dan.* 1099. represents the plant stronger than it usually is; and in which case it occasionally produces branches of lateral flowers, but in its more common state they are only terminal. Bauhin, in his *Hist.* ii. 523., has probably described and figured this species under his *Juncus foliatus minimus*. The synonym brought from Symon's *Synopsis* is determined by authentic specimens in the herbarium of my friend Mr. Edward Forster, F.L.S., which formerly belonged to Hudson, and from which the character and description in that little work were drawn up.

Mr. George Don, who has the merit of first pointing out the species as of British growth, makes the following remarks: "I observed this plant, in October 1804, by the side of a rivulet near the summit of Ben Lawers, in a situation where the snow remains the greater part of the year, and not far from the spot where I first discovered the *Juncus castaneus* in May 1794, at which time the first-mentioned place was covered with snow. I have cultivated the plant, and carefully compared my specimens in their different appearances with the figure in *Flora Danica*, which I consider as a just resemblance of this variable plant. The leaves which accompany the flowers, where they become terminal, give the plant the appearance of being viviparous. The plants, which I have cultivated, flowered in July; but in their native place they do not probably show their flowers earlier than August or September." *Don's Herb. Brit. fasc. v.* 85.

This plant, to say the least of it, appears very different from the rest. Its near approach to *uliginosus*, and the strong disposition there

there is in the bractes of all the species to become foliaceous, induces me to hesitate. The German botanists, however, whose acuteness is not often to be surpassed, continue to admit it as distinct. It is very small, not exceeding generally one or two inches in height. I met with it in boggy ground about Ambleside.

*** *Foliis articulatis.*

15. *JUNCUS TRIGLUMIS.*

JUNCUS foliis subulatis, floribus ternis terminalibus sessilibus, capsula obtusiuscula longitudine calycis. *Wahlen. Flor. Lap.* 84.

J. culmo basi folioso, foliis linearibus planis, capitulo trifloro involucrium subæquanti. *Rost. Monograph.* 52.

J. foliis planis, gluma triflora terminali. *Sp. Pl.* 467. *Flor. Dan.* 132. *Huds.* 151. *Lightf.* 186. *t.* 9. *f.* 2.

J. floribus terminalibus subternis, bracteis duabus ovatis flores subæquantibus. *Vahl. Act. Soc. Hist. Nat. Haf.* ii. 1. 38.

J. foliis planis, capitulo trifloro terminali erecto aphylo ebracteato. *Flor. Brit.* 382. *Engl. Bot.* xiii. 899.

J. gluma triflora culmum terminanti. *Flor. Lap.* 115. *t.* 10. *f.* 15.

Juncello accedens graminifolia plantula capitulis *Armeriæ* proliferæ. *Raii Syn.* 430.

Gramen cyperoides minus Caryophylli proliferi capitulis. *Moris.* s. viii. *t.* 12. *f.* 40.

Angl. THREE-FLOWERED RUSH. Three-glumed Rush. Small Rush-grass, with heads like a childing Sweet William's.

Habitat in locis uliginosis et irrigatis, rariùs.

Peren. July, August.

Root fibrous. *Stems* four to six inches high, erect, straight, cylindrical, leafy only at the base. *Leaves* subulate, compressed, sheathing, somewhat jointed; cells like those of *J. uliginosus*.

Flowers terminal, erect, nearly sessile, generally three together.

Bractes oval, concave, nerved, bright brown, membranous; two
outer

outer ones largest, not longer than the flowers, and opening so as to let them stand all on the same plane. *Calyx-leaflets* lanceolate, equal, blush-coloured at the tips. *Style* very short. *Capsule* elliptical, mucronate, somewhat obtuse, three-sided, scarcely exceeding the calyx. *Coruncula* elongated at each end of the seed.

This is not so rare a plant with us as the *J. biglumis*, being found in the mountainous districts of Wales and of the North of England, as well as in Scotland. I have met with it on Helvellyn, on Fairfield, and most of the other mountains about Ambleside, and at the edge of Scales Tarn in Saddleback. Dillenius mistook it for a variety of *Scirpus cespitosus*. The leaves instead of being flat, as described in the specific character by every botanical author but Haller, Wahlenburg, and Brown, are constructed with cells in a similar manner to those of *J. uliginosus*; and the articulations are much more susceptible to the touch on drawing a leaf between the thumb and finger—"Semper tam angusta et teretiuscula reperi, ut jure meritoque subulata dici possunt." *Flor. Lap. Wahlen.* 84.

16. JUNCUS BIGLUMIS.

JUNCUS foliis subulatis, floribus binis terminalibus altero pedicellato, capsulis apice retusis calyce longioribus. *Wahlen. Flor. Lap.* 84.

J. culmo basi folioso, foliis linearibus planis, capitulo subbifloro folio suffulto. *Rost. Monograph.* 53.

J. foliis subulatis, gluma biflora terminali. *Sp. Pl.* 467. *Flor. Dan.* 120. *Huds.* 649. *Lightf.* 1100.

J. floribus terminalibus subgeminis, bractea altera floribus longiore acuminata. *Vahl. Act. Soc. Hist. Nat. Haf.* ii. 1. 38.

J. foliis planis, capitulo bifloro terminali secundo basi foliato. *Flor. Brit.* 382. *Eng. Bot.* xiii. 898.

Angl. TWO-FLOWERED RUSH. Two-glumed Rush.

Habitat

Habitat in locis irriguis summarum alpium, rarissimè.

Peren. August.

Root fibrous. *Stem* three or more inches high, leafy, simple, striated. *Leaves* compressed, jointed, erect, sheathing, pointed. *Flowers* terminal, binate, unilateral, one above the other; upper one on a short footstalk. *Bractes* two; larger one foliaceous, erect, forcing the fruit on one side. *Calyx-leaflets* lanceolate, pointed, equal, keeled, chocolate-coloured. *Stamens* longer than the calyx. *Capsule* large, turbinate, retuse, chocolate-coloured above, longer than the calyx. *Seeds* numerous; appendage elongated at each end.

This rare plant has been found with us only in Scotland, particularly on Ben Lawers in Breadalbane. The old botanists were unacquainted with it; and even Lightfoot suspected it might be a variety of *J. triglumis*. The two species are, however, perfectly distinct, and may be recognised at once by observing that one of the bractes in *J. biglumis* is much longer than the flowers, and the capsule turbinate. The seeds are remarkably distinguished by their covering.

17. *JUNCUS* CASTANEUS.

JUNCUS foliis planis amplexicaulibus, capitulo terminali subgeminato multifloro basi foliato, bracteis acutis. *Flor. Brit.* 383.

Rost. Monograph. 49. *Eng. Bot.* xiii. 900.

J. Jacquini, folio subulato, capitulo terminali subquadrifloro.

Sym. Syn. 87. *Hull.* 76.

Habitat in alpibus Scotiæ, solo micaceo udo.

Peren. July.

Root creeping, with runners. *Stem* erect, straight, from six to twelve inches high, cylindrical, solitary, leafy. *Leaves* principally on the stem, alternate, erect, compressed, jointed above; sheathing, folded and dilated at the base so as to make a sharp keel. *Heads* terminal, erect, one above the other, from three to

to eight-flowered, shining, nearly black. *Bractes* membranous, linear-lanceolate, acuminate. *Calyx-leaflets* lanceolate; outer ones longer and more acute than the inner. *Stamens* the length of the calyx. *Style* persistent, of about the same length as the stigmas. *Capsule* oblong, pointed, three-celled, black, longer than the calyx. *Seeds* numerous in each cell; appendage subulate at each end.

The first botanist of whom we have heard who took notice of this new species, was Dr. Steuart. He gathered it on Ben Chalum. Mr. Dickson brought it from Ben Lawers; and it was published first under the name of *J. Jacquini* in Symon's *Synopsis Plantarum Insulis Britannicis Indigenarum, &c.* Others have mistaken it, in the same way; and I am afraid that the draughtsman of the figures in *English Botany* has fallen into the error. *J. Jacquini* has the lower bracte with a long filiform summit, very acuminate calyx-leaflets, very short stamens, and one leaf on the stem. It belongs to that division of the genus which has channelled leaves; while *J. castaneus* is an articulate-leaved species. In addition to the habitats before mentioned, I have it gathered by Mr. Borrer, in Fion Glen in Breadalbane.

18. JUNCUS SUBVERTICILLATUS.

JUNCUS foliis caulinis subulatis nodoso-articulatis, paniculâ corymbosâ, capitulis subquinquefloris fasciculato-verticillatis, capsulâ obtusâ calycem striatum æquante.

J. culmo procumbente, foliis setaceis subarticulatis, corymbo dichotomo divaricato, capitulis subquinquefloris sessilibus. *Rost. Monograph.* 42.

J. culmo decumbente, foliis setaceis, floribus glomeratis verticillatis, glomeratis foliosis. *Willd.* ii. 212.

Gramen junceum sylvarum minus articulato folio. *Park.* 1189. 6.

Angl. WHORLED RUSH.

Peren. July, August.

Stem

Stem a little bulbous at the base, decumbent, striking root at the joints, generally a few inches in height, cylindrical, fistulous. *Leaves* at the root filiform, articulate; those of the stem larger, subulate, knotty-jointed, brittle, springing from a large scariosa sheath. *Flowers* in a corymb, as if proliferous, fasciculato-ver-ticillate, light-brown. *Calyx-leaflets* lanceolate, acuminate, striated, rigid. *Capsule* obtuse, light-brown, not longer than the calyx, somewhat shining, mucronate.

Though I am not enabled to ascertain many modern synonyms with certainty for this common plant, I feel confident that it will be found on examination to be a good species. The French botanists give it the above name in their herbaria. Rostkov, Willdenow, and most others seem to have considered the *J. uliginosus* of Smith and this to be the same. Sibthorp's description of *uliginosus* corresponds so nearly with it, that I think he had an eye to it in drawing up his specific character—"Floribus fasciculatis, fasciculis proliferis, foliis setaceis articulato-nodosis." Withering's definition is also applicable to this. Haller's no. 1321 is most likely intended for it—"Foliis sessilibus articulatis, panicula simplici, glumis aristatis." And Parkinson's figure 1189 tolerably corresponds.

19. JUNCUS ACUTIFLORUS.

JUNCUS foliis nodoso-articulatis, paniculâ terminali supradecompositâ, calycis foliolis omnibus lanceolatis acuminatis capsulam acuminatam æquantibus.

J. foliis compressiusculis panicula terminali supradecomposita diffusa, calycis foliolis omnibus lanceolatis acuminatis, capsula ovato-oblonga triquetra mucronata, culmo 3—4-folio. *Davies, Linn. Trans. x. 13.*

J. foliis nodoso-articulatis subcompressis, culmo enodi paniculâ decompositâ dichotomâ, calyce omninò acuto. Compend. Flor. Brit. 55. Eng. Bot. t. 238. descrip. 2143.

J. sylvaticus, culmo erecto, foliis nodoso-articulatis teretibus, panicula composita, foliolis calycinis aristatis interioribus longioribus. Willd. ii. 211.

J. nemorosus, culmo folioso erecto, foliis subteretibus, nodoso-articulatis, panicula supradecomposita. Sibth. 114.

J. articulatus, foliis nodoso-articulatis, capitulis paniculatis multifloris. Relh. 138.

J. foliis nodoso-articulatis, floribus acutis. Ehrh. Gram. 66.

J. foliis teretibus articulatis, panicula repetito-ramosa. Hall. Hist. 1323.

J. nemorosus folio articuloso. Raii Syn. 433.

Gramen junceum articulatum palustre erectum et elatius. Moris. s. viii. t. 9. f. 2.

Gramen junceum sylvaticum sparsa panicula. Park. 1189. 5.

Gramen junceum aquaticum magis sparsa panicula. Park. 1269. 4.

Gramen junceum sylvaticum. Ger. Em. fig. 22?

Angl. SHARP-FLOWERED RUSH. Sharp-flowered jointed Rush. Greater jointed Rush. Wood Rushie Grass.

Habitat in sylvis humidis et aquosis.

Peren. June, July.

Root fibrous, creeping. Stems two or three feet high, slender, erect, compressed, smooth; joints fistulous. Leaves three or four on a stem, sheathing, compressed, smooth, knotty-jointed. Panicle terminal, very much divided, diffuse; branches long, slender, smooth. Calyx-leaflets all acuminate and of a similar consistence. Capsule three-sided, ovate-oblong, acuminate, light brown, a little shining, about the length of the calyx.

This

This is unquestionably a good species, and the Rev. Hugh Davies's remarks leave me nothing to add to the diagnostic description. "The panicle of this is more branched than that of the last, the branches more slender and spreading, the divisions of the calyx narrower and longer, the capsule smaller, much more taper-pointed and lighter-coloured; culm of fewer joints, that and the leaves less compressed. It is a taller plant, sometimes above three feet high, and it ripens later." I cannot persuade myself that Ray did not intend this species and not *obtusiflorus* by his *J. nemorosus folio articuloso*; since in his *Hist. Plant.* he quotes *Ger.* 20. 10. (a most excellent representation of the *obtusiflorus*) with a doubt.

20. *JUNCUS LAMPOCARPUS.*

JUNCUS foliis compressis, paniculâ terminali compositâ erectâ, calycis foliolis tribus interioribus obtusiusculis, capsulâ acutâ triquetrâ nitidissimâ.

J. foliis nodoso-articulatis compressis, culmo enodi, paniculâ erectâ, capsulâ coloratâ nitidissimâ. *Compend. Flor. Brit.* 55. *Eng. Bot.* xxx. 2143.

J. foliis compressis, panicula composita erecta, calycis foliolis tribus exterioribus ovato-lanceolatis acuminatis; interioribus scarioso-marginatis obtusiusculis, capsula ovata triquetra, stylo brevi terminata fusco-purpurea nitida, culmo 3—6-folio. *Davies, Linn. Trans.* x. 13.

J. articulatus, culmo adscendente, foliis nodoso-articulatis compresso-teretiusculis, panicula composita, foliolis calycinis æqualibus obtusiusculis. *Willd.* ii. 211.

J. articulatus, foliis nodoso-articulatis, petalis obtusis. *Sp. Pl.* 465. *Leers*, 88. *t.* xiii. *f.* 6. *Huds.* 149.

J. compressus, culmo folioso decumbente, foliis compressis nodoso-articulatis, panicula composita. *Relh.* 141. *Sibth.* 114. *Abbot*, 79.

J. foliis articulatis compressis, panicula semel ramosa. *Hall. Hist.* 1322.

J. foliis articulosis floribus umbellatis. *Raii Syn.* 433.

Gramen junceum articulatum palustre humilium utriculis frequenter donatum. *Moris. s. viii. t. 9. f. 2.*

Gramen junceum aquaticum Bauhini folio articulato et cum utriculis. *Park.* 1270. 5.

Angl. SHINING-FRUITED RUSH. Lesser-jointed Rush. Shining-fruited jointed Rush.

Habitat in locis uliginosis et paludosis.

Peren. July, August.

Root creeping. *Stem* about a foot high, compressed, many-leaved, slightly striated. *Leaves* compressed, sheathing, distinctly jointed, rigid, pointed. *Panicle* terminal, erect; branches stiff, elongated, nearly simple. *Flowers* five or six together, sessile. *Calyx-leaflets* shorter than the capsule; the three inner somewhat longer, and with a more obtuse and membranous edge than the outer ones. *Capsule* larger, oval, triangular, chocolate-coloured, varnished, acute, terminated by the persistent style.

This plant in an advanced state is easily known from *J. acutiflorus* and *obtusiflorus* by its large, shining, dark capsules. While early in flower, the best marks are the more simple panicle and the somewhat obtuse calyx. It is subject to become foliaceous in the flower-scales; in which state C. Bauhin has figured it, *Prod.* 12., and Parkinson has copied it, 1270. *Gramen aquaticum*, *Ger.* 12. 1. and *Ger. Em.* 13. 1., which are usually referred to this species or the following, are more likely, judging from the panicle, to be *Alisma Plantago*, drawn as it appears after having seeded. This I have but little doubt is Linnæus's *articulatus*; for though his description "petalis obtusis" is not so applicable to this species as to

to *obtusiflorus*, yet, as compared with *acutiflorus*, it is sufficiently characteristic. His synonyms are quite consistent with this opinion. This by the old botanists was called the *aquaticus*, while the *acutiflorus* was called *sylvaticus*. Linnæus himself makes this distinction in his *Systema Naturæ*. We are indebted to the Rev. Hugh Davies for making them intelligible to the English botanist.

21. JUNCUS OBTUSIFLORUS.

JUNCUS foliis teretibus nodoso-articulatis, paniculâ supradecompositâ divaricatâ, calycis foliolis ellipticis obtusis capsulæ longitudine.

J. foliis cauleque nodoso-articulatis teretibus, paniculâ divaricatâ, calyce obtuso longitudine capsulæ. *Compend. Flor. Brit.* 55. *Eng. Bot.* xxx. 2144.

J. foliis teretibus, panicula terminali supradecomposita divaricato-refracta, calycis foliolis ellipticis obtusis, capsula ovato-acuminata triquetra, culmo bifolio. *Davies, Linn. Trans.* x. 13.

J. foliis nodoso-articulatis, floribus obtusis. *Ehrh. Gram.* 76.

J. articulatus β . *Flor. Brit.* 379. *exclus. synonym.*

Gramen junceum sylvaticum. *Ger.* 20.

Angl. BLUNT-FLOWERED RUSH. Blunt-flowered jointed Rush.
Wood Rushie Grass.

Habitat in stagnis et aquosis, non vulgaris.

Peren. July, August.

Stem erect, two or three feet high, smooth, even, cylindrical, divided into cells between the joints, bearing usually two leaves. *Leaves* rigid, jointed, cylindrical, smooth, pointed; joints cellular. *Panicle* terminal, very much branched; branches repeatedly compound, entangled one with the other; ultimate branchlets frequently refracted. *Flowers* small, lateral and terminal,

terminal, collected into little heads. *Calyx-leaflets* elliptic, all obtuse, as long as the capsule; margin broadly scarioso; keel brown. *Capsule* light-brown, shining, small, oval, mucronate, three-sided, three-celled.

The pale much branched panicle distinguishes this at first sight; and, upon closer examination, the obtuse calyx-leaflets, which are as long as the capsule, and the jointed stem having only two leaves, afford further marks for discrimination. This is no doubt what Gerard has figured *p. 20. f. 10.* and which in Johnson's edition is changed for *acutiflorus*; and it is what Ray, in his *Hist. Plant. p. 1307. 4.*, has described as a variety of the same plant.—“Cum planta,” he says, “in aquosis et humidioribus nascitur, majis sparsa et pluribus capsularum agminibus composita quàm in præcedente. Quamvis autem planta ipsa major et elatior sit quàm illa, capsulæ tamen seminales minores sunt, nec adeò obscurè nigricant.” It is also Ray's plant, mentioned in his *Synopsis, 2d ed. p. 276.*, where he says, after describing *acutiflorus*, “Secunda species elatior et major est, paniculâ majis sparsâ, capsulis tamen minoribus minusque coloratis quàm in illa.” Dillenius understood the expression “secunda species” to refer to the second species of the subdivision in which the plant is placed; whereas Ray meant the *second* as following that he was then describing, which was *acutiflorus*. Thus, in the third edition (in which the species are differently arranged,) Dillenius, speaking of this plant, says, “Priori elatior et major est, panicula majis sparsa est,” &c. &c., applying these words to *J. lampocarpus*, which was the second species of the second edition, and which he in his new arrangement had placed next before *acutiflorus*.

LUZULA.

L U Z U L A.

WOODRUSH.

Cal. hexaphyllus. *Cor.* nulla. *Caps.* supera, trivalvis, unilocularis, trisperma.

1. LUZULA PILOSA.

LUZULA paniculâ cymosâ divaricatâ, floribus lateralibus sessilibus solitariis, seminis corunculâ uncinati.

L. foliis planis pilosis, corymbo terminali subcomposito, pedunculis unifloris nutantibus, petalis ovatis capsula brevioribus. *Willd. Hort. Berol.* 393.

L. vernalis, foliis pilosis, corymbo subsimplici, pedunculis unifloris nutantibus, perigonii lobis ovatis acutis, capsulis obtusis. *Decand. Flor. Gall.* 151.

Juncus pilosus, foliis planis pilosis, corymbo subsimplici, pedunculis unifloris nutantibus, petalis capsula brevioribus ovatis acutis. *Willd.* ii. 216. *Rost. Monograph.* 25.

J. pilosus, foliis planis pilosis, panicula cymosa divaricata, floribus solitariis. *Flor. Brit.* 384. *Eng. Bot.* xi. 736.

J. pilosus, foliis planis pilosis, corymbo ramoso. *Sp. Pl.* 468. *Huds.* 151. *With.* 349. *Relh.* 145. *Sibth.* 115. *Curt. Lond.* f. 5. t. 25. *Leers* 90. t. xiii. f. 10.

Gramen nemorosum hirsutum vulgare. *Raii Syn.* 416.

Gramen hirsutum latifolium majus. *Moris. s. viii. t. 9. f. 1.*

Gramen nemorum hirsutum majus. *Park.* 1184.

Gramen hirsutum nemorosum. *Ger.* 17. *Ger. Em.* 19.

Angl. HAIRY WOODRUSH. Small Hairy Woodrush. Hairy Rush.

Common Hairy Wood-Grass. Hairy Wood-Grass.

Habitat in nemorosis et dumosis, vulgaris.

Peren. Mar. Ap.

Root fibrous, stoloniferous. *Stem* from 6 to 12 inches high, slender, cylindrical,

cylindrical, simple, leafy. *Leaves* linear-lanceolate, plane, nerved, acute; the margin, especially towards the base, clothed with very long, white, soft hairs: radical leaves very numerous and large. *Panicle* terminal, cymose, somewhat branched, divaricate: ultimate branches reflected. *Flowers* solitary, terminal and lateral; lateral ones sessile. *Bractes* two to each flower, membranous, acute. *Calyx-leaflets* lanceolate, acuminate, dark-brown, with a scariose margin. *Filaments* very short. *Capsule* one-celled, three-sided, inversely heart-shaped, obtuse, suddenly narrower towards the middle. *Seeds* three, shining, chocolate-coloured; coruncula lengthened at the top, hooked, twisted, all three meeting at the insertion of the pistil. *Vid.* TAB. IX. *f.* 1.

The peculiar shape of the coruncula will at once enable the botanist to distinguish this plant from all its congeners; but when that cannot be seen, the divaricate and dark panicle will generally suffice to separate it from *L. Forsteri*; and the solitary flowers prevent it from being confounded with the rest of the British species. The marginal hairs of this genus are singularly constructed, being composed of a number of smaller fibres, which are jointed and twisted; so that upon the application of moisture, in a dry day, as in the case of the awns of *Avenæ*, they untwist themselves.

This plant has no known medicinal or agricultural use. Its dry tough herbage renders it unfit for cattle in general; though horses, goats, and sheep will eat it; more, however, from its being one of the earliest spring plants than from any other cause.

2. LUZULA FORSTERI.

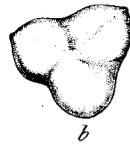
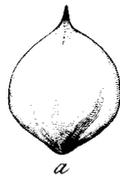
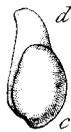
LUZULA paniculâ cymosâ erectâ, floribus solitariis, capsulis acutis, seminis corunculâ subrectâ obtusâ.

L. foliis pilosis, corymbo subsimplici, pedunculis unifloris erectis, perigonii

1. *Luzula pilosa*



2. *L. Forsteri*



3. *L. Sylvatica*



4. *L. Campestris*



a. Capsule
b. Transverse Section of do

c. Seed
d. Perisperm

perigonii lobis ovato-acuminatis, capsula mucronato-acuta.

Decandolle, Syn. 150. *Ib. Icones Plant. Gall.* i. t. 2.

Juncus Forsteri, foliis planis pilosis, paniculâ cymosâ erectâ, floribus solitariis, capsulis acutis. *Eng. Bot.* xviii. 1293. *Flor. Brit.* 1395.

Angl. FORSTER'S WOODRUSH. Narrow-leaved Hairy Rush.

Habitat in nemorosis calcareis et glareosis.

Peren. May.

Root fibrous. *Stems* from 6—12 inches high, very slender, erect, simple, cylindrical, smooth, leafy. *Leaves* linear, narrower than in the preceding species, acute, hairy at the margin; upper ones largest. *Panicle* terminal, cymose, erect, spreading, a little branched; branches never divaricate or refracted. *Calyx-leaflets* lanceolate, acuminate, light-brown, as long as the capsule. *Capsule* one-celled, roundish-ovate, acute, mucronate. *Seeds* three, oval; coruncula straightish, obtuse, all meeting at the insertion of the pistil. *Vid.* TAB. IX. *fig.* 2.

No doubt whatever can be entertained with regard to the correctness of this being made a species. It was first discovered by Edward Forster, Esq. F. L. S., whose acuteness in indigenous botany has been rarely equalled, and published in the 18th vol. of *English Botany*. Its pointed capsule, peculiarly shaped coruncula, and ascending cyme, are invariable marks to distinguish it. The leaves are not half the width of those of *pilosa*. The *calyx-leaflets* are longer, much more acuminate, and of a lighter colour. The solitary flowers are peculiar to these two species. The figure given by Decandolle is very satisfactory, but somewhat stiff.

3. LUZULA SYLVATICA.

LUZULA paniculâ cymosâ decompositâ, floribus fasciculatis, corunculâ obsoletâ.

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2 x

L. maxima,

L. maxima, foliis planis pilosis, corymbo decomposito divaricato, capitulis subtrifloris, petalis aristatis longitudine capsulæ. *Willd. Hort. Berol.* 393.

Juncus maximus, foliis planis pilosis, corymbo decomposito divaricato, capitulis subtrifloris, petalis aristatis longitudine capsulæ. *Rost. Monograph.* 28.

J. maximus, foliis planis pilosis, corymbo decomposito, pedunculis elongatis divaricatis subtrifloris, calycinis foliolis aristatis longitudine capsulæ. *Willd.* ii. 217.

J. maximus. *With.* 349.

J. sylvaticus, foliis planis pilosis, corymbo decomposito, floribus fasciculatis sessilibus. *Huds.* 151. *Sibth.* 116. *Curt. Lond.* f. 5. t. 26.

J. sylvaticus, foliis planis pilosis acuminatis, paniculâ cymosâ decompositâ, floribus fasciculatis. *Flor. Brit.* 385. *Eng. Bot.* xi. 737.

J. pilosus δ . *Sp. Pl.* 468.

Gramen nemorosum hirsutum latifolium maximum. *Raii Syn.* 416.

G. hirsutum latifolium majus, juncea panicula. *Moris.* s. viii. t. 9. f. 2.

G. hirsutum latifolium minus. *Ibid.*

G. nemorum hirsutum latifolium minus juncea panicula. *Park.* 1185. 3.

G. hirsutum angustifolium majus alterum. *Ibid.* 5.

Angl. GREAT WOODRUSH. Wood Rush. Great Hairy Wood Rush. The greatest broad-leaved Hairy Wood-Grass.

Habitat in sylvis, nemorosis et montosis.

Peren. May, June.

Root fibrous. *Stems* a foot or more high, erect, striated, leafy.
Leaves

Leaves linear-lanceolate, acuminate, eight-nerved, hairy at the margin; stem-leaves smaller, shorter. *Panicle* terminal, cymose, repeatedly compound, often divaricate. *Flowers* small, about three together, fasciculate. *Bractes* linear, hairy, acute. *Calyx-leaflets* equal, acuminate, somewhat longer than the capsule. *Capsule* ovate, mucronate, three-seeded. *Seeds* elliptical; coruncula sitting close to the seed, and of the same shape. *Vid.* TAB. IX. *fig.* 3.

Linnæus comprehended this, with some other real species, in his *Juncus pilosus*; but that it is most distinct from every other, no botanist now doubts. It is the largest of the genus, whence the name *maximus*: but though this be the case, it has a smaller seed-vessel, in proportion, than any of the rest. It differs from *L. pilosa* and *Forsteri* in the circumstance of the flowers growing in clusters, and the repeatedly compound panicle; and from the *campestris*, in the absence of the spiked heads. It flowers later than the others by a month. The herbalists Bauhin, Parkinson, and Morison have two varieties of it, a larger and a smaller; but whether this has arisen merely from the different size of the plant, or whether there is really a distinction, as I confess I have sometimes suspected, I cannot at present determine. Parkinson's 1185. 5. is *Luzula albida*. His *Gramen nemorum hirsutum majus alterum precox tuberosa radice*, 1184. 2. is the large variety; 1185. 3. is the smaller one, copied from C. Bauhin. Morison's *Gramen hirsutum latifolium majus juncea panicula*, *sect. viii. t. 9: f. 2.* is the larger; and *Gramen hirsutum latifolium minus* the smaller, and copied also from C. Bauhin. Whether any old botanist besides Bauhin was acquainted with it, is doubtful. *Flor. Dan.* 441. represents the small variety.

4. LUZULA CAMPESTRIS.

LUZULA culmo tereti, spicis umbellatis sessilibus pedunculatisque ovatis, capsulis muticis.

L. spicis capituliformibus subumbellatis inæqualiter pedunculatis; intermediâ sessili, perianthii foliolis æqualibus acutissimis.

Brown, Prod. Flor. Nov. Holl. 591.

L. foliis planis pilosis, spicis pedunculatis umbellatis, intermedia sessili, petalis mucronatis capsula longioribus. *Willd. Flor. Berol.* 394.

Juncus campestris, foliis planis pilosis, spicis pedunculatis umbellatis, intermedia sessili, petalis mucronatis capsula longioribus.

Rost. Monograph. 44.

J. campestris, foliis planis pilosis, spicis pedunculatis umbellatis, intermedia sessili, calycinis foliolis mucronatis capsula longioribus. *Willd.* ii. 221.

J. campestris, foliis planis pilosis, spicis terminalibus sessilibus pedunculatisque, capsulis obtusis. *Flor. Brit.* 385. *Eng. Bot.* x. 672.

J. campestris, foliis planis subpilosis, spicis sessilibus pedunculatisque. *Sp. Pl.* 468. *Leers* 91. t. xiii. f. 5. *Huds.* 152. *With.* 350. *Relh.* 145. *Sibth.* 116. *Curt. Lond.* f. 2. t. 19.

G. hirsutum capitulis Psyllii. *Moris.* s. viii. 9. f. 4.

G. nemorum hirsutum minus angustifolium. *Park.* 1185. 6.

Gramen exile hirsutum. *Ger.* 16. *Ger. Em.* 17. *Raii Syn.* 416.

β : *congesta*, altior, capitulæ oblongæ congestæ aut longè pedunculatæ.

Luzula congesta. *Forster's Flor. Tonbridg.* 44. *Flor. Fran.* v. 305.

L. erecta α & β , culmo erecto elato, capitulis ovatis inæqualiter pedunculatis strictis; capsulis ovatis perianthio longiori; radice cæspitosa. *Desv. Journ.* i. 156, 157.

L. multiflora.

- L. multiflora.* Flor. Fran. v. 306.
Juncus erectus. Pers. Enchirid. i. 386.
J. liniger. With. 4th ed. 436.
J. campestris γ . Sp. Pl. 468.
Gramen hirsutum elatius, panicula juncea compacta. Raii Syn. 416.
G. hirsutum capitulo globoso. Park. 1186. 9. *Moris. s. viii. t. 9. f. sinist.*
G. capitulis globosis. Ger. 16. 1. Ger. Em. 18. 3.
Angl. SMALL WOODRUSH. Hairy Field Rush. Field Rush. Small Hairy Wood-Grass. Hairy Grass. β Globe-headed Rush. Hairy Grass, with a compact rush-like panicle. Round-headed Silver Grass.

Habitat in pascuis siccioribus: β in humidis.

Peren. April, May.

Root fibrous, creeping. *Stem* four inches or more high, simple, erect, leafy. *Leaves* linear, plane, five-nerved, hairy at the margin; point rigid. *Flowers* in spikes, sessile, ten or twelve together; heads ovate, erect, at last nodding; the lowermost sessile, the rest pedunculated. *Bractes* three or four at the foot of each flower, membranous, fringed, shining, giving a silvery appearance to the flowers. *Calyx-leaflets* lanceolate, acuminate, shining, keeled. *Filaments* very short. *Capsule* obovate, obtuse, three-sided. *Seeds* reniform, roughish, ash-coloured green, opaque; coruncula enlarged at the bottom of the seed, and attaching it to the receptacle. *Vid.* TAB. IX. *fig.* 4.

β . Taller, leaves longer, panicle composed either of many heads clustered into one, or several little ovate heads of flowers standing on long peduncles in somewhat of an umbellate form.

Though the real *Luzula campestris* is not likely to be mistaken, if its spiked flowers and obtuse capsule be attended to, yet it varies

ries so much, according to the soil in which it grows, as to render it difficult to assign the limits between it and β , and some of the foreign species. Many botanists indeed have considered the bog variety as a distinct species. Ray, Dillenius, Sibthorp, Withering, and the French botanists are of this opinion. On the other hand, Linnæus, Willdenow, Curtis, and Sir James Smith regard it only as a variety. To the latter opinion I assent after much examination. Sir James Smith, *Flor. Brit.* 386. in his β has only described that variety growing in bogs with a conglomerate head, composed, as Ray says, "ex pluribus veluti globulis coacervata;" but mine includes not only this, but another, equally common, the γ of Linnæus, where the little heads stand on long footstalks, growing something like the one figured by Linnæus, *Flor. Lap. t. x. 2.*, and yet totally distinct from it. Sir James Smith is at a loss to reconcile Ray's synonyms; but all the figures to which he refers are without doubt intended for the plant in its pedunculated state. Desvaux has made Linnæus's β and mine a new species, which he calls *Luzula erecta*, as above quoted. I cannot, however, agree with this arrangement, being quite satisfied that Linnæus's plant, *Flor. Lap. l. c.*, is a good species, and is to be known by the leaves being narrower and nearly destitute of hairs, the stems compressed, and spikes umbellated. Wahlenburg, who has given it a place in his valuable *Flora*, calls it *Juncus pallescens*, with this definition: "foliis planis, culmo compresso, spicis umbellatis oblongis pedunculatis patentibus, bractea foliacea." I have not observed it in any collection of British plants, though it is very likely to be a native of the northern mountains.

5. LUZULA SPICATA.

LUZULA spicâ racemosâ nutante, spiculis sessilibus bracteatis, capsulis acutis.

Juncus

Juncus spicatus, foliis planis subpilosus, spica glomerato-racemosa basi divisa nutante, petalis longitudine capsulæ. *Rost. Monograph.* 46.

J. spicatus, foliis planis, spicâ racemosâ nutante basi compositâ, capsulis acutis. *Flor. Brit.* 386. *Eng. Bot.* xvii. 1176.

J. spicatus, foliis planis, spica racemosa nutante. *Sp. Pl.* 469. *Fl. Lap. t.* 10. *f.* 4. *Flor. Dan.* 270. *Huds.* 650. *With.* 350.

Angl. SPIKED WOODRUSH. Spiked Rush. Alpine nodding Rush.

Habitat in alpihus Borealibus.

Peren. July.

Root fibrous, tufted. *Stem* simple, six or eight inches high, slender, leafy. *Leaves* linear, channelled, hairy at the base; stem-leaves convolute or subulate. *Spike* terminal, nodding, cylindrical, oblong, obtuse; spikelets sessile, many-flowered, bracted. *Bractes* pale, lanceolate, laciniated. *Calyx-leaflets* lanceolate, acuminate. *Capsule* pointed, one-celled, three-sided.

This plant approaches nearer to the *Junci* than any of the rest of the *Luzulæ* here described. Its leaves are not so flat or hairy as most of the rest of the genus, and the capsule shows the rudiments of dissepiments. It is not likely to be confounded with any other plant, with the exception, perhaps, of *L. pediformis*, which is much larger, and has a pointed capsule. It is very rare with us, occurring chiefly in Scotland on the summits of the highest mountains. I found a single specimen in the herbarium of my friend Joseph Woods, Esq. F.L.S., gathered by him on Fairfield, near Ambleside; and this is the only instance that has come to my knowledge of its being found in England.