

Taxus	Viburnum
fastigatus.	dilatatum.
variegated.	canadense.
Trollius japonicus.	Vitis
Tulipa	elvira.
gesneriana major.	odoratum.
kaufmanniana.	Watsonia marginata.
persica.	Weigelia lamoinei.
dammani.	Widdringtonia whytei.
præcox.	Xanthoceras
Ulmus	sorbifolia.
campestre.	picta.
vanhouttei.	Zauschneria californica.

ART. XLVI.—On New Species of Grasses from New Zealand.

By Professor E. HACKEL.

Communicated by T. F. Cheeseman, F.L.S.

[Read before the Auckland Institute, 23rd February, 1903.]

[THE grasses of New Zealand have long been in need of careful study and examination by some competent authority in Europe, whose position would give him access to the large European herbaria where the types of the published species are mainly deposited, and where it is alone possible to work out many questions relating to the geographical distribution of the species, and their relationship to the grasses of the world. No attempt to deal with the grasses of New Zealand with regard to these points has been made since the publication of Hooker's "Handbook of the New Zealand Flora" in 1864. Buchanan's beautifully illustrated work, which has appeared in the interim, though valuable in very many respects, is wholly confined to the illustration and description of the species, with notes on their economic value. During the forty years that has elapsed since the preparation of the "Handbook" the classification has been to a great extent revolutionised. Different views are now held as to the position and characters of many of the genera and species; and an immense amount of information has been obtained bearing on the geographical distribution of the species. Among the workers who have contributed to this advance no one is better known than Professor Eduard Hackel, of St. Polten, Austria. To say nothing of his monographs of the *Andropogoneæ* and European *Festuceæ*, his account of the whole order published in

Engler and Prantl's "Naturlichen Pflanzenfamilien" would alone place him in the first rank of European agrostologists.

During the preparation of the work on the "Flora of New Zealand," on which I am at present engaged, the necessity for a thorough investigation of the New Zealand grasses by some one possessing a special knowledge of the order became still more apparent. It was therefore with much satisfaction that I received an intimation from Professor Hackel that he was willing to undertake this, provided that he was supplied with a sufficient amount of fresh material from all parts of the colony. This, with the kind assistance of Mr. Petrie and Mr. Cockayne, who have contributed very large suites of specimens to the collection which I could withdraw from my own herbarium, I have been able to do. Professor Hackel's report on this collection and on the New Zealand grasses generally contains a large amount of valuable information, especially regarding the difficult genera *Agrostis*, *Deyeuxia*, *Danthonia*, *Poa*, &c., and will prove of the utmost service in the elaboration of the order for the forthcoming "Flora," for which I have his permission to use it. He has also furnished diagnoses in Latin of certain new species contained in the collection, which at his request I now submit to the Institute for publication in the Transactions.—T. F. CHEESEMAN.]

1. *Imperata cheesemani*, Hack.

Perennis, innovationibus extravaginalibus. Culmi subrusti, erecti, ad 40 cm. alti, teretiusculi, glaberrimi, 3-nodes, simplices, farcti. Vaginæ foliorum laxæ, internodia superantes, teretiusculæ, ore barbata, ceterum glaberrimæ, summa paniculæ basin amplexens, infimæ squamiformes. Ligulæ breves, truncatæ, membranaceæ, glabræ v. ciliolatæ. Laminae e basi valde angustata (in foliis basilaribus fere petioliformi) lineari-lanceolatæ, acutæ, inferiores ad 30 cm. longæ, 1.3 cm. latæ, superiores abbreviatæ, summa minuta, planæ, erectæ, rigidæ, glaberrimæ, costa media inferne crassa, nervisque lateralibus crassiusculis non prominentibus percursæ. Panicula spiciformis, anguste lanceolata a $\frac{1}{3}$ inferiore sensim angustata, acutissima, ad 20 cm. longa, 2 cm. lata, densa, canescenti-villosa, non nitens, rhachi glabra, ramis creberrimis sibi valde approximatis solitariis vel oppositis, erecto-patulis, flexuosis, glaberrimis vel pilis raris adpersis (inferioribus circ. 3 cm. longis), simplicibus v. inferne ramulis brevissimis auctis, fere a basi spiculiferis. Racemi ("spicæ") inferiores circ. 3 cm. longi, rhachi crassiuscula, glabra, internodiis circ. 12, quam pedicelli spicularum vix brevioribus, pedicellis crassiusculis, valde clavatis, glaberrimis, primariis circ. 2 mm., secundariis 1 mm. longis. Spiculæ lineari-oblongæ, 3.5 mm. longæ, villis e callo ortis spicula sesquilogioribus canescen-

tibus haud ita densis cinctæ, flavescentes. Gluma I. spiculam æquans, lanceolata, acutiuscula, membranacea, obscure 5-nervis, toto dorso laxè pilosa, apice ciliolata; II. I-æ simillima nisi obtusa, 3-nervis, apice dense ciliolata; III. quam I. $\frac{1}{3}$ brevior, late ovata, obtusa, dentata, dentibus ciliolatis, hyalina, enervis, vacua; IV. quam II. $\frac{1}{3}$ brevior, ovata, acuminata, tridentata, dentibus lateralibus quam intermedius multo brevioribus, glabra, hyalina; palea quam gl. II. duplo brevior, latissima, truncata, multidentata, fimbriato-ciliata. Stamen 1, anthera fere 3 mm. longa. Styli stigmataque elongata. Caryopsis oblonga, teretiuscula, 1.5 mm. longa, flavescens, scutello $\frac{3}{8}$ caryopsidis æquante.

Kermadec Islands, leg. Cheeseman (Nro. 1001).

Affinis *T. exaltata*, Brogn., quæ differt a nostra culmo multo altiore, paniculæ ramis tenuissimis, ramulos secundarios crebros agentibus, racemorum rhachi capillari, pedicellis spicularum vix clavatis, spiculis linearibus, minoribus, glumis I. et II. acuminatis, manifeste 3-nerviis, III. glabra, IV. integra, palea gluma II. 4-plo brevior, integra.

2. *Agrostis petriei*, Hack.

Perennis, cæspitosa. Innovationes extravaginales, basi squamis aphyllis quoad longitudinem sensim majoribus vestitæ. Culmi erecti, graciles, ad 25 cm. alti, glaberrimi; 3-5-nodes, nodo summo fere in medio culmo sito, simplices. Vaginæ teretes, glaberrimæ, internodiis parum longioribus. Ligulæ oblongæ, ad 5 mm. longæ, obtusæ, denticulatæ. Laminæ lineares, sensim acutatæ, planæ vel siccitate convolutæ, glaucæ, ad 12 cm. longæ, 1.5 mm. latæ, utrinque scabræ, margine scaberrimæ, tenuinerves. Panicula oblonga, patula, laxiflora, ad 12 cm. longa, rhachi lævi, ramis 3-5-nis, capillaribus, scaberulis, a $\frac{1}{3}$ inferiore divisio, primario circ. $\frac{1}{3}$ paniculæ æquante, secundariis inferioribus paucispiculatis, tertianis plerumque unispiculatis, spiculis in apice ramorum subcontiguis, pedicellos subterminales apice vix incrassatos æquantibus. Spiculæ lineari-lanceolatæ, 3 mm. longæ, pallide virides; glumæ steriles æquales, lanceolatæ, acutæ, 1-nerves, læves; fertilis sterilibus $\frac{1}{4}$ brevior, tenui-membranacea, obtusa, minute denticulata, 4-nervis (infra medium 5-nervis), e medio dorso aristam exserens rectam, glumæ æquilongam raro mutica, callo pilis circ. 0.5 mm. longis obsita. Palea θ . Antheræ circ. 1.8 mm. longæ.

Nevis Valley, Otago, leg. Petrie (10044 hb. Petrie, 1092 hb. Cheesem.)

Var. *mutica*, arista nulla. Cromwell, Central Otago, Petrie (10045 hb. Petrie, 1085 hb. Cheesem.).

Affinis *A. canna* L., quæ differt a nostra foliis læte viridibus lævibus, panicula magis composita (ramulis tertianis

etiam plurispiculatis) densiore, spiculis minoribus (2-2.5 mm. longis), glumarum sterilium carina scabra, antheris vix 1 mm. longis. *Agrostis dyeri*, Petrie, differt a nostra (et ab *A. canina*) jam novationibus intravaginalibus basi non squamatis. *A. canina*, L., vera in Nova Zelandia nondum observata est; *A. canina*, Hook. f., Buchanan Manual t. xix. est *A. dyeri*, Petrie.

3. *Calamagrostis petriei*, Hack. (Sect. *Deyeuxia*).

Perennis. Culmi erecti, teretes, circ. 50 cm. alti, glaberrimi, trinodes, nodo summo prope medium culmi sito. Vaginæ teretes, arctæ, internodiis breviores longioresve, scaberulæ. Ligulæ inferiores obtusæ, vix 1 mm. longæ, superiores oblongæ v. obtusiusculæ, 2 mm. lg. Laminæ lineares, acutæ, inferiores ad 20 cm. longæ, 2.5 mm. latæ, planæ v. laxè involutæ, subtus glaberrimæ, supra marginibusque scaberulæ, rigidulæ, nervis valde prominentibus percursæ. Panicula linearis, contracta, ad 12 cm. longa, densiuscula, rhachi ramisque glaberrimis, his binis ternisve, brevibus (ad 2 cm. longis) rigidulis, post anthesin erectis, primariis basi breviter nudis 5-7-spiculatis, secundariis a basi spiculiferis 3-4-spiculatis, spiculis æqualiter dispositis quam pedicelli subterminales glaberrimi multoties longioribus. Spiculæ lineari-lanceolatæ, 6-6.5 mm. longæ, pallide virides. Glumæ steriles subæquales, anguste lanceolatæ, acutæ, rigide membranaceæ, uninerves, carina scaberulæ; gluma fertilis sterilibus $\frac{1}{3}$ brevior (5 mm. lg.), lanceolata, acutiuscula, apice indistincte minuteque denticulata (nec bifida), membranacea, 5-nervis, dorso scabropunctata, callo pilis $\frac{1}{3}$ glumæ æquantibus densiuscule barbata, arista in media gluma inserta, recta, glumam æquante v. vix superante. Palea glumam subæquans, lineari-lanceolata, acutiuscula, bidentula, carina scabra. Rhachillæ processus gluma 3-plo brevior, pilis 3 mm. longis dense barbatus.

Swampy Hill, Dunedin, Otago, leg. Petrie (10092 hb. Petrie, 1190 hb. Cheesem.).

Cl. Petrie hanc speciem mihi nomine *Deyeuxiæ scabræ*, Benth., communicavit. Hæc, i.e. *Agrostis scabra*, R. Br., *Calamagrostis rudis*, Steud., a nostra valde distincta, differt spiculis parvis (3-3.5 mm. longis), pedicellis ramisque paniculæ scabris, gluma fertili steriles æquante v. subæquante, chartacea v. subcoriacea, obtusa, callo pilis paucis brevibus obsita, arista brevissima (0.6 mm. longa) multo supra medium dorsi inserta, rhachillæ processu quam gluma 4-plo brevior, brevissime et parcissime piloso (pilis 0.5 mm. longis). Propior est affinitas *C. petriei* cum *C. stricta*, Beauv.; quæ differt præsertim spiculis minoribus, gluma fertili callo longius barbata, arista infra medium dorsi inserta, rhachillæ processu brevissimo v. nullo.

4. *Trisetum cheesemani*, Hack.

Perenne. Culmi erecti, circ. 20 cm. alti, teretes, superne longiuscule nudi, ibique puberuli, binodes, nodo superiore in $\frac{1}{4}$ inferiore culmi sito, simplices. Folia in culmi basi aggregata: vaginæ subcompressæ, laxæ, internodiis longiores, glaberrimæ, emortuæ demum subfibrosæ. Ligulæ circ. 2 mm. longæ, truncatæ, denticulatæ. Laminæ e basi æquilata lineares, breviter acuminatæ, apice subcucullatæ, planæ, ad 5 cm. longæ, 4 mm. latæ, firmæ, erectæ, glabræ, supra læves, subtus scaberulæ, margine scabræ, glaucescentes, nervis supra prominentibus, crassis percursæ. Panicula spiciformis, linearis, densissima, 5–6 cm. longa, 1.5 cm. lata, rhachi ramisque minute puberulis, his binis ternisve brevibus fere a basi spiculiferis dense imbricatis, glomeratis, subterminalibus brevissime pedicellatis. Spiculæ lanceolato-ellipticæ, biflores, 6.5 mm. longæ, flavo-viridulæ, nitidæ, rhachilla altero latere breviter pilosa, ultra florem superiorem elongata. Glumæ steriles 5 et 6 mm. longæ, lanceolatæ, acutæ, I. uninervis, II. 3-nervis, quam fertilis superposita parum brevior, totæ scabræ, carina scaberrimæ. Glumæ fertiles lanceolatæ, circ. 5.5 mm. longæ, acutæ, apice brevissime acuteque bidentatæ, inter vel parum infra dentes mucrone 0.5–1 mm. longo recto instructæ, tenuissime 5-nerves, scabræ, carina superne scaberrimæ, callo brevissime laxèque pilosæ. Palea glumæ $\frac{1}{4}$ brevior, oblonga, obtuse trilobulata, secus carinas scabras late implicata. Antheræ 1 mm. longæ. Ovarium glabrum.

Hooker Glacier, Mount Cook district, altit. 1200 m., leg. Cheeseman (Nro. 1221 sub nomine *T. subspicati*).

Species distinctissima, habitu, paniculæ spicularumque indole quidem *Trisetum subspicato* similis, tamen propter glumas fertiles brevissime bidentatas et inter vel paullo infra dentes brevissime mucronatas (neque supra medium dorsi aristatas) non solum a *T. subspicato*, sed etiam ab omnibus genuinis *Trisetis* ita diversa, ut potius *Koeleria* generi adjungi possit. Re vera inter hoc et *Trisetum* limites certi non inveniuntur, qua re inductus jam cl. Desvaux in Gay, Fl. chil. vi., p. 352, *Koeleriam* ad *Triseti* sectionem reduxit.

5. *Poa novæ-zelandiæ*, Hack. Syn. *P. foliosa* var. B. Hook. f., Handb. N.Z. Fl. i., 338; Buchan., Man. tab. 43A.

Perennis, cæspitosa, innovationibus intravaginalibus v. mixtis. Culmi erecti, 2–3 dm. alti, graciles, teretes, glaberrimi, superne breviter nudi, 3-nodes, nodo summo circ. in medio culmi sito. Folia glaberrima: vaginæ plus minusve laxæ, internodiis plerumque breviores, innovationum compressæ, emortuæ stramineæ, diu persistentes, demum subfibrosæ; ligulæ ovales, acuminatæ, 4–5 mm. longæ, sæpe

dentatæ; laminæ e basi æquilata lineares, subito acuminatæ, erectæ, rigidulæ, 10–20 cm. longæ, culmæ planæ ad 8 mm. latæ, innovationum complicatæ (expansæ 2–4 mm. latæ), virides, nervis haud prominentibus tenuibus percursæ. Panicula ovata v. ovato-oblonga, ad 10 cm. longa, densa, subnutans, subcontracta, rhachi ramisque lævibus, his binis ternisve capillaribus, in $\frac{1}{3}$ – $\frac{1}{2}$ inferiore indivisis, dein ramulos secundarios 2–6-spiculatos tertianosque 1–2-spiculatos subappressos agentibus, spiculis versus apicem ramorum congestis, imbricatis, subterminalibus brevissime pedicellatis. Spiculæ elliptico-oblongæ, 5–6-flores circ. 8–10 mm. lg., valde compressæ, virides v. pallidæ; glumæ steriles 3 mm. et 4 mm. longæ, acutissimæ, glaberrimæ, I. subulato-lanceolata, 1-nervis, II. lanceolata, 3-nervis, paullo ultra mediam IV-am pertinens; glumæ fertiles anguste lanceolatæ, acutissimæ, 5 mm. longæ, callo villis crispulis glumam dimidiam æquantibus v. superantibus vestita, ceterum glaberrima, nervis lateralibus extremis parum, intermediis minime prominentibus, sæpe omnino obsoletis. Palea gluma $\frac{1}{3}$ brevior, lineari-oblonga, acute bidentata, carinis scabro-puberulis. Antheræ 3, 1.2 mm. longæ. In regione subalpina et alpina montium late divulgata et satis variabilis. Vidi specimina formæ typicæ e locis sequentibus: Canterbury Alps ad Arthur's Pass, altit. 1000 m. (Cheesem. nr. 1338, 1339) et Hooker Glacier (Cheesem. 1341), Nelson mountains ad Mount Arthur Plateau (Cheesem. 1340), Humboldt Mountains (Cockayne, 1347 in hb. Cheesem.).

Forma *laxiuscula*, culmo elatiore, panicula laxiuscula valde nutante, viridi.—Bealey Gorge, Canterbury Alps, alt. 1000 m. (Kirk, nr. 1373 hb. Cheesem.).

Forma *humilior*, culmo 6–8 cm. alto, foliis circ. 3 cm. longis, 1.5–3 mm. latis, panicula 3–4 cm., minus composita, spiculis subcoloratis 7 mm. longis, glumis sterilibus $\frac{3}{4}$ fertiliū æquantibus, lanceolatis.—Mount Hikurangi, East Cape, alt. 1500 m. (Petrie 10198, hb. Cheesem. 1345); Otira Glacier, Westland, alt. 1160 m. (Cockayne 6557, in hb. Cheesem. 1348); Raglan Range, Wairau Valley, Nelson Alps, 1500 m. (Cheesem. 1342).

Var. *subvestita*, glumis fertilibus 6 mm. longis in $\frac{1}{3}$ inferiore carinis villis crispulis vestita, nervis lateralibus exterioribus prominentibus, superne violaceo-finctis.—Central Otago (Petrie 10197, in hb. Cheesem. 1344); Arthur's Pass, Canterbury mountains, cum forma typica (Cockayne 6566, in hb. Cheesem. 1346).

Poa foliosa, Hook. f., vera differt a nostra culmo elato (50 cm. v. ultra), foliis elongatis (30 cm. v. plus) longe acuminatis, supra scabris, nervis crassiusculis sed non prominentibus percursis, paniculæ magnæ (circ. 20 cm.) ramis fere a

basi spiculiferis, spiculis secus ramos æqualiter dispositis, glumis fertilibus distincte 5-nerviis, nervis non solum externis sed etiam intermediis prominentibus, carina ad $\frac{1}{2}$ usque atque nervis marginalibus in $\frac{1}{3}$ inferiore crispato-villosulis ceterum undique scabris. Palea glumia $\frac{1}{3}$ brevior. Specimina mea (Herekopere Island, l. Kirk, Snares prope Stewart Island, l. Petrie) staminibus valde hebetatis fœminea.

6. *Poa polyphylla*, Hack.

Cæspitosa, innovationibus extravaginalibus. Culmi erecti v. arcuato-ascendentes ad 30 cm. alti, compressi, glaberrimi, polynodes, foliis 7-17 inferne valde approximatis distiche patentibus vestiti, basi ramosi. Vaginæ sese invicem arcte involventes, internodiis saltem inferioribus multo longiores, glaberrimæ. Ligulæ brevissimæ, truncatæ, marginiformes. Laminae e basi æquilata anguste lineares, sensim valde acutatæ, planæ v. laxè complicatæ, ad 20 c.m. lg., 2 mm. latæ, patentés, glabræ, inferne læves, superne (saltem infra apicem) marginibus carinaque scabræ, nervis crassiusculis sibi valde approximatis percursæ. Panicula oblonga, contracta, densa v. densissima, ad 8 cm. longa, 1.5 cm. lata, rhachi ramisque lævibus, his binis suberectis, a basi v. fere a basi plus minusve dense spiculiferis, ramo primario circ. 2-3 cm. longo ramuloso multispiculato, spiculis imbricatis, subterminalibus brevissime pedicellatis, pedicellis scabris. Spiculæ oblongæ, 4-5-flores, 5-6 mm. longæ, floribus ad $\frac{2}{3}$ longitudinis sese tegentibus, viridulæ. Glumæ steriles 2.5 mm. et 3.5 mm. longæ, lineari-lanceolatæ, acutæ, $\frac{2}{3}$ fertilium tegentes, carina aculeolato-scaberrimæ, 1-nerves. Glumæ fertiles lineari-lanceolatæ, mucronulato-acuminatæ, 4 mm. longæ, 5-nerves, nervis prominulis, callo pubescentes, ceterum glabræ, undique (præsertim ad nervos) scabræ, carina aculeolato-scaberrimæ. Palea glumam subæquans, lineari-oblonga, acute bidentata, carinis scabra.

Kermadec Island, leg. Shakspear (in herb. Cheesem. 1444-46). Forma *compacta*: panicula densissima, spiculis dense imbricatis (1445).

Affinis *P. ancipiti*, Spr., quæ a nostra differt foliis in singulo culmo 3-4-nis, erectis, apice parum attenuatis, abruptius acuminatis, undique lævibus, panicula laxiore, ramis primariis ad $\frac{1}{2}$ usque nudis, glumis fertilibus basi brevius et parcius lanatis apice acutiusculis v. obtusiusculis, vix scaberulis.

7. *Poa cheesemani*, Hack.

Perennis, haud cæspitosa, rhizoma stolones basi squamis aphyllis 2-3 instructos et subterraneos et supraterraneos agens. Culmi erecti, ad 40 cm. alti, teretes, glaberrimi, 3-nodes, nodo summo in $\frac{1}{2}$ culmi sito. Vaginæ internodiis

breviores, subcompressæ, superne carinatæ, glaberrimæ. Ligulæ truncatæ, 2 mm. longæ, lineares, obtusiusculæ, siccando plus minusve arcte complicatæ, statu complicato 1-1.5 mm. latæ, ad 12 cm. (summa vix 2 cm.) longæ, erectæ, rigidulæ, virides, glaberrimæ, intus costis crassiusculis depressis sese fere tangentibus percursæ. Panicula ovata, laxa, patens, circ. 8 cm. longa, rhachi lævi subflexuosa, ramis inferioribus ternis subcapillaribus in $\frac{2}{3}$ inferiore indivisis et lævibus, sæpe rubellis, superne ramulos paucos unispiculatos parce scabros agentibus, spiculis n. apice ramorum laxiuscule aggregatis, subterminalibus pedicellis circiter æquantibus. Spiculæ ellipticæ, 5-6-floræ ad 8 mm. longæ, livide virides et subrufescentes, densifloræ. Glumæ steriles 3.5 mm. et 4.5 mm. longæ, late lanceolatæ, acutæ, 3-nerves, carina læves, $\frac{5}{8}$ v. $\frac{7}{8}$ glumarum fertiliū superpositarum tegentes; fertiles late lanceolatæ, acutæ, 5 mm. longæ, prominule 5-nerves, callo pilis porrectis haud contortuplicatis neque protrahendis circ. dimidiam glumam æquantibus vestitæ, carina nervisque submarginalibus in $\frac{1}{3}$ v. $\frac{1}{4}$ inferiore parce villosæ, ceterum læves; palea glumam subæquans, oblonga, acute bidentula, carinis serrulato-scabris. Antheræ 2 mm. longæ.

Nelson Alps, Lake Tennyson, altit. 1000 m., leg. Cheeseman (Nro. 1316).

Iterum affinis est *P. ancipiti*, Spr., præsertim ejus varietati *tenuiori*, Hack., tamen certe differt rhizomate stolonifero. Nam in *P. ancipite* rhizoma cæspitosum est, sine stolonibus. Spiculæ *P. ancipitis* oblongo-ellipticæ sunt, glumæ steriles respectu fertiliū breviores, nam vix $\frac{2}{3}$ earum tegunt. Habitu et innovationis modo species nostra ad *P. pratensem*, L., europæam accedit, quæ vero glumis fertilibus basi lana longa contortuplicata atque protrahenda vestitis aliisque notis satis differt.

8. *Festuca ovina* subspec. *novæ-zelandiæ*, Hack.

Culmi circ. 30 cm. alti, trinodes, scabri; foliorum vaginæ fissæ, glaberrimæ, laminas emortuas diu retinentes; ligulæ manifeste biauritatæ, glabræ; laminæ cylindricæ, grosse setaceæ v. subjunceæ (diam. 0.7 mm.) acutissimæ, rigidulæ, sub epidermide inferiore stratis sclerenchymaticis 2-3 continuis v. inter nervos subinterruptis instructæ, circ. 25 cm. longæ (culmum subæquantes), virides, extus punctis scabris v. aculeolis conspersæ. Panicula oblonga, subcontracta, laxiuscula, ramis binis in $\frac{1}{2}$ inferiore nudis, 3-6-spiculatis. Spiculæ ellipticæ, 5-7-flores, ad 10 mm. longæ; glumæ steriles linearilanceolatæ, II. ad $\frac{3}{4}$ IV-æ pertinens, fertiles anguste lanceolatæ, mucronatæ v. brevissime aristulatæ, glabræ, scaberulæ, 5.5-6 mm. longæ. Palea glumam subsuperans, carinis scabra. Antheræ 3 mm. longæ.

Canterbury Alps, in declivibus montis Torlesse, altit. 1000 m., leg. Cheeseman (Nro. 1497 sub nomine *F. duriuscula*, L.).

Habitus *F. ovina* var. *duriuscula*, quæ vero differt a nostra foliis ipso apice obtusiusculis, lævibus, culmo lævi, panicula patente, spiculis minoribus. Inter subspecies *F. ovina* in Monographia Festucarum europæarum mea recensitas maxime accedit ad subsp. *beckeri*, quæ præsertim differt foliis lævissimis, vaginis laminas emortuas mox dejicientibus, spiculis minoribus.

9. *Festuca ovina* subsp. *matthewsii*, Hack.

Culmi erecti circ. 30 cm. alti, binodes, nodó superiore in medio culmi sito, glaberrimi. Innovationes oligophyllæ, elongatæ. Vaginæ laxiusculæ, fissæ, glaberrimæ, demum fuscæ, laminas diu retinentes. Ligulæ bilobæ, lobis fere 1 mm. longis acutiusculis ciliolatis. Laminæ anguste lineares, complicatæ, imo apice acutiusculæ, 20–25 cm. longæ (culmum subæquantes), statu complicato 0.7–0.8 mm. diam. basi pulvinari calloso fusco instructæ, extus glaberrimæ, siccæ costatæ, intus puberulæ, sectione transversa obtuse hexagonæ, 5-nervo, sub singulis nervis singulis fasciculis sclerenchymaticis plerumque tenuibus instructæ. Panicula ovato-oblonga, circ. 14 cm. longa, patula, laxa, subnutans, rhachi ramisque scabris, his binis, basi longe nudis, apice 1–3-spiculatis. Spiculæ ovato-lanceolatæ, 5–7-flores, ad 16 mm. longæ, subterminales breviter, reliquæ longe pedicellatæ, densifloræ. Glumæ steriles inæquales, lanceolatæ, acutæ, læves, II. ad medium IV-æ pertinens, fertiles, lineari-lanceolatæ, acutæ, 8 mm. longæ, in aristam 2–3 mm. longam abeuntes. Palea glumam æquans v. subsuperans, lineari-lanceolatæ, subulato-bidentata, carinis scaberula. Antheræ 3 mm. longæ. Ovarium glabrum.

Mount Bonpland, Otago, leg. H. J. Matthews (hb. Cheesem. 1496).

Subspecies peculiaris, fere species propria dicenda. Ab omnibus subspeciebus *F. ovina* differt spiculis maximis et corpore calloso pulviniformi in basi laminarum, cujus ope, ut videtur, lamina a vagina culmoque removitur. Inter Festucas europæas ad *F. amplam*, Hack., accedit, inter asiaticas ad *F. nubigenam*, Jungh., quæ ambæ jam spiculis minoribus distinguntur.