



Lachnagrostis batesii in Europe as *Agrostis distans*, 160 years before being described for South Australia (Poaceae)

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Introduction

The South Australian endemic grass *Lachnagrostis batesii* A.J.Br. was described by Brown (2008). The earliest known collection at the time of publication was that of Ferdinand von Mueller in 1848 from the Gawler River. It took another 80 years until further, though still few, collections were made: J.B. Cleland in 1931 and 1940 from Hindmarsh Waterfalls and Dismal Creek, Victor Harbour; D.N. Kraehenbuehl in 1967 from the banks of the River Torrens, St Peters; L.A. Williams in 1972 from Hindmarsh Valley Falls; A.G. Spooner in 1980 from Torrens Gorge; R.J. Bates in 1984, 1988 and 1996 from Finnis River, Yundi, Gumeracha and Deep Creek, Cherryville, respectively (AVH 2020). In most cases, these collections were thought to be examples of small forms of *L. filiformis* (G.Forst.) Trin. (syn. *Agrostis avenacea* J.F.Gmel.). From 2000, through the survey efforts of R.J. (Bob) Bates, a further 40 or so collections of *L. batesii* have been made throughout the southern Mount Lofty Ranges (AVH 2020). During visits to W and P in 2018 and 2019 respectively, the author found a few mid-19th Century, non-databased sheets, labelled as *Agrostis distans* Kunze, which were instantly recognised to be specimens of *L. batesii*.

Materials and Methods

The origin of the W and P specimens of *Lachnagrostis batesii* and the name of *Agrostis distans* assigned by Kunze was investigated through

Abstract

Mid-19th Century collections of the endemic South Australian *Lachnagrostis batesii* A.J.Br. were found in Vienna (W), Paris (P) and Saint Petersburg (LE), labelled as '*Agrostis distans* Kze!'. The species was described in the 1847 Leipzig *index seminum* and listed on several European indexes from 1851–1867. Although Kunze's description was brief and the type destroyed in WWII, his taxon is very likely the same as that later described as *L. batesii*. Consequently, the new combination *Lachnagrostis distans* (Kunze) A.J.Br. is made. It is proposed that *A. distans* raised in Europe was originally derived from seed separated from a collection made by Hans Behr in the 1844–1845 summer and described by Dietrich von Schlechtendal as *Deyeuxia aemula* Kunth.

Keywords: *Lachnagrostis distans*, Kunze, Schlechtendal, Behr, *index seminum*

consultation of relevant historical documents and searches for further specimens at other European herbaria. Herbarium codes per Thiers (2022).

Results and Discussion

Examination and interpretation of the labels of the *Agrostis distans* sheets reveal that they derived from cultivation of Australian seed in various European botanical gardens from 1847 to 1869 (Table 1).

Annual *index seminum* (i.e. published index or

catalogue to seed collections) have been produced by botanic gardens since the mid-16th Century, and continue to be a common output (Aplin et al. 2007). During the 19th Century, new plants and seed collected from the New World were highly sought after in Europe, and propagation of such was a major activity for many institutions. The *index seminum* served as an opportunity for horticulturists to exchange plant material and increase the range of species on display for their visitors. Previously unknown taxa were commonly described in these indexes and serve as

Table 1. Details associated with herbarium sheets of *Agrostis distans* Kunze, arranged chronologically.

Herbarium Sheet	Stamp and Label Details	Translation
P 02326274 HERB. MUS. PARIS.	Label 1: <i>agrostis distans</i> Kze Cult. de grainer le Dijon Grenier 1849 Label 2: <i>Deyeuxia scabra</i> Herbier donné par M. le D ^r GRENIER, en 1875.	<i>Agrostis distans</i> Kunze Cultivated from seed from Dijon, France Jean Grenier collected 1849 <i>Deyeuxia scabra</i> Kunth syn. <i>Lachnagrostis rudis</i> (Roem. & Schult.) Trin. Herbarium donation ex Mr. le Dr Grenier in 1875
LE 01072060 HERBARIUM LE	<i>Agrostis distans</i> Kze 5527 hBerol cult 19 March 1852	<i>Agrostis distans</i> Kunze No. 5527 from the horticultural garden Berlin cultivated 19 March 1852
LE 01072059 HERBARIUM LE	3808 <i>Agrostis distans</i> Knze m. Rchbch a Al.Br.	No. 3808 <i>Agrostis distans</i> Kunze misit [sent] by Reichenbach and Alexander Braun
LE 01072061 Ex horto bot. Petropolitano	<i>Agrostis distans</i> Knze ²⁸ / _{XI} 57 v. Herder	<i>Agrostis distans</i> Kunze 28 November 1857 vel vivas [collected live] Ferdinand von Herder
W not databased N°..... HRB. MUSEI. PALAT. VINDOB.	<i>Agroftis diftans</i> Kze. del. sem. Lips 847 C.h.V. 859 Jul. e sem. h. Berol. 858. Patria: Auftralia	<i>Agrostis distans</i> Kunze in 'Selected Seeds' Leipzig, Germany 1847 Cultivated in the horticultural gardens Vienna in July 1859 ex seed sent from the horticultural garden Berlin in 1858 Country: Australia
LE 01072062 Ex horto bot. Petropolitano	Label 1: <i>Agrostis distans</i> Kunze 4798 Rchb 19 March 1852 !! etian Al. Braun fr misit 1852 Label 2: <i>Agrostis distans</i> Knze (4282 ex h. Carlsruh. s.n. <i>A. diffusa</i>) 18 ² / _{VIII} 65 v. v. Herder	<i>Agrostis distans</i> Kunze No. 4798 Reichenbach, 19 March 1852 !! also Alexander Braun sent in 1852 <i>Agrostis distans</i> Kunze (No. 4282 from the horticultural gardens Karlsruhe, Germany, where named as <i>Agrostis diffusa</i> Banks & Sol. ex Hook.f.) plot/bed? 18, 2 August 1865 vel vivas [collected live] Ferdinand von Herder
W 1889-227546 HERB. MUS. PALAT. VINDOB.	collectio Reichenbach fil. Acqu. 1889 No. 227546 <i>Agrostis distans</i> Kze. Krakau 17 Aug 69	collection of Reichenbach's son Acquired in 1889, No. 227546 <i>Agrostis distans</i> Kunze Kraków, Poland, 17 August 1869

accepted publication of new names according to the *International Code of Nomenclature for algae, fungi and plants* (ICN 2018). This was the case for *Agrostis distans*, which was described in the 1847 *index seminum* (publ. 1848) by Gustave Kunze (1793–1851), Director of the University of Leipzig Botanical Gardens in Saxony of the German Confederation from 1837 until his death. Kunze noted that the specimen he described was grown from seed supplied by Eduard Richter (1795–1863), Head Gardener at the Luisium Castle Gardens near Dessau, Saxony (Richter 1847) but apart from having its origin in Australia, there is no indication as to who, when or how the seed passed to Richter. Although the species was listed in the *index seminum* for Leipzig (*Hortus Universitatis liter. Lipsiensis, seminum anno....perceptorum offert delectum*) in 1847, 1848 and 1850, any specimens that may have been collected for the herbarium would have been unfortunately destroyed by bombing raids during WWII (Otto 2018).

With eastern Germany the focus of initial efforts to propagate garden specimens of '*Agrostis distans*', it is likely that a German botanist was responsible for sending the seed to Europe. The most obvious candidate is Ferdinand von Mueller (1825–1896) who initially arrived and worked in South Australia before moving to Melbourne as Victoria's Government Botanist (Orchard 1999). However, Mueller didn't arrive in Adelaide until 18th December 1847, when the Leipzig Gardens was already propagating the species. As noted above, Mueller did collect specimens of *Lachnagrostis batesii* on 15 April 1848. While still in Adelaide, Mueller (1849) compiled some notes for a planned (but never published) '*Second supplement to Brown's florae Novae Hollandiae et insulae Van Diemen*'. Among these notes is a line that reads "*Agrostis distans* Kunze N.H. [New Holland] W.A. [Walpers (1848–1849)] 1, 928 [Vol.1, p.928]". Despite having collected the species himself in the previous season, and being aware of Kunze's description, Mueller appears unaware of the original source of Kunze's material and determined his own collection as *A. aemula* R.Br.

A prime candidate for making the collection of *Lachnagrostis batesii* is Hans Hermann Behr (1818–1904), who spent a year in South Australia between September 1844 and October 1845, making extensive botanical and entomological collections (Kraehenbuehl

1981, Bretag 2016). On Behr's return to Germany, he entrusted much of his collection to his friend Dietrich Franz Leonhard von Schlechtendal (1794–1866), Professor of Botany at the Martin Luther University of Halle-Wittenberg, Saxony and Director of the Botanical Gardens, who determined and described 225 of his collections, including "11. *Neurachne alopecuroides* R.Br." (syn. *N. alopecuroidea* R.Br.), "12. *Deyeuxia billardieri* Kth." (syn. *L. billardierei* (R.Br.) Trin.), "13. *Deyeuxia aemula* Kth." (syn. *L. aemula* (R.Br.) Trin.) and "14. *Stipa elegantissima* Labill." (syn. *Austrostipa elegantissima* (Labill.) S.W.L.Jacobs & J.Everett) (Schlechtendal 1847). However, the description Schlechtendal provides for *D. aemula* differs from the description provided by Kunth (1833) and more closely conforms to *L. batesii* than to either *L. aemula* or *L. filiformis*. In comparison with *D. billardieri*, Schlechtendal describes *D. aemula* with "arista multo brevior (valvulum suam longitudine fere aequat), magis recta, supra medium dorsi exeunte" [i.e. the awn is much shorter (almost equal to the length of the lemma), straighter, inserted dorsally above the middle]. Kunth (1833) used Brown's (1810) description of *A. aemula* for his *D. aemula*, including: "arista dorsali, glumis duplo longiore" [i.e. awn dorsal, twice as long as the glumes]. Unlike Kunth (1833), Schlechtendal (1847) listed *Agrostis retrofracta* Willd., *D. retrofracta* Kunth. and *L. wilddenowii* Trin. (all syn. *L. filiformis*) as well as *Agrostis aemula* R.Br. (syn. *L. aemula* (R.Br.) Trin.) = "*Sieb. Agrostoth. n. 81*" (*L. filiformis*), as synonymous with *D. aemula* Kunth. This may explain his inclusion of Behr's collection into his broader concept of *D. aemula*. Brown (2006) described *L. batesii* with "awn reduced to a bristle inserted from about ¾ of the lemma length, 1.2–2.0 mm long, filamentous, straight or slightly curved" whereas Jacobs and Brown (2009) described *L. aemula* with "awn arising 25–60% lemma length from base, 5–10 mm long, with column twisted" and *L. filiformis* with "awn arising from near mid-point of lemma, 3.5–5.5 mm long, geniculate ...".

The collecting location of Behr's '*Deyeuxia aemula*' was the same as for his *D. billardieri*, being near water in a ravine in the Angas Park district of South Australia (Schlechtendal 1847). Angas Park is a region situated on the upper reaches of the North Para River and its tributaries, encompassing the towns of Nuriootpa, Angaston, Tanunda and Bethany. Recent collections of both *Lachnagrostis billardierei* and *L. batesii* have been

made from the same general region: *L. billardierei*: Upper Saunders Creek gorge – in wet places, 29.xii.1993, *R.Bates 35600*; *L. batesii*: Pewsey Vale Creek west of Kaiser Stuhl Conservation Park – in few damp spots, dry stony creek-bed, 29.i.2014, *R.Bates 90690*.

Many of Behr's 1844–1845 South Australian collection were inherited by HAL from Schlechtendal (Kraehenbuehl 1981) and now include 66 type sheets (JACQ 2021). However, a search of Halle's collections has failed to find Behr's 'Deyeuxia' collections (Uwe Braun, pers. comm., 26 Feb. 2021), but sheets of both have been found at MEL. They are labelled "12. *Deyeuxia billardieri* Kth." (MEL 2124188A) and "13. *Deyeuxia aemula* Kth." (MEL 2124119A) in Schlechtendal's hand and both with "leg. D^r. Behr, mis. v. Schlechtendal" written by Otto Wilhelm Sonder (1812–1881) of Hamburg (Rita Macheda, pers. comm., 24 Mar. 2021). The first is confirmed as *Lachnagrostis billardierei* and the second as *L. batesii* (Fig. 1). Whether these sheets are duplicates of the specimens Schlechtendal described or the original collections, is unknown. Although they lack any inscription as to how they came to MEL, they appear to have been gifted to Sonder (1812–1881) and became part of the Victorian Government's purchase (on Mueller's recommendation) of the major portion of Sonder's herbarium in 1883. While some other MEL sheets from Behr's 1844–45 collections also lack an indication of having come from Sonder's herbarium (e.g. "11. *Neurachne alopecuroides* RBr." (MEL 1008969A), "90. *Opercularia scabrata* Schldl." (MEL 2267546A)), some sheets do note that they are ex Sonder (e.g. "15. *Juncus pallidus* RBr." (MEL 2189171A), "51. *Pimelea dichotoma* Schldl." (MEL 0051337A), "82. *Goodenia albiflora* Schldl." (MEL 0022291A)). Sonder's herbarium was and still is being incorporated into MEL but unfortunately, not all of the older integrated sheets were marked as ex Sonder (Pina Milne, pers. comm. 3 Mar. 2021).

Behr returned to South Australia in 1848–1849 and made further plant collections, of which some are thought to have been made with Mueller. The repository for the collections from this trip is uncertain, as Behr didn't return to Germany but travelled onto the Philippines and then settled in California (Kraehenbuehl 1981, Bretag 2016). It is probable that he left his collections with Mueller, destined for Joseph Hooker at Kew Gardens, but which may instead have been sent to

Sonder. Of the 19 Behr collections imaged in the Kew Herbarium Catalogue (2020), all but two (ex Mueller) are from Sonder's herbarium.

The evidence therefore indicates that Behr collected *Lachnagrostis batesii* instead of *L. aemula* or *L. filiformis* in his 1844–1845 trip to South Australia and that either field harvested seed or disarticulated seed (i.e. florets and caryopsis) from the plant collection was passed from Behr or Schlechtendal to Richter in a batch of Australian material for the Luisium Gardens. However, it was Kunze who recognised that the plants raised from seed at Leipzig ex Richter did not conform to *Deyeuxia aemula* Kunth. It may be coincidence, but the only year between 1838 and 1849 that Kunze offered *D. aemula* seed in the Leipzig *index seminum* was in the same year in which he described *A. distans*, suggesting that he obtained seed of *D. aemula* with the express purpose of comparing its resulting plants with *A. distans*. If the *A. distans* seed Kunze received from Richter was harvested in the northern summer of 1846 (i.e. Jun–Aug), then Richter must have received and sown the seed very soon after Behr returned to Germany in May 1846.

The origin of *Lachnagrostis filiformis* and/or *L. aemula* seed in Europe is unknown. Bentham (1878) noted that Australian seed (of unknown source) was used to raise plants in Continental Gardens, which Willdenow (1809) described as *Agrostis retrofracta*, Poir (1810) as *Agrostis debilis* Poir and Kunth (1829) as *Deyeuxia retrofracta*. Koch (1831) notes that he had been growing *A. aemula* in the greenhouse at Erlangen. A review of online surviving *index seminum* (Lut 2017) shows that seed of *A. retrofracta* or *D. retrofracta* was sporadically offered for sale or exchange from as early as 1818 through to 1868, from gardens including, Breslau, Halle, Dorpat, Hamburg, Schwetzingen, Gottingen, Turin, Pisa, Berlin, Madrid, St. Petersburg, Vienna and Uppsala, and *A. aemula* or *D. aemula* seed was offered from 1824 to 1871 from Vienna, Budapest, Erlangen, Breslau, Hamburg, Gottingen, St Petersburg, Dresden, Heidelberg, Pisa, Basel, Angers, and as noted above, from Leipzig. While the seed of *A. retrofracta* and *D. retrofracta* was likely to be of *L. filiformis*, seed of *A. aemula* and *D. aemula* could have been either *L. filiformis* or *L. aemula* or not even consistent among botanical gardens. This is not surprising given the confusion concerning the morphological distinctions between these taxa and



NATIONAL HERBARIUM OF VICTORIA (MEL). AUSTRALIA

Royal Botanic Gardens Melbourne
John T Reid Charitable Trust
Scientific Treasures Project
Jan 2000 - July 2001

National Herbarium of Victoria (MEL)
Lachnagrostis distans
 (Kunze) A.J.Br.
 Determinavit: A.J. Brown 7. iv. 2021

National Herbarium of Victoria (MEL)
Lachnagrostis filiformis (G.Forst.) Trin.
 see: Jacobs, S.W.L. 2001. The genus
Lachnagrostis (Gramineae) in Australia.
 Telopea 9(3):439-449.
 AVH Annotation: Jan 2002

MEL 2124119

National Herbarium of Victoria (MEL)
Agrostis avenacea J.F. Gmel.

Reid Project Annotation: Feb 2001

National Herbarium of Victoria (MEL)
Agrostis avenacea J.F. Gmel. var. indet.

AVH Annotation: Dec 2001

13.
Deyeuxia aemula R.Br.
 G. B. Behr
 mis. v. Schlechtendel

Figure 1. MEL 2124119A: Collection of *Lachnagrostis distans* (Kunze) A.J.Br., by Hans Hermann Behr in 1844–1845 from Angus Park, South Australia, erroneously identified as *Deyeuxia aemula* (R.Br.) Kunth by Dietrich von Schlechtendal in 1847. Image kindly provided by Angharad Johnson, Royal Botanic Gardens Victoria, Herbarium (MEL).

their varying treatment by European botanists at the time. For example, Dumont d'Urville (1832) described the Australian endemic *A. aemula* for New Zealand, collected during the voyage of the *Astrolabe* from 1826–1829, and the *index seminum* from Vienna in 1853 corrected its entry of *D. retrofracta* of the previous year to *A. aemula*. Botanic gardens of the period (as does the nursery industry today), probably accepted seed from other gardens at face value until, and if, they had the capacity to check the veracity of the given names. Some plant lines may well have been grown under false names for many years until corrected, if at all.

Surprisingly, *L. billardierei*, despite being a robust perennial, does not appear in any online 19th century European *index seminum* (Lut 2017). Perhaps Richter did receive seed of *D. billardieri* from Behr's collection, but it failed to establish or survive the cold central European winter. Although all these *Lachnagrostis* taxa are temperate species, *L. billardierei*, being predominately a coastal grass, may be less tolerant of cold altitudes.

There are no specimens of *A. distans* lodged at Naturkundemuseum Leipzig (Karl Heyde 2019, pers. comm., 17th Jan.) or at MNVD in Dessau-Roßlau, nor any documents relating to correspondence between Richter and Kunze in the archives of the former principality and state of Anhalt (Timm Karisch, pers. comm., 17 Apr. 2019).

The earliest collection of *Agrostis distans* that has been found, is at P (Table 1). The collection was made in 1849 by Jean Charles Marie Grenier (1808–1875), a Professor at the Faculty of Sciences at Besançon University and Director of the Jardin botanique de Besançon (Botanical Garden of Besançon) and received from Grenier's herbarium in the year of his death. It consists of two small specimens to about 15 cm tall with just emerging inflorescences and cultivated from seed received from nearby Dijon, probably from the Jardin botanique de l'Arquebuse (Arquebuse Botanical Garden). Although the sheet provides no further information, presumably Dijon received seed from Leipzig to grow plants during the 1848 season. If this is the case, the Grenier collection represents second generation offspring of the parent plants described by Kunze and fourth generation offspring from Behr's original collection.

The *index seminum* for *Hortus Botanicus Imperialis Petropolitanus* first offered seed of *Agrostis distans* in 1853 and then in 1856–1858, 1860–1861 and 1864–65.

Specimen sheets at LE (Table 1) indicate that Saint Petersburg Botanical Garden (Russian Academy of Sciences Vladimir Komarov Botanical Institute's Botanical Garden of Peter the Great) received seed collections of *A. distans* from Alexander Carl Heinrich Braun (1805–1877), Director of the University of Berlin Horticultural Gardens, from Heinrich Gustave Reichenbach (1823–1889) at Leipzig University (who appears to have taken up some of Kunze's botanical duties after Kunze's death) and from the University of Karlsruhe Botanical Garden.

Although it is not certain, the sheets at LE probably represent collections made of cultivated plants at Saint Petersburg, rather than collections made elsewhere and sent from donating gardens. If so, those from Berlin and Leipzig were collected in March 1852, while those from Karlsruhe were collected in 1865. A further collection (Fig. 2), probably derived from F6 or F7 generation plants of the pre-1852 seed, was made in 1857 by the Bavarian, Ferdinand von Herder (1828–1896), who worked at the Saint Petersburg Botanical Gardens from 1856–1891. All these collections coincide with seed offerings through the *index seminum*. While LE 01072060 and LE 01072061 have single labels relating to one seed lot, the other sheet labels present a confused picture (Table 1). The label for LE 0107259 refers to both Reichenbach's and Braun's seed, despite the single sheaf of relatively large and robust specimens which were obviously made from a single gathering. The collection is undated, and the seed sources may have been mixed prior sowing. While LE 01072060 depicts relatively small and stunted plants derived from Braun's seed lot, LE 01072062 consists of 16 similar stunted specimens of uniform size, primarily labelled in pencil as Reichenbach's seed lot, but with Braun added in a separate but later and different hand in ink. In addition, LE 01072062 has a separate label referring to Herder's collection of 1865 based on the Karlsruhe seed lot. The implication from this mixed labelling is that the specimens were not mounted until a later era and matching all the labels to their correct respective collections was not possible.

The first of two collections found at W (Table 1) derived from seed received from the Berlin Horticultural Gardens in 1858 and germinated at the Botanischer Garten (Botanical Garden of the University of Vienna) in 1859. The *index seminum* for Berlin (*Index seminum in horto botanico Berolinensi*) listed *Agrostis distans* in



Figure 2. LE 01072061: Collection of *Agrostis distans* Kunze (syn. *Lachnagrostis distans* (Kunze) A.J.Br., by Ferdinand von Herder on the 28.ix.1857 from Hortus Botanicus Imperialis Petropolitano (St. Petersburg Botanical Garden). Image kindly provided by Dr. Larisa Orlova, Herbarium of Higher Plants (LE), Komarov Botanical Institute RAS, St. Petersburg.

1851–1853, 1855–1856, 1861 and 1867. However, again, any herbarium collections that may have existed at B are likely to have suffered a similar fate to those at Leipzig and no longer exist (Robert Vogt, pers. comm., 22 Dec. 2018). The second collection at W (Table 1) is labelled ‘*Krakow 17 Aug. 69.*’ and came from the herbarium of Reichenbach, who was then Professor of Botany and Director of the Botanischer Garten der Universität Hamburg (Hamburg University Botanical Gardens). The *index seminum* for Hamburg offered *A. distans* in 1867 but whether the 1869 plant collection was sent directly from Kraców (probably from the Ogrody królewskie na Wawelu – Royal Gardens at Wawlu Castle) to Reichenbach or was derived from seed originating in Kraców is uncertain. There are no specimens of *A. distans* in the KRAM collections in Kraców (Beata Paskzo, pers. comm., 13 Feb. 2019).

In section IV of the *index seminum* for Saint Petersburg, 1865 (*Nomina emendata plantarum sub nominibus falsis vel ex hortis variis acceptarum vel in horto nostro antea cultarum* [amended names of plants under false names or accepted from various gardens or previously cultivated in our garden]), is the entry ‘*Agrostis diffusa* h. Carlsruh. = *Agrostis distans* Knze.’ It is unknown as to which taxon Karlsruhe Gardens was referring to and unfortunately, no *index seminum* from Karlsruhe for the period can be found. Between 1820 and 1824, the *index seminum* for Krzemieniec, Prague and Hamburg Gardens listed *A. diffusa* Host (syn. *A. gigantea* Roth) but by 1865, it is unlikely that this name would still be in use. Another possibility is *A. diffusa* Banks & Sol. ex Hook.f., nom. inval., nom. nud. (syn. *Lachnagrostis billardierei* (R.Br.) Trin.), although Hooker (1853) only used this name for his Flora of New Zealand (i.e. not Australia) and no records of this taxon, under either name, appear in any European *index seminum*. A third possibility is that the name referred to the North American grass, *Agrostis diffusa* Muhl. (syn. *Muhlenbergia sylvatica* (Torr.) Torr. ex A. Gray) but again, this name had been replaced by 1834 and doesn’t appear in the *index seminum*. None of these taxa are morphologically similar to *L. batesii*/*A. distans*.

It appears that *Agrostis distans* was only ever cultivated in botanic gardens and did not become naturalised in Europe. Apart from the gardens mentioned on the specimen labels, the species is listed on the *index seminum* for Padua in 1851 (*Delectus seminum horti*

Patavini, anno MDCCCLI lectorum quae commutanda), Geneva in 1853 (*Index seminum horti botanici R. Archigymnasii Genuensis en 1853 et offertes en échange par le jardin botanique de Genève*), Breslau (Wrocław) in 1858 (*Delectus seminum in horto botanico Vratislaviensi collectorum*) and Madrid from 1859 to 1861 (*Delectus Seminum Horto Botanico Matritensi*). Madrid also listed *A. distans* from 1875 to 1913 but this may have been a misidentification. Unfortunately there are no voucher specimens at MA to check the veracity of the entries (Leopoldo Medina, pers. comm., 11 Sep. 2020).

Taxonomy

Kunze (1848), in describing *Agrostis distans* included “(*Apera*)” after *Agrostis*. The European/western Asian genus *Apera* Adans. was separated from *Agrostis* L. in 1763, but Dumontier (1823) and Reichenbach (1841, 1842) regarded *Apera* as a section or subgenus, respectively, of *Agrostis*, and it may be Reichenbach’s classification that Kunze was alluding to. Trinius (1820) replaced *Apera* with *Anemagrostis* Trin. and segregated some Australian *Agrostis* as *Lachnagrostis* Trin., but later shifted *Apera* into the largely American *Muhlenbergia* Schreb., along with the Australasian *Dichelachne* (Trin. 1924), and subsumed *Lachnagrostis* back into *Agrostis* (Trin. 1841). Currently, in Australia, *Apera*, *Lachnagrostis* and *Dichelachne* are treated as separate genera to *Agrostis* and *Muhlenbergia* (Wilson 2009).

Kunze described *Agrostis (Apera) distans* as “panicula stricta, ramis remotis, divaricatus, paucifloris; flore sub apice aristato, arista flexa, palea vix longiore; antheris brevior oblongis” [i.e. panicle tight (straight and rigid), branches remote (separated), widely spread, with few flowers; flower (lemma) with awn near the apex, the awn bended (curved or wavy), the palea scarcely longer (similar length to the lemma); anthers short and oblong]. Walpers (1848–1849) republished Kunze’s description, as did Schlechtendal (1851), but the latter did not equate the taxon with his earlier description of *Deyeuxia aemula* (Schlechtendal 1847).

Based on Kunze’s (1848) short description (Appendix 1), Bentham (1878) thought it most probable that *Agrostis distans* was synonymous with *Deyeuxia scabra* Benth., nom. illeg., nom. superfl. (syn. *Agrostis scabra* R.Br. nom. illeg., non Willd., *Lachnagrostis rudis* (Roem. & Schult.) Trin.). However, he also included *A. contracta*

F.Muell. ex Hook.f. (syn. *D. contracta* (F.Muell. ex Hook.f.) Vickery), *A. decipiens* R.Br. (syn. *D. decipiens* (R.Br.) Vickery) and collections from Condamine, Qld and New England, NSW (*D. mckiei* Vickery), Upper Huon River, Tas. and Upper Hume River, Vic. (*D. scaberula* Vickery) and Buffalo Ranges, Vic., Dandenong Ranges, Vic. and Sealers Cove, Vic. (*D. rodwayi* Vickery) in *D. scabra*. All of these taxa have awnless or very shortly awned lemmas with the awns arising from near the apex. However, apart from *L. rudis*, none of these taxa have widely spread panicle branches.

Mori (1922) published the combination *Agrostis distans* var. *coreensis* Hack. ex Mori, but it is apparent that in the intention to publish a new variety of *Atropis distans* (Jacq.) Griseb. (syn. *Puccinellia distans* (Jacq.) Parl.), he or the publisher (Enum. Pl. Corea) mistakenly printed *Agrostis* L. instead of *Atropis* (Trin.) Griseb. (syn. *Puccinellia* Parl.). Honda (1930) cited “*Agrostis distans* Griseb. var. *coreensis* Hack. in Mori”, when publishing *Puccinellia coreensis* Hack. ex Honda.

Lachnagrostis distans (Kunze) A.J.Br. **comb. nov.**

Agrostis distans Kunze, *Hortus Universitatis Liter. Lipsiensis seminum anno 1847 perceptorum offert delectum*, [1] (1848); *Agrostis distans* Kunze *Linnaea: ein Journal für die Botanik in ihrem ganzen Umfange, oder Beiträge zur Pflanzenkunde* **24**, 176 (1851), isonym.

Type: “N. Holland [Australia]. Ex seminibus educavit Richter, hortul. aulic. Dessav., et benevole misit.” (neotype, designated here: P 02326274!).

Note: The neotype was chosen as the earliest of the collections found in Europe and therefore the closest cultivated generation to the specimen described by Kunze.

Lachnagrostis batesii A.J.Br., *Muelleria* **26(2)**, 31, 33 (2006).

Type: Scott Creek Conservation Park [South Australia], 15.i.2000, R.J. Bates 55750 (holotype: AD 149719!; isotypes: MEL 2385265A!, MEL 2385726A!, HO 576079!, K 000607837; NY 4083633).

Illustration: Fig. 1a–d, *fide* A.J.Brown *loc. cit.*

Acknowledgements

Thanks are due to the Directors and staff of MEL, W and P for access to the herbarium collections in their care and to Timm Karisch of the Museum für Naturkunde und Vorgeschichte Dessau (MNVD), Fred Stauffer of the Conservatoire et jardin botaniques Geneva (G), Rossella Marcucci of the Università degli Studi di Padova (Padua) (PAD), Leopoldo Medina and Eva García Ibáñez of Real Jardín Botánico Madrid (MA), Robert Vogt of the Botanischer Garten und Botanisches Museum Berlin-Dahlem (B), Uwe Braun and Denise Marx of Martin-Luther University Halle-Wittenberg (HAL), Frank Mueller of the Technische Universität Dresden (DR), Beata Paszko of the W. Szafer Institute of Botany Kraków (KRAM), Karl Heyde of the Herbarium of the Naturkundemuseum Leipzig, Otakar Šída of the Národní muzeum Praha (Prague) (PR) and Patrik Mráz of the Univerzita Karlova Praha (Prague) (PRC) for undertaking searches for *Agrostis distans* among their herbarium collections. Particular thanks are owed to Vladimir Dorofeyev, Irina Illarionova and Larissa Orlova of the Komorov Botanical Institute, Russian Academy of Sciences, St. Petersburg for specimen searches and the provision of images of collections in the LE herbarium.

References

- Aplin, D., Linington, S., and Rammeloo, J. (2007). Indices Seminum: Are They Really Worth the Effort? *Sibbaldia: The International Journal of Botanic Garden Horticulture* **5**, 93–107.
- AVH (2021). The Australasian Virtual Herbarium, Council of Heads of Australasian Herbaria, <http://avh.ala.org.au>, last accessed Jan. 2021.
- Bentham, G. (1878). ‘55 *Deyeuxia*, Clarion’ in *Flora Australiensis* **7**, 583.
- Bretag, A.H. (2016). Hans Hermann Behr (1818–1904): Botanist, Entomologist, Anthropologist, Humorist and dangerous? *Papers and Proceedings of the Royal Society of Tasmania* **150(1)**, 23–30.
- Brown, A.J. (2008). New *Lachnagrostis* (Poaceae) taxa from South Australia and South-west Victoria. *Muelleria* **26(2)**, 21–44.
- Brown, R. (1810). *Prodromus Florae Novae Hollandiae*, 172.
- Dumont d’Urville, M.J. (1832). *Voyage de la corvette l’Astrolabe: exécuté par ordre du roi, pendant les années 1826-1827-1828-1829. Botanique pt. 1*. Paris: J. Tastu, 1830–1834, 128.
- Dumontier (1823). *Observations sur les Graminées de la Flore Belgique*, 127–128.
- Honda, M. (1930). *Journal of the Faculty of Science: University of Tokyo, Section 3, Botany* **3(1)**, 57.

- ICN (2018). International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. N.J. Turland *et al.* (eds).
- Kew Herbarium Catalogue (2020). The Herbarium Catalogue, Royal Botanic Gardens, Kew. Published on the Internet <http://apps.kew.org/herbcat> [last accessed Mar. 2021].
- Koch, (1831). 1. Original – Abhandlungen: 1. Ueber Linne's *Fumaria capnoides*, in *Flora oder Botanische Zeitung* (Ed. B. König), **14** (2), 707.
- Kraehenbuehl, D.N. (1981). Dr H.H. Behr's two visits to South Australia in 1844–45 and 1848–49. *Journal of the Adelaide Botanic Gardens* **3**, 101–123.
- Kunze, D.G. (1848). *Hortus Universitatis Liter. Lipsiensis seminum anno 1847 perceptorum offert delectum*, [1].
- Kunth, K.S. (1833). *Enumeratio plantarum omnium hucusque cognitarum : secundum familias naturales disposita, adjectis characteribus, differentiis et synonymis*, 244–245.
- JACQ (2021). Virtual Herbaria. Herbarium WU, Institute of Botany, University of Vienna. <https://herbarium.univie.ac.at/database/search.php>, last accessed Jan. 2021
- Lut, C. (2017). Guide to the plant species descriptions published in seed lists from Botanic Gardens for the period 1800–1900, Naturalis Biodiversity Centre. <https://seedlists.naturalis.nl/content/seedlists>, last accessed online Apr. 2021.
- Mori, T. (1922). An Enumeration of Plants hitherto known from Korea. Govt. of Chosen, Seoul, 36.
- Mueller, von F. (1849). Second supplement to Brown's florae Novae Hollandiae et insulae Van Diemen enumerating more recently discovered Australasian and New Zealand plants (excluding new Preissian species). Unpublished notes, No. 49.00.00, Notebook (part 2), Correspondence of Ferdinand von Mueller Project, RB MSS M42, Library, Royal Botanic Gardens Victoria.
- Orchard (1999). A History of Systematic Botany in Australia, in *Flora of Australia* **1**, 2nd ed., ABRIS.
- Otto, P. (2018). Brief information on history, collections and types. Herbarium Universitatis Lipsiensis (LZ). <https://www.lw.uni-leipzig.de/en/sysbot/herbarium.html>, accessed online 3 Jan. 2021.
- Reichenbach, H.G.L. (1841). *Der Deutsche Botaniker Herbarienbuch* **2**, 35.
- Richter, E. (1847). Preis verzeichnib von georginen oder dahlien nebst einigen land-und topfpflanzen welche kauffich (oder gegen Austausch) zu haben sind bei Eduard Richter im Luisium bei Dessau (Anhalt). <https://archive.org/details/RichterGeorginen47>.
- Schlechtendal, D.F.L. von (1847). Bestimmung und Beschreibung der vom Dr. Behr in Südaustralien gesammelten Pflanzen. *Linnaea: Ein Journal für die Botanik in ihrem ganzen Umfange* **20**, 564–565.
- Schlechtendal, D.F.L. von (1851). Hortorum botanicorum plantae novae et adnotationes in seminum indicibus depositae. Indices Seminum a. 1847. *Linnaea: Ein Journal für die Botanik in ihrem ganzen Umfange* **24**, 176.
- Thiers, B. (2021) *Index herbariorum*: a global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium, New York. Available from: <http://sweetgum.nybg.org/science/ih/> (accessed: 9 March 2022)
- Trinius, C.B. von (1820). *Fundamenta Agrostographiae*. Vienna: J.G. Heubner, 128.
- Trinius, C.B. von (1824). 'Muhlenbergia' in *De Graminiis Unifloris et Sesquifloris*, Petropoli, Impensis Academiae Imperialis Scientiarum, 188–194.
- Trinius, C.B. von (1841). 'Agrostis' in *Agrostidea, II. Callo Rotunda, (Agrostea)*. Typis Academiae Caesareae Scientiarum: Petropoli, 63–132.
- Walpers, W.G. (1848–1849). '810. Agrostis Linn.' in *Synopsis Plantarum Phanerogamicarum Novarum Omnium per Annos 1846 & 1847 Descriptarum* **1**, 927–928.
- Wilson, A. (ed.) (2009). *Flora of Australia* **44A**, Poaceae 2. ABRIS: Canberra/CSIRO: Melbourne, 163–173, 214–221, 242–248.