

Typification of *Festuca rubra* L., *F. ovina* L. and *F. ovina* var. *vivipara* L.

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ABSTRACT

Festuca rubra L., *F. ovina* L. and *F. ovina* var. *vivipara* L. (*F. vivipara* (L.) Smith) are each lectotypified so as to preserve the usual current application of the names. The lectotype of the first name is in GB, and those of the latter two in LINN.

INTRODUCTION

Festuca ovina L. and *F. rubra* L. are two widely distributed and ecologically important grasses that exemplify two large, very variable aggregates of taxa. In *Flora Europaea* (Markgraf-Dannenberg 1980) 92 and 23 species respectively are attributable to these two aggregates, so that the precise typification of *F. ovina* and *F. rubra* is a matter of considerable taxonomic significance. *F. ovina* var. *vivipara* can be conveniently dealt with at the same time.

FESTUCA OVINA L., *SP. PL.*, 73 (1753)

Linnaeus took his diagnostic phrase-name unchanged from his earlier (1745) *Flora Suecica* account and listed four polynomials in synonymy, adding "Habitat in Europae collibus apricis aridis vulgatissimum". He also appended an unnamed variety β , later to be named as var. *vivipara*.

Linnaeus' own herbarium in LINN contains surprisingly little Swedish material and it seems that his Swedish herbarium was probably kept apart from his main collection and was lost or destroyed. Accordingly, there is no material which can be unequivocally associated with the *Flora Suecica* accounts.

The first synonym is from Linnaeus' *Samling of et hundrade växter upfundne på Gotland, Öland och Småland* (1741) but it is not associated with any known extant material. The second is from van Royen (1740) but no associated material in Adriaan van Royen's herbarium in L has been found (J. F. Veldkamp pers. comm. 1986). A polynomial from Linnaeus' *Flora Lapponica* (1737) account is cited third and associated with this are two specimens, one in Linnaeus' Lapland herbarium in the library of the Institut de France, Paris (see Fries 1861; Stearn 1957, p. 115) and another (92.1 in the Savage (1945) catalogue) in LINN bearing the entry number "55" and "e Lapponia" in Linnaeus' handwriting. These two specimens are possibly duplicates, and belong to the *F. ovina* aggregate. The fourth synonym is from Bauhin's *Pinax Theatri Botanici* (1623) also cited through Scheuchzer's *Agrostographia* (1719). The Burser herbarium in UPS does not in this instance contain any material which Linnaeus might have used in association with the Bauhin polynomial.

Specimen 92.2 in LINN also belongs to *F. ovina* agg. but it was sent to Linnaeus by Arduino in 1761 and hence has no relevance for the purposes of typification. There are four specimens in the Linnaean herbarium in S which have in the past been referred to *F. ovina*, but examination shows that two are entirely unannotated. However, one of the others (fiche 37.19) bears "1. ovina" and

on the reverse "e Lapponia" in Linnaeus' handwriting. We have seen only a microfiche of this specimen, and from this cannot draw any conclusions as to the precise identity of the plant, even to the extent of determining it as *F. ovina* agg. rather than *F. rubra* agg. The last specimen (fiche 38.5) relates to *F. ovina* var. *vivipara* and is discussed under that name.

Specimen 92.1 in LINN does not bear the name or number of the *Species Plantarum* account, but the presence of the *Flora Lapponica* number and the correspondence of the specimen with that in Paris indicates that Linnaeus almost certainly collected it in Lapland in 1732 and it was hence available to him in 1753. It agrees fully with the *Flora Lapponica* diagnosis "*Poa spiculis ovato-angustis aristato-acuminatis*". This specimen was also examined by the late C. E. Hubbard (Kew) and by the late P. Auquier (Liège) and considered by both of them to be a suitable choice of lectotype and to be in accordance with the currently accepted concept of *F. ovina*, as well as with the protologue. Accordingly we designate specimen 92.1 in LINN as the lectotype of *F. ovina* L. (Plate 2A).

In the 1970s the concept emerged of 'typical' *F. ovina* *sensu strictissimo* as a diploid taxon characteristic of many regions of northern and central Europe, including northern Britain, but one of uncertain occurrence in southern Britain and not occurring in France or Belgium. This concept was developed mainly by Auquier, firstly in his doctoral thesis (Auquier 1974), where he stated (p. 196) "il paraît vraisemblable que le matériel original de son (Linnaeus') *F. ovina* corresponde aux populations diploïdes communes en Europe septentrionale et centrale; Linné met d'ailleurs son espèce en synonymie avec des phrases descriptives tirées de flores de Scandinavie et de Suisse". Later the same concept was used by Auquier in other works, notably in the standard Belgian Flora (Auquier 1978), where (p. 757) he stated: "*Festuca ovina* L. s. str., espèce d'Europe sept., centr. et or., n'existe pas à l'état spontané dans le territoire [Belgium, Luxembourg, and immediately adjacent parts of France, Germany and Holland] de la Flore". Another leading festucologist, M. Kerguélen (Guyancourt), has followed the same interpretation (e.g. Kerguélen 1983, p. 16), and Markgraf-Dannenberg (1980, p. 145) also considered *F. ovina* to be a diploid taxon (the basis of her citing Belgium in the distribution is not known). The view that typical *F. ovina* is diploid and rare in western Europe has become generally accepted by the leading Continental festucologists, and we also are of this opinion. At Auquier's request, Hubbard had sent detailed measurements of specimen 92.1 to the former (letter of 2 May 1974), after which Auquier expressed the view (letter to Hubbard of 8 May 1974) that "Les mesures relevées sur l'échantillon 92.1 concordent bien avec celles que j'ai notées sur des récoltes de Scandinavie et d'Europe centrale. Ces plantes diploïdes diffèrent par leur mensuration des populations tétraploïdes d'Europe occidentale". The critical measurements of the proposed lectotype are: spikelet length extrapolated to fourth floret 4.8–5.7 mm; second lemma length 3.0–3.5 mm; second lemma awn length 1–1.3 mm. Auquier (1977, p. 100) stated in print that "le nom de *F. ovina* doit être réservé aux populations diploïdes largement répandues en Europe boréale, centrale et orientale," and after he finally examined specimen 92.1 in LINN on 1 November 1979 he confirmed (orally to C.A.S.) that he considered this sheet to represent the diploid taxon. Hubbard's views are expressed in a note at the Linnean Society dated 8–9 April 1974, and in greater detail in the letter of 2 May 1974 mentioned above. Specimen 92.1 was also examined by M.J.W. in 1983, and the same conclusions drawn. A paper typifying *F. ovina* by specimen 92.1 was planned by Auquier and Hubbard (see Auquier 1977, p. 100), and at the time of their separate deaths in 1980 a draft manuscript had been prepared by Auquier (oral communication to C.A.S. 1980).

In most of Britain, Belgium and northern France, as well as in some regions further east, *F. ovina* *sensu strictissimo* is replaced by various tetraploid taxa. Their degree and level of distinction from each other and from *F. ovina* are being examined in several laboratories; some preliminary conclusions have been presented by Wilkinson & Stace (1985), but this is not the subject of the present paper.

FESTUCA OVINA VAR. *VIVIPARA*. L., *FL. SUEC.*, 2ND ED., 31 (1755)

Linnaeus recognized this proliferating grass as an unnamed variety in 1753 with the diagnosis "*Festuca spiculis viviparis*", but two years later gave it a formal varietal epithet. Four synonyms were cited, together with "Habitat in alpihus Lapponicis, ubi nullum gramen magis frequens".

There are no relevant specimens in the Linnaean herbaria in **H**, **MW**, **SBT** or **UPS**. Specimen 92.5 in **LINN** (noted by Frederiksen 1981, p. 287) is labelled by Linnaeus "1 β " (the number of the taxon in *Species Plantarum*) and "Lappo" (=Lapponia, the area of collection).

The first synonym is taken from Linnaeus' *Flora Lapponica* account, no. 56, and there is a specimen bearing this name and number in his *Flora Lapponica* herbarium in the library of the Institut de France, Paris. There is also a further specimen bearing this number in Linnaeus' handwriting in **S** (fiche no. 38.5), which is almost certainly a duplicate. Of the remaining three synonyms, two are drawn from works by Scheuchzer and the third is from Ray. All three are accompanied by illustrations, but none can be associated with specimens that Linnaeus would have seen.

Specimen 92.5 in **LINN** was clearly used by Linnaeus when writing his *Species Plantarum* account and we formally select it as the lectotype. Hubbard (ms. note in Linnean Society dated 8–9 April 1974) reached the same conclusion.

Although Linnaeus' polynomial covers all proliferous *Festuca* taxa, which belong to many species (most but not all of them within the *F. ovina* aggregate), the lectotype conforms precisely with the modern concept of *F. ovina* var. *vivipara*, now usually known as *F. vivipara* (L.) Smith, *Fl. Brit.*, 1: 114 (1800). *F. vivipara* in northern Scandinavia exists as both triploids and tetraploids and the lectotype could be either.

FESTUCA RUBRA L., *SP. PL.*, 74 (1753)

As with *F. ovina*, Linnaeus used the polynomial name that he had earlier used in *Flora Suecica* (1745, p. 93) as his diagnosis, and he cited one pre-Linnaean synonym from Scheuchzer. He also noted "Habitat in Europae sterilibus siccis". At the end of the entry Linnaeus added a sentence with further information for distinguishing *F. rubra* from *F. ovina*, suggesting that he knew *F. rubra* well: "Magnitudine, colore maturitatis rubro, culmo tereti sed altero latere planiusculo, distinguitur a *F. ovina*".

There are two specimens (92.9, 92.10) in **LINN** which are linked with this name. Specimen 92.9 is a member of the *F. rubra* aggregate and is labelled by Linnaeus "3 rubra" and, on the reverse, "Lapponia 52". The former represents the name and number of the species in *Species Plantarum*, and the latter would appear to be the origin of the specimen and its number in Linnaeus' *Flora Lapponica* account. However, entry number 52, *Poa spiculis ovato-oblongis, foliis subulatis*, is nowhere cited in the synonymy of *F. rubra*, but is instead to be found along with the reference "Fl. lapp. 52" as a synonym of *Poa angustifolia* L. There is a specimen, numbered "52" by Linnaeus and with the name "Poa spiculus ovato oblongis", in Linnaeus' Lapland herbarium in the library of the Institut de France, Paris. From a photograph it is clear that this specimen is a *Festuca*, not a *Poa*, and probably belongs to *F. rubra* agg.; it is possibly a duplicate of specimen 92.9 in **LINN**. However, since its name and number are referred in *Species Plantarum* to *Poa angustifolia*, not to *F. rubra*, it cannot be regarded as a syntype of the latter, nor used to typify it.

Specimen 92.9 does not represent the taxon now generally known as *F. rubra* (sensu strictissimo), but is an example of *F. richardsonii* Hooker (*F. rubra* ssp. *arctica* (Hackel) Govoruchin). This conclusion was reached without reservation by P. Auquier when he examined the specimen on 1 November 1979, and by S. M. Cunningham and C.A.S. when they examined it in 1982 (see also Kerguelen 1983, p. 9).

Specimen 92.10 also bears the number "3" in Linnaeus' handwriting, but Linnaeus additionally wrote "2" on the sheet. This suggests some change of mind as to whether *F. duriuscula* L. (number 2 in *Species Plantarum*) or *F. rubra* was the identity of this specimen, which is therefore not relevant for the typification of *F. rubra*.

There are three specimens in the Linnaean herbarium in **S** but none can be regarded as a syntype. One is unannotated by Linnaeus, a second was received by Linnaeus from Arduino in about 1761, and the third, although annotated by Linnaeus, lacks the figure "3" and was almost certainly acquired by him after 1753. The last sheet bears a specimen each of *F. rubra* ssp. *rubra* and *F. rubra* ssp. *commutata* Gaudin (*F. nigrescens* Lam.). No further relevant specimens are known amongst the Linnaean herbaria in **H**, **MW**, **SBI** or **UPS**.

However, a further specimen has recently come to light in the Botanical Museum, Göteborg (**GB**), which was not widely known to possess any Linnaean materials. During an informal

discussion with C.E.J., Dr Lennart Andersson, now Botanical Curator at GB, said that he thought Linnaean material existed there. Dr Andersson's predecessor, Dr Bo Peterson, kindly confirmed that just one Linnaean specimen is in the herbarium, and that this is a sheet of *Festuca rubra*, collected near Uppsala and evidently in Linnaeus' possession by 1753. The sheet bears on the recto "3 rubra" and on the verso "in paludosis prati regii Upsalia", all in Linnaeus' handwriting. The presence of the "3" indicates that it is almost certain that the specimen was in Linnaeus' possession before 1753. Whilst it is true that the ecological information on the specimen does not agree with that given in the protologue in 1753 (i.e. "in Europae sterilibis siccis"), it is notable that the *Flora Suecica* (1745) account rather unusually omits any habitat details. It may well be that the GB specimen was collected prior to 1745 (and Linnaeus did state in *Flora Suecica* "habitat ubique in Suecia, praesertim in Uplandia"). Ecological descriptions for a species such as this were probably rather unimportant to Linnaeus as he frequently omitted mention of them. In any case, it is clear that Linnaeus possessed the specimen before 1753 and regarded it as belonging to his *F. rubra*, and so we accept it as a syntype.

Examination of the specimen by C.A.S. and M.J.W. shows that the collection consists of only the top parts of three flowering stems, but measurements of the spikelet parts (e.g. lemmas 5–6 mm, spikelets to fourth floret 7–8 mm) reveal that it is an example of the plant now commonly known as *F. rubra* ssp. *rubra*. Hence we select it here as the lectotype (Plate 2B).

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PLATE 2. Lectotype specimens: (A) *F. ovina* L. (LINN no. 92.1); (B) *F. rubra* L. (GB).