

The identity of *Euphrasia officinalis* L. and its nomenclatural implications

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ABSTRACT

The treatment of the name *Euphrasia officinalis* L. (Scrophulariaceae) as a nomen ambiguum is rejected. Examination of the lectotype material shows that it matches *E. rostkoviana* Hayne subsp. *fennica* (Kihlman) Karlsson. The name *E. officinalis* takes priority and the following infraspecific taxa are recognised: *E. officinalis* subsp. *officinalis*, *E. officinalis* subsp. *rostkoviana* (Hayne) F. Townsend, *E. officinalis* subsp. *monticola* Silverside **nom. nov.** (= *E. montana* Jordan) and *E. officinalis* subsp. *anglica* (Pugs.) Silverside **comb. et stat. nov.** The taxonomic treatment of other species in *Euphrasia* series *Euphrasia* is discussed and the implications for the infrageneric arrangement in *Euphrasia* are noted.

INTRODUCTION

The name *Euphrasia officinalis* L. has been generally treated as a nomen ambiguum by those who recognise an aggregate of numerous species, despite the existence of original Linnaean material. There are two sheets of *Euphrasia*, as the genus is now circumscribed, in the Linnaean Herbarium (LINN). One represents the distinctive Italian species, *E. tricuspidata* L., the other (sheet 759.2), consisting of three specimens, represents *E. officinalis*. Two of the specimens on the latter sheet have been generally considered to be referable to the taxon currently known as *E. rostkoviana* Hayne, while the third, of Russian origin (see below), has been regarded as *E. nemorosa* (Pers.) Wallr. (including *E. curta* (Fries) Wettst.) (Townsend 1867; Pugsley 1930), or as *E. stricta* J. P. Wolff ex J. F. Lehm. (Yeo 1972). Sell & Yeo (1970) partially lectotypified *E. officinalis* by equating it with the element regarded as *E. rostkoviana*, but nevertheless rejected the name *E. officinalis* as a nomen ambiguum, a view subsequently reiterated by Yeo (1972, 1978).

This rejection of the name *E. officinalis* was presumably based on Article 69 of the *International Code of Botanical Nomenclature*, which formerly stated, "A name is to be rejected if it is used in different senses and has so become a long-persistent source of error" (Stafleu *et al.* 1972). For those who took a broad view of *E. officinalis* and who would consider the two elements of the Linnaean sheet as representing variants of a single species, the application of the name was clear. It could be used for the aggregate species without further qualification. For those who recognised a number of species within the Linnaean concept, the name *E. officinalis* was not to be used for any of the segregates. While this interpretation of Article 69 was perhaps questionable, the result of this interpretation has been unambiguous and convenient.

Unfortunately, from this viewpoint, such a treatment is no longer tenable. Article 69 was altered at the International Botanical Congress in Leningrad in 1975 (Stafleu *et al.* 1978) and a name may now be rejected under this article only if "it has been widely and persistently used for a taxon or taxa not including its type" (Article 69.1) (Greuter *et al.* 1988). Further, a name may not be summarily rejected under this article; a name becomes formally rejected only after consideration by the General Committee established by the International Association for Plant Taxonomy and its placement on the list of nomina rejicienda (Articles 69.1, 69.2). To date, *E. officinalis* has not been so treated, and it is clear that there is no basis for doing so. While it is true that some early literature used the name in a sense that excluded the *E. rostkoviana* group, such misapplication has hardly been widespread or persistent. Virtually all use of *E. officinalis* has been in a broad sense that includes the type material. To interpret Article 69 in any other way would require the rejection of the names of all taxa that have been subdivided. The term nomen ambiguum has no formal meaning

under the *I.C.B.N.* and, in its usual meaning, it can hardly be applied to a name of undisputed modern application and for which there is accessible and reasonably good type material. It follows that the name *E. officinalis* is valid and would have priority over the name *E. rostkoviana* if they were shown to refer to the same taxon.

This situation has already been briefly pointed out by Barker (1982), but seems otherwise to have been generally overlooked or ignored. I have been as guilty as anyone for long maintaining a treatment that I knew to be invalid, but in the course of determining material and in preparing a semi-popular account of the British diploid taxa (Silverside 1990), I have increasingly come to doubt the validity of maintaining *E. anglica* Pugsl. as a separate species from *E. rostkoviana*. It has been clear that a new combination cannot be published until the nomenclature of the *E. rostkoviana* group has been revised, and a re-examination of the Linnaean material has seemed prudent.

It should be noted that although I have referred above to the publication of Sell & Yeo (1970) in relation to the lectotypification of *E. officinalis*, they did not, in fact, indicate a specimen, either in their publication or, apparently, at LINN. While there can be no reasonable doubt as to which of Linnaeus's specimens they considered as representing *E. rostkoviana*, I consider the unequivocal lectotypification to have been provided by Yeo (1978, p. 237), when he excluded the specimen with seven pairs of branches and eglandular foliar hairs. While this still leaves a choice of two specimens, I believe that these represent a single collection, as discussed below, and that they count as "small herbaceous plants", so being jointly acceptable as the type under Article 9.1.

EXAMINATION OF THE LINNAEAN MATERIAL OF *E. OFFICINALIS*

Although the two specimens that constitute the lectotype of *E. officinalis* have been declared to represent the taxon generally known as *E. rostkoviana*, it should be borne in mind that Yeo (1972, 1978) incorporated two taxa of eastern Scandinavia and northern Russia, *E. fennica* Kihlman and *E. onegensis* Cajander, within his concept of *E. rostkoviana* subsp. *rostkoviana*. These two taxa have been variously treated in Scandinavian literature, with recent viewpoints being to treat them both as named varieties of *E. rostkoviana* (Jalas 1977) or to treat *E. fennica* as a subspecies of *E. rostkoviana*, and *E. onegensis* as a taxon of uncertain status, perhaps closer to *E. hirtella* Jordan ex Reuter (Karlsson 1982). The Linnaean specimens were examined with these taxonomic and nomenclatural implications in mind.

As has been stated by previous workers, the Linnaean sheet 759.2 consists of three specimens. The left- and right-hand specimens bear long, glandular hairs while the central specimen is apparently eglandular, possesses seven pairs of branches and is clearly the specimen excluded from the lectotype by Yeo (1978). The following descriptions were necessarily made without risk of damage to the material and measurements are in some cases approximate or insufficient to allow ranges to be quoted.

THE CENTRAL SPECIMEN

Plant exceeding 18 cm in height (specimen curved in pressing), erect, with seven pairs of ascending branches, the lowest almost equalling the main stem; secondary branches absent; flowering commencing at node 12. Foliage with no trace of original colour but drying darker than the other two specimens on the sheet; undersides of leaves apparently paler than the uppersides; cauline leaves missing or fragmentary, with all teeth apparently antrorse and acutely triangular. Lower cauline internodes c. 10–12 mm; uppermost cauline internode 14 mm, its subtending leaf approximately 10 mm in length; lowest floral internode 11 mm, its subtending floral leaf c. 6 mm. Floral leaves broadly ovate to trullate, with mostly five pairs of antrorse, finely acute to aristate teeth. Foliage and calyces sparingly setose, lacking stalked glands. Calyx teeth linear-triangular, aristate. Corolla length (to tip of upper lip) c. 6.5 mm; lower lips with rather narrow, spreading lobes. Mature capsules c. 5.0 mm in length, about equalling calyx and subtending floral leaf; apex emarginate, ciliate; width 1.9 mm.

The symbol ϵ is written on the sheet next to this specimen, which, following Savage (1945), indicates that the specimen is probably of Russian origin.

Pugsley (1930) referred to the identifications of this specimen as *E. nemorosa* but considered that it was more probably *E. curta*. As the specimen is only sparingly setose, he presumably had in mind

the subglabrous variants that have been recognised as *E. curta* var. *glabrescens* Wettst., though Pugsley did not, himself, accept this taxon. Yeo (1971) considered that there is no difference between *E. curta* var. *glabrescens* and *E. nemorosa* and that typical, Scandinavian *E. curta* is also best regarded as a hairy variant of *E. nemorosa*, though some populations in Britain, the Faeroes and Iceland he recognised as a separate species, *E. ostenfeldii* (Pugsley) Yeo. The Linnaean specimen is certainly not *E. ostenfeldii* and there seems no basis to identify it with *E. nemorosa* var. *curta* Fries, as reinstated and illustrated by Hartl (1972). There remains the choice between *E. nemorosa* and *E. stricta*, which appear to be the only species that should be considered.

The specimen certainly bears a strong resemblance to *E. nemorosa*, particularly to the rather large, strongly branched variants sometimes met on waste ground. The corolla size indicates *E. nemorosa*, being considerably smaller than would be expected in *E. stricta*. However, the finely acute to aristate and apparently uniformly antrorse tothing of the leaves indicates *E. stricta* and the relatively narrow capsules perhaps also support this view. The leaves of *E. stricta* are commonly markedly paler beneath and there is perhaps some indication that this was true of the Linnaean specimen. Both taxa extend into the Soviet Union and since both tend to be outcrossing species and have rather similar habitat requirements, the possibility that the specimen came from a hybrid population cannot be ruled out. Karlsson (1984) notes the ready formation of hybrid swarms between the two species on the island of Gotland, Sweden. While, on balance, the specimen seems nearer to *E. stricta*, it is not, in my opinion, reliably identifiable, and amply illustrates the difficulty of dealing with single plants. Fortunately, its identity no longer has any nomenclatural implication.

THE LEFT-HAND SPECIMEN

Plant 28.2 cm in height, erect, with three pairs of branches in upper half; branches straight, ascending at about 30° from vertical, distinctly shorter than main stem; secondary branches absent; flowering apparently commencing at node 9. Foliage with no trace of original colour, drying light brown; cauline leaves missing. Lower cauline internodes long, exceeding 3 cm; lowest floral internode 1.2 cm. Lower floral leaves missing; middle and upper floral leaves reaching maximum length of 6 mm, broadly rhomboid-ovate, with five pairs of teeth on examinable leaves; tothing finely acute to aristate; all teeth antrorse. Foliage with some setose hairs; foliage, calyces and upper parts of stem also clothed in long-stalked, wavy glandular hairs; lengths of glandular hairs variable, reaching 0.5 (–0.7) mm; stalks multicellular (to 4-celled), transparent; glandular heads globose to ellipsoid, transparent or now brown. Calyx teeth linear-triangular, ± aristate. Corolla length (to tip of upper lip, pressed) at least 8 mm; lower lip exceeding upper, with spreading lobes, width at least 5.5 mm; no glands noted on exposed part of corolla tube. Capsules variable in size, longest 5.2 mm, equalling or exceeding floral leaves, shorter than to equalling to exceeding calyx, width 2.1 mm; apex emarginate, ciliate.

THE RIGHT-HAND SPECIMEN

Plant 29.3 cm in height, erect, with two pairs of upcurved branches emerging at an angle of about 45° from the mid-part of the stem and distinctly shorter than the main stem; secondary branches absent; flowering probably commencing at node 9, but specimen has three intercalary nodes below this, now bare. Cauline leaves missing. Lower cauline internodes c. 2.5 cm; lowest floral internode 1.4 cm. Lower floral leaves to 9.5 mm in length, broadly rhomboid-ovate, with seven pairs of finely acute teeth, the lowest pair patent, the rest antrorse; floral leaves diminishing in size upwards; upper floral leaves with six pairs of teeth, all antrorse. Calyx teeth linear-triangular, ± aristate. Corollas appear equal in size to those of the left-hand specimen, no accurate measurements being possible. No mature capsules are present.

Foliage colour and details of setose and glandular indumentum are as described for the left-hand specimen.

DISCUSSION OF THE LEFT- AND RIGHT-HAND SPECIMENS

No indication of the origin of the specimens is given, but the general facies of the two specimens would support their being from a single collection. They differ somewhat in their branching, but branches tend to be rather flexuous and variable in the *E. rostkoviana* group, to which the specimens undoubtedly belong, and I consider these differences to be unimportant and no more than would be expected within a single population. So far as it is possible to compare foliage and corolla characters,

there is a close similarity between the two plants. In the following discussion, I assume that the two specimens are of common origin. In the absence of any indication to the contrary, they would seem most likely to be Swedish, a view for which there is support from the fine detail of their morphology, as discussed below.

At first sight, the specimens match *E. rostkoviana* closely. They are more branched than most material of *E. fennica* that I have seen but, on the other hand, they match the photograph of the lectotype material of *E. fennica*, published by Jalas & Kukkonen (1973), extremely well. The other possibility cited above, *E. onegensis*, can apparently be discounted. Little information was provided with its original description (Cajander 1901) and I know the taxon only from the photograph of lectotype material, again published by Jalas & Kukkonen (1973). However, this photograph shows a distinctive plant of aestival habit, with markedly small corollas, low flowering nodes, and large upper floral leaves, giving the developing plants a capitate appearance (much as in well grown *E. frigida* Pugsl.), and with leaves with few pairs of rather blunt teeth. Karlsson (1982) has investigated Finnish records of *E. onegensis* and has shown that they are referable to *E. fennica*, leaving *E. onegensis* as a taxon currently known only in the north-western part of the Soviet Union and needing further study. The Linnaean specimens clearly differ from the lectotype of *E. onegensis* and from Karlsson's redescription in such features as corolla size, lowest flowering node and shape and tooting of the floral leaves.

The differences between *E. rostkoviana*, particularly with regard to British and Irish material, and *E. fennica* seem, at first, so slight, that Yeo's (1972) inclusion of the latter taxon under *E. rostkoviana* subsp. *rostkoviana* has appeared, to me, fully justified. However, Karlsson's (1982) meticulous study of the complex in Sweden forces a reassessment of these taxa. Karlsson has shown that *E. fennica*, which he recognises as a subspecies of *E. rostkoviana*, is widespread in eastern Sweden, Finland and the adjacent part of the Soviet Union, often on relatively poor soils. *E. rostkoviana* (sensu stricto), by contrast, is largely restricted to two calcareous regions of Sweden, and is a recent and casual introduction in Finland. As well as in its slender, usually autumnal habit, *E. fennica* differs from Scandinavian and continental *E. rostkoviana* in its floral leaves, with more numerous (between five and eight) pairs of finer, narrower teeth and in the narrower mid-lobes of its lower corolla lips. Even in Karlsson's figures, there is only limited evidence of disjunction in these characters, but he argues convincingly for recognition of *E. fennica* at subspecific rank, and even that evolutionary differentiation of *E. fennica* from *E. rostkoviana* s.s. occurred at an earlier time than the differentiation of *E. rostkoviana* subsp. *montana* from the latter taxon. The opinion of a respected authority on the genus, based on detailed work in his own area, cannot be lightly disregarded and I accept his conclusions here.

Linnaeus's specimens fit *E. fennica* in habit and the floral leaves of the right-hand specimen, with their seven pairs of finely acute teeth, clearly fall within the range of *E. fennica* and outside the range of most or all *E. rostkoviana* from elsewhere. The single measurement of a width of a lower corolla lip (equalling or exceeding 5.5 mm, left-hand specimen) would infer a mid-lobe width unlikely to exceed 3 mm, which, while not conclusive, again strongly indicates *E. fennica*. I conclude that the lectotype material of *E. officinalis* matches the taxon currently known as *E. rostkoviana* subsp. *fennica* (Kihlman) Karlsson.

It may be noted that Karlsson found that *E. fennica*, in Sweden, occurs in greatest abundance in the vicinity of Uppsala, an area in which Linnaeus collected extensively (Blunt 1971) and hence the most likely origin of his material.

NOMENCLATURE

Since the name *E. officinalis* L. takes priority over both *E. rostkoviana* Hayne and *E. fennica* Kihlman, the following nomenclatural arrangement is required.

***Euphrasia officinalis* L., *Sp. Pl.* 604 (1753).**

LECTOTYPE: Sheet 759.2, Herb. Linnaeus (LINN), excluding specimen with seven pairs of branches (Yeo 1978).

1) ***E. officinalis* L. subsp. *officinalis***

E. fennica Kihlman, in *Mela, Suomen Kouluksavio*, 4th ed., 247 (1899).

E. rostkoviana Hayne var. *fennica* (Kihlman) Jalas in *Ann. Bot. Fenn.* **14**: 191 (1977),
E. rostkoviana Hayne subsp. *fennica* (Kihlman) Karlsson in *Växtekologiska Studier* **15**: 42 (1982).

Fuller synonymies are provided by Jalas & Kukkonen (1973) and Karlsson (1982). Distribution: Eastern Fennoscandia and adjacent parts of the Soviet Union.

As inferred in the foregoing discussion, some British and Irish populations resemble this subspecies, and *E. fennica* was reported from Exmoor and Galway by Bucknall (1917). Pugsley (1930) doubted these identifications, but mentioned other Irish material that resembled it. Material I have seen matches subsp. *rostkoviana* in the floral leaves with four to five pairs of rather coarse teeth and is undoubtedly referable to that subspecies, though showing some differentiation from continental populations.

2) *E. officinalis* L. subsp. *rostkoviana* (Hayne) F. Townsend, in *J. Bot., Lond.* **22**: 165 (1884). (As *E. officinalis* L. **E. Rostkoviana*, but with indication that the rank of subspecies was intended.) LECTOTYPE: not designated. The plate accompanying Hayne's description shows a plant possessing floral leaves with five pairs of coarse teeth, consistent with the taxonomic views adopted in this paper.

E. rostkoviana Hayne, *Getreue Darstellung und Beschreibung der in der Arzneykunde Gebräuchlichen Gewächse* **9**: t.7 (1825).

Distribution: throughout most of Europe, including Britain and Ireland; rare in Scandinavia.

It is pleasing that what I take to be the correct combination at subspecific rank maintains the continuity of use of the familiar epithet, *rostkoviana*. However, there is a potential problem in the existence of the combination *Euphrasia officinalis* L. A) *E. pratensis* Fries, *Novitiae florae Suecicae, edit. altera* 198 (1828), which could be regarded as invalidly published (*I.C.B.N. Articles 32.1b and 33.4*) but which may also be regarded as legitimate under Article 24.4. It is clear in the context of Fries' account that his use of upper case lettering was to denote a concept above that of variety, but which he clearly stated he did not wish to distinguish as separate species. His concept seems to match that of the subspecies but is not explicitly stated. Under Articles 24.4 and 35.2, he can thus be taken to have validly published an infraspecific taxon of undefined rank, under which he lists, as a synonym, *E. rostkoviana* (as "*Rostkowiana*").

He separated his "A) *E. pratensis*" from his other subdivision, "B) *E. montana*", by the former being glandular hairy. As well as his very brief description of *pratensis* and citation of *E. rostkoviana*, he also referred to the pre-Linnaean description of Haller (1745). Reference to Haller's work (p. 240) shows that under "*Euphrasia officinarum*" he listed two taxa, "*Euphrasia ramosa, pratensis, flore albo*" and "*Euphrasia minus ramosa, flore ex caeruleo purpurascente*". The first of these would appear to correspond to Fries' *pratensis*, while the second must then correspond to Fries' parallel reference to Haller under "B) *E. montana*". In fact, this is of little help in interpreting the application of Fries' names.

Although Fries included *E. rostkoviana* in his concept of "A) *E. pratensis*", it seems clear that he must also have included the glandular component of the complex that Karlsson (1976) groups under *E. stricta* and which Yeo (1972, 1978) splits between *E. stricta* (including *E. brevipila* Burnat & Gremli ex Gremli) and *E. arctica* Lange ex Rostrup subsp. *tenuis* (Brenner) Yeo. Populations of this complex are widespread and locally abundant in Scandinavia and Fries could hardly have overlooked these attractive and conspicuous plants. Taking the whole of Fries' protologue, there is no justification, at present, for equating his *pratensis* with *E. rostkoviana* and I consider his "A) *E. pratensis*" to be a nomen dubium. Should a future lectotypification of *pratensis* be based on material referable to *E. rostkoviana*, Fries' combination, even if validly published, would still not, itself, have any status in questions of priority (Article 35.2). Nevertheless, the epithet *pratensis* was widely taken up, numerous citations being given by Wettstein (1896). Although it is possible that a valid combination at subspecific rank exists and predates Townsend's combination, the earliest such relevant use of the epithet *pratensis* appears to be *E. Rostkoviana* Hayne subsp. *pratensis* Ascherson & Graebner, *Flora des nordostdeutschen Flachlandes (ausser Ostpreussen)*: 644 (1899), which is invalid under Article 26.1 and would, in any case, become a later homonym if transferred to *E. officinalis* (Article 64.4).

3) *E. officinalis* L. subsp. *monticola* Silverside, *nom. nov.*, pro *Euphrasia montana* Jordan, *Pugillus plantarum novarum praesertim gallicarum* 132 (1852); non *E. officinalis* L. var. *montana* (Fries)

Fries, *Summa vegetabilium scandinavicae* 19 (1845). TYPE: in herb. Jordan, inaccessible and not seen by me; see Yeo (1978).

E. rostkoviana L. subsp. *montana* (Jordan) Wettst. in *Denkschr. Akad. Wiss., Wien* 70: 319 (1901).

E. rostkoviana L. subvar. *montana* (Jordan) Hartl, *Illustrierte Flora von Mitteleuropa*, 2nd ed. 6(1,5): 349 (1972).

Non *E. montana* Phillipi, *Plantas nuevas Chilenas* 116 (1896).

Distribution: scattered throughout much of central and northern Europe, including Britain, mainly in upland areas and typically in damp meadows and pastures; undoubtedly declining through drainage and changes in land-use.

Article 64.4 of the *I.C.B.N.* prohibits the use of the same epithet for different infraspecific taxa, not based on the same type, within the same species, even if they are of different rank. The use of the name *E. officinalis* in a broad sense has resulted in a host of infraspecific taxon names and, in this case, the existence of *E. officinalis* var. *montana* prevents any such combination based on *E. montana* Jordan. Fries' var. *montana* is validated by indirect reference to his earlier description (Fries 1828), under *E. officinalis* B) *E. montana*, even if this latter construction is not itself taken to be validly published, for reasons discussed above in relation to his *E. officinalis* A) *E. pratensis*.

A new epithet has been required and I have chosen an epithet that in both form and meaning is close to the original and should minimise the inconvenience of the change of name.

In his account of *E. rostkoviana*, Wettstein (1896) mentioned *E. uliginosa* Ducommun. Although Wettstein recognised *E. montana* separately, a variant of *E. rostkoviana* from a damp habitat has seemed to need further investigation as a possible synonym and source of epithet. However, although I have seen neither the original description nor any original material of *E. uliginosa*, it is clear from the accounts of the genus in Reuter (1861) and Ducommun (1869) that *E. uliginosa* was regarded as a small-flowered, late-flowering taxon, which both authors justifiably maintained separately from *E. montana*. The illustration of this taxon in Hayek & Hegi (1913: fig. 54) is referable to subsp. *rostkoviana* and in the second edition of this work (Hartl 1972: fig. 175), the caption is duly altered to "subvar. *Rostkoviana*".

4) *E. officinalis* L. subsp. *anglica* (Pugsley) Silverside, **comb. et stat. nov.** LECTOTYPE: Box Hill, Surrey, 22nd September 1920, *Pugsley 440* (BM) (Pugsley 1930; Yeo 1978).

Euphrasia anglica Pugsley in *J. Bot., Lond.* 67: 225 (1929).

Distribution: Britain, Ireland and perhaps also in the neighbourhood of Rouen, France (Yeo 1978), usually in damp, heathy, grazed grassland.

Subsp. *anglica* is at its most distinct in south-western England, where it occurs in the apparent absence of subsp. *rostkoviana*. Essentially a plant adapted to withstand grazing, it differs from subsp. *rostkoviana* in its shorter lower-internodes and more basal branching, its smaller corollas and in its frequently more rounded and rather darker leaves. As emphasised by Pugsley (1930), the rather larger floral leaves, decreasing less in size upwards, are characteristic of subsp. *anglica*, and contribute to the distinctive appearance of many populations. However, when one considers plants from other parts of western Britain and from Ireland, these characters become less reliable. Much Welsh material, in particular, is intermediate in nature and can be named only with difficulty (and then perhaps arbitrarily). Herbarium material of more upright, narrower-leaved plants has sometimes been named as *E. anglica* var. *gracilescens* Pugsley, though such specimens do not match the type, from Myrtleberry Cleave, N. Devon, *W. C. Barton 277* (BM).

While subsp. *anglica* is recognisable northwards to southern Scotland, with Mrs O. M. Stewart having found small, but quite characteristic material at a cluster of sites in Galloway, it is clear that in much of its range, subsp. *anglica* is not fully differentiated from subsp. *rostkoviana*. While it is likely that, as elsewhere in the genus, difficulties arise principally through hybridisation following breakdown of habitat barriers through man's activities, the two taxa are clearly so closely allied that it is best to consider *E. anglica* as a localised derivative of subsp. *rostkoviana*. Subspecific status of *E. anglica* appears most appropriate.

STATUS OF RELATED TAXA

Species concept in *Euphrasia* is currently a matter for some debate. Hartl's (1972) account of the genus in central Europe treats at lower rank some taxa recognised as species by Yeo (1972).

Karlsson (1976) proposed rather more sweeping revisions. As pointed out by Sell & Yeo (1970), while there is a biological argument for accepting a greatly reduced number of species, this would lead to a cumbersome infraspecific nomenclature. While I agree broadly with Karlsson's view that the number of taxa given specific status could be greatly reduced, it is also clear that any reduction should be based on careful consideration of taxa over the whole of their ranges and should aim to clarify relationships rather than be based on superficial similarities.

Against this background of debate, I have given some consideration to the status of two other glandular species, the diploid, *E. vigursii* Davey, and the presumed diploid, *E. campestris* Jordan. *E. vigursii* is endemic to south-western England, where it is a strikingly attractive plant characteristic of *Agrostis curtisii* Kerguelen heathlands. There is good reason to believe that it has originated by hybridisation between *E. officinalis* subsp. *anglica* and the tetraploid species *E. micrantha* Reichenb. (Yeo 1956).

Yeo (1972) treated *E. campestris* as a subspecies of *E. rostkoviana*, occurring in dry grassland from Belgium to Italy. In his account, Yeo (1978) accepted a somewhat wider distribution and regarded *E. campestris* (still as a subspecies) as being of polytopic origin, derived in some cases directly from subsp. *rostkoviana* and in other cases through introgression from tetraploid species, including *E. stricta*. Accordingly, he regarded it as one end of a range of variation, defined rather arbitrarily by small leaves and late-flowering habit.

While I readily admit that Dr Yeo has examined considerably more material than I have done, I do not entirely agree with his views. *E. campestris* has occasionally been reported in Britain, such records having been treated by Pugsley (1930) as referring to hybrids between *E. anglica* or *E. rostkoviana* and tetraploid species such as *E. nemorosa*, a conclusion with which I agree. I have recently compared a distinctive collection by T. G. Evans from a limestone site in the Wye Valley (herb. T. G. Evans) with a range of *E. campestris* material and, while I concluded that the Wye Valley collection, along with other British candidates for "*campestris*", should be regarded as *E. officinalis* × *nemorosa* (the latter probably as var. *calcareae* Pugsl.), I feel the same could be said for a number of continental specimens. There is a nucleus of material characterised by commencing to flower at a high node, usually at node twelve or above, rather short upper internodes, rather numerous, stiff, straight branches emerging high on the stem and held at an angle of around 30° from vertical, distinctly small floral leaves (range not noted but probably rarely exceeding 7 mm) with noticeably acute to aristate tooting and flowers arranged in strict pairs. While I have not seen type material, I take this nucleus to represent the true *E. campestris*, a distinctive taxon that, as suggested by Yeo (1972) in his earlier account, has probably arisen by hybridisation with *E. stricta*.

The two taxa, *E. vigursii* and *E. campestris*, are, therefore, comparable in origin and should be similarly treated. While I would not argue with their being treated as subspecies of *E. officinalis*, they are inherently different in nature from the other taxa here so treated, and, for the present, I prefer to retain them at specific rank.

The remaining British species of series *Euphrasia* is *E. rivularis* Pugsl., endemic to mountain flushes in Wales and the Lake District. As I have suggested elsewhere (Silverside 1990), this may also be of hybrid origin, perhaps originally derived from *E. officinalis* subsp. *rostkoviana* crossing with *E. micrantha*, but with further adaptation to its restricted habitat. While its distinctiveness may be obscured locally by hybridisation with *E. officinalis* subsp. *rostkoviana*, I consider it a good species in the current context of *Euphrasia* taxonomy.

INFRAGENERIC CLASSIFICATION

The genus *Euphrasia* is typified by *E. officinalis*. Barker (1982) gives useful discussion. Article 22.1 of the *I.C.B.N.* now requires that any subdivision of a genus containing the type species of that genus takes the same name as the genus. This means that all generic subdivisions containing *E. officinalis* must take the epithet *Euphrasia*, without author citation. The following changes are required from the treatments by Pugsley (1930) and Yeo (1978). Details of typification are taken from Yeo (1978).

Section *Euphrasia* - Pugsley: sect. *Semicalcaratae* Benthams (but see Sell & Yeo (1970) regarding author citation). Yeo: sect. *Euphrasia*.

- Subsection *Euphrasia* Pugsley: subsect. *Ciliatae* Jørgensen (Lectotype: *E. scottica* Wettst.) Yeo:
subsect. *Ciliatae* Jørgensen.
Series *Euphrasia* Pugsley: series *Hirtellae* Pugsley (Type: *E. hirtella* Jordan ex Reuter) Yeo:
series *Grandiflorae* Wettst. (Lectotype: *E. rostkoviana* Hayne)

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