DACTYLORHIZA NEVSKI, THE CORRECT GENERIC NAME OF THE DACTYLORCHIDS

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ABSTRACT

The correct generic name for the dactylorchids (marsh and spotted orchids) is shown to be *Dactylorhiza* Nevski. A list of species of *Dactylorhiza* is given and the subspecies occurring in the British Isles are indicated. Several new combinations at specific and subspecific rank and five new bigeneric hybrid formulae are published for the first time.

In his *Species Plantarum* (939–944, 1753) Linnaeus divided the genus *Orchis* into three parts based on the morphology of the roots, namely: *Bulbis indivisis*, *Bulbis palmatis* and *Bulbis fasciculatis*. Some time later, Necker, in his *Elementa Botanica* (**3**, 129, 1790), raised these groups to generic level although he actually used the category name 'species naturalis' for them. *Orchis* L. was retained for *Bulbis indivisis* whilst *Bulbis palmatis* and *Bulbis fasciculatis* became *Dactylorhiza* Necker.

The next important treatment of the genus was by Klinge, in 1898 (*Acta Hort. Petrop.* **17**, 148). He recognized two subgenera, namely *Eu-orchis*, into which he placed the Linnaean *Bulbis indivisis*, and *Dactylorchis* which included *Bulbis palmatis*. This classification was adopted by many later workers, but in 1935, Nevski, in his account of the *Orchidaceae* for the *Flora URSS*, substituted Necker's name *Dactylorhiza* for the second of Klinge's subgenera on the ground that it was earlier than *Dactylorchis* Klinge. Nevski also seems to have excluded Linnaeus's *Bulbis fasciculatis*, at least by implication.

Two years later, however, Nevski evidently decided that the two subgenera were better treated as distinct genera and adopted the generic name *Dactylorhiza*, making a new combination, *D. umbrosa* (Kar. et Kir.) Nevski (*Acta Inst. Bot. Acad. Sci. URSS* ser. 1, **4**, 332, 1937). This generic name is obviously based on *Orchis* subgen. *Dactylorchis* Klinge although naturally Nevski attributed it to Necker.

Ten years later still, in 1947, Vermeulen published his well-known *Studies on Dactylorchids* in which he raised Klinge's subgenus *Dactylorchis* to generic rank as *Dactylorchis* Vermeul., making many of the necessary new combinations. In this book, Vermeulen quite arbitrarily dismissed the name *Dactylorhiza* as not being a synonym of *Dactylorchis* because the two concepts were not co-extensive. It is true that *Dactylorchis* is not identical with *Dactylorhiza* as understood by Necker but this does not preclude the two names from being synonymous. Vermeulen evidently overlooked Nevski's use of the name *Dactylorhiza* in its narrower sense, which was identical with his concept of *Dactylorchis*.

Unfortunately, owing to the relative obscurity of Nevski's publication contrasted with the obviously wide distribution of Vermeulen's book, the generic name *Dactylorchis* has been adopted by some botanists whereas *Dactylorhiza* was almost completely ignored until 1959. In that year Bullock (*Taxon* **8**, 46) in a paper recommending the rejection of Necker's names, cited the case of *Dactylorhiza* versus *Dactylorchis* as an example of the possible confusion arising if this course were not taken.

Necker's names were arbitrarily designated as unitary specific names and rejected under article 20 of the International Code of Botanical Nomenclature in 1959 but this does not affect the legitimacy of Nevski's use of the name. *Dactylorhiza* Nevski is validated by reference to Necker's *description* which was effectively published and by reference to *Orchis* L. subgenus *Dactylorchis* Klinge which also is accompanied by a description.

Although Nevski was wrong in using the name *Dactylorhiza* at subgeneric level he was

quite in order when using it for a genus. The correct generic name for the group of *Orchis* designated by Klinge as subgenus *Dactylorchis* is therefore *Dactylorhiza* Necker ex Nevski (or simply *Dactylorhiza* Nevski) which has ten years' priority over *Dactylorchis* Vermeul.

The first worker to follow Nevski was Borsos (*Acta Bot. Acad. Sci. Hung.* **5**, 321, 1959) in her "*Dactylorchis fuchsii* et son affinité dans les flores Hongroise et Carpathique". She dealt with the names *Dactylorhiza* and *Dactylorchis* and pointed out that *Dactylorhiza* has priority. She then made several new combinations but unfortunately stated that they were intended to be valid in both *Dactylorhiza* and *Dactylorchis*. This is contrary to article 34 of the Code and consequently none of her names can be accepted as validly published in either genus.

The next year, 1960, Soó summed up the situation to date in his "Synopsis Generis *Dactylorhiza* (*Dactylorchis*)" (*Ann. Univ. Sci. Budap. de Rolando Eötvös nom. sect. Biol.* **3**, 335) and made many new combinations in *Dactylorhiza*. Although he clearly accepts *Dactylorhiza* as the correct name he thinks that as *Dactylorchis* has been used by a number of authors it should be conserved.

Unfortunately many of these new combinations do not comply with article 33 of the Code which states that a new combination or a new name is not validly published unless the basionym is clearly indicated with a full and direct reference to its author and original place of publication, including page reference and date. Soó was informed by us of this error and in 1962 he published a separate paper entitled "Nomina Nova Generis *Dactylorhiza*" in order to validate his new combinations and new names.

There seems to be little doubt, in view of the evidence from both morphological and cytological studies and the incidence of hybridization in nature, that Nevski, Vermeulen, Borsos, Soó and others are correct in considering the dactylorchids to belong to a genus distinct from *Orchis* proper which is typified by *O. militaris* L. and contains species such as *O. mascula* (L.) L. The dactylorchids are readily distinguishable by their foliaceous bracts (*Orchis* proper usually has chaffy, membranous bracts), hand-like (palmate) tubers (testicle-like in *Orchis*) and basic chromosome number of 20 (*Orchis* $n = 16$, 18 or 21). The general habit is also different in the two groups, the developing inflorescence in *Orchis* proper being covered by the spathe-like uppermost stem bract until just before the buds open, whereas in the marsh and spotted orchids the apical flower buds of the inflorescences are exposed as soon as the spike appears above ground.

In order to emphasize our acceptance of the existence of a separate genus for the marsh and spotted orchids and of the correct name, *Dactylorhiza*, for this genus, we repeat here the new combinations of all the species that Soó recognizes in *Dactylorhiza*. We are not, however, expressing any opinions as to the status of any of the taxa that do not occur in Britain, nor do we agree entirely with the details of his classification. For various reasons we have found it necessary to make some new combinations ourselves; these include cases where Soó has still not made the combinations in a valid manner. With regard to the British species, which are indicated by asterisks, we have added what we consider to be the subspecies occurring in Britain. We do not think that it is possible at present to recognize varieties in the British species of *Dactylorhiza*. The taxonomic positions of *Orchis francis-drucei* Wilmott and of *Dactylorchis majalis* subsp. *cambrensis* Roberts are not yet clear and we have therefore omitted them from this account.

We also give a synonymy of the names used in the *Flora of the British Isles* by Clapham, Tutin & Warburg, edition 1, 1952 (abbreviated as CTW) and in the *List of British Vascular Plants* by Dandy, 1958 (abbreviated as DANDY). We add those of the *Flora of the British Isles* CTW, edition 2, 1962, where the nomenclature or taxonomy differs from that of Dandy. In all these cases we quote the author citations of these synonyms as given in the books cited.

1. DACTYLORHIZA IBERICA (M. Bieb.) Soó.
2. DACTYLORHIZA SAMBUCINA (L.) Soó.
3. DACTYLORHIZA ROMANA (Seb. & Maur.) Soó.

4. *DACTYLORHIZA INCARNATA (L.) Soó.
   Dactylorchis incarnata (L.) Vermeul. DANDY 643/3.
   Orchis strictifolia Opiz CTW.
   (*a*) subsp. INCARNATA
   Dactylorchis incarnata (L.) Vermeul. subsp. *incarnata* DANDY 643/3/a.
   Dactylorchis incarnata (L.) Vermeul. subsp. *gemmana* (Pugsl.) H.-Harrison f. DANDY 643/3/e.
   (*b*) subsp. **ochroleuca** (Boll.) P. F. Hunt & Summerh., **comb. nov.**
   Orchis incarnata subsp. *ochroleuca* (Boll.) Schwarz. Mittel. Thüring. Bot. Ges. **1** (1), 94 (1949).
   Orchis incarnata L. var. *ochroleuca* Boll. Arch. Ver. Nat. Meckl. 14, 307 (1860).
   Dactylorchis incarnata (L.) Vermeul. subsp. *ochroleuca* (Boll.) H.-Harrison f. DANDY 643/3/d.
   (*c*) subsp. PULCHELLA (H.-Harrison f.) Soó.
   Dactylorchis incarnata (L.) Vermeul. subsp. *pulchella* (Druce) H.-Harrison f. DANDY 643/3/b.
   Orchis strictifolia Opiz subsp. *strictifolia* var. *pulchella* (Druce) Clapham CTW.
   (*d*) subsp. COCCINEA (Pugsl.) Soó.
   Orchis latifolia L. var. *coccinea* Pugsley. J. Linn. Soc. Bot. 49, 578 (1935).
   Dactylorchis incarnata (L.) Vermeul. subsp. *coccinea* (Pugsl.) H.-Harrison f. DANDY 643/3/c.
   Orchis strictifolia Opiz subsp. *coccinea* (Pugsl.) Clapham CTW.
5. *DACTYLORHIZA CRUENTA (O.F. Muell.) Soó.
   Dactylorchis incarnata (L.) Vermeul. subsp. *cruenta* (O.F. Muell.) Vermeul. DANDY 643/3/d.
   Orchis cruenta O.F. Muell. CTW.
6. DACTYLORHIZA PSEUDOCORDIGERA (Neum.) Soó.
7. DACTYLORHIZA SALINA (Turcz.) Soó.
8. DACTYLORHIZA SANASUNITENSIS (Fleisch.) Soó.
9. **Dactylorhiza cilicica** (Klinge) P. F. Hunt & Summerh., **comb. nov.**
   Orchis cilicica (Klinge) Schltr. Feddes Rep. Sonderbeih. A, **1**, 178 (1927).
   Orchis orientalis Klinge subsp. *cilicica* Klinge in Acta Hort. Petrop. **17** (1) 36, (1898).
10. **Dactylorhiza kotschyi** (Rchb.f.) P. F. Hunt & Summerh., **comb. nov.**
    Orchis kotschyi (Rchb.f.) Schltr. in Fedde Rep. **19**, 48 (1923).
    Orchis incarnata L. var. *kotschyi* Rchb.f. in Orch. Fl. Germ. Recens. 53 (1851).
11. **Dactylorhiza osmanica** (Klinge) P. F. Hunt & Summerh., **comb. nov.**
    Orchis osmanica (Klinge) G. Camus in Icon. Orch. Europ. 222 (1929).
    Orchis orientalis Klinge subsp. *osmanica* Klinge in Acta Hort. Petrop. **17**(1), 188 (1898).
12. DACTYLORHIZA UMBROSA (Kar. & Kir.) Nevski.
13. DACTYLORHIZA PERSICA (Schltr.) Soó.
14. DACTYLORHIZA GRAGGERIANA (Soó) Soó.
15. DACTYLORHIZA HATAGIREA (Don) Soó.
16. **Dactylorhiza majalis** (Rchb.) P. F. Hunt & Summerh., **comb. nov.**
    Orchis majalis Rchb. in Pl. Crit. **6**, 7 (1828).

Although there have been many papers dealing with the supposed identity of *Orchis latifolia* L., no universally accepted decisions have been reached. At some time or another the three entities we now call *D. incarnata*, *D. praetermissa* and *D. majalis* have been variously referred to *O. latifolia* L., together with less well known species. On careful

consideration of the evidence we agree with many taxonomists that *O. latifolia* L. is best looked upon as a *nomen confusum* and therefore to be disregarded (Art. 69). Soó, however, uses *Dactylorhiza latifolia* for what we here call *Dactylorhiza majalis*. Three other names published between *O. latifolia* L. (1753) and *O. majalis* Rchb. (1828) have been quoted in the major monographs as synonyms of *O. latifolia*. Vermeulen and others who have accepted *majalis* in preference to *latifolia* have not, however, stated why they did not use any of the above mentioned synonyms. We have therefore looked into these names with the following results:

(i) *Orchis comosa* Scop. Fl. Carn. ed. 2, **2**, 198 (1772).

This is based on Bauhin's *Palmata vilissima* (Hist. Plant. Univ. **2**, 776 (1651)). The identity of this plant is very doubtful but it may possibly be equal to *Dactylorhiza latifolia* (L.) Soó subsp. *alpestris* (Pugsl.) Soó, which, however, may prove to be distinct from *D. majalis* proper.

(ii) *Orchis palmata* Gilib. Exercit. Phytol. **2**, 479 (1792).

This is not a binomial name, being given as *Orchis palmata rubra nectarii labio maculato*. The great majority of names in this book consist of two words but these are to be regarded as abbreviated phrase names and not Linnaean binomials.

(iii) *Orchis fistulosa* Moench, Meth. 713 (1794).

In this case *Orchis latifolia* L. is given as a synonym; *O. fistulosa* is therefore illegitimate.

From the above it is clear that no one of the above three names can be used and we are consequently adopting the epithet *majalis* since it is the earliest legitimate one which can be identified unequivocally.

17. ***Dactylorhiza kerryensis** (Wilmott) P. F. Hunt & Summerh., **comb. nov.**
    Orchis kerryensis Wilmott in Proc. Linn. Soc. Lond. Sess. 148, 126 (1936).
    Dactylorchis majalis (Rchb.) Vermeul. subsp. *occidentalis* (Pugsl.) H.-Harrison f. Dandy 643/6.
    Orchis occidentalis Pugsl. subsp. *kerryensis* (Wilmott) Clapham CTW.
18. Dactylorhiza cordigera (Fries) Soó.
19. Dactylorhiza cataonica (Fleisch.) Holub. Preslia **36**, 252 (1964).
    Orchis cataonica Fleisch. in Ann. Nat. Hofmus. Wien **28**, 34 (1914).
    Orchis caucasica (Klinge) Medvyedev. Acta Hort. Tiflis **18**, 271 (1926), non Regel (1809).
    Orchis cordigera Kraenzl. Fedde Rep. Beih. **65**, 39 (1931), non Fries (1842).
    Orchis euxina Nevski in Komarov F. URSS **4**, 709 (1935).

Dactylorhiza euxina (Nevski) Soó and *D. caucasica* (Medvyedev) Soó were simultaneously published as alternative interchangeable names for this concept in 'Nomina nova generis *Dactylorhiza*'. According to Article 34 of the Code both must be regarded as not validly published. Soó, although including *Orchis cataonica* as a synonym of this concept and making it a variety, overlooked the fact that it is the earliest available specific epithet.

20. *Dactylorhiza praetermissa (Druce) Soó.
    Dactylorchis praetermissa (Druce) Vermeul. Dandy 634/4.
    Orchis praetermissa Druce CTW.
21. *Dactylorhiza purpurella (T. & T.A. Steph.) Soó.
    Dactylorchis purpurella (T. & T.A. Steph.) Vermeul. Dandy 643/5.
    Orchis purpurella T. & T.A. Steph. CTW.
22. Dactylorhiza aristata (Fischer ex Lindl.) Soó.
23. Dactylorhiza lapponica (Laestad. ex Rchb. f.) Soó.
24. *Dactylorhiza traunsteineri (Sauter) Soó.
    Dactylorchis traunsteineri (Sauter) Vermeul. Dandy 643/7.
    Orchis traunsteinerioides (Pugsl.) Pugsl. CTW.
25. Dactylorhiza elata (Poir.) Soó.
26. Dactylorhiza foliosa (Vermeul.) Soó.

27. *DACTYLORHIZA MACULATA (L.) Soó.
Dactylorchis maculata (L.) Vermeul. DANDY 643/2.
(*a*) subsp. **ericetorum** (Linton) P. F. Hunt & Summerh., **comb. nov.**
Orchis maculata L. subsp. *ericetorum* Linton in Fl. Bournemouth 208 (1900).
Dactylorchis maculata (L.) Vermeul. subsp. *ericetorum* (Linton) Vermeul. DANDY 643/2/b.
Orchis ericetorum Linton CTW.
(*b*) subsp. RHOUMENSIS (H.-Harrison f.) Soó.
Dactylorchis maculata (L.) Vermeul. subsp. *rhoumensis* (H.-Harrison f.) H.-Harrison f. DANDY 643/2/a.
Dactylorchis fuchsii (Druce) Vermeul. subsp. *rhoumensis* (H.-Harrison f.) Clapham CTW ed. 2.
Orchis fuchsii Druce subsp. *rhoumensis* H.-Harrison f. CTW ed. 1.
28. DACTYLORHIZA SACCIFERA (Brongn. ex Bory) Soó.
29. *DACTYLORHIZA FUCHSII (Druce) Soó.
Dactylorchis fuchsii (Druce) Vermeul. DANDY 643/1.
(*a*) subsp. FUCHSII.
Dactylorchis fuchsii (Druce) Vermeul. subsp. *fuchsii* DANDY 643/1/a.
Orchis fuchsii Druce CTW.
(*b*) subsp. OKELLYI (Druce) Soó.
Dactylorchis fuchsii (Druce) Vermeul. subsp. *okellyi* (Druce) Vermeul. DANDY 643/1/b.
Orchis okellyi Druce CTW in obs.
(*c*) subsp. HEBRIDENSIS (Wilmott) Soó.
Dactylorchis fuchsii (Druce) Vermeul. subsp. *hebridensis* (Wilmott) H.-Harrison f. DANDY 643/1/c.
Orchis fuchsii Druce subsp. *hebridensis* (Wilmott) Clapham CTW.

BIGENERIC HYBRIDS

We are taking this opportunity of publishing some bigeneric hybrid names in which *Dactylorhiza* is one of the parent genera. In our opinion such hybrid names should be regarded as mere formulae and no descriptions should be needed for validation, which is effected solely by stating the parent genera concerned. Being formulae and therefore not tied to the rules of priority (except that when the same two generic names have been combined in various ways the earliest ought to be chosen), hybrid generic names should be altered whenever the generic position of one or other of the parent species alters. This should not, however, apply if the change is merely nomenclatural but this question does not arise here as we know of no bigeneric names formed with the name *Dactylorchis* used for one parent.

The necessary new formulae consequent upon accepting the genus *Dactylorhiza* are as follows:

1. ×**Dactylocamptis** P. F. Hunt & Summerh. (*Dactylorhiza* × *Anacamptis* L. C. Rich.)
Orchis L. can also cross with *Anacamptis*; these are called × *Anacamptorchis* G. Camus 1892 (syn. × *Orchidanacamptis* Labrie 1927)
2. ×**Dactyloglossum** P. F. Hunt & Summerh. (*Dactylorhiza* × *Coeloglossum* Hartm.)
Orchis L. is not known to cross with *Coeloglossum*; previous names applied to hybrids referable to × *Dactyloglossum* are × *Coeloglossorchis* Guétrot 1927, × *Orchicoeloglossum* Aschers. et Graebn. 1907 and × *Habenariorchis* Rolfe 1892.
3. ×**Dactylitella** P. F. Hunt & Summerh. (*Dactylorhiza* × *Nigritella* L. C. Rich.)
Orchis L. is not known to cross with *Nigritella*; a previous name for hybrids referable to × *Dactylitella* is × *Nigrorchis* Godfery 1925.

4. ×**Rhizanthera** P. F. Hunt & Summerh. (*Dactylorhiza*×*Platanthera* L. C. Rich.)
   Orchis L. is not known to cross with *Platanthera*; an earlier name for the hybrids referred to ×*Rhizanthera* is ×*Orchiplatanthera* G. Camus.
5. ×**Orchidactyla** P. F. Hunt & Summerh. (*Dactylorhiza*×*Orchis* L.)

At the species level Soó has made all the necessary new combinations in *Dactylorhiza* for the various interspecific hybrids occurring in Britain. We do not propose to deal with these here as we are not certain that the correct epithet has been used in each case.