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Typification of 20 names in Orchidaceae of the Russian flora

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Summary. The article represents the typification of 20 names of orchids from the Flora of Russia. The typified names in the current use are the following: *Goodyera henryi, Orchis comperiana* (basionym for *Himantoglossum comperianum*)*, Orchis salina* (basionym for *Dactylorhiza salina*), and *Listera nipponica* (basionym for *Neottia nipponica*). Other typified names represent synonyms, which are assertained by the types provided here: *Calypso japonica*, *Gymnadenia conopsea* var. *alpina, G. conopsea* var. *ussuriensis, G. pauciflora, Listera eschscholziana, L. yatabei, Malaxis diphyllos, Neottia nidus-avis* var. *manshurica, Orchis incarnata* var. *knorringiana, O. monticola* subsp. *caucasica, O. orientalis* subsp. *turcestanica, O. punctulata* var. *sepulchralis, O. salina* f. *elatior, O. taurica, O. viridifusca, Platanthera tipuloides* var. *sibirica*.

Типификация 20 названий орхидных (Orchidaceae) флоры России

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Ключевые слова: лектотип, номенклатура, номенклатурный синоним, орхидные, Россия.

Аннотация. В статье представлены лектотипы для 20 названий орхидных флоры России. Типифицированы следующие принимаемые в настоящее время названия: *Goodyera henryi, Orchis comperiana* (базионим *Himantoglossum comperianum*), *Orchis salina* (базионим *Dactylorhiza salina*) и *Listera nipponica* (базионим *Neottia nipponica*). Остальные типифицируемые названия являются синонимами, что закрепляется предложенными в настоящей статье типами: *Calypso japonica, Gymnadenia conopsea* var. *alpina, G. conopsea* var. *ussuriensis, G. pauciflora, Listera eschscholziana, L. yatabei, Malaxis diphyllos, Neottia nidus-avis* var. *manshurica, Orchis incarnata* var. *knorringiana, O. monticola* subsp. *caucasica, O. orientalis* subsp. *turcestanica, O. punctulata* var. *sepulchralis, O. salina* f. *elatior, O. taurica, O. viridifusca, Platanthera tipuloides* var. *sibirica*.

In the course of the revision of the Orchidaceae for the Flora of Russia, associated with its mapping. I came across some names in Orchidaceae lacking typifications. The search for their authenthic material was undertaken both in the Russian and in foreign herbarium collections and revealed that at least 20 names deserved lectotypifications. These typifications are designated in this article. Four of them provide type specimens for the names in the current use (*Dactylorhiza salina*, *Himantoglossum comperianum*, *Gymnadenia henryi* and *Neottia nipponica*).

Typified name is always given at the first place in every paragraph. The names are arranged in alphabetic order, accepted names are shown in bold. The residual syntypes are normally not cited, but isolectotypes are always mentioned, if any. Synonyms are given only if they represent names which were widely used, or if they visualize relationships of the taxa.

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1. *Calypso japonica* Maxim. ex Kom. 1901, Trudy Imp. S.-Peterburgsk. Bot. Sada 20: 533. Lectotype (designated here): “Japonia, Nippon, Fudziyama. 1864. Tschonoski” (LE 1012254!, iso – LE 1012252, LE 1012253!, K 943525!). = ***Dactylostalix ringens*** Rchb. f.

2. ***Goodyera henryi*** Rolfe 1896, Bull. Misc. Inform. Kew 1896: 201. Lectotype (designated here): “Central China, Prov. Hupeh, Ichang. I 1891. A. Henry, 6878” (K 79089!, iso – K 79088!, GH 90579!, NY 8857!).

This species in Russian literature is most widely known under the name *Goodyera maximowicziana* Makino.

3. *Gymnadenia conopsea* var. *alpina* Turcz. 1854, Bull. Soc. Nat. Moscou 27, 3: 83. ≡ *G. alpina* (Turcz.) Czerep. 1981, Sosud. Rast. SSSR: 310, nom. illeg., non Rouy 1812. ≡ *G. conopsea* subsp. *alpina* (Turcz.) Janchen ex Sóo 1969, Ann. Univ. Budapest, Biol. 11: 60. Lectotype (designated here): [Russia, Republic of Buryatia] “in paludosis alpis prope limites Chinenses ex adverso Mondy. Turcz[aninow]” (LE 01040775!). Residual syntypes: LE 01040786!, 01029446!, 01040778!, 01040799! = ***Gymnadenia conopsea*** (L.) R. Br. s. l.

Given that the authorship of *Gymnadenia conopsea* var. *alpina* was earlier unanimously ascribed to Reichenbach (“Turcz. ex Rchb. f. 1851, Ic. Fl. Germ. 13–14: t. 73”), the legitimacy of two combinations made after it may be questioned as required by the Art. 41.8(a) of the Code of Botanical Nomenclature. However, both combinations are legitimate, because Reichenbach: 1) fulfilled conditions for valid publication of the name (by the publication of analytical drawing in accordance with Art. 38.7–38.9), and 2) gave no reference, whether direct or indirect, to the place where this name was legitimely published (reference to Turczaninow on the pages 114 and 115 addresses not to the literature, but to the herbarium). All type specimens of var. *alpina* simultaneously represent authentic material for the name *G. sibirica* Turcz. ex Lindl. This change of the authorship of var. *alpina* leads to the shift in the interpretation of this taxon as an Asiatic element, not a European one. Molecular data for *Gymnadenia* (Trávníček et al., 2012; Efimov, 2013) may be interpreted in the way that in this genus, unknown cryptic taxa exists. Correspondingly, dwarf plants from high altitudes or high latitudes, insufficiently covered by modern studies, theoretically may belong to cryptic species, and it is important to apply the names correctly. For instance, Valuiskych and Teteryuk (2016) have recently shown by AFLP method that a special taxon exists in the Komi Republic, growing aside with the widespread *G. conopsea*, and already proposed to use name ‘var. *alpina’* for it. Importantly, *G. conopsea* var. *alpina* Turcz. shouldn’t be confused with its later homonym *G. conopsea* f. *alpina* Beck 1890, Fl. Nieder-Österreich 1: 210, nom. illeg., which is based on different original material from Europe (PRC 452275!, PRC 452276!).

4. *Gymnadenia conopsea* var. *ussuriensis* Regel, 1861, Tent. Fl. Ussur.: 474. Lectotype (designated here): [Russia, Primorye Territory] “Sumur Gebirge, Уссури у Сумурских гор. 1859. Р. К. Маак” (LE 1032874!). = ***Gymnadenia conopsea*** (L.) R. Br. s. l.

Both *Gymnadenia sibirica* and *G. conopsea* var. *ussuriensis* represent a broad-leaved form of this species, which is widely distributed in the Far East Russia and Siberia. Molecular studies (based for this entity on the only four specimens) have shown that this taxon undoubtedly belongs to *G. conopsea* s. l., but it is characterized by 3 stable differences in the sequence of ITS allele from European plants (Efimov, 2013). This fact suggests some possibility that it represents a separate taxon, which should be then named *G. sibirica.* From the other hand, those substitutions can represent solely another allelic composition of the plants from the Asiatic part of Russia. This taxonomic problem, which also applies to var. *alpina* (see above), deserves further studies.

5. *Gymnadenia pauciflora* Lindl. 1835, Gen. Sp. Orchid. Pl.: 280. ≡ *Ponerorchis pauciflora* (Lindl.) Ohwi 1936, Acta Phytotax. Geobot. 5: 145. ≡ *Chusua secunda* Nevski 1935, Fl. URSS 4: 753, nom. illeg. ≡ *Orchis secunda* (Nevski) Vorosch. 1966, Fl. Sovetsk. Dal'n. Vost.: 130. Lectotype (designated here): [Russia] “e Dahuria. 17” (K-LINDL!). = ***Ponerorchis chusua*** (D. Don) Soó.

The lectotype was originally determined as *Orchis pauciflora* by Fisher, that corresponds to the protologue.

6. *Listera eschscholziana* Cham. et Schltdl. 1828, Linnaea 3: 33. Lectotype (designated here): [USA, Alaska] “Unalashka. Eschscholtz” (LE 11150!, possible iso – LE 11151!, LE 11148!, H 1491640!). = ***Neottia convallarioides*** (Sw.) Rich.

Before the genus *Listera* was combined with *Neottia*, this species was widely known under the name *Listera convallarioides* (Sw.) Nutt. Correct determination of the type category (syntype / isotype)

for possible isotypes cited above is problematic, because the labels differ in details. Possible isotypes in LE each consist of several groups of plants with their own herbarium labels.

7. *Listera nipponica* Makino, 1905, Bot. Mag. (Tokyo) 19: 9. ≡ ***Neottia nipponica*** (Makino) Szlach. 1995, Fragm. Florist. Geobot., Suppl. 3: 118. Lectotype (designated here): [Japan] "prov. Shinano, mt. Yatsugatake. 19 VIII 1902. Y. Yabe, 94" (TI!).

In the herbarium of Tokyo University, there are several original herbarium specimens of *Listera nipponica.* The gathering by Yabe, cited above, is represented by two duplicates. The specimen which is designated here as a lectotype, can be distinguished by the presence of original Japanese herbarium label, by the English translation of herbarium label, and by the number '19'.

8. *Listera yatabei* Makino, 1905, Bot. Mag. (Tokyo) 19: 8. Lectotype (designated here): [Japan] "prov. Shinano, mt. Ondake. 27 VII 1880. R. Yatabe" (TI!). = ***Neottia puberula*** (Maxim.) Szlach.

This species was widely known under multiple names, including *Listera savatieri* Maxim. ex Kom., *L. major* Nakai, *L. pinetorum* auct. Details regarding the taxonomy of this species were discussed in a special paper (Efimov, 2019). Unfortunately, both herbarium specimens suitable for typification have no flowers except for 3–5 flower buds. The description of the taxonomically most important features of the flower in the protologue was largely based on the specimen, which is designated here as lectotype, because the other one, a residual syntype (22 VII 1895. J. Matsumura, 57 – TI!), originally had no normally developed flowers, as it is stated on its label.

9. *Malaxis diphyllos* Cham. 1828, Linnaea 3: 34. ≡ *M. monophyllos* f. *diphyllos* (Cham.) Soó, 1969, Ann. Univ. Sci. Budapest. Rolando Eötvös, Sect. Biol. 11: 73. ≡ *M. monophyllos* var. *diphyllos* (Cham.) Luer, 1975, Native Orchids U. S. and Canada excluding Florida: 306. Lectotype (designated here): [USA, Alaska] "Unalaschka. Eschscholtz" (LE 1107104!, possible iso – LE 1107106!). = ***Malaxis monophyllos*** (L.) Sw.

This is a bifoliate form of *Malaxis monophyllos*, which was earlier widely accepted in taxonomical studies. I think it does not merit any taxonomic status.

10. *Neottia nidus-avis* var. *manshurica* Kom. 1901, Trudy Imp. S.-Peterburgsk. Bot. Sada 20: 528. Lectotype (designated here): [Russia, Jewish Autonomous region] "Flora Amurensis, Буреинские горы, на перевале между Любавинским прииском и долиной Бушумной речки, в пихтовых и кедровых лесах. 16 VI 1895. В. Л. Комаров" (LE 1034303!). = ***Neottia papilligera*** Schltr.

Neottia papilligera is only scarcely distinguishable from *N. nidus-avis* and may be regarded as its subspecific taxon. The type specimens of var. *manshurica* (both lectotype and residual syntype) have a monstrosity in the lip shape: lip is not bilobed as in normal plants but has 4 lobes (each lobe is further divided into two additional lobes). Such abnormality occurs occasionally along distribution area of both *N. papilligera* and *N. nidus-avis*.

11. *Orchis comperiana* Steven 1829, Nouv. Mém. Soc. Imp. Naturalistes Moscou 1: 259. ≡ *Comperia taurica* K. Koch, 1849, Linnaea 22: 288, nom. illeg. ≡ *C. comperiana* (Steven) Asch. et Graebn. 1907, Syn. Mitteleur. Fl. 3: 620. ≡ ***Himantoglossum comperianum*** (Steven) P. Delforge, 1999, Naturalistes Belges 80: 401. Lectotype (designated here): [Russia, Republic of Crimea] "in litore merid. Tauriae, Laspi. Compere" (LE 1107792!, possible iso – LE 1107791!, LE 1107794!, P 2077982!, P 2115224!, ?K).

Protopopova et al. (2017) stated incorrectly that this species was typified in "Flora of Turkey" (Renz, Taubenheim, 1984).

12. *Orchis incarnata* var. *knorringiana* Kraenzl. 1931, Feddes Repert. Beih. 65: 34. ≡ *Dactylorhiza knorringiana* (Kraenzl.) Ikonn. 1970, Novit. Syst. Pl. Vasc. 6: 267. Lectotype (designated here): [Kyrgyzstan] "Ферг. обл., Ошский у., заливной луг вдоль р. Кызыл-су. 29 VI 1913. О. Э. фон-Кнорринг 642" (LE 1109425!, iso – LE 1109426!). = ***Dactylorhiza salina*** (Turcz. ex Lindl.) Soó s. l.

Dactylorhiza knorringiana is sometimes recognized as separate taxon (Averyanov, 1988).

13. *Orchis monticola* subsp. *caucasica* Klinge, 1898, Trudy Imp. S.-Peterburgsk. Bot. Sada 17(1): 155, 181. ≡ *O. cordigera* var. *caucasica* (Klinge) Klinge in Lipsky, 1899, Fl. Cauc. Impr. Colch.: 306. Lectotype (designated here): [Russia, Republic of Daghestan] "Caucasus, Burtunai, 5000', basalalpin. 10 (22) VI 1894. G. Radde et K. 626" (LE 1038324!). = ***Dactylorhiza euxina*** (Nevski) Czer.

14. *Orchis orientalis* subsp. *turcestanica* Klinge, 1898, Trudy Imp. S.-Peterburgsk. Bot. Sada 17(1): 183. ≡ *O. turcestanica* (Klinge) Klinge ex B. Fedtsch. 1908, Russk. Bot. Zhurn.: 191. Lectotype (designated here): [Tajikistan] "Serawschan-Gebiet: Sänturutsch am W Flüße der Kschtut-Passer zum See Kul-i-Kalan, 8-9000'. 26 VI 1882. A. Regel" (LE 1109427!, iso (10 sheets) – LE 1109428–1109437!). = ***Dactylorhiza salina*** (Turcz. ex Lindl.) Soó s. l.

Klinge (1898) invented a very detailed classification of Dactylorchids, having divided species into subspecies, varieties and forms. The lectotype designated here was marked by him "var. *genuina*", which means that he considered it as belonging to the nominative variety of the subsp. *turcestanica*.

Taxonomically, *Orchis orientalis* subsp. *turcestanica* falls into the *Dactylorhiza salina* species aggregate, which is highly polymorphic and may be further taxonomically subdivided. Presently I formally treat the whole aggregate as one species. All original material of *Orchis orientalis* subsp. *turcestanica* (which is quite abundant in LE) morphologically stands very close to the type specimen of *D. umbosa*, a species which is very often recognized as a distinct species. For example, Averyanov (1988) synonymizes *Orchis orientalis* subsp. *turcestanica* with *Dactylorhiza umbosa*.

15. *Orchis punctulata* var. *sepulchralis* Rchb. f. 1851, Ic. Fl. Germ. Helv. 13–14: 27. ≡ *O. sepulchralis* (Rchb. f.) Boiss. et Heldr. in Boiss. 1854, Diagn. Pl. Orient. Ser. 1, 13: 10. ≡ *O. punctulata* subsp. *sepulchralis* (Rchb. f.) Soó, 1927, Repert. Spec. Nov. Regni Veg. 24: 28. Lectotype (1st step: Averyanov, 1994: 121; 2nd step: designated here): [Turkey] "Avalia inter Sepulchra Turcica. III 1845. Heldreich" (LE 11066!). Isotypes: LE11097!, JE 11345! etc. = ***Orchis punctulata*** Steven ex Lindl.

16. *Orchis salina* Turcz. ex Lindl. 1835, Gen. Sp. Orch.: 259. ≡ ***Dactylorhiza salina*** (Turcz. ex Lindl.) Soó, 1962, Nom. nova Gen. Dactylorhiza: 4. Lectotype (designated here): [Russia, Republic of Buryatia] "in locis subsalsis prope pagum Uburun. 1829. Turcz[aninow]" (K 364201!, iso – LE 1010840!, LE 1010841!, LE 1010842!, ?P 389931!).

The earlier typification by Averyanov (1983: 894) is incorrect because the specimen he designated as lectotype was not cited in the protologue.

17. *Orchis salina* f. *elatior* Serg. 1929, Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva 1: 4. Lectotype (designated here): [Russia, Republic of Altai] "Алтай, долина р. Архыт, между рр. Ядыгем и Тополевка. 26 VI 1897. В. Сапожников" (TK!). = ***Dactylorhiza salina*** (Turcz. ex Lindl.) Soó.

The lectotype is selected among several authentic specimens, which are currently kept in the herbarium TK.

18. *Orchis taurica* Lindl. 1835, Gen. Sp. Orch.: 271. Lectotype (designated here): "crescit in Tauriae et Caucasi nemorosis. 36" (K-LINDL!). = ***Orchis mascula*** (L.) L.

The cited lectotype originally belonged to the Bieberstein collection. It is stated in the protologue that Lindley obtained it via Prescott, and the Prescott's name is mentioned on the herbarium specimen.

19. *Orchis viridifusca* Albov, 1895, Prodr. Fl. Colch.: 229. Lectotype (1st step: Averyanov, 1994: 119; 2nd step: designated here): [Georgia] "Plantes de Transcaucasie, Mingrelie, Mt. Ourasch, pasturages alpius. 1893. N. Alboff 240" (G 176151!, iso – G 165906!). = ***Orchis spitzelii*** Saut. ex W. D. J. Koch.

Averyanov did not specify a specific sample out of the two. In the current second-step lectotypification, I make the choice in favor of the specimen which has more detailed label and the notes by Albov's hand, although another one is annotated as 'lectotype' in the herbarium.

20. *Platanthera tipuloides* var. *sibirica* Regel, 1861, Mém. Acad. Sci. Pétersb., ser. 7, 4, 4: 143. Lectotype (designated here): Reichenbach 1851, Ic. Fl. Germ. 13–14: t. 76, f. 1, 1–2 "*Platanthera tipuloides*". = ***Platanthera tipuloides*** (L. f.) Lindl. var. ***tipuloides***.

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REFERENCES / ЛИТЕРАТУРА

Averyanov L. V. 1983. The genus *Dactylorhiza* (Orchidaceae) in the USSR, 1. *Bot. Zhurn.* 68(7): 889–895. [In Russian] (***Аверьянов Л. В.*** Род *Dactylorhiza* (Orchidaceae) в СССР, 1 // Бот. журн., 1983. Т. 68, № 7. С. 889–895).

Averyanov L. V. 1988. Conspectus generis *Dactylorhiza* Neck. ex Nevski (Orchidaceae), 1. *Novosti sistematiki vysshikh rasteniy* [*Novit. Syst. Pl. Vasc.*] 25: 48–67 [In Russian] (***Аверьянов Л. В.*** Конспект рода *Dactylorhiza* Neck. ex Nevski (Orchidaceae), 1 // Новости сист. высш. раст., 1988. Т. 25. С. 48–67).

Averyanov L. V. 1994. Review of the species of the family Orchidaceae in the Caucasus Flora. *Bot. Zhurn.* 79(10): 108–127. [In Russian] (***Аверьянов Л. В.*** Обзор видов семейства Orchidaceae флоры Кавказа // Бот. журн., 1994. Т. 79, № 10. С. 108–127).

Efimov P. G. 2013. Sibling species of Fragrant Orchids (*Gymnadenia*: Orchidaceae, Magnoliophyta) in Russia. *Russ. J. Genet.* 49(3): 299–309. DOI: 10.1134/S102279541302004X

Efimov P. G. 2018. Additions to the orchidaceous part of the "Catalogues of the type specimens of the vascular plants" from Central and East Asia, Siberia and the Russian Far East kept in the Herbarium of the Komarov Botanical Institute (LE). *Novosti sistematiki vysshikh rasteniy* [*Novit. Syst. Pl. Vasc.*] 49: 42–50. [In Russian] (***Ефимов П. Г.*** Дополнительные материалы по семейству Orchidaceae Juss. (Орхидные) к Каталогам типовых образцов сосудистых растений Центральной и Восточной Азии, Сибири и российского Дальнего Востока, хранящихся в гербарии Ботанического института им. В. Л. Комарова РАН (LE) // Новости сист. высш. раст., 2018. Т. 49. С. 42–50). DOI: 10.31111/novitates/2018.49.42

Efimov P. G. 2019. Taxonomic notes on some photosynthetic species of *Neottia* (Orchidaceae) from North Temperate Asia. *Phytotaxa* 411(1): 84–88. DOI: 10.11646/phytotaxa.411.1.8

Klinge J. 1898. Die homo- und polyphyletischen Formenkreise der Dactylorchis-arten. *Acta Horti Petrop.* 17(2, 6): 1–80.

Protopopova V. V., Tymchenko I. A., Efimov P. G., Shevera M. V. 2017. Types of names of taxa of the family Orchidaceae described from the territory of Crimea. *Ukr. Bot. J.* 74(4): 326–333 [In Ukrainian] (***Протопопова В. В., Тимченко І. А., Єфимов П. Г., Шевера М. В.*** Типи назв таксонів родини Orchidaceae, описаних із території Криму // Укр. бот. журн., 2017. Т. 74, № 4. С. 326–333). DOI: 10.15407/ukrbotj74.04.326

Renz J., Taubenheim G. 1984. Orchidaceae. In: *Flora of Turkey and the East Aegean Islands*. Vol. 8. Edinburgh: Edinburgh University Press. Pp. 450–552.

Trávníček P., Jersáková J., Kubátová B., Krejčíková J., Bateman R. M., Lučanová M., Krajníková E., Těšitelová T., Štípková Z., Amardeilh J.-P., Brzosko E., Jermakowicz E., Cabanne O., Durka W., Efimov P., Hedrén M., Hermosilla C. E., Kreutz K., Kull T., Tali K., Marchand O., Rey M., Schiestl F. P., Čurn V., Suda J. 2012. Minority cytotypes in European populations of the *Gymnadenia conopsea* complex (Orchidaceae) greatly increase intraspecific and intrapopulation diversity. *Ann. Bot.* 110(5): 977–986.

Valuiskych O. E., Teteryuk L. V. 2016. Habitat, morphological and ontogenetic differentiation of *Gymnadenia conopsea* var. *alpina* Rchb. f. ex Beck. (Orchidaceae). In: *Ekologiaya: fakty, gipotezy, modeli* [*Ecology: Facts, hypotheses, models. Materials of the conference of young scientists 2016, April 11–15*]. Yekaterinburg: Institute of Plant and Animal Ecology Publishers. Pp. 13–21. [In Russian] (***Валуйских О. Е., Тетерюк Л. В.*** Экотопическая, морфологическая и онтогенетическая дифференциация *Gymnadenia conopsea* var. *alpina* Rchb. f. ex Beck. (Orchidaceae) // Экология: факты, гипотезы, модели: Материалы конф. молодых ученых (г. Екатеринбург, 11–15 апреля 2016 г.). Екатеринбург: ИЭРиЖ УрО РАН, 2016. С. 13–21).