

Typification of names published by P. S. Pallas in *Astragalus* and *Phaca*, now in genus *Oxytropis* sect. *Orobia* (Fabaceae)

Типификация названий астрагалов (*Astragalus*, *Phaca*), описанных П. С. Палласом, в настоящее время относящихся к секции *Orobia* рода *Oxytropis* (Fabaceae)

A. K. Sytin, V. V. Byalt, I. V. Sokolova*

Komarov Botanical Institute of the Russian Academy of Sciences
Herbarium of Higher Plants
Professora Popova Str., 2, St. Petersburg, 197022, Russia
asytin@binran.ru; vbyalt@binran.ru; isokolova@binran.ru

*Corresponding author

A. K. СЫТИН, В. В. БЯЛТ, И. В. СОКОЛОВА*

Ботанический институт им. В. Л. Комарова РАН
Гербарий высших растений
ул. Профессора Попова, 2, Санкт-Петербург, 197022, Россия
asytin@binran.ru; vbyalt@binran.ru; isokolova@binran.ru

*Автор для переписки

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Abstract. The original material used by P. S. Pallas in his descriptions of 7 species in the genus *Astragalus* L. and 1 species in *Phaca* L., all now classified within the genus *Oxytropis* DC. section *Orobia* Bunge, is analysed and discussed. The lectotypes of *Astragalus altaicus* Pall. (*Oxytropis altaica* (Pall.) Pers.), *A. argentatus* Pall. (*O. argentata* (Pall.) Pers.), *A. candicans* Pall. (*O. candicans* (Pall.) DC.), *A. grandiflorus* Pall. (*O. grandiflora* (Pall.) DC.), *A. songaricus* Pall. (*O. songarica* (Pall.) DC.), *A. spicatus* Pall. (*O. spicata* (Pall.) O. Fedtsch. et B. Fedtsch.), *Phaca sylvatica* Pall. (*O. sylvatica* (Pall.) Willd.), and the epitype of *Astragalus spicatus* (*O. spicata*) are designated.

Keywords: *Astragalus*, *Phaca*, *Oxytropis*, section *Orobia*, *Fabaceae*, Pallas, typification, lectotype, epitype.

Аннотация. В статье рассматривается первоначальный материал названий 7 видов, описанных П. С. Палласом в роде *Astragalus* L., и 1 вида, описанного в роде *Phaca* L., в настоящее время относящихся к секции *Orobia* Bunge рода *Oxytropis* DC. Обозначены лектотипы *Astragalus altaicus* Pall. (*Oxytropis altaica* (Pall.) Pers.), *A. argentatus* Pall. (*O. argentata* (Pall.) Pers.), *A. candicans* Pall. (*O. candicans* (Pall.) DC.), *A. grandiflorus* Pall. (*O. grandiflora* (Pall.) DC.), *A. songaricus* Pall. (*O. songarica* (Pall.) DC.), *A. spicatus* Pall. (*O. spicata* (Pall.) O. Fedtsch. et B. Fedtsch.), *Phaca sylvatica* Pall. (*O. sylvatica* (Pall.) Willd.) и эпитип *Astragalus spicatus* (*O. spicata*).

Ключевые слова: *Astragalus*, *Phaca*, *Oxytropis*, секция *Orobia*, *Fabaceae*, Паллас, типификация, лектотип, эпитип.

Introduction

This research completes the work by the first two authors (Byalt, Sytin, 2022) on typification of the names of the taxa originally published by Peter Simon Pallas (1741–1811) within the genera *Astragalus* L. and *Phaca* L. (Pallas, 1773b, 1776, 1800–1803), and later transferred to the genus *Oxytropis* DC. (Candolle, 1802; Persoon, 1807; Fedtschenko, Fedtschenko, 1909).

The names of *Astragalus* later transferred to the sections *Arctobia* Bunge, *Baicalia* Steller ex Bunge, *Gloecephala* Bunge, *Janthina* Bunge, *Ortholoma* Bunge, *Polyadena* Bunge, and *Xerobia* Bunge of the genus *Oxytropis* were typified in the previous publication (Byalt, Sytin, 2022). The aim of this research is typification of the names of the species assigned to the section *Orobia*

Bunge, one of the largest and taxonomically complicated groups within *Oxytropis*.

Historical background

Pallas described a large number of plant taxa from European part of Russian Empire (Russia, Ukraine, West Kazakhstan), and Northern Asia (Siberia, Kazakhstan, Russian Far East). He was particularly interested in the genus *Astragalus* s. l., that is especially diverse in South Siberia, and described up to a hundred species of this group. Some of them were published in “Reise durch verschiedene Provinzen des russischen Reichs” (Pallas, 1771–1776); these and many more newly described ones were included in “Species Astragalorum...” (Pallas, 1800–1803).

The genus *Oxytropis* was established by Augustin Pyramus de Candolle (1778–1841) based on its

characteristic subulate outgrowth at the keel top: “Carina in mucronem superne desinens” (Candolle, 1802: 66¹). Currently the genus *Oxytropis* comprises about 600 species (POWO, 2023), including 25 species described by Pallas as *Astragalus*, and 7 ones as *Phaca*. It is noteworthy that Pallas mentioned acuminate keels as a characteristic of certain species (“carina cum acumine”, “carina acuminata” or “carina acumine sursum mucronata”), but not of the genus subdivisions. Nevertheless, most of Pallas’ species which are now treated as *Oxytropis* fell into two “phalanges” within his classification of *Astragalus*: “Astragali anthylloidei” and “Astragali polypterophylli seu verticillares” (Pallas, 1800–1803).

An outline of taxonomic history of *Oxytropis* including references to some important publications was discussed previously by Byalt and Sytin (2022).

“Species Astragalorum” (Pallas, 1800–1803) was published during 3 years in separate fascicles, totalling 13. At the same time, Candolle and C. L. Willdenow also studied *Astragalus* and published respective fundamental treatments almost simultaneously (Candolle, 1802; Willdenow, 1802). Clearly, some names published in these three works may prove to be competing synonyms. To resolve the issues of priority, it is necessary to know the precise dates of publication. Those of Willdenow’s and Candolle’s works are listed in “Taxonomic literature”: November 1–10, 1802 (Stafleu, Cowan, 1988: 303) and November 15, 1802 (Stafleu, Cowan, 1976: 442), respectively, in contrast to “Species Astragalorum”. In the 19th century, the books issued in separate parts were traditionally binded by their owners after obtaining the last part, usually with title pages removed. This is the most probable cause of the absence of precise dates of publication for the fascicles of “Species Astragalorum” given in “Taxonomic literature” (Stafleu, Cowan, 1983: 26). P. Perret (1989) determined these dates from indirect evidence, namely, whether certain parts of “Species Astragalorum” were cited by Candolle (1802) and Willdenow (1802). However, copies of “Species Astragalorum” with preserved titles of the fascicles exist, e. g. the one available on the website of the Digital library (repository) of the Tomsk State University (Digital library..., 2020: <https://vital.lib.tsu.ru/vital/access/manager/Repository/vtls:000438986>). The comparison of the dates specified by Perret (1989) and printed on the fascicle title pages is presented in the Table. It is disputable, which dates are accurate. It is worth noting that J. G. Georgi (1802: 295) mentioned that he had 9 fascicles of Pallas’

Table. Dates of publication of separate fascicles of “Species Astragalorum” (Pallas, 1800–1803).

Fascicle	Text pages	Plates	Date	
			Fascicle title	Perret (1989)
I, II	viii; 1–16	I–XIV	1800	1800[–1801, before Apr 4]
III, IV	17–32	XV–XXVI	1800	1800[–1801, before Apr 4]
V, VI	33–52	XXVII–XLI	1800	–
VII, VIII, IX	53–76	XLII–LXII	1801	1802 [before Sept–Nov]
X, XI	77–92	LXIII–LXXVI	1801	1802 [before Nov]
XII, XIII	93–124	LXXVII–XCI	1802	1803 [before the end of Feb]

work with 96 copperplate engravings in January 1802. For ease of search, in this paper we cite the years of publication as specified in appropriate fascicle titles and refer to the fascicle number before the page number.

In relation to the typification of the Pallas’ names, the question arises as to the reliability of the images published in “Species Astragalorum”. The artist Christian Gottfried Heinrich Geißler (1770–1844) accompanied Pallas during his travel about southern European Russia in 1793–1794, and then served as the manager of his Crimean estate Shulyu in 1795–1798 (Sytin, 2014: 202, 234). Geißler illustrated “Species Astragalorum” and other Pallas’ works (Pallas, 1803–1806, 1811–1814), as well as prepared illustrations for the unpublished “Plantae selectae rossicae” (see Sytin, 1994) but he did not participate in the travels of 1768–1774, so could not see the plants collected at that time alive. In the preface to his work, Pallas wrote: “Icones omnes et descriptiones ad plantas spontaneas vivas, quamplurimis plerumque speciminibus collatis, paravi, paucas ad specimina sicca, optime asservata et plerumque multiplicata [I have prepared all the icons and descriptions from living spontaneous plants, generally from numerous collated specimens, a few ones from dry specimens, best preserved and generally multiplied]” (Pallas, 1800–1803: viii). On the other hand, he admitted that not every species could be successfully cultivated: “...in hortis autem bene multae species omnem culturae diligentiam frustrant, et quae succedunt, in ollis, ut experientia edoctus sum, humo valde arenosa plenis curandae sunt [in gardens, however, many species negate all care of cultivation, and those that succeed, as I have learned from experience, are to be cared for in pots full of very sandy soil]” (Pallas, 1800–1803: v). From among the species of the section *Orobia*, *Astragalus altaicus* Pall. and *A. ambiguus*

¹ The Candolle’s “Astragalogia” was simultaneously published in two formats: *in folio* and *in quarto* (Stafleu, Cowan, 1976: 441–442). Here and further, we refer to the pages of “Astragalogia” according to the *quarto* issue, as more accessible (Candolle, 1802).

Pall. were mentioned as successfully grown in St. Petersburg. A striking resemblance of many images in “Species Astragalorum” to preserved herbarium specimens suggests that the former were drawn from the latter, e. g. Plates XLVI (*A. grandiflorus* Pall.), XLVIII (*A. argentatus* Pall.), XLIX (*A. candicans* Pall.), and LI (*A. songaricus* Pall.). Thus, this is a direct evidence of the relevant specimens being a part of original material, but leaves it open whether the plants were collected by Pallas in the wild or subsequently grown in a garden.

As concerns the illustrations in “Reise...” (Pallas, 1771–1776), most copies of this work are provided with black-and-white copper engravings. We only know of one copy with the illustrations hand-painted with watercolours, namely the one stored at the National Library of Russia, in the “Rossica” collection (Figs. 1; 2: B). It is noteworthy that on the plate with *Astragalus spicatus* Pall. (Pallas, 1773b: tab. W) Pallas left a critical comment on the image colour (Fig. 1: B). The margin of the plate was probably cut off when the volume was rebound; the text, however, is quite restorable: “Die Untertheile der Blumen grünlich grau, nur die Spitzen der Knospen röthlich und viel blauer als hier [The lower parts of the flowers are greenish grey, only the bud tips are reddish and much bluer than here]”. This Pallas’ note is the evidence of both his high demands on the quality of illustrations, and particular attention to the corolla colour as a key taxonomic character.

Material and methods

Typification of Pallas’ species names is quite a complicated task, since his original material is dispersed among different Herbaria, generally imprecisely labelled, and some of the specimens are damaged with time. The most extensive and valuable part of Pallas’ collections is kept in the Natural History Museum, London (BM – herbarium acronyms follow Thiers, 2023). Some materials are stored in the Komarov Botanical Institute of RAS, St. Petersburg (LE), with small numbers in the Herbaria of the Botanische Staatssammlung München (M), the Botanic Garden and Botanical Museum Berlin-Dahlem (B), and others. The history of Pallas’ herbarium collections is described in detail (Lambert, 1811; Miller, 1970; Belyaeva, Sennikov, 2008; Sytin, 2014).

Many of Pallas’ herbarium collections are available on the Internet resources “Global Plants on JSTOR” (2023), and JACQ (2004) which greatly facilitated our

Fig. 1. Lectotype of *Astragalus spicatus* (Pallas, 1773b: tab. W; scanned image provided by the National Library of Russia).

A — image of the plant; B — fragment of the plate with a pencil note by P. S. Pallas.



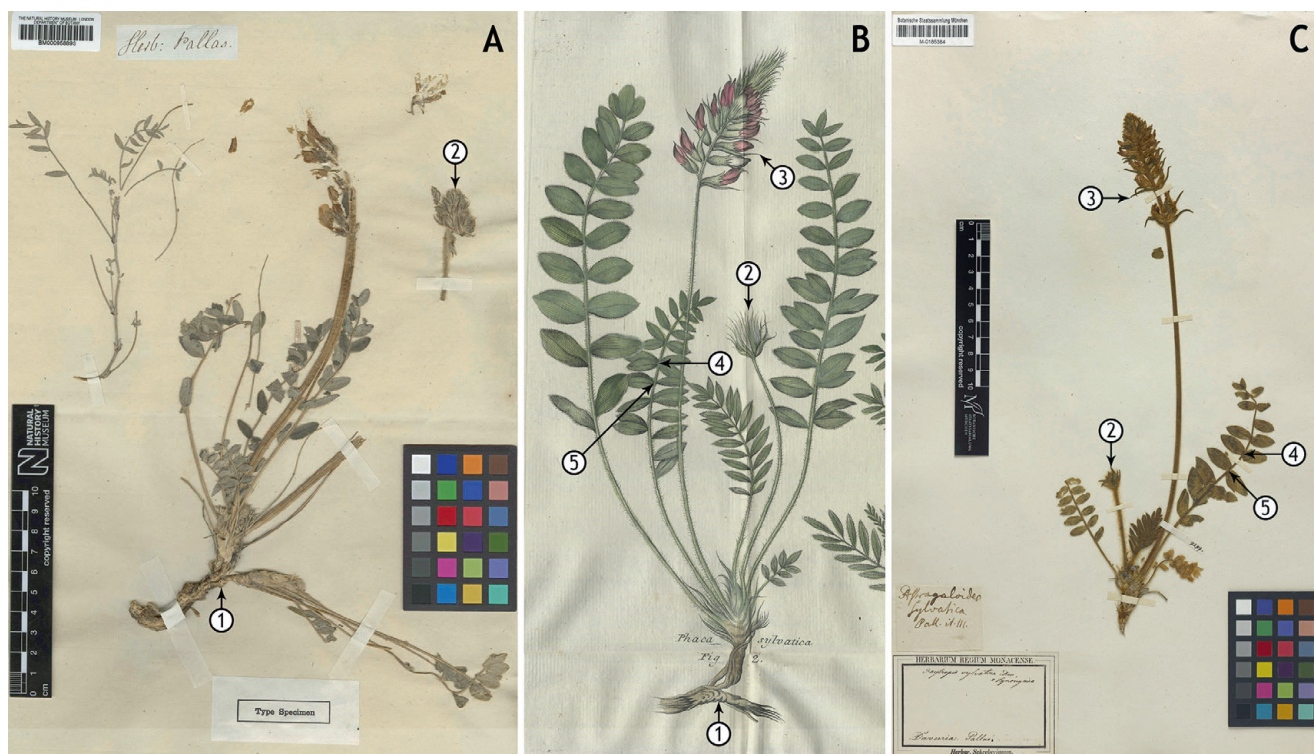


Fig. 2. Illustration from the protologue of *Phaca sylvatica* (Pallas, 1776: tab. W, fig. 2; scanned image provided by the National Library of Russia), and herbarium specimens BM000958893 and M-0185384 (lectotype).

A — herbarium specimen BM000958893 (<https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.bm000958893>); B — illustration from the protologue; C — herbarium specimen M-0185384 (<https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.m0185384>). Equal numbers indicate corresponding details of the image and plants.

work. The images of the scanned specimens stored at LE are available on the website Herbarium LE (Vascular Plants..., 2023).

The handwriting on each label was identified using the images available in S. Lipschitz and I. T. Vassilchenko (1968) and scanned images of handwritten materials available on the Alvin platform (Alvin, 2023). The latter source, in particular, allowed us to attribute some annotations on Pallas' herbarium sheets at BM to A. B. Lambert (Fig. 3: C, D). The handwriting of C. H. Merck (1761–1799) on the specimen BM000958880 was identified by comparing it with Fig. 489 in “Die Große Nordische Expedition” (1996: 323).

For each specimen cited, we indicate its category (lectotype, isolectotype, syntype) in accordance with “International Code of Nomenclature” (Turland et al., 2018: Art. 9), or nominate it as an “original specimen” for the specimens belonging to the original material but not cited in the protologue. The provenance of the specimens is cited in abbreviated form according to the “Catalogue of the type specimens of the vascular plants from Siberia and the Russian Far East kept in the Herbarium of the

Komarov Botanical Institute (LE)” (2012). Then textual quotations of the labels follow: the annotations are preceded by authors' names (if identified) in square brackets; the ends of lines in original labels are marked by vertical bars; the text crossed out in the original labels is crossed out in the quotations. Also placed in square brackets are notes and indications of phenological stages of the plants. The barcode numbers of the specimens are included.

Results and discussion

Astragalus altaicus Pall. 1801, Sp. Astragal. VII: 56, tab. XLV.

≡ *Oxytropis altaica* (Pall.) Pers. 1807, Syn. Pl. 2, 2: 333.

The specimen LE 01056519 collected by Pallas' correspondent, Petr Ivanovich Shangin, (1745/1748–1816) in the Altai is designated here as the lectotype of *Astragalus altaicus*. It has an original label written by Shangin with indication of the locality corresponding to the protologue, and the species name in Pallas' handwriting.

Lectotype (Sytin, Byalt, designated here): W Sib., Altai Territory, “[Pallas:] *Astragalus montanus*

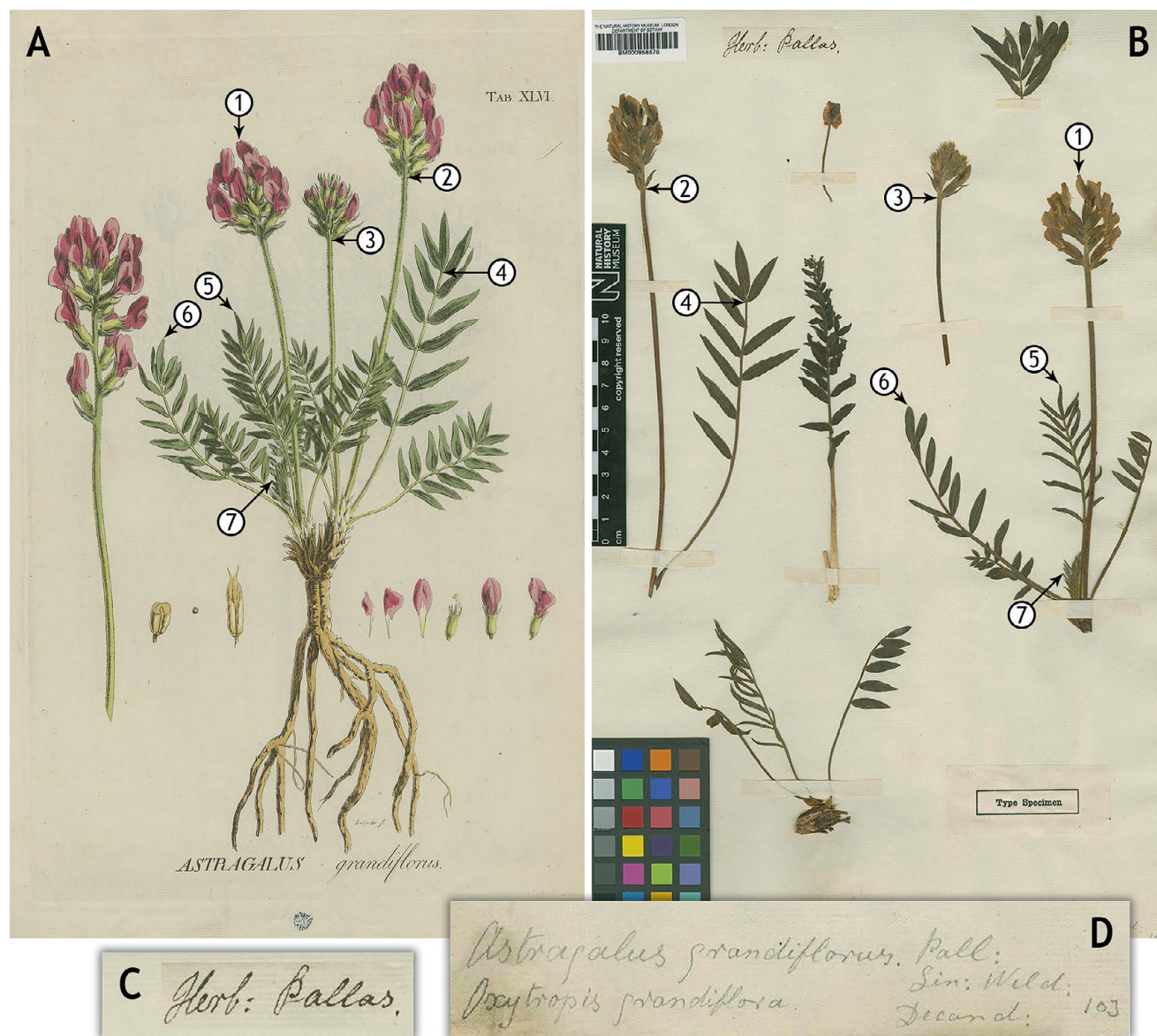


Fig. 3. Illustration from the protologue of *Astragalus grandiflorus* (Pallas, 1800–1803: tab. XLVI; courtesy of the Research Library of Tomsk State University) and the herbarium specimen BM000958878 (lectotype).

A — illustration from the protologue; B — herbarium specimen (<https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.bm000958878>), equal numbers indicate corresponding details of the image and plant; C, D — enlarged fragments of the herbarium sheet with inscriptions by A. B. Lambert.

altaicus | circa Tigereck. | Herb. Fischer [fr.]; “[Fischer:] *Astragalus* | *altaicus* | [unknown handwriting:] Grandier [?] | Herb. Fischer” (LE: [LE 01056519](#)!).

Isotype / syntype: W Sib., Altai Territory, “[unknown handwriting:] Herb. Fischer | [Pallas:] *Astragalus* | *altaicus* | [P. I. Shagin:] По Тигерцким | белкам во множестве [On Tigerek snowy mountains in plenty] [veg.]” ([LE 01056518](#)!).

There is some possibility that other specimens which were added to the collection of LE

from F. E. L. Fischer’s herbarium are duplicates of LE 01056519 or LE 01056518, i. e. parts of the original material. With some doubt, we also list here the herbarium specimen of the plant grown from the seeds gathered by L. Patrin during his travels around the Altai in the 1780s ([BM000958869](#)), since in the protologue the plant(s) growing in a garden in St. Petersburg is(are) mentioned.

? Original specimen: W Sib., Altai Territory / E Kazakhstan, “[Shagin:] *Astragalus altaicus* |

Растет по всем алтайским | горам во множестве [Occurs abundantly throughout the Altai mountains] | [Fischer:] Schangin | [unknown handwriting:] Herb. Fischer [fl., fr.]” (LE 01056517!).

Note. The specimens LE 01056517, LE 01056518 and LE 01056519 are mounted on the same sheet.

? Original specimen: W Sib., Altai Territory / E Kazakhstan, “[unknown handwriting:] Herb. Fischer | [Fischer:] *altaica* | Schangin [fl., fr.]” (LE 01056528!).

? Original specimens: W Sib., Altai Territory / E Kazakhstan, “[unknown handwriting:] Herb. Fischer | [Fischer:] Schangin [fl., fr.]” (LE 01056520!, LE 01056521!).

? Original specimen: cultivated, “[unknown handwriting:] E semine Patrini in hort. botan. floruit. [fl., fr.]”; “[Lambert:] Herb. Pallas”; on the sheet, in pencil: “[unknown handwriting:] *Oxytropis brevirostris* Dec. [Lambert:] *Astragalus Altaicus* Pall. | Lin. Willd.” (BM000958869 – image!).

Protologue quotation: “*Astragalus altaicus*. Tab. XLV... In alibus altaicis, praesertim supra Tigeraek, itemque ad Ieniseam, circa lacum Utschum et Abacan fl. frequens planta, alibi vix occurrit et specie distinctissima est... Petropoli in hortis optime viget et perennat”.

Astragalus ambiguus Pall. 1801, Sp. Astragal. VII: 54, tab. XLIII, XLIII.B.

≡ *Oxytropis ambigua* (Pall.) DC. 1802, Astragalogia: 70.

None of the specimens known to us bears the name *Astragalus ambiguus* written in Pallas’ handwriting. The specimen BM000958874 is quite well preserved and has an original Pallas’ label “ad Altaicos montes”. Its provenance and identity, however, are doubtful. The plant’s robust habit shows more resemblance to the Plate XLIII.B (*Astragalus ambiguus hortensis*) than to XLIII (*Astragalus ambiguus spontaneus*) in Pallas’ publication (1800–1803), which suggests that it was probably grown in a garden rather than collected in the wild. Moreover, the name *Astragalus ambiguus* is written on the sheet by Lambert, not by Pallas, and Altai is not mentioned in the protologue (Arzamas and the Bolshoi Cheremshan River are located in the European Russia). So, we cannot be certain that Pallas treated this specimen as *Astragalus ambiguus*. One of the four labels mounted on the sheet LE 01051468 has an annotation by Pallas “*Astragalus uralensis*”, as do the labels by Shangin and Fischer. The name *Oxytropis ambigua* on the specimens LE 01051470 and LE 01051471 is written later. So, despite Pallas’ remark about similar habit of *Astragalus ambiguus* and *A. uralensis*, we cannot confidently

ascribe these specimens to the original material, and refrain from designating the lectotype.

? Original specimen: W Sib., Altai Territory / E Kazakhstan, “[Pallas:] ad Altaicos montes [fl.]”; “[Lambert:] Herb. Pallas”; on the sheet, in pencil: “[unknown handwriting:] *Oxytropis ambigua* Dec. [Lambert:] *Astragalus ambiguus* Pall. | Lin. Willd.” (BM000958874 – image!).

? Original specimen: W Sib., Altai Territory / E Kazakhstan, “[Fischer:] Schangin. | Herb. Fischer [fl., fr.]”; “[Shangin:] *Astragalus | uralensis* | [?Fischer:] Schangin | [unknown handwriting:] Herb. Fischer”; “[?Fischer:] Schangin | [Pallas:] *Astragalus | uralensis* | [unknown handwriting:] Herb. Fischer”; “[unknown handwriting:] Herb. Fischer | [Fischer:] *Astragalus uralensis* | Schangin [A. A. Bunge:] vd. Bge” (LE 01051468!).

Note. There are 4 plants and 4 labels mounted on the sheet but it is not possible to find out which plant corresponds to each label.

? Original specimen: W Sib., Altai Territory / E Kazakhstan, “[Bunge:] *O. ambigua* Pall. Bge. | [Fischer:] Schangin | [Regel:] Hb. Fisch. | *O. uralensis* | DeC. | v. s. Rgl. [fl.]” (LE 01051470!).

? Original specimen: W Sib., Altai Territory / E Kazakhstan, “[unknown handwriting:] Herb. Fischer | [Fischer:] *ambigua* | Schangin | [Bunge:] (Bge!) [fl.]” (LE 01051471!).

Protologue quotation: “Habitu proxime similis *A. Uralensi*... Crescit haec species frequens per omnem Sibiriam, imo passim in Rossia ad orientem Moscuae occurrit, mihi v. gr. lecta in sylvis circa Arsamas et ad fluv. Tscheremschan... Habeo varietatem valde luxuriantem... Petropoli in hortis optime viget, perennat et floret Majo”.

Astragalus argentatus Pall. 1801, Sp. Astragal. VII: 60, tab. XLVIII.

≡ *Oxytropis argentata* (Pall.) Pers. 1807, Syn. Pl. 2, 2: 331.

The Pallas’ specimen stored at BM (BM000958881) matches the provenance specified in the protologue, and most probably was the plant from which Plate XLVIII in “Species Astragalorum” (Pallas, 1800–1803) was drawn. Here, we designate it as the lectotype of *Astragalus argentatus*.

Lectotype (Sytin, Byalt, designated here): E Kazakhstan, “[Pallas:] *Astragalus incanus* | Incipis Kirgisen [fl.]”; “[Pallas:] E des[ertis]. kirgis[icis]. Sievers”; “[Lambert:] Herb. Pallas” (BM: BM000958881 – image!).

Two specimens stored in the type collection of LE with labels: (1) “[unknown handwriting:] Herb. Fischer | [Fischer:] *argentata* | Schangin” and (2) “[label 1,

unknown handwriting:] Herb. Fischer | [Fischer:] Schangin | [unknown handwriting:] *O. argyracea*”, “[label 2, unknown handwriting:] Herb. Fischer | [Fischer:] Schangin” are listed as types by T. Krestovskaya and V. Byalt (1998) mistakenly, as Shangin was not mentioned in the protologue.

Protologue quotation: “*Astragalus argentatus*... *Astragalus incanus*, Sievers adnot. MS. ...Hanc plantam in desertis elatis Kirgisiorum, circa Irtysh fl. et Altaica promontoria legit Diligentiss. Joh. Sievers”.

Astragalus candicans Pall. 1801, Sp. Astragal. VIII: 61, tab. XLIX.

≡ *Oxytropis candicans* (Pall.) DC. 1802, Astragalogia: 72.

The specimen stored at BM (BM000958880) is designated here as the lectotype of *Astragalus candicans*. Its provenance specified on both labels corresponds to the protologue. According to I. P. Borodin (1908), Merck lived in Irkutsk and visited Yakutsk, among other places. The village “Chotingtumul” (Khatyng-Tumul) is located on the Lena River, about 450 km upriver from Yakutsk. When Merck travelled from Irkutsk down the Lena, he inevitably passed Khatyng-Tumul. Merck’s annotation “in trockener schwarzer Erde zwischen Steinen” corresponds to the phrase in the protologue: “locis saxosis, humo tectis, siccioribus”. In addition, this plant was obviously represented in Table XLIX of “Species Astragalorum” (Pallas, 1800–1803), as evidenced by the resemblance of the specimen to the illustration, as well as the annotation “Delin. [depicted]” on its label.

Lectotype (Sytn, Byalt, designated here): E Sib., Yakutia, “[Pallas:] *Astragalus candicans* | Ex orientali Sibiria | Delin. [fl.]”; “[Lambert:] Herb. Pallas”; “[Merck:] № 41. | Bey dem dorpfe Chotingtumul | des Flusses Lena, am Ufer in trockener | schwarzer Erde zwischen Steinen” (BM: [BM000958880](#) — image!).

Protologue quotation: “*Astragalus candicans*. Tab. XLIX... Provenit haec species ad Lenam fl. et in maxime orientalibus Sibiriae, locis saxosis, humo tectis, siccioribus. Lecta a D. D. Merk [sic!]”.

Astragalus grandiflorus Pall. 1801, Sp. Astragal. VII: 57, tab. XLVI.

≡ *Oxytropis grandiflora* (Pall.) DC. 1802, Astragalogia: 71.

The Pallas’ specimen from East Siberia stored at BM (BM000958878) is designated here as the lectotype of *Astragalus grandiflorus*. Apparently, it was this plant from which the illustration on Plate XLVI of “Species Astragalorum” (Pallas, 1800–1803) was drawn. With time, the root and caudex were lost,

the shoots fragmented, but the specimen still demonstrates its resemblance with the image (Fig. 3: A, B).

Lectotype (Sytn, Byalt, designated here): E Sib., “[Lambert:] Herb. Pallas. [fl.]”; on the sheet, in pencil: “[Lambert:] *Astragalus grandiflorus* Pall. | Lin. Willd. | *Oxytropis grandiflora* Decand. 103” (BM: [BM000958878](#) — image!).

Protologue quotation: “*Astragalus grandiflorus*. Tab. XLVI... a Jenisea fluv. per omnem ulteriorem Sibiriam, praesertim in Trans-Baicalensi regione aprica...”.

Astragalus songaricus Pall. 1801, Sp. Astragal. VIII: 63, tab. LI.

≡ *Oxytropis songarica* (Pall.) DC. 1802, Astragalogia: 73.

The Pallas’ specimen from East Siberia stored at BM (BM000958875) is designated here as the lectotype of *Astragalus songaricus*. We believe that it was the plant from which the illustration in “Species Astragalorum” (Pallas, 1800–1803: tab. LI) was drawn, as evidenced by its undeniable external resemblance to the image, as well as by Pallas’ annotation “Delin. [depicted]” on the original label. To note, the inflorescence taking the central position in the image is now separated from the plant and mounted to the sheet on its right side, and its former place is taken by another, shorter inflorescence (Fig. 4). Another Pallas’ specimen stored at BM (BM000958876) is treated here as a syntype.

A specimen of this taxon from the collection of Johann Friedrich Pott (1738–1805) sent to him in 1789 by Georg Lindenthal (1749–?) is stored at LE. Lindenthal worked in Altai, and in particular led one of the parties of the “gem travel” (an expedition of 1786 in Altai, mainly aimed at search for deposits of ores and gemstones — see Harms, 2013), which explored Altai mountains along with P. I. Shangin’s party, and was undoubtedly acquainted with Shangin, so there is a small possibility that this specimen is a duplicate of a collection sent by Shangin to Pallas, i. e. part of the original material.

The other specimens stored in the type collection at LE and listed by Krestovskaya and Byalt (1998) were collected later and do not belong to the original material.

M. S. Knjasev (2001: 141) had not seen the herbarium specimens of *Oxytropis songarica* that belong to the original material and proposed that the type of this name should be the illustration in Pallas’ monograph (Pallas, 1800–1803: tab. LI). The typification, however, was not effected by him.

Lectotype (Sytn, Byalt, designated here): W Sib., Altai Territory / Khakassia, “[Pallas:] *Astragalus Sieversianus* | Delin. [alab., fl.]”; “[Pallas:] Sievers”; “[Lambert:] Herb. Pallas”; on the sheet, in pencil: “[unknown handwriting:] *Astragalus songaricus*.”



Fig. 4. Illustration from the protologue of *Astragalus songaricus* (Pallas, 1800–1803: tab. LI) and the herbarium specimen BM000958875 (lectotype).

A – illustration from the protologue (courtesy of the Research Library of Tomsk State University); B – herbarium specimen (<https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.bm000958875>).

Pall. | Lin. Willd. | *Oxytropis songarica*. Decand.” (BM: BM000958875 – image!).

Original specimens: W Sib., Altai Territory, “Locis montosis et apricis | ad Tigeräk, Schangin [fl., fr.]”; “[Lambert:] Herb. Pallas” (BM000958876 – image!).

Note. There are two plants mounted on the sheet BM000958876. Judging from their phenological stages (left plant with flowers, right plant with ripened fruits) they represent different gatherings. There is also a paper capsule with seeds labelled: “*Astragalus Sibiriae uralensi potius*”. Most probably, it is not related to these plants.

? Original specimen: W Sib., ?Altai Territory, “[Pott:] *Astragalus songaricus* Pall. Astrag. 4 | Hab. in Sibiriae campis elatis circa promontoria | Altaica

| Ibidem lectum Dn. de Lindenthal misit 1789 [alab., fl.]” (LE 01083347!).

Protologue quotation: “*Astragalus songaricus*. Tab. LI... Provenit in campis elatis circa Promontoria Altaica, missa a diligentissimis Florae Sibiricae scrutatoribus P. Schangin et Jo. Sievers”.

Astragalus spicatus Pall. 1773, Reise Russ. Reich. 2, 2: 742, tab. W.

≡ *Astragalus caudatus* Pall. 1801, Sp. Astragal. VIII: 62, tab. L, pro nom. nov., illeg., superfl.

≡ *Oxytropis caudata* DC. 1802, Astragalogia: 73, nom. illeg.

≡ *Oxytropis spicata* (Pall.) O. Fedtsch. et B. Fedtsch. 1909, Conspect. Fl. Turkest. 2: 188.

No undoubted herbarium specimens belonging to the original material have been found so far. The only currently known original material is Plate W in “Reise...” (Pallas, 1773b), which we are designating here as the lectotype of the name. Knjasev (2001: 141) wrote concerning the type of this name: “Возможно, типом *O. spicata* следует считать рисунок Pallas (1776: tabl. 4) [Probably, the type of *O. spicata* should be considered a drawing in Pallas ([corr.: 1773, tabl. W])]”. We, however, do not agree with Knjasev (2001) concerning the dates when Pallas found the plant and its exact *locus classicus*. Pallas travelled in the left-bank area of the Ui (Uy) River from June 12 to 13, 1770, and mentioned some rivers and streams of its basin in his itinerary, such as Uvelka, Bach Kamennaja (Kamenka River), Sanarka, Tieplaja Rietschka (Teplaya River), etc.¹ (Pallas, 1773a: 104–113). On June 13, he reached Kukushevskoi Rudnik (literally “Kukusha’s mine”) located on the left bank of the Ui River (Pallas, 1773a: 114–116), east of the modern Tungatarovo village, Republic of Bashkortostan (Ankushev et al., 2016). The only legume plant mentioned on these pages of “Reise...” was referred to as “*Hedysarum saxatile*” with a touch of uncertainty: “Ich glaube in der Benennung dieser Pflanze nicht zu irren [I believe I am not wrong in naming of this plant]” (Pallas, 1773a: 107). It is very likely that this plant, initially confused by Pallas with the West European-Mediterranean *Onobrychis saxatilis* (L.) Lam. (= *Hedysarum saxatile* L.), was later described as *Astragalus spicatus* (Pallas, 1773b). In favour of this, is a comparison of a brief outline of the plant (Pallas, 1773a: 107) with the protologue of *A. spicatus* (Pallas, 1773b: 742). In particular, both texts mention woolly radical leaves: “auf einer holzigen Wurzel viele Blätter... etwas wolligt” (Pallas, 1773a) and “folia tomentosa, radicalia” (Pallas, 1773b); leafless scapes: “den Blumenstengel ohne Blätter” (Pallas, 1773a) and “scapi... aphylli” (Pallas, 1773b); spike-like raceme resembling that of *Onobrychis*: “die Blumenöhre von *Onobrychis*” (Pallas, 1773a) and “spica *Onobrychidis* simili forma et colore” (Pallas, 1773b). Also, its habitat, namely exposed rocky slopes, is described with partly similar words: “in dem freyen Gebürge” (Pallas, 1773a) and “in acclivibus saxosis australioribus et apricis” (Pallas, 1773b), respectively. Thus, we believe that the most probable *locus classicus* of *A. spicatus* is the area between the Kamenka River and the upper reaches of the Ui River near Tungatarovo village, where Pallas was 12–13th June 1770.

Pallas had not seen plants in fruit: “Legumina perfecta non vidi” (Pallas, 1773b: 742). The characters of

fruits, however, are essential for the systematics of the genus *Oxytropis*, namely, the legume size, degree of its pubescence, shape of trichomes, and especially features of the septum dividing the fruit into two locules. For this reason, we are designating a specimen with ripened legumes as the epitype of the name (Turland et al., 2018: Art. 9.9), namely, the plant collected on the Irendyk Range (southeastern Bashkortostan), in the zone of feathergrass-sheep’s fescue steppes, about 200 km from both Tungatarovo and the Kamenka River. This plant has the characters typical of the species, namely, semi-rosulate stems; leaves up to 20–22 cm long with petioles 12–13 cm long; 12–14(21) pairs of sessile, ovate-lanceolate, acuminate leaflets; robust sulcate pilose peduncles (the description of *Astragalus caudatus* in “Species Astragalogum” (Pallas, 1800–1803: 62): “Scapus... nudus”, is obviously erroneous, disagreeing with the image on Plate L in the same work, where the pubescence of short patent hairs is depicted) almost three times longer than leaves, 30–40 cm long; inflorescence a dense many-flowered raceme (30–60 flowers!); legumes 12–14 mm long, 3–4 mm broad, pubescent with white patent hairs.

Lectotype (Sytn, Byalt, Sokolova, designated here): Icon: Pallas, 1773, Reise Russ. Reich. 2, 2: tab. W. — Fig. 1: A.

Epitype (Sytn, designated here): Europ. Russia, Bashkiria, “Plantae Baschkiricae. Зилаирский кантон. Ковыльно-разнотр[авная] степь пологих склонов увала к СЗ от д. Аныковой [Zilairsky canton (district), feathergrass-forb steppe of gentle slopes of an elongated hill NW of Anykova village], 1 VIII 1929 [fr.], Крашенинников, Афанасьев [Krashenninnikov, Afanasyev], № 1156” (LE: [LE 01205148!](#)). — Fig. 5.

Protologue quotation: “*Astragalus spicatus*. Tab. W... Crescit in acclivibus saxosis australioribus et apricis ad orientales limites montium Uralensium, praesertim circa Ujum fluvium, florens Junio”.

Phaca sylvatica Pall. 1776, Reise Russ. Reich. 3, 2: 744, tab. W, fig. 2.

≡ *Astragalus sylvicolus* Pall. 1802, Sp. Astragal. XII: 95, tab. LXXVIII, pro nom. nov., suprefl., illeg.

≡ *Oxytropis sylvatica* (Pall.) Willd. 1–10 IX 1802, Sp. Pl. 3, 2: 1300; DC. 15 IX 1802, Astragalogia: 82, isonymum.

The specimen BM000958893, though partly destroyed during storage, in some features resembles the image on Plate W in the Pallas’ “Reise...” volume 3 (Pallas, 1776), in particular, in a split caudex, and the presence of a young inflorescence with undeveloped axis and unopened buds. There is a possibility that this herbarium specimen was the plant from which Plate W

¹ All the watercourses are located in the modern Chelyabinsk Region; the original spelling follows Pallas (1773a).



Fig. 5. Epitype of *Astragalus spicatus* (LE 01205148).
A — habit; B — fruits; C — leaf.

(Pallas, 1776) was drawn despite the absence of any annotation by Pallas. On the other hand, the specimen stored at M (M-0185384) has an original Pallas' label "*Astragaloides sylvatica* Pall. it. III", and the earlier epithet "*sylvatica*" (rather than later "*sylvicola*") suggests that this specimen can also belong to the original material. In addition, the long bracts depicted on Plate W (Pallas, 1776) are more clearly visible on the Munich specimen, as well as some verticillate leaflets. Thus, it is not unlikely that the image was "collective", sharing the features of both plants (Fig. 2). Here we designate the specimen M-0185384 as the lectotype.

The specimens determined as *Oxytropis sylvatica* stored in the type collection at LE and listed by Kres-tovskaya and Byalt (1998) are not original Pallas' specimens as they were gathered by later collectors.

Lectotype (Syтин, Byalt, designated here): E Sib., Buryatia, "[Pallas:] *Astragaloides* | *sylvatica* | Pall. it. III"; "[unknown handwriting:] *Oxytropis sylvatica* Dec. | e synonymia | Davuria | Pallas [fl.]" (M: [M-0185384](#) — image!).

Original specimen: E Sib., "[Lambert:] Herb. Pallas [alab., fl.]" ([BM000958893](#) — image!).

Protologue quotation: "*Phaca? sylvatica* Tab. W fig. 2... In pinetis Davuriae cum *Trifolio hedysaroides* frequens occurrit".

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