DOI: 10.17110/StudBot.2023.54.2.175 Studia bot. hung. 54(2), pp. 175–204, 2023

THE XÁNTUS'S HERBARIUM IN THE HUNGARIAN NATURAL HISTORY MUSEUM (BP)

Dániel Pifkó*

National Educational Museum, National Educational Library and Museum, H–1087 Budapest, Könyves Kálmán krt. 40, Hungary; pifkoch@gmail.com

Pifkó, D. (2023): The Xántus's herbarium in the Hungarian Natural History Museum (BP). – *Studia bot. hung.* **54**(2): 175–204.

Abstract: The list of the 184 specimens of the American botanical collection of János Xántus sent to Hungary in 1861 is presented. Altogether 24 syntypes of 23 taxa were recognised in this material: *Abutilon xanti* A. Gray, *Amaranthus torreyi* (A. Gray) Bentham ex S. Watson var. *suffruticosus* Uline et W. L. Bray, *Bahia parviflora* A. Gray, *Blitum californicum* S. Watson, *Buddleja crotonoides* A. Gray, *Caesalpinia mexicana* A. Gray var. *californica* A. Gray, *Caulanthus coulteri* S. Watson, *Celosia floribunda* A. Gray, *Chaenactis xantiana* A. Gray, *Chorizanthe perfoliata* A. Gray, *Chorizanthe xanti* S. Watson, *Clarkia xantiana* A. Gray, *Coursetia glandulosa* A. Gray, *Dyssodia speciosa* A. Gray, *Gomphocarpus tometosus* var. *xanti* A. Gray, *Hyptis tephrodes* A. Gray, *Krynitzkia microstachys* Greene ex A. Gray, *Macreightia intricata* A. Gray, *Nicotiana attenuata* Torr. ex S. Watson, *Penstemon laetus* A. Gray, *Polygala xanti* A. Gray, *Solanum xanti* A. Gray, *Viguiera tomentosa* A. Gray; as well as isolectotypes of 2 taxa, i.e. *Phaseolus atropurpureus* Sessé et Moçiño ex DC. var. *sericeus* A. Gray, and *Stachys albens* A. Gray; and isoparatypes of 3 taxa, i.e. *Amaranthus watsonii* Standley, *Froelichia xantusii* R. A. McCauley, and *Kallstroemia peninsularis* D. M. Porter.

Key words: botany, collection, herbarium, types, vascular plants

INTRODUCTION

János Xántus, a prominent person of the Hungarian scientific community, left Hungary after the Hungarian Independence War of 1848–1849 in his youth. He had been living in the United States since 1851, and collected animals and plants on behalf of the Smithsonian Institution (USA) in California since 1857. Later on, he expanded his activities onto the southern parts of the Baja California peninsula in Mexico. The Hungarian National Museum had received duplicate specimens from the herbarium collected by János Xántus in the United States, which are still deposited in the Hungarian Natural History Museum in Budapest. Both his botanical activities and the American herbarium have been presented

* Dániel Pifkó died on 25 October 2023, before publication of this work. Unfortunately, he could not verify the final version. The manuscript was completed by his colleagues and friends Z. Barina, B. Döme, M. Karikás and L. Lőkös.

in detail in comprehensive papers recently (Beros 2021, Pifkó 2019). Herewith only a brief account on his life and botanical activity is given. The aim of this paper is to list all specimens of János Xántus collected in North America and deposited in the Hungarian Natural History Museum, as well as to select and designate the possible type specimens.

Collecting activities of János Xántus in America

Xántus arrived in America in the spring of 1851. In the beginning, he often needed to move and take on many odd jobs. After four years living in the States, he joined the US Army under the name of Louis Vesey. His stations initially were Fort Riley, KS and its vicinity between 30 November 1855 and 1 March 1857. The time spent in service changed his life, particularly due to his comrade William Alexander Hammond, MD (1828–1900), who served at the fort at the same time, collecting animal specimens for the zoologist Spencer Fullerton Baird (1823–1887) (Madden 1949). Baird, who worked at the Smithsonian Institution from 1850, invited and started supporting Xántus financially and provided him with technical literature, and collecting guidelines from the Smithsonian Institution. The staff members of the institute preserved and managed the collected materials and distributed the duplicates (Madden 1949).

Xántus arrived in Fort Tejon (California) for military service on 18 May 1857. This was also his first North American fieldtrip, where he could collect plants. During his stay, 24 large boxes were fully packed with almost 2,000 birds, 200 mammals, hundreds of nests and numerous reptiles, fish, and insects. All the boxes were sent to the Smithsonian Institution. Xántus collected several specimens of 123 flowering plant species in Fort Tejon (Madden 1949).

Baird appreciated Xántus, and convinced him to carry on collecting for the institution after his military service. Upon leaving the US Army, Xántus joined the US Coast Survey. Due to Baird's intercession, he was offered a position to study the previously unexplored flora and fauna of the Baja California peninsula. Xántus was staying in Cabo San Lucas (indicated as "Cape St. Lucas" on the herbarium labels of Xántus) in Mexico to monitor the tidal flow by means of a device. He arrived in Cabo San Lucas on 22 March, and left in August 1861. Although Xántus primarily collected animals in the vicinity of the monitoring point, he also collected plants during the longer expeditions he participated between April 1859 and January 1860. A total of 17 new species were described (Gray 1861) of the 122 different flowering plant species collected there by Xántus (Madden 1949).

Xántus visited his family in Hungary in October 1861 and after his return to America in 1862 he gave up his collecting activites.

Xántus's botanical collection

The pressed and dried plants together with the prepared animal specimens collected by Xántus were packed into boxes and sent to the Smithsonian Institution. Baird promptly forwarded them to the relevant experts.

The flowering plant collection was managed by Asa Gray (1810–1888), who identified the plant specimens, and described the new species discovered within the collection. In 1859, Gray published the list of plants collected in the vicinity of Fort Tejon between 1857 and 1858. He listed the identified species according to the collection numbers given by Xántus, including three species new to science (Gray 1859).

In 1861, Gray identified the plant specimens collected by Xántus around Cape St. Lucas (Cabo San Lucas). In the introduction of his paper (Gray 1861) the reader is informed that the majority of the material discussed therein had been collected along the coast, and that the herbaria sent from the mountain region had been lost. Altogether 17 new species are described from that material (Gray 1861).

Following Gray's early efforts, the Xántus's herbarium has been studied by a great number of botanists and taxonomists on many subsequent occasions. As a result, several new species were described additionally, the first (or type) specimens of which had been collected by Xántus: *Albizia occidentalis*, *Amaranthus fimbriatus*, *Boerhavia xanti*, *Cercocarpus parvifolius*, *Chorizanthe xanti*, *Drymaria crassifolia*, *Dudleya xanti*, *Ephedra nevadensis*, *Euphorbia gymnoclada*, *Euphorbia xanti* (cf. Rebman *et al.* 2016).

Following Asa Gray's identifications, the Smithsonian Institution agreed that the herbarium specimens collected by Xántus should properly be distributed and the duplicates should be shared in prominent research institutes. Subsequently, large amounts of duplicate specimens of the Xántus's herbarium from the Smithsonian Institution were sent to several significant American and European institutes, including (according to digital records) e.g. the Academy of Natural Sciences of Philadelphia (USA), the Field Museum of Natural History (USA), the Harvard University (USA), the New York Botanical Garden (USA), the Kew Royal Botanical Gardens (UK), the French National Museum of Natural History (France), the Herbarium School of Botany Trinity College (Ireland), and the Hungarian National Museum.

Xántus's herbarium in the Hungarian Natural History Museum (BP)

A total of 184 duplicate specimens from Xántus's American botanical collection were shipped to Hungary in 1861. All the specimens received by the Natural History Department of the National Museum along with the collector numbers assigned by Xántus were listed in an old registration catalogue, which is deposited in the history of science collection of the Hungarian Natural History Museum.

A total of 123 species were collected by Xántus at Fort Tejon (Gray 1859), and only two of them were missing from the shipment: No. 56 (*Macrorhynchus*

grandiflorus), No. 79 (*Salvia carduacea*). However, four species were represented by two specimens each (Fort Tejon No. 32, 52, 80, 120), and thus a total of 125 specimens of the Fort Tejon material were shipped to the Hungarian National Museum. Furthermore, originally 59 specimens were received from the Cabo San Lucas collection (but further 63 specimens collected by Xántus also at the same locality have been never sent to Hungary). All of the Cabo San Lucas specimens are identified and provided with species name, while the labels of the Fort Tejon specimens were without species names.

Upon arrival, each specimen received an individual identifier. Apart from the number 661/1861, which was generally applied to the entire shipment, the specimens were numbered consecutively from 1 to 184. This individual ID was written in red ink on the label.

The Xántus's herbarium was not treated as a separate unit, the sheets were included in the Herbarium Generale collection according to the relevant taxonomic arrangement. However, without species names the specimens were often arranged to wrong places. Thus, the plants collected by Xántus in North America are now part of the Herbarium Generale of the Department of Botany of the Hungarian Natural History Museum (BP), containing flowering plants originating from outside the Carpathian Basin.

MATERIAL AND METHODS

A very thorough search among the *ca* 700 000 specimens in the Herbarium Generale collection was carried out in the Hungarian Natural History Museum to find and select the specimens collected by Xántus in North America. Using Asa Gray's list (Gray 1859, 1860), and an old register catalogue (listing the specimens sent by Xántus from America) held in the history of science collection of the Hungarian Natural History Museum significantly helped the research. In addition to the identified specimens, the search was extended to a considerable amount of previously unidentified material including the specimens (backlogs) kept in the unidentified folders of various families or genera.

The 184 duplicate specimens of Xántus's botanical collection received from the United States in 1861 are presented separately, i.e. the specimens collected around Fort Tejon, and also the material collected near "Cape St. Lucas" (Cabo San Lucas) in Mexico. Specimens are listed alphabetically by genera and by species within the genera. The nomenclature of species names follows the Plants of the World Online (POWO 2023) database. Names from Gray's papers (1859, 1860) are also added as well as specimen codes of duplicate specimens in Global Plants database (https://plants.jstor.org/). Type specimens described in the Xántus's collection in the Hungarian Natural History Museum are also designated.

RESULTS AND DISCUSSION

Abbreviations of herbaria follow the Index Herbariorum (Thiers 2017). More identity numbers for the same specimen are separated by an "/".

THE PLANT SPECIMENS COLLECTED BY XÁNTUS IN FORT TEJON (1857–1858)

The collector name on the herbarium specimens collected in Fort Tejon is "J. Xántus de Vesey".

Amaranthaceae

Blitum californicum S. Watson – cit. Gray 1859 as *B. bonus-henricus* (L.) C. A. Mey. – No. 104 (BP TRA-00312029); syntype of *Blitum californicum* S. Watson, in Proc. Amer. Acad. Arts 9: 101 (1874) (GH 00936572).

Anacardiaceae

Toxicodendron diversilobum (Torr. et A. Gray) Greene – cit. Gray 1859 as *Rhus diversiloba* Torr. et A. Gray – No. 19 (BP TRA-00312048).

Apiaceae

Berula erecta (Huds.) Coville – cit. Gray 1859 as *B. angustifolia* Mert. et W. D. J. Koch – No. 37 (BP 283611/BP TRA-00312132).

Cicuta maculata L. – cit. Gray 1859 as *C. maculata* L. – No. 36 (BP 283609/BP TRA-00312067).

Lomatium utriculatum (Nutt.) J. M. Coult. et Rose – cit. Gray 1859 as *Peucedanum utriculatum* Nutt. ex Torr. et A. Gray – No. 39 (BP 283607/BP TRA-00312133).

Perideridia gairdneri (Hook. et Arn.) Mathias – cit. Gray 1859 as *Edosmia gairdneri* Torr. et A. Gray – No. 38 (BP 283610/BP TRA-00312134).

Apocynaceae

Apocynum cannabinum L. – cit. Gray 1859 as *A. cannabinum* L. – No. 100 (BP TRA-00312025).

Asclepias californica Greene – cit. Gray 1859 as *Acerates tomentosa* Torr. – No. 101 (BP TRA-00312026); syntype of *Gomphocarpus tometosus* var. x*anti* A. Gray, in Bot. California 1: 477 (1876) (GH 00076195, GH 00076196).

Asclepias fascicularis Decne. – cit. Gray 1859 as *A. fascicularis* Decne. – No. 102 (BP TRA-00312027).

Asparagaceae

Dipterostemon capitatus (Benth.) Rydb. – cit. Gray 1859 as *Brodiaea capitata* Benth. – No. 114 (BP 58160/BP TRA-00312076).

Triteleia ixioides (Dryand. ex W. T. Aiton) Greene – cit. Gray 1859 as *Calliprora lutea* Lindl. – No. 115 (BP 58159/BP TRA-00312104).

Triteleia laxa Benth. – cit. Gray 1859 as *T. laxa* Benth. – No. 116 (BP 58158/BP TRA-00312089).

Asteraceae

Achillea millefolium L. – cit. Gray 1859 as *A. millefolium* L. – No. 52 (BP 439652/BP TRA-00312105).

Agoseris grandiflora (Nutt.) Greene – cit. Gray 1859 as *Macrorhynchus grandiflorus* (Nutt.) Torr. et A. Gray – No. 56 (specimen not found in BP).

Balsamorhiza deltoidea Nutt. – cit. Gray 1859 as *B. deltoidea* Nutt. – No. 42 (BP 439662/BP TRA-00312083).

Chaenactis xantiana A. Gray – cit. Gray 1859 as *Ch. glabriuscula* var. *megacephala* A. Gray – No. 45 (BP 439659/BP TRA-00312082); syntype of *Chaenactis xantiana* A. Gray in Proc. Amer. Acad. Arts 6: 545 (1865) (GH 00004708, US 00124770, US 00124771, YU 064720).

Coreopsis douglasii (DC.) H. M. Hall – cit. Gray 1859 as *Leptosyne douglasii* DC. – No. 43 (BP 439661/BP TRA-00312084).

Erigeron foliosus Nutt. – cit. Gray 1859 as *E. douglasii* Torr. et A. Gray – No. 41 (BP 439663/BP TRA-00312085).

Eriophyllum confertiflorum (DC.) A. Gray – cit. Gray 1859 as *Bahia confertiflora* DC. – No. 47 (BP 439657/BP TRA-00312079).

Eriophyllum ambiguum A. Gray – cit. Gray 1859 as *Bahia wallacei* A. Gray – No. 48 (BP 439656/BP TRA-00312078); syntype of *Bahia parviflora* A. Gray in S. Watson et al., Bot. California 1: 382 (1876) (NY 00162432, US 00124785, GH 00006999, K 001092079).

Helianthus annuus L. – cit. Gray 1859 as *H. lenticularis* Douglas ex Lindl. – No. 44 (BP 439660/BP TRA-00312060).

Lasthenia gracilis (DC.) Greene – cit. Gray 1859 as *Burrielia gracilis* DC. – No. 46 (BP 439658/BP TRA-00312077).

Layia gaillardioides (Hook. et Arn.) DC. – cit. Gray 1859 as *L. gaillardioides* (Hook. et Arn.) DC. – No. 50 (BP 439654/BP TRA-00312081).

Madia elegans D. Don – cit. Gray 1859 as *Madaria corymbosa* DC. – No. 51 (BP 439653/BP TRA-00312087).

Microseris lindleyi (DC.) A. Gray – cit. Gray 1859 as *Calais linearifolia* DC. – No. 55 (BP 439651/BP TRA-00312086).

Monolopia major DC. – cit. Gray 1859 as *M. major* DC. – No. 49 (BP 439655/BP TRA-00312080).

Senecio flaccidus var. *douglasii* (DC.) B. L. Turner et T. M. Barkley – cit. Gray 1859 as *S. douglasii* DC. – No. 53 (BP 439481/BP TRA-00312091).

Sonchus asper (L.) Hill – cit. Gray 1859 as *S. asper* Vill. – No. 54 (BP 436983/BP TRA-00312118).

Boraginaceae

Amsinckia spectabilis Fisch. et C. A. Mey. – cit. Gray 1859 as *A. spectabilis* Fisch. et C. A. Mey. – No. 81 (BP 319668/BP TRA-00312144).

Amsinckia spectabilis Fisch. et C. A. Mey. – cit. Gray 1859 as *A. spectabilis* var. *minor* – No. 82 (BP 319667/BP TRA-00312146).

Cryptantha microstachys (Greene ex A. Gray) Greene – cit. Gray 1859 as *Krynitzkia leiocarpa* Fisch. et C. A. Mey. – No. 84 (BP 319659/BP TRA-00312150); syntype of *Krynitzkia microstachys* Greene ex A. Gray in Proc. Amer. Acad. Arts 20: 269 (1885) (GH 00096058, US 00111060).

Cryptantha microstachys (Greene ex A. Gray) Greene – cit. Gray 1859 as *Eritrichium* n. sp. – No. 86 (BP 319661/BP TRA-00312149); syntype of *Krynitzkia microstachys* Greene ex A. Gray in Proc. Amer. Acad. Arts 20: 269 (1885).

Emmenanthe penduliflora Benth. – cit. Gray 1859 as *E. penduliflora* Benth. – No. 93 (BP TRA-00312019).

Eriodictyon tomentosum Benth. – cit. Gray 1859 as *E. tomentosum* Benth. – No. 94 (BP TRA-00312020) (Fig. 1).

Johnstonella angustifolia (Torr.) Hasenstab et M. G. Simpson – cit. Gray 1859 as *Eritrichium angustifolium* Torr. – No. 85 (BP 319660/BP TRA-00312151).

Nemophila menziesii Hook. et Arn. – cit. Gray 1859 as *N. insignis* Benth. – No. 87 (BP 319666/BP TRA-00312053) (Fig. 2).

Phacelia ramosissima Douglas ex Lehm. – cit. Gray 1859 as *Ph. ramosissima* Douglas ex Lehm. – No. 92 (BP TRA-00312018).

Phacelia secunda J. F. Gmel. – cit. Gray 1859 as *Ph. circinata* (Willd.) J. Jacq. – No. 89 (BP 319664/BP TRA-00312147).

Phacelia tanacetifolia Benth. – cit. Gray 1859 as *Ph. tanacetifolia* Benth. – No. 90 (BP 319663/BP TRA-00312071).

Phacelia tanacetifolia Benth. – cit. Gray 1859 as *Ph. tanacetifolia* var. *tenuifolia* Torr. – No. 91 (BP 319662/BP TRA-00312148).

Pholistoma membranaceum (Benth.) Constance – cit. Gray 1859 as *Ellisia membranacea* Benth. – No. 88 (BP 319665/BP TRA-00312145, PH 00024418).

Plagiobothrys fulvus (Hook. et Arn.) I. M. Johnst. – cit. Gray 1859 as *Eritrichium fulvum* DC. – No. 83 (BP 319658/BP TRA-00312152).

Fig. 1. *Eriodictyon tomentosum* Benth. (BP TRA-00312020).

Fig. 2. *Nemophila menziesii* Hook. et Arn. (BP TRA-00312053).

Brassicaceae

Erysimum asperum (Nutt.) DC. – cit. Gray 1859 as *E. asperum* var. *elatum* (Nutt.) Torr. – No. 8 (BP 145203/BP TRA-00312141).

Raphanus raphanistrum subsp. *sativus* (L.) Domin – cit. Gray 1859 as *R. sativus* L. – No. 9 (BP 145202/BP TRA-00312140).

Streptanthus coulteri (S. Watson) Greene – cit. Gray 1859 as *S. heterophyllus* Nutt. – No. 7 (BP 145201/BP TRA-00312143); syntype of *Caulanthus coulteri* S. Watson in Botany [Fortieth Parallel]: 27 (1871) (GH 00379043).

Caryophyllaceae

Silene laciniata subsp. *californica* (Durand) J. K. Morton – cit. Gray 1859 as *S. californica* Durand – No. 12 (BP 109085/BP TRA-00312111).

Cleomaceae

Cleomella arborea (Nutt.) Roalson et J. C. Hall – cit. Gray 1859 as *Isomeris arborea* Nutt. – No. 10 (BP 258379/BP TRA-00312108).

Cucurbitaceae

Marah fabacea (Naudin) Greene – cit. Gray 1859 as *Megarrhiza californica* Torr. – No. 35 (BP TRA 00312050).

Ephedraceae

Ephedra nevadensis S. Watson – cit. Gray 1859 as *E. antisyphilitica* Berland. ex C. A. Mey. – No. 112 (specimen not found in BP, NY 00069928, US 00902193); syntypes of *Ephedra nevadensis* Watson in Proc. Amer. Acad. Arts 14: 298 (1879).

Ericaceae

Arctostaphylos glauca Lindl. – cit. Gray 1859 as *A. glauca* Lindl. – No. 57 (BP TRA-00312015) (Fig. 3).

Euphorbiaceae

Euphorbia albomarginata Torr. et A. Gray – cit. Gray 1859 as *E. albomarginata* Torr. et A. Gray – No. 110 (BP 238808/BP TRA-00312156, US 01432600, US 01432601).

Euphorbia polycarpa Benth. – cit. Gray 1861 as *E. polycarpa* Benth. – No. 109 (BP 237835/BP TRA-00312155).

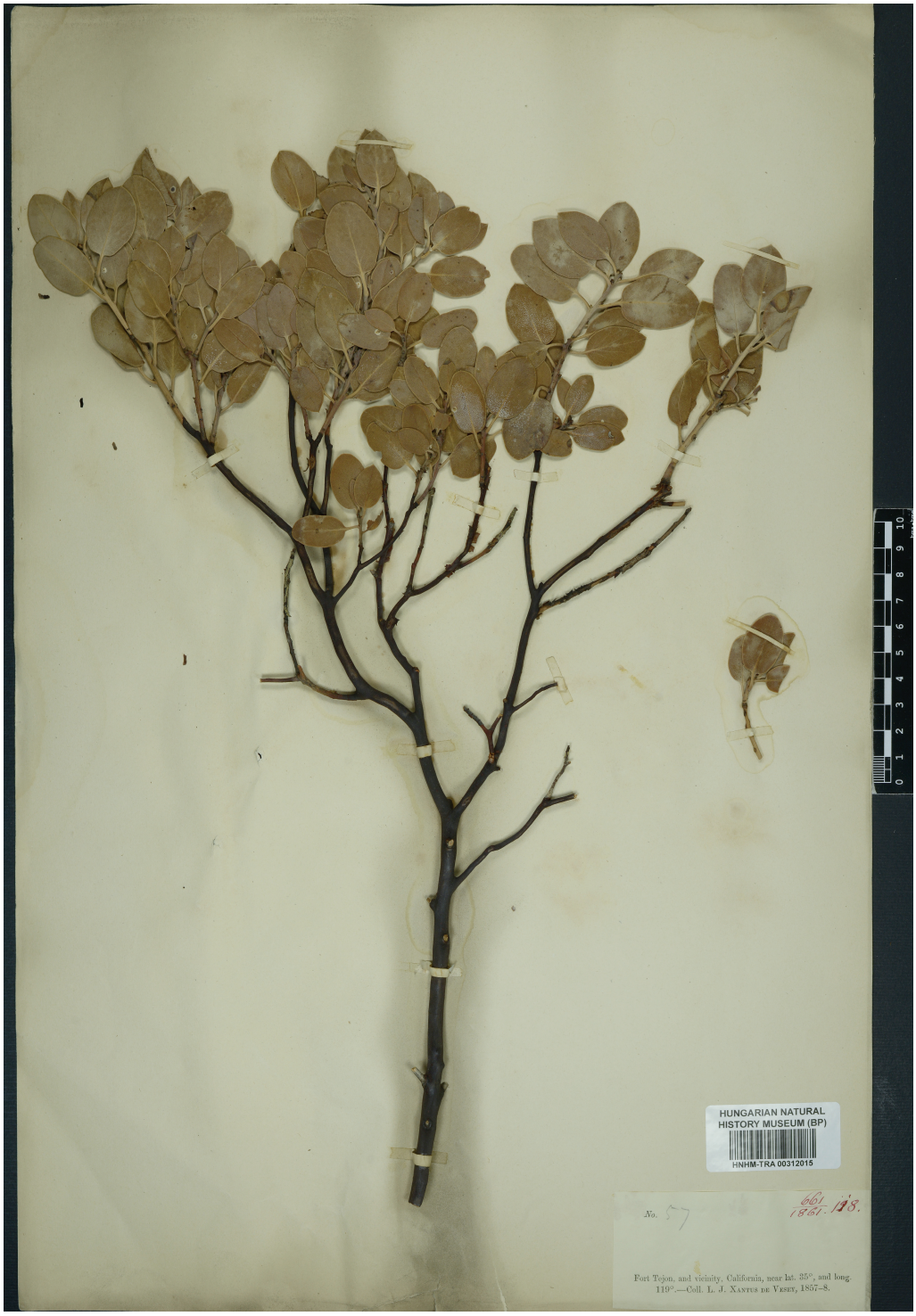

Fig. 3. *Arctostaphylos glauca* Lindl. (BP TRA-00312015).

Fabaceae

Acmispon americanus (Nutt.) Rydb. – cit. Gray 1859 as *Hosackia purshiana* Benth. – No. 24 (BP 222320/BP TRA-00312138).

Acmispon glaber (Vogel) Brouillet – cit. Gray 1859 as *Hosackia scoparia* Torr. et A. Gray – No. 25 (BP 222321/BP TRA-00312139).

Lupinus benthamii A. Heller – cit. Gray 1859 as *L. leptophyllus* Benth. – No. 23 (BP 222319/BP TRA-00312137).

Lupinus bicolor Lindl. – cit. Gray 1859 as *L. bicolor* Lindl. – No. 22 (BP 222270/BP TRA-00312136).

Lupinus microcarpus Sims – cit. Gray 1859 as *L. microcarpus* Sims – No. 21 (sine BP number).

Lupinus sp. – cit. Gray 1859 as *Lupinus* – sine No. (BP 222290/BP TRA-00312069).

Fagaceae

Quercus lobata Née – cit. Gray 1859 as *Qu. lobata* Née – No. 111 (BP 79165/BP TRA-00312070, NY 00248711).

Geraniaceae

Erodium cicutarium (L.) L'Hér. – cit. Gray 1859 as *E. cicutarium* (L.) L'Hér. – No. 17 (BP 225092/BP TRA-00312068).

Juncaceae

Juncus xiphioides E. Mey. – cit. Gray 1859 as *J. xiphioides* E. Mey. – No. 118 (BP 50969/BP TRA-00312102, MO 104937).

Lamiaceae

Mentha canadensis L. – cit. Gray 1859 as *M. canadensis* L. – No. 76 (BP 339019/BP TRA-00312066) (Fig. 4).

Monardella candicans Benth. – cit. Gray 1859 as *M. candicans* Benth. – No. 77 (BP 339018/BP TRA-00312129).

Salvia carduacea Benth. – cit. Gray 1859 as *S. carduacea* Benth. – No. 79 (sine BP number).

Salvia columbariae Benth. – cit. Gray 1859 as *S. columbariae* Benth. – No. 78 (BP 339017/BP TRA-00312124).

Stachys albens A. Gray – cit. Gray 1859 as *S. pycnantha* Benth. – No. 80 (BP 339014/BP TRA-00312128); isolectotype of *Stachys albens* A. Gray in Proc. Amer. Acad. Arts 7: 387 (1868) (GH 00021110 (lectotype designated by Mulligan and Munro 1989), NY 00415762, US 00026824).

Fig. 4. *Mentha canadensis* L. (BP 339019, BP TRA-00312066).

Stachys albens A. Gray – cit. Gray 1859 as Lamiaceae sp. – No. 80a (BP 339015/BP TRA-00312127, GH 00021111).

Liliaceae

Calochortus venustus Douglas ex Benth. – cit. Gray 1859 as *C. venustus* Douglas ex Benth. – No. 117 (BP 58157/BP TRA-00312075).

Loasaceae

Mentzelia albicaulis (Douglas ex Hook.) Douglas ex Torr. et A. Gray – cit. Gray 1859 as *M. albicaulis* (Douglas ex Hook.) Douglas ex Torr. et A. Gray – No. 34 (BP TRA-00312051, PH 00027693 (as *Trachyphytum gracile* Nutt.)).

Malvaceae

Fremontodendron californicum (Torr.) Coville – cit. Gray 1859 as *Fremontia californica* Torr. – No. 16 (BP TRA-00312046).

Sidalcea malviflora (DC.) A. Gray – cit. Gray 1859 as *S. malviflora* A. Gray – No. 15 (BP 224244/BP TRA-00312135).

Montiaceae

Calandrinia ciliata (Ruiz et Pav.) DC. – cit. Gray 1859 as *C. menziesii* (Hook.) Torr. et A. Gray – No. 13 (BP 109084/BP TRA-00312110).

Claytonia perfoliata Donn ex Willd. – cit. Gray 1859 as *C. perfoliata* Donn ex Willd. – No. 14 (BP TRA-00312045).

Nyctaginaceae

Mirabilis multiflora (Torr.) A. Gray – cit. Gray 1859 as *M. multiflora* (Torr.) A. Gray – No. 103 (BP TRA-00312028) (Fig. 5).

Onagraceae

Camissoniopsis bistorta (Nutt. ex Torr. et A. Gray) W. L. Wagner et Hoch – cit. Gray 1859 as *Oenothera bistorta* Nutt. ex Torr. et A. Gray – No. 28 (BP TRA-00312035).

Clarkia bottae (Spach) F. H. Lewis et M. E. Lewis – cit. Gray 1859 as *Oenothera rubicunda* Torr. et A. Gray – No. 29 (BP TRA-00312036).

Clarkia rubicunda (Lindl.) F. H. Lewis et M. E. Lewis – cit. Gray 1859 as *Oenothera rubicunda* Lindl. – No. 29a (BP TRA-00312037).

Fig. 5. *Mirabilis multiflora* (Torr.) A. Gray (BP TRA-00312028).

Clarkia unguiculata Lindl. – cit. Gray 1859 as *C. elegans* Douglas – No. 30 (BP TRA-00312038).

Clarkia xantiana A. Gray – cit. Gray 1859 as *C. xantiana* A. Gray – No. 31 (BP TRA-00312039); syntype of *Clarkia xantiana* A. Gray in Proc. Boston Soc. Nat. Hist. 7: 145 (1860) (GH 00053912, K 000742230, NY 00231288, US 00124042, US 00124043).

Epilobium canum (Greene) P. H. Raven – cit. Gray 1859 as *Zauschneria californica* C. Presl – No. 32 (BP TRA-00312040, BP TRA-00312041) (Fig. 6).

Epilobium ciliatum Raf. – cit. Gray 1859 as *E. coloratum* Spreng. – No. 33 (BP 266225/BP TRA-00312095), rev.: Hoch, Peter C. (Missouri Botanical Garden) as *E. ciliatum* Raf. subsp. *ciliatum* in 1978).

Oenothera biennis L. – cit. Gray 1859 as *O. biennis* L. – No. 27 (BP TRA-00312034).

Orchidaceae

Epipactis gigantea Douglas – cit. Gray 1859 as *E. americana* Lindl. – No. 113 (specimen not found in BP).

Orobanchaceae

Castilleja affinis Hook. et Arn. – cit. Gray 1859 as *C. affinis* Hook. et Arn. – No. 68 (BP 109088/BP TRA-00312110).

Castilleja exserta (A. Heller) T. I. Chuang et Heckard – cit. Gray 1859 as *Orthocarpus purpurascens* Benth. – No. 72 (BP TRA-00312013).

Castilleja hispida Benth. – cit. Gray 1859 as *C. hispida* Benth. – No. 69 (BP 109087/BP TRA-00312064).

Castilleja linariifolia Benth. – cit. Gray 1859 as *C. candens* Durand et Hilg. – No. 70 (BP 109086/BP TRA-00312112).

Castilleja linariifolia Benth. – cit. Gray 1859 as *C. linariifolia* Benth. – No. 71 (sine BP number).

Papaveraceae

Ehrendorferia chrysantha (Hook. et Arn.) Rylander – cit. Gray 1859 as *Dicentra chrysantha* Hook. et Arn. – No. 5 (BP 145200/BP TRA-00312100).

Eschscholzia caespitosa Benth. – cit. Gray 1859 as *E. tenuifolia* Benth. – No. 4 (BP 134757/BP TRA-00312119).

Eschscholzia californica Cham. – cit. Gray 1859 as *E. californica* Cham. – No. 3 (BP 134756/BP TRA-00312106 (photo: Fig. 5 in Pifkó 2019)).

Papaver heterophyllum (Benth.) Greene – cit. Gray 1859 as *Meconopsis heterophylla* Benth. – No. 6 (BP 145217/BP TRA-00312120).

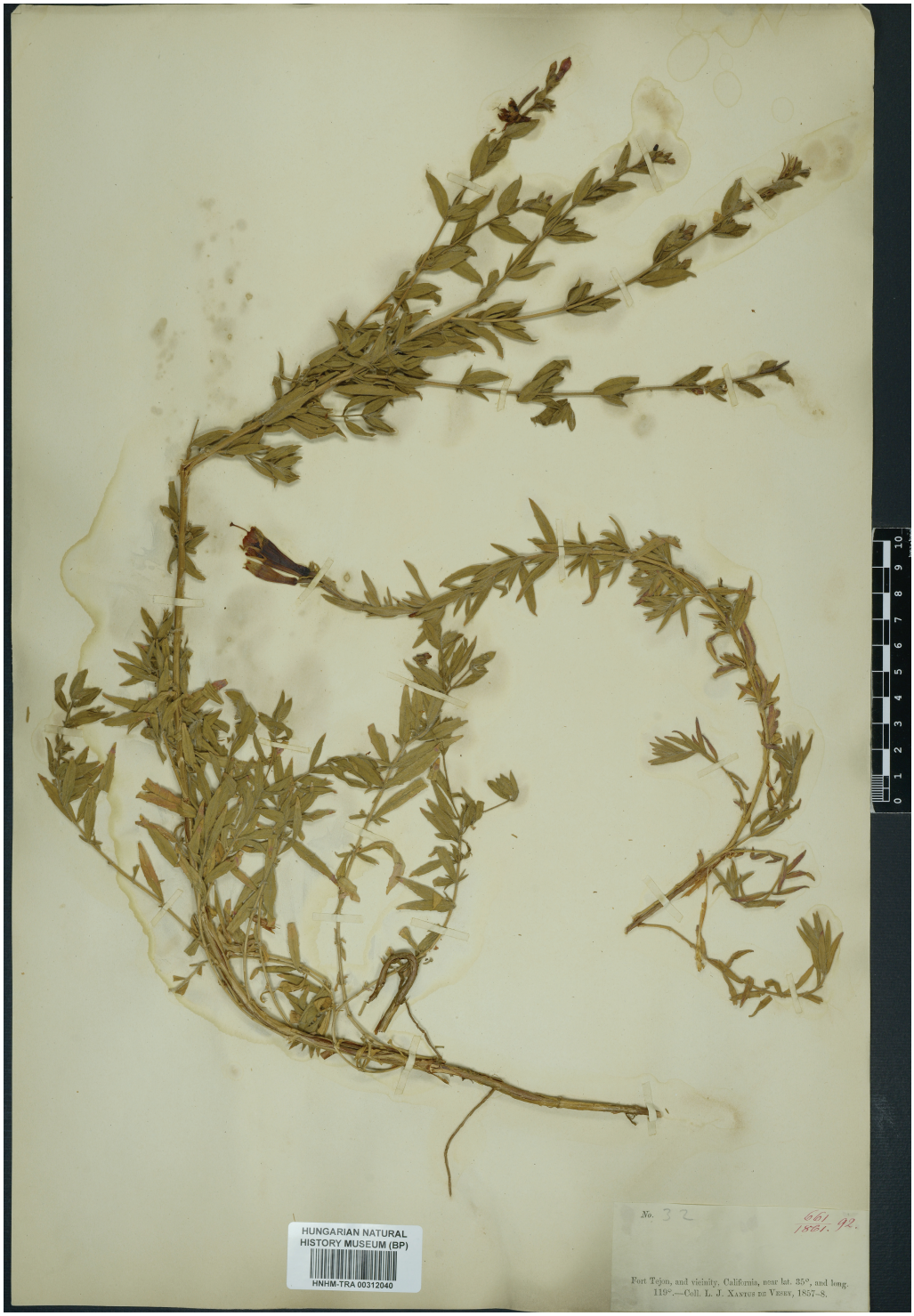

Fig. 6. *Epilobium canum* (Greene) P. H. Raven (BP TRA-00312040, BP TRA-00312041).

Phrymaceae

Diplacus fremontii (Benth.) G. L. Nesom – cit. Gray 1859 as *Eunanus fremontii* Benth. – No. 67 (BP 109089/BP TRA-00312114).

Erythranthe cardinalis (Douglas ex Benth.) Spach – cit. Gray 1859 as *Mimulus cardinalis* Douglas ex Benth. – No. 65 (BP 109091/BP TRA-00312109).

Erythranthe lutea (L.) G. L. Nesom – cit. Gray 1859 as *Mimulus luteus* L. – No. 66 (BP 109090/BP TRA-00312063).

Plantaginaceae

Collinsia heterophylla Buist ex Graham – cit. Gray 1859 as *C. bicolor* Benth. – No. 58 (BP TRA-00312016).

Collinsia heterophylla Buist ex Graham – cit. Gray 1859 as *C. bicolor* var. *parviflora* – No. 59 (BP TRA-00312017).

Keckiella breviflora (Lindl.) Straw – cit. Gray 1859 as *Penstemon breviflorus* Lindl. – No. 62 (BP 109093/BP TRA-00312115).

Keckiella ternata (Torr. ex A. Gray) Straw – cit. Gray 1859 as *Penstemon ternatus* Torr. ex A. Gray – No. 63 (BP 109094/BP TRA-00312099).

Penstemon centranthifolius Benth. – cit. Gray 1859 as *P. centranthifolius* Benth. – No. 61 (BP 109095/BP TRA-00312101 (photo: Fig. 7 in Pifkó 2019)).

Penstemon laetus A. Gray – cit. Gray 1859 as *P. laetus* A. Gray – No. 64 (BP 109092/BP TRA-00312117); syntype of *Penstemon laetus* A. Gray in Proc. Boston Soc. Nat. Hist. 7: 147 (1859) (GH 00091303, K 000979739, NY 00091152, NY 00091153, US 00036563).

Poaceae

Elymus repens (L.) Gould – cit. Gray 1859 as *Triticum repens* L. – No. 120 (BP 31502/BP TRA-00312090).

Leymus secalinus (Georgi) Tzvelev – cit. Gray 1859 as *Elymus dasystachys* Trin. ex Ledeb. – No. 121 (BP 31543/BP TRA-00312092, BP 31544/BP TRA-00312094).

Polypogon monspeliensis (L.) Desf. – cit. Gray 1859 as *P. monspeliensis* (L.) Desf. – No. 119 (BP 31503/BP TRA-00312093, NY 01811475, NY 01811481).

Polemoniaceae

Eriastrum densifolium (Benth.) H. Mason – cit. Gray 1859 as *Gilia densiflora* (Benth.) Peterm. – No. 95 (BP TRA-00312021).

Gilia achilleifolia Benth. – cit. Gray 1859 as *G. achilleifolia* Benth. – No. 96 (BP TRA-00312022, PH 00012190).

Gilia tricolor Benth. – cit. Gray 1859 as *G. tricolor* Benth. – No. 97 (BP TRA-00312023).

Leptosiphon androsaceus Benth. – cit. Gray 1859 as *Gilia androsacea* (Benth.) Steud. – No. 99 (BP TRA-00312024).

Linanthus dichotomus Benth. – cit. Gray 1859 as *Gilia dichotoma* (Benth.) Benth. – No. 98 (BP TRA-00312012).

Polygonaceae

Chorizanthe procumbens Nutt. – cit. Gray 1859 as *Ch. procumbens* Nutt. – No. 107 (BP TRA-00312044); syntype of *Chorizanthe xanti* S. Watson in Proc. Amer. Acad. Arts 12: 272 (1877) (GH 00036103, US 00105925, NY 00285661).

Eriogonum angulosum Benth. – cit. Gray 1859 as *E. angulosum* Benth. – No. 106 (BP TRA-00312031).

Eriogonum fasciculatum var. *polifolium* (Benth.) Torr. et A. Gray – cit. Gray 1859 as *E. polifolium* Benth. – No. 105 (BP TRA-00312030).

Mucronea perfoliata (A. Gray) A. Heller – cit. Gray 1859 as *Chorizanthe perfoliata* A. Gray – No. 108 (BP TRA-00312043); syntype of *Chorizanthe perfoliata* A. Gray in Proc. Boston Soc. Nat. Hist. 7: 148 (1861) (CAS 0032826, K 000830397, GH 00036082, NY 00285648, TCD 0018155, US 00624349, US 00651762).

Pteridaceae

Hemionitis andromedifolia (Kaulf.) Christenh. – cit. Gray 1859 as *Allosorus andromedifolius* (Kaulf.) Kuntze – No. 122 (sine BP number).

Ranunculaceae

Clematis ligusticifolia Nutt. – cit. Gray 1859 as *C. ligusticifolia* Nutt. – No. 1 (BP 116569/BP TRA-00312065) (Fig. 7).

Delphinium menziesii DC. – cit. Gray 1859 as *D. menziesii* DC. – No. 2 (BP 112835/BP TRA-00312142).

Rhamnaceae

Frangula californica (Eschsch.) A. Gray – cit. Gray 1859 as *F. californica* (Eschsch.) A. Gray – No. 18 (BP TRA-00312047) (Fig. 8).

Rosaceae

Cercocarpus montanus Raf. – cit. Gray 1859 as *C. parvifolius* Nutt. ex Hook. et Arn. – No. 26 (specimen not found in BP, PH 00025379).

Fig. 7. *Clematis ligusticifolia* Nutt. (BP 116569, BP TRA-00312065).

Fig. 8. *Frangula californica* (Eschsch.) A. Gray (BP TRA-00312047).

Rubiaceae

Galium boreale L. – cit. Gray 1859 as *G. boreale* L. – No. 40 (BP 370112/BP TRA-00312126).

Sapindaceae

Aesculus californica (Spach) Nutt. – cit. Gray 1859 as *Ae. californica* Nutt. – No. 20 (BP TRA-00312049).

Saururaceae

Anemopsis californica (Nutt.) Hook. et Arn. – cit. Gray 1859 as *A. californica* (Nutt.) Hook. et Arn. – No. 109 (BP TRA 00312042).

Scrophulariaceae

Scrophularia nodosa L. – cit. Gray 1859 as *S. nodosa* L. – No. 60 (BP 356223/BP TRA 00312125).

Solanaceae

Datura innoxia Mill. – cit. Gray 1859 as *D. meteloides* DC. ex Dunal – No. 74 (BP TRA-00312032) (Fig. 9).

Nicotiana attenuata Torr. ex S. Watson – cit. Gray 1859 as *Nicotiana* n. sp. – No. 75 (BP TRA-00312033); syntype of *Nicotiana attenuata* Torr. ex S. Watson in Botany [Fortieth Parallel]: 276 (1871) (GH 00077224, US 00588686, US 00588687).

Solanum umbelliferum var. *xanti* (A. Gray) D. J. Keil – cit. Gray 1859 as *S. umbelliferum* Eschsch. – No. 73 (BP TRA-00312014); syntype of *Solanum xanti* A. Gray in Proc. Amer. Acad. Arts 11: 90 (1876) (PH 00030435, US 00027858, GH 00077430).

Violaceae

Viola pedunculata Torr. et A. Gray – cit. Gray 1859 as *V. pedunculata* – No. 11 (BP 258378/BP TRA 00312107).

THE PLANT SPECIMENS, COLLECTED BY XÁNTUS IN CABO SAN LUCAS (1859–1860)

All herbarium specimens from Cabo San Lucas have the date "Aug. 1859 – Jan. 1860").

Fig. 9. *Datura innoxia* Mill. (BP TRA-00312032).

Acanthaceae

Justicia californica (Benth.) D. N. Gibson – cit. Gray 1861 as *Sericographis californica* A. Gray – No. 70 (BP 359679).

Amaranthaceae

Amaranthus fimbriatus (Torr.) Benth. – cit. Gray 1861 as *Amblogyna fimbriata* A. Gray – No. 99 (BP 93917/BP TRA-00312062, NY 00991163, K 000814915, K 000814916).

Amaranthus watsonii Standl. – cit. Gray 1861 as *Amblogyna torreyi* A. Gray – No. 100 (BP 93916/BP TRA-00312097); syntype of *Amaranthus torreyi* (A. Gray) Bentham ex S. Watson var. *suffruticosus* Uline et W. L. Bray in Bot. Gaz. 19: 272 (1894); paratype of *Amaranthus watsonii* Standley Bull. Torrey Bot. Club 41: 505 (1914) (NY 00324462 NY 00324463, US 00106263, GH 00037032, GH 00037033).

Celosia floribunda A. Gray – cit. Gray 1861 as *C. floribunda* A. Gray – No. 98 (BP 93355/BP TRA-00312103); syntype of *Celosia floribunda* A. Gray in Proc. Amer. Acad. Arts 5: 167 (1861) (GH 00037041, K 000582922, US 00106215).

Froelichia xantusii R. A. McCauley – cit. Gray 1861 as *F. interrupta* (L.) Moq. – No. 101 (BP 94093/BP TRA-00312052 (photo: Fig. 9 in Pifkó 2019)); paratype of *Froelichia xantusii* R. A. McCauley in Syst. Bot. 29(1): 71–73 (2004).

Apocynaceae

Vallesia glabra (Cav.) Link – cit. Gray 1861 as *V. dichotoma* Ruiz et Pav. – No. 90 (BP 307766/BP TRA-00312154).

Asteraceae

Adenophyllum speciosum (A. Gray) Strother – cit. Gray 1861 as *Dyssodia speciosa* A. Gray – No. 65 (BP 399508); syntype of *Dyssodia speciosa* A. Gray in Proc. Amer. Acad. Arts 5: 163 (1861) (GH 00006489, P 02140905, NY 00168287, NY 00168288, NY 00168289, US 00124953).

Ambrosia arborescens Mill. – cit. Gray 1861 as *Franseria ambrosioides* Cav. – No. 54 (BP 396878).

Ambrosia L. – cit. Gray 1861 as *Hymenoclea* sp. – No. 57 (BP 396772).

Ambrosia tenuifolia Spreng. – cit. Gray 1861 as *Franseria tenuifolia* var. *tripinnatifida* A. Gray – No. 55 (BP 396899/BP TRA-00312088).

Archibaccharis auriculata (Hemsl.) G. L. Nesom – cit. Gray 1861 as *Pluchea subdecurrens* var. *parvifolia* A. Gray – No. 53 (specimen not found in BP, NY 00232538, NY 00232539, GH 00011329, US 00129413); types of *Pluchea subdecurrens* var. *parvifolia* A. Gray. in Proc. Amer. Acad. Arts 5: 160 (1861).

Baccharis salicifolia (Ruiz et Pav.) Pers. – cit. Gray 1861 as *B. viminea* DC. – No. 52 (BP 390028/BP TRA-00312131).

Bahiopsis tomentosa (A. Gray) E. E. Schill. et Panero – cit. Gray 1861 as *Viguiera tomentosa* A. Gray – No. 61 (BP 397633/BP TRA-00312122); syntype of *Viguiera tomentosa* A. Gray in Proc. Amer. Acad. Arts 5: 161 (1861) (GH 00013969, NY 00277912, K 000487767, US 00125131).

Gundlachia diffusa (Benth.) Urbatsch et R. P. Roberts – cit. Gray 1861 as *Solidago diffusa* A. Gray – No. 49 (sine BP number).

Perityle californica Benth. – cit. Gray 1861 as *P. californica* Benth. – No. 48 (BP 399065).

Pseudognaphalium leucocephalum (A. Gray) Anderb. – cit. Gray 1861 as *Gnaphalium leucocephalum* A. Gray – No. 66 (BP 391991).

Sclerocarpus uniserialis (Hook.) Benth. et Hook.f. ex Hemsl. – cit. Gray 1861 as *Aldama uniserialis* A. Gray – No. 59 (BP 397309, US 01049609).

Boraginaceae

Antiphytum heliotropioides A. DC. – cit. Gray 1861 as *Eritrichium heliotropioides* Torr. – No. 75 (BP 314595).

Heliotropium curassavicum L. – cit. Gray 1861 as *H. curassavicum* L. – No. 74 (BP 313030).

Myriopus volubilis (L.) Small – cit. Gray 1861 as *Tournefortia velutina* Kunth – No. 73 (BP 312912).

Caryophyllaceae

Drymaria arenarioides subsp. *peninsularis* (S. F. Blake) J. A. Duke – cit. Gray 1861 as *D. frankenioides* Kunth – No. 5 (BP 192819), rev.: Duke, A. J. (Missouri Botanical Garden) as *D. peninsularis* S. F. Blake in 1961).

Drymaria holosteoides var. *crassifolia* (Benth.) J. A. Duke – cit. Gray 1861 as *D. crassifolia* Benth. – No. 6 (BP 192819/BP TRA-00312096), rev.: Duke, A. J. (Missouri Botanical Garden) as *D. crassifolia* Benth. in 1961) (K 000471763).

Convolvulaceae

Evolvulus alsinoides (L.) L. – cit. Gray 1861 as *E. alsinoides* L. – No. 83 (BP 310196/BP TRA-00312153).

Ebenaceae

Diospyros intricata (A. Gray) Standl. – cit. Gray 1861 as *Macreightia intricata* A. Gray – No. 68 (BP 391306); syntype of *Macreightia intricata* A. Gray in Proc. Amer. Acad. Arts 5: 163 (1861) (K 000227523, P 00721362).

Euphorbiaceae

Euphorbia leucophylla Benth. – cit. Gray 1861 as *E. leucophylla* Benth. – No. 107 (BP 237007/BP TRA-00312059, US 01428803).

Euphorbia xanti Engelm. ex Boiss. – cit. Gray 1861 as *E. gymnoclada* Boiss. – No. 111 (BP 238781/BP TRA-00312121, P 00607177, GH 00021918, K 000253730, MO 194011, NY 00263303); type of *Euphorbia xanti* Engelm. ex Boiss. in A. P. de Candolle, Prodr. 15(2): 62 (1862).

Fabaceae

Coursetia glandulosa A. Gray – cit. Gray 1861 as *C. glandulosa* A. Gray – No. 25 (BP 192109); syntype of *Coursetia glandulosa* A. Gray in Proc. Amer. Acad. Arts 5: 156 (1861) (P 02925091, GH 00053444, US 00037211, K 000640471, NY 00006545, NY 00006546).

Erythrostemon pannosus (Brandegee) Gagnon et G. P. Lewis – cit. Gray 1861 as *Caesalpinia mexicana* A. Gray – No. 28 (BP 179942); syntype of *Caesalpinia mexicana* A. Gray var. *californica* A. Gray in Proc. Amer. Acad. Arts 5: 157 (1861) (P 02142643, NY, GH, US 00002577).

Leucaena macrophylla Benth. – cit. Gray 1861 as *L. macrophylla* Benth. – No. 32 (BP 178361).

Lysiloma divaricatum (Jacq.) J. F. Macbr. – cit. Gray 1861 as *L. microphyllum* Benth. – No. 30 (BP 177553).

Macroptilium atropurpureum (DC.) Urb. – cit. Gray 1861 as *Phaseolus atropurpureus* DC. – No. 24 (BP 221786, BP 221785); isolectotype of *Phaseolus atropurpureus* Sessé et Moçiño ex DC. var. *sericeus* A. Gray in Proc. Amer. Acad. Arts 5: 156 (1861); lectotype (GH 00257784) designated by Calles *et al.* (2015), isolectotype (GH 00257783).

Marina chrysorrhiza (A. Gray) Barneby – cit. Gray 1861 as *Dalea chrysorhiza* A. Gray – No. 22 (specimen not found in BP, P 02774033, US 00003666, GH 00053636, NY 00006893, K 000082142), types of *Dalea chrysorhiza* A. Gray in Proc. Amer. Acad. Arts 5: 156 (1861).

Vachellia farnesiana (L.) Wight et Arn. – cit. Gray 1861 as *Acacia farnesiana* (L.) Willd. – No. 34 (specimen not found in BP).

Fouquieriaceae

Fouquieria splendens Engelm. – cit. Gray 1861 as *F. spinosa* Kunth – No. 38 (BP 252677).

Gentianaceae

Eustoma exaltatum (L.) Salisb. ex G. Don – cit. Gray 1861 as *E. exaltatum* (L.) Salisb. – No. 78 (BP 397058).

Lamiaceae

Condea tephrodes (A. Gray) Harley et J. F. B. Pastore – cit. Gray 1861 as *Hyptis tephrodes* A. Gray – No. 72 (BP 338739); syntype of *Hyptis tephrodes* A. Gray in Proc. Amer. Acad. Arts 5: 164 (1861) (NY 00000596, NY 00000597, K 000488176, GH 00001220, US 00121933, P 00737350).

Malpighiaceae

Galphimia angustifolia Benth. – cit. Gray 1861 as *G. angustifolia* Benth. – No. 15 (BP 230510, K 000586430).

Malvaceae

Abutilon xanti A. Gray – cit. Gray 1861 as *A. californicum Benth.* – No. 9 (BP 245681); syntype of *Abutilon xanti* A. Gray in Proc. Amer. Acad. Arts 22: 301 (1887) (GH 00052658, NY 00188222, US 00098300, P 02285618).

Sphaeralcea incana Torr. ex A. Gray – cit. Gray 1861 as *S. incana* Torr. ex A. Gray – No. 10 (BP 215834).

Nyctaginaceae

Boerhavia spicata Choisy – cit. Gray 1861 as *B. spicata* Choisy – No. 93 (specimen not found in BP, US 00102982); syntype of *Boerhavia xanti* Watson in Proc. Amer. Acad. Arts 24: 69 (1889).

Onagraceae

Oenothera laciniata Hill – cit. Gray 1861 as *Oe. sinuata* var. *humifusa* (Nutt.) Torr. et A. Gray – No. 35 (specimen not found in BP).

Poaceae

Bouteloua barbata Lag. – cit. Gray 1861 as *B. polystachya* (Benth.) Torr. – No. 117 (BP 18140/BP TRA-00312061).

Dactyloctenium aegyptium (L.) Willd. – cit. Gray 1861 as *D. aegyptiacum* Willd. – No. 118 (BP 18353/BP TRA-00312074, US 00488656, US 00488769).

Distichlis spicata (L.) Greene – cit. Gray 1861 as *Brizopyrum spicatum* Hook. et Arn. – No.121 (BP 21061/BP TRA-00312072).

Sporobolus virginicus (L.) Kunth – cit. Gray 1861 as *Vilfa virginica* (L.) P. Beauv. – No. 120 (BP 12470/BP TRA-00312073).

Polygalaceae

Polygala xanti A. Gray – cit. Gray 1861 as *P. xanti* A. Gray – No. 3 (BP 231396 (photo: Fig. 8 in Pifkó 2019)); synype of *Polygala xanti* A. Gray in Proc. Amer. Acad. Arts 5: 153 (1861) (NY 00435706, P 00733358, K 000478511, GH 00025964, US 00109066).

Polygonaceae

Antigonon leptopus Hook. et Arn. – cit. Gray 1861 as *A. leptopus* Hook. et Arn. – No. 95 (BP 88593/BP TRA-00312098).

Rubiaceae

Mitracarpus linearis Benth. – cit. Gray 1861 as *M. linearis* Benth. – No. 42 (BP 364522).

Stenotis asperuloides (Benth.) Terrell – cit. Gray 1861 as *Houstonia asperuloides* Brandegee – No. 43 (BP 362103/BP TRA-00312130).

Sapindaceae

Serjania tortuosa (Benth.) Ferrucci et V. W. Steinm. – cit. Gray 1861 as *Cardiospermum* n. sp. – No. 19 (specimen not found in BP); lectotype of *Serjania californica* Radlk. in Sitzungsber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München 8: 222 (1878) (K 000037461) designated by Steinmann *et al.* (2022), isolectotypes (GH, NY 00008345).

Scrophulariaceae

Buddleja crotonoides A. Gray – cit. Gray 1861 as *B. crotonoides* A. Gray – No. 77 (BP 393145); syntype of *Buddleja crotonoides* A. Gray in Proc. Amer. Acad. Arts 5: 165 (1861) (NY 00297512, P 00641125, K 000573302, US 00113031, GH 00075622).

Solanaceae

Solanum elaeagnifolium Cav. – cit. Gray 1861 as *S. elaeagnifolium* Cav. – No. 84 (BP 340124/BP TRA-00312123).

Stegnospermataceae

Stegnosperma halimifolium Benth. – cit. Gray 1861 as *S. halimifolium* Benth. – No. 96 (BP 94647/BP TRA-00312116).

Violaceae

Hybanthus fruticulosus (Benth.) I. M. Johnst. – cit. Gray 1861 as *Ionidium fruticulosum* var. *dentatum* A. Gray – No. 4 (specimen not found in BP).

Zygophyllaceae

Kallstroemia peninsularis D. M. Porter – cit. Gray 1861 as *K. grandiflora* Torr. ex A. Gray – No. 14 (BP 228109); isoparatype of *Kallstroemia peninsularis* D. M. Porter in Contr. Gray Herb. 198: 136 (1969) (GH 00043929).

After a comprehensive, very thorough survey, altogether 170 specimens could be found in the Herbarium Generale, Hungarian Natural History Museum (BP) from the 184 duplicate specimens of Xántus's botanical collection originally received from the United States in 1861. All of them are listed in taxonomic order in this paper. A total of 24 syntypes of 23 taxa have been recognised in this set: *Abutilon xanti* A. Gray, *Amaranthus torreyi* (A. Gray) Bentham ex S. Watson var. *suffruticosus* Uline et W. L. Bray, *Bahia parviflora* A. Gray, *Blitum californicum* S. Watson, *Buddleja crotonoides* A. Gray, *Caesalpinia mexicana* A. Gray var. *californica* A. Gray, *Caulanthus coulteri* S. Watson, *Celosia floribunda* A. Gray, *Chaenactis xantiana* A. Gray, *Chorizanthe perfoliata* A. Gray, *Chorizanthe xanti* S. Watson, *Clarkia xantiana* A. Gray, *Coursetia glandulosa* A. Gray, *Dyssodia speciosa* A. Gray, *Gomphocarpus tometosus* var. *xanti* A. Gray, *Hyptis tephrodes* A. Gray, *Krynitzkia microstachys* Greene ex A. Gray, *Macreightia intricata* A. Gray, *Nicotiana attenuata* Torr. ex S. Watson, *Penstemon laetus* A. Gray, *Polygala xanti* A. Gray, *Solanum xanti* A. Gray, *Viguiera tomentosa* A. Gray; as well as isolectotypes of 2 taxa, *Phaseolus atropurpureus* Sessé et Moçiño ex DC. var. *sericeus* A. Gray, and *Stachys albens* A. Gray; and isoparatypes of 3 taxa, *Amaranthus watsonii* Standley, *Froelichia xantusii* R. A. McCauley, and *Kallstroemia peninsularis* D. M. Porter.

* * *

Acknowledgement – Special thanks to Norbert Bauer for taking photos of the herbarium specimens.

Összefoglaló: Xántus János két jelentősebb botanikai gyűjtést folytatott Észak-Amerikában, egyrészt Kaliforniában, majd a Kaliforniai-félsziget déli csúcsán, Mexikóban. Összességében 245 faj mintegy 1000–1500 példányát gyűjtötte be (a Fort Tejon erőd térségében 123 fajt, a Cabo San Lucas-i mérőpont környékén 122 fajt). Ezek feldolgozását, meghatározását Asa Gray végezte, aki 20 új fajt írt le Xántus gyűjtéséből. Későbbi revíziók eredményeként más taxonómusok további új fajokat írtak le. 1861-ben a Smithsonian Intézet a 245 fajból 184 duplumpéldányt küldött a Magyar Nemzeti Múzeumnak. Jóllehet, Asa Gray minden fajt meghatározott, a duplumok jelentős részén csak a lelőhelyi cédula volt, fajnevek nélkül. Így a példányok a legkülönbözőbb (nem a megfelelő) helyekre lettek

beosztva a múzeum növénytani gyűjteményébe, nagyon megnehezítve ezzel későbbi előkeresésüket. A 184 példányból alapos keresést követően 170 példányt sikerült megtalálni. Ebből 23 taxon 24 szüntípusát lehetett beazonosítani: *Abutilon xanti* A. Gray, *Amaranthus torreyi* (A. Gray) Bentham ex S. Watson var. *suffruticosus* Uline et W. L. Bray, *Bahia parviflora* A. Gray, *Blitum californicum* S. Watson, *Buddleja crotonoides* A. Gray, *Caesalpinia mexicana* A. Gray var. *californica* A. Gray, *Caulanthus coulteri* S. Watson, *Celosia floribunda* A. Gray, *Chaenactis xantiana* A. Gray, *Chorizanthe perfoliata* A. Gray, *Chorizanthe xanti* S. Watson, *Clarkia xantiana* A. Gray, *Coursetia glandulosa* A. Gray, *Dyssodia speciosa* A. Gray, *Gomphocarpus tometosus* var. *xanti* A. Gray, *Hyptis tephrodes* A. Gray, *Krynitzkia microstachys* Greene ex A. Gray, *Macreightia intricata* A. Gray, *Nicotiana attenuata* Torr. ex S. Watson, *Penstemon laetus* A. Gray, *Polygala xanti* A. Gray, *Solanum xanti* A. Gray, *Viguiera tomentosa* A. Gray; továbbá két izolektotípust: *Phaseolus atropurpureus* Sessé et Moçiño ex DC. var. *sericeus* A. Gray, and *Stachys albens* A. Gray; és három izoparatípust: *Amaranthus watsonii* Standley, *Froelichia xantusii* R. A. McCauley, and *Kallstroemia peninsularis* D. M. Porter.

REFERENCES

Beros, J. (2021): János Xántus, a 19th century collector. – *The Plant Press, n. ser.* **24**(1): 16–17.

Calles, T., Lewis G. P., Berlingeri, C. and Crespo, M. B. (2015): Lectotypification of Macroptilium atropurpureum (Leguminosae). – *Kew Bulletin* **70**, 14. https://doi.org/10.1007/s12225-015-9562-0

Gray, A. (1859): List of collection dried plants made by L. J. Xántus at Fort Tejon and vicinity, California. – *Proc. Boston Soc. Nat. Hist.* **7**: 144–149.

Gray, A. (1861): Enumeration of a collection of dried plants made by L. J. Xántus, at Cape San Lucas. – *Proc. Amer. Acad. Arts Sci.* **5**: 153–173.

Madden, H. M. (1949): *Xántus: Hungarian naturalist in the Pioneer West*. – Palo Alto, Linz, 312 pp.

Mulligan, G. A. and Munro, D. B. (1989): Taxonomy of species of North American Stachys (Labiatae) found north of Mexico. – *Naturaliste Canad. (Rev. Écol. Syst.)* **116**: 35–51.

Pifkó, D. (2019): Xántus János (1825–1894) botanikai tevékenysége és Kaliforniában gyűjtött herbáriuma a Magyar Természettudományi Múzeum (MTM) Növénytárában. (Botanical activities of János Xántus (1825–1894) and his herbarium at the Department of Botany of the Hungarian Natural History Museum (HNHM)). – *Annls Mus. hist.-nat. hung.* **111**: 145–177.

POWO (2023): *Plants of the World Online*. – Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; http://www.plantsoftheworldonline.org/ [accessed on 01.09.2023]

Rebman, J. P., Gibson, J. and Rich, K. (2016): Annotated checklist of the vascular plants of Baja California, Mexico. – *Proc. San Diego Soc. Nat. Hist.* **45**: 1–352.

Steinmann, V. W., Ferrucci, M. S. and Maya-Lastra, C. A. (2022): Phylogenetics of Serjania (Sapindaceae, Paullinieae), with emphasis on fruit evolution and the description of a new species from Michoacán, Mexico. – *Syst. Biodiv.* **20**(1), 1–21. https://doi.org/10.1080/14772000.2022.2030425

Thiers, B. M. (2017): *Index Herbariorum: A global directory of public herbaria and associated staff.* – New York Botanical Garden's Virtual Herbarium. http://sweetgum.nybg.org/ih/ [accessed on 01.09.2023]

(submitted: 21.10.2023; accepted: 29.12.2023)