

Type specimens collected by Juan Isern during the Pacific Scientific Commission to South America (1862–1866)

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Juan Isern collected ca. 25,000 plant specimens during the Pacific Scientific Commission to South America between 1862 and 1866, but unfortunately he died the same year the expedition returned to Spain. In Chile, Isern exchanged specimens with Philippi, who later described three new species based on those collections which are all deposited at SGO. In the early 1930s, José Cuatrecasas worked intensively with the Isern collections at MA, where most of Isern's South American specimens are deposited. Cuatrecasas, Trelease, Sleumer, Standley and Yuncker described several new species and other taxa using Isern collections as type material. A total of 47 species, 21 varieties and 7 forms were described in 9 families, principally in the *Asteraceae*, *Piperaceae* and *Gesneriaceae* based on Isern collections. Here, the nomenclature of all Isern type specimens is studied for these 75 names. Lectotype specimens for the names of four species, three varieties and five forms described by Cuatrecasas and one species described by Trelease are designated in the present paper.

KEYWORDS: Comisión Científica del Pacífico, historical specimens, José Cuatrecasas, Juan Isern, nomenclature, South America, typification

INTRODUCTION

The Pacific Scientific Commission (Comisión Científica del Pacífico) was the last large expedition to America funded by the Spanish monarchy in the 19th century (Miller, 1968; Puig-Samper, 1988). During more than four years (1862–1866), a group of seven naturalists and a photographer travelled extensively by way of the Canary Islands (Tenerife) and Cape Verde Islands to Brazil, Uruguay, Argentina, Chile, Bolivia, Peru and Ecuador to study the biota of these countries (Almagro, 1866; Barreiro, 1926; Jiménez de la Espada, 1928; Martínez y Sáez, 1994; Ponsati-Obiols & Pérez-Montes, 2003; Sánchez-Garrido & Verde-Casanova, 2003). Juan Isern Batlló (1821–1866) was the botanist of the expedition, and he collected ca. 25,000 plant specimens; only occasionally other expedition members do so, as, e.g., Martínez y Sáez. The collection included 114 specimens collected by P.V. Solano, a Spanish priest resident in Ecuador, who gifted his collections to the president of the expedition to be sent to Spain. The last specimens arrived in Spain in 1866 and the Isern herbarium was established at MA, Real Jardín Botánico de Madrid (Blanco, 1988). Juan Isern fell ill during the last part of the travels and died in Spain in 1866. Detailed information on the Isern diary and a full catalogue of all the botanical collections can be found in Blanco & al. (2006).

During the expedition, Isern exchanged some of his collections with the Museo de Santiago (Chile) and they are today deposited in SGO (Blanco & Puig-Samper,

1995). Later, R.A. Philippi described three new *Asteraceae* species based on Isern specimens (Philippi, 1865, 1873, 1894). To our knowledge the exchanged specimens were unicates, but we cannot ascertain for certain that duplicates were not distributed from Chile and deposited in other herbaria.

José Cuatrecasas studied all Isern specimens in MA. He noted that the numbers on Isern's original labels for the specimens were serial numbers that were repeated at different localities. So in order to facilitate its study, he re-numbered the entire collection with a sequential numbering system, from number 1 to more than 8,000 to represent single gatherings. Later, Cuatrecasas received a fellowship to study Isern collections at the Berlin Botanical Museum between 1934–1935, and published "Plantae Iserniana I" (Cuatrecasas, 1935). Cuatrecasas described new species, varieties and forms mainly in the *Asteraceae*, the family of his highest interest, but also some in *Cunoniaceae*, *Gentianaceae*, *Gesneriaceae* and *Proteaceae*. All the types of the species he described are deposited at MA. At the same time, H. Sleumer studied the *Ericaceae* collection at B and published "Plantae Iserniana II", including the description of two new species (Sleumer, 1936). The type specimens were destroyed during World War II and the names were later neotypified (Luteyn, 1996). According to the correspondence between Cuatrecasas and Trelease deposited in the MA library, we know that before the Spanish Civil War, Cuatrecasas sent all *Piperaceae* specimens to W. Trelease at the University of Illinois (ILL). Trelease published "Plantae Iserniana III", with

the description of 17 new species and varieties (Trelease, 1941). Trelease together with Yuncker studied the *Piperaceae* of northern South America (Trelease & Yuncker, 1950) and later the Yuncker herbarium (ex DPU), which included some *Piperaceae* specimens collected by Isern, was purchased by the NY herbarium (Callejas & Johnson, 1989). However, some *Piperaceae* type material is still deposited in ILL. Duplicates of all these specimens are also found at MA.

In the last few decades, the MA herbarium has assigned accession numbers to all Isern specimens. However, all duplicates of the same Isern collection number (as assigned by Cuatrecasas) were commonly numbered with a single MA accession number, which cause problems for precise holotype identification or subsequent lectotypification, since a single sheet (ideally with a unique MA accession number) should be selected. To facilitate our work, we have added a sequential number /1, /2, /3, etc. to the MA accession number for all duplicate sheets in MA with the same Isern collection number.

Some fragments of Isern specimens are today deposited in F. At some time after the publication of “Plantae Isernianaerum I” (Cuatrecasas, 1935), Cuatrecasas probably took these fragments from MA to F when he had to go into exile.

The aim of the present paper is to study and clarify the nomenclature of all type specimens collected by Isern during the Pacific Scientific Commission, most of which are deposited in MA. We seek to promote this historical collection to the international botanical community as an aid to future taxonomic studies. Here we lectotypify the names of twelve of the taxa described by Cuatrecasas, since all specimens he studied were deposited in MA. In some cases, we were able to lectotypify either because the text on the original label handwritten by Isern coincided with that in the protologue of the taxon described,

or because the MA specimen clearly represents the original drawing published by Cuatrecasas (1935). We also lectotypify the name of one species in the *Piperaceae* described by Trelease (after Trelease & Yuncker, 1950). However, lectotypification of 13 names in different families is still needed and these cases are explicitly indicated. These last cases need to be studied by specialists.

ISERN TYPE SPECIMENS

A total of forty-seven species, twenty-one varieties and seven forms in nine families were described based on Isern plant specimens (Table 1). Prior to this publication, lectotypification of the names of fourteen species and one variety has been published. In the present paper, we lectotypify the names of a further five species, three varieties and five forms (Table 1).

The Isern type material is presented in alphabetical order of families, genera and species following this format: scientific name with full bibliographical reference for each type (if the name as originally published contained an error this is indicated in parenthesis), locality data as it appears in the protologue and type statement for each specimen. We indicate the currently accepted name in each entry in *bold italic* typeface.

Asteraceae

Aster sodiroi Hieron. var. *peruanus* Cuatrec. in Anales Univ. Madrid, Ci. 4: 209. 1935 – Type: Peru, puna, in itinere e Tarma ad La Oroya, 12 Nov 1863, *Isern 425* (syntype: MA 217323); Peru: inter Vitoc et Los Altos de Palca, 3 Nov 1863, *Isern 464* (syntype: MA 217359).

This name is open to lectotypification.

Table 1. Number of species, varieties and forms described on Isern plant specimens and number of lectotypifications (LT) designated subsequently, broken down by families. In parentheses, the number of lectotypes designated in this study are included. These types are all deposited in MA except for three of them in SGO.

Families	No. of species	No. of varieties	No. of forms	Species LT	Varieties LT	Forms LT
<i>Asteraceae</i>	19	15	6	4 (3)	4 (3)	4 (4)
<i>Campanulaceae</i>	1					
<i>Cunoniaceae</i>	1			1 (1)		
<i>Ericaceae</i>	2			1		
<i>Gentianaceae</i>		1	1			1 (1)
<i>Gesneriaceae</i>	9			3		
<i>Piperaceae</i>	13	5		9 (1)		
<i>Proteaceae</i>	1			1		
<i>Rubiaceae</i>	1					
Total	47	21	7	19 (5)	4 (3)	5 (5)

Baccharis capitata Kunth var. *entera* Cuatrec. in Anales Univ. Madrid, Ci. 4: 210. 1935 [= *Baccharis teindalensis* Kunth] – Type: Ecuador, without locality, without date, *Isern* 330 (holotype: MA 214987).

Baccharis espadae Cuatrec. in Anales Univ. Madrid, Ci. 4: 210, fig. 1. 1935 – Type: Peru, inter Vitoc et Altos de Palca, 4 Nov 1863, *Isern* 463 (holotype: MA 222930; isotype: F 843174 fragm.; photo: F!).

There are two specimens of *Isern* 463: the MA 222930 specimen is the holotype and the specimen at F is a fragment removed from the MA holotype after 1935, and therefore is an isotype. Figure 1 coincides with the MA 222930 specimen.

Baccharis oronocensis DC. var. *perua* Cuatrec. in Anales Univ. Madrid, Ci. 4: 209. 1935 [= *Baccharis nitida* (Ruiz & Pav.) Pers.] – Type: Peru, Chanchamayo. Elegante mata de 10–16 pies; falda de los bosques, 17 Oct 1863, *Isern* 33 (lectotype [designated here]: MA 557073/1; isolectotype: MA 557073/2).

The specimen chosen as lectotype includes the above description in Isern's handwritten, exactly as reproduced by Cuatrecasas (1935) in the protologue.

Baccharis prostrata (Ruiz & Pav.) Pers. var. *lineata* Cuatrec. in Anales Univ. Madrid, Ci. 4: 212. 1935 [= *Baccharis tricuneata* (L. f.) Pers.] – Type: Peru, Bajada del Ricricán, camino de La Oroya a Tarma, terreno calizo, 29 Sep 1863, *Isern* 438 (lectotype [designated by Cuatrecasas (1968: 214)]: US 2576959; isolectotypes: MA 222985/1–4; photo: US!).

Cuatrecasas lectotypified this name inadvertently by publishing the specimen at US as the holotype for his new combination *Baccharis tricuneata* (L. f.) Pers. var. *lineata* (Cuatrec.) Cuatrec.

Brachyris isernii Phil. in Anales Univ. Chile 27: 337. 1865 ≡ *Gutierrezia isernii* (Phil.) Phil. – Type: Argentina, Inter Santa Rosa et Mendoza jam in declivi orientali Andium crescit, without date, *Isern* s.n. (holotype: SGO 65115; photo: SGO!).

Chaptalia isernina Cuatrec. in Anales Univ. Madrid, Ci. 4: 212, figs. 2, 3. 1935 – Type: Peru, Chanchamayo in sylvis, 12 Oct 1863, *Isern* 42 (lectotype [designated here]: MA 231751/1; isolectotypes: F 843139, MA 231751/2–3; photo: F!).

The right-hand plant on the lectotype coincides with figure 2.

Culcitium adscendens Benth. var. *angustifolium* Cuatrec. in Anales Univ. Madrid, Ci. 4: 215. 1935 [= *Aetheolaena lingulata* (Schltdl.) B. Nord.] – Type: Ecuador,

Chimborazo, Nov 1864, *Isern* 680 (holotype: MA 223913).

Culcitium pichinchense Cuatrec. in Anales Univ. Madrid, Ci. 4: 215, fig. 4. 1935 ≡ *Aetheolaena pichinchensis* (Cuatrec.) B. Nord. – Type: Ecuador, Monte Pichincha, 11 Dec 1864, *Isern* 308 (lectotype [designated by Cuatrecasas (1978: 311)]: MA 234281; isolectotype: F 843135; photo: F!).

Cuatrecasas lectotypified this name inadvertently by publishing the MA specimen as the holotype for his new combination *Lasiocephalus pichinchensis* (Cuatrec.) Cuatrec. The left-hand shoot on the lectotype coincides with figure 4.

Diplostephium artisanense Hieron. f. *rhodopappus* Cuatrec. in Anales Univ. Madrid, Ci. 4: 216. 1935 – Type: Ecuador, Antisana, Jan 1865, *Isern* 52 (syntypes: MA 223892/1–2).

This name is open to lectotypification.

Erigeron minusculus Cuatrec. in Anales Univ. Madrid, Ci. 4: 218. 1935, nom. illeg. (non *Erigeron minusculus* Greene in Leaflet Bot. Observ. Crit. 2, 1: 8–9. 1909) – Type: Peru, in Bajada de Piedra Parada, 26 Sep 1863, *Isern* 525 (holotype: MA 235865).

No currently accepted name or synonym exists for this taxon.

Erigeron weddellianus Hieron. var. *rosuloides* Cuatrec. in Anales Univ. Madrid, Ci. 4: 218. 1935, ('weddellianum') [= *Erigeron ecuadoriensis* Hieron.] – Type: Ecuador, cercanías de Quito, Jan 1865, *Isern* 351 (syntype: MA 224062); Ecuador, Antisana, Jan 1865, *Isern* 48 (syntype: MA 214988); Ecuador, Antisana, Jan 1865, *Isern* 333 (syntype: MA 224061); Ecuador, Pichincha, Dec 1864, *Isern* 348 (syntype: MA 224060); Ecuador, Quito en La Chorrera, 17 Jan 1865 y en El Panecillo, 22 Jan 1865, *Isern* 603 (syntype: MA 564193).

This name is open to lectotypification.

Eupatorium amori Cuatrec. in Anales Univ. Madrid, Ci. 4: 219, fig. 5. 1935 [= *Ophryosporus heptanthus* (Sch. Bip. ex Wedd.) R.M. King & H. Rob.] – Type: Peru, in itinere e Vitoc ad Los Altos de Palca, 4 Nov 1863, *Isern* 467 (holotype: MA 236180).

Eupatorium conyzoides Vahl f. *angustiflora* Cuatrec. in Anales Univ. Madrid, Ci. 4: 221. 1935, ('conyzoides') [= *Chromolaena odorata* (L.) R.M. King & H. Rob.] – Type: Ecuador, Guayaquil, without precise date in 1864, *Isern* 85 (syntype: MA 564031); Ecuador, Guayaquil, without precise date in 1864, *Isern* 93

(syntypes: MA 564032/1–2); Ecuador, Guayaquil, without date, *Isern* 590 (specimen not at MA).

This name is open to lectotypification.

Eupatorium esmeraldae Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 221, figs. 6, 7. 1935 [= *Ageratina rhyodes* (B.L. Rob.) R.M. King & H. Rob.] – Type: Ecuador, Esmeralda, without date, *P.V. Solano* 32 (lectotype [designated here]: MA 236211; isoelectotypes: MA 236210, MA 564194).

The left-hand shoot on the lectotype coincides with figure 6.

Gnaphalium ecuadorensis Hieron. var. *boliviensis* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 223. 1935 ('*ecuadoriensis*') – Type: Bolivia, Monte llamado Tiaguano, 12 Jul 1863, *Isern* 387 (syntype: MA 241104/1); Bolivia, cercanías de La Paz, 2 Jul 1863, *Isern* 386 (syntype: MA 241103).

This name is open to lectotypification.

Gnaphalium weddellianum Rusby var. *nanum* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 225. 1935 – Type: Bolivia, cercanías de La Paz, 4 Jul 1863, *Isern* 389bis (holotype: MA 558035).

Gochnatia iserniana Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 225, fig. 8. 1935 [= *Gochnatia arequipensis* Sandwith] – Type: Peru, Quegueña (Depart. Arequipa), 11 Aug 1863, *Isern* 448 (syntypes: MA 240974/1–9).

The original drawing does not exactly coincide with any of the nine specimens, so the name is open to lectotypification.

Jungia aceroides Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 227, fig. 9. 1935 [= *Jungia paniculata* (DC.) A. Gray subsp. *paniculata*] – Type: Ecuador, Esmeralda, without date, *P.V. Solano* 36 (holotype: MA 242353/2).

The right-hand shoot on the holotype coincides with fig. 9. In MA there are two specimens identified as *J. aceroides* by Cuatrecasas. The first MA 242353/2 is the holotype. The second sheet numbered by Cuatrecasas as *Solano 36bis* (MA 242353/1) bears an original handwritten label by P.V. Solano as *Dumerilia paniculata*, that following Harling (1995: 46) is a syntype.

Jungia vitocensis Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 230, fig. 10. 1935 – Type: Peru, in itinere e Vitoc ad Altos de Palca, 4 Nov 1863, *Isern* 462 (syntypes: F 843172 fragm., MA 242357/1–2; photo: F!).

The original drawing does not exactly coincide with either of the two specimens. Harling (1995: 38) does not choose between the two specimens at MA, therefore the name is open to lectotypification.

Luciliopsis isernii Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 231, fig. 11. 1935 ≡ *Cuatrecasasiella isernii* (Cuatrec.) H. Rob. – Type: Ecuador, in aquis stagnantibus in paramo Jacupamba (Antisana), Jan 1865, *Isern* 70 (holotype: MA 242845).

The left-hand plant on the holotype coincides with figure 11. Although Isern is cited in the protologue as the collector, the specimen was in fact collected by Martínez y Sáez, another expedition member.

Mikania almagroi Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 233. 1935 [= *Mikania banisteriae* DC.] – Type: Ecuador, San José, Jun 1865, *Isern* 368 (holotype: MA 244042; isotype: F 843176 fragm.; photo: F!).

There are two specimens of *Isern* 368: the MA 244042 specimen is the holotype and the specimen at F is a fragment removed from the MA holotype after 1935, and therefore is an isotype.

Mikania archidonensis Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 234, fig. 12. 1935 [= *Mikania guaco* Bonpl.] – Type: Ecuador, Archidona, Apr–May 1865, *Isern* 72 (syntypes: F 843133, MA 244046/1–4; photo: F!).

The original drawing does not coincide with any of the specimens, so the name is open to lectotypification.

Mikania iserniana Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 235 – Type: Ecuador, Guayaquil, without precise date in 1864, *Isern* 94 (holotype: MA 244062; isotype: F 843137; photo: F!).

Mutisia isernii Phil. in *Anales Univ. Chile* 85: 823. 1894 – Type: Bolivia, habitat ad Tiahuanaco, without date, *Isern* s.n. (holotype: SGO 64919, not seen).

Mutisia ledifolia Decne. ex Wedd. f. *glabrata* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 236. 1935 [= *Mutisia ledifolia* Decne. ex Wedd.] – Type: Bolivia, Tiaguano, 14 Jul 1863, *Isern* 474 (lectotype [designated here]: MA 244139/1; isoelectotypes: LPB, MA 244139/2–10).

This specimen was chosen because text in the protologue and that on the label of the selected lectotype coincide.

Mutisia viciifolia Cav. f. *intermedia* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 237. 1935 ('*viciaefolia*') – Type: Bolivia, cercanías de La Paz, 3 Jul 1863, *Isern* 369 (lectotype [designated here]: MA 244150/1; isoelectotypes: LPB, MA 244150/2–14); Peru, común en el valle de Tarma, 29 Sep 1863, *Isern* 584 (syntype: MA 557175); Peru, Palca, 21 Jun 1863, *Isern* 583 (syntypes: MA 557174/1–5).

This specimen was chosen because the text on the original label of the selected lectotype coincides with text in the protologue.

Onoseris integrifolia Less. var. *brachyphylla* Cuatrec. in Anales Univ. Madrid, Ci. 4: 237. 1935 [= *Onoseris albicans* (D. Don) Ferreyra] – Type: Peru, Quebrada de San Mateo, 25 Sep 1863, *Isern* 382 (lectotype [designated here]: MA 557176/1; isolectotype: MA 557176/2).

This specimen was chosen because text in the protologue and that on the label of the selected lectotype coincide.

Senecio adenophyllus Meyen & Walp. var. *angustipinnatus* Cuatrec. in Anales Univ. Madrid, Ci. 4: 238. 1935. – Type: Peru, Queguena (Arequipa), 11 Aug 1863, *Isern* 398 (holotype: MA 557190).

Senecio almagroi Cuatrec. in Anales Univ. Madrid, Ci. 4: 238, fig. 13. 1935 [= *Pseudogynoxys engleri* (Hieron.) H. Rob. & Cuatrec.] – Type: Ecuador, in itinere e Bodegas ad La Mona, in silvis, 17 Nov 1864, *Isern* 364 (holotype: MA 245278).

The left-hand shoot on the holotype coincides with figure 13.

Senecio comosus Sch.Bip. var. *cauliglabrus* Cuatrec. in Anales Univ. Madrid, Ci. 4: 239. 1935, nom. nud. – Type: Peru, Bajada de Palca, 3 Nov 1863, *Isern* 427 (holotype: MA 557193).

We do not know any currently accepted name or synonym for this taxon.

Senecio formosus Kunth f. *obtusata* Cuatrec. in Anales Univ. Madrid, Ci. 4: 240. 1935 – Type: Ecuador, without locality, without date, *Isern* 57 (lectotype [designated here]: MA 223893/1; isolectotypes: MA 223893/2–3, MA 214986).

This specimen was chosen because the text on the original label of the selected lectotype coincides with text in the protologue.

Senecio isernii Cuatrec. in Anales Univ. Madrid, Ci. 4: 240, fig. 14. 1935, nom. illeg. (non *Senecio isernii* Phil. in Anales Univ. Chile 43: 499. 1873) ≡ *Chersodoma juanisernii* (Cuatrec.) Cuatrec. – Type: Peru, Prope Maticana in solo substrati lamellarum saxearum, 15 Nov 1863, *Isern* 420 (holotype: MA 245378; isotype: F 844445 fragm.; photo: F!).

There are two specimens of *Isern* 420: the MA 245378 specimen is the holotype, and that at F is a fragment removed from the MA holotype, and therefore is an isotype. The left-hand plant on the holotype coincides with

fig. 14. When Cuatrecasas noticed that this species was a later homonym, he established the new name *Senecio juanisernii* Cuatrec. (Cuatrecasas 1936: 144).

Senecio isernii Phil. in Anales Univ. Chile 43: 499. 1873 – Type: Chile, cerca de Coquimbo, Jun without year, *Isern* s.n. (holotype: SGO 60719; photo: SGO!).

The SGO specimen is a fragment. A complete specimen of the same species, *Isern* 3853 exists as MA 553729 with the original label: “Coquimbo, 12 Jun 1863”. The original collection number handwritten by Isern on the SGO specimen appears to be 30, but Philippi did not cite any collection number in his publication. In the MA specimen, the original collection number handwritten by Isern is 28.

Senecio melanocalyx Cuatrec. in Anales Univ. Madrid, Ci. 4: 242, fig. 15. 1935 – Type: Peru, inter Vitoc et Los Altos de Palca, 4 Nov 1863, *Isern* 463 (lectotype [designated here]: MA 245399); Peru, Prope Palca, 4 Nov 1863, *Isern* 428 (syntype: MA 245400).

This specimen was chosen because text in the protologue and that on the label of the selected lectotype coincide.

Senecio pinnatus Poir. var. *divaricoides* Cuatrec. in Anales Univ. Madrid, Ci. 4: 242. 1935 [= *Senecio theresiae* O. Hoffm.] – Type: Peru, Quebrada de San Mateo, 25 Sep 1863, *Isern* 36 (lectotype [designated here]: MA 557202/1; isolectotypes: MA 557202/2–3); Peru, Quebrada de San Mateo, 25 Sep 1863, *Isern* 37 (syntypes: MA 557203/1–14).

This specimen was chosen because the text on the original label of the selected lectotype coincides with text in the protologue.

Senecio rudbeckiifolius Meyen & Walp. f. *foliangusta* Cuatrec. in Anales Univ. Madrid, Ci. 4: 243. 1935 – Type: Peru, Tarma, 1 Oct 1863, *Isern* 35 (lectotype [designated here]: MA 557230/1; isolectotypes: MA 557230/2–5).

This specimen was chosen because text in the protologue and that on the label of the selected lectotype coincide.

Tessaria ambigua DC. var. *uniflora* Cuatrec. in Anales Univ. Madrid, Ci. 4: 244. 1935 – Type: Peru, Arica, 18 Jun 1863, *Isern* 413 (holotype: MA 557236).

Verbesina diversifolia DC. var. *ecuadoriana* Cuatrec. in Anales Univ. Madrid, Ci. 4: 244. 1935 [= *Verbesina minuticeps* S.F. Blake] – Type: Ecuador, Guayaquil, without precise date in 1864, *Isern* 89 (syntypes: GB, MA 214985/1–4).

This name is open to lectotypification.

Werneria pygmaea Gillies ex Hook. & Arn. var. *cylindrica* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 245. 1935 – Type: Peru, Posta Huevillas (Puno-Arequipa), 26 Jul 1863, *Isern 446* (holotype: MA 557245).

Campanulaceae

Centropogon papillosus E. Wimm. in Engler, *Pflanzenr.*, IV, 276b (106. Heft): 177. 1943 – Type: Ecuador, im dichten Unterholz des Urwaldes bei Archidona, 900–1,000 m, without precise date, *W. Hopp 1030*, (holotype: B, destroyed). – Ecuador, Archidona, Apr–May 1865, *Isern 1347(2)* (neotype [designated here, following Stein (1987: 360)]: GB; isoneotype: MA 252188).

Stein (1987) sought to neotypify this name in his thesis, but under Art. 30.5 of the *Vienna Code* (McNeill & al., 2006) this is not an effectively published work and so the neotype is designated above. The isoneotype was not seen nor reported by Stein (1987).

Cunoniaceae

Weinmannia baezana Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 262, fig. 24. 1935 [= *Weinmannia pubescens* Kunth] – Type: Ecuador, inter Baeza et Archidona, Mar–Apr 1865, *Isern 127* (lectotype [designated here]: MA 235559/1; isolectotypes: F 843131, MA 235559/2; photo: F!).

The isolectotypes are probably fragments removed after 1935 from the designated lectotype. The selected lectotype coincides with figure 24.

Ericaceae

Cavendishia isernii Sleumer in *Trab. Mus. Nac. Ci. Nat.*, Ser. Bot. 32: 5. 1936 – Type: Ecuador, inter Baeza et Archidona, Mar–Apr 1865, *Isern 9* (holotype: MA 223891; isotype: B, destroyed).

Macleania cardiophylla Sleumer in *Trab. Mus. Nac. Ci. Nat.*, Ser. Bot. 32: 8. 1936 – Type: Ecuador, Guaranda, 21 Nov 1864, *Isern 537* (holotype: B, destroyed; lectotype [designated by Luteyn (1996: 394)]: MA 249356).

Gentianaceae

Gentiana rupicola Kunth f. *angustipetala* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 261. 1935 (*‘rupestris’*) [= *Gentianella cerastioides* (Kunth) Fabris] – Type: Ecuador, Chimborazo, Dec? 1864, *Isern 133* (lectotype [designated here]: MA 223919/1; isolectotype: MA 223919/2).

Cuatrecasas (1935) erroneously referred to “*Gentiana rupestris*” but there is no such species name and he apparently meant *G. rupicola* Kunth. This specimen was chosen because text in the protologue and that on the label of the selected lectotype coincide.

Halenia taruga-gasso Gilg var. *laxiflora* Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 261. 1935 (*‘taruga gasso’*) [= *Halenia pulchella* Gilg] – Type: Ecuador, Antisana, Jan 1865, *Isern 148* (holotype: MA 223920).

Another specimen exists with the original label “Faldas del Antisana, Jan 1865” that Cuatrecasas did not report in his monograph. This numbered *Isern 140* (MA 564855) is very similar to the holotype, and might in fact have come from the same gathering.

Gesneriaceae

Columnnea archidona Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 245, fig. 16. 1935 [= *Columnnea ericae* Mansf.] – Type: Ecuador, entre Baeza y Archidona, Mar–Apr 1865, *Isern 497* (lectotype [designated by Kvist & Skog (1993: 355)]: MA 231643); Ecuador, Sumaco, Jun 1865, *Isern 188* (syntypes: MA 231644/1–2).

The right-hand shoot on the lectotype coincides with figure 16.

Columnnea isernii Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 247, fig. 17. 1935 – Type: Ecuador, El Jorge, 20 Nov 1864, *Isern 502* (holotype: MA 231645).

Crantzia pseudocordata Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 249, fig. 18. 1935 [= *Drymonia semicordata* (Poepp.) Wiehler] – Type: Ecuador, prope Archidona, Apr–May 1865, *Isern 503* (holotype: MA 231625).

Diastema peruanum Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 250, fig. 19. 1935 [= *Diastema hispidum* (DC.) Fritsch] – Type: Peru, Chanchamayo, 11 Oct 1863, *Isern 134* (syntypes: F 843138, MA 231634/1–6; photo: F!).

The original drawing does not exactly coincide with any portion of the specimens, so the name is open to lectotypification.

Diastema rhodotrichum Cuatrec. in *Anales Univ. Madrid*, Ci. 4: 252, fig. 20. 1935 ≡ *Pearcea rhodotricha* (Cuatrec.) L.P. Kvist & L.E. Skog – Type: Ecuador, E Santa Rosa ad Cotapino, Jun 1865, *Isern 496* (lectotype [designated by Wiehler (1978: 8)]: MA 231627); Ecuador, Aguano, 21 Jun 1865, *Isern 495* (syntypes: F 843134; MA 231628; photo: F!); Ecuador, San José, Jun 1865, *Isern 495bis* (syntypes: MA 231626/1–2).

Since there are two specimens numbered MA 231627, we establish here that MA 231627/1 is the lectotype as it carries a handwriting original label by Wiehler indicating it as the lectotype; MA 231627/2 is an isolectotype.

Kohleria avilana Cuatrec. in *Anales Univ. Madrid, Ci.* 4: 256, fig. 22. 1935 [= *Pearcea sprucei* (Britton) L.P. Kvist & L.E. Skog var. *sprucei*] – Type: Ecuador, Avila, Jun 1865, *Isern 169* (lectotype [designated by Wiehler (1978: 5)]: MA 231629; isolectotype: F 843136; photo: F!).

Wiehler cited erroneously *Isern 169* (MA) as the holotype, but this is correctable to lectotype under Art. 9.8 of the *Vienna Code* (McNeill & al., 2006).

Since there are three specimens for MA 231629, we establish here that MA 231629/1 is the lectotype as it carries a handwriting original label by Wiehler indicating it as the lectotype; MA 231629/2–3 are then isolectotypes.

Kohleria baezana Cuatrec. in *Anales Univ. Madrid, Ci.* 4: 257, fig. 23. 1935 [= *Pearcea sprucei* (Britton) L.P. Kvist & L.E. Skog var. *sprucei*] – Type: Ecuador, inter Baeza et Archidona, Mar-Apr 1865, *Isern 180* (holotype: MA 231646; isotype: F 843175 fragm.; photo: F!).

There are two specimens of *Isern 180*: the MA 231646 specimen is the holotype and the specimen at F is a fragment removed from the MA holotype after 1935, and therefore is an isotype.

Kohleria sancti-josephi Cuatrec. in *Anales Univ. Madrid, Ci.* 4: 258. 1935 [= *Pearcea sprucei* (Britton) L.P. Kvist & L.E. Skog var. *sprucei*] – Type: Ecuador, San José, Jun 1865, *Isern 504* (holotype: MA 231624).

Monopyle iserniana Cuatrec. in *Anales Univ. Madrid, Ci.* 4: 254, fig. 21. 1935 – Type: Ecuador, Napo, 15 May 1865, *Isern 498* (holotype: MA 231642).

Piperaceae

Peperomia abnormis Trel. in *Ciencia (Mexico) 2*: 206. 1941 – Type: Ecuador, Archidona, [Apr] 1865, *Isern 1053a* (lectotype [designated by Mathieu & Callejas (2006: 350)]: MA 566684; isolectotypes: ILL, NY 222640; photo: NY!).

Peperomia hydrocotyloides Miq. var. *major* Yunck. in *Bol. Inst. Bot. (São Paulo) 3*: 144, f. 128. 1966 [= *Peperomia hydrocotyloides* Miq. var. *prolifera* Trel.] – Type: Brazil, Guanabara, Copacabana, 25 Oct 1862, *Isern 6449* [“6669” in protologue] (holotype: ILL; isotypes: MA 555948/2, NY 250443; photo: NY!).

Peperomia hydrocotyloides Miq. var. *prolifera* Trel. in *Ciencia (Mexico) 2*: 206. 1941 – Type: Brazil, Copacabana, Río de Janeiro, [25 Oct 1862], *Isern 6449a* [“6669a” in protologue] (holotype: MA 555948/1; isotype: NY).

Piper archidonense Trel. in *Ciencia (Mexico) 2*: 206. 1941 [= *Piper immutatum* Trel.] – Type: Ecuador, Archidona, [4 May 1865], *Isern 1791* (lectotype [designated by Trelease & Yuncker (1950: 288)]: MA 566670; isolectotypes: ILL fragm., NY 251109 fragm.; photo: NY!).

Trelease & Yuncker (1950) cited unprecisely *Isern 1791* (ILL, MA) as type, correctable under Art. 9.8 of the *Vienna Code* (McNeill & al., 2006) to lectotype. Furthermore, the MA specimen is the most suitable as lectotype, because both the ILL and NY specimens are fragments.

Piper baezense Trel. in *Ciencia (Mexico) 2*: 207. 1941 – Type: Ecuador, Baeza, [Mar 1865], *Isern 1753* (lectotype [designated here]: MA 566672/2; isolectotypes: MA 566672/1, NY 251136; photo: NY!).

Trelease & Yuncker (1950: 245) cited this name indicating a type specimen from MA. In MA there are two specimens of *Isern 1753* which both bear an original handwritten label by Trelease indicating *Piper baezense* Trel. We have chosen the more complete branch and inflorescence specimen as lectotype.

Piper barbatum Kunth var. *isernii* Trel. in *Ciencia (Mexico) 2*: 207. 1941 [= *Piper barbatum* Kunth] – Type: Ecuador, Quito, [Jan 1865], *Isern 1268* (syntype: ILL, MA 566673); Ecuador, Quito, [Jan 1865], *Isern 1271* (syntype: MA 566674).

This name is open to lectotypification.

Piper brachystylum Trel. in *Ciencia (Mexico) 2*: 207. 1941 – Type: Ecuador, Archidona, [May 1865], *Isern 1333* (lectotype [designated by Trelease & Yuncker (1950: 41)]: MA 566676; isolectotypes: NY 251161 fragm.; photo: NY!); Ecuador, Archidona, [May 1865], *Isern 1331* (syntype: ILL fragm., MA 566675); Ecuador, Archidona, [May 1865], *Isern 1334* (syntype: ILL, MA 566677).

Piper externum Trel. in *Ciencia (Mexico) 2*: 207. 1941 – Type: Peru, Chanchamayo, [Oct 1863], *Isern 2304* (Holotype: MA 557599).

“*Piper falculispicum* var. *cocanum* Trel.” in *Ciencia (Mexico) 2*: 207. 1941, nom. inval. (species name not validly published until Trelease & Yuncker did so in 1950) was described on the basis of the specimen: Ecuador, La Coca, [Jul 1865], *Isern 1545* [= *Piper falculispicum* Trel. & Yunck.].

Trelease & Yuncker (1950: 217) referred to *Isern 1545* (MA 566678) as type; there are duplicates at ILL (fragm.) and at NY (No. 251299 fragm.; photo: NY!).

Piper inauspicatum Trel. in *Ciencia* (Mexico) 2: 207. 1941 – Type: Peru, Chanchamayo, [15 Oct 1863], *Isern 2184* (syntypes: ILL, MA 557600/1–2, NY 251385; photo: NY!).

This name is open to lectotypification.

Piper isernii Trel. in *Ciencia* (Mexico) 2: 207. 1941 [= *Piper immutatum* Trel.] – Type: Ecuador, La Coca, [Jul 1865], *Isern 1392* (lectotype [designated by Jones (1985: 47)]: ILL; isolectotypes: MA 566679, NY 222640 fragm.; photo: NY!).

Piper multitudinis Trel. in *Ciencia* (Mexico) 2: 207. 1941 – Type: Peru, Chanchamayo, [23 Oct 1863], *Isern 2181-C* [uppercase for letter “c”] (syntypes: MA 557601, MA 557607/3–4, MA 557607/6).

Although Trelease cited the Isern collection number as *2181-C* in the protologue, none of the MA specimens in this species bears a “C” indication or any other letter with *Isern 2181* in Trelease original handwritten labels (see below *Piper scutaespicum* Trel.). Therefore, the name is open to more precise lectotypification.

Piper multitudinis Trel. var. *latum* Trel. in *Ciencia* (Mexico) 2: 207. 1941 [= *Piper multitudinis* Trel.] – Type: Peru, Chanchamayo, [23 Oct 1863], *Isern 2181-b* (holotype: MA 557607/5; syntypes: ILL, NY 251517; photo: NY!).

On the MA specimen there is a mixture of Trelease original handwritten labels which presumably he considered to be a mixed gathering and applied the letters himself to differentiate between the two branches. The MA specimen contains the holotypes of both *Isern 2181-a* identified as *Piper suspectum* Trel., and *Isern 2181-b* identified as *P. multitudinis* Trel. var. *latum* Trel.

Piper praeclarum Trel. in *Ciencia* (Mexico) 2: 207. 1941, nom. illeg. (non *Piper praeclarum* Trel. in *Publ. Field Mus. Nat. Hist., Bot. Ser.* 13, 2: 214. 1936) [= *Piper obliquum* Ruiz & Pav.] – Type: Peru, Chanchamayo, 22 Oct 1863, *Isern 2183* (lectotype [designated by Jones (1985: 71)]: MA 557602; isolectotypes: ILL, NY 251649; photo: NY!).

Piper reciprocum Trel. in *Ciencia* (Mexico) 2: 207. 1941 [= *Piper aduncum* L.] – Type: Peru, Chanchamayo, 23 Oct 1863, *Isern 2310* (lectotype [designated by Jones (1985: 76)]: MA 557605; isolectotypes: ILL, NY 251690; photo: NY!).

Piper scutaespicum Trel. in *Ciencia* (Mexico) 2: 208. 1941 – Type: Peru, Chanchamayo, 23 Oct 1863, *Isern 2181-c* [lowercase for letter “c”] (lectotype [designated by Jones (1985: 83)]: ILL; isolectotypes: MA 557607/2, NY 251761; photo: NY!).

The MA specimen bears a Trelease original handwritten label with the number 2181-c together with the name *Piper scutaespicum*.

Piper semiplenum Trel. in *Ciencia* (Mexico) 2: 208. 1941 – Type: Peru, Chanchamayo, 23 Oct 1863, *Isern 2181-d* (lectotype [designated by Jones (1985: 84)]: MA 557607/1; isolectotypes: ILL, NY 251765 fragm.; photo: NY!).

This MA specimen has a Trelease handwritten label with the number 2181-d.

Piper suspectum Trel. in *Ciencia* (Mexico) 2: 208. 1941 [= *Piper heterophyllum* Ruiz & Pav.] – Type: Peru, Chanchamayo, [23 Oct 1863], *Isern 2181-a* (holotype: MA 557607/5; isotype: NY 283799; photo: NY!).

As mentioned above, on the MA specimen there is a mixture of Trelease handwritten original labels, which presumably he considered to be a mixed gathering and he applied the letters to differentiate between the two branches. The MA specimen contains the holotypes of both *Isern 2181-a* identified as *Piper suspectum* Trel., and *Isern 2181-b* identified as *P. multitudinis* Trel. var. *latum* Trel.

Proteaceae

Euplassa isernii Cuatrec. in *Publ. Field Mus. Nat. Hist., Bot. Ser.* 13: 370. 1937 – Type: Peru, Junín, Chanchamayo, 20 Oct 1863, *Isern 2283* (lectotype [designated by Plana & Prance 2004: 39]: MA 557627/8; isolectotypes: MA 557627/1–7, MA 557627/9–16, F 876380!).

There are 16 specimens at MA with the accession number 557627, so we establish here that the lectotype is MA 557627/8 which bears the handwritten label by Plana from Aug 1997 with this indication.

Rubiaceae

Rustia isernii Standl. in *Publ. Field Mus. Nat. Hist., Bot. Ser.* 22: 212. 1940 ≡ *Agouticarpa isernii* (Standl.) C. Persson – Type: Peru, Chanchamayo, 14 Oct 1863, *Isern 2121* (holotype: F 844456; isotypes: MA 557370/1–12; photo: F!); Peru, Chanchamayo, 19 Oct 1863, *Isern 2126* (paratypes: MA 556794/1–4).

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