TYPIFICATION OF THE NAME *PINUS HAMILTONII* (*PINACEAE*)

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ABSTRACT: The typification of the name *Pinus hamiltonii* (*Pinaceae*) is discussed. A specimen preserved at NAP (Herbarium Neapolitanum, University of Naples, Italy) is designated as the lectotype.
Keywords: Gussone; lectotype; nomenclatura; *Pinus pinaster*; taxonomy; Tenore; type; Madeira.

RESUMEN: Tipificación del nombre *Pinus hamiltonii* (*Pinaceae*). Se discute la tipificación del nombre *Pinus hamiltonii* (*Pinaceae*). Un espécimen conservado en el herbario NAP (Herbario Neapolitanum, Universidad de Nápoles, Italia) es designado como el lectotipo. **Palabras clave**: Gussone; lectotipo; nomenclatura; *Pinus pinaster*; taxonomía; Tenore; tipo; Madeira.

INTRODUCTION

Pinus L. (*Pinaceae*) is the largest extant genus of conifers with over 100 recognized species (KEELEY & ZEDLER, 1998; PRICE & al., 1998; FARJON, 2017). *Pinus pinaster* Aiton (1789: 367) complex (sect. *Pinus*, subsect. *Pinaster* Loudon) (GERNANDT & al., 2005) is a broadly distributed conifer in the western Mediterranean Basin, in Southern Europe (Italy, Spain, Portugal, France) and Africa (Morocco, Algeria, Tunisia), and the Atlantic coast in Portugal (incl. Madeira Islands [introduced]), Azores [introduced], Spain (incl. Canary Islands [introduced], and France (GAUSSEN & al., 1964; PRESS, 1994; PIGNATTI, 2017; do AMARAL FRANCO, 1989; MENEZES DE SEQUEIRA & al., 2011; TISON & FOUCAULT, 2014; TISON & al., 2014; PIGNATTI & al., 2017). The island distribution of the species is limited to Corsica, and to a very limited extent, northern Sardinia. There is a marginal stand in Pantelleria Island (Sicily), close to the Tunisian shore (see GAUSSEN & al., 1964; CRITCHFIELD & LITTLE, 1966; FARJON & FILER, 2013; FARJON, 2005, 2017; EARLE, 2022). This species has been cultivated throughout the world because economically, this pine is an important source of wood, paper, resins, and as an ornamental plant (LE MAITRE, 1998).

Pinus pinaster is sometimes split into two or three subspecies, besides the typus (subsp. *pinaster*): subsp. "*atlantica* Villar" distributed in the Atlantic coasts of SW Europe [nom. inval., *ICN* Art. 38.1, see TURLAND & al. 2018)] (included in subsp. *pinaster*), subsp. *escarena* (Risso) K. Richter (≡ *P. escarena* Risso, Hist. Nat. Europ. Merid. 2: 340. 1826 = *P. hamiltonii* Ten., Cat. Piante Orto Napoli 55: 90. 1845 ≡ *P. pinaster* subsp. *hamiltonii* (Ten.) Villar, Bol. Soc. Esp. Hist. Nat. 33: 427. 1934 ≡ *P. pinaster* var. *hamiltonii* (Ten.) Lindl. & Gordon, J. Hort. Soc. London 5: 217. 1850 = *P. pinaster* subsp. *prolifera* (Parl.) K. Richter, Pl. Eur. 1: 1. 1890 ≡ *P. pinaster* var. *prolifera* Parl., Prodr. 16(2): 383. 1868) distributed in the Mediterranean coasts of SW Europe; and subsp. *renouri* Maire (VILLAR, 1948: 241; MAIRE, 1952: 145) (≡ *P. pinaster* var. *renouri* Villar) [incl. var. *maghrebiana* Villar (1947: 84)] distributed in North Africa. However, the differences are small, minor details of leaf anatomy (e.g., size leaves, resin-canals, and size cones) and poorly researched (see GAUSSEN & al., 1964; RUIZ DE LA TORRE, 2006; FARJON, 2017; EARLE, 2022).

In addition, the subsp. *acutisquama* (Boiss.) Rivas Mart., A. Asensi, Molero Mesa & F. Valle in Rivasgodaya 6: 52 (1991) (≡ *Pinus pinaster* [α] var. *acutisquama* Boiss., Voy. Bot. Espagne 2: 583. 1842; lectotype designated by BURDET & al., 1981: 546, preserved at G, barcode G00349520; fig. 1), has been recognized to remark the populations of Southern Spain (see RIVAS-MARTÍNEZ & RIVAS-SÁENZ, 1996-2009) joining intermediate characters between subsp. *escarena* and subsp. *renourii*, linked to the Baetic-Riffan connection. However, genetic studies (SALVADOR & al., 2000; BURBAN & PETIT, 2003) are not conclusive about its complete independence, and tend to highlight its relationship with subsp. *escarena*.

The *Pinus pinaster* complex remains in a certain taxonomic and nomenclatural instability, and a full study of the traditional concept and current uses of the names of this complex is really needed. The purpose of this paper is to contribute to the stability of nomenclature by the typification of the name *Pinus hamiltonii*. This work is part of the nomenclatural studies of the genus *Pinus* for the Spanish flora (see FERRER-GALLEGO & BOISSET, 2018; FERRER-GALLEGO & FARJON, 2019).

The protologue of the name was analyzed to identify original material (or lack thereof) pertinent to the typification of the name. The type selected has been carefully evaluated for the purpose of fixing the precise taxonomic application of the name. The herbaria acronyms cited are according to THIERS (2023 [continuously updated]).

TYPIFICATION OF THE NAME

The protologue of *Pinus hamiltonii* comprises a name "PINUS HAMILTONII R. Virid. Casert. inedit." numbered "115", a description in Latin "Arbor altissima; ramis patentibus pyramidatim assurgentibus perennantibus omnibus, foliis binis acerosis rigidis canaliculatis crassiusculis flexuosis (8-10 poll. long.) nigro-virentibus, strobilis conico-cylindraccis 8-10 poll. long. squamis pyramidatis patentibus cristato-cuspidatis. Ten.", followed by a comment "*Oss*. Sono già molti anni dacchè il su G. Gräfer divulgava questo bellissimo pino, i cui semi riferiva aver ricevuti da Lord Hamilton, a quell tempo inviato britannico presso la nostra Real Corte, senza conoscere da qual luogo precisamente provenissero. Tra i pini che ci sono nati da una collezione di semi ricevuti da Inghilterra avvene uno che, per quanto può giudicarsene dalle piante di pochi anni, sembra potersi a questo nostro riferire, esso è innominate, e soltanto ci è notato provenire dall' isolla di Madera" (TENORE, 1845: 90-91)

[It is already many years since his G. Gräfer disclosed this beautiful pine, whose seeds he reported having received from Lord Hamilton, at that time a British correspondent in our Royal Court, without knowing where they exactly came from. Among the pines that were born to us from a collection of seeds received from England, one that, for what can be judged by the plants of a few years, seems to be able to refer to it, is unnamed, and it only shows that it comes from the Madeira Island]. On the other hand, TENORE (1845: 55) mentioned "Pinus s. Hamiltonii R. Vird. Casert. Madera? 112", with a relevant question mark after the provenance "Madera".

According to PRESS (1994: 54), *P. pinaster* has been extensively grown in Madeira as a plantation and timber tree, occasionally self-seeding.

The Michele Tenore herbarium is mainly preserved in the Herbarium Neapolitanum at NAP (Naples, Italy). In Tenore Collection at NAP there is no material of *P. hamiltonii* (Roberta Vallariello, pers. comm.). However, in Gussone Collection at NAP, there are several herbarium sheets of *P. hamiltonii*, and two sheets with relevant material and candidates for typification of the name. Giovanni Gussone (1787-1866) was a close collaborator of Michele Tenore (1780-1861), when the latter was director of the Botanical Garden of Naples (see TENORE, 1843a, 1843b).

A first relevant sheet at NAP (without code) bears a specimen poorly preserved, a stem with leaves and male cones, which corresponds to *P. hamiltonii*, and a label, in Gussone's handwriting, reports the species name "*Pinus Hamiltonii* Grafer in Ten / Cat H. regi 1845. p. 90", the locality cited in the protologue "In Madera" also is anotated in the label as "In Madera?" (fig. 2). Gussone's handwriting was identified by comparison with other published samples (BURDET, 1975). The second relevant sheet preserved at NAP bears a specimen, also poorly preserved, including leaves and male cones, and is accompanied with a Gussone's original label, with the annotation "Herbarium R. Horti Neapolitani / *Pinus Hamiltonii* Graefer in Ten. / Loc. In Madera? / Leg. Gussone" (fig. 3).

On the other hand, there is a sheet at FI, with barcode FI007121, previously marked as "Typus" and "original material". The sheet bears four plant fragments (two female cones and two stems with leaves), and two labels. The first label in annotated "28 Marzo 1862 / Giard. Bot. Di Napoli", and the second one is annotated "*Pinus Hamiltonii* var. *minor*" maybe handwritten by Tenore (fig. 4). However, there is no link between this specimen and the protologue, and the date annotated in the label is post-protologue (i.e., post-1845). Therefore, this specimen cannot be treated undoubtedly as original material and suitable for lectotype designation of *P. hamiltonii*.

Unfortunately, we have not found further relevant material for this name in other consulted herbaria (e.g., B, BOLO, BM, C, E, FI, G, K, M, MPU, UPS).

The sheets at NAP lack any annotation by Tenore. Perhaps Tenore described *P. hamiltonii* from a live specimen grown in the Botanical Garden of Naples. Later, Gussone collected from the same cultivated specimen the herbarium sheets that are now preserved at NAP, labeling them with the provenance information that appeared in the original label of the Botanical Garden "In Madera" as indicated in the protologue by TENORE (1845).

Although the sheet at NAP do not have a collection date, we consider relevant the annotation "Pinus s. Hamiltonii R. Vird. Casert. Madera? 112", on page 55 of TENORE (1845) which coincides with the geographical provenance indicated on the label of the sheet "In Madera?". Therefore, it can be concluded that the specimen at NAP can be treated as original material eligible for selection as lectotype.

In conclusion, among the mentioned Gussone's specimens of *P. hamiltonii* at NAP, we designated as the lectotype of this name the specimen at NAP with the annotation "Herbarium R. Horti Neapolitani / *Pinus Hamiltonii* Graefer in Ten. / Loc. In Madera / Leg. Gussone". This specimen matches unambiguously with the traditional concept and current use of the name (see e.g., TENORE, 1845; VILLAR, 1934; LÓPEZ GONZÁLEZ, 2001; RUIZ DE LA TORRE, 2006; MATEO & al., 2011; TISON & al. 2014; PIGNATTI, 2017) currently treated as a synonym of the name *P. pinaster*.

PRESS (1994: 54), describes *P. pinaster* in the *Flora of Madeira* as a plant with leaves up to 20 cm long; i.e., with the concept of *P. pinaster* that can be assigned to the current name *P. pinaster* s.l., characterized by leaves 10–20 cm. In this sense, to know the identity of this pine in Madeira, there is a relevant specimen preserved at the Natural History Museum of London of *Pinus pinaster* collected by Daniel Solander, with barcode BM013767078 (fig. 5). This material was collected by Solander in Madeira, during Joseph Banks and Solander's visit to Madeira in 1769, during James Cook's first voyage around the world (1768–1771) in HMS Endeavour and preserved. The first voyage called at Madeira between September 12 and 18, 1768 (GOODMAN, 2020). The herbarium collections made by Banks and Solander in Madeira are among the earliest from Macaronesia (PUIG-SAMPER & PELAYO, 1997; MENEZES DE SEQUEIRA & al., 2010; SANTOS-GUERRA & al., 2011, 2020). During their short stay in Madeira, Banks and Solander only collected "in the neighborhood of the town [Funchal], never going above three miles from it" (September 13 record in Banks's journal). The specimen BM013767078 is a branch with leaves. This material is accompanied by a handwritten label, annotated as "Pinus Pinea / Linn. Sp. pl. 1419 / Madera" (fig. 5). This material can be identified as belonging to *P. pinaster*, but current information cannot allow to assign it to any of the current recognized subspecies.

Pinus hamiltonii R. Virid. Casert. ex Ten., Cat. Piante Orto Napoli: 55, 90. 1845

≡ *Pinus pinaster* subsp. *hamiltonii* (Ten.) Villar, Bol. Soc. Esp. Hist. Nat. 33: 427. 1934

≡ *Pinus pinaster* var. *hamiltonii* (Ten.) Lindl. & Gordon, J. Hort. Soc. London 5: 217. 1850

Lectotype (designated here): "In Madera" [Madeira Island, Portugal], s.d., *Gussone s.n.*, NAP (without number or code) (fig. 3).

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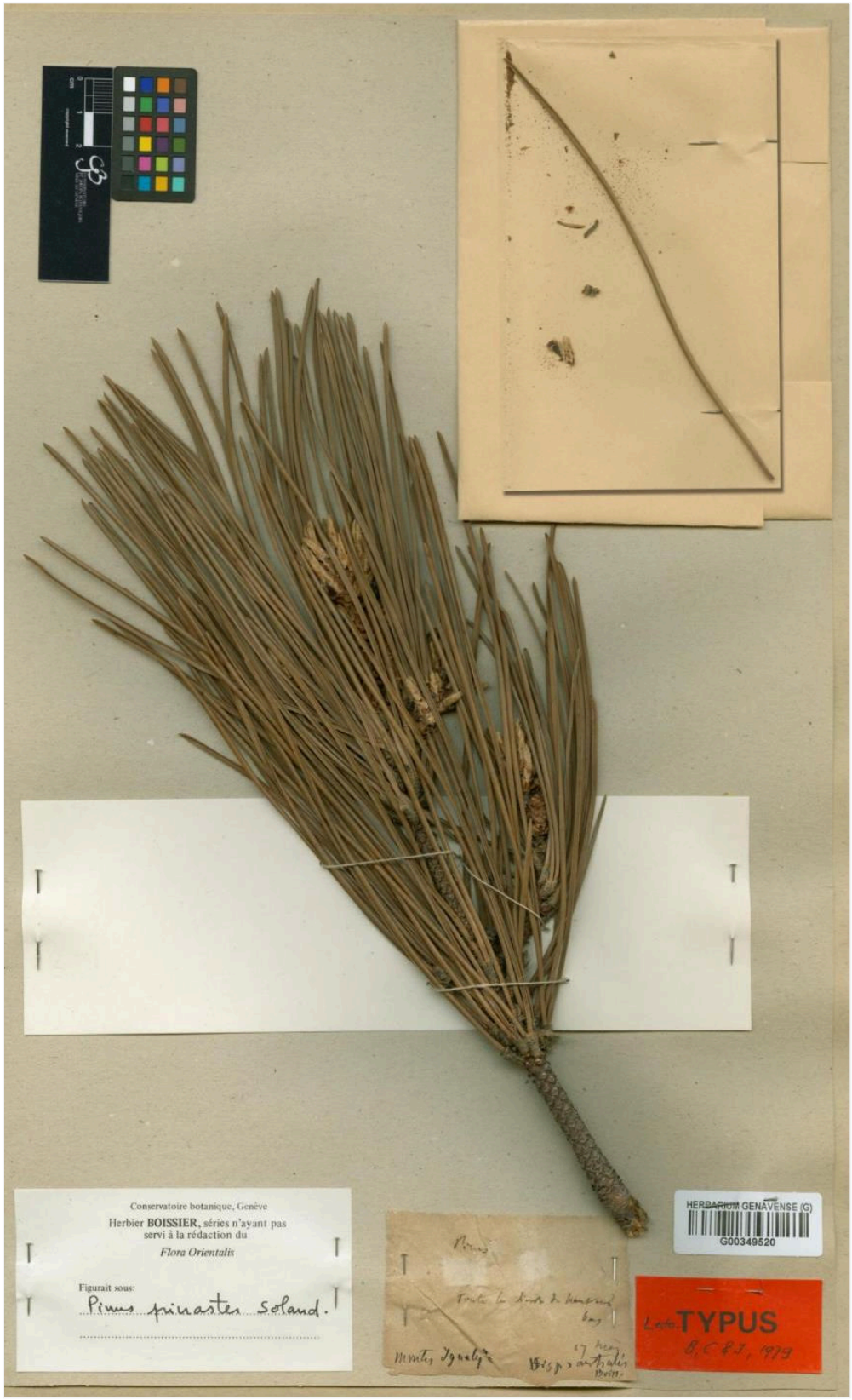

Fig. 1. Lectotype of *Pinus pinaster* [α] var. *acutisquama* Boiss., G (barcode G00349520). Herbarium G, reproduced with permission.

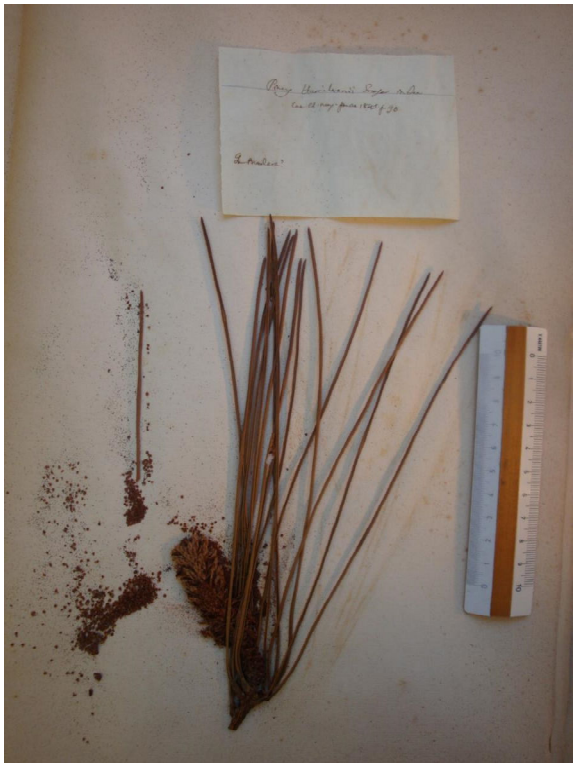

Fig. 2. Specimen of *Pinus hamiltonii* Ten. preserved at NAP. Herbarium NAP, reproduced with permission.

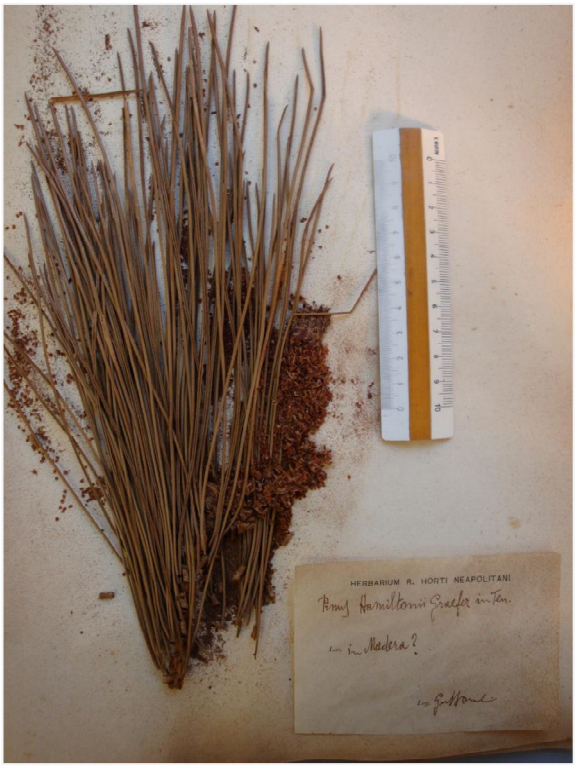

Fig. 3. Lectotype of *Pinus hamiltonii* Ten. preserved at NAP. Herbarium NAP, reproduced with permission.

Fig. 4. Specimen of *Pinus hamiltonii* preserved at FI (barcode FI007121). Herbarium FI, reproduced with permission.

Fig. 5. Specimen of *Pinus pinaster* collected by Daniel Solander in Madeira during James Cook's first voyage around the world (1768–1771) in HMS *Endeavour*, BM (barcode BM013767078). Image reproduced with permission of the herbarium BM.

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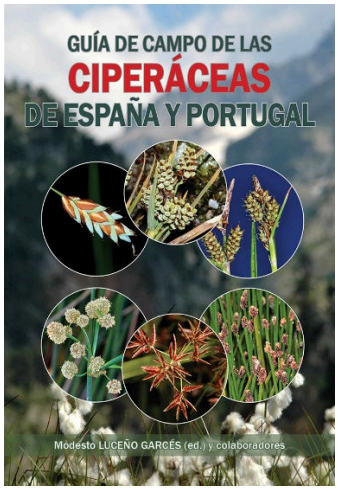

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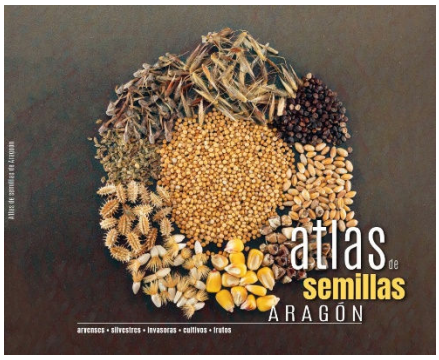

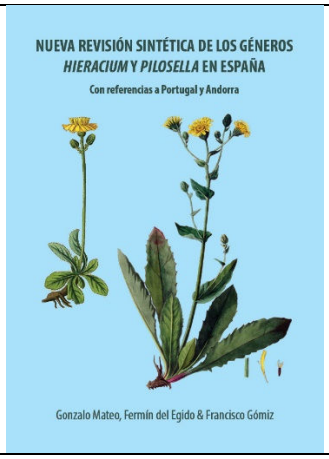

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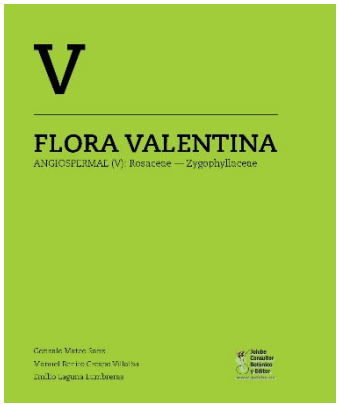

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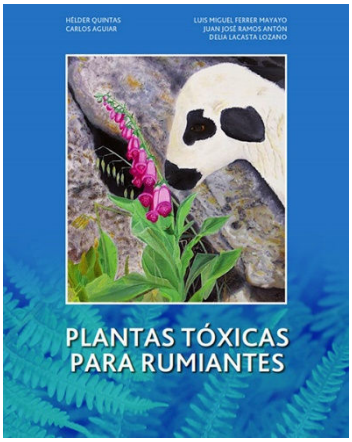

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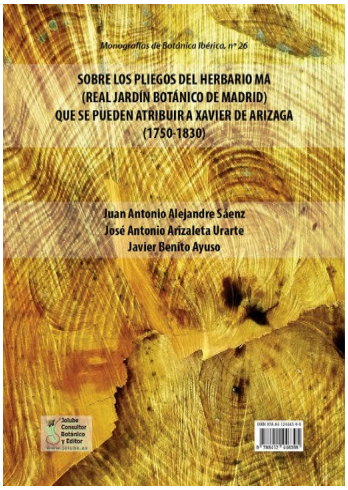

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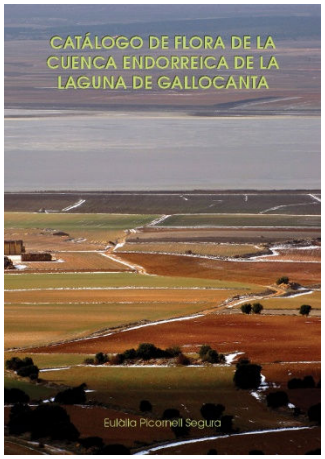

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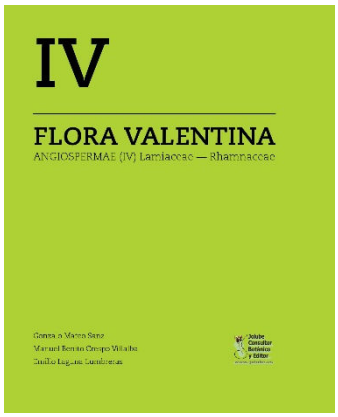

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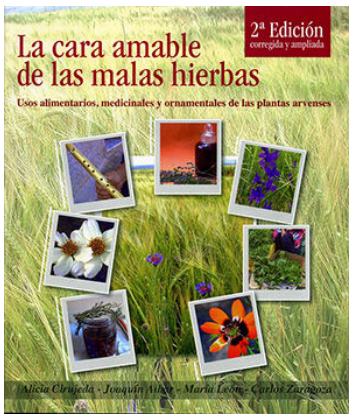

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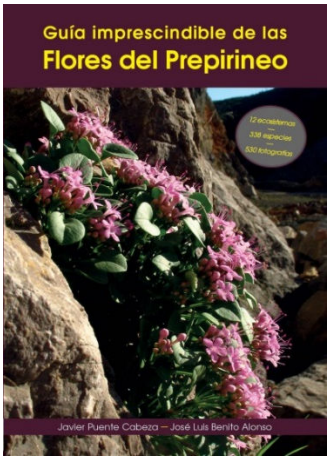

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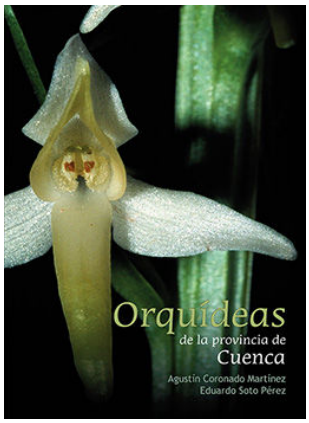

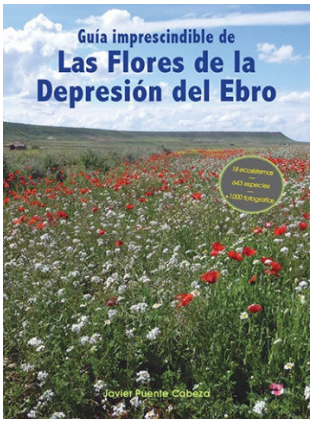

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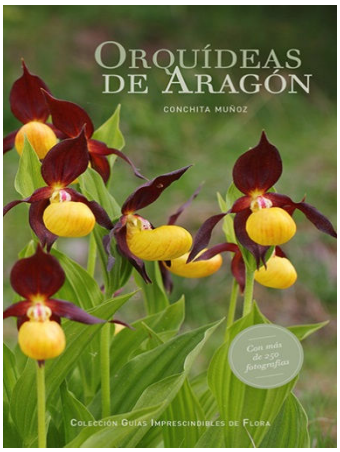

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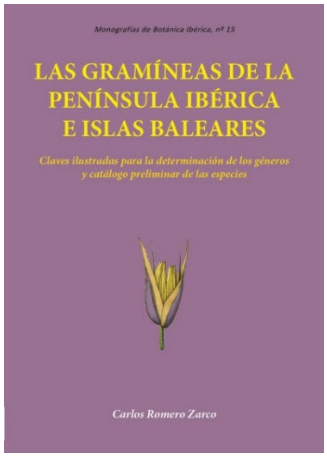

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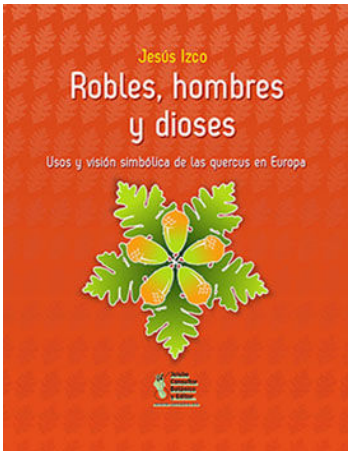

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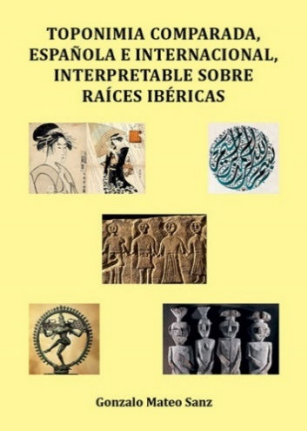

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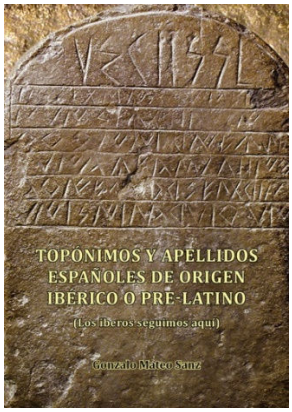

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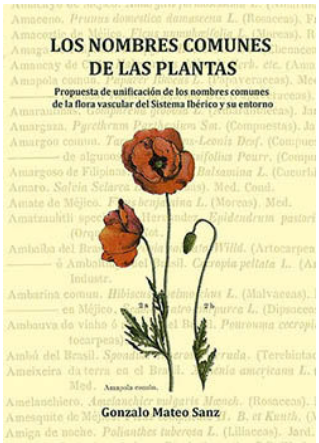

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