

The people you kill are doing quite well:

The rediscovery of an “extinct” species described from the outskirts of Madrid (Spain), *Carduncellus matritensis* Pau (Cardueae)

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ABSTRACT

The fate of the enigmatic species *Carduncellus matritensis* looked clear when the type locality in Cerro Negro was razed by the growing of Madrid at the beginning of the XX century: it was officially listed as one of the six extinct species in the Red Book of the Spanish flora. The controversy on the identity of the taxon continued on the basis of the scarce and undeveloped samples gathered before the purported extinction and the species was not accepted by some specialists in the genus. One year ago, some relictic populations of an unknown species of *Carduncellus* were located in the surroundings of the Gran Madrid, 50 km south of the type locality. After careful review of the available materials and new gatherings, we conclude that *Carduncellus matritensis* did escape extinction and can be found on the same expansive clay soils that characterize the Cerro Negro. On morphological basis, we also conclude that it is a distinct species that cannot be reduced to any of the extant species of the genus.

Keywords: Compositae, thistle

INTRODUCTION

We have titled this short note with a quote from French dramatist Pierre Corneille (1606-1684): “les gens que vous tuez se portent assez bien” (*Le Menteur*, IV, 2, p 81, 1644) [the people you kill are doing quite well] that expresses our surprise and our delight for a striking botanical discovery in Spain: the reappearance of a supposedly extinct species.

Somewhere between 1851 and 1862 (the exact date is unknown), the Spanish botanist Joan Isern ([Figure 1A](#)) collected a species of the genus *Carduncellus* Adans. (Compositae) from the Cerro Negro hill, one of the many clay and gypsum knolls located in the south-east outskirts of Madrid ([Figure 4B](#)). Later on,

the specimen was described as a new species by Carlos Pau ([Figure 1B](#)), as *Carduncellus matritensis* (Pau, 1904; [Figure 2A](#), [Figure 3](#)). Some exemplars were collected in the years following the discovery, all of them incomplete. Unfortunately, the only known locality was engulfed by the fast-growing capital of Spain. Between 1917 and 1926, the Cerro Negro railroad station was built (Domínguez López, 1987) exactly on the spot ([Figure 4B](#)). Domínguez Lozano & al. (2000) listed the species as extinct, and Bañares et al. (2004) suggested that the species vanished in the thirties. However, the plant was still there albeit extremely rare: our investigations have dated the last collection in 1972 by José Borja, as demonstrated by the herbarium sheet kept at MAF (MAF 179908). This was the last time the species was seen and the extinction was considered definitive.

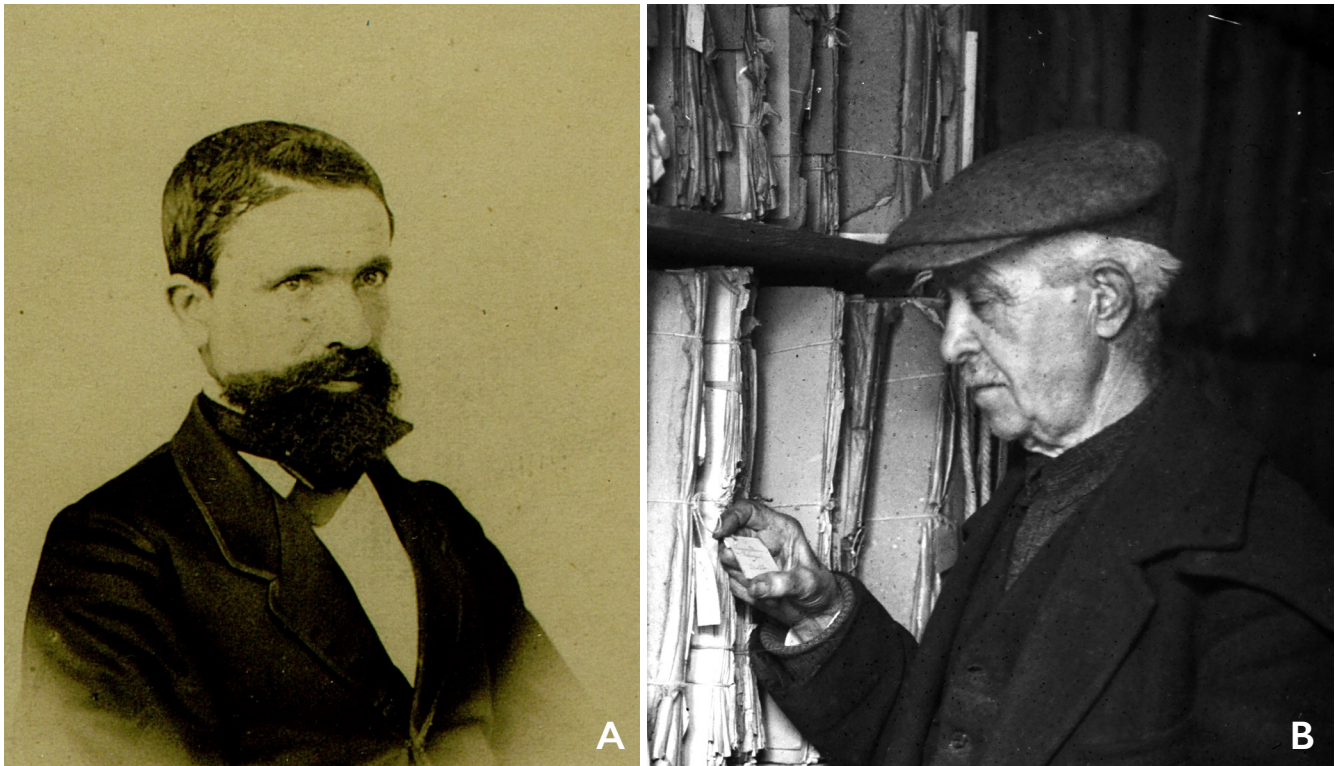


Figure 1. A. Joan Isern (1821-1866), who collected the species for the first time. Anonymous calotype, 1850-1855; courtesy of the Royal Botanic Garden of Madrid. **B.** Carlos Pau (1857-1937), who described Isern's gathering as *Carduncellus matritensis*. Photo: J. Cuatrecasas, 1933; archive of the Botanic Institute of Barcelona.

We have summarized this history in [Figure 2](#).

Cerro Negro is located in one of the northern limits of a wide plain formed by expansive clays (magnesian smectites or green clay). The flora of this very peculiar type of soils was known and well studied exclusively through this locality, and many rare species seemed to be restricted to Cerro Negro and the immediate localities of Vallecas or Vicálvaro. However, the study of the flora of the whole area has shown that they have a wider distribution in the center of the Iberian Peninsula (Luengo et al., 2017). Anyway, Cerro Negro and its very rich flora was an obligated point to visit for botanic travelers in Spain in the XIX and XX centuries. The list of great names exploring the place includes P. Löffling (who sent plants from Cerro Negro to Linnaeus according to López González, 2003), E. Boissier (Boissier & Reuter, 1842), G. Rouy (Rouy, 1883), J. Lange (Lange, 1860), C. Pau (Pau, 1904) and P. Font Quer in 1911 and 1924 (Font Quer, 1934). Besides *C. matritensis*, other species were also described from Cerro Negro: *Astragalus scorpioides* Pourr., *Cynara tournefortii* Boiss. & Reut., *Hippocrepis commutata* Pau, *Minuartia dichotoma* Loefl. ex L., and

Queria hispanica Loefl. ex L. Unfortunately, only a few heavily disturbed and anthropized patches of the hills were saved from the constructions and the crisscross of highways and railroads, and are today part of the Entrevías urban park ([Figure 4B](#)).

In 2021, a team working in the limits of the provinces of Madrid and Toledo ca. 50 km south of Madrid discovered a thriving population of 130 individuals of a species of *Carduncellus* on green clay soils. After careful examination by the team that found the population in the field and also by the specialists in the genus at the Botanic Institute of Barcelona, it was unambiguously identified as the defunct *C. matritensis* from Cerro Negro. The taxonomic status of the species has been disputed (see López-González, 2014) partly because of the poor quality of the gatherings ([Figure 3](#)). However, a careful examination of the new samples and the living plants does not leave any doubt in our opinion: *C. matritensis* is a good species that cannot be reduced to any other species of the genus, whether Iberian or North-African. Preliminary results of an ongoing molecular survey support morphological evidence. Our team is also working on more urgent tasks:

Carduncellus matritensis

The disputed and purportedly extinct species that miraculously survived in the worst dumping grounds and waste places of Spain capital's hinterland



Carduncellus matritensis, from Illescas
Photo by R. de Pablo

CHRONICLE of the REDISCOVERY of *Carduncellus matritensis* Pau or the thistle that returned from the list of extinct plants

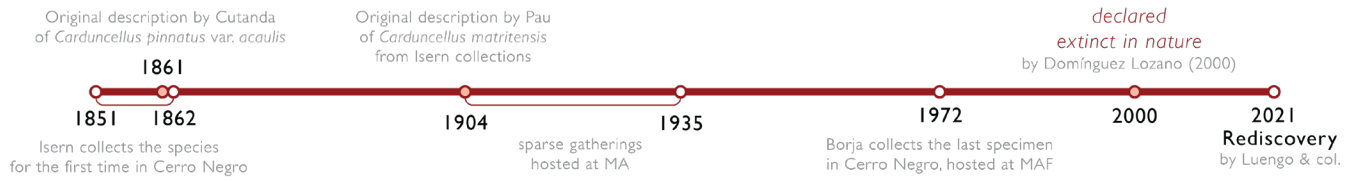


Figure 2. Chronicle of the rediscovery of *Carduncellus matritensis* Pau. **A** *Carduncellus matritensis*, habit showing distinctive involucre phyllaries. **B**. Vilatersana and Luengo making a census of a population of *C. matritensis* in an abandoned olive grove; in the back, an industrial dumping ground showcasing the fragility of the populations. Photos by R. de Pablo (A) and A. Susanna (B).



Figure 3. Herbarium sheet of *Carduncellus matritensis* Pau collected by Joan Isern, probably the holotype. Manuscript labels (from bottom to top) by Isern, Pau, Cutanda and Vicioso. Image courtesy of the Royal Botanic Garden of Madrid.

described from Cerro Negro, in the north-east of Madrid (Martínez-Labarga et al., in prep.).

SYSTEMATIC TREATMENT

Carduncellus matritensis Pau, Bol. Soc. Aragonesa Ci. Nat. 3: 291 (1904) \equiv *Carduncellus pinnatus* (Desf.)DC. subsp. *matritensis* (Pau) Rivas Goday & Rivas Mart. In Anales Inst. Bot. Cavanilles 25: 192 (1969) \equiv *Carthamus matritensis* (Pau) Greuter in Willdenowia 33: 53. (2003) \equiv *Carduncellus monspelliensium* subsp. *matritensis* (Pau) Mateo & M. B. Crespo, Fl. Montiber. 59: 88 (2015). **Type:** Cerro Negro (Madrid), Isern s.n. (MA136760, holotype?)

= *Carduncellus pinnatus* (Desf.)DC. var. *acaulis* Cutanda, Fl. Matrit.: 421 (1861). **Type:** unknown.

The species is different from all the other species of the genus and especially from the two taxa to which it was subordinated as a subspecies. It can be distinguished from both *C. monspelliensium* and *C. pinnatus* by the appendages of the bracts that are much larger and cucullate in *C. matritensis*.

Note: Type of *Carduncellus pinnatus* (Desf.)DC. var. *acaulis* Cutanda. Cutanda did not indicate collector or date, only the locality: "Cerro Negro". It is possible that the type is the same as that of *Carduncellus matritensis* (Figure 3), because there is a label by Cutanda identifying the plant as *Carduncellus pinnatus*.

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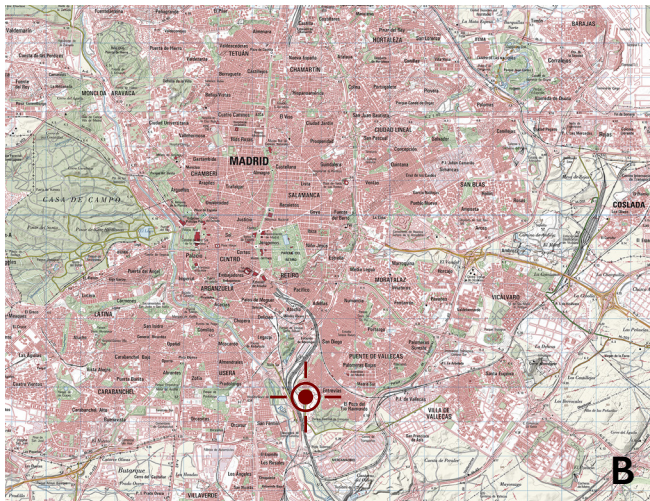
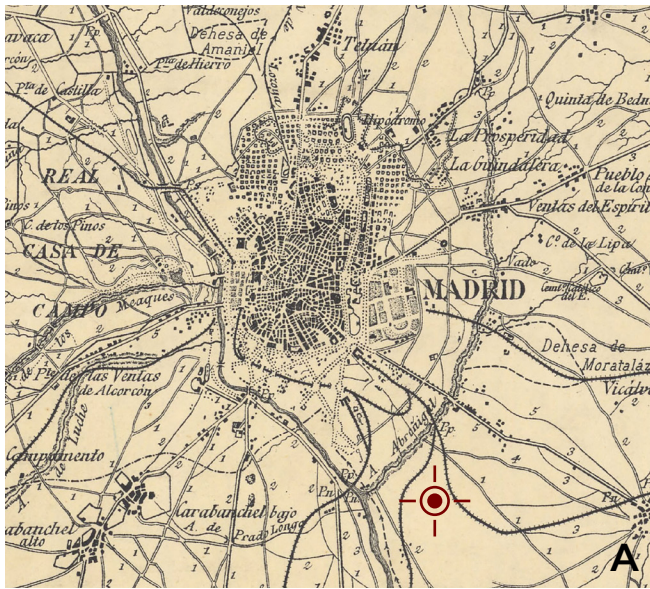


Figure 4. Type locality of *Carduncellus matritensis* Pau as seen in the maps through history. **A.** Map of 1890s Madrid. **B.** Current map of Madrid; notice type locality deeply inside the limits of the city.

elaborating detailed censuses of the three known populations, fine-combing the surroundings for new ones, and promoting the immediate protection of the species, which will be surely catalogued as critically endangered.

It is unusual that an extinct species, and one that vanished long ago from its only single population, reappears in relatively good conditions in an area so profusely explored as the hinterland of Madrid, a region of great botanical value despite intense anthropization (Martínez-Labarga et al., 2005). The good news of the resurrection of *C. matritensis* adds more joy to the discovery of new populations of the rare Iberian endemic *Cynara tournefortii*, also

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