

New data on vascular plants from Montseny massif (northeastern Iberian Peninsula)

Llorenç Sáez¹, Antonio Galán de Mera², Samuel Pyke³, Gerard Pié⁴, Pau Carnicero¹



Received: 2 October 2015

Accepted: 19 October 2015

Published: 24 November 2015

Abstract

Notes on distribution and morphology of some vascular plants from Montseny massif (north-eastern Iberian Peninsula) are presented. This paper deals with 91 taxa, 72 of which are new for the Montseny massif. Of these 72 taxa, 46 are native and 26 are non-native plants.

Keywords: vascular plants; northeastern Iberian Peninsula.

Resum. *Noves dades de plantes vasculares del massís del Montseny (nord-est de la península Ibèrica)*

En aquest treball es presenta un conjunt de notes sobre distribució i en algun cas de morfologia de plantes vasculares del massís del Montseny (nord-est de la península Ibèrica). Aquest article aporta dades per a 91 tàxons, 72 dels quals són noves citacions per al massís del Montseny. D'aquests 72 tàxons, 46 són autòctons i 26 corresponen a elements al·loctons.

Paraules clau: plantes vasculares; nord-est de la península Ibèrica.

Introduction

The Montseny massif (north-eastern Iberian Peninsula, located between the provinces of Barcelona and Girona) is a relatively well-studied area from the botanical point of view. Since the publication of the last catalogue of vascular plants (Bolòs

1. Universitat Autònoma de Barcelona. Unitat de Botànica, Facultat de Biociències. 08193 Bellaterra. llorens.saez@uab.cat; pau.carnicero@gmail.com
2. Universidad San Pablo-CEU. Laboratorio de Botánica, Facultad de Farmacia. 28660 Boadilla del Monte. agalmer@ceu.es
3. Institut Botànic de Barcelona. Passeig del Migdia, s/n. 08038 Barcelona. spyke@bcn.cat
4. Can Valls Nou, s/n. 08479 Fogars de Montclús. gpievalls@gmail.com

et al., 1986), at least twenty floristic contributions focused on this massif have been made. However, it is still possible to find a relatively large number of plants that have not been detected so far in this mountain, some of which have biogeographical interest.

As a part of the update of the vascular flora of Montseny massif, new chorological records and comments are provided for 91 taxa. Most of the new reports have resulted from extensive field work that was undertaken recently by the authors. Some additions or corrections appear from the work done in several herbaria (BC, BCN, HBIL, HGI, JACA, MA, MAF, and MGC).

Materials and methods

The floristic data here presented are the result of fieldwork and herbarium research by the authors. Voucher specimens are preserved in BC, BCN, HGI, USP, or in the private herbaria of the authors. Records of vascular plants from Montseny were screened and checked against published information. The species are arranged in alphabetical order of genera. Scientific names preceded by a single asterisk correspond to new taxa for the flora of the Montseny massif. Names in bold are taxa present in the studied area, whereas names in italics correspond to species that should be excluded from the flora of the studied area.

Morphological and anatomical observations on *Minuartia laricifolia* were undertaken on living plants in eastern Montseny (between Turó de l'Home and Les Agudes-Castellets) and also on herbarium specimens. The main diagnostic characters presented in the literature were studied. The pedicels were mounted directly on water and were observed under an Axio Imager A1 Zeiss light microscope.

Results

***Acacia dealbata** Link

Can Sebastianet, Cànoves i Samalús, 31TDG4614, 320 m, stony siliceous banks, 22-IV-2015, P. Carnicero & L. Sáez; El Sot Gran, 31TDG6120, 210 m, waysides, 12-VII-2015, L. Sáez.

This species is usually grown as an ornamental and often escapes close to residential areas. Apparently, this is the first report for the Montseny massif.

***Agropyron cristatum** (L.) Gaertn. var. **pectiniforme** (Roem. & Schult.) H.L. Yang [*A. pectiniforme* Roem. & Schult.]

Fogars de Montclús, c. Turó de l'Home, 31TDG5324, 1560 m, road verges and other seeded areas, 6-VIII-2014, S. Pyke 7046 (BC 940035).

This taxon was introduced in the Barcelona area for land recuperation purposes (Pyke, 2008). This plant can be distinguished from our native species, *A. cristatum* var. *imbricatum* (Roem. & Schult.) Beck [*A. imbricatum* Roem. & Schult.; *A. cristatum* subsp. *pectinatum* (Bieb.) Tzvelev], by its glabrous spikelets and the presence of short rhizomes, resulting in a less compact mode of growth.

The native taxon grows in arid districts and is apparently restricted to gypsum-rich soils. The introduced plant is of Eurasian origin, and frequently appears in seed mixtures for the recuperation of land in semi-arid regions.

***Allium neapolitanum** Cirillo

Torrent de la Font dels Monjos, Cànoves i Samalús, 31TDG4215, 360 m, stream-sides, 22-IV-2015, P. Carnicero & L. Sáez LS-7611 (Herb. Pers.).

As far as we know, this herbarium specimen makes the first record of this species from Montseny massif.

***Aloe maculata** All.

Can Sebastianet, Cànoves i Samalús, 31TDG4614, 320 m, roadsides, 22-IV-2015, P. Carnicero & L. Sáez (photo); torrent de Ca l' Abat, Gualba, waysides and banks, 280 m, 31TDG5720, 26-IX-2015, P. Carnicero & L. Sáez (photo).

Cultivated for ornament and expanding on roadsides and waste places. These records are the first for Montseny massif.

***Austrocyllindropuntia subulata** (Muehlenpf.) Backeb.

Els Poatells, La Garriga, 31TDG4115, 400 m, talús pedregós silici, 11-IV-2015, L. Sáez (photo).

This species, native to South America (Anderson 2001, Hunt et al. 2006), is often used as an ornamental plant in warm areas of the northeastern Iberian Peninsula. The population consists of an adult individual and seven young plants growing very close, having developed from vegetative fragments.

***Blackstonia perfoliata** (L.) Huds. subsp. **intermedia** (Ten.) Zeltner

El Figaró, Vallès Oriental, 18-VII-1944, P. Montserrat (BC 616820, sub *B. serotina*).

Within the *B. perfoliata* group, so far the typical subspecies was reported for the Montseny massif (Bolòs et al., 1986). Is necessary to know which taxa included within the *B. perfoliata* group exist in this massif.

***Campanula erinus** L.

Figaró, VII-1943, s.r. (BC 931744).

The present record is a novelty for Montseny massif, filling the gap between Moianès and La Selva (cf. Font, 2015).

***Cervaria rivini** Gaertn. [*Peucedanum cervaria* (L.) Lapeyr.].

Montseny [sic], versus Cànoves ad pedem montis, 10-IX-1918, M. Garriga de Gallardo (BC 91529); camino de Cànoves, 10-IX-1918, M. Garriga de Gallardo (BC 130516).

The present record is a novelty for Montseny massif, filling the gap between Moianès and La Selva (cf. Font, 2015). This species likely occurs in other areas of eastern and southwestern Montseny, where suitable stations are available.

****Carduus nigrescens* Vill. subsp. *nigrescens***

Montseny, Sant Marçal, viaria, 8-VI-1948, Marcos (BCN 33595, sub *C. carlinifolius* Lam.); Arbúcies, base del Montseny, campos, 8-VI-1948, Marcos 1714 (BCN 33779, sub *C. nigrescens*).

According to the characters provided by Devesa (2014) these specimens are referable to *C. nigrescens* subsp. *nigrescens* and no to *C. vivariensis*, a morphologically related species which is common in the Montseny massif.

***Cirsium echinatum* (Desf.) DC.**

This species was listed for eastern Montseny (Santa Fe) by Font (2015), on the basis of a single herbarium specimen (Santa Fe del Montseny, caminos, 20-VII-1950, Casellas & Segura, BCN 41792). After a detailed revision of this herbarium material we conclude that the specimen is referable to *Cirsium richertianum* Gillet subsp. *costae* (Sennen & Pau) Talavera & Valdés [*C. eriophorum* var. *costae* (Sennen) O. Bolòs & Vigo]. Therefore, *C. echinatum* should be excluded from the Montseny floristic catalogue. Nevertheless, its presence is likely in the southwestern Montseny massif, where suitable habitats for *C. echinatum* exist.

****Colutea breviaolata* Lange**

Gualba, 12-VI-1967, X. Llimona (BCN 109342, sub *C. arborescens* L.); Vallès Oriental, La Garriga, DG41, 300 m, 11-V-1993, Escolà 210 (BCN 50796, sub *C. arborescens* L.; BCN 50797 sub *C. arborescens* subsp. *gallica* Browicz); prop de Can Cellers, Campins, s.d., M.A. Bonet (BCN 56002, sub *C. arborescens*).

These records are novelty for Montseny massif, filling a noticeable chorological gap in northern Catalanidic territory (cf. Font, 2015).

****Coronilla lotoides* Koch [*C. minima* L. subsp. *lotoides* (Koch) Nyman]**

Tagamanent, Torrent de l'Artiga [o de Pedralba], 31TDG3921, 500 m, on limestone rocky places, 21-VI-2014, P. Carnicero 1097 (Herb. Pers.).

There are no reports of this taxon in the Catalanidic territory located east of the Congost river (Font, 2015).

****Coronilla valentina* L. subsp. *glauca* (L.) Batt.**

Vessant SW del turó de Santa Margarida, cap als Poatells, Cànoves i Samalús, 31TDG4115, 350-420 m, open scrub on siliceous soil, 11-IV-2015, L. Sáez LS-7605.

Cultivated for ornament and rapidly expanding on open woodland and scrub.

****Cotoneaster coriaceus* Franch. [*C. lacteus* W.W. Sm.]**

Vessant SW del turó de Santa Margarida, cap als Poatells, Cànoves i Samalús, 31TDG4115, 360 m, open scrub on siliceous soil, 11-IV-2015, L. Sáez LS-7606 (Herb. Pers.); riera d'Avencó 31TDG3824, 390 m, 10-X-2015, I. Granzow & L. Sáez LS-7702 (Herb. Pers.).

We have found several reproductive individuals who probably have their origin in nearby urbanized areas.

****Cotoneaster pannosus* Franch.**

Sot de la Coma, Cànoves i Samalús, 31TDG4415, 420 m, holm oak forest, on siliceous soil, 22-IV-2015, P. Carnicero & L. Sáez PC-1192 (Herb. Pers.); riera d'Avencó 31TDG3824, 390 m, 10-X-2015, I. Granzow & L. Sáez LS-7701 (Herb. Pers.).

In Catalonia this species was reported from Barcelona, Berguedà and Osona (Aymerich, 2013).

****Crepis pulchra* L.**

Vilamajor (Barcelona), Vallès Oriental, M. Garriga de Gallardo (BC 130263).

There are no confirmed reports of this species in the Catalanidic territory located east of the Congost river (Font, 2015).

***Cypripedium calceolus* L.**

[Montseny] Pla de la Calma, A.C. Costa (BC-Costa).

This species was reported from western Montseny (Pla de la Calma) by Costa (1864). Surprisingly, neither this report (Costa, 1864) nor the herbarium material collected by A.C. Costa, were discussed by Bolòs et al. (1986), who incorporated and discussed in their catalogue several more dubious and ancient reports. The presence of *C. calceolus* in the Montseny massif was not accepted by Sáez et al. (2010), since at that time these authors were unaware of the existence of the herbarium material above indicated. Apparently there are no solid arguments to doubt the reliability of Costa's report, nor the herbarium material collected by this author. The presence, at least in the nineteenth century, of *C. calceolus* in Montseny massif is outstanding because this locality would represent the southern limit of the distribution of this species in Western Europe. Although currently the Montseny massif has no optimal conditions for the development of this rare orchid, we certainly should not rule out the fact that over 150 years ago a population could have existed in the western sector of the Pla de la Calma, where there are limestone substrates.

****Datura wrightii* Regel**

[Montseny] En un campo plantado de maíz, Viladrau, 14-X-1855, Costa (BC-Costa, sub *D. metel* L.).

According to Aymerich & Sáez (2015) most reports of *D. inoxia* Mill. (= *D. metel* L.) from north-eastern Iberian Peninsula should be referred to *D. wrightii*. The herbarium specimen (BC-Costa) labeled as *D. metel* L. has the characteristic non-glandular hairs which are typical of *D. wrightii* (Gallego, 2012). This is the first report of *D. wrightii* for the northern catalanidic territory (see Aymerich & Sáez, 2015). A wider distribution in northeastern Iberian Peninsula can be assumed for *D. wrightii*.

***Daucus carota* L. subsp. *maritimus* (Lam.) Batt.**

This taxon was reported from Montseny massif by Arenas Posada & García Martín (1993) on the basis of a specimen collected by F. Sennen: Montseny, Barcelona, champs, 11-IX-1935, Sennen (MAF 59014, sub *Daucus maritimus*). We

have not been able to find any population of *Daucus carota* L. subsp. *maritimus* in the Montseny massif. This taxon—which is recongnized as a variety by Pujadas (2003)—is characterized by having glabrous and shiny leaves and small umbels (up to 3.8 cm in diameter). In the Iberian Peninsula this taxon is restricted to coastal areas in Catalonia and Valencian community (Pujadas, 2003), and occurs in inland littoral areas of the Ebro Basin (Pyke, 2003). The specimen MAF 59014 is clearly referable to *D. carota* subsp. *carota*, on the basis of the characters indicated by Bolòs & Vigo (1990) and Pujadas (2003).

***Dysphania pumilio** (R. Br.) Mosyakin & Clemants

Can Planes, La Garriga, 31TDG4018, 610 m, waysides, 3-IX-2014, G. Pié (Herb. Pers.).

Novelty for Montseny massif and also for the northern Catalanidic territory. In the studied area this species probably should be regarded as ephemeral.

Elymus repens (L.) Gould

Montseny: Riera de l'Estanyol, El Brull, 31TDG4030, 748 m, waysides, 14-VI-2015, P. Carnicero & L. Sáez PC-1287 (Herb. Pers.).

This herbarium specimen makes the first record of this species from north-western Montseny. *Elymus repens* was reported from Breda (Vilar, 1987).

Euphorbia biumbellata Poir.

Vessant SW del turó de Santa Margarida, cap als Poatells, Cànoves i Samalús, 31TDG4115, 400 m, open scrub on siliceous soil, 11-IV-2015, L. Sáez LS-7598 (Herb. Pers.).

This is a very rare species in the Montseny massif, which had only been reported from the eastern sector (Bolòs et al. 1986).

Euphorbia terracina L.

[Montseny] Gualba el 12-V-1963, X. Llimona (BCN 55976, sub *E. segetalis*).

This species was reported (without precise locality) from UTM square 31TDG52 by Bolòs et al. (1999). This reference is probably based on the herbarium specimen indicated above, which was correctly identified by R. Vilatersana in 1991.

***Euphrasia stricta** J.F. Lehm

Montseny: Turó de l'Home, c. 1700 m, 21-IX-1988, C. Benedí, C. Blanché & R. Penedès (BCN 3531, BCN 3532).

These herbarium materials, which were identified by Ernst Vitek in 2001, unambiguously confirm the presence of this species in the Montseny massif. *Euphrasia stricta* was reported from Montseny by Lapraz (1966), although in all probability this citation should be referred to *E. pectinata* Ten., a species which is subordinate to *E. pectinata* by several authors (Bolòs & Vigo, 1996, Bolòs et al., 2005). In fact, *E. stricta* is not listed for Montseny massif in several floristic and chorological syntheses (Bolòs et al., 1986; Bolòs & Vigo, 1996; Font, 2015).

***Festuca glauca** Vill.

Montseny, Les Agudes, VII-1907, M. Llenas (BC 69887).

A herbarium sheet with two *Festuca* species, one of which corresponds to *F. glauca* Vill. (det. S. Pyke), from Les Agudes, probably around 1600 m above sea level, raises an interesting question: does this species, which mainly occupies coastal siliceous areas in Catalonia, ascend to such heights further inland? *F. yvesii* Sennen & Pau subsp. *yvesii* (taxon present in the Eastern Pyrenees) is a closely related species, and since the morphological characters that serve to separate the two taxons are minimal, the inland populations at medium altitudes are therefore difficult to define.

***Festuca heteromalla** Pourr. [*F. fallax* Thuill.; *F. rubra* subsp. *fallax* (Thuill.) Nyman]

Montseny: Serrat de les Estepes, El Brull, 31TDG4030, 750 m, streamsides and wood-borders, 14-VI-2015, P. Carnicero & L. Sáez LS-7646 (BC); Montseny: Santa Fe de Montseny, Font de Passavets, 31TDG5425, 1190 m, forest edge by the road, 22.VIII.2015, S. Pyke (BC 879841).

As far as we know, these herbarium specimens constitute the first records of this species from Montseny. It must have been cited earlier as *F. rubra* L., in a wider sense than that which is generally accepted at present. Similar plants can be found in Montnegre and Montserrat, as well as in the Cadi range (for example, around Bastanist), and in the axial Pyrenees. *Festuca heteromalla* was described from Narbonne, SW France, by Pourret (himself referring to specimens collected and illustrated by the pre-Linnaean Swiss botanist J. Scheuchzer), and is listed for Girona province by Devesa & al. (2013). Its distribution in the northeastern Iberian Peninsula is incompletely known. It differs from *F. rubra* L. subsp. *rubra* in its taller, laxer habit, generally larger and laxer panicles, slightly larger floral pieces, and in the wide (around 2-3 mm) flat (in the fresh state) cauline leaves. The basal leaves are rather variable, usually plicate but sometimes flat, at least in the fresh state. As a consequence, the real presence and distribution of *F. rubra* subsp. *rubra* in the Montseny massif needs to be reassessed.

Festuca lemanii Bastard

Montseny, Turó de Tagamanent, 31TDG4121, 1030 m, limestone rocky places, 16-V-2015 P. Carnicero & L. Sáez LS-7636 (BC).

Second record for the Montseny massif. This species was reported from castell de Montsoriu (eastern Montseny), DG6125, 600 m by Cebolla & Ponce (2003), and has been collected from various localities to the north and east of the mountain, such as Manlleu, Sant Feliu de Pallerols, surroundings of the river Ter, or Maçanet de la Selva, as testified by recently revised herbarium sheets in BC and HGI. It is a rather variable hexaploid, indifferent edaphic species, more frequent at low altitudes (rarely ascending beyond 1000 m) and is difficult to distinguish from other close taxa which may occur in the same area.

***Festuca marginata* subsp. *alopecuroides* (Hack.) K. Richt. [*F. lambinonii* Kerguélen]**

Montseny, El Llobinar, Aiguafreda, 31TDG3924, 450 m, siliceous screes and wood-borders, 16-V-2015, P. Carnicero & L. Sáez LS-7631 (BC).

New for southwestern Montseny; previously reported by Cebolla & Ponce (2003) from a single locality: castell de Montsoriu (eastern Montseny), DG6125, 600 m. In fact, this is one of the more common members of the genus on Montseny, and the authors have observed it in a wide belt at mid-mountain level, from about 450 to 1400 m, both in open woodland and in more exposed, rocky pastures and outcrops, although it is more frequent on the north and east slopes.

****Festuca yvesii* Sennen & Pau**

Montseny, Les Agudes, 31TDG5326, 1680 m, open scrub and rocky places, 12-VII-2014, L. Sáez LS-7553 (BC); Montseny: Turó de l'Home, 31TDG5324, 1640 m, pastures and rock crevasses among siliceous rocks, 6-VIII-2014, S. Pyke, SBP7047 (Herb. Pers.).

Similar populations have been observed in the mountains around Berga, and elsewhere in the Pyrenean chain. In our opinion, these specimens from Montseny are close to typical *F. yvesii*, an endemic species from the Eastern Pyrenees in its narrower sense, but differs from this plant in its less robust habit, and in the taller culms which hold the inflorescence well clear of the basal leaves. In this respect, it may be closer to *F. laevigata* Gaudin, a mainly alpine species, but with several more isolated stations in the Pyrenean chain, and of unclear distribution, particularly on the Iberian side. This group, which can be referred to loosely as '*F. gr. indigesta*' evidently requires more study.

****Fraxinus angustifolia* Vahl. subsp. *oxycarpa* (Willd.) Franco & Rocha Afonso** Vilamajor, IV-1931, M. Garriga de Gallardo (BC 124795); Sant Celoni, 25-V-1982, I. Soriano (BCN 14026).

This taxon seems to be in decline due to the expansion of *Robinia pseudoacacia* along the watercourses of the studied area.

****Galium spurium* L.**

Torrent de la Font dels Monjos, Cànoves i Samalús, 31TDG4215, 360 m, stream-sides, 22-IV-2015, P. Carnicero & L. Sáez LS-7610 (Herb. Pers.); Vallforners, prop del Pont de Muntanya, Cànoves i Samalús, 31TDG4515, 400 m, waysides, 22-IV-2015, P. Carnicero & L. Sáez.

This species, which sometimes is recognized at subspecific rank within *G. aparine*, is not common in northern catalanidic territory (Font, 2015).

***Geranium pusillum* L.**

Pla del Ginebre, Viladrau, 31TDG4729, 1485 m, 24-VII-2014, G. Pié (Herb. Pers.).

This is a rare species in the Catalanidic range (Bolòs & Vigo, 1990). It was reported from Santa Fe by Cadevall, according to Bolòs et al. (1986). However, the latter authors do not confirm the presence of *G. pusillum* in the Montseny

massif, although Bolòs & Vigo (1990) indicate “Montseny” in the distribution of this species. Therefore, the above mentioned herbarium material confirms the presence of *G. pusillum* in the Montseny massif.

Geranium pyrenaicum Burm. f. subsp. **pyrenaicum**

Montseny, s.d., M. Garriga de Gallardo (BC 124739).

Vilar (1987) includes some ancient references (Vayreda, Cadevall) of this species from Montsoriu (eastern Montseny), which have not been confirmed. The above mentioned herbarium material, despite not provide specific locality, confirms the presence of this rare species in the Montseny massif.

***Gnaphalium antillanum** Urb. [*Gamochaeta subfalcata* (Cabrera) Cabrera]

Can Valls, between Campins and Mosqueroles, 31TDG543192, 310 m, cultivated fields, 2011, G. Pié.

In the Montseny massif this plant probably should be regarded as ephemeral. The closest localities of this species are located in Guilleries massif (cf. Font, 2015).

***Hedera hibernica** (G. Kirchn.) Carrière

Bac de l'Antic, Figaró, 31TDG4318, 375 m, holm oak forest, on siliceous soil, 11-IV-2015, L. Sáez LS-7587 (Herb. Pers.).

First record for the Montseny massif of this species, which is native to Atlantic Europe (Valcárcel et al., 2003). *Hedera hibernica* is widely used as a ground cover and frequently escapes from cultivation (McAllister & Rutherford, 1990). It has been reported from Catalonia as a casual alien or locally naturalized (Aymerich & Sáez, 2015; Pyke, 2008) and this latter author considers the species to be native in some of the more humid areas and north-facing aspects of Catalonia.

***Helianthemum × sulphureum** Willd. [*H. apenninum* × *H. nummularium*]

Turó de Tagamanent, 31TDG4121, 1000 m, open scrub, on limestone stony soil, 24-V-2015, L. Sáez LS-7641 (Herb. Pers.).

Our record is also new to northern Catalanidic territory. It was found growing together with *H. apenninum* subsp. *apenninum* and *H. nummularium*.

***Helictochloa pratensis** subsp. **gonzaloï** (Sennen) Romero Zarco

Pic de Tagamanent, 31TDG4121, 1040 m, grassy places, on limestone substrate, 16-V-2015, P. Carnicero & L. Sáez PC-1282 (Herb. Pers.).

Although this is the first concrete record of this taxon for the Montseny massif, Bolòs & Vigo (2001 sub var. *gonzaloï*) suggest that it is relatively widespread in northeastern Iberian Peninsula. According to Bolòs & Vigo (2001) subsp. *pratensis* find its closest localities in Cabrerès.

Hemerocallis fulva (L.) L.

Viladrau, Riera Major, 31TDG4932, riparian vegetation, 775 m; Viladrau cap al Sot del Noguer, 31TDG4932, 805 m, 14-VI-2015, P. Carnicero & L. Sáez (photo).

This is a rare species in the Montseny massif, which has only been reported from the eastern sector (Bolòs et al., 1986). In Riera Major and its surroundings *H. fulva* seems to be in expansion process.

****Herniaria cinerea* DC.**

Prop de la Torre de Can Bosc, a l'oest de Samalús, 31TDG4215, 355 m, grassland, 22-IV-2015, P. Carnicero & L. Sáez PC-1186 (Herb. Pers.).

The present record is a novelty for Montseny massif, filling the gap between Moianès and Gironès (cf. Font, 2015). This species likely occurs in other areas of Eastern and southwestern Montseny, where suitable stations are available.

****Hypericum perforatum* L. subsp. *veronense* (Schrank) H. Lindb.**

Barcelone: S. Celoni, 20-VII-1922, F. Secondaire, Pl. Espagne F. Sennen n°. 4864 (BC 12128).

This is the first record of this taxon for the Montseny massif. According to Bolòs & Vigo (1990 sub var. *angustifolium* DC.) this taxon is relatively widespread in Catalonia. Plants with generally sessile, narrow (usually up to 5 mm width) and often sublinear leaves (which are referable to subsp. *veronense*) can be found in lowland areas of eastern and southwestern Montseny (La Garriga, Figaró), whereas typical *H. perforatum* is distributed throughout the massif.

****Kickxia elatine* (L.) Dumort. subsp. *elatine***

Riells i Viabrea, c. La Rajoleria, 31TDG6319, 89 m, grassland and waysides, 26-IX-2015, P. Carnicero & L. Sáez PC-1337 (Herb. Pers.).

Novelty for Montseny massif and also for the northern Catalanidic territory (Font, 2015). *Kickxia elatine* subsp. *crinita* (Mabille) Greuter was listed for Eastern Montseny by Bolòs et al. (1986).

****Knautia collina* (Guérin) Jord.**

Tagamanent, Torrent de l'Artiga [o de Pedralba], 31TDG3921, 450 m, holm oak forest, on limestone rocky places, 21-VI-2014, P. Carnicero PC-1096 (Herb. Pers.).

The present record is a novelty for Montseny, filling the gap between La Selva Plain and Moianès (Font, 2015).

****Lemna gibba* L.**

Bassa del Boix, Serra de l'Arca, El Brull, 31TDG404281, 810 m, pond, 20-VII-2012, G. Pié.

As far as we know, this is the first record for the Montseny massif.

***Lepidium didymum* L. [*Coronopus didymus* (L.) Sm.]**

Vallforners, prop del Pont de Muntanya, Cànoves i Samalús, 31TDG4515, 390 m, waysides, 22-IV-2015, P. Carnicero & L. Sáez PC-1201 (Herb. Pers.).

New for southwestern Montseny; previously known from the eastern side of the massif (Gutiérrez & Sáez, 1996).

****Ligustrum lucidum* W.T. Aiton**

Seva, Serrat d'en Borres, 31TDG4132, 680 m, holm oak forest, on limestone soil, 14-VI-2015, P. Carnicero & L. Sáez LS-7647 (Herb. Pers.).

Grown for ornament and escaped or locally naturalized.

****Medicago sativa* L. subsp. *sativa***

Turó de Tagamanent, 31TDG4121, 1045 m, grassland, 16-V-2015, P. Carnicero & L. Sáez PC-1280 (Herb. Pers.), Turó de Tagamanent, 31TDG4121, 1050 m, grassland, 24-V-2015, L. Sáez LS-7644 (Herb. Pers.); Castell del Brull, 31TDG4229, 855 m, open scrub and waysides, 24-V-2015, L. Sáez; Torrent de l'Estanyol, 31TDG4029, 725 m, waysides, 14-VI-2015, P. Carnicero & L. Sáez PC-1295 (Herb. Pers.); Campins, pista a Gualba 31TDG5819, 370 m, 26-IX-2015, P. Carnicero & L. Sáez.

Suprisingly, this species was not listed by Bolòs et al. (1986). It is naturalized in waste places, fields, grassland, open scrub and waysides, between 250 and 1200 m.

****Medicago* × *varia* Martyn**

Aiguafreda de Dalt, 31TDG3826, 575 m, grassy places, 21-VI-2014, P. Carnicero PC-1110 (Herb. Pers.).

This taxon is presumed to be the hybrid between *M. falcata* L. and *M. sativa*. Plants from Aiguafreda de Dalt show intermediate characteristics between *M. falcata* and *M. sativa*: flower colour is yellowish or greenish and pods are loosely coiled. In the Montseny massif this species should be regarded as ephemeral.

****Melilotus officinalis* (L.) Pall. subsp. *officinalis***

Aiguafreda de Dalt, 31TDG3826, 575 m, grassy places, 21-VI-2014, P. Carnicero PC-1112 (Herb. Pers.).

As far as we know, this herbarium specimen makes the first record of this species from the Montseny massif.

****Mercurialis ambigua* L. fil. [*M. annua* subsp. *ambigua* (L. fil.) Arcang.]**

Figaró, pista del marge esquerre de la Riera de Vallcàrquera, 31TDG3919 and 31TDG4019, 360 m, talussos rocosos calcaris, 11-IV-2015, L. Sáez LS-7590 (Herb. Pers.); Bosc dels Poatells, Cànoves i Samalús, vora el torrent de Can Pasqual, 31TDG4115, 330 m, waysides, 11-IV-2015, L. Sáez LS-7599 (Herb. Pers.).

This species is widespread in Montseny, but was formerly confused with *M. annua* L.

***Minuartia laricifolia* (L.) Schinz & Thell.**

The presence of this European orophyte in Montseny is of outstanding biogeographical significance, since it has its southern limit of its distribution area in this massif. The population from Montseny was traditionally referred to subsp. *diomedis* (Braun-Blanq.) Mattf. by several authors (Bolòs, 1983; Bolòs et al., 1986; Bolòs & Vigo, 1990). This taxon was described (at species rank) on the basis of material

collected in Cevennes (Mont Lozere and Mont Aigoual) and is considered endemic to Cevennes, eastern Pyrenees and Montseny (Bolòs & Vigo, 1990). This subspecies allegedly differs from typical *M. laricifolia* in having pedicels and sepals covered with glandular trichomes (Fig. 1A, G). In *M. laricifolia* subsp. *diomedis* the non-glandular trichomes that characterize subsp. *laricifolia* are absent or scarce. Populations from eastern Pyrenees and Montseny were referred to subsp. *diomedis* on the basis of trichome characters (Bolòs & Vigo, 1990). However, our research indicates that plants with both trichome morphologies can be found in the same area, such as the Valley of Ribes (see studied material) and Montseny. Our field observations carried out on 91 specimens indicates that in Montseny massif (where *M. laricifolia* has a highly restricted distribution) plants with glandular trichomes and without glandular trichomes can be found. Nevertheless plants with glandular trichomes are somewhat more common [52 specimens (57.1%)] than those without glandular trichomes [39 specimens (42.9%)]. Both types of plants show no difference in morphological (reproductive or vegetative) characters and coexist in the same places. Actually, plants with glandular trichomes also have non-glandular trichomes, which are usually shorter (Fig. 1, B, D and D). Moreover, in the Montseny massif, some specimens have pedicels and sepals densely covered by relatively long non-glandular trichomes (Fig. 1F) the glandular trichomes being scarce.

As to whether western populations of *Minuartia laricifolia* [subsp. *diomedis*] are worthy of taxonomic recognition, other morphological characters should be used in order to separate them from typical *Minuartia laricifolia*.

Representative specimens:

1) Specimens having pedicels and sepals covered by glandular trichomes (0.1)0.2-0.4(0.6) mm long:

MONTSENY MASSIF: Ad rupes Agudes, Montseny, VIII-1873, Vayreda (BC 614672); Montseny, Santa Fe, 14-VIII-1917, E. Gros (BC 10703, with very few glandular hairs). Montseny, Turó de l'Home, 14-VIII-1917, P. Font Quer (BC 10702, sub *Alsine stiriata* f. *glandulosa*); Montseny, without date, F. Trèmols (BC 659172, with abundant glandular hairs); Montseny, esqueis Agudes, 1650 m, 31-VIII-1981, J. Panareda & J. Nuet (BC 641333). AIGOUAL, FRANCE: Gard, L'Aigoual, Pic de la Fajola, 1550 m, 27-VII-1906, H. Coste (BC 102362); Aigoual, 1300 m, 20-VII-1913, Braun Chur (BC 10710); Valleraugue, Gard, près sommet l'Aigoual, 1500 m, 23-VII-1975, A. Dubuis (BC 625982, with few scattered eglandular hairs); Les Agudes, 31TDG5326, 1700 m, rock crevices, 12-VII-2015, L. Sáez LS-7663 (Herb. Pers.). EASTERN PYRENEES: Canigó Vall Sant Vicent, 1850 m, 10-VI-1987 F. Sennen (BC 102199); Spain: [Girona province, Eastern Pyrenees] Les Salines, -VII-1894, E. Vayreda (BC 102175, sub *M. laricifolia* subvar. *glandulifera* Font Quer); Núria, Font Bordonera, 5-VIII-1924, Barnades (BC 603939, with very few scattered eglandular hairs); Vall de Ribes, Queralbs, sota roques de l'Oratori, 1400 m, Vigo & Anglada, 7-VII-1968 (BC 599796, with some scattered eglandular hairs); Vall de Ribes, Gorges del Freser, Les Marrades, 1750 m, Vigo, 13-VII-1968 (BC 601623); Vall de Ribes, Coma del Gispert, sota Torreneules, 2050 m, Vigo & Anglada, 27-VII-1970 (BC 605396).

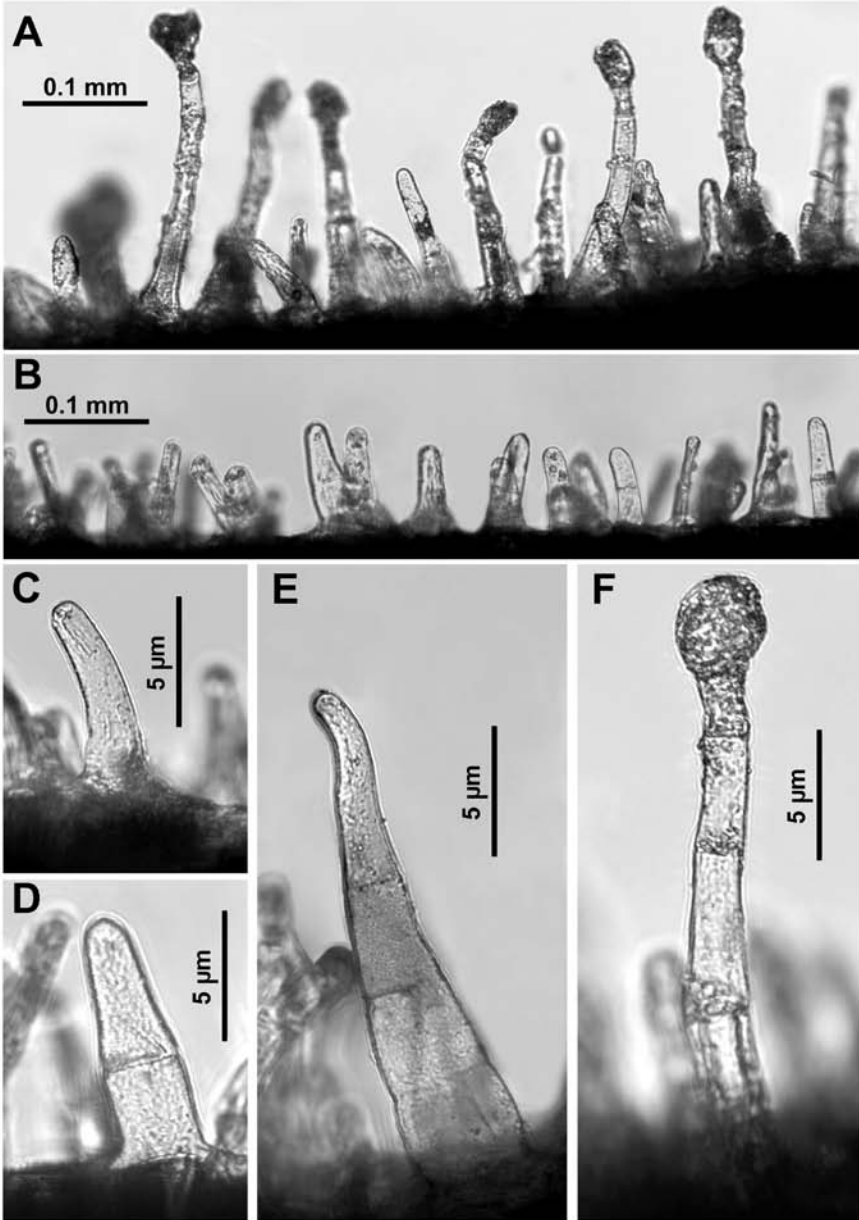


Figure 1. Light microscope images showing different trichomes within *Minuartia laricifolia* population from Montseny Massif (Les Agudes, 12-VII-2015, L. Sáez LS-7663). A: pedicel with glandular and non glandular trichomes; B: pedicel with non glandular trichomes. C, D and E: non glandular trichomes; F: glandular trichome.

2) Specimens having pedicels and sepals densely covered by eglandular hairs 0.05-0.4 mm long:

MONTSENY MASSIF: Montseny, Agudes, VII-1907, M. Llensa (BC 10714). Montseny, Turó de l'Home, 9-X-1947, J. Braun Blanquet et al. (BC 108610, labelled as subsp. *diomedis*); Montseny, Puig Sa Carbassa, 1680 m, 21-VIII-1948, O. Bolòs, (BC 118039, labelled as subsp. *diomedis*); Montseny, Turó de l'Home, 22-VI-2003, S. Pyke (BC 865078); Les Agudes, 31TDG5326, 1700 m, rock crevices, 12-VII-2015, L. Sáez LS-7664 (Herb. Pers.). **EASTERN PYRENEES:** Vall de Ribes, cap al Pla de les Solanes de Baix, 2200 m, 10-VIII-1971, J. Vigo (BC 607418, labelled as subsp. *diomedis*). Vall de Ribes, sobre Planès, 1800 m, 6-VIII-1976, J. Vigo (BC 625747, labelled as subsp. *diomedis*). **ALPS:** France, [Haute Savoie] fissurae monticum Méry, 2000 m, 12-VII-1909, Bouchard (BC 10711); Italy, Val d'Aosta, Valtourmanche, 1600 m, O. Bolòs & J. Braun-Blanquet, 31-VII-1957 (BC 140559); Valgiore, Combravino, Torino, 860 m, 28-VIII-1981, V. Meloni (BC 647680). Switzerland: Valais, Stalsvenried, 1100 m, VI-1920, without collector (BC 10935).

****Muscari atlanticum* Boiss. & Reut.**

Turó del Seguer, southeastern slopes, Tagamanent, 31TDG4020, 600 m, open rocky slopes, on limestone substrate, 11-IV-2015, L. Sáez LS-7595 (Herb. Pers.).

The range of this species includes southern and eastern Iberian Peninsula and northern Africa. In our opinion, the distribution of *M. atlanticum* is only partially known due to confusion with other species of the genus, and it likely has a wider distribution in the northeastern Iberian Peninsula. The above mentioned material is referable to *M. atlanticum* by the following features: i) bulbils are absent, ii) the sterile flowers are pale blue and iii) the inflorescence is lax and cylindrical.

***Myosotis discolor* Pers. subsp. *discolor* [*M. versicolor* Sm.]**

This is a rare species in north-eastern Iberian Peninsula, which grows in grasslands on siliceous substrate (Bolòs & Vigo, 1996). Valdés (2012), in his taxonomic treatment for *Flora iberica*, listed this species for Girona province. Since Valdés (2012) recognized two subspecies within *Myosotis discolor*, whereas in Bolòs & Vigo (1996) the subspecific attribution of the Catalan populations is not entirely clear, we have proceeded to the revision of herbarium specimens in order to establish the identity of the plant from the Montseny massif.

Our result is that *M. discolor* subsp. *discolor* is found in south-western Montseny on the basis of the following herbarium material: Montseny, pr. Mas Bellit [31TDG42], in pascuis therophicitis, 1000 m, solo siliceo, 22-V-1949, A. Bolòs & O. Bolòs (BC 117805, sub *M. versicolor*). The report from south-western Montseny due to Bolòs et al. (1986) is probably based on this herbarium specimen. Therefore, this indication confirms the presence of *M. discolor* subsp. *discolor* in the province of Barcelona.

****Oenothera glazioviana* Micheli**

Aiguafreda, 1-XI-1931, M. Garriga de Gallardo (BC 127814).

As far as we know, this herbarium specimen makes the first record of this species from Montseny.

****Onobrychis viciifolia* Scop.**

Prop de la Tordera, 31TDG5119, 265 m, 2007 G. Pié.

This species, which is probably native to southeastern Europa and western Asia, was used as a forage legume for hundreds of years in the Iberian Peninsula. In the Montseny massif this species should be regarded as ephemeral.

****Ononis spinosa* L. subsp. *australis* (Sirj.) Greuter & Burdet**

Tagamanent, sota Mas Vilardebó, 31TDG4021, 650 m, open scrub, 21-VI-2014, P. Carnicero PC-1106 (Herb. Pers.); Turó de Tagamanent, 31TDG4121, 1010 m, open scrub on limestone soil, 24-V-2015, L. Sáez LS-7645 (Herb. Pers.).

Bolòs et al. (1986) listed *Ononis spinosa* subsp. *procurrens* (Wallr.) Briq. from southwestern Montseny. However, this name is currently treated as a taxonomic synonym of *O. spinosa* subsp. *maritima* (Dumort.) P. Fourn. Reports of the latter taxon from Montseny massif are probably due to confusion with *O. spinosa* subsp. *australis*.

****Orobanche amethystea* Thuill.**

Pic de Tagamanent, 31TDG4121, 1040 m, growing on *Eryngium campestre*, 16-V-2015, P. Carnicero & L. Sáez LS-7638 (Herb. Pers.) (Fig. 2A).

This species is relatively rare in northern catalanidic territory (Bolòs & Vigo, 1996).

****Orobanche santolinae* Loscos & Pardo**

Montseny, L'Avencó, 400 m, 27-VI-1948, A. Bolòs & O. Bolòs (BC 129302, sub *O. picridis*).

This material was initially identified as *O. picridis*, and later (October 1995) as *O. loricata* by A. Pujadas. It is very likely that the report of the latter species due to Bolòs et al. (1986) is actually referable to *O. santolinae*.

****Phelipanche nana* (Rchb. fil.) Soják**

Montseny, Viladrau, pr. Can Gat, 900 m, 29-VI-1949, A. Bolòs & O. Bolòs (BC 129298, sub *Orobanche ramosa*).

It is likely that the report of *Orobanche ramosa* L. from northwestern Montseny (Bolòs et al., 1986) is based on herbarium specimen above indicated.

****Phyllostachys aurea* Rivière & C. Rivière**

Riera de Can Sura, Campins, 31TDG5319, 275 m, riparian vegetation, 17-V-2015, L. Sáez LS-7639 (Herb. Pers.); Riera de Gualba, 31TDG5820, 175 m and 31TDG5721 a 310 m, riparian vegetation.

It is grown for ornament and sometimes escaped or locally naturalized. In some of these localities, *Ph. aurea* is under expansion by vegetative propagation.

****Physalis ixocarpa* Hornem.**

Between Santa Maria de Palautordera and Sant Esteve de Palautordera, 31TDG5316, 200 m, corn crop fields, 28-IX-2008, G. Pié (photo, fig. 2B).

Pié et al. (2010) reported this species as *Physalis philadelphica* Lam. However, on the basis of the characters given by Sanz & Sobrino (2012) the specimens from Santa Maria de Palautordera are referable to *Ph. ixocarpa*.

****Poa infirma* Kunth**

Vallforners, prop del Pont de Muntanya, Cànoves i Samalús, 31TDG4515, 390 m, grassland, on sandy siliceous substrate, 22-IV-2015, P. Carnicero & L. Sáez PC-1202 (Herb. Pers.).

This is a rare species in the northeastern Iberian Peninsula (Bolòs & Vigo, 2001), of which previous reports are not known from the Pre-coastal range. It is probably present in other areas of the massif.

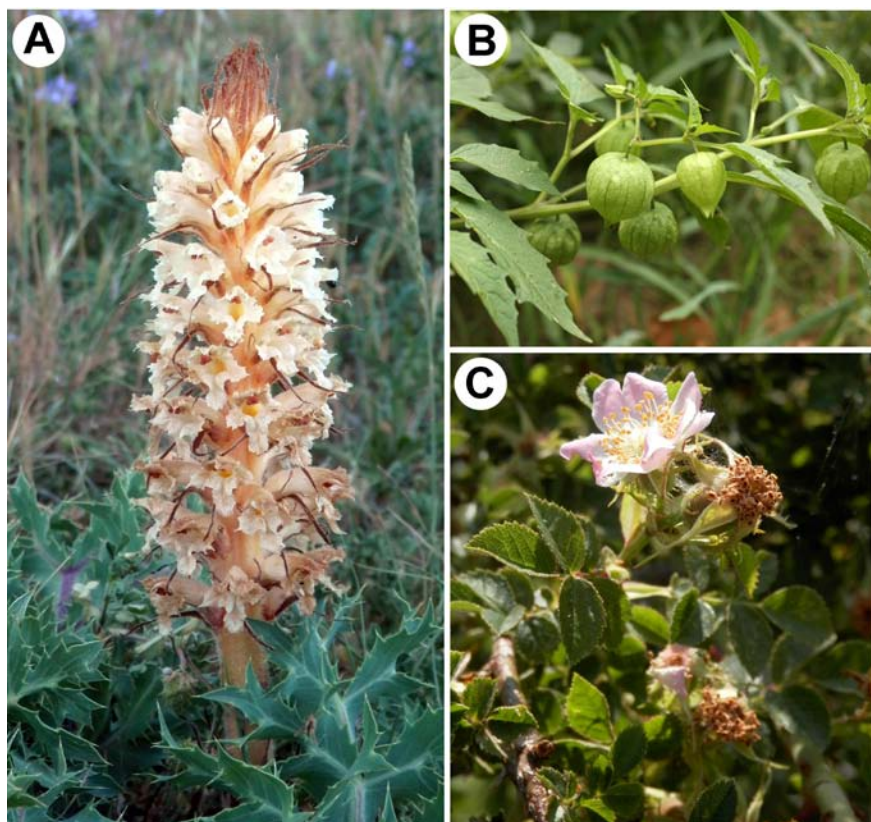


Figure 2. A: *Orobanche amethystea* Thuill. (Tagamanent, LS-7638); B: *Physalis ixocarpa* (Between Sta. Maria de Palautordera and St. Esteve de Palautordera); C: *Rosa x hibernica* (Turó de l'Home, LS-7661).

***Polygonum arenastrum** Boreau

Vilamajor, Montseny, X-1919, Font Quer (BC 113558, sub *P. aviculare*).

The present record is apparently the first for the Montseny massif; previously reported from the Pyrenees and lowlands of the Ebro Basin (Lleida Province) by Bolòs & Vigo (1990). Its distribution is not completely known, probably due to misidentifications with other species of the genus.

***Ranunculus monspeliacus** L.

El Brull, prop de la riera de Collformic, 31TDG4429, 830 m, 18-V-2010, G. Pié (HGI 19465).

This is the first report of *R. monspeliacus* for Montseny massif in particular as well as the pre-coastal mountains in the northern Catalanidic territory (Font, 2015).

***Raphanus raphanistrum** L. subsp. **sativus** (L.) Domin

Mosqueroles, 31TDG532195, 385 m, crop margins and waste places, 27-IV-2014, G. Pié.

As far as we know, this is the first report for the Montseny massif.

***Rorippa pyrenaica** (All.) Rchb.

Riera de Collformic, 31TDG447290, 830 m, 18-V-2010, G. Pié; Matagalls, sot de la Plana Jugadora, 31TDG480281, 1410 m, 2011, G. Pié.

In Catalonia, most of the known locations of this species are found in the Pyrenees and in some parts of the northeastern area (Font, 2015).

***Rosa caesia** Sm.

Between Turó Gros and Torrent de l'Infern, Fogars de Montclús, 31TDG5324, 1430 m, open *Fagus* woodland, 3-VIII-2015, G. Pié (Herb. Pers.); Les Agudes, 31TDG5326, scrub and rocky places, 1695 m, 26-IX-2015, P. Carnicero & L. Sáez PC-1329 (Herb. Pers.).

These are the first concrete records for Catalonia. In the Iberian Peninsula this rare species was listed for Lleida and Soria provinces (Silvestre & Montserrat, 1998). Our specimens have leaflets sparsely hairy on upper side and densely hairy on lowerside (without glandules), glandular pedicels and erecto to somewhat reflexed pinnately lobed sepals.

Rosa corymbifera Borkh.

Les Agudes, 31TDG5326, scrub and rocky places, 1695 m, 12-VII-2015, L. Sáez 7662 (Herb. Pers.); Les Agudes, entre el Sot del Mal Pas i el Sot de la font del Porrassar, 31TDG5325, 1435 m, 12-VII-2015, L. Sáez LS-7666 (Herb. Pers.).

New for eastern Montseny. Previously known from L'Avencó [Aiguafreda, western Montseny] (Masclans, 1961).

****Rosa squarrosa*** (A. Rau) Boreau

El Brull, c. camps del Maset, 31TDG4129, 825 m, 14-VI-2015, P. Carnicero & L. Sáez PC-1291 (Herb. Pers.); Les Agudes, el Mal Pas, 31TDG5325, 1455 m, 12-VII-2015, L. Sáez LS-7665 (Herb. Pers.).

As far as we know, these are the first reports for the Montseny massif. In the northeastern Iberian Peninsula it is a relatively rare species, which is found in scattered localities in mountainous areas.

****Rosa* × *hibernica*** Templeton

Montseny, Turó de l'Home, 31TDG5325, scrub, 1640 m, 12-VII-2015, L. Sáez LS-7661 (Herb. Pers.) (Fig. 2C).

This is a hybrid between two common species in northeastern Iberian Peninsula: *Rosa spinosissima* and *R. canina* (in broad sense). Both species are widely distributed in Eastern Montseny above 1300 m, and it may be expected that *R. × hibernica* occurs in other localities. This hybrid is not listed by Silvestre & Montserrat (1998) for the Iberian Peninsula.

Our specimen has small leaflets (5-14 × 3-10 mm) hairy and glandular on lowerside, unequal prickles (straight or curved, some of them slender), glandular pedicels and entire or pinnately lobed sepals. The leaflets are hairy at least on the nerves below, which is strong evidence to show that the parent belonging to the *R. canina* group is *R. corymbifera*.

****Sinapis alba*** L. subsp. ***mairei*** (H. Lindb.) Maire

Prop de Mosqueroles, 31TDG538197, 387 m, crop margins, 27-IV-2014, G. Pié.

In the Montseny massif this plant should be regarded as ephemeral. The closest localities of this species are located in Santa Coloma de Farners (Font, 2015).

****Taraxacum blomgrenii*** G.E. Haglund

Barcelona: riera de Vallfornés, Cànoves i Samalús, per sobre de l'embassament, 31TDG4419, 540 m, wood-borders on siliceous soil, 22-IV-2015, P. Carnicero & L. Sáez LS-7618 (USP 3180).

This is the first concrete report for Catalonia. This species is distributed throughout northern, central and western Europe.

****Taraxacum braun-branquetii*** Soest

Barcelona: riera de Vallfornés, Cànoves i Samalús, per sobre de Can Domènec, 31TDG4518, 430 m, siliceous banks, 22-IV-2015, P. Carnicero & L. Sáez LS-7614 (USP 3175).

This species, which is morphologically related to *T. rubicundum*, is endemic to southwestern Europe (France and the Iberian Peninsula). This is the first report of *Taraxacum braun-branquetii* for Catalanidic territory. It is also known from Lleida province (Galán de Mera, 2014).

****Taraxacum cacuminatum*** G.E. Haglund

Barcelona: riera de Vallfornés, Cànoves i Samalús, per sobre de l'embassament, 31TDG4419, 545 m, siliceous stony banks, 22-IV-2015, P. Carnicero & L. Sáez LS-7616 (USP 3184).

This species is distributed throughout northern, central and southwestern Europe. As far as we know, this herbarium specimen makes the first record of this species for Catalonia. In our opinion, the distribution of this species is poorly known due to confusion with other species of the genus, and it likely has a wider distribution in northeastern Iberian Peninsula.

****Taraxacum ekmanii*** Dahlst.

Barcelona: riera de Remoguent, Cànoves i Samalús, 31TDG4516, 410 m, on siliceous soil, 22-IV-2015, P. Carnicero & L. Sáez LS-7613 (USP 3176).

This species is broadly distributed throughout northern, central and southwestern Europe. Its native status in the British Isles is uncertain. As far as we know, this is the first reports for the Montseny massif. *Taraxacum ekmanii* is also known from Barcelona and Lleida provinces (Galán de Mera, 2014).

****Taraxacum elegantius*** Kirschner, H. Øllg. & Štěpánek

Barcelona: Bac de l'Antic, Figaró, DG4318, 370 m, holm oak forest, on siliceous soil, 11-IV-2015, L. Sáez LS-7589 (USP 3183).

This species is distributed throughout central and southwestern Europe. Our specimen makes the first record of this species from Montseny. *Taraxacum elegantius* is also known from Barcelona and Lleida provinces (Galán de Mera, 2014).

****Taraxacum lambinonii*** Soest

Barcelona: Vessant sud-est del Turó del Seguer, Tagamanent, 31TDG4020, 620 m, open calcareous rocky banks, 11-IV-2015, L. Sáez LS-7597 (USP 3178).

This species is distributed throughout southwestern and central Europe. As far as we know, this is the first record for the Montseny massif. *Taraxacum lambinonii* is also known from Barcelona and Lleida provinces (Galán de Mera, 2014).

Taraxacum montesignum Soest

Barcelona: riera de Vallfornés, Cànoves i Samalús, per sobre de l'embassament, 31TDG4419, 540 m, wood-borders on siliceous soil, 22-IV-2015, P. Carnicero & L. Sáez LS-7615 (USP 3186); Barcelona: riera de Vallfornés, Cànoves i Samalús, per sobre de l'embassament, 31TDG4419, 538 m, siliceous soil, 22-IV-2015, P. Carnicero & L. Sáez LS-7617 (USP 3181).

Richards & Sell (1984), as more recently Kirschner et al. (2007+), consider this species to be distributed in France and Italy (Sardinia included). However, it is missing both from the flora of Italy (Fürnkranz, 1982) and from the flora of France (Tison, 2014). Collections would need to be checked in order to confirm the Sardinian record (Arrigoni, 2006).

****Taraxacum polyodon* Dahlst.**

Barcelona: Figaró, pista del marge esquerre de la Riera de Vallcàrquera, 31TDG3919 and 31T DG4019, 360 m, calcareous rocky banks, 11-IV-2015, L. Sáez LS-7592 (USP 3185).

This plant is distributed throughout northern, central and southwestern Europe. Our specimen makes the first record of this species from Montseny. *Taraxacum polyodon* is also known from Barcelona, Girona and Lleida provinces (Galán de Mera, 2014).

****Taraxacum rubicundum* (Dahlst.) Dahlst.**

Barcelona: Torrent de la Font dels Monjos, Cànoves i Samalús, 31TDG4215, 380 m, waysides, on siliceous soil, 22-IV-2015, P. Carnicero & L. Sáez LS-7612 (USP 3177).

This species is widely distributed throughout northern, central and southwestern Europe. As far as we know, this is the first concrete report for Montseny massif. *Taraxacum rubicundum* is also known from Girona and Lleida provinces (Galán de Mera, 2014).

****Taraxacum tarraconense* Sennen**

Barcelona: Montseny, Bac de l'Antic, Figaró, 31TDG4318, 385 m, holm oak forest on siliceous soil, 11-IV-2015, L. Sáez LS-7585 (USP 3182); Barcelona: Figaró, prop de la Riera de Vallcàrquera, DG4019, 380 m shady limestone rocky places, 11-IV-2015, L. Sáez LS-7594 (USP 3179).

This species is to Western Mediterranean region. Our specimens make the first records of *T. tarraconense* for the Montseny massif.

****Thalictrum minus* subsp. *saxatile* Ces.**

Vessant sud del Pla del Ginebre, Matagalls, Viladrau, 31TDG472622931, 1440 m, 24-VII-2014, G. Pié (Herb. Pers.).

Plants collected in Matagalls (northwestern Montseny) are referable to subsp. *saxatile* according to the taxonomic treatment of Hand (2001). In the latter treatment *Th. minus* subsp. *saxatile*, includes several infraspecific taxa recognized by Bolòs & Vigo (1984). Although this is the first reference of this taxon for the Montseny massif, it is known to be present in nearby areas (cf. Bolòs & Vigo, 1900, sub *Th. minus* var. *pyrenaicum*; Hand, 2001).

****Ulmus pumila* L.**

Torrents de Telleda i de Palomeres, Sant Celoni, 31TDG5816, 115-130 m, 12-VII-2015, L. Sáez.

This species occurs in human-disturbed habitats, usually close to roadsides. The present record apparently is the first for the Montseny massif.

****Veronica catenata* Pennell [*V. anagallis-aquatica* subsp. *aquatica* Nyman]**

Riera de Canyes, Sant Pere de Vilamajor, 31TDG4817, 380 m, stream, 22-IV-2015, P. Carnicero & L. Sáez LS-7623 (Herb. Pers.).

This is a remarkable novelty for Montseny massif and also for the northern Catalanidic territory. This species has rarely been reported from Catalonia (Bolòs & Vigo, 1996; Font, 2015). Its distribution is not completely known, probably due to missidentifications with other species of the genus.

Veronica serpyllifolia L.

The following herbarium specimen: “prop Collformic, 1000 m, vora camí (fageda), 7-VII-1975, J.M. Ninot, BCN 4886” was wrongly identified as *Veronica agrestis* L., a plant which does not exist in the Montseny massif. The study of this herbarium specimen reveals that it corresponds to *V. serpyllifolia*. On the basis of several characters such as the type of hairs or the number of flowers (Bolòs & Vigo, 1996), the specimens (BCN 4886) are clearly referable to subsp. *humifusa* (Dicks.) Syme. The latter taxon was only reported from the Pyrenees by Bolòs & Vigo (1996) and Font (2015). Taking into account the variability of the characters used to separate subsp. *humifusa* and subsp. *serpyllifolia* and their sympatry, Martínez-Ortega et al. (2009) reduced subsp. *humifusa* to the synonymy of *V. serpyllifolia* subsp. *serpyllifolia*. Anyway, it seems appropriate to communicate the existence of this morphotype in the Montseny massif, in addition to excluding the presence of *V. agrestis* on this mountain.

***Vicia cordata** Hoppe

Vallforners, prop del Pont de Muntanya, Cànoves i Samalús, 31TDG4515, 390 m, grassland, 22-IV-2015, P. Carnicero & L. Sáez PC-1286 (Herb. Pers.).

The distribution of this species in Catalonia is poorly known; in fact it has no distribution map in Font (2015) since *V. cordata* is included within *Vicia sativa* L. subsp. *sativa*.

Vicia pseudocracca Bertol.

Vessant SW del turó de Santa Margarida, cap als Poatells, Cànoves i Samalús, 31TDG4115, 370 m, open scrub 11-IV-2015, L. Sáez LS-7600 (Herb. Pers.).

Very scarce in the Montseny massif where was reported from the eastern side of the mountain (Bolòs et al., 1986). New for southwestern Montseny; probably present in other areas of the massif.

Viola reichenbachiana Jord.

Figaró, prop de la Riera de Vallcàrquera, 31TDG4019, 380 m wet calcareous rocks, 11-IV-2015, L. Sáez LS-7593 (Herb. Pers.).

Within what was called *V. sylvestris* Lam. in the Montseny area, this is the least abundant species and its distribution is still poorly known. Bolòs et al. (1986) listed this species for eastern Montseny [31TDG51 and 31TDG52 squares], and therefore the locality here provided represents a novelty for western Montseny. According to available data *V. riviniana* Rchb. would be the most common species within the *V. sylvestris* group, as it is present in all sectors of the massif, between 100 and 1700 m. The ecological requirements specified for *V. reichenbachiana* by Muñoz Garmendia et al. (1993) perfectly match the features of the locality provided here.

****Vitis riparia* Michx.**

Riera d'Arbúcies, between Can Blanc and Can Pasqual, riparian vegetation, 31TDG6227, 210-220 m, 12-VII-2015, L. Sáez; Sot de Can Amat, Riells i Vimbrea, DG5924, 410 m, riparian vegetation, 26-IX-2015, P. Carnicero & L. Sáez LS-7695 (Herb. Pers.) (fig. 3A); riera d'Avencó 31TDG3824, 400 m, riparian vegetation, 10-X-2015, I. Granzow & L. Sáez LS-7700 (Herb. Pers.).



Figure 3. A: *Vitis riparia* Michx. (Sot de Can Amat, LS-7695); B: *Vitis rupestris* Scheele (Riera de Sant Llop); C: *Vitis* × *instabilis* Ardenghi, Galasso, Banfi & Lastrucci (Riera d'Arbúcies, LS-7670).

First reports for the northern catalanidic territory (see Aymerich & Sáez, 2015). A wider distribution in northeastern Iberian Peninsula can be assumed for this invasive species.

****Vitis rupestris* Scheele**

Massís del Montseny, c. creu de terme de Mosqueroles, 31TDG5319, waysides, 390 m, 17-V-2015, L. Sáez LS-7640 (Herb. Pers.); Riera de Sant Llop, between Breda and la Batllòria, 31TDG6319, waste places, 90 m, 12-VII-2015, L. Sáez (photo, fig., 3B); Breda and la Batllòria 1 km al N de Breda, 31TDG6322, waste places, 180-200 m, 12-VII-2015, L. Sáez; Aiguafreda, 31TDG3724, 470 m, waysides and wood-borders, 12-VII-2015, L. Sáez; Campins, pista a Gualba DG5819, 370 m, 26-IX-2015, P. Carnicero & L. Sáez PC-1334 (Herb. Pers.); Gualba, c. La Coma, DG5720, 240 m.

This American vine (together with other species) was imported to Europe as rootstock on which to graft *V. vinifera*. As crops were abandoned, these American rootstocks have become more or less naturalized (Laguna, 2003). A wider distribution in northeastern Iberian Peninsula can be assumed for *V. rupestris*.

****Vitis* × *instabilis* Ardenghi, Galasso, Banfi & Lastrucci [*V. riparia* × *V. rupestris*]**
Riera d'Arbúcies, Prat Marquès, 31TDG6227, riparian vegetation, 190 m, 12-VII-2015, L. Sáez LS-7670 (Herb. Pers.) (fig. 3C); Riera d'Arbúcies, between Can Blanc and Can Pasqual, riparian vegetation, 31TDG6227, 215 m, 12-VII-2015, L. Sáez; Riells i Viabrea, c. La Rajoleria, 31TDG6319, 26-IX-2015, P. Carnicero & L. Sáez.

In contrast to *V. rupestris*, the hybrid between *Vitis riparia* and *V. rupestris* has a greater ability to invade natural habitats, particularly riparian forests.

****Yucca gloriosa* L.**

Bosc dels Poatells, Cànoves i Samalús, vora el torrent de Can Pasqual, 31TDG4115, 340 m, holm oak forest, 11-IV-2015, L. Sáez (photo); El Sot Gran, 31TDG6120, 170-200 m, waysides close a residential area, 12-VII-2015, L. Sáez.

This species, native to North America, is often used as an ornamental plant in the Iberian Peninsula. These are the first records for Montseny massif.

Acknowledgements

We thank the Natural Park of Montseny for their support while carrying out this work. Neus Nualart (BC) Neus Ibáñez (BC), José Pizarro (MAF), Roser Guàrdia (BCN), Josep Vicens (BCN) and Antoni Sánchez (BCN) are kindly acknowledged for assistance in the study of herbarium material.

Bibliographical references

Anderson, E.F. 2001. The Cactus Family. Timber Press, Portland.
Arenas Posada, J.A.; García Martín, F. 1993. Atlas carpológico y corológico de la subfa-

- milia Apioideae Drude (Umbelliferae) en España peninsular e Islas Baleares. *Ruizia* 12: 1-249.
- Arrigoni, P.V. 2006. Note tassonomiche e corologiche sulla flora sarda. *Parlatorea* 8: 53-62.
- Aymerich, P. 2013. Contribució al coneixement florístic del territori ausossegàrric (NE de la península Ibèrica). *Orsis* 27: 209-259
- Aymerich, P.; Sáez, L. 2015. Comentarís i precisions previs a la Checklist de la flora de Catalunya (nord-est de la península Ibèrica). *Orsis* 29.
- Bolòs, O. 1983. La vegetació del Montseny. Barcelona: Diputació de Barcelona, Servei de Parcs Naturals, 170 pp.
- Bolòs, O.; Nuet, J.; Panareda, J.M. 1986. Flora vascular del Montseny. In: J. Terradas & J. Miralles (eds.). *El patrimoni biològic del Montseny, catàlegs de flora i fauna* 1: 41-92. Servei de parcs Naturals, Diputació de Barcelona.
- Bolòs, O.; Font, X.; Vigo, J. (eds.) 1999. *Atlas corològic de la flora vascular dels Països Catalans vol. 9*. Institut d'Estudis Catalans. Barcelona.
- Bolòs, O.; Vigo, J. 1990. *Flora dels Països Catalans*. Vol. 2. Ed. Barcino. Barcelona.
- Bolòs, O.; Vigo, J.; Masalles, R.M.; Ninot, J.M. 2005. *Flora Manual dels Països Catalans*. Ed. 3. Edicions 62. Barcelona.
- Cebolla, C.; Rivas Ponce, M.A. 2003. Contribució al conocimiento del género *Festuca* L. en el Noreste de Cataluña (Gerona, España). *Acta Bot. Barcinon.* 49: 39-50.
- Devesa, J.A. 2014. *Carduus* L. In: Devesa, J.A., A. Quintanar & M.A. García (eds.). *Flora iberica* Vol. XVI(I). Compositae (partim): 181-233. Real Jardín Botánico, CSIC. Madrid.
- Devesa, J.A.; Catalán, P.; Müller, J.; Cebolla, C.; Ortúñez, E. 2013. Checklist de *Festuca* L. (Poaceae) en la Península Ibèrica. *Lagascalia* 33: 183-274.
- Font, X. 2015. Mòdul Flora i Vegetació. Banc de Dades de Biodiversitat de Catalunya. Generalitat de Catalunya i Universitat de Barcelona
<<http://biodiver.bio.ub.es/biocat/homepage.html>>
- Fürnkranz, D. 1982. *Taraxacum* Weber. In: S. Pignatti (ed.). *Flora d'Italia* Vol. III: 254-260. Edagricole. Bologna.
- Galán de Mera, A. 2014. *Taraxacum* F.H. Wigg. *Flora iberica* Vol. XVI. Real Jardín Botánico, CSIC. Madrid.
<http://www.floraiberica.es/PHP/generos_lista.php> (borrador)
- Gallego, M.J. 2012. *Datura* L. In: Talavera, S.; Arista, M.; Fernández Piedra, M.P.; Gallego, M.J.; Ortiz, P.L.; Romero Zarco, C.; Salgueiro, F.J.; Silvestre, S.; Quintanar, A. (eds.). *Flora iberica*. Vol. XI. Gentianaceae-Boraginaceae: 216-224. Real Jardín Botánico, CSIC. Madrid.
- Gutiérrez, C.; Sáez, L. 1996. Aportacions al coneixement de la flora vascular del Montseny. *Folia Bot. Misc.* 10: 67-75.
- Hand, R. 2001. Revision der in Europa vorkommenden Arten von *Thalictrum* subsectio *Thalictrum* (Ranunculaceae). Botanik und Naturschutz in Hessen, Beiheft 9. Zentralinstitut Botanischer Garten und Botanisches Museum Berlin-Dahlem.
- Hunt, D., N. Taylor & G. Charles (compilers and editors). 2006. *The New Cactus Lexicon*. dh Books, Milborne Port, UK.
- Kirschner, J.; Štěpánek, J.; Greuter, W. 2007. *Taraxacum*. In: Greuter, W. & E. Raab-Straube (eds): *Compositae*. Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity.
<<http://www2.bgbm.org/EuroPlusMed/query.asp>>
- Laguna, E. 2003. Sobre las formas naturalizadas de *Vitis* L. (Vitaceae) en la Comunidad Valenciana, I. *Especies*. *Fl. Montiberica* 23: 46-82.

- Lapraz, G. 1966. Recherches phytosociologiques en Catalogne. Collect. Bot. (Barcelona) 6: 545-607.
- Martínez-Ortega, M.M., Sánchez Agudo, J.A.; Rico, E. 2009. *Veronica* L. In: Benedí, C., E. Rico, J. Güemes & A. Herrero (eds.). Flora iberica Vol XIII. Plantaginaceae-Scrophulariaceae: 360-434. Real Jardín Botánico de Madrid (C.S.I.C.). Madrid.
- Masclans, F. 1961. Contribució a l'estudi del gènere *Rosa* a les terres catalanes. Miscel. Fontserè 1: 277-290.
- McAllister, H.A.; Rutherford, A. 1990. *Hedera helix* L. and *H. hibernica* (Kirchner) Bean (Araliaceae) in the British Isles. Watsonia 18: 7-15.
- Muñoz Garmendia, F. & P. Montserrat, M. Laínz & J.J. Aldasoro 1993. *Viola* L. In: Castroviejo, S., C. Aedo, S. Cirujano, M. Laínz, P. Montserrat, R. Morales, F. Muñoz Garmendia, C. Navarro, J. Paiva & C. Soriano (eds.). Vol. III. Plumbaginaceae (partim)-Capparaceae: 276-317. Real Jardín Botánico, CSIC. Madrid.
- Pié, G.; Vilar, L.; Sánchez, S. 2010. Estudis corològics de plantes vasculares al Montseny. In: Trobada d'Estudiosos del Montseny: 115-118. Diputació de Barcelona. VII Monografies del Montseny.
- Pujadas, A.J. 2003. *Daucus* L. In: Nieto Feliner, G.; Jury, S.L.; Herrero, A. (eds.). Flora iberica. Vol X. Araliaceae-Umbelliferae: 97-125. Real Jardín Botánico, CSIC. Madrid.
- Pyke, S. 2003. Catálogo florístico de las plantas vasculares de Zaragoza. Consejo de Protección de la Naturaleza de Aragón, Zaragoza.
- Pyke, S. 2008. Contribució al conocimiento de la flora alóctona catalana. Collect. Bot. (Barcelona) 27: 95-104.
- Richards, A.J.; Sell, P.D. 1984. *Taraxacum* Weber. In: T.G. Tutin, V.H. Heywood, N.A. Burges, D.M. Moore, D.H. Valentine, S.M. Walters & D.A. Webb (eds.). Flora Europea Vol. IV. Plantaginaceae to Compositae (and Rubiaceae): 332-343. Cambridge University Press. Cambridge.
- Sáez, L.; Aymerich, P.; Blanché, C. 2010. Llibre Vermell de les plantes vasculares endèmiques i amenaçades de Catalunya. Argania Editio. Barcelona.
- Sanz, M.; Sobrino, E. 2012. *Physalis* L. In: S. Talavera, M. Arista, M.P. Fernández Piedra, M.J. Gallego, P.L. Ortiz, C. Romero Zarco, F.J. Salgueiro, S. Silvestre & A. Quintanar (eds.). Flora iberica Vol XI. Gentianaceae-Boraginaceae: 204-209. Real Jardín Botánico, CSIC. Madrid.
- Silvestre, S.; Montserrat, P. 1998. *Rosa* L. In: Castroviejo, S., F. Muñoz Garmendia & C. Navarro (eds.). Flora iberica Vol. VI. Rosaceae: 143-195. Real Jardín Botánico, CSIC. Madrid.
- Tison, J.M. 2014. *Taraxacum* F.H. Wigg. In: J.M. Tison & B. de Foucault (eds.). Flora Gallica. Flore de France: 477-508. Biotope Éditions. Mèze.
- Valcárcel, V.; McAllister, M.H.; Rutherford, A.; Mill, R.R. 2003. *Hedera* L. In: Nieto Feliner, G.; Jury, S.L.; Herrero, A. (eds.) Flora iberica. Vol. X. Araliaceae-Umbelliferae: 3-12. Real Jardín Botánico, CSIC. Madrid.
- Valdés, B. 2012. *Myosotis* L. In: S. Talavera, C. Andrés, M. Arista, M.P. Fernández Piedra, M.J. Gallego, P.L. Ortiz, C. Romero Zarco, F.J. Salgueiro, S. Silvestre & A. Quintanar (eds.). Flora iberica Vol. XI. Gentianaceae-Boraginaceae: 490-527. Real Jardín Botánico, CSIC. Madrid.
- Vilar, L. 1987. Flora i Vegetació de La Selva. Tesi Doctoral. Universitat Autònoma de Barcelona.

