

Pilosella argyrogaliciana, *P. argyrolegionensis* and *P. megargyrocoma* (Asteraceae): three new species from the Cantabrian Mountains (N. Spain)

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Abstract: del Egado Mazuelas, F. & Mateo Sanz, G. *Pilosella argyrogaliciana*, *P. argyrolegionensis* and *P. megargyrocoma* (Asteraceae): three new species from the Cantabrian Mountains (N Spain). *Lazaroa* 34: 11-17. (2013).

In this paper, we describe three new species of *Pilosella* (Asteraceae) from the Cantabrian Mountains (N Spain): *P. argyrogaliciana* Mateo & Egido, *P. argyrolegionensis* Mateo & Egido and *P. megargyrocoma* Mateo & Egido. All of them are intermediate species of *P. argyrocoma*, endemic to the S, C and NW Iberian Peninsula and N Africa. For each species, we provide a detailed description, together with a discussion and a table with the diagnostic morphological characters used to separate these species from their morphologically closest species. We also provide images of type material.

Keywords: *Pilosella*, Asteraceae, taxonomy, new species, Spain.

Resumen: del Egado Mazuelas, F. & Mateo Sanz, G. *Pilosella argyrogaliciana*, *P. argyrolegionensis* y *P. megargyrocoma* (Asteraceae): tres nuevas especies de la Cordillera Cantábrica (N España). *Lazaroa* 34: 11-17. (2013).

Se describen tres nuevas especies de *Pilosella* (Asteraceae) procedentes de la Cordillera Cantábrica (N España): *P. argyrogaliciana* Mateo & Egido, *P. argyrolegionensis* Mateo & Egido y *P. megargyrocoma* Mateo & Egido. Las tres son especies intermedias de *P. argyrocoma*, endémica del S, C y NW de la Península Ibérica y N de África. Para cada especie se aporta una descripción detallada, junto con una discusión y una tabla con los caracteres diagnósticos útiles para separar estas nuevas especies de las más próximas. Se aportan también imágenes del material tipo de las tres nuevas especies.

Palabras clave: *Pilosella*, Asteraceae, taxonomía, nuevas especies, España.

INTRODUCTION

This work is a continuation of the intense study we are making in the genus *Pilosella* in the area of the Cantabrian Mountains (MATEO & DEL EGIDO, 2007, 2010, 2011, 2012a, 2012b; DEL EGIDO & MATEO, 2012) and takes place in the context of the monographic revision of this genus in the Iberian Peninsula started years ago (MATEO, 1988). This monographic revision reached a relatively mature synthesis in more recent times (MATEO, 2006) and its results are included in the large volume 2 of *Med-Checklist* (GREUTER & RAABE-STRAUBE, 2008).

In our exhaustive tours through the Cantabrian Mountains DEL EGIDO & PUENTE, 2011a, b; DEL

EGIDO & al., 2012 in search of the diverse representation of species of *Pilosella*, we detected some important populations of *P. argyrocoma* and two of its intermediate species: *P. nevadensis* (*argyrocoma* \diamond *saussureoides*) and *P. subulatisima* (*argyrocoma* \diamond *pseudopilosella*) (MATEO & DEL EGIDO, 2011). In the environment of *P. argyrocoma* we also detected three new intermediate species that we describe and comment here.

Pilosella argyrocoma is a basic species of the sect. *Pilosellina* and it is well characterized basically by having monocephalic scapes, short and relatively thick (or absent) stolons, dense white stellate trichomes on both adaxial and abaxial surfaces of the leaves and abundant long simple

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eglandular and stellate trichomes on involucral bracts and scapes. It is an endemic species to the S, C and NW Iberian Peninsula and N Africa (MATEO & DEL EGIDO, 2011). There are only three intermediate species described which are thought to have resulted from hybridisation of *P. argyrocoma*: *P. aranii* (*argyrocoma* \diamond *vahllei*), only known in its classic locality in the Sierra de Guadarrama (MATEO 1997; 2006); *P. nevadensis* (*argyrocoma* \diamond *saussureoides*), known in the Sierra Nevada and its surroundings, the Central System and a pair of localities in the Cantabrian Mountains (MATEO, 1997; 2006; MATEO & DEL EGIDO, 2011); and *P. subulatissima* (*argyrocoma* \diamond *pseudopilosella*), only known in its classic locality in the Sierra del Cuarto (Granada), the Sierra de Guadarrama and three localities in the Cantabrian Mountains (MATEO, 2006; MATEO & DEL EGIDO, 2011).

The taxonomic treatment of the genus follows BRÄUTIGAM & GREUTER (2007; 2008) (see also DEL EGIDO & MATEO, 2012) and the nomenclature of taxa cited can be consulted in BRÄUTIGAM & GREUTER (2008). After the names of the intermediate taxa, we indicate (in parentheses) the species that are most probably responsible for their origin.

RESULTS

Pilosella argyrogaliciana Mateo & Egido spec. nova (*argyrocoma* \diamond *galiciana*) (Figure 1)

Holotypus: Spain. León, Cármenes, Canseco, pr. Pico Morala, 30TTN974136415, 2100 m, pastizal psicroxerófilo acidófilo, 28.VI.2009, F. del Egido, (holotype: LEB 103233). – *Paratype*: Spain. León, Valdelugueros, Redilluera, Sierra de Portillas, 30TTN9888863868, 1985 m, pastizal psicroxerófilo en zona de mezcla de sustratos, 28.VI.2009, F. del Egido, LEB 103229.

Diagnosis: *Plantae rosulatae, stolonibus brevibus vel nullis. Folia ad 2-6 x 0.4-1.7 cm, elliptica oblonga vel oblanceolata, obtuso-mucronata, attenuata, subcoriacea, supra viridia, laxe subrigido-pilosa et floccosa, subtus laxe vel dense cano-floccosa, pilosa, eglandulosa. Scapi (2.5) 6-15 (18) cm x 1-2 mm alti, monocephali, modice floccosi, ad apicem pilosi et glandulosi. Involucra*

7-12 x 6-11 mm. Bractee lanceolato-lineares, 1 mm latae, acutae, dense pilosiae, modice floccosae et glandulosae.

Description: Perennial herb. Phyllopodous. Stolons absent or if present, scarce, short (up to 4 cm in studied specimens) and stout, with leaves smaller than those of the rosette. Rosette-leaves 2-6 x 0.4-1.7 cm; entire; elliptical, oblong, oblanceolate or linear-oblanceolate; rounded-obtuse or slightly mucronate at apex and gradually narrowing towards base; adaxial surface green or lightly greyish, with some subrigid long simple eglandular trichomes and, in some leaves, with few to numerous stellate trichomes (absent in others); abaxial surface green to greyish-green or whitish, with few (or even absent in some leaves) to numerous (variable from one leaf to another) stellate trichomes and some long simple eglandular trichomes thinner than those of the adaxial surface; without glandular trichomes. Scapes

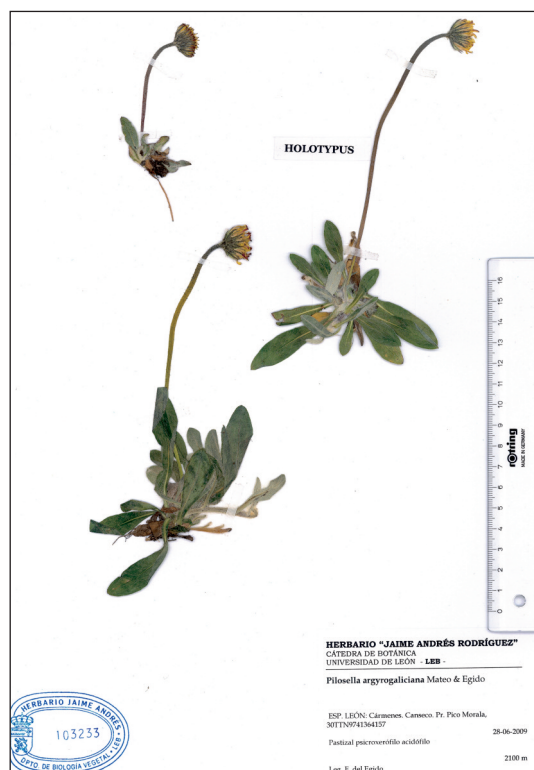


Figure 1. – Holotype of *Pilosella argyrogaliciana* Mateo & Egido spec. nova.

(2.5) 6-15 (18) cm tall and 1-2 mm in diameter, each with a single capitulum in studied specimens (it may have more), with stellate, glandular and simple eglandular trichomes in variable quantities, the most abundant being the stellate ones along the whole length of the stem whereas the simple eglandular and glandular ones are generally scarce towards base becoming more abundant towards apex. Involucre 7-12 x 6-11 mm. Involucral bracts linear-lanceolate, acute, ± 1 mm wide; with stellate, glandular and long simple eglandular trichomes in more or less similar proportions (generally, the eglandular trichomes are the most abundant). Ligules yellow, the outer with a dark red stripe on outer face.

Affinities: *P. argyrogaliciana* occupies an intermediate morphological position between *P. argyrocoma* and *P. galiciana*, and the influence of both species is very clear and unequivocal. Its principal differences from those are presented in Table 1. It is evident that *P. argyrogaliciana* has resulted from hybridisation of a species of the sect. *Pilosellina* (it has monocephalic scapes, stellate trichomes on abaxial surface of leaves, etc.) and a species of the sect. *Auriculina* (it has some leaves with very few, or absent, stellate trichomes on abaxial surface of leaves). The species of the sect. *Pilosellina* must have stellate trichomes also

on adaxial surface of leaves, stolons absent or, if present, scarce, short and relatively thick and thin involucral bracts with abundant and dominant long simple eglandular trichomes and more or less abundant stellate trichomes: in this area it can only be *P. argyrocoma*. The species of the sect. *Auriculina* must have stolons absent or, if present, scarce, short and stout, leaves without glandular trichomes, and thin involucral bracts with glandular (generally the most abundant), stellate and simple eglandular trichomes in similar proportions: in this area it can only be *P. galiciana*.

Furthermore, as *P. galiciana* and *P. vahlii* are very similar, the most similar species to *P. argyrogaliciana* is *P. aranii* (*argyrocoma* \diamond *vahlii*). The basic difference between these two species is that *P. aranii* presents some glandular trichomes on the leaves due to the influence of *P. vahlii*. The other species which are thought to have resulted from hybridisation of *P. argyrocoma*: *P. nevadensis* (*argyrocoma* \diamond *saussureoides*), *P. subulatissima* (*argyrocoma* \diamond *pseudopilosella*) and the two species described below in this paper, are less similar. *P. argyrogaliciana* differs clearly from all of them, among other characters, because it has abaxial surface of some leaves with few or absent stellate trichomes due to the influence of a species of the sect. *Auriculina* (these other four species have abaxial surface of all leaves with dense stellate trichomes).

Table 1

Principal morphological differences between *Pilosella argyrocoma*, *P. argyrogaliciana* sp. nova and *P. galiciana*.

Characters	<i>P. argyrocoma</i>	<i>P. argyrogaliciana</i>	<i>P. galiciana</i>
Number of capitula	1	1	1-4(6)
Stellate trichomes on leaves	abundant on both surfaces of all leaves	few to numerous on adaxial surface of some leaves and absent on others; few to numerous on abaxial surface of some leaves and absent on others	absent
Indumentum of involucral bracts	very dense, with dominant long simple eglandular trichomes, ± abundant stellate trichomes and very scarce or absent glandular trichomes	very dense, with stellate, glandular and long simple eglandular trichomes in more or less similar proportions (generally simple eglandular ones most abundant)	not very dense, with glandular, stellate and simple eglandular trichomes in ± similar proportions (generally glandular ones most abundant)

Distribution: *P. argyrogaliciana* is endemic to the NW Iberian Peninsula. It must be very rare because *P. galiciana* is a very local and scarce plant only present in mountainous areas of the NW Iberian Peninsula and *P. argyrocoma* is very rare in the NW Iberian Peninsula.

Pilosella argyrolegionensis Mateo & Egado spec. nova (*argyrocoma* \leftrightarrow *officinarum*) (Figure 2)

Holotypus: Spain. León, Valdelugueros, Redilluera, Sierra de Portillas, 30TTN9888863868, 1985 m, pastizal psicoxerófilo en zona de mezcla de sustratos, 28.VI.2009, F. del Egado (holotype LEB 103231; isotype VAL). – **Paratype:** Spain. León, San Emiliano-Sena de Luna, Riologo de Babia, Pico La Ferrera, 29TQH3717253588, 2110 m, pastizal psicoxerófilo acidófilo, 28.VII.2009, F. del Egado & E. Puente (LEB 82159; VAL).

Diagnosis: *Plantae rosulatae, stolonibus brevibus vel ± elongatis (0.5-8 cm), foliis parvis ob-*

siti. Folia ad (1.5) 3-5 (7) x 0.6-2 cm, elliptica oblonga vel oblanceolata, obtuso-mucronata, attenuata, supra viridia, laxe subrigido-pilosa et floccosa, subtus laxe vel dense cano-floccosa, pilosa, eglandulosa. Scapi 4-20 cm x 1-1.5 mm alti, monocephali, modice floccosi, ad apicem pilosi et glandulosi. Involucra 8-13 x 6-11 mm. Bracteae lanceolato-lineares, 1 mm latae, acutae, modice pilosae floccosae et glandulosae.

Description: Perennial herb. Phyllopodous. Stolon scarce, very short to relatively long (0.5-8 cm in the studied specimens), with leaves smaller than those of the rosette. Rosette-leaves (1.5) 3-5 (7) x 0.6-2 cm; entire; elliptical, oblong, oblanceolate or linear-oblanceolate; rounded-obtuse and slightly mucronate at apex, gradually narrowing towards base; adaxial surface green or greyish, with some subrigid long simple eglandular trichomes and, in some leaves, with few to numerous stellate trichomes (absent in others); abaxial surface whitish, with dense stellate trichomes and some long simple eglandular trichomes thinner than those of the adaxial surface. Scapes thin (1-1.5 mm in diameter); 4-20 cm tall; each with a single capitulum; with stellate, glandular and long simple eglandular trichomes in variable quantities (the stellate trichomes are the most abundant along whole length of the stem followed by the glandular trichomes, which become more abundant towards apex, whereas the simple trichomes appear more or less scattered along whole length of the stem but are more abundant at base and apex). Involucre 8-13 x 6-11 mm. Involucral bracts linear-lanceolate, acute, ± 1 mm wide; with stellate, glandular and simple eglandular trichomes in more or less similar proportions. Ligules yellow, the outer with a dark red stripe on outer face.

Affinities: *P. argyrolegionensis* occupies an intermediate morphological position between *P. argyrocoma* and *P. officinarum*, and the influence of both species is very clear and unequivocal. Its principal differences from those are presented in Table 2. It is evident that *P. argyrogaliciana* has resulted from hybridisation of two species of the sect. *Pilosellina* (it has monocephalic scapes, dense stellate trichomes on abaxial surface of all

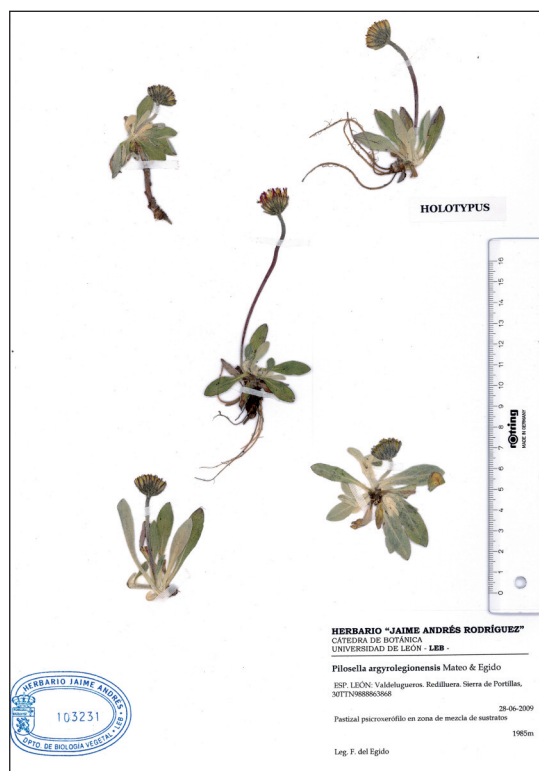


Figure 2. – Holotype of *Pilosella argyrolegionensis* Mateo & Egado spec. nova.

Table 2
Principal differences between *Pilosella argyrocoma*, *P. argyrolegionensis* sp. nova and *P. officinarum*.

Characters	<i>P. argyrocoma</i>	<i>P. argyrolegionensis</i>	<i>P. officinarum</i>
Stolons	absent or, if present, scarce, short and relatively thick	scarce, very short to relatively long	abundant, elongated and thin
Stellate trichomes on leaves	abundant on both surfaces of all leaves	few to numerous on adaxial surface of some leaves and absent on others; very dense on abaxial surface of all leaves	absent on adaxial surface of all leaves and very dense on abaxial surface of all leaves
Indumentum of involucre bracts	very dense, with dominant long simple eglandular trichomes, \pm abundant stellate trichomes and very scarce or absent glandular trichomes	very dense, with stellate, glandular and long simple eglandular trichomes in \pm similar proportions	very dense, with abundant black glandular trichomes, scarce to moderate stellate trichomes and scarce or absent simple eglandular trichomes

leaves, etc.). One of them must have stellate trichomes also on adaxial surface of leaves, stolons absent or, if present, scarce, short and relatively thick and thin involucre bracts with abundant and dominant long simple eglandular trichomes and more or less abundant stellate trichomes: in this area it can only again be *P. argyrocoma*. The other species must have abundant, elongated and thin stolons and thin involucre bracts with abundant and dominant black glandular trichomes: in this area it can only be *P. officinarum*.

P. argyrolegionensis is similar to the other species which are thought to have resulted from hybridisation of *P. argyrocoma* and other species of the sect. *Pilosellina*: *P. nevadensis* (*argyrocoma* \diamond *saussureoides*), and *P. subulatissima* (*argyrocoma* \diamond *pseudopilosella*). *P. argyrolegionensis* differs from both of them basically by the involucre bracts and apex of scapes with abundant black glandular trichomes due to the influence of *P. officinarum* (the involucre bracts and apex of scapes of these other two species have very scarce glandular trichomes, or they may even be absent). The abaxial surface with dense stellate trichomes on all leaves, among other characters, distinguishes this species from *P. argyrogaliciana* (described above) and from *P. aranii* (*argyrocoma* \diamond *vahlia*).

Distribution: *P. argyrolegionensis* is only known in two localities in the Cantabrian Moun-

tains. It can also occur in some areas of the C and S Iberian Peninsula although *P. officinarum* is very rare in these areas.

Pilosella megargyrocoma Mateo & Egido spec. nova (*argyrocoma* \diamond *peleteriana*) (Figure 3)

Holotypus: Spain. León, Carrocera, Piedrasecha, Collado del Fito, 30TTN7443747896, 1670 m, brezal, 14.VII.2009, F. del Egado (holotype LEB 103251; isotype VAL 202513). – Paratype: Spain. León, San Emiliano-Sena de Luna, Riolago de Babia, La Ferrera peak, 29TQH371535, 2110 m, pastizal psicroxerófilo acidófilo, 28.VII.2009, F. del Egado & E. Puente, LEB 107301.

Diagnosis: *Plantae rosulatae, stolonibus brevibus vel nullis. Folia ad 4-11 x 0.8-2.5 cm, elliptica oblonga vel oblanceolata, obtusa vel obtuso-mucronata, attenuata, supra modice vel laxe floccosa, laxe subrigido-pilosa, subtus densiore cano-floccosa, modice pilosa. Scapi 30-40 (55) cm x 1.5-2 mm alti, monocephali, modice floccosi pilosi et glandulosi. Involucra magna, 13-15 x 10-14 mm. Bractee lanceolato-lineares, 1.2-1.6 mm latae, acutae, dense pilosae, modice floccosae, laxe glandulosae.*

Description: Perennial herb. Phyllopodous. Stolons absent or if present, scarce, relatively short (up to 9 cm in studied specimens) and stout, with lea-

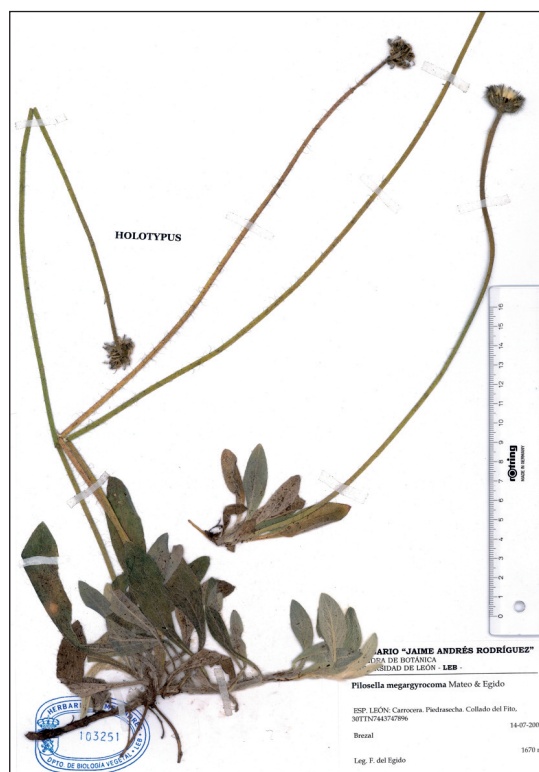


Figure 3. – Holotype of *Pilosella megargyrocoma* Mateo & Egido *spec. nova*.

ves a little smaller than those of the rosette. Rosette-leaves 4-11 x 0.8-2.5 cm; entire; elliptical, oblong or oblanceolate; rounded-obtuse or slightly mucronate at apex, gradually narrowing towards

base; adaxial surface green or greyish, with some very long subrigid (4-7 mm) simple eglandular trichomes and, in some leaves, with few to numerous stellate trichomes (absent in others); abaxial surface whitish, with dense stellate trichomes and some long simple eglandular trichomes thinner than those of the adaxial surface. Scapes stout (1.5-2 mm in diameter); 30-40 (55) cm tall; each with a single capitulum; with stellate, glandular and very long simple eglandular trichomes in more or less similar proportions. Involucre 13-15 x 10-14 mm. Involucral bracts linear-lanceolate, acute, 1.2-1.6 mm wide; with dominant long greyish (black at base) simple eglandular trichomes that cover other quite abundant stellate trichomes and some occasional glandular trichomes.

Affinities: *P. megargyrocoma* occupies an intermediate morphological position between *P. argyrocoma* and *P. peleteriana*, and the influence of both species is very clear and unequivocal. Its principal differences from those are presented in Table 3. As with *P. argyroregionensis*, it is evident that *P. megargyrocoma* has resulted from hybridisation of two species of the sect. *Pilosellina* and one of them must again be *P. argyrocoma* for the same reasons. The other species must have scarce, short or not very long and stout stolons with leaves similar than those of the rosette, thicker scapes and capitula, and wider involucral bracts with dominant long simple eglandular trichomes: in this area it can only be *P. peleteriana*.

Table 3
Principal differences between *Pilosella argyrocoma*, *P. megargyrocoma* sp. nova and *P. peleteriana*.

Characters	<i>P. argyrocoma</i>	<i>P. megargyrocoma</i>	<i>P. peleteriana</i>
Stellate trichomes on leaves	abundant on both surfaces of all leaves	few to numerous on adaxial surface of some leaves and absent on others; on abaxial surface very dense on abaxial surface of all leaves	absent on adaxial surface of all leaves and very dense on abaxial surface
Diameter of scapes	1-1.5 mm	1.5-2 mm	± 2 mm
Width of involucral bracts	± 1 mm	1.2-1.6 mm	up to 2-3 mm
Indumentum of involucral bracts	very dense, with dominant long simple eglandular trichomes, ± abundant stellate trichomes and very scarce or absent glandular trichomes	very dense, with dominant long simple eglandular trichomes, quite abundant stellate trichomes and very scarce glandular trichomes	very dense, with dominant very long simple eglandular trichomes and very scarce or absent glandular trichomes and/or stellate trichomes

P. megargyrocoma differs clearly from all the other species which are thought to have resulted from hybridisation of *P. argyrocoma* because it is more robust, with thicker scapes and capitula, wider involucre bracts, larger leaves of the stamens, among other characters.

Distribution: *P. megargyrocoma* is only known in two localities in the Cantabrian Mountains. It can also occur in some areas of the center of the Iberian Peninsula although *P. peleteriana* is very rare in these areas.

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Received: 25 October 2012

Accepted: 8 April 2013