

Hieracium pallidum subsp. *amiatae* (Asteraceae), a new subspecies from Monte Amiata (Tuscany, Italy)

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Abstract

Hieracium pallidum subsp. *amiatae*, a new hawkweed from the summit of the volcanic dome of Monte Amiata (Tuscany, Italy) is described and illustrated. It is similar to *H. pallidum* subsp. *lanudae* from which it differs in very dense stellate hairs on the involucral bracts.

Key words: Endemic plants, *Hieracium*, new subspecies, taxonomy, Tuscany

Introduction

Monte Amiata (1738 m) is the highest mountain in southern Tuscany and is very isolated in this area. It was formed in the Pleistocene through various phases of volcanic activity but has not erupted for approximately 180,000 years (Marroni *et al.* 2015). Around its base there are still existing hot springs and geysers that are used for geothermal energy. In the summit area, several high trachytic rocks and boulders protrude from the surrounding beech forest. A 22 m high summit cross was erected there in 1910, based on an initiative by Pope Leo XIII. On another rock there is a marble statue (“Madonna degli Scouts”) erected in 1965. Both monuments as well as the isolated location of the mountain and the beech forests, which are comparatively cool in summer, make the mountain a much-visited excursion destination.

The mountain massif is also of botanical interest due to its condition of ecological “island” hosting disjunct and generally small populations of several species that mainly occur along the Apennines (Selvi 1997). The vegetation was studied and mapped by Arrigoni & Nardi (1975), while the flora and phytogeographical characteristics were examined by the second author (Selvi 1996). As a notable species from the genus *Hieracium* (Linnaeus 1753: 799), *H. “rupicolum”* (correct: *rupicola*) is listed in this work as a collective species (“considered by Zahn as a ‘grex’ of the *H. pallidum* Biv. complex”). The species was already reported as *H. rupiculum* Fr. by Fiori (1928: 859), who collected it on M. Amiata in 1924 (specimen in FIAF!). In a parallel study on the karyology of the *Hieracium* species of M. Amiata (Selvi & Fiorini 1996), “*H. rupiculum*” was also examined. Because of the older homonym *H. rupicola* (Jordan 1848: 24), however, it was listed in this study under the name *H. neorupicola* (P.D.Sell & C. West in Sell 1976: 265).

In 2010 and 2018, the first author (G.G.) could examine two herbarium specimens of this taxon from M. Amiata, collected by the second author (F.S.) and Giovanni Gestri, respectively. However, these specimens did not show all the necessary characters or were heavily browned due to the drying process, making it difficult to identify them. In July 2022, a group of plants was photographed by F.S. at the place of growth. In addition to the bristly hairiness that had already been observed, the photo showed that the plants also had clearly blue-green coloured leaves as a striking feature. This suggested an affinity to *H. schmidtii* (Tausch 1828: 65). However, the type of foliage on the stems deviated from this species and lead to the idea that it was an undescribed taxon of *H.* section *Grovesiana* (Gottschlich

2009: 152). In 2023, an excursion to M. Amiata (by G.G. and F.G.D.) gave the opportunity to study the population in its native site. The close examination of this population revealed that it belongs to a new taxon that is described in this paper.

Taxonomy

Hieracium pallidum subsp. *amiatae* Gottschl. & Selvi, **subsp. nov.** (Figs. 1–4)

Type:—ITALY. Tuscany, prov. of Siena/Grosseto¹, Mt. Amiata, summit area (42°53'14"N 11°37'24"E), at several spots of trachytic rocks (ca. 50 plants), 1720–1728 m, 02.07.2023, *G. Gottschlich-81986* & *F. G. Dunkel-41183* (holotype: FI; isotypes: Hieracia Europaea Selecta No. 1101 (B, FR, H, IBF, LI, M, MSTR, PAL, W, Hb. Gottschlich-81986, Hb. Brandstätter, Hb. Dunkel-41183).

Paratypes:—ITALY. Monte Amiata sulla vetta, 1734 m, suolo siliceo, 04.07.1924, *A. Fiori* (FIAF 33819); Monte Amiata, sulle rocce trachitiche della vetta, 1730 m, 13.07.2001, *F. Selvi* 1888 (FI); Tuscany, prov. of Siena, Vetta del Monte Amiata, 20.06.2018, *G. Gestri* (PI-021581, Hb. Gottschlich-71172).

Diagnosis:—*Hieracio pallido subspecie lanudo simile, sed involucre pilis stellatis densissimis pilis glanduliferis multo minoribus obsitis.*

Perennial, rhizome stout, oblique or vertical. *Stem* erect, vertical, cylindrical, stout (Ø 2 mm), (20)25–30(35) cm tall, often with 1–2 secondary stems, reddish green, striated, phyllopodous, with sparse to moderately dense 3–4 mm long, whitish, soft, simple and dentate hairs, sparse microglands and sparse to moderate stellate hairs. *Basal leaves* (2)3–4, with 2–4 cm long petiole, lamina 3–10 × 1.5–3.5 cm, elliptical to ovate-lanceolate, the lower part remotely dentate, the upper part slightly denticulate, bluish green, upper surface glabrous, margin with subdense, subrigid, sickle-shaped, 2–3 mm long, white, simple hairs and scattered 0.1 mm long glandular hairs, lower surface with moderate 2–3 mm long simple hairs, stellate hairs absent. *Cauline leaves* (1)2, 2–8 × 1–3 cm, narrowly ovate to ovate-lanceolate, acuminate, the lower often inserted near the base and with a broadly winged 1.5–2 cm long petiole, the upper reduced in shape and with 0.5–1 mm long winged petiole or nearly sessile. *Synflorescence* paniculate, branches (1)2–3(4), straight or curved, (1)2–6(10) cm long, each with (1)2–3(4) capitula (sometimes abortive); capitula (2)4–6(10); acladium 1.2–1.5 cm long. *Peduncles* with 1–2 linear, 2 mm long bracts, with sparse 1 mm long white simple hairs, sparse 0.1 mm long glandular hairs and very densely covered with stellate hairs. *Involucre* campanulate, 8–10 mm long. *Involucral bracts* in few series, blackish green, linear-lanceolate, 1 mm wide, acute, with scattered 1 mm long simple hairs, scattered 0.2–0.3 mm long black glandular hairs, and very dense stellate hairs which give the whole involucre a white greyish appearance. *Corolla* limb ligulate, yellow. *Styles* yellow, margins of alveoli shortly dentate. *Achenes* brown.

Etymology:—The epithet *amiatae* refers to the type locality of Monte Amiata.

Phenology:—Flowering June and early July.

Distribution and ecology:—*Hieracium pallidum* subsp. *amiatae* is currently known only from the rocky summit area of Mt. Amiata. It grows in crevices of extrusive volcanic boulders of the trachytic type, in full light (Fig. 4).

Conservation status:—The high visitor pressure caused by the attractiveness of the mountain in conjunction with undirected climbing on the rocks is proving to be very threatening for the new subspecies. The observations in the summit area show that many plants in accessible places were damaged by footfalls. Due to its restricted range and very reduced number of mature individuals (< 100) and the actual partial damages by climbing activities *Hieracium pallidum* subsp. *amiatae* is to be listed as “Vulnerable” (VU) under criterion D2, according to IUCN criteria (IUCN 2022).

To create more numerous microhabitats for this extremely small population, it would be useful to fell some beech trees in the immediate vicinity of the rocks, as *H. pallidum* subsp. *amiatae* does not tolerate shade.

Systematic affinities:—With its blue-green leaf colour and bristly pubescence, *H. pallidum* subsp. *amiatae* shows characteristics that clearly refer to *H. sect. Oreadea* Arvet-Touvet (1871: 47). However, the stem foliation shows an influence of *H. sect. Grovesiana*. Thus, this taxon belongs to *H. pallidum* Bivona (Bivona-Bernardi 1838: 11). Although the name *H. pallidum* was previously used as the name for the collective species, which today bears the name *H. schmidtii* (e.g. Zahn 1921: 213; 1931: 243 and in many floras), it was shown on material from the type locality (Gottschlich *et al.* 2013) that *H. pallidum* has morphological relationships to the species of *H. sect. Grovesiana*. This species also includes *H. pallidum* subsp. *lanudae* (Gottschlich *et al.* 2013: 830) from the northern Apennines and

¹ The border between the provinces runs over the top of the mountain. The new subspecies occurs on both sides of the border.

H. pallidum subsp. *aetnense* from Sicily (Gottschlich *et al.* 2013: 826) (Table 1; fig. 5). Like the latter subspecies, karyologically examined by Di Gristina *et al.* (2014), *H. pallidum* subsp. *amiatae* is tetraploid with $2n = 4x = 36$ and capable of sexual reproduction (Selvi & Fiorini 1996).



FIGURE 1. *Hieracium pallidum* subsp. *amiatae*, subsp. nov., isotype (Hb. Gottschlich-81986).



FIGURE 2. *Hieracium pallidum* subsp. *amiatae*, single capitulum.

TABLE 1. Differential characters between all known subspecies of *H. pallidum* in Italy.

	subsp. <i>pallidum</i>	subsp. <i>amiatae</i>	subsp. <i>lanudae</i>	subsp. <i>aetnense</i>
Distribution	Sicily	M. Amiata	Northern Apenn.	Sicily
Basal leaves	elliptical	elliptical to ovate-lanceolate	elliptical to broadly lanceolate	lanceolate
Involucrum:				
Simple hairs	moderate	scattered	moderate	moderate
Glandular hairs	moderate	scattered	subdense	moderate
Stellate hairs	sparse	very dense	moderate at margin, sparse to absent on surface	sparse only at margin



FIGURE 3. *Hieracium pallidum* subsp. *amiatae*, single capitulum in nature (Photo: F. Selvi, 6.6.2022).



FIGURE 4. *Hieracium pallidum* subsp. *amiatae*, plant in nature (Photo: G. Gottschlich, 2.7.2023).

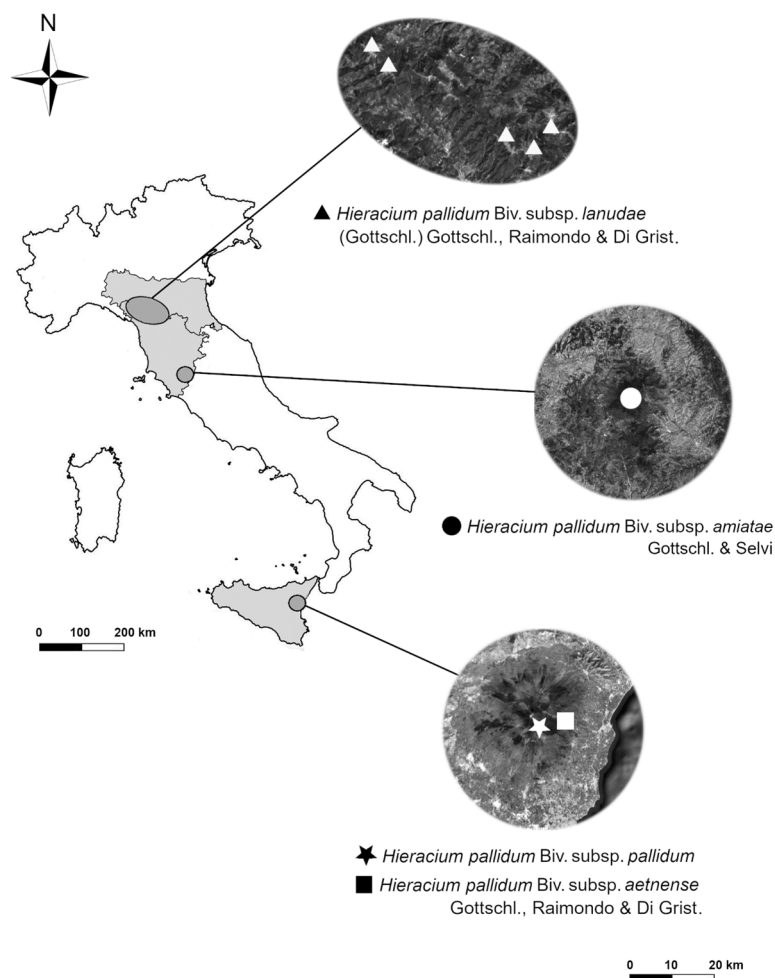


FIGURE 5. Distribution of *Hieracium pallidum* in Italy.

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