

# Typification and taxonomic status of eleven taxa of *Gagea Salisb.* (Liliaceae) described by Achille and Nicola Terracciano and conserved at Napoli (NAP)

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# Typification and taxonomic status of eleven taxa of *Gagea* Salisb. (Liliaceae) described by Achille and Nicola Terracciano and conserved at Napoli (NAP)

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## ABSTRACT

PERUZZI, L. & J.-M. TISON (2004). Lectotypification and taxonomic status of eleven taxa of *Gagea* Salisb. (Liliaceae) described by Achille and Nicola Terracciano and conserved at Napoli (NAP). *Candollea* 59: 325-346. In English, English and French abstracts.

*Gagea amblyopetala* var. *calabra* N. Terracc., *G. amblyopetala* subsp. *heldreichii* A. Terracc., *G. burnatii* A. Terracc., *G. chabertii* A. Terracc., *G. confusa* A. Terracc., *G. lacaitae* A. Terracc., *G. minima* var. *calabra* N. Terracc., *G. pratensis* subsp. *gussonei* A. Terracc., *G. ramulosa* A. Terracc., *G. saxatilis* subsp. *australis* A. Terracc., *G. stenopetala* var. *pollinensis* N. Terracc. are lectotypified. Each lectotype is illustrated and discussed. The taxonomic value of these taxa is discussed.

## RÉSUMÉ

PERUZZI, L. & J.-M. TISON (2004). Lectotypification et statut taxonomique de onze taxons du genre *Gagea* Salisb. (Liliaceae) décrits par Achille et Nicola Terracciano et conservés à Naples (NAP). *Candollea* 59: 325-346. En anglais, résumés anglais et français.

*Gagea amblyopetala* var. *calabra* N. Terracc., *G. amblyopetala* subsp. *heldreichii* A. Terracc., *G. burnatii* A. Terracc., *G. chabertii* A. Terracc., *G. confusa* A. Terracc., *G. lacaitae* A. Terracc., *G. minima* var. *calabra* N. Terracc., *G. pratensis* subsp. *gussonei* A. Terracc., *G. ramulosa* A. Terracc., *G. saxatilis* subsp. *australis* A. Terracc., *G. stenopetala* var. *pollinensis* N. Terracc. sont lectotypifiés. Chaque lectotype est illustré et commenté. La valeur taxonomique de chacun de ces taxons est discutée.

**KEY-WORDS:** LILIACEAE – *Gagea* – Typification – Terracciano

*Gagea amblyopetala* var. *calabra* N. Terracc. in Atti Accad. Sci. Fis. ser. 2, 8(9): 7. 1896.

**Lectotypus (here designated): ITALY:** «Castrovillari a M. S. Angelo», III.1894, N. Terracciano s. n. (Herb. Terracciano, NAP!), the plant with 3 flowers (Fig. 1).

In the protologue, N. Terracciano quotes the top of Monte Sant'Angelo as the type locality of this taxon. There is a single collection in the Herbarium Terracciano at NAP, collected two years before the publication of the description of this variety, which can doubtlessly be considered as the original material. This specimen was originally labelled by N. Terracciano as "*Gagea chrisantha*" [sic] and then as "*Gagea durieui* Parl." and "*Gagea amblyopetala* Boiss.". Subsequently, his son A. Terracciano corrected it as "*G. amblyopetala* var. *calabra*", testifying, as obvious, the cooperation

of Achille (who was beginning the study of the genus *Gagea*) and his father arranging this genus in the publications of the latter on the flora of Pollino (N. TERRACCIANO, 1891, 1896, 1900). The best developed specimen is chosen as lectotype (Fig. 1).

*Taxonomic discussion.* – *Gagea amblyopetala* Boiss. & Heldr. is usually regarded as a synonym of *G. chrysantha* Schult. & Schult. f. ( $\equiv$  *Ornithogalum chrysanthum* Jan, *nom. nud.*). We cannot agree with this opinion today. The typical *G. chrysantha* (Ficuzza, Sicily!) is a single population associating floral anomalies (i.e. abortion of the inferior internode of the inflorescence, numerous fusions of axes and floral difformities), almost complete pollinic abortion, and analytical features (basal leaves, quiescent bulblets) somewhat intermediate between those of *G. amblyopetala* and *G. sicula* (see below): such a plant may be of hybrid origin.

The type material of *G. amblyopetala* var. *calabra* shows deviating features respect to the usual Calabrian populations (San Marco Argentano, Montalto Uffugo, Cerchiara-di-Calabria): short stem and peduncles, broad and flat basal leaves, large flowers. Although the station of Mt. Sant'Angelo is destroyed today, we can assume that this plant was very close or identical to Montalto Uffugo samples karyologically studied as "*G. foliosa*" (PERUZZI, 2003). Although these plants share the triploid chromosome number ( $2n = 36$ ) with *G. amblyopetala* and often cohabit with the latter, they appear karyologically slightly distinct.

Further taxa, probably identical to var. *calabra*, are *G. sicula* Lojac., described from Ficuzza (Sicily), and the "ibrido tra *G. foliosa* e *G. chrysantha*" (A. TERRACCIANO, *in schedis*, NAP!), collected at M.te Cucco near Ficuzza. Although we did not see the type material of *G. sicula*, the protologue of this taxon, which quotes an intermediate appearance between *G. foliosa* and *G. chrysantha*, lets us believe, that *G. sicula* and Terracciano's "ibrido" refer to the same populations. This plant was gathered by us at the top of M.te Cucco and studied in cultivation. Finally, a somewhat similar population was found at M.te Lauro, in the Iblei mountains (south-eastern Sicily). All these plants, as do the Montalto Uffugo ones, grow together with *G. amblyopetala* or *G. chrysantha* and appear inconspicuous; this probably explains that they remained almost unknown until now.

The morphological and anatomical study of these critical plants showed two features which appear discriminating respect to all the Italian *G. amblyopetala*:

- 1: the adult basal leaves are flat with 5 constant, equidistant, plane-arranged vascular bundles (vs. subtrigonal with 3(-5 not equidistant) V-arranged bundles at *G. amblyopetala*).
- 2: the quiescent basal bulblet is small, semiguttiform, acute, with a large coaptation facet (vs. large, globose, blunt, with a reduced coaptation facet at *G. amblyopetala*).

These two features are the only ones, which formally separate *G. amblyopetala* from *G. soleirolii* F. W. Schultz. As a matter of fact, *G. sicula* and *G. amblyopetala* var. *calabra* appear highly close to *G. soleirolii*, especially to the Sardinian populations of the latter (Limbara! Gennargentu!).

Here comes another taxonomic problem. *Gagea soleirolii* includes two morphotypes: the Corsican-Iberian one with narrow leaves and small flowers, and the Sardinian-Sicilian-Calabrian one with broad leaves and large flowers. However, after several years in cultivation, no ontogenic, morphological or anatomical differences have been found, except in metric dimensions, which are not sufficient to conclude to a specific difference. The two taxa exhibit different behaviours in cultivation, i.e. the "robust" morphotype is much more resistant to shocks and diseases than the "slender" one. Probably the "slender" morphotype is diploid (LOON, 1982, sub *G. nevadensis* Boiss.) and the "robust" one is triploid (MARTINOLI, 1950; PERUZZI, 2003). The taxonomic conclusion remains uncertain and further study is required. If we admit two different species, the name *G. sicula* will have priority for the "robust" morphotype.

***Gagea amblyopetala* subsp. *heldreichii*** A. Terracc. in Bull. Herb. Boissier ser. 2, 6: 119. 1906.

- ≡ *Gagea heldreichii* (A. Terracc.) Stroh in Beih. Bot. Centralbl. 57B: 488. 1937.
- ≡ *Gagea amblyopetala* var. *montana* Pascher in Sitzungsber. Deutsch. Naturw.-Medic. Ver. Böhmen “Lotos” ser. 2, 24: 123. 1904.
- ≡ *Gagea montana* (Pascher) Stroh in Beih. Bot. Centralbl. 57B: 489. 1937.

**Lectotypus (here designated) : GREECE:** «De Heldreich herbarium graecum normale n° 1290, Attica: in regione abietina m. Parnethis (l.d. Koromila) rarius, alt. 4000’», 31.III-5.IV.1895, *Heldreich Herb. Graec. 1290* (Herb. Terracciano, NAP!), the entire plant with a bulb and rests of basal leaves, at the centre of the sheet (Fig. 2).

In the protologue, A. TERRACCIANO (1906) first affirms that he based this new subspecies on specimina received from Attica by Heldreich (“Specimina habui a clarissimo De Heldreich anno 1895...”), then he quotes several herbarium specimens preserved in other herbaria. We traced in Terracciano’s personal herbarium only one voucher (Fig. 2) fitting with the Heldreich’s citation in the protologue. This collection is doubtless original material, and we designate here its most complete specimen as lectotype of *G. amblyopetala* subsp. *heldreichii*.

*Taxonomic discussion.* – The type material of *G. heldreichii* is heterogeneous. The lectotypical collection belongs to a species clearly distinct from *G. amblyopetala*, collected by one of us (J.M.T.) on its type locality (Mt Parnes or Parnethis near Athenes, Greece) and studied in cultivation since several years. This Aegean endemic species corresponds also to *G. foliosa* sensu RIX (1984); it indeed shows strong morphological (but not anatomical) similarity with *G. foliosa* (J. Presl & C. Presl) Schult. & Schult. f. from Sicily and Sardegna. On the contrary, another gathering quoted by Terracciano in the protologue of *G. amblyopetala* subsp. *heldreichii* («environs d’Achmetago en Eubée», MPU!, syntype) corresponds to a broad-leaved form of *G. amblyopetala*, rather common in Aegean region, equally collected by us in Evvoia and kept in cultivation.

In other respects, PASCHER (1904) described *G. amblyopetala* var. *montana* from “Heldreich Herbarium graecum normale n° 1290”, which is the typical collection of *G. heldreichii*. The exact herbarium sheet considered by this author, who had no personal herbarium, is uncertain. The two taxa were recombined at specific rank by STROH (1937). Although Pascher wrote “typo immixto”, all the plants from *Heldreich graec. n° 1290* that we examined (NAP, G) are homogeneous and correspond to a single taxon, which agrees with both Terracciano’s and Pascher’s descriptions. So, though the two authors undoubtedly studied different specimens from this collection, we regard *G. heldreichii* and *G. montana* as nomenclatural and taxonomic synonyms. As the specific recombinations *G. heldreichii* and *G. montana* appear in the same publication, and because of the subsequent misappreciation of this species, the priority name remained indefinite until now. Because of the more precise localization of its type material, we choose *G. heldreichii* (A. Terracc.) Stroh as the correct name.

***Gagea burnatii*** A. Terracc. in Boll. Soc. Ortic. Palermo 2(3): 4. 1904.

- ≡ *Gagea pusilla* subsp. *burnatii* (A. Terracc.) A. Terracc. in Bull. Herb. Boiss. ser. 2, 5: 1075. 1905.

**Lectotypus (here designated) : FRANCE:** versant nord du mont Cheiron (Le Poux) (Alpes maritimes françaises), 12.V.1871, *Consolat s. n.* (Herb. Terracciano, NAP!), the central plant (Fig. 3).

**Syntypi : FRANCE:** signal du mont Cheiron, m. 1773 (Alpes maritimes françaises), 30.V.1896, *Briquet* (Herb. Terracciano, NAP!); Caussols, très commun, 11-1200 m (Alpes maritimes françaises), 23.IV.1874, *Consolat* (Herb. Terracciano, NAP!); montagnes entre Caussols et Grasse, abondant (Alpes maritimes françaises), 30.IV.1872, *Burnat* (Herb. Terracciano, NAP!).

In the protologue, A. TERRACCIANO (1904a) quotes several syntypes, without explicitly referring to the Herbarium in which they are kept. So, although several duplicates of these gatherings are kept in other Herbaria (especially G-Bu), we choose the lectotype among the Terracciano's personal specimens (Fig. 3). Among the numerous and very homogeneous collections cited as isotypes (A. TERRACCIANO, 1904a), a well-developed and well-presented plant is chosen as lectotype.

*Taxonomic discussion.* – The taxonomy of *G. burnatii* (= *G. reverchonii* Degen) will be studied in detail in a future article concerning the genus *Gagea* in France. Although A. TERRACCIANO (1905c) and PIGNATTI (1982) linked this taxon with *G. pusilla* (F. W. Schmidt) Sweet, it appears rather close to *G. lutea* (L.) Ker Gawl. (LAÍNIZ, 1964; BAYER & LÓPEZ GONZÁLEZ, 1988, 1991; TISON, 1997), while *G. pusilla* is close to *G. pratensis* (ANDERSSON, 1991) and linked to it by intermediate taxa (*G. transversalis* Steven, *G. paczoskii* (Zapal.) Grossh.). Moreover, as quoted by DEGEN (1903), descriptor of *G. reverchonii*, this species appears strongly allied to the Russian *G. erubescens* (Besser) Besser.

***Gagea chabertii*** A. Terracc. in Boll. Soc. Ortic. Palermo 2(3): 5. 1904.

≡ *Gagea granatellii* subsp. *chabertii* (A. Terracc.) A. Terracc. in Bull. Soc. Bot. France 52, Mém. 2: 16. 1905.

**Lectotypus (here designated):** ALGÉRIE: bois et près secs, Médéah, Algérie, 26.II.1872, *Chabert s. n.* (Herb. Terracciano, NAP!), the entire plant with 3 flowers, upper left on the photo (Fig. 4).

In the protologue, A. TERRACCIANO (1904a) quotes several specimens sent to him by Chabert. The designated collection (Fig. 4) fits with one of these quotations, and is the only one currently conserved in Terracciano's personal herbarium at NAP. Among this homogenous collection, an intact and well-presented plant is chosen.

*Taxonomic discussion.* – The typical *G. chabertii* agrees with an Algerian gathering from “Boghari”, close to Medeah (*P. Connétable*, sub “*G. mauritanica*”, G!), carefully studied by us, and with North Eastern Algerian plants (vicinity of Annaba) recently collected by Gérard de Belair and Errol Vela and studied in cultivation. In addition, another plant collected at Medea by Chabert exists at MPU(!). The study of these plants is still fragmentary today. Although this taxon seems close to the “C type” of *G. granatellii* (TISON, 1998) and does not differ from it at juvenile stages, we still lack anatomical study of the adult plant; it seemingly attracts attention by its constantly opposite cauline leaves and umbellate inflorescence (when all variants of *G. granatellii* get alternate leaves and a cymose inflorescence when aging), by apparent absence of cauline bulblets, and by its somewhat elongated peduncle. In our mind, these features do not absolutely exclude the possibility of a specific identity with *G. granatellii*, but this identity is far from confirmation and requires further study. On the other hand, *G. chaberti* var. *foliosa* A. Terracc. (type: Oran, G!), described in the same publication, is very probably included in *G. granatellii* variation pattern, as quoted by Terracciano himself in a further publication (A. TERRACCIANO, 1905b).

***Gagea confusa*** A. Terracc. in Boll. Soc. Ortic. Palermo 2(3): 5. 1904.

**Lectotypus (here designated):** IRAN: Persia borealis, in jugo Charson prope Kaswin, 1882, *Pichler s. n.* (Herb. Terracciano, NAP!), the entire plant with a bulb, at the centre of the photo (Fig. 5).

A. TERRACCIANO (1904a) quotes several specimens coming from three herbaria: Wien (WU), St. Petersburg (LE), Lisboa (LISU). One of them (Fig. 5), perfectly fitting with one of the citations and originally coming from Wien Herbarium (WU), was traced in Terracciano's personal

herbarium at NAP. Although this collection has been widely distributed in many herbaria, we think, as for *G. burnatii*, that the plants seen by Terracciano himself are the most suitable for the choice of a lectotype. Among this herbarium sheet, the most complete specimen is chosen.

*Taxonomic discussion.* – *Gagea confusa* is a West-Asiatic species of Section *Minimae* (Pascher) Davlian., well-studied especially by DAVLIANIDZE (1976).

***Gagea lacaitae*** A. Terracc. in Boll. Soc. Ort. Palermo 2(4): 6. 1904.

**Lectotypus (here designated): ITALY, SICILY:** un altro esemplare identico è alle Sciarre di Mazzara, I.1848, *Parlatore s. n.* (Herb. Terracciano, NAP!) (Fig. 6).

**Syntypus:** n° 108 sub *G. polymorpha* var. *nevadensis* in herb. Espanol (Madrid), Sierra de Bacares, 6.III.1870 (Herb. Terracciano, NAP!).

A. TERRACCIANO (1904b) mentions “Sciare di Marsala” as the type locality of this species, without noticing any collector or herbarium, and quotes an indefinite number of further samples, including a precise gathering from Sierra de Bacares (Spain). According to the turn of the protologue, *G. lacaitae* was first a Sicilian species in the author’s mind. At NAP two collections agreeing with the protologue exist. Unfortunately their labels do not perfectly agree with the protologue: on the Sicilian gathering, “Sciare di Marsala” is not quoted as its locality; on the Spanish one, the date is slightly different, probably due to reading mistakes; however, it is highly probable that this material was actually used by the author for the description of the species. On the back of the label of the Sicilian plant, there is the following annotation: “è intermedio con *G. mauritanica*”, another interpretation compatible with the protologue. In our opinion, this specimen can be considered as the only Sicilian original material of *G. lacaitae* and should be designated as the lectotype of this taxon (Fig. 6).

*Taxonomic discussion.* – *Gagea lacaitae* is one of the most ambiguous representatives of the genus *Gagea* in the western Mediterranean area. As it appears, its taxonomic situation has been aggravated by the own remarks of Terracciano, who mentioned in the protologue a resemblance with *G. durieui* Parl., and subsequently (A. TERRACCIANO, 1905a) quoted a Spanish collection (Astapa-Alora, type of *G. polymorpha* Boiss., G!), which, unlike the isotype, is actually close to *G. durieui*. Probably for this same reason, the description of *G. lacaitae* by PIGNATTI (1982) takes part in this mess by quoting “Fg. basali... larghe 1-2 mm” and “peduncoli glabri”. Indeed, the lectotype of *G. lacaitae* shows basal leaves c. 2 mm broad, but ill-dried and contracted, then probably c. 2,5-3 mm broad at living state; the pedicels bear some sparse hairs.

The type locality, “Sciare di Marsala”, is unclear. As already noted by LOJACONO POJERO (1908), “Marsala” was probably an orthographic error for “Mazzara” (Mazara-del-Vallo, south of Trapani). “Sciare” can be roughly translated into “Valley”. Now “Val Mazara” usually designates a very large area in south-western Sicily, including even the South Palermitan mountains (Busambra, Pizzuta etc.) where numerous *Gagea* grow. However, the date of gathering (January) is quite incompatible with these mountains where *Gagea* flower from March to May. In the low south-western area of Sicily, the most suitable habitats for big-rooted *Gagea* are found on the karstic plates of the low valley of Mazara river, close to the city of Mazara. So it is highly probable, that the lectotype of *G. lacaitae* came from this place.

In March 2003 we found no *Gagea* along the Mazara river, where their biotopes have been much destroyed through human activities. At the same time, however, we discovered plants well-agreeing with *G. lacaitae*, with withered flowers, in similar karstic places near Caltagirone. The populations included lots of young vegetative plants and very few generative ones, as probably did the type population of *G. lacaitae* where Parlatore seemingly found only two flowering specimens. Our plants, as does the lectotype of *G. lacaitae*, exhibit no visible difference with the “A type” of *G. granatellii* from France (TISON, 1998), a thermophilous and calciphilous taxon bearing, at

young flowering stages, basal leaves without adaxial vascular bundles and a very elongated inflorescence. The old plants get a typical “*granatellii*” look including adaxial bundles and a much-branched inflorescence; this morphology was present on a single plant collected at Caltagirone. We are not able to formally separate *G. lacaitae* from *G. granatellii* until now: some populations appear different, but many Sardinian, Iberian and North African ones cannot be undoubtedly referred to either of them. Today we regard *G. lacaitae* as a strongly apomictic and few-flowering variant of *G. granatellii*, rather common in the hot and xeric parts of the area of this species.

***Gagea minima* var. *calabra*** N. Terracc. in Atti Accad. Sci. Fis. ser. 2, 8(9): 6. 1896.

≡ *Gagea calabra* N. Terracc. in Atti Accad. Sci. Fis. ser. 2, 8(9): 7. 1896.

**Lectotypus (here designated): ITALY, CALABRIA:** Manfrediana, V.1892, *N. Terracciano s. n.* (Herb. Terracciano, NAP!, associated with the original manuscript description), the entire plant with a bulb, a basal leaf and an inflorescence, on the right of the photo (Fig. 7).

**Syntypi: ITALY, CALABRIA:** Campotenese a Masistri, V.1894, *N. Terracciano* (Herb. Terracciano, NAP); Piano di Bellizia, IV.1891, *N. Terracciano* (Herb. Terracciano, NAP); Manfrediana, IV.1891, *N. Terracciano* (Herb. Terracciano, NAP); Manfrediana, V.1893, *N. Terracciano* (Herb. Terracciano, NAP); M.te Pollino, IV.1895, *Calvelli* (Herb. Terracciano, NAP).

In the protologue, N. TERRACCIANO (1896) quotes for this taxon, described for the Pollino Massif area, four type localities: Mount Pollino, Mount Manfrediana, Piano di Bellizia and Masistri (Campotenese). We traced in NAP six specimens, from all the cited localities. The vouchers were collected before the description of the species, and so can be all considered as original material. One of them (Fig. 7) is associated to the original autograph description of the plant. In this herbarium sheet, the most well-preserved sample is chosen as lectotype.

*Taxonomic discussion.* – The taxonomy of this plant is closely linked to the history of its name. On the original manuscript (Fig. 8), the taxon was described as “*Gagea foliosa* var. *calabra*” and the same name was originally reported on the labels of all the specimens. Subsequently the epithet “*foliosa*” was changed into “*minima*” by the hand of A. Terracciano, son of the descriptor. As already underlined in the typification of *G. amblyopetala* var. *calabra*, this case clearly shows the massive influence of A. Terracciano on the final nomenclatural decisions of his father about *Gagea*. Surprisingly, the printed diagnosis subsequently remained unchanged except the specific epithet. This plant was obviously different from *G. foliosa*, but shows no visible differences with *G. minima*, species unknown or misappreciated by N. Terracciano. Considering this, in our opinion *G. minima* var. *calabra* has to be considered fully synonymous with *G. minima*.

***Gagea pratensis* subsp. *gussonei*** A. Terracc. in Bol. Soc. Aragonesa Ci. Nat. 4: 232. 1905.

**Lectotypus (here designated): SPAIN:** Buitrago, in Castilla nova, 12.IV.1830, *Gussone s. n.* (Herb. Terracciano, NAP!), the largest entire plant, at the centre of the photo (Fig. 9).

In the protologue, A. TERRACCIANO (1905a) first affirms that he based this new subspecies on specimens collected by Gussone (“Specimina examinavi a Gussoneo ad Buitrago, in Castilla nova, 12.IV.1830 lecta”) and that this material is conserved at NAP. Subordinately to this one, he quotes many vouchers preserved in several European herbaria. We traced one collection (Fig. 9, three plants on the left) in the personal Terracciano Herbarium at NAP, bearing exactly the same Gussone’s indication published in the protologue. On the herbarium sheet are mixed two plants from a different collection [Escorial (Madrid), IV.1895, *Rivas* (Herb. Terracciano, NAP)], also quoted in the protologue. So, this voucher is doubtless original material. The most representative plant collected by Gussone is designated as lectotype.

*Taxonomic discussion.* – *Gagea pratensis* is a variable species, but all the Mediterranean and Central European populations, studied by us in cultivation, show constant ontogenic, morphological and anatomical basic features. Their variations are ill-defined and have no relation with the chromosome number ( $2n = 48$  and  $60$  in studied French and Spanish populations; see also MESICEK & HROUDA, 1974). BAYER & LÓPEZ GONZÁLEZ (1988) retain var. *gussonei* as the only Spanish representative of the species; however, our living plants from Spain (Aragon and Sierra de Cazorla) show an habitus much more stout and bulbs more elongated in cultivation than on natural sites, and, in this condition, have no visible difference with the Central European populations. The typical material from NAP is quite similar to any Mediterranean *G. pratensis* from dry habitats. So we consider *G. pratensis* subsp. *gussonei* as a synonym of *G. pratensis*.

***Gagea ramulosa*** A. Terracc. in Boll. Soc. Ortic. Palermo 2(3): 9. 1904.

**Lectotypus (here designated): ITALY, SICILY:** praticelle alle vette del M.te Busambra, 24.IV.1904, A. Terracciano s. n. (Herb. Terracciano, NAP!, sub “*Gagea arvensis* Schultes”), the entire plant, upper left on the photo (Fig. 10).

**Syntypus: ITALY, SICILY:** Serra del Soglio, Nebrodi, 9.V.1904, *Lojacono* (Herbarium Terracciano, NAP!).

In the protologue, A. TERRACCIANO (1904a) first quotes a specimen collected by himself, and then several other vouchers by other collectors. He observed that *G. ramulosa* would be intermediate between *G. arvensis* (Pers.) Dumort. and *G. foliosa* (J. Presl & C. Presl) Schult. & Schult. f. At NAP, in the same file as Lojacono’s specimen referred to *G. ramulosa* (which probably belongs to the original material, but the field citation does not exactly correspond), we traced a collection (Fig. 10), provisionally identified as *G. arvensis*, which agrees with the first locality quoted in the protologue. Among this herbarium sheet, a well-preserved and well-presented specimen is chosen as lectotype.

*Taxonomic discussion.* – Plants well-agreeing with the type material of *G. ramulosa* have been collected in 1996 by one of us (J.M.T.) in the Madonie (Piano Battaglia, 1400 m) and studied under cultivation during several years. This taxon shows no ontogenic, morphological or anatomical differences with *G. dubia* A. Terracc., simultaneously cultivated from Greece (Parnassos) and Crete (Lefka Ori, Psiloritis). *Gagea dubia* (type: Asia Minor ad Tokat, *Bornmüller*, G!) is a misappreciated species, close to *G. granatellii* (Parl.) Parl., from which it differs chiefly in its always sessile cluster of bulbils at vegetative stages, and in constant absence of adaxial vascular bundles in its adult basal leaves. In addition, it usually shows, respect to *G. granatellii*, a more erect habitus, thinner ascending roots, thicker basal leaves, and the basis of its first cauline leaf is often raised above the soil; it grows on cold and rocky places at medium and high altitudes, often in snow-patches, usually in scattered and few-flowering populations. So, we admit *G. ramulosa* as a synonym of *G. dubia*, enlarging the area of this species up to Sicilia (Madonie, Busambra) and Sardegna (Oliena, Punta Corradi, coll. *Tison* 1998); moreover, we also include in the same species a western Mediterranean taxon (*G. maroccana* (A. Terracc.) Sennen & Mauricio: see TISON, 2004).

***Gagea saxatilis*** subsp. *australis* A. Terracc. in Bull. Herb. Boissier ser. 2, 6: 112. 1906.

≡ *Gagea saxatilis* var. *sicula* A. Terracc. in Bull. Herb. Boiss. ser. 2, 6: 112. 1906.

**Lectotypus (here designated): ITALY, SICILY:** «1-2 plurifloro, petali lanceolati pelosi sul dorso ed alla base, rosseggiante all’apice acuto ed un pò piegata in fuori, peduncoli pelosi, radici numerose che in parte ricoprono i bulbi – bulbi due, il piccolo alveolato?», Neviere, s.d., A. Terracciano s. n. (Herb. Terracciano, NAP!), the entire plant, at the centre-right of the photo (Fig. 11).



**Syntypi: ITALY, SICILY:** coste pietrose a metà monte, andando a Busambra, versante Sud, 24.IV.1904, *A. Terracciano* (Herb. Terracciano, NAP); sotto la cima del monte Busambra, entro i sassi cingenti un praticello, 24.IV.1904, *A. Terracciano* (Herb. Terracciano, NAP); Madonie, s.d., *s. coll.* (Herb. Terracciano, NAP); Madonie, s.d., *Minà* (Herb. Terracciano, NAP); CALABRIA: Dirupata di Morano, IV.1890, *N. Terracciano* (Herb. Terracciano, NAP); Campotenese a Masistri, V.1894, *N. Terracciano* (Herb. Terracciano, NAP).

Although A. TERRACCIANO (1906) had not given a full description of his plant, the name must however be considered as validly published (according to Art. 32.1(c) of the Saint Louis Code, see GREUTER & al., 2000) because the explicit referring to many previous full descriptions (i.e. *G. saxatilis* sensu PARLATORE, 1845, 1857 and sensu N. TERRACCIANO, 1900, and *G. busambarensis* sensu PARLATORE 1845, 1857 and sensu N. TERRACCIANO, 1900). Among the numerous specimens which can be regarded as original material, we prefer to select as lectotype a specimen from Terracciano's personal herbarium (NAP, Fig. 11), of which the label bears an autograph with a short diagnosis of the subspecies.

Note 1. *Gagea saxatilis* subsp. *australis* has been also identified by Terracciano on Attican plants (*in schedis*, G-BOIS!).

Note 2. The plant from Madonie collected by Minà is probably an isotype of *G. minae* Lojac. (see LOJACONO POJERO, 1908).

*Taxonomic discussion.* – In cultivation, the Mediterranean populations of *G. bohemica* s.l., and especially those from southern Italy (*G. saxatilis* subsp. *australis*), Sicily (*G. saxatilis* subsp. *australis*, *G. nebrodensis* Tod., *G. minae* Lojac., *G. busambarensis* Tineo) and Corsica-Sardegna (*G. corsica* Jord. & Fourr.), show no ontogenic, morphological or anatomical differences with those from Central Europe. In our mind, *G. saxatilis* subsp. *australis* has to be at present regarded as a synonym of *G. saxatilis* s.s. Moreover, subsequently to cultivation experiments, the latter cannot be considered more than a variety or a form of *G. bohemica* (Zauschn.) Schult. & Schult. f. The size and morphology of the flowers seem chiefly linked to the growing conditions. Many populations can yield, according to the year, “*saxatilis*-like” or “*bohemica*-like” flowers; this particularity can explain the argumentation of LOJACONO POJERO (1908), creating *G. minae* as a “*bohemica*-like” equivalent of *G. nebrodensis*.

***Gagea stenopetala* var. *pollinensis*** N. Terracc. in Atti Accad. Sci. Fis. ser. 2, 8(9): 6. 1896.

**Lectotype (here designated): ITALY, CALABRIA:** «Manfria», V.1892, *N. Terracciano s. n.* (Herb. Terracciano, NAP!) (Fig. 12).

**Syntype: ITALY, CALABRIA:** «Piano di Bellizia», IV.1891, *N. Terracciano s. n.* (Herb. Terracciano, NAP!).

The protologue of N. Terracciano, citing both Piano di Bellizia and Manfria as type localities, and quoting both April and May as flowering periods, was clearly based on both exsiccata traced at NAP. So we designate one of these two specimens (Fig. 12) as lectotype of *G. stenopetala* var. *pollinensis*. Nicola Terracciano originally labelled these specimens as “*Gagea lutea*” and “*Gagea stenopetala*”. Subsequently, similarly to *G. amblyopetala* var. *calabra* and *G. minima* var. *calabra*, A. Terracciano corrected the labels with the provisional specific epithet “*pollinensis*”, which was validated by his father at the varietal rank.

*Taxonomic discussion.* – Beyond the arguments exposed under *G. pratensis* subsp. *gussonei* (see above), the disagreement between the protologue and the type material must be noted: “*scapo unifloro*” and “*folio radicali angustiore*” are irrelevant in the present case. At the specific level, the difference between *G. pratensis* and *G. stenopetala*, based on a mistake (FRIES, 1828), is worthless. So, *G. stenopetala* var. *pollinensis* should be at present regarded as fully synonymous with *G. pratensis* (Pers.) Dumort.

## ACKNOWLEDGEMENTS

Friendly thanks are due to Dr. Annalisa Santangelo, curator of Herbarium of Napoli (NAP), for the precious help and information about the Achille and Nicola Terracciano collections and for the permission to take pictures of type material, to the Conservatoire et Jardin botaniques de Genève, precious helper in *Gagea* studies, and to Gérard de Belair and Errol Vela, collectors of Algerian *Gagea*. This study has been financed by the «Giovani Ricercatori» fund: «Revisione sistematica e citotassonomica del genere *Gagea* Salisb. (Liliaceae) in Italia» by Dr Lorenzo Peruzzi.

## BIBLIOGRAPHY

- ANDERSSON, I. A. (1991). *Gagea* Salisb. In: STRID, A. & KIT TAN, *Mount. Fl. Greece* 2: 662-667.
- BAYER, E. & G. LÓPEZ GONZÁLEZ (1988). El género *Gagea* Salisb. en la flora española ochenta y dos años después de la monografía de Terracciano. *Monogr. Inst. Piren. Ecol.* 4: 121-126.
- BAYER, E. & G. LÓPEZ GONZÁLEZ (1991). Nomenclatural notes on some names in *Gagea* Salisb. (Liliaceae). *Taxon* 38: 643-645.
- DAVLIANIDZE, M. T. (1976). *Kavkazskie predstaviteli roda Gagea Salisb.* Tbilisi.
- DEGEN, A. (1903). *Gagea reverchonii* nov. spec. *Magyar Bot. Lapok* 2: 37-38.
- FRIES, E. (1828). *Ornithogalum stenopetalum*. *Novit. Fl. Suec.* ed. 2: 87.
- GREUTER, W. & al. (2000). International Code of Botanical Nomenclature (Saint Louis Code). *Regnum Veg.* 138.
- LAÍNIZ, M. (1964). Aportaciones al conocimiento de la flora cántabro-astur, VIII. *Bol. Inst. Estud. Asturianos, Supl. Ci.* 10: 173-218.
- LOJACONO POJERO, M. (1908). *Gagea* Salisb. *Fl. Sicula* 3: 129-136.
- LOON, J. C. van (1982). IOPB chromosome number reports, LXXVII. *Taxon* 31: 763-764.
- MARTINOLI, G. (1950). Studio cariologico della *Gagea soleirolii* F. Schulz. *Caryologia* 3: 72-78.
- MESICEK, J. & L. HROUDA (1974). Chromosome numbers in Czechoslovak species of *Gagea* (Liliaceae). *Folia Geobot. Phytotax.* 9: 359-368.
- PARLATORE, F. (1845). *Gagea* *Fl. Palerm.*: 373-379.
- PARLATORE, F. (1857). *Gagea* Salisb. *Fl. Ital.* 2: 418-431.
- PASCHER, A. A. (1904). Übersicht über die Arten der Gattung *Gagea*. *Sitzungsber. Deutsch. Naturw.-Medic. Ver. Böhmen "Lotos"* ser. 2, 24: 111-133.
- PERUZZI, L. (2003). Contribution to the cytotaxonomical knowledge of *Gagea* Salisb. (Liliaceae) sect. *Foliatae* A. Terracc. and synthesis of karyological data. *Caryologia* 56: 115-128.
- PIGNATTI, S. (1982). *Gagea* Salisb. *Fl. Italia* 3: 352-356.
- RIX, E. M. (1984). *Gagea* Salisb. In: DAVIS, P. H., R. R. MILL & KIT TAN, *Fl. Turkey* 8: 312-327.
- STROH, G. (1937). Die Gattung *Gagea* Salisb. *Beih. Bot. Centralbl.* 57B: 485-520.
- TERRACCIANO, A. (1904a). *Gagearum novarum* diagnoses. *Boll. Soc.ortic. Palermo* 2(3): 3-10.
- TERRACCIANO, A. (1904b). Per la priorità delle mie *Gagearum novarum* diagnoses. *Boll. Soc.ortic. Palermo* 2(4): 1-7.
- TERRACCIANO, A. (1905a). Revisione monografica delle *Gagea* della flora spagnola. *Bol. Soc. Aragonesa Ci. Nat.* 4: 188-253.
- TERRACCIANO, A. (1905b). Les espèces du genre *Gagea* dans la flore de l'Afrique boréale. *Bull. Soc. Bot. France* 52, Mém. 2: 1-26.
- TERRACCIANO, A. (1905c). *Gagearum species florae orientalis. Pars secunda.* *Bull. Herb. Boissier* ser. 2, 5: 1061-1076.
- TERRACCIANO, A. (1906). *Gagearum species florae orientalis. Pars secunda. Suite.* *Bull. Herb. Boissier* ser. 2, 6: 105-120.
- TERRACCIANO, N. (1891). Synopsis Plantarum vascularium Montis Pollini. *Annuario Reale Ist. Bot. Roma* 4: 1-191.
- TERRACCIANO, N. (1896). Intorno alla flora del monte Pollino e delle terre adiacenti. *Atti Accad. Sci. Fis.* ser. 2, 8(9): 1-18.
- TERRACCIANO, N. (1900). Addenda ad synopsisem plantarum vascularium Montis Pollini. *Annuario Reale Ist. Bot. Roma* 9: 23-88.
- TISON, J. M. (1997). Les *Gagea* du groupe *lutea* en France. *Monde Pl.* 460: 15-16.
- TISON, J. M. (1998). *Gagea granatellii* (Parl.) Parl. en France. *Monde Pl.* 462: 1-6.
- TISON, J. M. (2004). Contribution à la connaissance du genre *Gagea* Salisb. (Liliaceae) en Afrique du Nord. *Lagascalia* 24: 67-87.

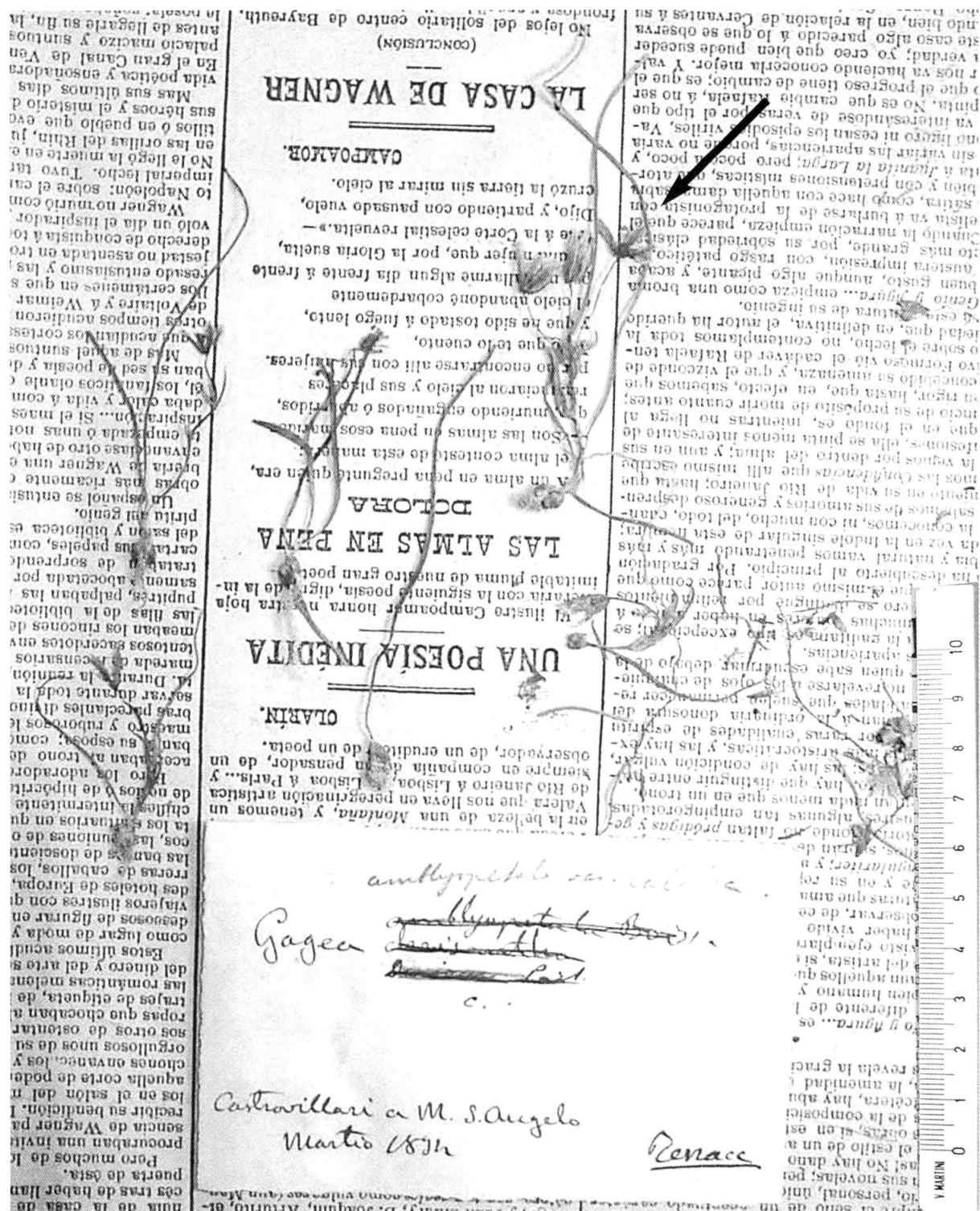


Fig. 1. – Herbarium sheet with the lectotype of *Gagea amblyopetala* var. *calabra* N. Terracc. [N. Terracciano s. n., NAP]

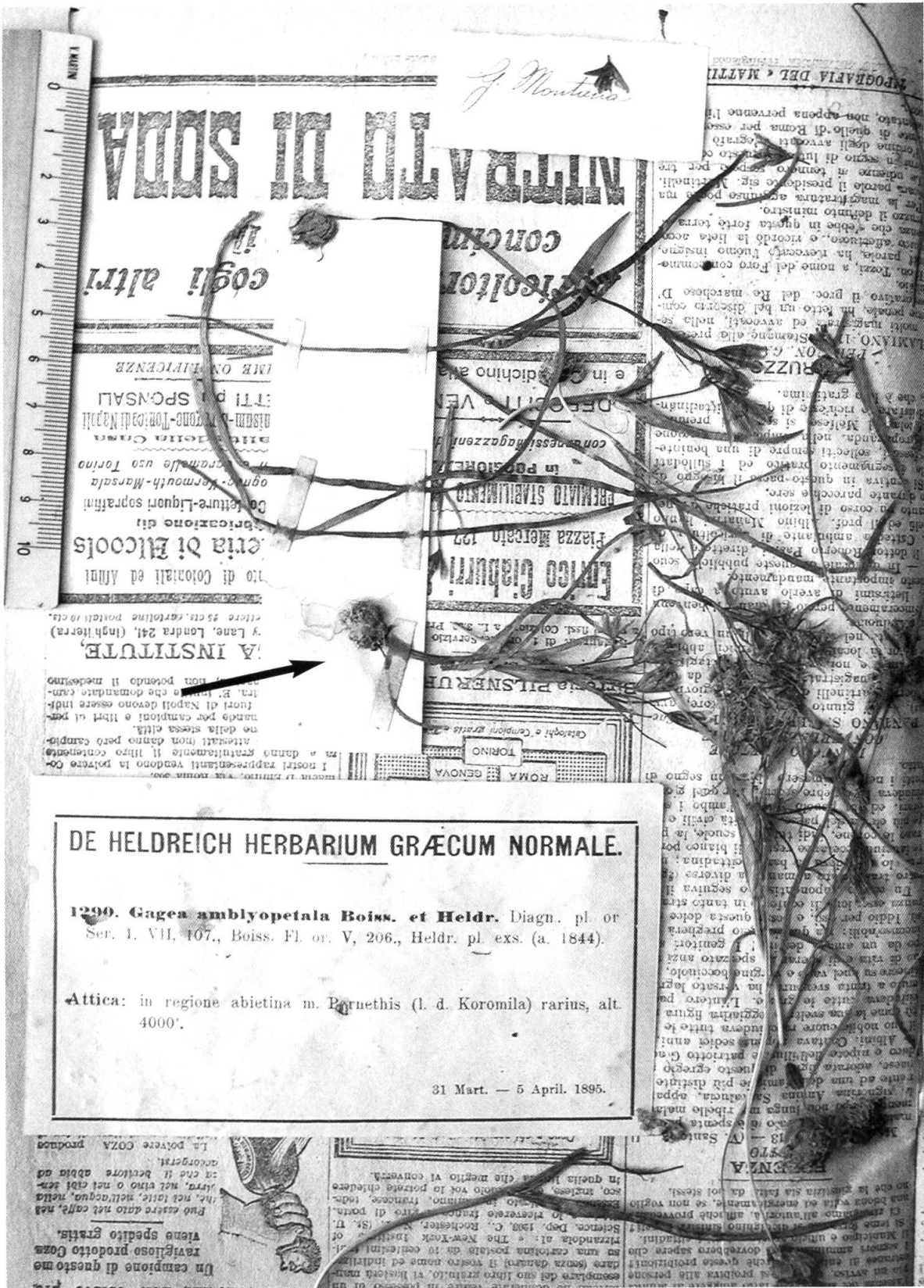
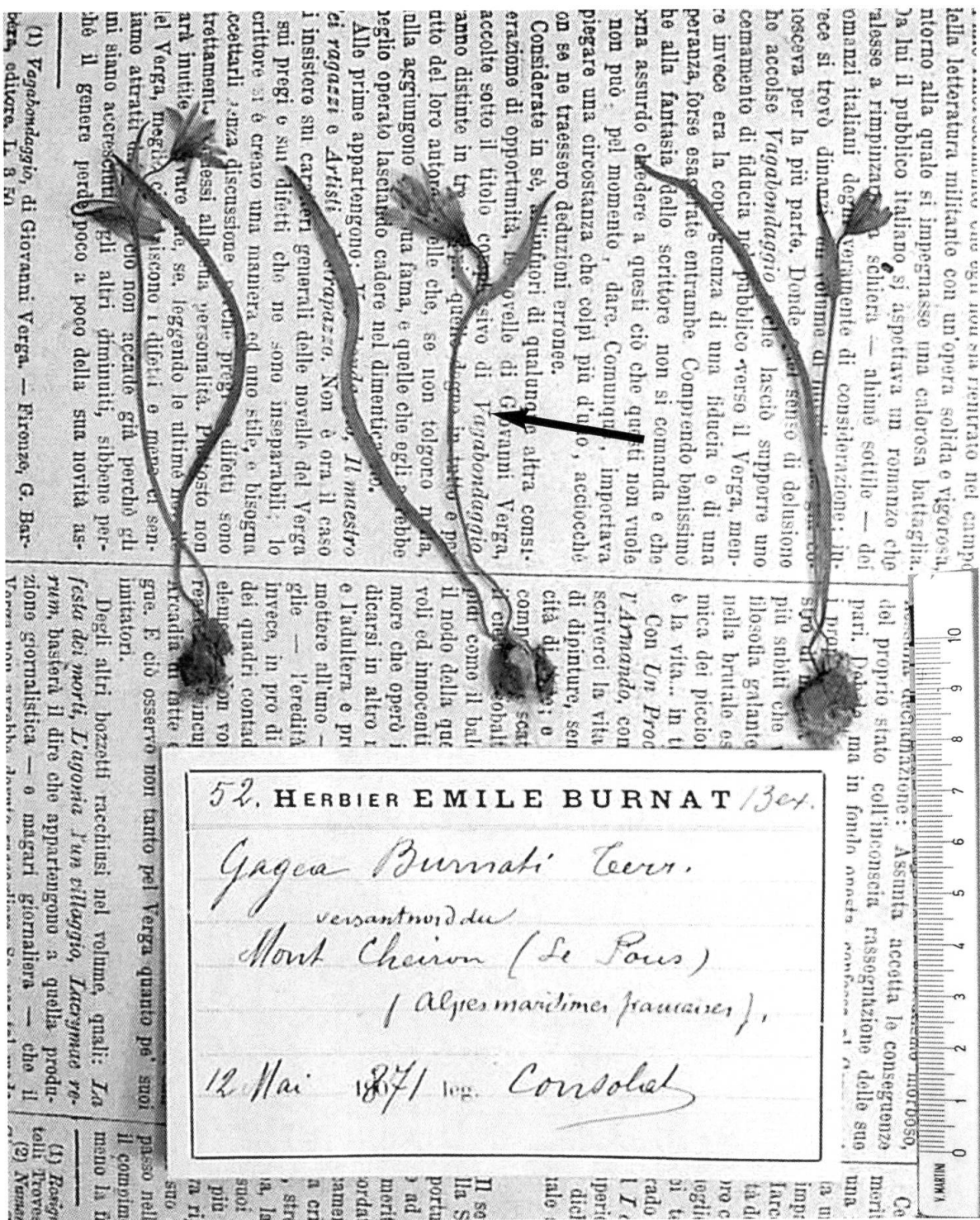


Fig. 2. – Herbarium sheet with the lectotype of *Gagea amblyopetala* subsp. *heldreichii* A. Terracc. [*Heldreich Herb. Graec.* 1290, NAP]



52. HERBIER EMILE BURNAT Bes.  
*Gagea Burnatii* Terr.  
 versant nord du  
 Mont Cheiron (Le Pous)  
 (Alpes maritimes françaises),  
 12 Mai 1871 Consolat

Fig. 3. – Herbarium sheet with the lectotype of *Gagea burnatii* A. Terracc. [Consolat s. n., NAP]

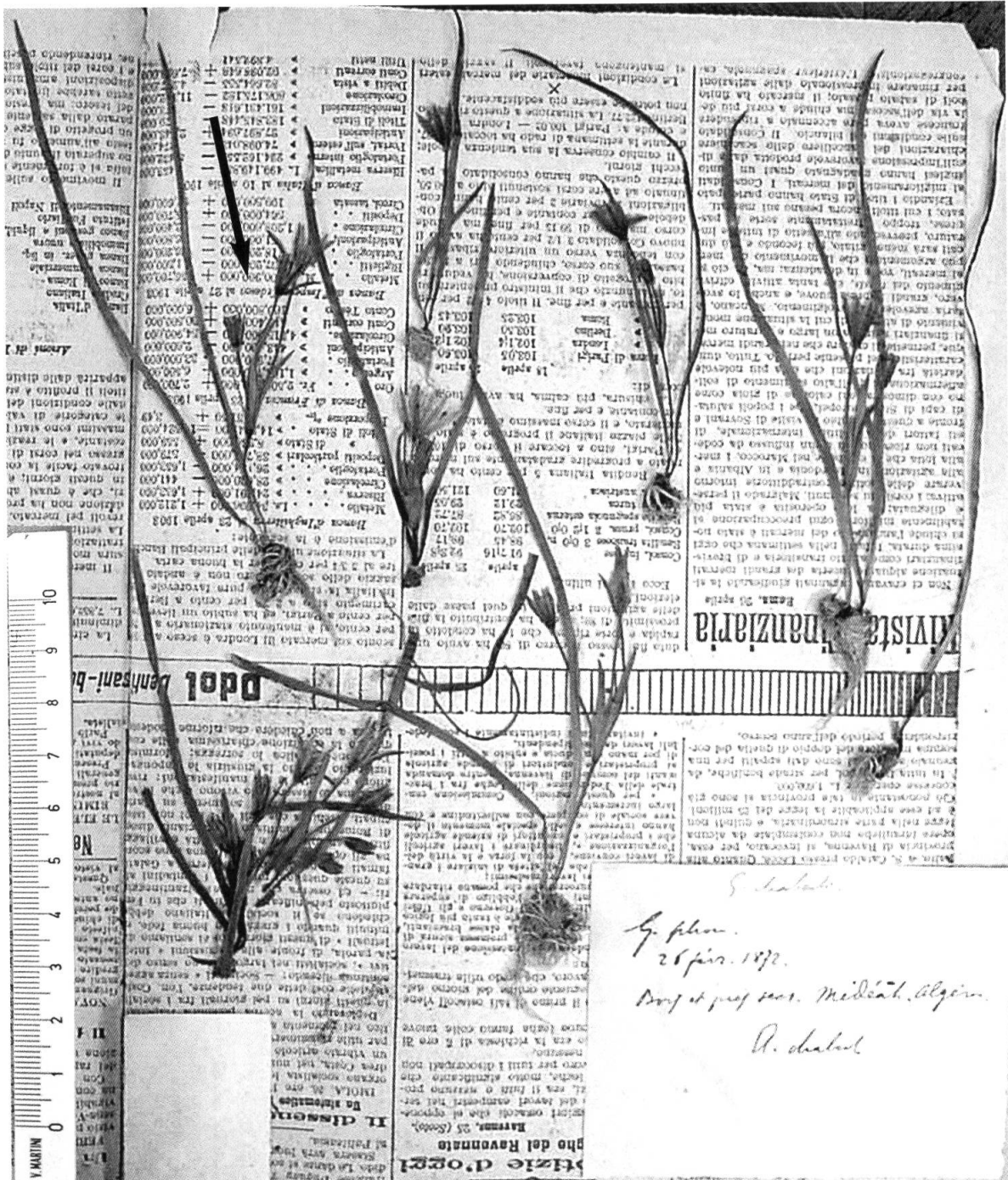


Fig. 4. – Herbarium sheet with the lectotype of *Gagea chabertii* A. Terracc. [Chabert s. n., NAP]

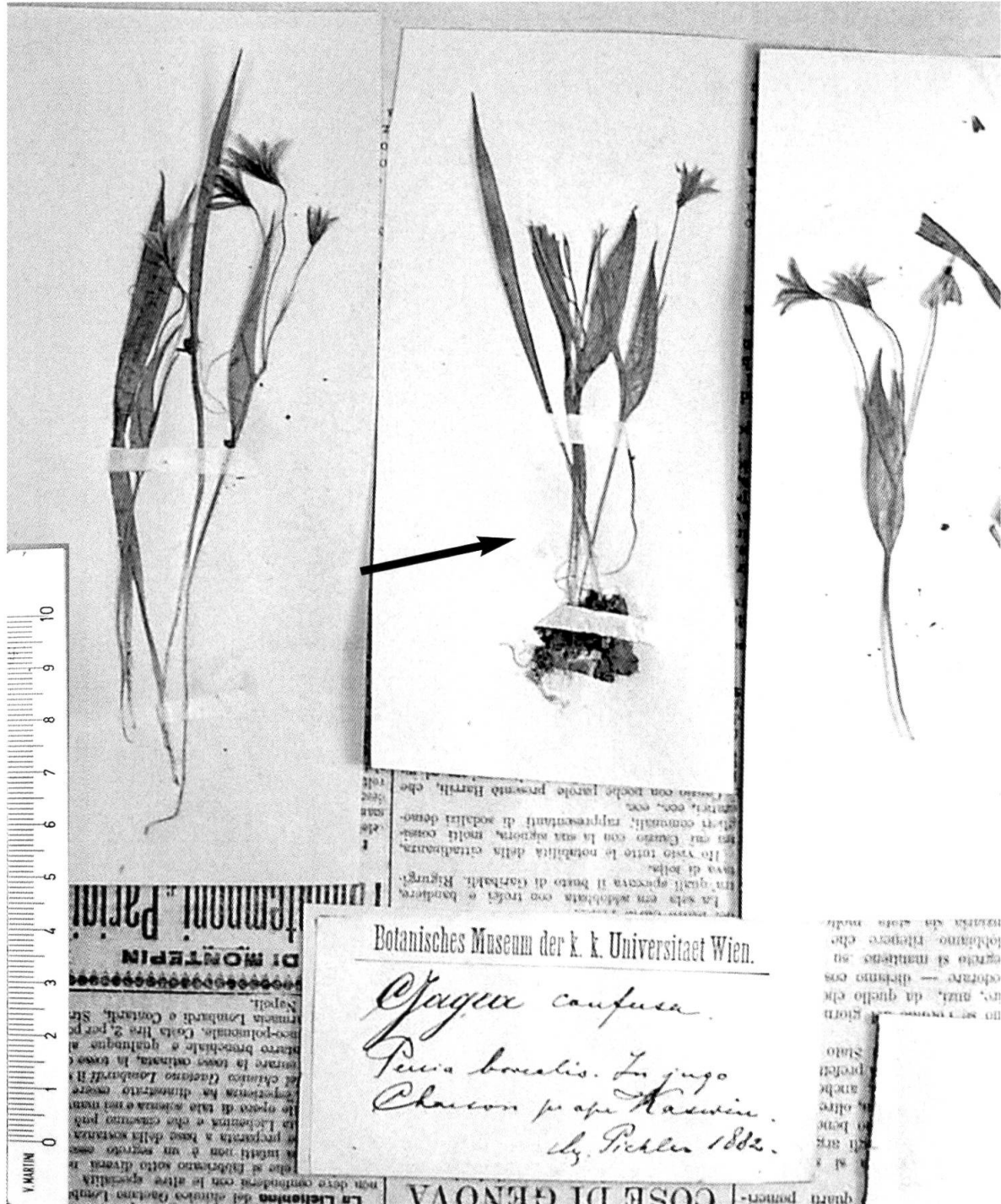


Fig. 5. – Herbarium sheet with the lectotype of *Gagea confusa* A. Terracc. [Pichler s. n., NAP]



Fig. 6. – Lectotype of *Gagea lacitae* A. Terracc. [Parlatore s. n., NAP]



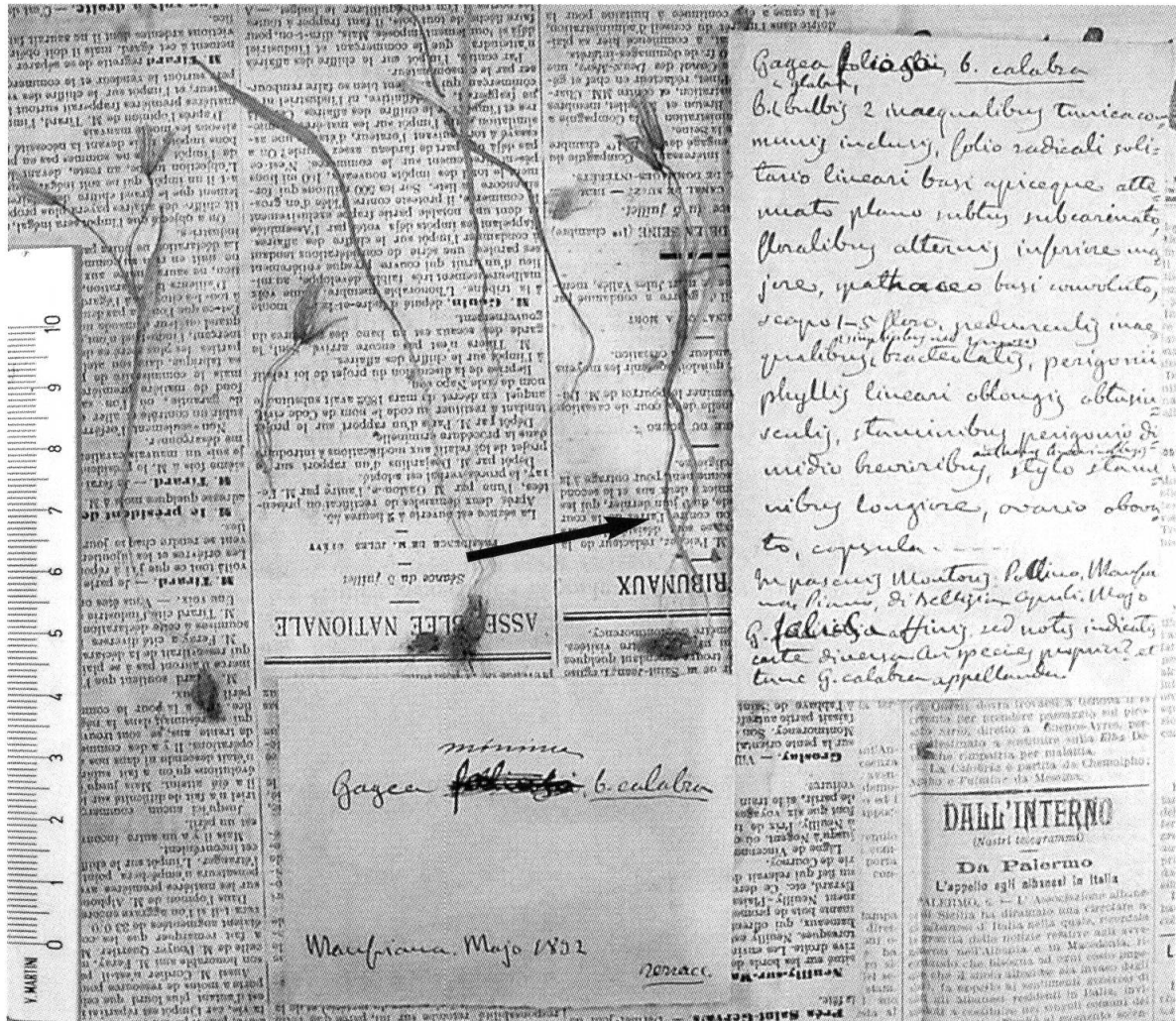


Fig. 7. – Herbarium sheet with the lectotype of *Gagea minima* var. *calabra* N. Terracc.

[N. Terracciano s. n., NAP]

*Gagea foliosa*, o. calabra  
 < glabra,  
 6. 2 bulbis 2 inaequalibus turricom-  
 munitis indurij, folio radicali soli-  
 tario lineari basi apiceque alte-  
 rnato plano subter subcarinato,  
 floralibus alternis inferiore ma-  
 jore, spatheo basi convulso,  
 scapo 1-5 floro, pedunculis inae-  
 qualibus <sup>simplicibus vel raris</sup> bracteatis, perigonii  
 phyllis lineari oblongis obtusis  
 sculis, staminibus perigonio di-  
 midio brevioribus, <sup>antheris linearibus</sup> stylo stam-  
 inibus longiore, ovario obovato,  
 capsula - - -  
 In pascuis Montouj. Pollino, Manfua-  
 na Piano, di Belluno - Apuli. Majo  
*G. foliosa* affinis, sed notis indicatis  
 certe diversa. An species propria? et  
 tunc *G. calabra* appellanda

Fig. 8. - Original autograph description of *Gagea minima* ("foliosa") var. *calabra* N. Terracc., conserved at NAP.

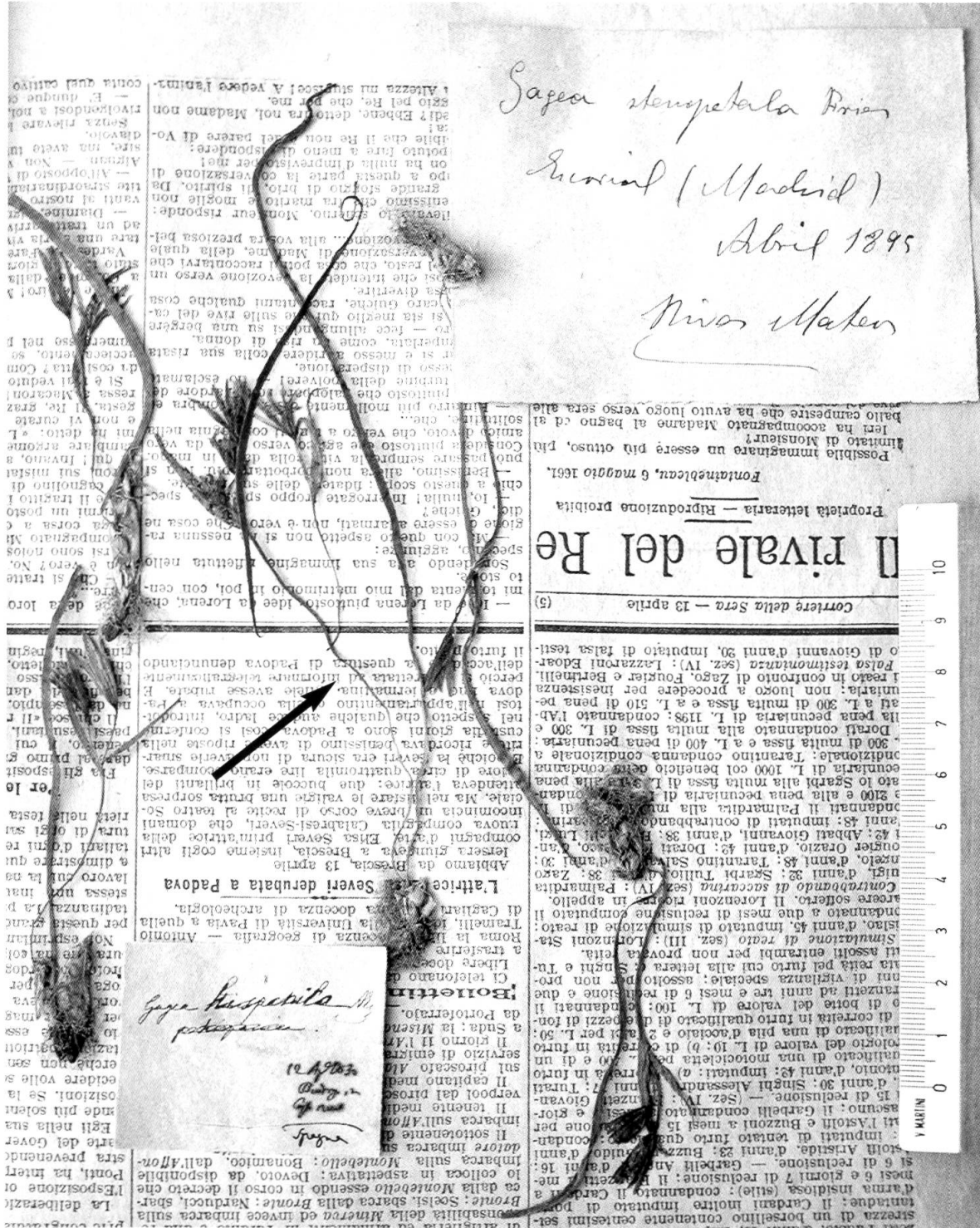


Fig. 9. – Herbarium sheet with the lectotype of *Gagea pratensis* subsp. *gussonei* A. Terracc. [*Gussone s. n.*, NAP]

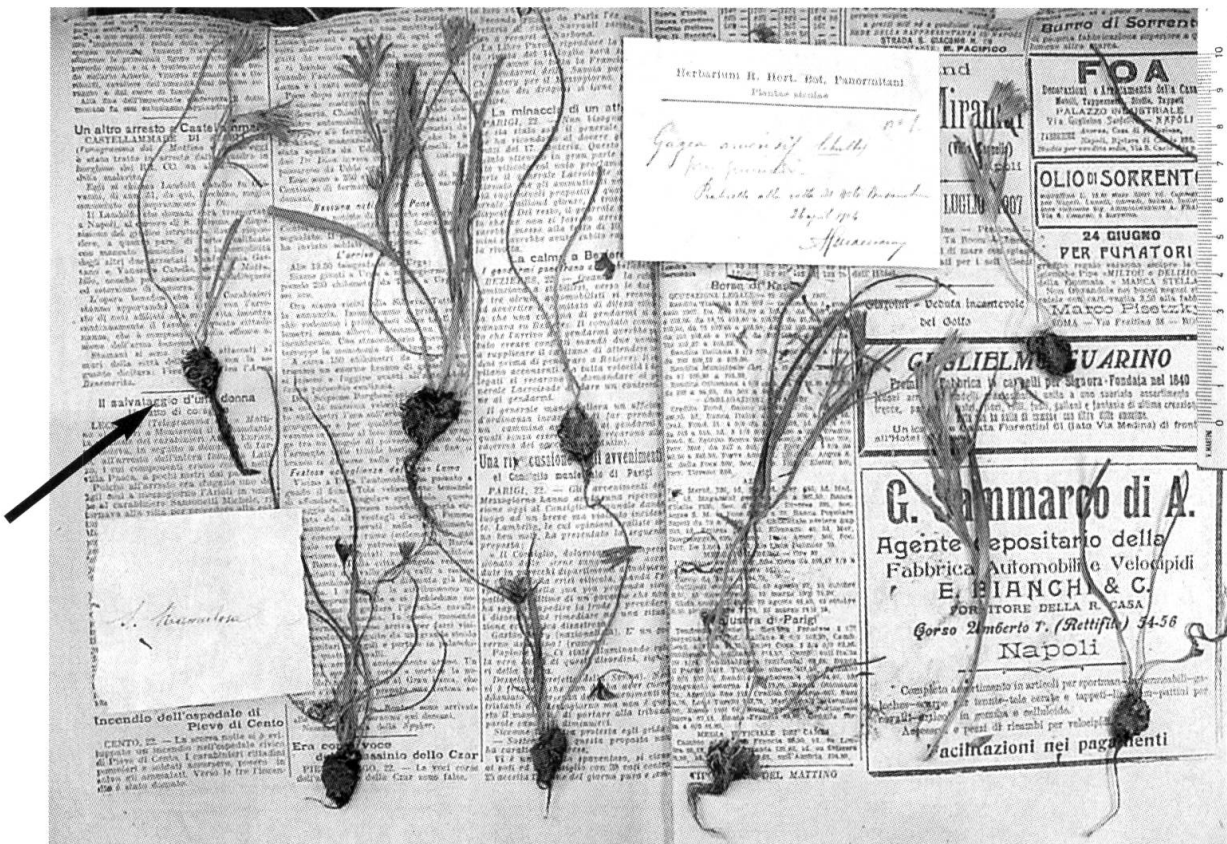


Fig. 10. – Herbarium sheet with the lectotype of *Gagea ramulosa* A. Terracc. [A. Terracciano s. n., NAP]



Fig. 11. – Herbarium sheet with the lectotype of *Gagea saxatilis* subsp. *australis* A. Terracc. [*A. Terracciano s. n.*, NAP]

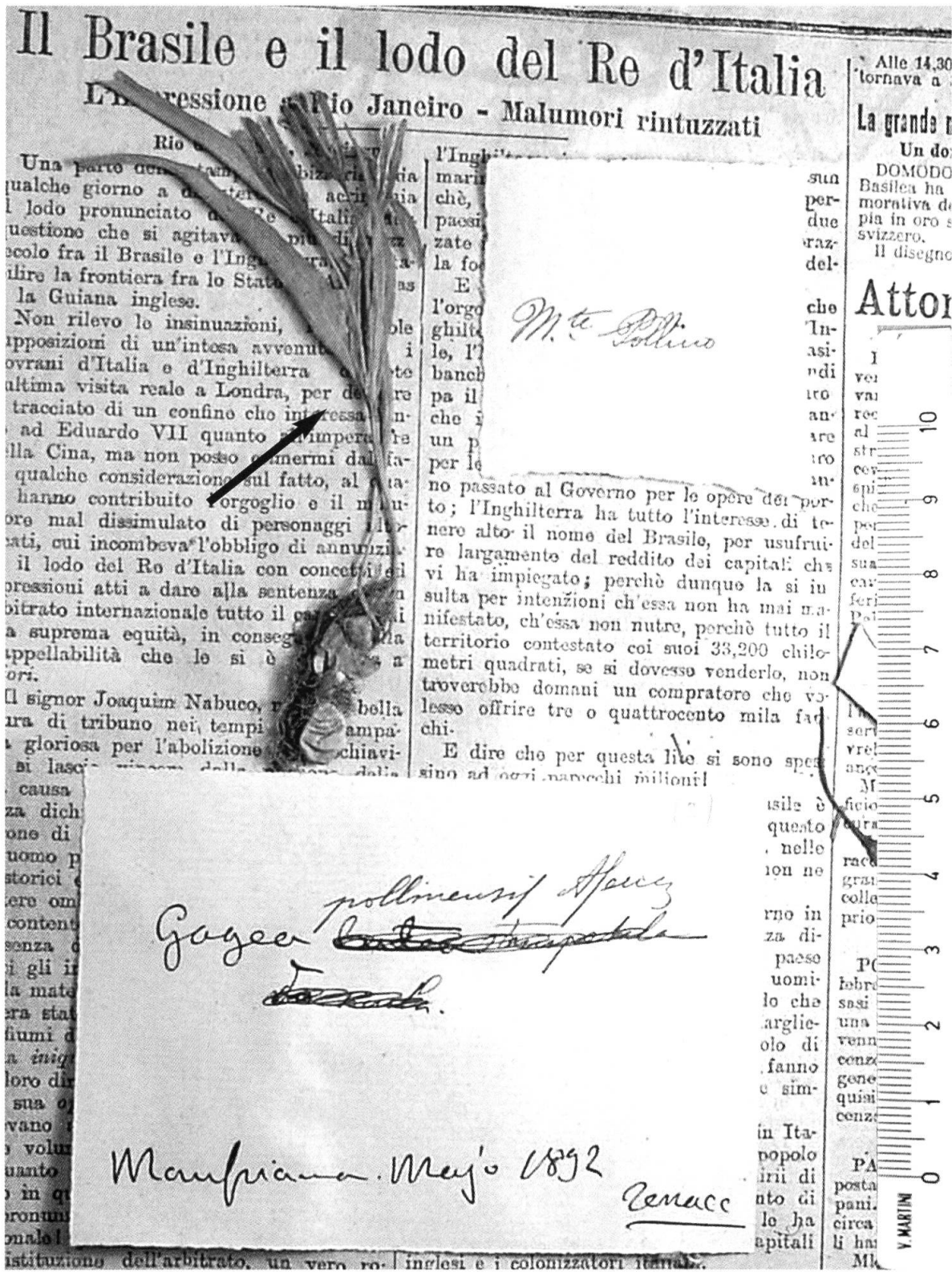


Fig. 12. - Lectotype of *Gagea stenopetala* var. *pollinensis* N. Terracc. [N. Terracciano s. n., NAP]

