

## **Grimmia lisae De Notaris - Musc. Ital. Spic. 15. 1837.**

**Type:** Italy, Sardinia, Sta. Barbara pr. Cagliari. 3/3/835, lectotype, designated by Muñoz & Pando (2000), RO!

**Synonyms:** *Grimmia ancistrodes* Dur. & Mont., *G. arcuatifolia* Kindb., *G. azorica* Ren. & Card., *G. californica* Sull., *G. canadensis* Kindb., *G. flettii* (Holz.) Card., *G. retracta* Stirt., *G. sardoa* Müll. Hal., *G. subsquarrosa* Wils., *G. trichophylla* var. *brachycarpa* De Not., *G. trichophylla* var. *meridionalis* Schimp., *G. hartmanii* ssp. *retracta* (Stirt.) Dixon, *G. sardoa* C. Müll., *G. trichophylla* var. *lisae* (De Not.) Bott.

**Distribution:** Afr.1. Am.1.2. As.5. Eur. Oc.

### **Description**

*Grimmia lisae* grows in olive-green to light green, dense to loose tufts, frequently brownish to blackish below, the leaves are erect or slightly contorted and appressed when dry, recurved to squarrose when moist, more or less broadly lanceolate, tapering to short acute apex, keeled above, clusters of multicellular gemmae are occasionally present in the leaf axils, the costa projects on dorsal side, a median layer of stereids is present, the hair-points are absent to rather long, stout and denticulate, the margin is recurved on one or both sides. The distal areolation is unistratose with bistratose ridges and bistratose margin, the mid-leaf cells are rounded-quadrate to oblate with incrassate smooth walls, the basal marginal cells are rectangular with slightly thickened transverse walls, the basal juxtacostal cells are rectangular with thin or slightly incrassate smooth walls. The sexuality is dioicous, and capsules on arcuate setae are occasionally present, they are ovoid, shiny, and striate with a rostrate operculum.

### **Discussion**

*Grimmia lisae* is a thermophilous species with a preference for subtropical coastal areas, where it occurs on acidic as well as on basic substrates. The species is, just like *Grimmia trichophylla*, extreme variable, reason that it has been described frequently as a new taxon. In Europe, it most commonly occurs in Mediterranean areas, and in North America, it was recorded from localities all along the western coast, from Vancouver Island south to Mexico. From this coast, it has been described as: *G. ancistrodes* Dur. & Mont., *G. arcuatifolia* Kindb., *G. californica* Sull., and *G. flettii* (Holz.) Card. *Grimmia lisae* is closely related to *Grimmia trichophylla*, differing by somewhat shorter and broader leaves which are frequently straight and appressed when dry and recurved when moist. Furthermore, it is characterized by a mid-leaf areolation with small, rounded, frequently oblate

cells with smooth walls. In 2001, I found *G. lisae* on Maui (Hawaii Islands), it was growing in damp gullies on northern slopes of the Haleakala volcano. Just like other taxa within the *Grimmia trichophylla*-complex, *G. lisae* is variable in colour (yellowish, greenish, brownish to blackish), in size (tiny to robust), and in hair-points (muticous, short to long). The only reliable characters are found in the leaves: 1. lanceolate, not tapering to a long acute apex, 2. appressed when dry and recurved to squarrose when moist, 3. distal leaf cells, rounded-quadrate to oblate with incrassate smooth walls.

A related species was recently published as *G. dissimulata* (Maier 2002). In her key, Maier distinguished *G. dissimulata* from *G. lisae* only by the number of guide cells in the proximal part of the costa (*G. lisae* has 6 guide cells, and *G. dissimulata* has 4 guide cells). There are, however, some more differences. When moistened, the leaves of *G. dissimulata* are not squarrose but erecto-patent to patent, the basal leaf cells have incrassate, nodulose walls, the cell walls in the distal part of the leaf are not smooth and rounded, as in *G. lisae*, but irregular with slightly incrassate and nodulose walls.

### **Specimens examined**

**Azores:** Sao Miguel, Capelas, leg. H. Lauer, nr. Az. 104; **Belgium:** Angre, Le Caillou-qui-bique, alt 65 m, leg. H.C. Greven, nr. 2229, 2230; Bouillon, rive de la Semois, alt. 220 m, leg. A. Sotiaux, nr. 14332; **Canary islands:** Gomera, Garajonay, alt. 1200 m, leg. H.C. Greven, nr. 2234; Tenerife: Monte del Aqua, alt. 800 m, leg. H.C. Greven, nr. 2242, Valle de la Orotava, alt. 1300 m, leg. H.C. Greven, nr. 2239, 2240, 2221, 2241, Santiago del Teide, alt. 1100 m, leg. H.C. Greven, nr. 2217, Vilaflor, alt. 1200 m, leg. H.C. Greven, nr. 2218, 2219, La Esperanza, alt. 1400 m, leg. H.C. Greven, nr. 2220; **Corsica:** Stue Menhir, alt. 300 m, leg. H.C. Greven, nr. 2931; Zicavo, alt. 850 m, leg. H.C. Greven, nr. 2932; Vizzavone, alt. 900 m, leg. H.C. Greven, nr. 2933, 2934; **Crete:** Samarian gorge, leg. H.C. Greven, nr. 2232; **Cyprus:** Dhierona, alt. 300 m, leg. H.C. Greven, nr. 2194, 2195; Moniatis, leg. H.C. Greven, nr. 2196; Troodos, Pano Platres, alt. 1100 m, leg. H.C. Greven, nr. 2208, 2210; Troodos, Prodhromos, alt. 1600 m, leg. H.C. Greven, nr. 2209; Omodhos, alt. 900 m, leg. H.C. Greven, nr. 2211; Buffavento, alt. 800 m, leg. H. Lauer, nr. Zy 15; **Elba:** between Marciana and Madonna del Monte, leg. H. Lauer, nr. It. 1218; **France:** The Vosges, Lièpvre, alt. 291, leg. H.C. Greven, nr. 2774; **Germany:** Vulkaneifel, Kr. Daun, Nerother Kopf, alt. 600 m, leg. R. Düll; **Greece:** Sithonia, Vourvourou, Mt. Karvonous, alt. 150 m, leg. R. Düll; Sithonia, Nikiti, Ag. Nikolaos, alt. 200 m, leg. R. Düll; **Ireland:** Kerry, Glenbeigh, leg. Wallace; Killarney, Muckross Lake, leg. H.C. Greven, nr. 2223, 2224; Killarney, Gap of

Dunloe, leg. H.C. Greven, nr. 2222; **Luxemburg**: Oesling, Goesdorf, vallée de la Sure, alt. 290 m, leg. J. Werner, nr. 5727; **Mallorca**: Puig de Massanella, alt. 900 m, leg. H.C. Greven, nr. 2826; Puig Major, alt. 1000 m, lg. H.C. Greven, nr. 2829, 2834; Embalse de George Blau, leg. H.C. Greven, alt. 700 m, nr. 2835; **Portugal**: Algarve, Ribeira de Odeleite, alt. 300 m, leg. D. Long; Serra da Estrela, Vale de Amoreira, alt. 500 m, leg. H.C. Greven, nr. 2197, 2207, 2202; Cabeça, alt. 500 m, leg. H.C. Greven, nr. 2200, 2201; **Sardinia**: without location, leg. G. de Notaris; Monti del Gennargentu, Urzulei, alt. 760 m, leg. H.C. Greven, nr. 2204, 2214; Genna é Medau, alt 990 m, leg. H.C. Greven, nr. 2206; Fluminimaggiore, alt. 105 m, leg. H.C. Greven, nr. 2198, 2205; Arbus, alt. 400 m, leg. H.C. Greven, nr. 2199, 2244; Villanova Strisaili, alt. 800 m, leg. H.C. Greven, nr. 2243, 2235, 2236; Mt. Arcueri, alt. 900 m, leg. H.C. Greven, nr. 2245; Silanus, alt. 432 m, leg. H.C. Greven, nr. 2246; St. di Villanovatula, alt. 348 m, leg. H.C. Greven, nr. 2233; Lago Alto di Flumendosa, alt. 845 m, leg. H.C. Greven, nr. 2237; Sadali, leg. H.C. Greven, nr. 2238; Bosa, alt. 50 m, leg. H.C. Greven, nr. 2213; Cuccuru Orru, alt. 467 m, leg. H.C. Greven, nr. 2203; **Scotland**: Inverness, Loch Ness, leg. H.C. Greven, nr. 2225; Inversnaid, Loch Lomond, leg. A.C. Crundwell; **Spain**: Salamanca, La Frequeda, Ribera del Aquada, leg. J. Muñoz; **Turkey**: Collibus Taurinensibus, leg. D. Lisa, nr. 332; Urfa, alt. 800 m, leg. Davis & Hedge; Prov. Adana, Osmaniye, Toprakkala, alt. 80 m, leg. Davis & Hedge; **Wales**: Snowdonia, Llyn Idwal, alt. 120 m, leg. H.C. Greven, nr. 2228; Merioneth, Llanbedr, R. Artro, leg. Jones & Rhodes; **U.S.A.**: California, Monterey Co, Los Padros, Nat. forest, leg. R. Düll. **Canada**: British Columbia, route 1 to Vancouver, south-facing rock wall, 10 km from Hell's Gate Bridge, near gorge, alt. 180 m, leg. H.C. Greven nr. 3027, 09-07-1998; British Columbia, Fraser Canyon Highway, between China Bear Tunnel and Hell's Gate tunnel, leg. H.C. Greven nr. 3028, 09-07-1998;

## References

- Greven, H.C., A. Sotiaux & J. Werner 1994. *Grimmia lisae* De Not., nouveau pour la Belgique et le Grand-Duché de Luxembourg. *Dumortiera* 55-57: 56-61.
- Greven, H.C. 2003. *Grimmiaceae of the World*. Backhuys Publ. Leiden, The Netherlands
- Maier, E. 2002. *Grimmia dissimulata* E. Maier sp. nova, and the taxonomic position of *Grimmia trichophylla* var. *meridionalis* Müll. Hal. (Musci, Grimmiaceae). *Candollea* 56 : 281-300.