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The endemic flora of Morocco

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Abstract

Morocco is characterized by high vascular plant diversity with an estimated 4200 species and subspecies of which 22% are endemic. This study presents an updated list of the endemic species in the Moroccan flora following the classification of APG III, including comments on their geographical distribution and ecoregions. The endemic flora contains 879 species and subspecies in 55 families and 287 genera. Three new combinations are proposed. The High Atlas, Middle Atlas and the Rif mountains are the three richest floristic regions for endemic species, but the endemics are not restricted to these floristic regions only. Conservation efforts are therefore necessary in both the Mediterranean and Saharan ecoregions to preserve the biodiversity and botanical richness of Morocco.

In this updated checklist we propose a new combination (*Verbascum demnatensis*) and a new name (*Verbascum hamidouii*) in the genus *Verbascum* (Scrophulariaceae).

Introduction

The flora of Morocco is one of the most diverse in the Mediterranean region and the richest in North Africa (Sauvage 1954) with about 4200 taxa including 1282 subspecies (Valdés *et al.* 2002). This large number of vascular plants with a high percentage of endemic species places Morocco in an important position among other Mediterranean countries (Table 1).

This high plant diversity is explained by the geographical position of Morocco, its varied topography, geology, ecoregion and climate. In prehistory Morocco was a pathway for flora and fauna, spreading to and from the Macaronesian Islands especially the Canary Islands, and, more importantly, Morocco formed a land bridge between Europe and Africa. Morocco is situated at floristic crossroads due to two lengthy (c. 2800 km) sea coasts along the Atlantic Ocean and the Mediterranean Sea. This has resulted in a high habitat diversity and ecoregions caused by a variety of Mediterranean type climates along the coast, and from the Sahara in the south to the moist oceanic climate of the north. In addition elevational differences are great, with montane climates in the high mountain summits of the Middle Atlas, High Atlas, Anti Atlas and Rif, several peaks of which exceed 2000–4000 m elevation.

Biodiversity and endemism

The Moroccan flora contains about 920 genera and 130 families (Fennane & Ibn Tatou 2005, 2008). However, eight important families contain over 100 species, almost 50% of the flora. These families are in order of importance: Asteraceae (c. 500 spp.), Fabaceae (c. 400 spp.), Poaceae (c. 300 spp.), Caryophyllaceae (c. 217 spp.), Lamiaceae (c. 210 spp.), Brassicaceae (c. 185 spp.), Apiaceae (c. 160 spp.) and Liliaceae (c. 110 spp.). Other important families but with less than 100 species are: Scrophulariaceae, Plantaginaceae, Orobanchaceae, Amaranthaceae, Boraginaceae, Cistaceae, Cyperaceae and Ranunculaceae. Some families contain less than

five species (e.g. Oxalidaceae), and others are only represented by a single species in Morocco (e.g. Berberidaceae, Coriariaceae and Droseraceae).

The genus *Silene* is by far the most species rich in the Moroccan flora, with about 70 species, followed by the genera *Centaurea*, *Ononis*, *Teucrium*, *Euphorbia*, *Trifolium* and *Linaria* where the number of species varies between approximately 40 to 50; this is then followed by the genera *Orobanche*, *Juncus*, *Helianthemum*, *Erodium*, *Ranunculus*, *Lotus*, *Vicia* and *Carex* each containing about 30 to 35 species. Endemic vascular plant species represent 22 % of the flora with 879 taxa of which 607 are species and 272 are subspecies. This excludes the species that are doubtfully endemic or of doubtful taxonomic status. The endemic flora is contained in 55 families and 287 genera. Taking species richness in relation to area size as a measure of biodiversity, Morocco, with 4200 species and 22% of endemics ranks second among the Mediterranean countries (Table 1).

TABLE 1. Species diversity and endemism in regions of the Mediterranean Area. (Médail & Quézel 1997).

Countries	Total area (Km ²)	Area in the Mediteranean (Km ²)	Total number of species	Endemic species	Endemic (%)	Source
Turkey	779 000	480 000	8600	2675	53.5	1
Morocco	659 900	300 000	4200	879	22	*
Spain	504 000	400 000	6720	1286	19.1	2
Greece	132 700	100 000	5855	913	15.6	3
Italy	301 049	200 000	4870	570	13.4	4
Syria	185 000	50 000	3100	395	12.7	5
Algeria	2 381 000	300 000	3150	320	10.1	6
Libya	1 759 000	100 000	1600	140	8.7	7
Cyprus	9251	9251	1640	110	6.8	8
Jordan	97 600	10 000	2200	145	6.6	5
Portugal	91 000	70 000	2600	114	4.4	9
France	549 600	50 000	4800	180	3.7	10
Egypt	1 000 000	15 000	2060	61	3	11
Tunisia	164 000	100 000	1800	39	2.1	12

Sources: (*): updated numbers; (1): Davis (1988); (2): Greuter (1991); (3): Georghiou & Delipetrou (2010); (4): Pignatti (1995); (5): Davis et al. (1994); (6): Greuter (1991); (7): Bartolo et al. (1977), (8): Hadjikyriakou (1997); (9): Gomez-Campo et al. (1984), (10): Olivier et al. (1995); (11): Boulos (1995), (12): Enriquez-Barroso & Gomez-Campo (1991).

We created this checklist of 879 endemic taxa from several databases and from literature. These sources include the names of the rare, threatened and endemic plants listed in *Bocconeia* vol. 8 (Fennane & Ibn Tattou 1998) and all plant names recorded in the Euro+Med PlantBase based on the volumes of *MedChecklist* (Greuter, Burdet & Long 1984–1989), *Flore Pratique du Maroc* volumes 1 and 2 (Fennane et al. 1999, 2007), *Flore Vasculaire du Maroc* volumes 1 and 2 (Fennane & Ibn Tattou 2005, 2008) and the *Checklist of vascular plants of N Morocco with identification keys* volumes 1 and 2 (Valdés et al. 2002).

To these we added the additional accepted names from the following works: Jahandiez & Maire (1931–1934), Emberger & Maire (1941), Sauvage & Vindt (1952–1954), Maire (1952–1987), Quézel (1959), Nègre (1961–1962), Ozenda (1977) and the works by Dobignard (1993), Dobignard, Jacquemoud & Jordan (1992a, 1992b), Dobignard & Jordan (1987, 1989, 1997), Lebrun (1998), Förther & Podlech (2001, 2002), Fougrach et al. (2007), Ouhammou (2005). The series of notes by Gómiz García (1999, 2000, 2001, 2003) have also been consulted. The published notes pertaining to the checklist of Valdés et al. (1996) have been consulted taking into account the published volumes to which the checklist refers.

The scientific names of the families have followed the nomenclature of the Angiosperm Phylogeny Group (APG III 2009) and the Flowering plant families of the world (Heywood *et al.* 2007). In addition all the names have been checked against several databases such as: Kew World Checklist of Selected Plant Families (WCSP 2012), Tropicos (Tropicos 2012), International Plant Name Index (IPNI 2012), Euro+Med PlantBase (Euro+Med 2012), Med-Checklist (Med-Checklist 2012), The Plant List (The Plant List 2010) and we also checked the names with experts of certain plant groups. As a result, we lost about 92 taxa from our primary checklist as synonyms, unresolved names, geographical occurrences and new combinations made on this new checklist.

Using Bykov's index ($le = \text{endemism factual} / \text{endemism normal}$) in Fig. 2 as a quantitative measure of endemism (Cowling & Samways 1995), the diagonal line defines 100% endemism for the entire planet and defines 1% endemism in 625 km². It depicts normal endemism (En). Points represent the factual endemism (Ef). Areas above the diagonal line have less than normal endemism and areas below the line have more than normal. This diagram shows that Morocco is above the normal endemism for its area ($le = 1.3$), lower than South Africa ($le = 3.6$) or the exceptionally high-ranking Canary Islands ($le = 9.3$), but in a similar range as Turkey, Cyprus and Spain.

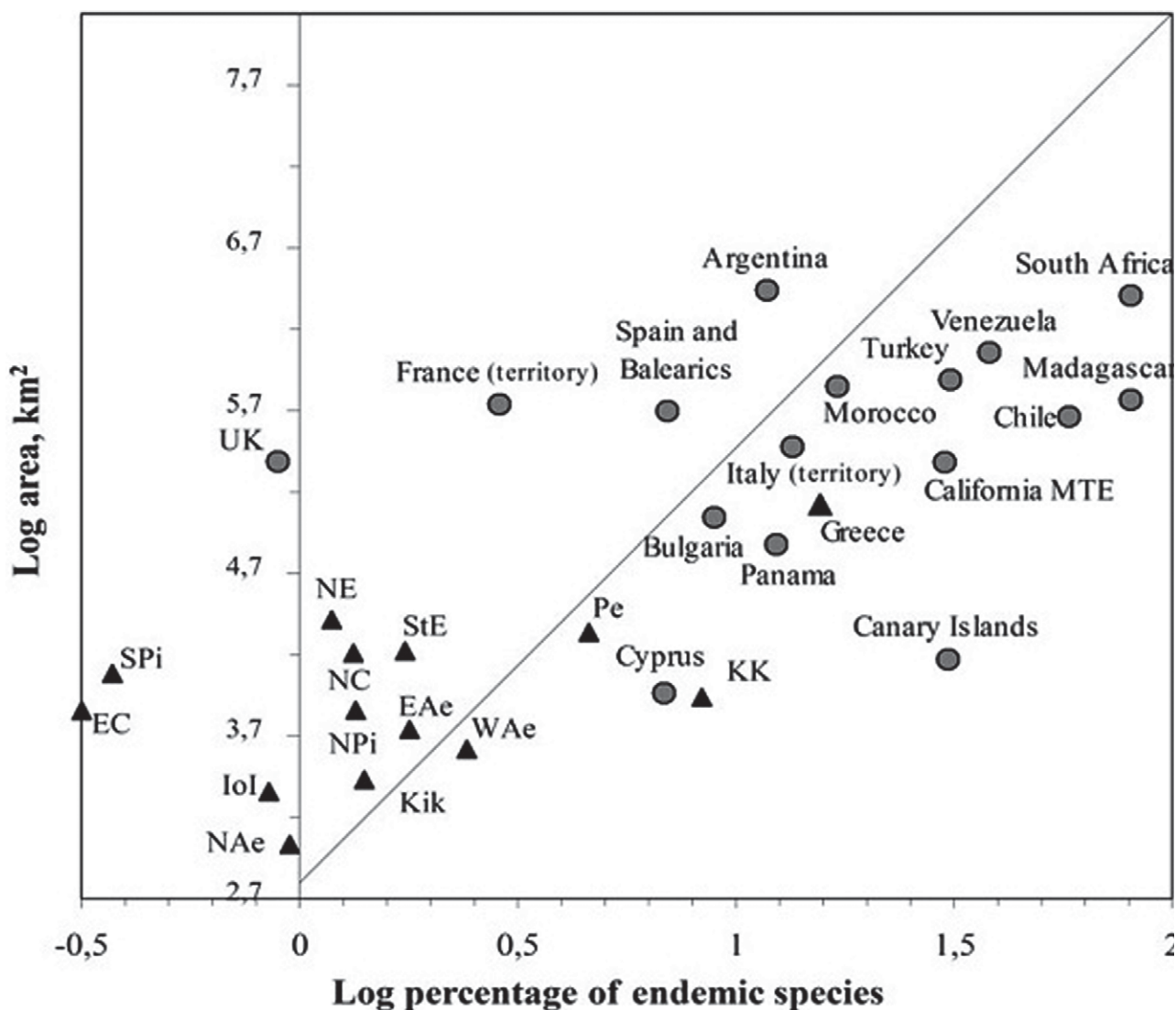


FIGURE 1. Bykov's Monogram (Cowling & Samways 1995b).

Floristic analysis of the endemic Flora

The endemic species belong to 55 families and 287 genera but only two families contain more than 100 taxa (Fig.2): Asteraceae (166) and Fabaceae (108) and three families contain between 50–100 taxa: Lamiaceae (99), Brassicaceae (61) and Caryophyllaceae (59). Another 11 families contain between 10–50 taxa: Poaceae (40), Apiaceae (39), Plantaginaceae (35), Papaveraceae (22), Scrophulariaceae (19), Boraginaceae (18), Amaryllidaceae (17), Crassulaceae (16), Plumbaginaceae (13), Campanulaceae (12), Rosaceae (10).

Most of the families contain less than 10 endemic taxa (e.g. Amaranthaceae, Apocynaceae, Asparagaceae, Caprifoliaceae, Cistaceae, Convolvulaceae, Cyperaceae, Euphorbiaceae, Gentianaceae, Geraniaceae, Hypericaceae, Iridaceae, Juncaceae, Linaceae, Polygonaceae, Orobanchaceae, Malvaceae, Orchidaceae, Polygalaceae, Ranunculaceae, Resedaceae, Rubiaceae, Saxifragaceae, Thymelaeaceae, Violaceae, Zygophyllaceae) and some of the families are only represented by a single endemic species in Morocco (e.g. Frankeniaceae, Oleaceae, Onagraceae, Phyllanthaceae, Pinaceae, Portulacaceae, Primulaceae, Rhamnaceae, Rutaceae, Salicaceae, Solanaceae, Xanthorrhoeaceae).

The genera *Silene* and *Teucrium* are by far the richest in number of endemics with 27 and 31 taxa respectively, followed by the genus *Ononis* with 22 taxa. The genera *Centaurea*, *Fumaria*, *Rhodanthemum*, *Linaria*, *Thymus*, *Astragalus*, *Bupleurum* and *Limonium* each contain between 10 and 20 endemic taxa. Thirteen genera are endemic to Morocco, ten of them containing a single species only: *Argyrocytisus* (Fabaceae), *Crambella* (Brassicaceae), *Feeria* (Campanulaceae), *Fezia* (Brassicaceae), *Hannonia* (Asparagaceae), *Hesperolaburnum* (Fabaceae), *Nivellea* (Asteraceae), *Sclerosciadium* (Apiaceae), *Roripella* (Brassicaceae), *Rytidocarpus* (Brassicaceae) and *Traganopsis* (Amaranthaceae). The endemic genus *Aliella* (Asteraceae) is represented by four taxa, *Trachystoma* (Brassicaceae) is represented by three taxa and *Raffenaldia* (Brassicaceae) is represented by two taxa.

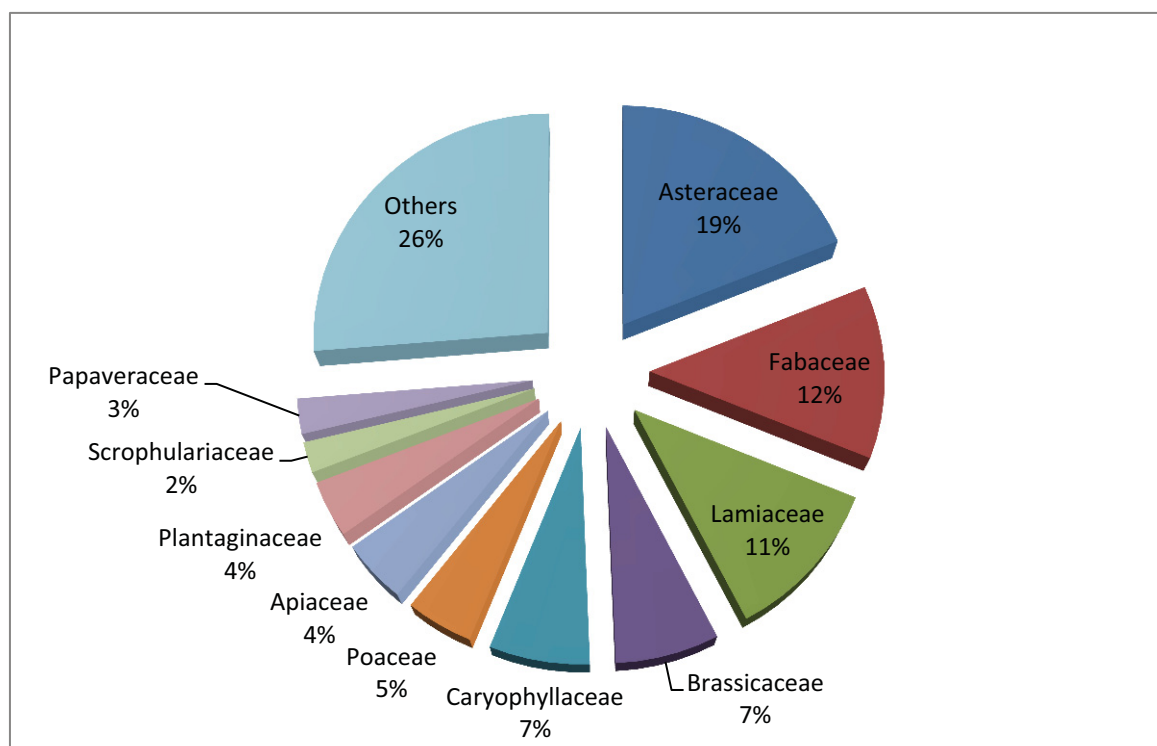


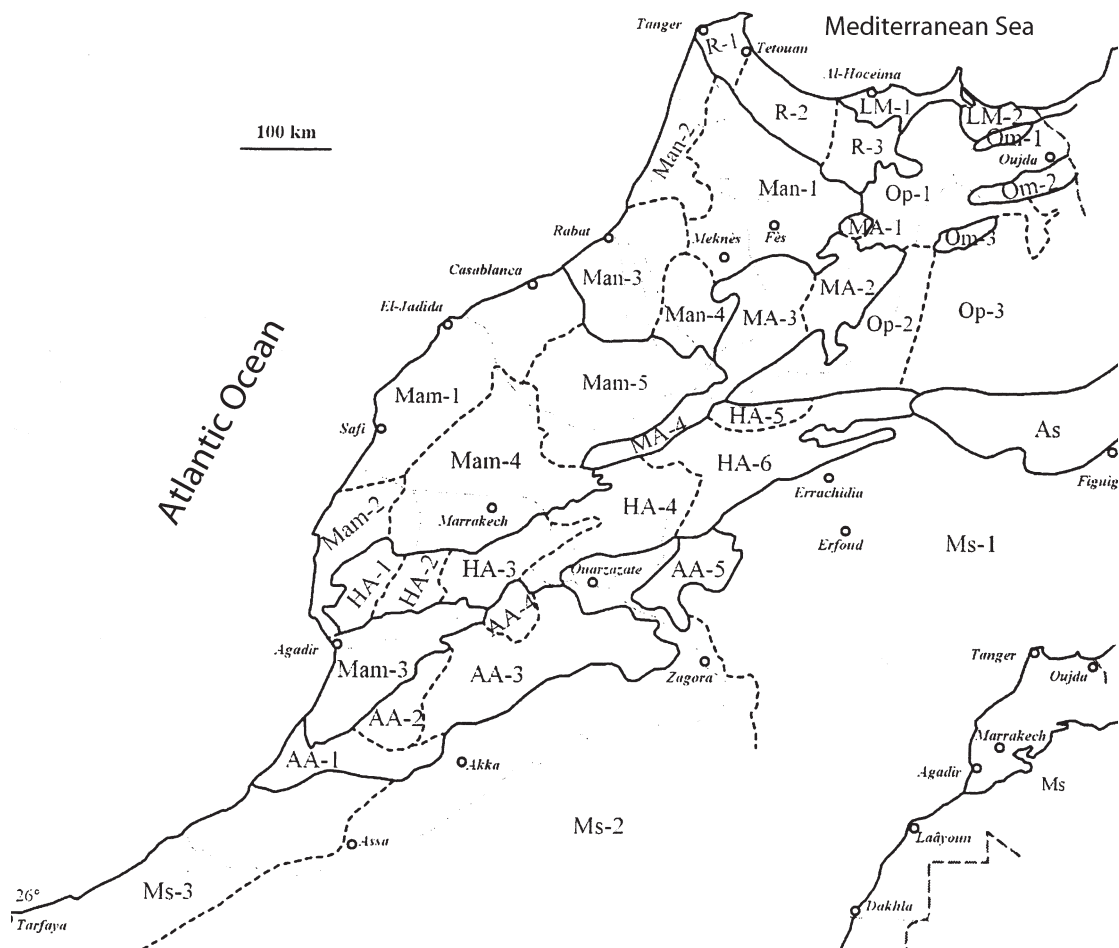
FIGURE 2. The proportion of endemics by family.

Distribution of the endemic flora

The distribution of the 879 endemics was examined according to the existing literature and herbaria databases and following the map and the geographical floristic regions of Fennane & Ibn Tattou (2005) (Map 1).

The majority of the endemic species is not restricted to one or a few floristic regions (Fig. 3), but can be found throughout the country with a higher number in the mountains and the high elevation, by order of importance three floristic regions contain more than 200 taxa; the High Atlas (HA) with 439 taxa (49.1 % of endemics), Middle Atlas (MA) with 294 taxa (32.9 % of endemics), Anti Atlas (AA) with 236 taxa (26.4 % of endemics) and the Rif (R) with 223 taxa (25 % of endemics). In addition, the high elevation floristic regions Man (North Atlantic of Morocco) and Mam (Middle Atlantic of Morocco) are also important with 186 taxa (20.8 % of endemics) and 182 taxa (20.3 % of endemics), respectively.

Three floristic regions contain between 50 and 100 taxa; Moroccan Sahara (Ms) with 95 taxa (10.6 % of endemics), Mediterranean Cost (LM) with 61 taxa (6.8 % of endemics) and Eastern-lands (Op) with 54 taxa (6 % of endemics). The last two floristic regions contain less than 30 taxa; Eastern Mountains (Om) with 27 taxa (3 % of endemics) and Atlas Sahara (As) with 9 taxa (1 % of endemics).



MAP 1. Floristic divisions of Morocco [HA = Haut Atlas (HA-1: Ida-ou-Tanane, HA-2: Seksaoua, HA-3: Middle HA, HA-4: Mgoun, HA-5: Ayachi, HA-6: Eastern HA); MA = Middle Atlas (MA-1: Tazekka, MA-2: Nort-Eastern MA, MA-3: Middle MA, MA-4: South-West MA); R = Rif (R-1: Tangier, R-2: Middle-West Rif, R-3: Eastern Rif); AA = Anti Atlas (AA-1: Western AA, AA-2: Kest, AA-3: Middle AA, AA-4: Siroua, AA-5: Eastern AA); Mam = Middle Atlantic of Morocco (Mam-1: Doukkala, Mam-2: Abda, Mam-3: Souss, Mam-4: Haouz, Mam-5: Middle Oum-Rabiâ); Man = North Atlantic of Morocco (Man-1: Middle Sebou, Man-2: Rharb, Man-3: Maâmora, Man-4: Zaïane); Ms = Moroccan Sahara (Ms-1: East desert, Ms-2: West desert, Ms-3: Sahara); LM = Mediterranean Cost (LM-1: Nekkour, LM-2: Moulouya); Op = Eastern-lands (Op-1: Low Moulouya, Op-2: High Moulouya, Op-3: Highlands); Om = Eastern Mountains (Om-1: Bni Snassén, Om-2: Jerada, Om-3: Debdou); As = Atlas Sahara].

The geographical distribution of the endemic Flora of Morocco draws attention to the High Atlas (HA) as the hotspot floristic region and the main home of endemic species in Morocco, the other high elevation floristic regions [Middle Atlas (MA), Anti Atlas (AA) and Rif (R)] also shows a significant rate of endemics. However, the high rate of endemism in the mountains and high elevations is related to the North Africa Mountains being long isolated and a refuge for Holarctic taxa during the Quaternary glaciation (Fennane *et al.* 1999).

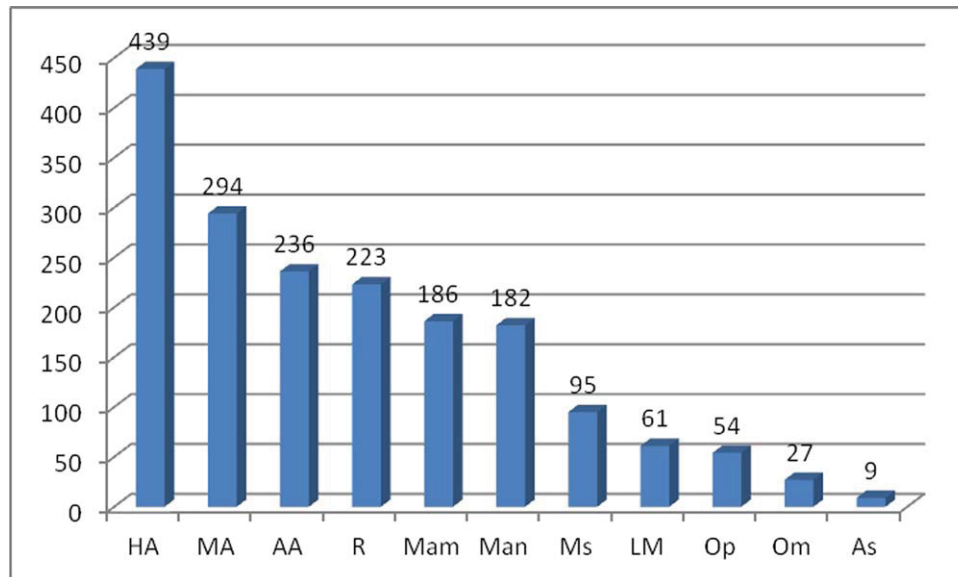


FIGURE 3. Number of endemics by floristic regions.

Ecoregions of the endemic flora

The diversity of habitats in Morocco can be divided into two main types of terrestrial ecoregions: the Mediterranean and the Saharan (Benabid 2000).

The Mediterranean Ecoregion (Fig. 4, Map 2) is essentially formed by five types:

1) Ecoregion of **humid forest** occupies most of the Rif (R), part of Middle Atlas (MA) and part of the High Atlas (HA). It is characterised by a humid climate, moist substrates, richness of trees (especially of *Abies*, *Cedrus*, *Quercus* and *Pinus*) and annual rainfall of 650 mm in the High Atlas and 2000 mm in the Rif.

2) Ecoregion of **sclerophyllous forest** occupies the majority of Morocco. It is characterised by moist to dry substrates, meadows, open grasslands and woodland (with trees of especially *Quercus*, *Tetraclinis*, *Juniperus* and *Pinus*). The climate ranges from subhumid to subarid and the annual rainfall is from 350 mm to 800 mm in the high elevation of the High Atlas.

3) Ecoregion of **steppe meadows** occupies the southeast of the country mainly the Eastern Plateaus (Op), Eastern Mountains (Om), the south of the Anti Atlas (AA) and the south of the High Atlas (HA); it is characterised by dry substrates, vast rangelands, arid to subarid climates, woodlands (with mainly *Pistacia*, *Juniperus* and *Fraxinus*), steppes (with dominant *Stipa tenacissima* and *Artemisia sp.*) and an annual rainfall ranging from 100 mm to 300 mm.

4) Ecoregion of **Macaronesian formations** occupies the southwestern coastline of Morocco. It is characterised by moist to dry substrates, cool to subarid climates, steppes, woodlands (with especially *Argania spinosa*, *Acacia* and *Tetraclinis*). Typical Macaronesian features here are dominance in Crassulaceae and leafless plants, and the annual rainfall ranges from 40 mm at the coast to 400 mm in the lower slopes of Anti Atlas.

5) Ecoregion of **Atlantic high elevation steppes** occupies the high elevations over 2700 m, mainly in the High atlas (HA) and Middle Atlas (MA); it is characterised by open grassland, shrubs, subarid to cold subhumid climates and annual rainfall ranging from 500 mm to 700 mm and it regularly snow at these elevations in winter.



FIGURE 4. *Abies maroccana* endemic to the Rif mountains and *Eryngium variifolium* in Oukaïmeden Mountain High Atlas (Mediterranean Ecoregion; Humid forest and Atlantic high elevation steppes).

The Saharan Ecoregion (Fig. 5, Map 2) is mainly formed by two types;

1) **Saharan coastal** ecoregion occupies the edge of the southwestern coastline of the country. It is characterised by dry substrates, steppes, limited woodland (*Acacia* and *Rhus*). The coastal Saharan climate has an annual rainfall ranging from 40 mm to 60 mm.

2) **Saharan** ecoregion occupies most of the Saharan and desert area; it is characterised by dry substrates, steppes, limited woodland, arid climate and annual rainfall is from 40 mm in the south to 150 mm in the northeast.

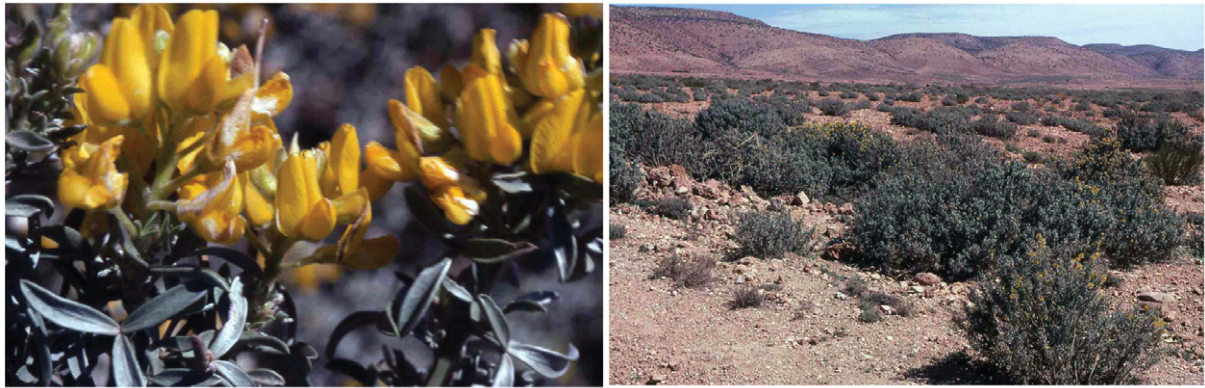
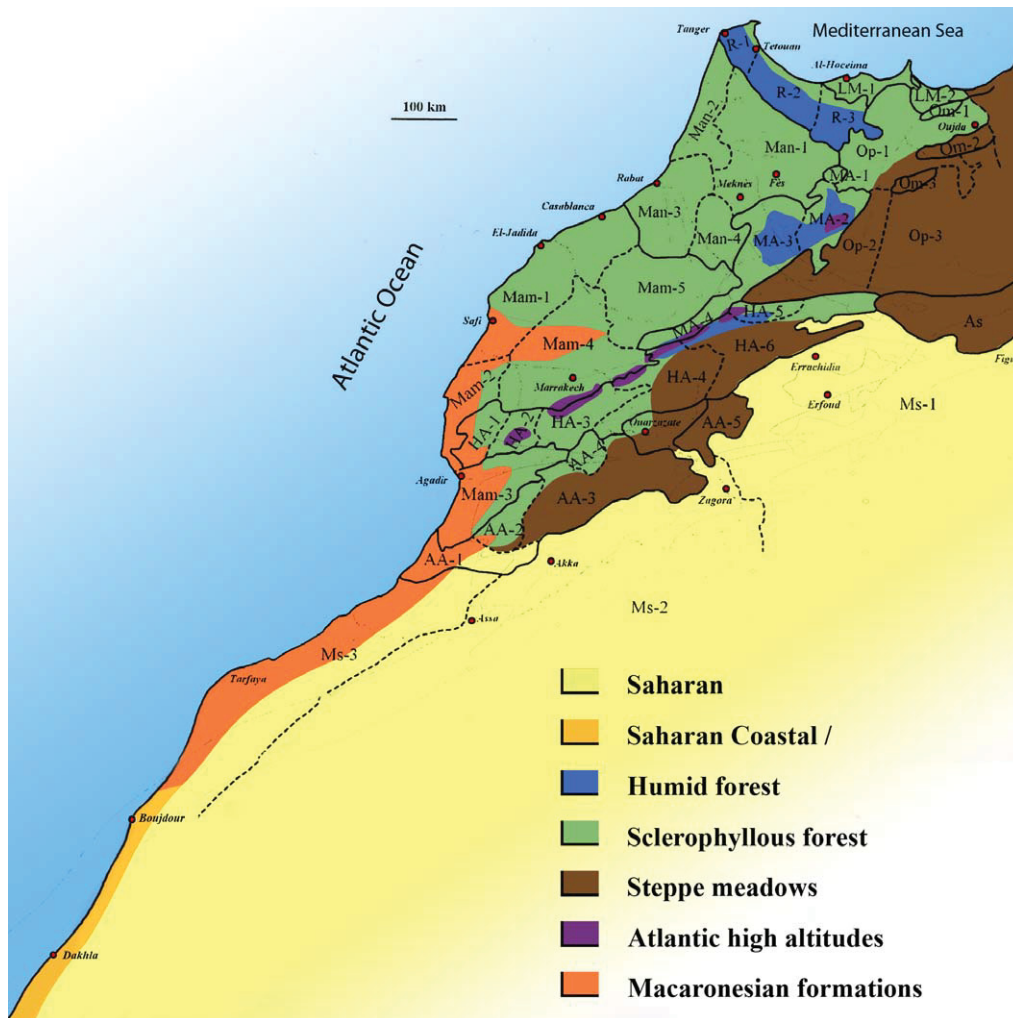


FIGURE 5. *Adenocarpus bacquei* (Saharan Ecoregion; Atlas Saharan and desert area).



MAP 2. Moroccan Ecoregions.

Conclusions

When taxonomic changes and current knowledge of distribution ranges are taken into account the current floristic diversity within the Moroccan borders includes 879 endemic vascular plant species. The majority of these occur in the mountains of the High Atlas, Middle Atlas, Anti Atlas and Rif. This species richness and endemism can be explained by the geographical position, varied topography, geology and its geographical position between Africa and Europe. This has created numerous microclimates and diverse habitats.

This updated checklist is a first approach towards a better understanding of the Moroccan Flora. More studies need to be carried out to assess the actual status of these species. I plan to update this checklist regularly, to compiling distribution maps, IUCN Red Listing of all taxa in the checklist, and advising to take conservation actions to conserve localities where threatened species are found.

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Checklist

Amaranthaceae

Atriplex colerei Maire

Distribution: Mam-3-4

Atriplex malvana Aellen & Sauvage

Distribution: Op

Salsola gemmascens Pall. subsp. *maroccana* Botsch.

Distribution: Ms-3, Ms-2, Op-1

Salsola portilloi Caball.

Distribution: AA-1

Salsola verticillata Schousb.

Distribution: Mam-2-3, Man-1

Traganopsis glomerata Maire & Wilczek

Distribution: Ms-2-3, AA-1

Note: The genus *Traganopsis* is endemic to Morocco.

Amaryllidaceae

Acis tingitana (Baker) Lledó, A.P.Davis & M.B.Crespo

Distribution: R-1-2

Allium altoatlanticum Seregin

Distribution: HA-3 Elevation: 1100 m.

Allium valdecallosum Maire & Weiller

Distribution: HA-6 Elevation: 1400–1600 m.

Hannonia hesperidum Braun-Blanq. & Maire

Distribution: Ms-3, HA-1-2, Mam-2-3-4-5

Note: The genus *Hannonia* is endemic to Morocco.

Narcissus albimarginatus D.Müll.-Doblies & U.Müll.-Doblies

Distribution: R-1-2 Elevation: 1500–1650 m.

Narcissus atlanticus Stern

Distribution: HA-3 Elevation: 1800 m.

Narcissus broussonetii Lag.

Distribution: AA, HA, Mam-1-2-3-4-5, Man-1-3

Narcissus foliosus (Maire) Fern.Casas

Distribution: Man-3

Narcissus hesperidis Fern.Casas

Distribution: HA-4 Elevation: 1000 m.

Narcissus jeanmonodii Fern.Casas

Distribution: AA-4, HA-3 Elevation: 2300–2700 m.

Narcissus romieuxii Braun-Blanq. & Maire subsp. *albidus* (Emb. & Maire) A.Fern.

Distribution: AA-2, Mam, Man

Narcissus romieuxii Braun-Blanq. & Maire subsp. *jacquemoudii* (Fern.Casas) Zonn.

Distribution: HA-3 Elevation: 1460–2700 m.

Narcissus romieuxii Braun-Blanq. & Maire subsp. *romieuxii*

Distribution: AA, HA, MA, Mam-2-3, LM-1, R

Narcissus rupicola (L.) Dufour subsp. *marvieri* (Jahand. & Maire) Maire & Weiller

Distribution: HA, MA-4

Narcissus rupicola (L.) Dufour subsp. *watieri* (Maire) Maire & Weiller

Distribution: HA-3 Elevation: 2400 m.

Narcissus tingitanus Fern.Casas

Distribution: Mam-1, Man-1-4, R-1

Vagaria ollivieri Maire

Distribution: AA-1, Mam-2-3-4

Note: The genus *Vagaria* consist of only two species with a disjunct distribution; one endemic to Morocco, the other endemic to the Levant.

Apiaceae

Bupleurum album Maire

Distribution: AA-3-4-5, HA-3-4-5-6, Op-2

Bupleurum antonii Maire

Distribution: HA-3 Elevation: 2600–3000 m.

Bupleurum atlanticum Murb. subsp. *aiouense* Cauwet & Carb.

Distribution: HA-4-5-6, MA, R-3 Elevation: 1400–2200 m.

Bupleurum atlanticum Murb. subsp. *atlanticum*

Distribution: AA-2, HA-2-3 Elevation: 1500–2800 m.

Bupleurum atlanticum Murb. subsp. *mairei* (Panel. & Vindt) Govaerts

Distribution: HA-4

Bupleurum benoistii Litard. & Maire

Distribution: HA-3-4-5-6, MA-2-3 Elevation: 2350 m.

Bupleurum dumosum Coss. & Balansa
Distribution: Ms3, AA-1-2, HA, Mam-3

Bupleurum faurelii Maire
Distribution: HA-4-6, MA-2-4 Elevation: 1450–2900 m.

Bupleurum lateriflorum Coss.
Distribution: AA-2-4, HA Elevation: 2350–2500 m.

Bupleurum mesatlanticum Litard. & Maire
Distribution: HA, MA-3 Elevation: 1900 m.

Bupleurum subspinosum Maire & Weiller
Distribution: AA-5, HA-4 Elevation: 2200–2800 m.

Carum asinorum Litard. & Maire
Distribution: HA-3 Elevation: 2600 m.

Carum atlanticum Litard. & Maire
Distribution: HA

Carum iminouakense Quézel
Distribution: HA-4 Elevation: 2000 m.

Carum jahandiezii Litard. & Maire
Distribution: MA-3

Carum lacuum Emb.
Distribution: HA-6 Elevation: 2250 m.

Carum proliferum Maire
Distribution: HA-3-4 Elevation: 3100 m.

Chaerophyllum atlanticum Coss. ex Batt.
Distribution: MA-3, HA-3-4

Conopodium bunioides (Boiss.) Calest. subsp. *atlanticum* (Humbert & Maire) Molero ex J.M.Monts.
Distribution: MA-1 Elevation: 1500–1900 m.

Daucus setifolius Desf. subsp. *tangerinus* Sauvage
Distribution: Man-2

Daucus tenuisectus Coss. ex Batt.
Distribution: Man-4, MA-3, HA, AA-2 Elevation: 800 m.

Deverra juncea Ball
Distribution: HA-2-4

Eryngium argyreum Maire

Distribution: Mam, Man, MA-1, R-2

Eryngium atlanticum Batt. & Pit.

Distribution: Ms-1, Mam-3, Man-1-2-3, Op-1, R-3

Eryngium marocanum Pit.

Distribution: MA-3 Elevation: 1400–2000 m.

Eryngium tricuspdatum L. subsp. *subintegrum* (Maire & Weiller) Dobignard

Distribution: MS-3, AA-1-2, HA-2

Eryngium variifolium Coss.

Distribution: HA, AA-4

Ferula atlantica Elalaoui & Cauwet

Distribution: HA-3

Ferula bolivarii Pau

Distribution: R-1

Ferula fontqueri Jury

Distribution: LM-1

Ferula gouliminensis Elalaoui & Cauwet

Distribution: Mam-3, AA-1, Ms-2

Ferula sauvagei Elalaoui & Cauwet

Distribution: HA-3

Foeniculum vulgare Mill. subsp. *subinodorum* (Maire, Weiller & Wilczek) Ibn Tattou

Distribution: AA-3

Heracleum sphondylium L. subsp. *embergeri* Maire

Distribution: HA-4, MA-2 Elevation: 3100–3300 m.

Laserpitium emilianum Emb.

Distribution: HA-4-6 Elevation: 1900–2200 m.

Peucedanum officinale L. subsp. *vogelianum* (Emb. & Maire) Maire

Distribution: HA-3, R-1-2 Elevation: 1800 m.

Sclerosciadium nodiflorum Coss.

Distribution: Ms-3, Mam

Note: This genus is endemic to Morocco.

Stoibrax hanotei (Braun-Blanq. & Maire) B.L.Burt

Distribution: Mam-2-3

Stoibrax involucreatum (Maire) B.L.Burt
Distribution: Ms-2-3, AA, HA, Mam-3-4, Man-3, Man-4

Apocynaceae

Orbea decaisneana (Lem.) Bruyns
Distribution: Ms-3-2, AA, HA, Mam-2-3

Caralluma joannis Maire
Distribution: Mam-3

Asparagaceae

Dipcadi panousei Sauvage & Veilex
Distribution: Ms-2-3

Dracaena draco L. subsp. *ajgal* Benabid & Cuzin
Distribution: AA-1

Drimia aurantiaca (H.Lindb.) J.C.Manning & Goldblatt
Distribution: Ms-2-3, AA, HA, MA, Mam-3-4

Drimia maura (Maire) J.C.Manning & Goldblatt
Distribution: AA, HA, Mam-3

Drimia ollivieri (Maire) Stearn
Distribution: Ms-2-3, AA, HA, MA, Mam-4, LM-2

Drimia tazensis (Batt. & Maire) Stearn
Distribution: AA-1, Ms-2, MA-1, Mam-1-3-4, Man-1-3

Hyacinthoides flahaultiana (Emb.) Dobignard
Distribution: AA, Ms-2-3, HA-4

Ornithogalum gorenflotii (Moret) Speta
Distribution: HA-3

Asteraceae

Achillea maura Humbert
Distribution: R-2, Man-1, LM-1

Aliella ballii (Klatt) Greuter subsp. *ballii*
Distribution: HA, MA-2
Note: The genus *Aliella* is endemic to Morocco.

Aliella ballii (Klatt) Greuter subsp. *nitida* (Emb.) Greuter
Distribution: HA-2

Aliella iminouakensis (Emb.) Dobignard & Jeanm.

Distribution: HA-4

Aliella platyphylla (Maire) Qaiser & Lack

Distribution: HA-3

Anacyclus maroccanus Ball

Distribution: Ms-3, AA, HA, Mam, Man-3

Andryala atlanticola H.Lindb.

Distribution: HA-3

Andryala integrifolia L. subsp. *perennans* Maire & Weiller

Distribution: AA-5

Andryala pinnatifida Aiton subsp. *antonii* (Maire) Dobignard

Distribution: HA-3

Andryala pinnatifida Aiton subsp. *ducellieri* (Batt.) Greuter

Distribution: Mam-1

Andryala pinnatifida Aiton subsp. *maroccana* (Maire) Greuter

Distribution: Man-2-3, Mam-3

Andryala pinnatifida Aiton subsp. *mogadorensis* (Hook.f.) Greuter

Distribution: Mam-1-3

Anthemis abylaea (Font Quer & Maire) Oberpr.

Distribution: R-1

Anthemis gharbensis Oberpr.

Distribution: Man-2-3, R-1

Anthemis maroccana Batt. & Pit. subsp. *maroccana*

Distribution: Ma, Man, R

Anthemis maroccana Batt. & Pit. subsp. *aguilarii* (Maire & Sennen) Oberpr.

Distribution: R-2

Anthemis mauritiana Maire & Sennen subsp. *mauritiana*

Distribution: LM

Anthemis tenuisecta Ball subsp. *tenuisecta*

Distribution: HA, Mam

Anthemis tenuisecta Ball subsp. *jahandiezii* (Maire) Oberpr.

Distribution: Mam-1-2

Anthemis zaianica Oberpr.

Distribution: Man-4 Elevation: 1200–1300 m.

Anvillea platycarpa (Maire) Anderb.

Distribution: Ms-2-3

Artemisia flahaultii Emb. & Maire

Distribution: MA-2

Artemisia huguetii Caball.

Distribution: Ms-2-3, AA, HA, Mam-2-3

Artemisia ifranensis J.Didier

Distribution: HA, MA-1-3

Artemisia mesatlantica Maire

Distribution: AA, HA, MA

Artemisia negrei A.Ouyahya

Distribution: HA-3-4-5-6, MA-2

Aster pujosii Quézel

Distribution: MA-2

Asteriscus imbricatus DC.

Distribution: Ms-2-3, AA-1, Mam-2-3

Bellis caerulescens Ball

Distribution: AA, HA, MA-2

Calendula eckerleinii Ohle

Distribution: MA, LM, R

Calendula lanzae Maire

Distribution: AA, HA

Calendula maroccana (Ball) B.D.Jacks. subsp. *maroccana*

Distribution: All Morocco.

Calendula maroccana (Ball) B.D.Jacks. subsp. *murbeckii* (Lanza) Ohle

Distribution: Ms-2-3, AA, HA, Mam-2-3-4

Calendula meuselii Ohle

Distribution: Man-1

Carduus martinezii Pau subsp. *martinezii*

Distribution: R-1-2, Man-1, LM

Carduus martinezii Pau subsp. *fontqueri* (Pau) Kazmi

Distribution: R-1

Carduus nutans L. subsp. *subacaulis* Arènes

Distribution: As, AA-4, HA, MA, Man, R-2-3

Carduus spachianus Durieu subsp. *atlantis* (Humbert & Maire) Greuter

Distribution: HA-3

Carduus spachianus Durieu subsp. *megalatlanticus* (Maire) Greuter

Distribution: HA-4

Carlina guittonneaui Dobignard

Distribution: HA-3

Carthamus catrouxii (Maire) Greuter

Distribution: HA-4

Carthamus fruticosus Maire

Distribution: AA, HA

Carthamus rhiphaeus Font Quer & Pau

Distribution: Man-1, LM-1, R

Centaurea alibeyana Font Quer & Pau

Distribution: R-2

Centaurea atlantis Maire & Weiller

Distribution: HA-4-6

Centaurea boissieri DC. subsp. *atlantica* (Font Quer) Blanca

Distribution: HA-6, MA, Op-2

Centaurea boissieri DC. subsp. *transmalvana* (Emb. & Maire) Breitw. & Podlech

Distribution: Om-3, LM

Centaurea debdouensis Breitw. & Podlech

Distribution: Om-3 Elevation: 1000–1100 m.

Centaurea ducellieri Batt.

Distribution: Op-1

Centaurea gattefossei Maire

Distribution: AA, HA-4 Elevation: 1700–1900 m.

Centaurea josiae Humbert

Distribution: HA-4-5-6 Elevation: 2000–2900 m.

Centaurea litardierei Jahand. & Maire

Distribution: HA-5, MA Elevation: 2800 m.

Centaurea maireana Emb.

Distribution: MA-2 Elevation: 2000 m.

Centaurea monticola DC. subsp. *orthoacantha* (Pau & Font Quer) Ibn Tattou

Distribution: R-1-2 Elevation: 1500 m.

Centaurea oriolii-bolosii Fern.Casas

Distribution: LM-1

Centaurea resupinata Coss. subsp. *simulans* (Emb. & Maire) Breitw. & Podlech

Distribution: AA-5, HA-6

Centaurea takredensis Maire

Distribution: HA-4 Elevation: 2600–3400 m.

Centaurea theryi Emb. & Maire

Distribution: MA-2

Centaurea xaveri N.Garcia & Susanna

Distribution: R-1-2 Elevation: 1400–1640 m.

Cheirolophus benoistii (Humbert) Holub

Distribution: AA-2, HA-4-5-6, MA-2

Cheirolophus tananicus (Maire) Holub

Distribution: HA-1-2

Cirsium chrysacanthum (Ball) Jahand.

Distribution: AA-4, HA

Cirsium ducellieri Maire

Distribution: MA-3, Man-1 Elevation: 1850 m.

Cirsium dyris Jahand. & Maire

Distribution: AA-4, HA, MA-2 Elevation: 2500–2850 m.

Cirsium maroccanum Petr.

Distribution: Op-1, R-2

Cladanthus eriolepis (Maire) Oberpr. & Vogt

Distribution: Ms, AA, HA-4

Cladanthus flahaultii (Emb.) Oberpr. & Vogt

Distribution: AA-2

Cladanthus scariosus (Ball) Oberpr. & Vogt

Distribution: AA, HA, MA

Crepis balliana Babç.

Distribution: Mam-1

Crepis hookeriana Ball

Distribution: HA, MA-2

Crepis litardierei Emb.

Distribution: HA-4

Crepis vesicaria L. subsp. *proleptica* Babç.

Distribution: MA-3, Mam-1

Cynara baetica (Spreng.) Pau subsp. *maroccana* Wiklund

Distribution: HA, MA, LM, R

Echinops spinosissimus Turra subsp. *chaetocephalus* (Batt.) Sennen & Mauricio

Distribution: Ms-1, Op-1

Endopappus macrocarpus Sch.Bip. subsp. *maroccanus* (Jahand., Maire & Weiller) Ibn Tattou

Distribution: Ms-2-3, AA-1

Erigeron acris L. subsp. *mesatlanticus* (Maire) Maire

Distribution: HA, MA-2, Op

Erigeron celerieri Emb. & Maire

Distribution: MA-2

Filago carpetana (Lange) Chrtek & Holub subsp. *maroccana* (Braun-Blanq. & Maire) Dobignard

Distribution: Mam, Man

Filago longilanata (Maire & Wilczek) Greuter

Distribution: Ms-1

Glossopappus macrotus (Durieu) Briq. subsp. *hesperius* (Maire) Jahand. & Maire

Distribution: HA, MA, Mam, Man, R

Gnaphalium genevoisii Emb.

Distribution: HA-4, MA-2 Elevation: 3100–3400 m.

Helichrysum raynalianum Quézel

Distribution: MA-2 Elevation: 2500–2700 m.

Heliocauta atlantica (Litard. & Maire) Humphries

Distribution: HA, MA-2

Helminthotheca aculeata (Vahl) Lack subsp. *maroccana* (Sauvage) Greuter

Distribution: Mam-1-2, Man-3-4

Hertia maroccana (Batt.) Maire

Distribution: Ms-1-2, As, AA-5, HA-4-5-6, Op

Hieracium amplexicaule L. subsp. *olivicolor* Jahand. & Zahn

Distribution: MA-3

Hieracium phlomoides Froel. subsp. *mesatlanticum* Maire & Zahn

Distribution: MA-2

Hieracium riofrioi Pau & Font Quer

Distribution: R-2

Hieracium solidagineum Fr. subsp. *jahandiezii* Zahn

Distribution: MA-3, R-2

Hieracium sonchoides Arv.-Touv. subsp. *mairei* Zahn

Distribution: HA-4, MA-3

Hieracium viscosum Arv.-Touv. subsp. *africanum* Zahn

Distribution: HA-3, MA-3

Hieracium viscosum Arv.-Touv. subsp. *tarchanum* Jahand. & Zahn

Distribution: MA-3

Hypochaeris angustifolia (Litard. & Maire) Maire

Distribution: Ms-1-2, HA, MA, Mam-4, Op-2

Hypochaeris leontodontoides Ball

Distribution: HA, MA

Inula maletii Maire

Distribution: MA Elevation: 1500 m.

Jacobaea maroccana (P.H.Davis) Pelsler

Distribution: HA-3

Kleinia anteuphorbium (L.) Haw.

Distribution: Ms-2-3, AA, HA, Mam-1-2-3

Lactuca reviersii Litard. & Maire

Distribution: HA-4, MA-2

Lactuca virosa L. subsp. *cornigera* (Pau & Font Quer) Emb. & Maire

Distribution: R-2, Man-1-4, MA-3

Launaea viminea Batt.

Distribution: Op-1-2

Leontodon eriopodus Emb. & Maire

Distribution: Man-1, R-3

Leontodon pitardii Maire

Distribution: HA-3-4-6, MA

Leontodon saxatilis Lam. subsp. *mesorhynchus* (Maire) Maire

Distribution: MA, Man-1

Leontodon saxatilis Lam. subsp. *perennis* (Emb. & Maire) Maire

Distribution: Mam-2-3-4, R-2, R-3

Leucanthemopsis longipectinata (Font Quer) Heywood

Distribution: R-2-3 Elevation: 1800–2450 m.

Mantiscalca amberboides (Caball.) Maire

Distribution: LM-1

Nivellea nivellei (Braun-Blanq. & Maire) B.H. Wilcox, K. Bremer & Humphries

Distribution: HA-4, MA-3-4, Man-4

Note: The genus *Nivellea* is endemic to Morocco.

Onopordum dyris Maire

Distribution: HA-3-4

Onopordum mesatlanticum Emb. & Maire

Distribution: MA-2

Onopordum wallianum Maire

Distribution: Mam-4

Pallenis teknensis (Dobignard & Jacquemoud) Greuter & Jury

Distribution: Ms-3

Pentzia hesperidum Maire & Wilczek

Distribution: Ms-2-3

Perralderia paui Font Quer

Distribution: MA-1-2, Op-1, Om-1, LM, R-2-3

Phagnalon bicolor Ball

Distribution: AA, HA, Mam-3-4

Phagnalon calycinum (Cav.) DC. subsp. *ballsianum* Maire

Distribution: HA-3

Phagnalon calycinum (Cav.) DC. subsp. *calycinum*

Distribution: Mam-1-2-3, HA, MA-1, Man, R

Phagnalon calycinum (Cav.) DC. subsp. *caroli-paui* (Font Quer) Emb. & Maire

Distribution: MA-1, Man, R

Phagnalon calycinum (Cav.) DC. subsp. *spathulatum* (H.Lindb.) Maire

Distribution: Mam-1

Phagnalon latifolium Maire

Distribution: AA-2, HA-3

Ptilostemon abylenis (Maire) Greuter

Distribution: R-1

Ptilostemon dyricola (Maire) Greuter

Distribution: AA-2, HA, MA

Ptilostemon leptophyllus (Pau & Font Quer) Greuter

Distribution: MA-1, Man-1, Op-1, LM-1, R-2-3

Pulicaria glandulosa Caball.

Distribution: AA-1-2

Rhaponticum cossonianum (Ball) Greuter

Distribution: AA-2, HA-1-2, Mam-2

Rhaponticum longifolium (Hoffmanns. & Link) Soskov subsp. *ericetica* (Font Quer) Greuter

Distribution: R-1

Rhodanthemum atlanticum (Ball) B.H.Wilcox, K.Bremer & Humphries subsp. *atlanticum*

Distribution: AA-4, HA

Rhodanthemum atlanticum (Ball) B.H.Wilcox, K.Bremer & Humphries subsp. *gelidum* (Maire) Dobignard

Distribution: HA-3

Rhodanthemum briquetii (Maire) B.H.Wilcox, K.Bremer & Humphries

Distribution: HA-3

Rhodanthemum catananche (Ball) B.H.Wilcox, K.Bremer & Humphries

Distribution: AA, HA, MA

Rhodanthemum depressum (Ball) B.H.Wilcox, K.Bremer & Humphries

Distribution: AA--1-2-3, HA Elevation: 1225 m.

Rhodanthemum gayanum (Coss. & Durieu) B.H.Wilcox, K.Bremer & Humphries subsp. *antiatlanticum*

(Emb. & Maire) Ibn Tattou

Distribution: AA-3-4-5, HA-3

Rhodanthemum gayanum (Coss. & Durieu) B.H. Wilcox, K. Bremer & Humphries subsp. *demnatense* (Murb.) Vogt
Distribution: HA, MA, Mam-2, Man-4, R

Rhodanthemum gayanum (Coss. & Durieu) B.H. Wilcox, K. Bremer & Humphries subsp. *moulouyense* Dobignard
Distribution: Op

Rhodanthemum hosmariense (Ball) B.H. Wilcox, K. Bremer & Humphries
Distribution: R-1

Rhodanthemum ifniense (Font Quer) Ibn Tattou
Distribution: AA-1

Rhodanthemum kesticum F. Góriz
Distribution: AA-2 Elevation: 1700 m.

Rhodanthemum laouense Vogt
Distribution: R-1-2

Rhodanthemum mesatlanticum (Emb. & Maire) B.H. Wilcox, K. Bremer & Humphries
Distribution: HA-6 Elevation: 1700–2400 m.

Rhodanthemum pseudocatananche (Maire) B.H. Wilcox, K. Bremer & Humphries
Distribution: HA-3-4, MA-2 Elevation: 2600 m.

Rhodanthemum redieri (Maire) B.H. Wilcox, K. Bremer & Humphries subsp. *redieri*
Distribution: HA-4-5, MA-2-3

Rhodanthemum redieri (Maire) B.H. Wilcox, K. Bremer & Humphries subsp. *humbertii* Góriz
Distribution: MA

Santolina adscensionis Sennen ex Maire
Distribution: R-3 Elevation: 1200–1300 m.

Scorzonera longifolia (Emb. & Maire) Greuter
Distribution: HA, MA-4, Man

Scorzoneroide atlantica (Ball) Holub
Distribution: AA-4, HA, MA

Scorzoneroide garnironii (Emb. & Maire) Greuter & Talavera
Distribution: AA-1-2

Senecio chatureaui Humbert
Distribution: HA-4-5 Elevation: 3400 m.

Senecio eriopus Willk. subsp. *hosmariensis* (Ball) Blanca
Distribution: R-1

Senecio hesperidum Jahand., Maire & Weiller

Distribution: Mam-3

Senecio kerdousianus Gómiz & Llamas

Distribution: Mam-3

Senecio perralderianus Coss. subsp. *hosmariensis* (Pau & Font Quer) Blanca

Distribution: AA-1

Senecio squalidus L. subsp. *araneosus* (Emb. & Maire) C.Alexander

Distribution: HA-3, R

Sonchus briquetianus Gand.

Distribution: LM

Sonchus fragilis Ball

Distribution: R-1-2

Sonchus maculigerus H.Lindb.

Distribution: HA-3

Sonchus masguindalii Pau & Font Quer

Distribution: LM-1 Elevation: 200 m.

Taraxacum atlanticola H.Lindb. (sect. *Obovata* Soest)

Distribution: HA, R-2

Taraxacum atlantis-majoris H.Lindb. (sect. *Ruderalia* Kirschner *et al.*)

Distribution: HA-3-6

Taraxacum humbertii Maire [sect. *Piesis* (DC.) Kirschner & Štěpánek]

Distribution: HA-4-5 Elevation: 3200–3400 m.

Taraxacum maroccanum H.Lindb. [sect. *Erythrosperma* (H.Lindb.) Dahlst.]

Distribution: AA-4, HA-3

Taraxacum messanense H.Lindb. (sect. *Ruderalia* Kirschner *et al.*)

Distribution: HA-3

Taraxacum pycnodes H.Lindb. (sect. *Obovata* Soest)

Distribution: HA-3 Elevation: 2100 m.

Taraxacum ribii D.P.Petit [sect. *Erythrosperma* (H.Lindb.) Dahlst.]

Distribution: MA-1

Tolpis liouvillei Braun-Blanq. & Maire

Distribution: AA-1, HA, MA, Mam, R-3

Volutaria belouini (Humbert) Maire

Distribution: Ms-1

Volutaria lippii (L.) Maire subsp. *medians* (Maire) Wagenitz

Distribution: Ms, AA, Mam, Man, Op, Om, LM, R

Volutaria maroccana (Barratte & Murb.) Maire

Distribution: HA-3

Boraginaceae

Anchusa undulata L. subsp. *pseudogranatensis* (Braun-Blanq. & Maire) Ouyahya

Distribution: MA, Man, R

Borago trabutii Maire

Distribution: Ms-1, As, AA-1, HA-3

Cynoglossum pitardianum Greuter & Burdet

Distribution: MA-3, Man-1

Cynoglossum watieri (Batt. & Maire) Braun-Blanq. & Maire

Distribution: HA-3, MA-4, Mam-4

Echiochilon simonneau Faurel & Dubuis

Distribution: MS-3

Echium canum Emb. & Maire

Distribution: R-3

Echium humile Desf. subsp. *caespitosum* (Maire) Greuter & Burdet

Distribution: Ms-2, AA, HA

Echium humile Desf. subsp. *nanum* (Coincy) Greuter & Burdet

Distribution: HA-4

Echium petiolatum Barratte & Coincy

Distribution: Ms-2,

AA, HA, Mam

Echium tenue Roth. subsp. *tenue*

Distribution: AA-1, HA-1, Mam, Man, R-1

Echium tenue Roth. subsp. *dumosum* (Coincy) G.Klotz

Distribution: AA, HA, Mam, Man-2-3, R-1

Echium velutinum Coincy subsp. *velutinum*

Distribution: Ms-1, AA, HA, Mam.

Echium velutinum Coincy subsp. *versicolor* (H.Lindb.) Sauvage & Vindt
Distribution: HA-3-4, Mam-4

Echium velutinum Coincy subsp. *vilmorinianum* (Sauvage & Vindt) G.Klotz
Distribution: Ms-1, HA

Glandora moroccana (I.M.Johnst.) D.C.Thomas
Distribution: Op-1, OM, LM-2, R

Heliotropium antiatlanticum Emb.
Distribution: Ms-2

Myosotis atlantica Vestergr.
Distribution: AA, HA, MA

Brassicaceae

Alyssum antiatlanticum Emb. & Maire
Distribution: AA, HA

Alyssum embergeri Quézel
Distribution: HA-5 Elevation: 2900 m.

Alyssum flahaultianum Emb.
Distribution: HA-2 Elevation: 3650 m.

Alyssum speciosum Pomel
Distribution: R-2

Arabis conringioides Ball
Distribution: AA, HA

Arabis erubescens Ball
Distribution: HA

Arabis humbertii Quézel
Distribution: HA-4-5-6

Arabis josiae Jahand. & Maire
Distribution: HA, MA, R, Man-1

Arabis pubescens (Desf.) Poir. subsp. *decumbens* Ball
Distribution: HA, MA, R-2

Arabis pubescens (Desf.) Poir. subsp. *leucanthemifolia* (Pau & Font Quer) Maire
Distribution: R-2

Arabis verdieri Quézel
Distribution: HA-4

Arabis wernerii Emb. & Maire

Distribution: AA

Brassica desnottesii Emb. & Maire

Distribution: Om-3

Brassica elongata Ehrh. subsp. *subscaposa* (Maire & Weiller) Maire

Distribution: Op

Brassica repanda (Willd.) DC. subsp. *silenifolia* (Emb.) Greuter & Burdet

Distribution: HA, MA

Ceratocnemum rapistroides Coss. & Balansa

Distribution: AA, HA, MA, Mam-3-4

Crambella teretifolia (Batt. & Trab.) Maire

Distribution: Op, Om-1, LM-2

Note: The genus *Crambella* is endemic to Morocco.

Diplotaxis assurgens (Delile) Thell. subsp. *assurgens*

Distribution: MA-4, Mam-4

Diplotaxis assurgens (Delile) Thell. subsp. *tetragona* (Maire) Nègre

Distribution: Mam-4

Diplotaxis berthautii Braun-Blanq & Maire

Distribution: Ms-2, AA-3, Mam-4, Man-4

Diplotaxis ollivieri Maire

Distribution: Ms-3, Mam-4

Draba hederifolia Coss.

Distribution: HA, MA-2

Draba oreadum Maire subsp. *oreadum*

Distribution: HA, MA

Draba oreadum Maire subsp. *mariae-aliciae* Maire

Distribution: HA-5 Elevation: 3600 m.

Erucaria ollivieri Maire

Distribution: MS-3, AA-1

Erucastrum brevirostre (Maire) Gómez-Campo

Distribution: MA-3, Mam-4, Man, Op-1, LM-1

Erucastrum elatum (Ball) O.E.Schulz

Distribution: AA, HA, MA, Mam-2-3

Erucastrum ifniense Gómez-Campo

Distribution: AA-1, Mam-3

Erucastrum littoreum (Pau & Font Quer) Maire subsp. *littoreum*

Distribution: Man-1-4, LM-1, MA, R

Erucastrum littoreum (Pau & Font Quer) Maire subsp. *brachycarpum* (Maire & Weiller) Gómez-Campo,

Distribution: Man-1

Erucastrum littoreum (Pau & Font Quer) Maire subsp. *glabrum* (Maire) Gómez-Campo

Distribution: MA-3, Man-4

Erucastrum rifanum (Emb. & Maire) Gómez-Campo

Distribution: HA-6, MA, R

Erucastrum varium (Durieu) Durieu subsp. *mesatlanticum* Maire & Wilczek

Distribution: MA-3 Elevation: 1600 m.

Erysimum wilczekianum Braun-Blanq. & Maire

Distribution: MA-3

Fezia pterocarpa Pit. ex Batt.

Distribution: Man-1, R-3, Op-1

Note: The genus *Fezia* is endemic to Morocco.

Hemicrambe fruticulosa Webb

Distribution: R-1

Hornungia alpina (L.) O.Appel subsp. *fontqueri* (Sauvage) O.Appel

Distribution: R-2

Iberis contracta Pers. subsp. *rifana* (Emb. & Maire) Valdés

Distribution: R-2-3

Iberis grosmiquellii Pau & Font Quer

Distribution: R

Iberis lagascana DC. subsp. *ghomarensis* J.M.Monts.

Distribution: R

Lepidium alluaudii Maire

Distribution: Ms-1, AA Elevation: 1620 m.

Lepidium heterophyllum Benth. subsp. *rifanum* (Emb. & Maire) J.M.Monts.

Distribution: R

Lepidium hirtum (L.) Sm. subsp. *afrum* (Pau & Font Quer) J.M.Monts.

Distribution: R

Matthiola longipetala (Vent.) DC. subsp. *viridis* (P.Conti) Maire
Distribution: Ms-2, AA, Mam-3

Matthiola masguindalii Pau
Distribution: R-1

Matthiola scapifera Humbert
Distribution: HA, MA-2

Nasturtium africanum Braun-Blanq.
Distribution: MA, Man

Raffenaldia platycarpa (Coss.) Stapf
Distribution: HA
Note: The genus *Raffenaldia* is endemic to Morocco

Raffenaldia primuloides Godr.
Distribution: HA

Roripella atlantica (Ball) Greuter & Burdet
Distribution: AA, HA
Note: The genus *Roripella* is endemic to Morocco.

Rorippa hayanica Maire
Distribution: MA-3

Rytidocarpus moricandioides Coss.
Distribution: Man-1
Note: The genus *Rytidocarpus* is endemic to Morocco.

Sisymbrium maurum Maire
Distribution: HA-6, MA-3 Elevation: 1850 m.

Trachystoma aphanoneurum (Maire & Weiller) Maire & Weiller
Distribution: Mam, Man
Note: The genus *Trachystoma* is endemic to Morocco.

Trachystoma ballii O.E.Schulz
Distribution: AA, HA, Mam-4

Trachystoma labasii Maire
Distribution: MA-4, Mam-4

Vella anremerica (Litard. & Maire) Gómez-Campo
Distribution: HA-6 Elevation: 2700 m.

Vella mairei Humbert
Distribution: HA, MA-2

Campanulaceae

Campanula afra Cav. subsp. *hypocrateriformis* (Dobignard) Fennane
Distribution: AA-1, Ms-3

Campanula antiatlantica Maire, Weiller & Wilczek
Distribution: AA-2

Campanula atlantis Gattefossé, Maire & Weiller
Distribution: HA-4 Elevation: 3000 m.

Campanula embergeri Litard. & Maire subsp. *embergeri*
Distribution: AA, HA-2-3

Campanula embergeri Litard. & Maire subsp. *schotteri* Quézel
Distribution: AA, HA

Campanula guinochetii Quézel
Distribution: HA-4-5

Campanula mairei Maire
Distribution: HA

Campanula sauvagei Quézel
Distribution: HA-4

Campanula serhouchenensis Dobignard
Distribution: HA-6

Campanula vaillantii Quézel
Distribution: HA-6 Elevation: 1560 m.

Feeria angustifolia (Schousb.) Buser ?
Distribution: HA, MA, Mam-4-5, Man, Op-1, LM, R
Note: The genus *Feeria* is endemic to Morocco.

Jasione montana L. subsp. *cornuta* (Ball) Greuter & Burdet
Distribution: AA, HA, MA, Mam, Man, R

Caprifoliaceae

Centranthus lecoqii Jord. subsp. *maroccanus* (Rouy) I. Richardson
Distribution: HA-3

Cephalaria leucantha (L.) Roem. & Schult. var. *fragosoana* (Pau) Maire
Distribution: R

Cephalaria mauritanica Pomel subsp. *maroccana* (Batt.) Maire
Distribution: HA, MA-3

Cephalaria mauritanica Pomel subsp. *rifana* Maire
Distribution: R-2

Fedia pallescens (Maire) Mathez subsp. *pallescens*
Distribution: AA-1, MA-1-3, Mam-1-2-3, Man

Fedia pallescens (Maire) Mathez subsp. *hirsuta* (Emb. & Maire) Mathez & Xena
Distribution: AA-1-2, MA-3-4, Mam-4-5, Man

Pterocephalus depressus Coss. & Balansa
Distribution: AA, HA

Pterocephalus kunkelianus Peris, Romo & Stübing
Distribution: R-3

Caryophyllaceae

Arenaria cerastioides Poir. subsp. *saxigena* (Humbert & Maire) Maire
Distribution: HA-4, MA, Mam-5, Op-1, R-3

Arenaria dyris Humbert
Distribution: HA

Arenaria emarginata Brot. subsp. *salzmannii* (Willk.) Maire
Distribution: R-1

Arenaria grandiflora L. subsp. *gomarica* L.Sáez, J.M.Monts. & Rosseló
Distribution: R-2

Arenaria mairei Emb.
Distribution: HA-4

Arenaria olloixii Jahand., Maire & Weiller
Distribution: Mam-2

Arenaria pungens Lag. subsp. *boissieri* Emb.
Distribution: HA, MA

Arenaria pungens Lag. subsp. *parviflora* Quézel
Distribution: HA

Bufonia duvaljouvei Batt. & Trab. subsp. *gottelandii* (Emb.) Maire
Distribution: HA-4, MA-3

Bufoia murbeckii Emb.

Distribution: HA-4-6

Dianthus cintranus Boiss. & Reut. subsp. *occidentalis* (Quézel) Mathez

Distribution: HA-2

Dianthus cintranus Boiss. & Reut. subsp. *atrosanguineus* (Emb. & Maire) Greuter & Burdet

Distribution: MA-2, Man-1

Dianthus cintranus Boiss. & Reut. subsp. *mentagensis* (Maire) Greuter & Burdet

Distribution: HA-2

Dianthus sylvestris Wulfen subsp. *longibracteatus* (Maire) Greuter & Burdet

Distribution: MA-3, Mam-1-2, Man, Om-1, LM, R-3

Herniaria boissieri J.Gay subsp. *maroccana* (Font Quer) Chaudhri

Distribution: R-2

Herniaria regnieri Braun-Blanq. & Maire subsp. *glaberrima* (Emb.) Ibn Tattou

Distribution: AA-4

Herniaria rhiphaea Font Quer

Distribution: R, MA-3

Loeflingia hispanica L. subsp. *vaucheri* (Briq.) Maire & Weiller

Distribution: Man, R-1

Minuartia mairei Quézel

Distribution: MA-2

Minuartia tenuissima (Pomel) Mattf. subsp. *harantii* (Quézel) Mathez

Distribution: HA-4

Paronychia capitata (L.) Lam. subsp. *atlantica* (Ball) Chaudhri

Distribution: AA-2, HA-3

Paronychia maroccana Chaudhri

Distribution: R

Paronychia velata (Maire) Chaudhri

Distribution: MA-3, Om-1

Petrorhagia rhiphaea (Pau & Font Quer) P.W.Ball & Heywood

Distribution: AA-2, HA-2, R-2

Polycarpon sauvagei Mathez

Distribution: Man-4

Rhodalsine senneniana (Maire & Mauricio) Greuter & Burdet

Distribution: LM-1

Scleranthus perennis L. subsp. *atlanticus* (Maire) Maire

Distribution: HA

Silene abietum Font Quer & Maire

Distribution: R-2

Silene ayachica Humbert

Distribution: HA-4-5, MA-2

Silene barbarea Humbert & Maire

Distribution: MA-1

Silene corrugata Ball

Distribution: AA, HA, MA, Mam, Mam

Silene cuatrecasasii Pau & Font Quer

Distribution: MA-1, R

Silene dissecta Litard. & Maire

Distribution: HA-3

Silene dyris Maire

Distribution: HA-5, MA

Silene filipetala Litard. & Maire subsp. *filipetala*

Distribution: Ms-2, AA, HA

Silene filipetala Litard. & Maire subsp. *parviflora* Quézel

Distribution: HA-4

Silene glabrescens Coss.

Distribution: AA-1, HA-1, Mam, Man-2-3

Silene guinetii Quézel

Distribution: HA-5-6

Silene heterodonta F.N.Williams subsp. *heterodonta*

Distribution: AA, HA, MA

Silene heterodonta F.N.Williams subsp. *platycalyx* (Emb. & Maire) Maire

Distribution: AA, HA-6, MA-2

Silene heterodonta F.N.Williams subsp. *rosella* (Maire) Maire

Distribution: MA-3

Silene ibosii Emb. & Maire
Distribution: Man-1, Op-1, LM, R

Silene lagrangei (Coss.) Greuter & Burdet
Distribution: R-1

Silene martyi Emb. & Maire
Distribution: Man-1, R

Silene maurorum Batt. & Pit.
Distribution: MA-3

Silene mekinensis Coss.
Distribution: MA, Man-1

Silene mentagensis Coss.
Distribution: AA, HA, MA, Man-4

Silene mesatlantica Maire
Distribution: HA, MA

Silene portensis L. subsp. *maura* Emb. & Maire
Distribution: MA, Man

Silene rhiphaena Pau & Font Quer
Distribution: LM-2

Silene rosulata Soy.-Will. & Godr. subsp. *reeseana* (Maire) Jeanm.
Distribution: Mam-2, Man-3, R-1

Silene secundiflora Oth. subsp. *macrotheca* (Braun-Blanq. & Maire) Greuter & Burdet
Distribution: MA, Man-1

Silene vidaliana Pau & Font Quer
Distribution: R-2

Silene virescens Coss.
Distribution: AA, HA, MA, Mam-4

Silene volubilitana Braun-Blanq. & Maire
Distribution: MA, Mam-4, Man, R

Spergularia embergeri P.Monnier
Distribution: LM

Spergularia microsperma (Kindb.) Vved. subsp. *oreophila* (Litard. & Maire) P.Monnier
Distribution: HA-3, MA

Spergularia pitardiana Pit.

Distribution: Man

Cistaceae

Cistus creticus L. subsp. *trabutii* (Maire) Dobignard

Distribution: AA-2 Elevation: 2150 m.

Fumana fontqueri Güemes

Distribution: R

Halimium antiatlanticum Maire & Wilczek

Distribution: AA-2

Halimium atlanticum Humbert & Maire

Distribution: MA-1, R

Halimium atriplicifolium Spach subsp. *macrocalycinum* (Pau) Greuter & Burdet

Distribution: Man-1, R

Halimium halimifolium (L.) Willk. subsp. *riphaeum* (Pau & Font Quer) Maire

Distribution: R

Helianthemum grosii Pau & Font Quer

Distribution: LM-1

Helianthemum pergamaceum Pomel subsp. *camillei* Raynaud

Distribution: As, HA-5, MA-3

Helianthemum sauvagei Raynaud

Distribution: AA-1, Mam-3, HA-1

Convolvulaceae

Convolvulus gharbensis Batt. & Pit.

Distribution: Mam-1-4, Man, Op-1, R-1-2

Convolvulus glaouorum Braun-Blanq. & Maire

Distribution: HA-4, Mam-4

Convolvulus leucochnous Benoist

Distribution: HA, MA-3, Mam-4-5, R-2

Convolvulus mazicum Emb. & Maire

Distribution: HA, MA, R

Convolvulus pitardii Batt.

Distribution: HA, MA-3, Mam-2-4, Man-2-3, Op, Om, R

Convolvulus vidalii Pau

Distribution: R-2

Crassulaceae

Kalanchoë laciniata (L.) DC. subsp. *faustii* (Font Quer) Maire

Distribution: Ms-2-3, AA-1

Mucizonia hispida DC. ex Batt. & Trab. subsp. *abylaea* (Font Quer & Maire) Greuter

Distribution: R-1

Pistorinia attenuata Greuter subsp. *attenuata*

Distribution: HA, MA-3

Pistorinia attenuata Greuter subsp. *mairei* (H.Lindb.) Greuter

Distribution: HA, MA

Pistorinia brachyantha Coss.

Distribution: AA, Mam, Man-1

Sedum dasyphyllum L. subsp. *oblongifolium* (Ball) Maire

Distribution: HA, R

Sedum gattefossei Batt. & Jahand.

Distribution: Mam-4

Sedum hirsutum All. subsp. *wilczekianum* (Font Quer) Maire

Distribution: Man-1, LM, R

Sedum jaccardianum Maire & Wilczek

Distribution: HA-5, MA

Sedum jahandiezii Batt. subsp. *jahandiezii*

Distribution: AA-2, MA, Mam-4, Man

Sedum jahandiezii Batt. subsp. *persicinum* Maire & Sam.

Distribution: Man-3, AA-2, MA, Mam-4.

Sedum maurum Humbert & Maire

Distribution: MA-1

Sedum modestum Ball

Distribution: AA, HA, MA, Mam, Man

Sedum surculosum Coss.

Distribution: AA-4, HA

Sedum versicolor (Raym.-Hamet) Maire

Distribution: Ms-3, AA-1, Mam-4, R-1

Sempervivum tectorum L. subsp. *atlanticum* Ball

Distribution: HA-2-3

Cyperaceae

Carex atlasica (H.Lindb) Ibn Tattou

Distribution: AA-4, HA-3

Carex diluta M.Bieb. subsp. *fissirostris* (Ball) Maire & Weiller

Distribution: HA-3, R-2

Carex paulovargasii Luceño & Marín

Distribution: MA-1, Man-1, R

Euphorbiaceae

Euphorbia celerieri (Emb.) Vindt

Distribution: MA-2

Euphorbia clementei Boiss. subsp. *fauriei* (Maire) Vicens Molero & C.Blanché

Distribution: Om-1

Euphorbia mazicum Emb. & Maire

Distribution: MA-2

Euphorbia megalatlantica Ball

Distribution: Ms-1-2, HA, MA

Euphorbia nereidum Jahand. & Maire

Distribution: MA-4, Mam-5

Euphorbia resinifera O.Berg, Berg & Schmidt

Distribution: AA, HA, MA, Mam-3-4

Euphorbia rimarum Coss. & Balansa

Distribution: HA-1-2-3, MA-3, Mam

Fabaceae

Adenocarpus anagyriifolius Coss. & Balansa

Distribution: AA, HA, MA

Adenocarpus artemisiifolius Jahand., Maire & Weiller

Distribution: HA-1

Adenocarpus bacquei Batt. & Pit.

Distribution: Ms-1, As, AA-5, HA-4-5, MA-2, Op.

Adenocarpus boudyi Batt. & Maire

Distribution: MA-3

Adenocarpus cincinnatus (Ball) Maire

Distribution: Ms-2-3, AA, HA, Mam-2-3

Adenocarpus complicatus (L.) Gay subsp. *nainii* (Maire) P.E.Gibbs

Distribution: MA, Man-1-4

Adenocarpus complicatus (L.) Gay subsp. *bracteatus* (Font Quer & Pau) Talavera & P.E.Gibbs

Distribution: Man-1, R

Anthyllis vulneraria L. subsp. *fatmae* Font Quer

Distribution: R-2

Anthyllis vulneraria L. subsp. *fruticans* Emb.

Distribution: MA-4

Anthyllis warnieri Emb.

Distribution: HA-3

Argyrocytisus battandieri (Maire) Raynaud

Distribution: MA-1-3, R-2

Note: The genus *Argyrocytisus* is endemic to Morocco

Argyrolobium microphyllum Ball

Distribution: Ms-3, AA, HA, Mam-2-3

Argyrolobium zanonii (Turra) P.W.Ball subsp. *fallax* (Ball) Greuter

Distribution: AA-2, HA, MA, Man-1

Astragalus aberrans Förther & Podlech

Distribution: HA-4 Elevation: 2900 m.

Astragalus depressus L. subsp. *atlantis* Maire

Distribution: HA-3

Astragalus froedinii Murb.

Distribution: HA

Astragalus ibrahimianus Maire

Distribution: AA-4, HA, MA-2

Astragalus maireanus Greuter & Burdet

Distribution: HA-4-5, MA-3

Astragalus maroccanus Braun-Blanq. & Maire

Distribution: HA, Mam-4

Astragalus maurus (Humbert & Maire) Pau

Distribution: HA-5, MA, R-2-3

Astragalus mesatlanticus Andr.

Distribution: MA-3

Astragalus meuselii Romo

Distribution: R

Astragalus reesei Maire

Distribution: Ms-1, Op

Astragalus reinii Ball subsp. *reinii*

Distribution: HA

Astragalus schizotropis Murb.

Distribution: Mam

Astragalus tetuanensis Podlech

Distribution: R-2

Astragalus turolensis Pau subsp. *exsul* (Font Quer) Maire

Distribution: MA

Chamaecytisus mollis (Cav.) Greuter & Burdet

Distribution: Ms-3, AA, HA, Mam, Man-2-3

Cicer atlanticum Maire

Distribution: HA

Coronilla ramosissima (Ball) Ball

Distribution: AA, HA, Mam-2-3

Coronilla viminalis Salisb.

Distribution: Ms-3, AA, HA, MA, Mam, Man, Op-2, R Elevation: 1800 m.

Cytisopsis ahmedii (Batt. & Pit.) Lassen

Distribution: As

Cytisus arboreus (Desf.) DC. subsp. *transiens* Maire

Distribution: MA-3-4

Cytisus fontanesii Spach ex Ball subsp. *incanus* (Maire) Tahiri

Distribution: Op

- Cytisus grandiflorus* DC. subsp. *barbarus* (Jahand. & Maire) Maire
Distribution: HA, MA, Man-1-4, R-2
- Cytisus grandiflorus* DC. subsp. *haplophyllus* (Maire & Sennen) Maire
Distribution: R-2, LM-1
- Cytisus maurus* Humbert & Maire
Distribution: MA, LM-1, R-2
- Cytisus pulvinatus* Quézel
Distribution: HA-6
- Genista carpetana* Lange subsp. *nociva* (Pau & Font Quer) C.Vicioso & M.Lainz
Distribution: R-2
- Genista cephalantha* Spach subsp. *demnatensis* (Murb.) Raynaud
Distribution: HA, Om, R
- Genista clavata* Poir.
Distribution: Man-1-2-3, R
- Genista ifniensis* Caball.
Distribution: Ms-2-3, AA, HA, Mam-2-3
- Genista osmariensis* Coss.
Distribution: R-1, R-2
- Genista scorpius* (L.) DC. subsp. *intermedia* Emb. & Maire
Distribution: MA-2
- Genista scorpius* (L.) DC. subsp. *myriantha* (Ball) Maire
Distribution: Ms, AA, HA, MA-4, Op-2
- Genista segonnei* (Maire) P.E.Gibbs
Distribution: AA-1-2
- Genista tournefortii* Spach subsp. *jahandiezii* (Batt.) Talavera & P.E.Gibbs
Distribution: MA, R
- Hedysarum argyreum* Greuter & Burdet
Distribution: Ms-3
- Hedysarum membranaceum* Coss. & Balansa
Distribution: AA, HA, Mam-3-4
- Hesperolaburnum platycarpum* (Maire) Maire
Distribution: AA, Mam-2-3
Note: The genus *Hesperolaburnum* is endemic to Morocco.

Hippocrepis liouvillei Maire subsp. *liouvillei*

Distribution: HA, MA

Hippocrepis liouvillei Maire subsp. *acutiflora* Emb.

Distribution: HA-2

Hippocrepis neglecta Lassen

Distribution: HA, MA, Mam, Man

Hippocrepis salzmannii Boiss & Reuter subsp. *maura* (Braun-Blanq. & Maire) Maire

Distribution: Mam-2-3, Man-2-3, R-1

Lathyrus fissus Ball

Distribution: HA-2, Mam-4

Lathyrus zalaghensis Andr.

Distribution: Man-1, LM, R

Lotononis bullonii Emb. & Maire

Distribution: Man-1, R

Lotononis maroccana Ball

Distribution: AA, HA, MA, Mam

Lotononis tapetiformis Emb. & Maire

Distribution: HA-5

Lotus assakensis Brand

Distribution: Ms-3, Mam-2-3

Lotus benoistii (Maire) Lassen

Distribution: Mam-1, Man-2-3

Lotus eriosolen (Maire) Mader & Podlech

Distribution: AA, HA, Op-2

Lotus maroccanus Ball

Distribution: AA, HA, Mam, Man

Lotus pseudocreticus Maire, Weiller & Wilczek

Distribution: AA, Mam-2-3

Lotus simoneae Maire, Weiller & Wilczek

Distribution: Ms-2, AA

Lotus weilleri Maire

Distribution: Man-2-4-3

Lupinus atlanticus Gladst.

Distribution: unknown

Medicago sauvagei Nègre

Distribution: Mam-1-5, Man-3

Onobrychis cadevallii Jahand., Maire & Pau

Distribution: MA-3

Onobrychis humilis (Loefl.) G.Lopez subsp. *jahandiezii* (Sirj.) Greuter & Burdet

Distribution: AA-2-3, HA-3, MA, Mam-1, Man, R

Ononis alopecuroides L. subsp. *simulata* (Pau & Font Quer) Maire

Distribution: R

Ononis atlantica Ball

Distribution: HA

Ononis cephalantha Pomel subsp. *pseudocephalantha* (Emb. & Maire) Maire

Distribution: MA, Man-1, Om-1, R

Ononis cristata Mill. subsp. *ayachica* Dobignard, Jacquemoud & Jeanm.

Distribution: HA-5

Ononis cuatrecasarii Devesa

Distribution: Man

Ononis gineslopezii Devesa

Distribution: LM-1

Ononis jahandiezii Maire & Weiller

Distribution: Man-1

Ononis maweana Ball

Distribution: Man, R-1

Ononis mogadorensis Förther & Podlech

Distribution: AA-1, HA-1, Mam-1-2-3, Man-3

Ononis natrix L. subsp. *arganietorum* (Maire) Sirj.

Distribution: Ms-2, AA-5, HA, MA-1, Mam-2, LM, R

Ononis natrix L. subsp. *prostrata* (Braun-Blanq. & Wilczek) Sirj.

Distribution: Ms-1, AA, HA, MA, Mam-3, R-3

Ononis paralias Förther & Podlech

Distribution: LM

Ononis pedicellaris (Batt.) Sirj.

Distribution: MA-1, Man, R-1

Ononis pendula Desf. subsp. *broussonetii* (DC.) Emb. & Maire

Distribution: MS-3, AA-1, HA

Ononis penduliflora Pau

Distribution: Man-3

Ononis peyerimhoffii Batt.

Distribution: AA, Op

Ononis polyphylla Ball

Distribution: HA-3-4, MA-4, Man

Ononis polysperma Barratte & Murb.

Distribution: Ms-2, AA, HA, Mam-4

Ononis pseudoserotina Batt. & Pit.

Distribution: HA, MA, Man-3

Ononis thomsonii Ball ex Olivier subsp. *semiglabra* (Maire) Dobignard

Distribution: HA-6

Ononis thomsonii Ball ex Oliver subsp. *thomsonii*

Distribution: AA-5, HA, Ma, Man-1, R-1-2

Ononis zygantha Maire & Wilczek

Distribution: Ms

Ornithopus uncinatus Maire & Sam.

Distribution: HA-3, MA-1

Retama dasycarpa Coss.

Distribution: AA, HA

Trifolium acutiflorum Murb.

Distribution: Mam-4

Trifolium gibbosum Nègre

Distribution: HA-4, MA-3

Trifolium miegeanum Maire

Distribution: MA-3, Man-2-3

Vachellia gummifera (Willd.) Kyal. & Boatwr., ined.

Distribution: Ms-2-3, AA, HA, Mam, Man-2-3

Vicia benghalensis L. var. *simulans* (Maire) Hormay

Distribution: Man-3

Vicia cedretorum Font Quer

Distribution: R-2

Vicia delmasii Emb. & Maire

Distribution: R-2

Vicia fairchildiana Maire

Distribution: Man-1

Vicia lecomtei Humbert & Maire subsp. *embergeri* (Font Quer & Maire) Maire

Distribution: R-2, HA

Vicia lecomtei Humbert & Maire subsp. *lecomtei*

Distribution: HA, MA, Om-1, R-2

Vicia murbeckii Maire

Distribution: AA, HA, Mam-2

Vicia raynaudii Coulot & Dobignard

Distribution: HA-3, MA-3

Vicia suberviformis Maire

Distribution: AA, HA, Mam, Man, R

Frankeniaceae

Frankenia laevis L. subsp. *velutina* (DC.) Maire

Distribution: Mam, Man-2-3

Gentianaceae

Centaurium barrelieroides Pau

Distribution: LM-1

Centaurium erythraea Rafn subsp. *bernardii* (Maire & Sauvage) Greuter

Distribution: Man-3

Centaurium erythraea Rafn subsp. *bifrons* (Pau) Greuter

Distribution: R

Centaurium pulchellum (Sw.) Druce subsp. *grandiflorum* (Batt.) Maire

Distribution: Ms-3, AA, HA, Mam-3, Man-2-3, Om-1, LM, R

Gentiana atlantica Litard. & Maire

Distribution: HA

Gentiana penetii (Litard. & Maire) Romo

Distribution: HA

Gentiana tornezyana Litard. & Maire

Distribution: HA-3 Elevation: 2500–3200 m.

Geraniaceae

Erodium atlanticum Coss.

Distribution: HA-2

Erodium cossonii Guitt. & Mathez

Distribution: HA

Erodium jahandiezianum Emb., Maire & Weiller

Distribution: AA-2, HA-4

Erodium malacoides (L.) L'Hér. subsp. *brevirostre* (Maire & Sam.) Guitt.

Distribution: MS, HA-3-4,

Erodium sebaceum Delile

Distribution: MA, Man-4, Op-1

Geranium nanum Coss., Battandier & Trabut

Distribution: HA, MA

Hypericaceae

Hypericum andjerinum Font Quer & Pau

Distribution: R-1

Hypericum ericoides L. subsp. *maroccanum* Maire & Wilczek

Distribution: Om-3

Hypericum hircinum L. subsp. *metroi* (Maire & Sauvage) Sauvage

Distribution: MA-1

Iridaceae

Iris rutherfordii J.Mart.Rodr., P.Vargas, Carine & Jury

Distribution: LM-1

Romulea antiatlantica Maire

Distribution: AA-4 Elevation: 2500 m.

Romulea bifrons Pau

Distribution: Mam-1, Man-2-3, R-1

Romulea engleri Bég.

Distribution: Mam-1, Man-2-3, R-1

Romulea maroccana Bég.

Distribution: R-1, MA-4

Romulea villaretii Dobignard

Distribution: AA-2 Elevation: 1600 m.

Juncaceae

Juncus maroccanus Kirschner

Distribution: Man

Luzula atlantica Braun.-Blanq subsp. *atlantica*

Distribution: AA-2, HA-3 Elevation: 1800 m.

Lamiaceae

Clinopodium atlanticum (Ball) N.Galland

Distribution: AA, HA, MA

Dracocephalum renatii Emb.

Distribution: HA-4-6, MA-2

Lavandula mairei Humbert

Distribution: Ms-1-2, AA, HA

Lavandula maroccana Murb.

Distribution: AA, HA, Mam-2-3

Lavandula pedunculata (Mill.) Cav. subsp. *atlantica* (Braun-Blanq.) Romo

Distribution: AA, HA, MA, Man, R

Lavandula rejdalii Upson & Jury

Distribution: AA

Lavandula tenuisecta Coss. ex Ball

Distribution: Ms-1, AA, HA, MA, Mam, Op

Marrubium atlanticum Batt.

Distribution: Op-2

Marrubium ayardii Maire

Distribution: HA, MA

Marrubium echinatum Ball

Distribution: HA, MA, Man, R-2

Marrubium fontianum Maire

Distribution: R-2

Marrubium heterocladum Emb. & Maire

Distribution: R

Marrubium litardierei Marmey

Distribution: AA, HA

Marrubium multibracteatum Humbert & Maire

Distribution: HA, MA

Marrubium wernerii Maire

Distribution: AA-4

Mentha gattefossei Maire

Distribution: Ms-1, AA, HA, MA

Mentha suaveolens Ehrh. subsp. *timija* (Coss. ex Briq.) Harley

Distribution: HA

Micromeria arganietorum (Emb.) R.Morales

Distribution: AA

Micromeria brivesii Batt.

Distribution: HA-3

Micromeria macrosiphon Coss.

Distribution: AA, HA, Mam-2-3

Micromeria monantha (Font Quer) R.Morales

Distribution: Ms-3, AA-1

Micromeria peltieri (Maire) R.Morales

Distribution: Mam-5

Micromeria weilleri (Maire) R.Morales

Distribution: Man-4

Nepeta atlantica Ball

Distribution: AA, HA, MA

Nepeta barbara Maire

Distribution: HA

Nepeta hispanica Boiss. & Reut. subsp. *statice* Maire

Distribution: HA, MA-3

Nepeta nepetoides (Batt. ex Pit.) Harley

Distribution: MA-2-3, Op-2, Om-1

Nepeta stachyoides Coss. ex Batt.

Distribution: AA, HA, Op

Origanum elongatum (Bonnet) Emb. & Maire

Distribution: MA, Op-1, LM, R

Phlomis antiatlantica J.P.Peltier

Distribution: AA

Phlomis bovei Noë subsp. *maroccana* Maire

Distribution: MA

Salvia blancoana Webb & Heldr. subsp. *amethystea* (Emb. & Maire) Figuerola

Distribution: HA

Salvia blancoana Webb & Heldr. subsp. *maurorum* (Ball) W.Lippert

Distribution: HA

Salvia blancoana Webb & Heldr. subsp. *mesatlantica* (Maire) Figuerola

Distribution: HA, MA-3

Salvia Salvia gattefossei Emb.

Distribution: AA-5 Elevation: 1700–2000 m.

Salvia interrupta Schousb. subsp. *interrupta*

Distribution: AA-1, HA, Mam-2-3

Salvia interrupta Schousb. subsp. *pau* (Maire) Maire

Distribution: R-1-2

Salvia mouretii Batt. & Pit.

Distribution: Mam, Man, R-1-2

Salvia taraxacifolia Coss. & Balansa

Distribution: AA, HA

Scutellaria orientalis L. subsp. *demnatensis* Batt.

Distribution: HA, MA, Op

Sideritis altiatlantica (Maire) Peris, Stübing & Figuerola

Distribution: HA, MA-2-3, AA

Sideritis cossoniana Ball

Distribution: Ms-3, AA, HA, Ma-1

Sideritis gossypina Font Quer

Distribution: AA

Sideritis imbricata H.Lindb.

Distribution: HA-1

Sideritis maireana Font Quer & Pau

Distribution: LM-1, R-2-3

Sideritis matris-filiae Emb. & Maire

Distribution: MA-3

Sideritis mohamedii Rejdali

Distribution: HA

Sideritis sauvageana D.Rivera & Obón

Distribution: Mam-4

Sideritis tafraoutiana Obón & D.Rivera

Distribution: AA-2

Sideritis villosa Coss. & Ball

Distribution: AA, HA, MA

Stachys arenaria Vahl subsp. *mollis* (Willd. ex Benth.) Gómiz

Distribution: Mam, Man, R

Stachys citrina Boiss. & Heldr. subsp. *zaiana* Emb. & Maire

Distribution: Man-4

Stachys durandiana Coss.

Distribution: MA-1, Mam-1, Man-1-2, R-2-3

Stachys fontqueri Pau

Distribution: R-1-2

Stachys mouretii Batt. & Pit.

Distribution: HA, MA, Op

Stachys saxicola Coss. subsp. *laxa* Faure & Maire

Distribution: Op, Om-1, LM-2

Stachys saxicola Coss. subsp. *maweana* (Ball) Maire

Distribution: HA

Stachys saxicola Coss. subsp. *platydon* Maire

Distribution: MA-1

Stachys saxicola Coss. subsp. *saxicola*

Distribution: AA, HA, MA, Man-1

Stachys saxicola Coss. subsp. *villosissima* (Ball) Maire

Distribution: HA, MA, Man-1

Teucrium afrum (Emb. & Maire) Pau & Font Quer subsp. *riphaeum* (Font Quer & Pau) Castroviejo & Bayon

Distribution: MA-1, R

Teucrium afrum (Emb. & Maire) Pau & Font Quer subsp. *rubriflorum* (Font Quer & Pau) Castroviejo & Bayon

Distribution: R-1 Elevation: 400 m

Teucrium antiatlanticum (Maire) Sauvage & Vindt

Distribution: AA

Teucrium barbarum Jahand. & Maire

Distribution: Man, R

Teucrium bullatum Coss. & Balansa

Distribution: HA Elevation: 1300 m

Teucrium chlorostachyum Pau & Font Quer subsp. *chlorostachyum*

Distribution: LM-2

Teucrium chlorostachyum Pau & Font Quer subsp. *melillense* (Sennen ex Maire) Ouqlidi, Mathez & T.Navarro

Distribution: LM-1

Teucrium cincinnatum Maire

Distribution: AA, HA-6

Teucrium dealeanum Emb. & Maire

Distribution: HA-1

Teucrium decipiens Coss. & Balansa

Distribution: HA, MA, Mam, Man

Teucrium demnatense Coss. ex Batt.

Distribution: Ms-2, AA, HA, MA, Mam

Teucrium ducellieri Batt.

Distribution: Op-1

Teucrium embergeri (Sauvage & Vindt) Ouqlidi, T.Navarro & A.Martin

Distribution: R-3

Teucrium faurei Maire

Distribution: Om-1

Teucrium gattefossei Emb.

Distribution: MA-4

Teucrium grosii Pau

Distribution: R-2, LM-1

Teucrium gypsophilum Emb. & Maire

Distribution: R-3

Teucrium huotii Emb. & Maire

Distribution: R-3

Teucrium joannis (Sauvage & Vindt) Ouqlidi, T.Navarro & A.Martin

Distribution: MA

Teucrium jolyi Mathez & Sauvage

Distribution: Ms-3

Teucrium malenconianum Maire

Distribution: AA, HA

Teucrium mideltense (Batt.) Humbert

Distribution: HA, Op

Teucrium mitecum Ibn Tattou & Ouqlidi

Distribution: MA-2

Teucrium musimonum Humbert

Distribution: HA, MA

Teucrium rifanum (Maire & Sennen) T.Navarro & Ouqlidi

Distribution: LM

Teucrium rupestre Coss. & Balansa

Distribution: HA, Mam-2-3

Teucrium serpylloides Maire & Weiller

Distribution: AA-5

Teucrium tananicum Maire

Distribution: HA-1

Teucrium wernerii Emb.

Distribution: AA-2

Teucrium zaianum Emb. & Maire

Distribution: Man-4

Thymus broussonetii Boiss. subsp. *hannonis* (Maire) R.Morales

Distribution: Mam

Thymus maroccanus Ball subsp. *maroccanus*

Distribution: AA, HA, Mam, Man

Thymus maroccanus Ball subsp. *rhombius* Villar

Distribution: AA-1, Ms-3, Mam

Thymus riatarum Humbert & Maire

Distribution: MA-1, R

Thymus saturejoides Coss. subsp. *commutatus* Batt.

Distribution: As

Thymus saturejoides Coss. subsp. *saturejoides*

Distribution: AA, HA, MA, Mam-2-3

Linaceae

Linum austriacum L. subsp. *gomaricum* Font Quer

Distribution: R-2

Linum subasperifolium Humbert & Maire

Distribution: MA-1

Linum villarianum Pau

Distribution: MA-1, R-1-2

Malvaceae

Malope rhodoleuca Maire

Distribution: HA-1

Malva microphylla (Baker f.) Molero & J.M.Monts.

Distribution: Man-3

Malva subacaulis Maire

Distribution: AA-4, HA

Malva vidalii (Pau) Molero & J.M.Monts.

Distribution: R-2

Oleaceae

Olea europaea L. subsp. *maroccana* (Greuter & Burdet) P.Vargas

Distribution: HA-1

Onagraceae

Epilobium psilotum Maire & Sam.

Distribution: HA-3

Orchidaceae

Dactylorhiza atlantica Kreutz & Vlaciha

Distribution: HA-3

Dactylorhiza durandii (Boiss. & Reut.) M.Laínz

Distribution: MA-1, LM-1, R

Orobanchaceae

Odontites maroccanus Bolliger

Distribution: HA-4, MA-3

Odontites powellii Maire

Distribution: HA, MA

Odontites vulcanicus Bolliger

Distribution: MA-3

Odontites vulgaris Moench subsp. *mesatlanticus* (Emb. & Maire) Bolliger

Distribution: MA-3

Orobanche fuscovinosa Maire

Distribution: MA-3

Orobanche humbertii Maire

Distribution: HA-2

Odontites rameauanus Emb.

Distribution: MA-2, HA-4

Papaveraceae

Fumaria ballii Pugsley

Distribution: Mam-4, Op-1, LM

Fumaria berberica Pugsley

Distribution: AA, HA-3, MA-3

Fumaria erostrata (Pugsley) Lidén

Distribution: AA, Mam-2-3

Fumaria macrosepala Boiss. subsp. *macrocarpa* Lidén

Distribution: R-1

Fumaria macrosepala Boiss. subsp. *megasepala* (Pau) Lidén

Distribution: R-1

Fumaria macrosepala Boiss. subsp. *obscura* (Pugsley) Lidén

Distribution: R-1-2

Fumaria maurorum Maire

Distribution: Mam-3, HA

Fumaria ouezzanensis Pugsley subsp. *ouezzanensis*

Distribution: Man-1-2, R

Fumaria ouezzanensis Pugsley subsp. *ramosa* Lidén

Distribution: R

Fumaria rifana Lidén

Distribution: R-2

Fumaria rupestris Boiss. & Reut. subsp. *bifrons* (Pugsley) Lidén

Distribution: Man-1

Fumaria rupestris Boiss. & Reut. subsp. *calycina* Lidén

Distribution: MA-3

Fumaria rupestris Boiss. & Reut. subsp. *micranthifolia* (Pugsley) Lidén

Distribution: HA, Man-3-4

Fumaria rupestris Boiss. & Reut. subsp. *pulchra* Lidén

Distribution: Om-3, MA-1, Man-4

Fumaria sepium Boiss. & Reut. subsp. *rugosa* Lidén

Distribution: R-1

Fumaria skottsbergii Lidén

Distribution: HA-3, MA-4

Papaver atlanticum (Ball) Coss. subsp. *atlanticum*

Distribution: AA, HA

Papaver atlanticum (Ball) Coss. subsp. *mesatlanticum* (Maire) Kadereit

Distribution: MA

Rupicapnos africana (Lam.) Pomel subsp. *mairei* (Pugsley) Maire

Distribution: MA, Man-1

Sarcocapnos crassifolia (Desf.) DC. subsp. *atlantis* (Emb. & Maire) Lidén

Distribution: HA

Phyllanthaceae

Andrachne maroccana Ball

Distribution: AA, HA, Mam

Pinaceae

Abies maroccana Trab.

Distribution: R-2

Plantaginaceae

Anarrhinum fruticosum Desf. subsp. *demnatense* (Coss.) Maire

Distribution: AA, HA-4-5-6

Antirrhinum martenii (Font Quer) Rothm.,

Distribution: R-2

Callitriche mathezii Schotsman

Distribution: Man-4, R Elevation: 1480 m.

Digitalis lutea L. subsp. *atlantica* (Ball) Litard.

Distribution: HA-3-4

Digitalis lutea L. subsp. *cedretorum* Emb.

Distribution: HA-5, MA-2

Digitalis lutea L. subsp. *transiens* (Maire) Emb. & Maire

Distribution: HA-4-5-6, MA-2

Digitalis mauretanica (Humbert & Maire) Ivanina

Distribution: AA-2, MA-1, R

Erinus thiabaudii Jahand. & Maire

Distribution: HA-4, R-1-2

Globularia liouvillei Jahand. & Maire

Distribution: HA, MA

Globularia nainii Batt.

Distribution: HA, MA, Op

Lafuentea jeanpertiana Maire

Distribution: AA-1-2-3

Linaria amethystea (Lam.) Hoffmanns. & Link subsp. *broussonetii* (Poir.) Matato-Beliz

Distribution: Ms-3, HA, MA, Mam, Man, R-1

Linaria arenicola Pau & Font Quer

Distribution: Man-2

Linaria bipartita (Vent.) Willd.

Distribution: Ms-3, AA-1, HA, Mam, Man, R-1

Linaria bordiana Santa & Simonneau subsp. *bordiana*

Distribution: Man

Linaria imzica Gómiz

Distribution: AA Elevation: 1200 m.

Linaria mathezii (Viano) Ibn Tattou

Distribution: Man-3

Linaria multicaulis (L.) Mill. subsp. *galioides* (Ball) D.A.Sutton

Distribution: HA

Linaria multicaulis (L.) Mill. subsp. *gigantea* (Dobignard & D.Jordan) Dobignard

Distribution: HA-3

Linaria multicaulis (L.) Mill. subsp. *psedosupina* (Ball) Dobignard

Distribution: AA-4, HA-2-3

Linaria reflexa (L.) Chaz. subsp. *drummondiae* D.A.Sutton

Distribution: HA-4, MA-3-4

Linaria riffea Pau

Distribution: Man-1-2, LM

Linaria tristis (L.) Mill. subsp. *lurida* (Ball) Maire

Distribution: HA-3-4-5, R-2

Linaria tristis (L.) Mill. subsp. *mesatlantica* D.A.Sutton

Distribution: MA

Linaria tristis (L.) Mill. subsp. *pectinata* (Pau & Font Quer) Maire

Distribution: MA-1, Man, LM-1, R-2-3

Linaria ventricosa Coss. & Balansa

Distribution: AA, HA, Mam

Linaria viviesiae Emb.

Distribution: Man-4

Linaria weilleri Emb. & Maire

Distribution: AA-2-3, HA, Mam-3

Misopates chrysothales (Font Quer) Rothm.

Distribution: Om-1, LM

Misopates fontqueri (Emb.) Ibn Tattou

Distribution: HA-4

Plantago akkensis Murb. subsp. *akkensis*

Distribution: Ms-2

Plantago lacustris (Maire) Pilg.

Distribution: MA-3

Plantago rhizoxylon Emb.

Distribution: HA-4, MA-3, Op-2

Veronica chartonii Litard. & Maire

Distribution: HA-4

Veronica rosea Desf. subsp. *virgata* (Emb. & Maire) Dobignard & A.Jordan

Distribution: HA-4

Plumbaginaceae

Armeria alpinifolia Pau & Font Quer

Distribution: R

Armeria tingitana Boiss. & Reut.

Distribution: Man-2, R-1

Limoniastrum weygandiorum Maire & Wilczek

Distribution: Ms-3

Limonium asperrimum Maire

Distribution: Ms-3

Limonium chrysopotamicum Maire

Distribution: Ms-3

Limonium fallax (Wangerin) Maire

Distribution: Ms-3, AA-1-2, Mam-2-3

Limonium mouretii (Pit.) Maire
Distribution: HA-4, MA-3, Man-1

Limonium mucronatum (L.f.) Chaz.
Distribution: Ms-2-3, AA-1, Mam, Man-2-3

Limonium ornatum (Ball) Kuntze
Distribution: Ms-2

Limonium oudayense Sauvage & Vindt
Distribution: Man-1

Limonium pujosii Sauvage & Vindt
Distribution: Op-2

Limonium rungsii Sauvage & Vindt
Distribution: Op-1

Limonium tubiflorum (Delile) Kuntze subsp. *maroccanum* (Batt. & Trab.) Maire & Weiller
Distribution: Op-1

Poaceae

Achnatherum calamagrostis (L.) P.Beauv. subsp. *mesatlasticum* (Quézel) Dobignard
Distribution: MA-2

Agrostis atlantica Maire & Trab.
Distribution: HA-2-3

Ammochloa involucrata Murb.
Distribution: Mam-1, Man-1-2-3, R-1

Avena agadiriana Baum & Fedak
Distribution: Mam-1-2-3

Avena atlantica Baum & Fedak
Distribution: Mam-2-3

Avena moroccana Gand.
Distribution: Mam-1, Man-1-3-4

Brachypodium atlanticum Dobignard, Dobignard & Chatelain
Distribution: HA-6

Bromopsis erecta (Huds.) Fourr. subsp. *microchaeta* (Font Quer) H.Scholz & Valdés
Distribution: R-2

Bromus dardori Sennen

Distribution: LM-1

Bromus maroccanus Pau & Font Quer

Distribution: LM-1

Catapodium demnatense (Murb.) Maire & Weiller

Distribution: HA-4, MA, Man-4

Catapodium mamoraeum (Maire) Maire & Weiller

Distribution: Man-2-3

Elymus festicooides (Maire) Ibn Tattou

Distribution: HA-5 Elevation: 2200 m.

Elymus marginatus (H.Lindb.) Á.Löve subsp. *marginatus*

Distribution: HA-5-6, MA-1-3, R-2-3

Festuca atlantica Duval-Jouve subsp. *oxyphylla* (Litard. & Maire) Romo

Distribution: HA-3-4

Festuca deserti (Coss. & Durieu) Trab. subsp. *maroccana* (Trab.) St.-Yves

Distribution: AA-4, HA

Festuca dyris (Maire & Trabut) Romo

Distribution: HA-3-4

Festuca fontqueri St.-Yves

Distribution: AA-4, HA, MA, R-2-3

Festuca humbertii Litard. & Maire

Distribution: MA-1, R-2

Festuca iberica (Hack.) K.Richt. subsp. *atlantigena* (Litard.) Dobignard & Portal

Distribution: HA-6

Festuca iberica (Hack.) K.Richt. subsp. *yvesiana* (Litard. & Maire) Dobignard & Portal

Distribution: As, AA-4, HA, MA, R-2-3

Festuca incurvatifolia C.Chatel., Dobignard, Jeanm. & J.F.Léger

Distribution: HA-6 Elevation: 1710 m.

Festuca rifana Litard. & Maire

Distribution: R

Festucopsis festucoides (Maire) Á.Löve

Distribution: HA-3-4-5-6

- Gaudinia maroccana* Trab.
Distribution: Mam-1-2-3, Man-2-3
- Gaudinia valdesii* Romero Zarco
Distribution: Man-2
- Koeleria carolii* Emb.
Distribution: HA-4-6
- Koeleria embergeri* Quézel
Distribution: MA-2
- Leptochloa ginae* Maire
Distribution: Ms-3, AA-1, Ms-2
- Melinis repens* (Willd.) Zizka subsp. *maroccana* (Maire & Sam.) Zizka
Distribution: Mam-4, Man-3
- Mibora maroccana* (Maire) Maire
Distribution: Mam-1, Mam-2-3
- Ochlopoa rivulorum* (Maire & Trabut) H.Scholz & Valdés
Distribution: AA-4, HA, MA, Man-4, LM-1, R-2-3 Elevation: 2500 m.
- Poa alpina* L. subsp. *stenobotrya* Maire
Distribution: HA-3
- Rostraria salzmännii* (Boiss.) Holub subsp. *maroccana* (Domin) H.Scholz
Distribution: R-1
- Sporobolus lanuginellus* Maire
Distribution: Ms-3
- Stipa antiatlantica* Barreña, D.Rivera, Alcaraz & Obon
Distribution: AA-2, HA-3, Mam-3
- Stipa meridionalis* F.M.Vázquez & Devesa
Distribution: MA-1, Op-1, LM-1, R-3
- Tricholemma jahandiezii* (Litard.) Röser
Distribution: MA-2, MA-3
- Vulpia geniculata* (L.) Link subsp. *pauana* (Font Quer) Maire
Distribution: Man-2, R-1
- Vulpia litardiareana* (Maire) A.Camus
Distribution: HA-3

Polygalaceae

Polygala balansae Coss.

Distribution: AA-1, HA-2-3, MA-4

Polygala webbiana Coss.

Distribution: MA-1, R

Polygonaceae

Polygonum balansae Boiss. subsp. *battandieri* Maire & Sennen

Distribution: Man-1-2, LM

Polygonum balansae Boiss. subsp. *rhizoxylon* (Pau & Font Quer) Emb. & Maire Distribution: MA-2, Man-3, R-2

Rumex atlanticus Batt.

Distribution: HA, R-2

Rumex brachypodus Rech.f.

Distribution: R-2

Rumex ginii Jahand. & Maire

Distribution: HA, MA-3

Rumex papilio Coss. & Balansa

Distribution: AA, HA, MA-1, Mam, Man, Om-3, LM, R, Op

Portulacaceae

Portulaca macrantha Ricceri & Arrigoni

Distribution: Mam-2-3, AA-1

Primulaceae

Coris monspeliensis L. subsp. *maroccana* (Murb.) Greuter & Burdet

Distribution: HA-1, Mam, Man, R, Om-1

Ranunculaceae

Aquilegia vulgaris L. subsp. *ballii* (Litard. & Maire) Dobignard & Jordan

Distribution: HA

Delphinium cossonianum Batt.

Distribution: Mam-1, Man, R

Delphinium favargerii C.Blanché, Molero & Simon Pall.

Distribution: HA, MA, Mam, Man, Op, Om, LM, R

Delphinium macropetalum DC.

Distribution: Mam

Ranunculus calandrinoides Olivier

Distribution: AA-4, HA, MA

Ranunculus dyris (Maire) H.Lindb.

Distribution: HA-3-4, AA-4

Ranunculus mgounicus Quézel

Distribution: HA-4

Ranunculus spicatus Desf. subsp. *fontqueri* Romo

Distribution: MA, R

Resedaceae

Reseda attenuata (Ball) Ball

Distribution: AA, HA

Reseda battandieri Pit. subsp. *battandieri*

Distribution: Ms-3, AA-1, Mam, Man

Reseda battandieri Pit. subsp. *limicola* (Maire & Sam.) Maire

Distribution: Mam-1-4, Man-3

Reseda diffusa (Ball) Ball

Distribution: Ms, AA, HA, MA-4, Mam

Reseda elata Müll.Arg.

Distribution: Ms-3, AA, HA, MA-4, Mam

Reseda stenobotrys Maire & Sam.

Distribution: AA, Mam-3

Rhamnaceae

Rhamnus serpyllacea Greuter & Burdet

Distribution: MA-2

Rosaceae

Alchemilla atlantica H.Lindb.

Distribution: HA-3

Alchemilla gourzae Ibn Tattou

Distribution: HA-3

Alchemilla litardieri H.Lindb.

Distribution: HA-3

Alchemilla mairei H.Lindb.

Distribution: HA-3

Potentilla alchemilloides Lapeyr. subsp. *atlantica* Emb. & Maire

Distribution: HA-4

Potentilla ibrahimiana Maire, Jahandiez & Maire

Distribution: HA-3

Potentilla guilliermondii Emb. & Maire

Distribution: HA-4-6

Potentilla maura Th.Wolf

Distribution: HA, MA, R-2

Potentilla tornezyana Maire

Distribution: AA-4, HA

Rosa mesatlantica H.Lindb.

Distribution: MA-3

Rubiaceae

Asperula litardierei Humbert

Distribution: HA-5, MA-2

Galium acuminatum Ball

Distribution: AA, HA-2-3-4

Galium bourgaeum Coss. subsp. *maroccanum* (Ball) J.M. Monts.

Distribution: AA-2-3, HA, MA-3, Mam-3-4, Man-1, R-3.

Galium noli-tangere Ball

Distribution: HA-3

Rutaceae

Haplophyllum broussonetianum Coss.

Distribution: AA, HA, Mam-3

Salicaceae

Salix atrocinera Brot. subsp. *jahandiezii* (Chass.) Ibn Tattou

Distribution: HA, MA, Man

Saxifragaceae

Saxifraga embergeri Maire

Distribution: Man-4

Saxifraga longifolia Lapeyr. subsp. *gaussenii* Emb.

Distribution: HA-4-5-6

Saxifraga luizetiana Emb. & Maire

Distribution: MA-2

Saxifraga maireana Luizet

Distribution: HA-3

Saxifraga maweana Baker

Distribution: R-1-2

Saxifraga pedemontana All. subsp. *demnatensis* (Coss.) Emb.

Distribution: HA-3-4-5, MA-2

Saxifraga rigoi Porta subsp. *maroccana* Luizet & Maire

Distribution: R-2

Saxifraga tricrenata Pau & Font Quer

Distribution: R-1-2

Saxifraga wernerii Font Quer & Pau

Distribution: R-2

Scrophulariaceae

Bartsiella rameauana (Emb.) Bolliger subsp. *rameauana*

Distribution: HA-4

Bartsiella rameauana (Emb.) Bolliger subsp. *pseudogranatensis* (Quézel) Ibn Tattou

Distribution: MA-2

Scrophularia eriocalyx Emb. & Maire

Distribution: LM-1, R

Scrophularia fontqueri Ortega-Olivencia & Devesa

Distribution: R-2

Scrophularia jallui (Gattef. & Weiller) Ibn Tattou

Distribution: HA-3 Elevation: 1800 m.

Scrophularia macrorrhyncha (Humbert, Litard. & Maire) Ibn Tattou

Distribution: AA-1, HA-4-5, MA, Om-1, LM-1

Scrophularia papillaris Boiss. & Reut.

Distribution: R-1-2

Scrophularia ramosissima Loisel. subsp. *macrorrhyncha* Humbert, Litard. & Maire

Distribution: AA-1, HA-4-5, MA, Om-1, LM-1

Verbascum calycinum Ball

Distribution: AA-4, HA, MA-3

Verbascum demnatensis (Maire & Murb.) Rankou, *comb. & stat. nov.*

Basionym: *Celsia sinuata* Cav. var. *demnatensis* Maire & Murb., *Contr. Fl. Marocc.* 2: 40 (1923).

Distribution: Mam-5

Verbascum faurei (Murb.) Hub.-Mor. subsp. *acanthifolium* (Pau) Benedi & J.M.Monts.

Distribution: R-2

Verbascum hookerianum Ball

Distribution: AA, HA

Verbascum mairei (Murb.) Hub.-Mor.

Distribution: HA-3, MA-4

Verbascum maroccanum (Ball) Hub.-Mor.

Distribution: AA, HA, Mam

Verbascum hamidoui Rankou, *nom. nov.*

Replaced synonym: *Celsia ramosissima* Benth. in DC., *Prodr.* 10: 244 (1846), non *Verbascum ramosissimum* Poir. (*Encycl. Suppl.* 3. 718. 1814).

Distribution: Man-1-2, R-1, Mam-1

Verbascum tetrandrum Barr. & Murb.

Distribution: AA-1, HA-3

Verbascum zaianensis (Murb.) Hub.-Mor.

Distribution: MA-3, Man-4

Selaginellaceae?

Selaginella balansae (A.Braun) Hieron.

Distribution: AA, HA, MA-3, Mam-3, Man-3-4, R

Solanaceae

Lycium intricatum Boiss. subsp. *pujosii* Sauvage

Distribution: Op-1-2

Thymelaeaceae

Thymelaea gattefossei H.K.Tan

Distribution: Mam, Man

Thymelaea putorioides Emb. & Maire

Distribution: HA-4 Elevation: 1800 m.

Violaceae

Viola dyris Maire

Distribution: HA

Viola maroccana Maire,

Distribution: HA-3, HA-6, MA

Viola saxifraga Maire

Distribution: HA, MA

Viola subatlantica (Maire) Ibn Tattou

Distribution: AA-4, HA, MA, Man-3-4

Xanthorrhoeaceae

Asphodelus gracilis Braun-Blanq. & Maire

Distribution: Man-2-3

Zygophyllaceae

Fagonia harpago Emb.& Maire subsp. *harpago*

Distribution: Ms-3, AA-2, Mam-3

Fagonia harpago Emb.& Maire subsp. *ifniensis* (Caball.) Ibn Tattou

Distribution: Ms, AA-1