

# THE VASCULAR FLORA OF OUÏAÏMEDEN, IN THE MOROCCAN HIGH ATLAS

## Second Edition 2008

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The late Professor Peter Davis, the celebrated Edinburgh botanist who had earlier collected his way around the Mediterranean, originally suggested to us that Oukaïmeden and environs needed further floristic investigation. In June of that same year, 1974, a collection was made by botanists from Reading and the Natural History Museum (or British Museum [Natural History], as it then was) on a joint Moroccan expedition. A total of 76 specimens were collected in Oukaïmeden by the four participants (C.J. Humphries [BM], I.B.K. Richardson [RNG], S.L. Jury [RNG] & †M. Mullin [BM]) on a briefer than planned visit. (After a night in the Asni camp site, the expedition was advised at the local diesel station not to take the direct dirt track to Tadmamt and Oukaïmeden, as recent rains had almost washed the road away in places, but rather to drive on to Tahanaoute and take the track from there to Tadmamt. This was done, but Tadmamt was lost in thick mist and somehow a wrong turn was taken and the expedition unintentionally returned to Asni by the dangerous flood-damaged road!)

In 1985, Mohamed Rejdali of the Institut Agronomique et Vétérinaire Hassan II, Rabat, graduated with an MSc in Pure and Applied Plant Taxonomy of the University of Reading. He continued his research on the Moroccan Flora, whilst working in Morocco, graduating with a Reading PhD in 1988. This enabled several collaborative research projects to be set up, including a second joint Moroccan expedition with participants from Reading and Rabat. This expedition with M. Rejdali [IAV], S.L. Jury [RNG] and M.F. Watson [RNG, now E] returned to Oukaïmeden in July 1987. Six further collecting trips followed with visits to Oukaïmeden in July 1989 (M. Ait Lafkih [IAV], S.L. Jury [RNG], J.B. Peris [VAL] and G. Stübing [VAL]), September 1991 (M. Ait Lafkih [IAV], S. Ajmi [IAV], M.F. Gardner [E] and S.L. Jury [RNG]), July 1997 (S.L. Jury [RNG], S. Darwin [RNG], A.J.K. Griffiths [RNG], M. Ait Lafkih [IAV] and M. Rejdali [IAV]), September 2000 (M. Ait Lafkih [IAV], S.L. Jury [RNG], D.M. Keith-Lucas [RNG] and R.G. Wilson [RNG], June 2001 (M. Ait Lafkih [IAV],

S.L. Jury [RNG], M. Rejdali [IAV] and S.M. Young [RNG] and 2002 (M.A. Carine [BM], F.J. Rumsey [BM], M. Rejdali [IAV] and R.W. Rutherford [RNG].

This Checklist was originally made by exporting the specimen data resulting from these eight expeditions from our BRAHMS Herbarium database and reorganizing the taxa alphabetically by family. Any further Oukaïmeden specimens received through exchange with other institutions (including BC, MA and M) and the Société pour l'échange des Plantes Vasculaires de l'Europe et du Bassin méditerranéen have been added.

A visit by Angel Romo and Adam Boratynski in 2002 resulted in further records to those published on this website being made available (Romo & Boratynski, 2007). Their paper enumerated a list of more than 30 taxa not mentioned in our online Checklist. On inspection, this caused us some concern as it transpired that we had inadvertently omitted two families, the Campanulaceae and Caryophyllaceae. This has now been rectified in this second edition and the additional finds of Romo & Boratynski (2007) cited below.

Species of pteridophytes and gymnosperms have been added to create a list of all vascular plants.

The families have also been revised and the genera they contain now more closely follow those recognized and listed by Haston *et al.* (2007). This results in the parasitic taxa of the Scrophulariaceae being placed in the Orobanchaceae, the genus *Chenopodium* being placed in the Amaranthaceae, the Iliicebraceae being included in the Caryophyllaceae and the genera *Antirrhinum*, *Linaria* and *Veronica* being transferred to the Plantaginaceae.

A few further later additions to our herbarium have been added.

A few misidentifications have been corrected: *Alyssum simplex* was in reality *A. atlanticum*; *Cerinthe major* was in reality *C. gymnandra*. *Paronychia* species are also in need of further checking.

A number of nomenclatural changes have been made: *Bupleurum atlanticum* is now *B. oligactis*, *Carduus maroccanus* is now *C. natans* subsp. *maurus*, *Chamaemelum scariosum* is now *Cladanthus scariosus*, *Aliella helichrysoides* is now *A. ballii*, *Leontodon atlanticus* is now *Scorzoneroidea atlantica*, *Buglossoides arvensis* subsp. *gasparinii* is now *B. arvensis* subsp. *Incrassata* and *Alyssum spinosum* is now *Hormathophylla spinosa*.

We have not included *Rosa micrantha* Borrer ex Sm. or *Paronychia velata* (Maire) Chaudhri as at 2100 m, we believe they are below the area included in our Checklist.

## REFERENCES

HASTON, E., RICHARDSON, J.E., STEVENS, P.F., CHASE, M.W. & Harris, D.J., 2007. A linear sequence of Angiosperm Phylogeny Group II families. *Taxon*, 65: 7—12.

ROMO, A. & BORATYNSKI, A., 2007. Notes and contributions to the vascular flora of Oukaïmeden (Central High Atlas, Morocco). *Candollea*, 62: 69—89.

## PTERIDOPHYTES

### ASPLENIACEAE

#### **Asplenium ceterach L.**

*Reading Univ./B.M. Exped.* 737

#### **Asplenium adiantum-nigrum L.**

*M. Ait Lafkîh* 495; *S.L. Jury* 8851, 18886

Shady crevices of sandstone rocks.

#### **Asplenium onopteris L.**

*M. Ait Lafkîh* 621, *Jury* 18209

*Under overhangs in shade.*

#### **Asplenium scolopendrium L.**

*S.L. Jury* 18201, 19599

Shady cave with calcareous seepage.

#### **Asplenium septentrionale (L.) Hoffm.**

*Reading Univ./B.M. Exped.* 781, *S.L. Jury* 18880, 18293, 19595

N & E-facing rock crevices.

#### **Asplenium trichomanes L.**

*Reading Univ./B.M. Exped.* 738; *M. Ait Lafkîh* 630; *S.L. Jury* 18126,

18202, 19593; *Aparicio, Rowe & Silvestre s.n.*

Shady crevices.

### DRYOPTERIDACEAE

#### **Polysticum acutatum (L.) Broth.**

*M. Ait Lafkîh* 644; *S.L. Jury* 18313

Shady crevices and cave.

### POLYPODIACEAE

#### **Polypodium cambricum L.**

*M. Ait Lafkîh* 602; *S.L. Jury* 18630, 19591

In shade of rock overhang on sandstone.

## WOODSIACEAE

### **Cystopteris dickeana R.Sim**

S.L. Jury 18955

N-facing rock crevices.

### **Cystopteris fragilis (L.) Bernh.**

Reading Univ./B.M. Exped. 739; M. Ait Lafkikh 603, S.L. Jury 9011,  
18312, 18339, 18642, 18655

Shady rock crevices and under rock overhangs.

## GYMNOSPERMS

## CUPRESSACEAE

### **Juniperus thurifera L.**

M.Ait Lafkikh 4914; S.L. Jury 18614

W-facing, rocky slopes.

## ANGIOSPERMS

## AGAVACEAE

### **Anthericum liliago L. subsp. *algeriense* (Boiss. & Reut.) Maire & Weiller**

Jury 18195, 18910; Reading Univ./B.M. Expedition 787

Clay substrate on S-facing rocky bank in sandstone gorge.

## ALLIACEAE

### **Allium pallens L.**

Jury 18119

Rock crevices of N-facing 'sandstone' rocks.

### **Allium paniculatum L.**

Jury 9010

Sandy soil on rock ledges.

### **Allium sphaerocephalon L. subsp. *sphaerocephalon***

Jury 18114

N-facing rocky 'sandstone' slope.

## AMARANTHACEAE

### **Chenopodium album L.**

Jury 8953, 18249, 18901 Romo 280585

Waste ground and stony areas.

**Chenopodium exsuccum (C.Loscos) Uotila**

*Jury 8950*

Waste ground.

**Chenopodium vulvaria L.**

*Jury 18385*

Roadside verges and ruderal areas.

**AMARYLLIDACEAE**

**Narcissus bulbocodium L. subsp. obesus (Salisb.) Maire**

*Jury 18649; Reading Univ./B.M. Expedition 756*

Grazed turf behind ski-lift and above stream.

**Narcissus watieri Maire**

*Reading Univ./B.M. Expedition 788*

Wet N-facing cliffs.

**APIACEAE**

**Apium nodiflorum (L.) Lag.**

*Jury 18228*

Wet flush on S-facing rocky bank in sandstone gorge.

**Apium repens (Jacq.) Lag.**

*Jury 18246*

Bank of stream through grazed pasture with *Juncus* spp.

**Bunium alpinum Waldst. & Kit. subsp. atlanticum Maire**

*Reading Univ./B.M. Expedition 777; Jury 8912, 18903, 18943*

In good soil in valley bottom by stream.

**Bunium bulbocastanum L. var. peucedanoides (Desf.) J.M.Monts.**

*Jury 18090*

Ruderal community around azib (shepherd huts).

**Bupleurum benoistii Litard. & Maire**

*Ait Lafkîh 507; Jury 18375, 18646, 18861.*

SE-facing rocky sandstone slope; open, heavily grazed areas.

**Bupleurum oligactis Boiss.**

*Jury 18276, D & J 1987*

Dry W-facing slope by azib (shepherds' houses).

**Bupleurum lateriflorum Coss. in Wolff**

*Jury 18323, 18643*

E-facing sandstone cliffs.

**Bupleurum spinosum Gouan**

*Jury 18297, 18608; Ait Lafkikh 507, 534*

S- and W-facing rocky sandstone cliffs and slopes with *Juniperus thurifera*,  
*Alyssum spinosum*, etc.

**Bupleurum subspinosum Maire & Weiller**

*Reading Univ./B.M. Expedition 745*

**Conium maculatum L.**

*Jury 18083; Ait Lafkikh 592*

Ruderal community around azib - shepherd huts.

**Eryngium bourgatii Gouan**

*Jury 8880, 18122; Ait Lafkikh 503*

SE- and W-facing exposed cliffs and rocky slopes.

**Eryngium variifolium Coss.**

*Jury 18275, 18625*

Wet flush by azib (shepherds' houses); very heavily grazed turf .

**Heracleum sphondylium (L.) Litard. var. suaveolens Litard. & Maire**

*Jury 8970, 18095, 18222, 18656; Ait Lafkikh 568*

Ruderal communities. N- and S-facing rocky bank in sandstone gorge by stream.

**Seseli libanotis (L.) Koch subsp. atlanticum Maire**

*Reading Univ./B.M. Expedition 728; Jury 18343*

Shady crevices on N-facing rocky cliffs of Jbel Angour.

**Torilis elongata (Hoffmanns. & Link) Samp.**

*Jury 9000; 18843*

On SE-facing rocky bank.

**AQUIFOLIACEAE****Ilex aquifolium L.**

*Jury 18639; 18843*

Great crevice in E-facing sandstone rocks.

**ASTERACEAE****Achillea ligustica All.**

*Jury 8862, 18091*

Ruderal communities on dry slopes.

**Achillea odorata L.**

*A.Herrero et al. AH3256*

Humid pasture on sandy area by reservoir.

**Aliella ballii (Klatt) Greuter**

Syn. *A. helichrysoides* (Ball) M.Qaiser & H.W.Lack  
*Ait Lafkhih* 482; *Reading Univ./B.M. Expedition* 765, 771  
Growing in rock crevices.

**Aliella platyphylla (Maire) M.Qaiser & H.W.Lack**

*Reading Univ./B.M. Expedition* 733; *Ait Lafkhih* 627  
Rock crevices on N-facing cliffs.

**Anacyclus homogamus (Maire) Humphries**

*Ait Lafkhih* 626; *Jury* 18082, 18233, 18984  
Ruderal communities and on dry S-facing rocky banks.

**Anacyclus pyrethrum L. var. depressus (Ball) Maire**

*Ait Lafkhih* 531, 546; *Jury* 8927, 18097, 18240; *Reading Univ./B.M. Expedition* 757  
Ruderal areas by road, trodden and grazed areas; abundant around car park.

**Anacyclus valentinus L.**

*Jury* 8990  
Weed at edge of road.

**Andryala integrifolia L.**

*Jury* 18883  
Ruderal in village

**Anthemis pedunculata Desf. subsp. pedunculata**

*Jury* 8864, 18841, 18269  
Dry, stony areas by tracks.

**Bellis caerulescens Coss. ex Ball**

*Ait Lafkhih* 527; *Jury* 9012, 18105, 18332, 18657; 18857  
Damp, shady crevices on N-facing rocky cliffs and soil pockets at base of cliffs  
and under overhangs.

**Carduncellus rhabonticoides Coss. & Durieu**

*Ait Lafkhih* 557; *Jury* 8892; *Reading Univ./B.M. Expedition* 761  
In soil between sandstone rocks on SW facing rocky slopes.

**Carduus macrocephalus Desf.**

*Jury* 8908  
On SW-facing rocky slope.

**Carduus natans L. subsp. maurus (Emb. & Maire) Greuter**

Syn. *Carduus maroccanus* (J.Arenes) Kazmi  
*Ait Lafkhih* 536  
Abundant in degraded areas.

**Carduus pycnocephalus L.**  
*Ait Lafkîh 539; Jury 18387*  
Occasional along roadside verge.

**Catananche caerulea L. f. caerulea**  
*Jury 8900*  
On SW facing rocky slope.

**f. albiflora H.Lindb.**  
*Jury 8899*  
On SW facing rocky slope.

**Catananche caespitosa Desf.**  
*Ait Lafkîh 510; Jury 8957, 8897, 18111; Reading Univ./B.M. Expedition 785*  
Waste ground near road, crevices of N-facing 'sandstone' rocks, SW-facing rocky slopes.

**Centaurea pubescens Willd.**  
*Jury 8911*  
On SW-facing rocky slope.

**Cirsium chrysanthum (Ball) Jahand.**  
*Ait Lafkîh 658; Jury 18358, 18659*  
Damp ground by stream in gully on N-facing rocky basalt cliffs of Jbel Angour.

**Cirsium dyris Jahand. & Maire**  
*Jury 18310*  
Dry E-facing slope of mountain.

**Cladanthus arabicus (L.) Cass.**  
*Jury 18388*  
Occasional along roadside verge.

**Cladanthus scariosus (Ball) Oberprieler & Vogt**  
Syn. *Chamaemelum scariosum* (Ball) Benedi  
*Jury 18314, 18318*  
S-facing vertical sandstone cliffs and steep rocky banks.

**Crepis hookeriana Ball**  
*Jury 9052, 18305*  
Dry E-facing slopes.

**Crepis pulchra L.**  
*Güemes et al. JGH-1622; Jury 18369, 18944*  
Damp gravelly plain at base of N-facing rocky cliffs.

**Crepis vesicaria L. subsp. *stellata* (Ball) Babcock**  
*Ait Lafkîh 559; Jury 8956, 18162*  
Waste ground near road.

**Crupina vulgaris Cass.**

*Jury 8963*

Dry grassy bank above stream.

**Echinops spinosus L.**

*Jury 18328*

Abundant along roadside verges.

**Erigeron mairei Braun-Blanq.**

*Jury 18333; Reading Univ./B.M. Expedition 767*

Shady crevices on N-facing rocky cliffs of Jbel Angour.

**Hieracium amplexicaule L.**

*Jury 18099, 18136, 18340*

N-facing sandstone rock crevices of cliffs and slopes.

**Hypochaeris arachnoidea Poir.**

*Jury 18157*

Steep E-facing slope below sandstone cliffs above stream.

**Hypochaeris leontodontoides Ball**

**Ait Lafkîh 529; Jury 18128, 18334**

Crevices of N-facing sandstone cliffs.

**Inula montana L.**

*Ait Lafkîh 479; Jury 8873, 18112*

N- and SE-facing rocky 'sandstone' slopes.

**Jurinea humilis DC.**

*Ait Lafkîh 484; Jury 18377, 18840; Reading Univ./B.M. Expedition 776*

Open, heavily grazed areas at side of tracks and on mountainsides.

**Lactuca reviersii Litard. & Maire**

*Ait Lafkîh 488; Jury 8889*

On SW facing rocky slopes.

**Lactuca tenerrima Pourret**

*Jury 18392, 18618*

E- and W-facing rocky sandstone slopes.

**Lactuca viminea (L.) J. & C. Presl**

Meadows on steep E-facing slopes below sandstone cliffs.

**Lactuca virosa L.**

*Ait Lafkîh 595*

Steep E-facing slopes.

**Mantisalca salmantica (L.) Briq. & Cav.**

*Ait Lafkîh 596; Jury 8958, 18383*

Abundant along roadside verges and on waste ground.

**Onopordum acaulon L.**

*Jury 9055*

On exposed mountain top.

**Picris hispanica (Willd.) P.W.Sell**

*Jury 8894*

On SW facing rocky slope.

**Ptilostemon dyricola (Maire) Greuter**

*Jury 18327*

Steep S-facing sandstone cliffs.

**Reichardia tingitana (L.) Roth**

*Ait Lafkih 591*

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

*Jury 18611, 18961; Reading Univ./B.M. Expedition 721,*

W-facing rocky sandstone cliffs.

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

*Ait Lafkih 552; Jury 8891, 18096, 18101, 18344, 18850; Reading Univ./B.M.*

*Expedition 762*

Open, SW-, W- and N-facing slopes and flat crevices on cliffs.

**Scolymus hispanicus L.**

*Jury 18326*

Occasional as ruderal along roadside verge cliffs.

**Scorzonera laciniata (L.) DC.**

*Jury 18929*

Ruderal by stony track.

**Scorzonera pseudopygmaea Lipsky**

*Ait Lafkih 533; A.Kool et al. 1034*

Abundant on open slopes of mountains.

**Scorzoneroides atlantica (Ball) Holub**

*Jury 8967*

In grassy area along side of stream.

**Senecio giganteus Desf.**

*Jury 18238*

Wet flush on S-facing rocky slopes.

**Senecio maroccanus P.H.Davis**

*Jury 8857, 18107, 18859*

Soil pockets on ledges.

**Sonchus asper (L.) Hill**

*Ait Lafkih* 637; *Jury* 18164, 18908  
Steep E-facing slope below sandstone cliffs above stream.

**Sonchus maritimus L. subsp. *aquatis* (Pourr.) Nyman**  
*Ait Lafkih* 660  
Wet flush.

**Taraxacum cf. *obovatum* (Willd.) DC.**  
*Jury, SL* 18372  
Damp gravelly plain at base of N-facing rocky cliffs of Jbel Angour.

**Taraxacum sp.**  
*Jury, SL* 18368  
Damp gravelly plain at base of N-facing rocky cliffs of Jbel Angour.

**Tolpis barbata (L.) Gaertn.**  
*Jury* 18391  
E-facing hillside.

**Tragopogon crocifolius L.**  
*Reading Univ./B.M. Expedition* 763

**Tragopogon porrifolius L.**  
*Ait Lafkih* 517; *Jury* 8902, 18303  
On E- and SW-facing rocky sandstone slopes.

**Xeranthemum inapertum (L.) Mill.**  
*Jury* 8863, 18253b, 18844, 18941  
Dry, open stony areas by ski lift.

## BORAGINACEAE

**Asperugo procumbens L.**  
*Jury* 18141  
Shady area in sheep pen.

**Buglossoides arvensis (L.) I.M.Johnston subsp. *incrassata* (Guss.) Kerguélen**  
Syn. *B. arvensis* (L.) I.M.Johnston subsp. *gasparrinii* (Heldr. ex Guss.)  
R.Fernandes  
*Jury* 8925, 8926, 18254, 18931; *Lambinon* 98/554; *Reading*      *Univ./B.M.*  
*Expedition* 758  
Dry stony areas.

**Cerinthe gymnanandra Gasparri.**  
*Jury* 8998, 18234  
Dry S- and E-facing rocky banks.

**Cynoglossum watieri (Batt. & Maire) Br.-Bl. & Maire**  
*Jury* 18938; *Boratynski & Romo* 10633 (BC)

Ruderal.

**Echium flavum Desf.**

*Ait Lafkîh* 553, 580; *Jury* 8917, 18836; *Reading Univ./B.M. Expedition* 751  
In soil in valley bottom.

**Echium plantagineum L.**

*Ait Lafkîh* 629; *Jury* 18155, 18890  
Ruderal areas and sunny banks on grazed cliffs.

**Myosotis atlantica Vestergr.**

*Ait Lafkîh* 612; *Jury* 18842, 18959; *Reading Univ./B.M. Expedition* 720  
Shady banks.

**BRASSICACEAE**

**Alyssum atlanticum Desf.**

Syn. *Alyssum simplex sensu* Jury, this list earlier

*Jury* 18935; *Jury* 18389; *Reading Univ./B.M. Expedition* 754; *López* 8982  
Ruderal, occasional along roadside verge.

**Arabis alpina L. subsp. caucasica (Schlecht.) Briq.**

*Ait Lafkîh* 606; *Jury* 9005, 18132  
Crevices of N-facing sandstone cliffs.

**Arabis auriculata Lam.**

*Ait Lafkîh* 608; *Jury* 18958  
On open slopes.

**Arabis erubescens Ball**

*Reading Univ./B.M. Expedition* 725  
Growing in shady rock crevices.

**Arabis conrigoides Ball**

*Jury* 19590  
Under limestone overhang.

**Biscutella baetica Boiss. & Reuter in Boiss.**

*Jury* 8999  
On SE-facing rocky bank.

**Capsella bursa-pastoris (L.) Medik.**

*Jury* 18378  
Roadside verges and ruderal situations.

**Descurainia sophia (L.) Webb & Benth.**

*Jury* 8947, 18080, 18894  
Ruderal community around azib (shepherd huts).

**Diplotaxis muralis (L.) DC.**

*Jury 18348*

Damp ground by stream on N-facing rocky cliffs of Jbel Angour.

**Draba hispanica Boiss. subsp. hispanica**

*Ait Lafkîh 633; Jury 18292; Reading Univ./B.M. Expedition 731*

Crevices of N-facing sandstone cliffs.

**Draba lutescens Coss.**

*Romo 280585 (BC, RNG)*

Silicious and rocky soils.

**Draba oreadum Maire subsp. oreadum**

*Reading Univ./B.M. Expedition 766*

**Erucastrum elatum O.E. Schulz**

*Jury 8949; López 8988*

Waste ground near road.

**Erysimum incanum Kunze subsp. incanum**

*Jury 18932*

Ruderal.

**Erysimum gramineum Pomel**

*Ait Lafkîh 487; Güemes et al. 1673; Jury 8886, 18160, 18835*

Steep E-facing slopes, N-facing crevices

**Graellsia hederifolia (Coss.) Hyam & Jury subsp. hederifolia**

*Ait Lafkîh 620; Fernández Casas 9526; Gardner 4920; Jury 9007, 18331,*

*18636; Reading Univ./B.M. Expedition 726*

Shady crevices of N-facing sandstone cliffs.

**Hirschfeldia incana (L.) Lagr.-Foss. subsp. geniculata (Desf.) Maire**

*Jury 18382, 18851*

Abundant along roadside verge.

**Hormathophylla spinosa (L.) P.Küpfner**

Syn. *Alyssum spinosum* L.

*Ait Lafkîh 519; Aparicio et al. s.n.; Jury 8907, 18309, 18609*

Dry E- and W-facing slopes of mountains with *Juniperus thurifera*, *Bupleurum spinosum*.

**Isatis tinctoria L. subsp. tinctoria**

*Ait Lafkîh 494; Jury 8928, 18384*

Abundant along roadside verge and ruderal places in the village.

**Lepidium draba subsp. draba (L.) Desv.**

*Jury 18092*

Ruderal community around azib (shepherd huts).

**Lepidium heterophyllum Benth. subsp. atlanticum (Ball) J.M.Monts.**  
*Jury 8918, 18168, 18924, 18936; Reading Univ./B.M. Expedition 746, 753*  
Bank of stream below sandstone cliffs.

**Lepidium hirtum (L.) Sm. Subsp. dhayense (Munby) Thell.**  
*Jury 18915*  
Banks of lake.

**Nasturtium officinale R.Br.**  
*Jury 8939, 18191, 18971*  
In small stream.

**Neslia paniculata (L.) Desv.**  
*Jury 18891*  
Ruderal around houses.

**Thlaspi perfoliatum L. var. rotundifolia Ball**  
*Ait Lafkif 607; Fernández Casas 13739*  
On open slopes.

## CALLITRICHACEAE

**Callitriche sp.**  
*Jury 18280*  
In lake.

## CAMPANULACEAE

**Campanula filicaulis Durieu in Bory & Durieu**  
*Ait Lafkif 628; Jury 8825b, 18376*  
Open heavily grazed and stony areas.

**Campanula mairei Pau**  
*Jury 18341, 18654*  
Shady, N-facing crevices of basalt cliffs.

**Jasione crispa (Pourr.) Samp. subsp. lanuginella (Lit. & Maire) Lambinon & Lewalle**  
*Ait Lafkif 505; Jury 8845, 8846, 18205, 18319, 18346, 18624, 18856, 18940;*  
*Lewalle 11207; Reading Univ./B.M. Expedition 788*

## CARYOPHYLLACEAE

**Arenaria pungens Lag.**  
*Ait Lafkif 515; Jury 8890, 18117, 18308, 18615*  
Rocky slopes and crevices.

**Arenaria grandiflora L. subsp. grandiflora***Romo 280585 (BC)*

Silicious and rocky soils.

**Arenaria serpyllifolia L.***Jury 8916, 18365, 18939, 18951*

Disturbed open gravelly valley bottom.

**Bufonia mauritanica Murb.***Romo 10633 (BC)*

Scrublands on sandstone.

**Cerastium arvense L. subsp. arvense***Ait Lafkikh 610; Güemes 1660; Jury 18960*

Shady areas.

**Cerastium arvense L. subsp. strictum (Koch) Schinz & R.Keller***Jury 18181, 18933*

Rock crevices of N-facing sandstone cliffs.

**Cerastium atlanticum Durieu subsp. longipes (Batt.) Möschl***Jury 18180, 18272; A.Herrero et al. AH3241*

Rock crevices of N- and W-facing slopes and cliffs.

**Cerastium brachypetalum Pers.***Jury 8937*

Grazed turf.

**Dianthus lusitanus Brot.***Ait Lafkikh 523; Damblon 83/60; Güemes 1594; Jury 8849, 18118, 18307, 18620*

Rocky slopes.

**Dianthus sylvestris Wulfen subsp. boissieri (Willk.) Dobignard***Jury 8850; Romo 10610 (BC)*

Rocky, SE-facing slopes.

**Herniaria glabra L.***Jury 8959*

Waste ground near road.

**Herniaria regnieri Braun-Blanq. & Maire***Jury 18098*

Ruderal areas by road, trodden and grazed.

**Minuartia funkii (Jord.) Graebn.***Jury 8885, 18367, 19834; Lambinon 98/577*

Open stony areas.

**Minuartia stereoneura Mattf.**

*Jury* 8896, 9050

Open top of Jbel Oukaïmeden and SW-facing rocky slopes.

**Minuartia hybrida (Vill.) Schischk. subsp. *hybrida***

*Romo* 10616 (BC)

Therophyte grassland.

**Minuartia verna (L.) Hiern subsp. *kabylica* (Pomel) Maire & Weiller**

*Ait Lafkih* 528; *Jury* 9006, 18104, 18913; *López* 9005

Rocky crevices, stony soils, etc.

**Moenchia erecta (L.) P.Gaertn., B.Meyer & Schreb.**

*A.Kool et al.* 1010

Ruderal around shepherd's huts.

**Paronychia argentea Lam.**

*Ait Lafkih* 645; *Jury* 8988, 18207, 18989

Ruderal areas.

**Paronychia polygonifolia (Vill.) DC. in Lam. & DC.**

*Jury* 18270

Dry, stony areas.

**Polycarpon polycarpoides (Biv.) Zodda subsp. *herniarioides* (Ball) Maire & Weiller**

*Jury* 9001, 18115, 18127; *Romo* 10616 (BC)

N-facing rock crevices.

**Sagina apetala Ard.**

*Romo* 10633 (BC).

Stony soils.

**Sagina procumbens L. subsp. *atlasica* Dobignard**

*Ait Lafkih* 613; *Jury* 8965, 18179, 18345, 18950; *Romo* 10600 (BC)

Rock crevices in shady and damp places; stream bank.

**Scleranthus polycarpos L.**

*A.Kool et al.* 1017

Ruderal around shepherds' huts.

**Silene boryi Boiss.**

*Dobignard* 23526 (G); *Jury* 8903, 18335; *Romo* 10613 (BC)

Shady slopes and crevices.

**Silene dyris Maire**

*Reading Univ./B.M. Exped.* 741

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

*Ait Lafkih* 512; *Jury* 18301, 19585

Stony ground on sandstone rocks.

**Silene latifolia Poir. subsp. latifolia**

*Ait Lafkîh 639*

Verge of road and grassland.

**Silene patula Desf. subsp. patula**

*Herrero 3024; Jury 8901, 18134*

N-facing sandstone cliffs, SW-facing rocky slopes and pasture.

**Silene vulgaris (Moench) Garcke**

*Jury 18146*

Meadows on E-facing slopes.

**Spergularia bocconeii (Scheele) Asch. & Graebn.**

*Jury, 18991, 18247*

Open gravely areas and roadsides.

**Stellaria media (L.) Vill.**

*Jury 18085*

Ruderal community around azib.

**Stellaria alsine Grimm**

*Jury 8931, 18167*

Bank of stream.

**Vaccaria hispanica (Mill.) Rauschert subsp. grandiflora (Ser.) Holub**

*Jury 8994*

Ruderal around buildings.

**CISTACEAE**

**Helianthemum croceum (Desf.) Pers.**

*Ait Lafkîh 514; Jury 18150*

Abundant on somewhat degraded slopes.

**Helianthemum helianthoides (Desf.) Grosser**

*Jury 8987*

On SE-facing rocky slope.

**COLCHICACEAE**

**Colchicum lusitanum Brot.**

*Jury 8946, 18263b, 18605, 18627, 18651*

Rocky pasture above village and in grazed turf of pasture.

**CONVOLVULACEAE**

**Cuscuta nivea M.A.Garcia**

*Jury 18299*

On Cytisus by edge of road.

**Cuscuta planiflora Ten.**

*Ait Lafkîh 649*

On Trifolium, etc.

**Cuscuta triumvirati Lange**

*Jury 8881, 18306*

Parasitic on Bupleum spinosa and Eryngium bourgatii on E- and SE-facing rocky slopes.

**CRASSULACEAE**

**Crassula vaillantii (Willd.) Roth**

*Jury 18283*

On drying mud around lake.

**Sedum acre L. subsp. neglectum (Ten.) Arcang.**

*Jury 18129*

Crevices of N-facing sandstone cliffs.

**Sedum album L.**

*Ait Lafkîh 530, 651*

**Sedum caespitosum DC.**

*Jury 18380*

Roadside verges.

**Sedum dasyphyllum L.**

*Ait Lafkîh 665; Jury 8964, 18100*

N-facing 'sandstone' cliffs, rock crevices and ledges in shade.

**Sedum modestum Ball**

*Ait Lafkîh 652; Jury 18660*

Shady damp crevices on N-facing rocky cliffs.

**Sedum surculosum Cass.**

*Ait Lafkîh 601; Reading Univ./B.M. Expedition 727; Jury 18337*

Soil of shady rock ledges.

**Sempervivum atlanticum Ball**

*Ait Lafkîh 485, 638; Jury 18130, 18638, 18912, 18947*

Crevices in sandstone rocks.

**Umbilicus horizontalis (Guss.) DC.**

*Jury 18103*

N-facing sandstone cliffs.

**Umbilicus rupestris (Salisb.) Dandy**

*Jury 9003, 18131*

Shady crevices of N-facing cliffs.

**CUPRESSACEAE**

**Juniperus thurifera L.**

*Ait Lafkhih 492, 661; Gardner 4914, 4918; Jury 9026, 18614*

Rocky slopes, heavily grazed.

**CYPERACEAE**

**Carex distans L. subsp. distans**

*Jury 18206*

Damp ledge on S-facing rocky bank.

**Carex divisa Huds.**

*Jury 18976*

Grassy area by road.

**Carex intricata Tineo**

*Ait Lafkhih 508; Jury 8961, 18260*

Banks of stream.

**Carex nevadensis Boiss. & Reut.**

*Jury 8938, 18343a, 18966*

Flat crevice of N-facing rocky cliffs of Jbel Angour.

**Carex ovalis Good**

(including *C. ovalis* Good var. *atlasica* (H.Lindb.) Borat. & Romo)

*Jury 18304, 18343*

Wet gulley on E-facing slope of mountain.

**Eleocharis palustris (L.) Roem. & Schult.**

*Jury 18286*

Growing in lake around margin.

**Eleocharis quinquefolia (Hartmann) O.Schwartz**

*Jury 18274, 18281, 18968*

Wet flush by azib (shepherds' houses), around lake and by stream.

**Isolepis cernua (Vahl) Roem. & Schult.**

*Jury 18230*

Wet flush on S-facing rocky bank in sandstone gorge.

**DIPSACACEAE**

**Scabiosa atropurpurea L.**

*Ait Lafkîh* 618; Jury 8859  
SE facing rocky slopes.

**Scabiosa columbaria L.**

*Jury* 18116  
Rock crevices of N-facing cliffs.

**EUPHORBIACEAE**

**Euphorbia villosa Willd.**

*Jury* 19012  
Growing out of wall.

**Mercurialis elliptica Poir. in Lam.**

*Jury* 19018

**FABACEAE**

**Anthyllis vulneraria L. subsp. *maura* (G.Beck) Lindb. var. *maura***

*Jury* 8860, 18133, 18847  
In crevices of sandstone rocks.

**Astragalus ibrahimianus Maire**

*Jury* 8878; *Reading Univ./B.M. Expedition* 750  
SE facing rocky slope.

**Cytisus grandiflorus DC.**

*Ait Lafkîh* 604; *Jury* 18905, *Lafpez* 8957  
Rocky banks.

**Cytisus valdesii Talavera & Gibbs**

*Ait Lafkîh* 513; *Jury* 8879, 18216, 18954  
Open, rocky slopes.

**Erinacea anthyllis Link**

*Reading Univ./B.M. Expedition* 783  
Open, rocky slopes.

**Hippocratea unisiliquosa L.**

*Ait Lafkîh* 648

**Lotus alpinus Schleicher ex Ramond**

*Boratynski & Romo* 10633 (BC)

**Lotus corniculatus L.**

*Ait Lafkîh* 535; *Jury* 8948, 18174, 18914

Waste ground near road and grassy places.

**Medicago suffruticosa Raymond subsp. maroccana (Batt.) Maire**

*Jury 8966, 18663; Reading Univ./B.M. Expedition 744*

Very closely appressed to rocks near streams.

**Ononis cristata Mill.**

*Reading Univ./B.M. Expedition 770; Jury 9054*

Near mountain summits on N-facing slopes.

**Ononis spinosa L.**

*Ait Lafkhi 646*

**Trifolium arvense L.**

*Ait Lafkhi 537; Jury 8855, 18218; A.Kool et al. 1035*

S-facing rocky banks and ruderal places.

**Trifolium campestre Schreb.**

*Ait Lafkhi 609; Jury 8960, 18227*

Dry grassy banks and wet flushes on S-facing rocky banks.

**Trifolium dubium Sibth.**

*Jury 18290*

Damp grassland by lake.

**Trifolium gemellum Pourr. ex Willd.**

*Jury 18888*

Ruderal around houses.

**Trifolium humile Ball**

*Ait Lafkhi 499; Jury 8914, 18185*

Banks of small stream.

**Trifolium ochroleucon Huds.**

*Ait Lafkhi 558; Jury 8913, 18143, 18287; Reading Univ./B.M. Expedition 792*

Pasture and damp grassland.

**Trifolium repens L.**

*Ait Lafkhi 590; Jury 8993, 18184*

Grassy areas in pasture.

**Trifolium strictum L.**

*Jury 18291*

Damp grassland by lake.

**Vicia benghalensis L.**

*Jury 18892*

Ruderal areas.

**Vicia onobrychioides L.**

*Fernández Casas* 9557; *Jury* 9014; *López* 9111  
On SE-facing rocky slopes.

**Vicia tenuifolia** Roth subsp. **villosa** (Batt.) Greuter  
*Jury* 18158  
Steep E-facing slopes.

## GENTIANACEAE

**Blackstonia grandiflora** (Viv.) Pau  
*Ait Lafkîh* 678  
Wet flushes.

**Centaurium erythraea** Rafn subsp. **suffruticosum** (Griseb.) Greuter  
*Jury* 19198  
Wet flush on S-facing rocky bank.

## GERANIACEAE

**Erodium cicutarium** (L.) L'Hér. in Aiton  
*Jury* 18256; *Guemes JGH-1611*  
Abundant around ski lift in open stony areas.

**Geranium pyrenaicum** Burm.f.  
*Jury* 9004, 18086, 18295; *Reading Univ./B.M. Expedition* 793  
Ruderal community around azib (shepherd huts) and N-facing rock crevices.

## GLOBULARIACEAE

**Globularia liouvillei** Jahand. & Maire  
*Jury* 18962  
Grassy N-facing slopes in shade.

## GROSSULARIACEAE

**Ribes uva-crispa** L.  
*Ait Lafkîh* 493 *Jury* 9016, 18147; *Reading Univ./B.M. Expedition* 734  
Meadows on steep SE- and E-facing slopes.

## HYACINTHACEAE

**Hyacinthoides hispanica** (Mill.) Rothm.  
*Ait Lafkîh* 600; *Jury* 9022, 18151, 18640  
Shady soil pockets below N-facing sandstone cliffs.

**Muscari comosum (L.) Mill.**

*Jury 18223; Fernández Casas 9559; Reading Univ./B.M. Expedition 790*  
S-facing rocky bank in sandstone gorge.

**Ornithogalum algeriense Jord. & Fourr.**

*Ait Lafkih 599; Jury 8935, 18650, 18923; Reading Univ./B.M. Expedition 742*  
In soil on shady sandstone rocks ledges, grazed turf on peaty soil on plain.

**Ornithogalum pyrenaicum L.**

*Boratynski & Romo 10633 (BC)*

**Urginea maritima (L.) Baker var. *maura* (Maire) Maire**

*Ait Lafkih 653*  
Rocky slopes, heavily grazed.

**HYPERICACEAE**

**Hypericum pubescens Boiss.**

*Ait Lafkih 659*  
Wet flush.

**IRIDACEAE**

**Gladiolus communis L. subsp. *byzantinus* (Mill.) A.P.Hamilton**

*Ait Lafkih 624; Jury 8934, 18220, 18983*  
S-facing rocky bank and grazed turf of plain.

**JUNCACEAE**

**Juncus bufonius L.**

*Jury 18381*  
Damp area along roadside verges and by lake.

**Juncus capitatus Weigel**

*Boratynski & Romo 10623 (BC)*

**Juncus fontanesii Gay subsp. *brachyanthus* Trab.**

*Jury 8930, 18190, 18243, 18926, 18967*  
Damp areas.

**Juncus inflexus L.**

*Jury, SL 18176b*  
Banks of stream.

**Luzula atlantica Braun-Blanq.**

*(Dobignard & Jordan, 1987)*

**Luzula multiflora (Retz) Lej. subsp. brachyanthus Trab.**  
(Dobignard & Jordan, 1987)

## LAMIACEAE

**Hyssopus officinalis L. subsp. pilifer (Pau) Murb. var. maroccanus (Coss.)**

**Litard. & Maire**

*Ait Lafkhih 574; Jury 8898, 18329, 18266, 18909*

Dry stony areas on plain and on mountainsides.

**Lamium amplexicaule L.**

*Reading Univ./B.M. Expedition 789*

Ruderal around Azib (shepherd huts).

**Lamium flexuosum Ten.**

*Jury 8986, 18137, 18882*

Ruderal disturbed areas.

**Marrubium vulgare L.**

*Jury 18322*

Roadside verge.

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

*Jury 18219; Podlech 55296*

Damp area on S-facing rocky bank.

**Nepeta atlantica Ball**

*Ait Lafkhih 576; Jury 8905, 18248, 18889*

Dry gravelly areas, stony banks and rocky slopes.

**Salvia verbenaca L.**

*Ait Lafkhih 526; Jury 8877, 18193*

S- and SE-facing rocky banks.

**Satureja alpina (L.) Scheele subsp. meridionalis (Nyman) Greuter & Burdet**

*Jury 9029, 18320*

Steep rocky bank.

**Satureja atlantica (Ball) Maire**

*Ait Lafkhih 481, 635; Jury 18135, 18204, 18982*

N-facing sandstone cliffs and slopes.

**Satureja baetica (Boiss. & Heldr.) Pau**

*Jury 18311*

Steep S-facing cliffs.

**Sideritis villosa Coss. & Balansa**

*Ait Lafkhih 544, 650; Jury 8843, 8869, 18194, 18336, 18612, 18981; Reading*

*Univ./B.M. Expedition 732*  
In rock crevices.

**Stachys saxicola Coss. & Ball subsp. *vilosissima* (Ball) Maire**  
*Romo 10578 (BC)*  
Scrub on sandstone rocks.

**Teucrium rotundifolium Schreb.**  
Ait Lafkih 483; Jury 18200, 18858, 18987  
In rock crevices.

**Thymus dreatensis Batt.**  
*Jury 8888, 9053*  
On open mountain top and S- and SW-facing rocky slopes.

## LILIACEAE

**Fritillaria messanensis Raf. in Desv.**  
*Jury 18120*  
Rock crevices of N-facing slopes.

**Gagea fragifera (Villars) Bayer & López González**  
*Fernández Casas 13741; Dobignard s.n.; Tison s.n.*  
Subhumid pasture.

**Gagea dubia A.Terracciano**  
*Tison, s.n.*  
Silicious rock crevices.

**Gagea nevadensis Boiss.**  
*Blanche 952; Royaud & Dobignard s.n.*

## LINACEAE

**Linum bienne Mill.**  
*Ait Lafkih 641*

## LYTHRACEAE

**Lythrum portula (L.) D.A.Webb**  
*Jury 18282*  
On drying mud around lake.

## MALVACEAE

**Malva neglecta Wallr.**

*Jury* 8989, 18379  
Roadside verges, walls and ruderal places.

**Malva sylvestris L.**  
*Ait Lafkîh* 532; *Jury* 8992, 18165, 18887  
Roadside verges and ruderal places.

**Malva tournefortiana L.**  
*Jury* 8954, 18094, 18900, 18911  
Ruderal community around azib (shepherd huts) and road verges.

## MORACEAE

**Ficus carica L.**  
*Jury* 18296  
S-facing rock crevices.

## ONAGRACEAE

**Epilobium alsinifolium Vill.**  
*Jury* 18355, 18667; *Lafkîh* 9082  
Wet flush by stream in gulley on N-facing rocky cliffs of Jbel Angour.

**Epilobium obscurum Schreb.**  
*Ait Lafkîh* 636; *Jury* 18231  
Wet flush on S-facing rocky bank.

## ORCHIDACEAE

**Dactylorhiza elata (Poir.) Soó**  
*Ait Lafkîh* 622; *Jury* 18242, 18925  
Frequent along banks of stream and damp seepages through grazed pasture.

## OROBANCHACEAE

**Euphrasia willkommii Freyn**  
*Jury* 8932, 18182, 18252, 18922; *Lambinon* 98/564  
In grazed turf in valley bottom.

**Orobanche amethystea Thuill.**  
*Jury* 18986

**Orobanche ballotae A.Pujadas**  
*Jury* 8867  
Parasitic on Mantisalca?

**Orobanche cernua Loefl.**

*Jury 18946*

Parasitic on Compositae.

**Orobanche gracilis Sm. var. deludens (Beck) A.Pujadas**

*Jury 8866, 18845*

On *Cytisus* or *Scorzonera pseudopygmaea*.

**Orobanche minor Sm.**

*Jury 9008*

Parasitic on Crepis.

**Orobanche mutelii F.W.Schultz**

*Jury 8893*

Parasitic on Catananche.

**Orobanche rapum-genistae Thuill.**

*Jury 18217, 18845*

Growing on *Cytisus grandiflorus* 18216?

**Parentucellia viscosa (L.) Caruel**

*Ait Lafkih 625, Jury 9009, 18186*

Bank of small stream and road verge.

## PAPAVERACEAE

**Fumaria parviflora Lam.**

*Jury 18974*

Gravelly and somewhat ruderal bank of stream.

**Glaucium corniculatum (L.) J.H.Rudolph**

*Jury 18298*

Ruderal by edge of road.

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

*Ait Lafkih 598; Jury 8887, 18125, 18662*

N-facing rocky slope below cliffs; in rock crevices.

**Papaver dubium L.**

*Jury 18253a*

Dry, open stony area by ski lift.

## PARNASSIACEAE

**Parnassia palustris L.**

*Jury 8929, 18927*

In damp, grased turf on valley floor.

## PLANTAGINACEAE

**Linaria micrantha (Cav.) Hoffmanns. & Link**  
*Jury 18853*

**Linaria multicaulis (L.) Mill.**  
*Ait Lafkih 525; Jury 8844, 18089, 18628, 18872*  
Ruderal communities and on rocky slopes.

**Linaria tristis (L.) Mill. subsp. *livida* (Ball) Maire**  
*Jury 18366, 18949; Reading Univ./B.M. Expedition 752*  
Gravelly plain and scree slopes.

**Plantago coronopus L. subsp. *cupanii* (Guss.) Pilger**  
*Jury 8856, 18142*  
Ruderal at sides of road and in shady crevices of rocks in sheep pen on N-facing cliffs.

**Veronica anagallis-aquatica L. subsp. *aquatica* (Bernh.) Maire**  
*Jury 8915, 18189*  
At edge of small stream.

**Veronica arvensis L.**  
*A.Kool et al. 1007*  
Ruderal around shepherds' huts.

**Veronica beccabunga L.**  
*Jury 18229, 19007*  
Wet flushes.

**Veronica hederifolia L. subsp. *maura* Munb.**  
*Fernández Casas 9537, 13738; Jury 18852*

**Veronica repens DC. var. *cyanea* Litard. & Maire**  
*Jury 18839*  
On soil patches among rocks.

**Veronica rosea Desf. subsp. *atlantica* (Ball) I.Soriano**  
*Reading Univ./B.M. Expedition 747; Romo 10616 (BC)*  
Stony soils on siliceous rocks.

**Veronica verna L.**  
*Romo 28.v.1985 (BC)*  
Siliceous soils.

## PLUMBAGINACEAE

**Armeria atlantica Pomel**

*Jury* 8853, 18144, 18964  
Abundant in grazed pasture.

## POACEAE

### **Aegilops geniculata Roth**

*Jury* 18869  
Dry, S-Facing slopes.

### **Aegilops triuncialis L.**

*Jury* 8854, 18316  
Open roadsides.

### **Agrostis castellana Boiss. & Reut.**

*Ait Lafkiah* 501, 524; *Jury* 18113, 18172, 18173, 18349, 18871, 18907  
Dry, rocky slopes and damp ground.

### **Alopecurus aequalis Sobol.**

*Jury* 18267, 18284  
Dried-up pond in river and lake margins.

### **Alopecurus arundinaceus Poir.**

*Jury* 8922, 8940, 18176a, 18259, 18285, *Reading Univ./B.M. Expedition* 759  
Growing around lake in damp ground and near stream.

### **Alopecurus geniculatus L.**

*Jury* 8997  
Over rocks and into water of lake.

### **Anthoxanthum odoratum L.**

*Jury* 8933, 18918  
In grazed turf in valley bottom.

### **Arrhenatherum album (Vahl) Clayton**

*Jury* 8868  
SE facing rocky slope.

### **Arrhenatherum elatius (L.) Beauv. ex J.& C.Presl subsp. *Bulbosum* (Willd.)**

**Schrübler & Martius**  
*Ait Lafkiah* 504; *Güemes* 1626b; *Jury* 18653, 18895  
In gravelly areas, sometimes flooded.

### **Avenula bromoides (Gouan) H.Scholz**

*Jury* 8862; *Reading Univ./B.M. Expedition* 772  
Growing in rock crevices and on S-facing slopes.

### **Brachypodium phoenicoides (L.) Roem. & Schult.**

*Jury* 8871, 18197  
S-facing rocky bank in sandstone gorge.

**Bromus hordeaceus L.***Jury 8920, 18171, 18374, 18867*

Slopes, stream banks and gravelly areas.

**Bromus rigidus Roth***Jury 18866*

S-facing slopes.

**Bromus squarrosus L.***Jury 8875, 18373, 18945*

Damp gravelly plain at base of N-facing rocky cliffs of Jbel Angour.

**Bromus sterilis L.***Jury 18140*

Shady area in sheep pen on N-facing cliffs.

**Bromus tectorum L.***Jury 8919, 18370, 18874; Reading Univ./B.M. Expedition 723*

Damp gravelly areas.

**Dactylis glomerata L. subsp. hispanica (Roth) Nyman***Jury 8923, 18271; Reading Univ./B.M. Expedition 760*

In pasture near stream and dry stony areas.

**Dasypyrum breviaristatum (Lindb.f.) Frederiksen***Jury 8874, 18149, 18864*

E-, SE- and S-facing rocky slopes.

**Festuca atlantica Duval-Jouve subsp. oxyphylla (Litard. & Maire) Romo***Jury 18350, 18357*

Damp ground by stream on N-facing rocky cliffs of Jbel Angour.

**Festuca arundinacea Schreb. subsp. atlantigena (St.Yves) Auquier***Jury 18302, 18953; Reading Univ./B.M. Expedition 773*

On E-facing rocky sandstone slopes and banks of stream.

**Festuca baetica (Hack.) K.Richt.***Güemes JGH-1687***Festuca geniculata (L.) Link***Jury 18904***Festuca indigesta Boiss. subsp. aragonensis (Willk.) Kerguélen***Jury 18870*

S-facing slope with deep rock crevices.

**Festuca ovina L. sensu lato***Ait Lafkih 511; Jury 8895; Reading Univ./B.M. Expedition 780*

On rocky slopes.

**Glyceria notata Cheval.**

*Ait Lafkhih 500; Jury 8962, 18188, 18251, 18969*

Growing out from bank into small stream.

**Holcus lanatus L.**

*Jury 18177*

Bank of stream.

**Hordeum geniculatum All.**

*Jury 8924*

Weed around ski lift.

**Hordeum glaucum Steud.**

*Jury 18386, 18865*

Occasional along roadside verge.

**Koeleria crassipes Lange**

*Jury 18109, 18875; Reading Univ./B.M. Expedition 774*

N-facing rocky slopes.

**Lolium multiflorum Lam.**

*Ait Lafkhih 634; Jury 18975*

Grassy area by road.

**Lolium rigidum Gaudin**

*Jury 18178, 18232*

Bank of stream and damp places.

**Melica cupanii Guss.**

*Jury 18321*

Steep rocky banks.

**Melica minuta L.**

*Ait Lafkhih 509*

On gravelly soil, occasionally flooded.

**Molinia caerulea (L.) Moench subsp. caerulea**

*Romo 10628 (BC)*

Wet clay soils.

**Oryzopsis caerulescens (Desf.) Beauv.**

*Jury 18250*

Dry stony bank by ski lift.

**Phleum bertolonii DC.**

*Jury 18108, 18258, 18288, 18972*

N-facing rocky slopes and damp pasture by stream.

**Poa alpina L. var. alpina**

*Jury 18356, 18371, 18963*  
Damp ground by stream.

**Poa bulbosa L. var. vivipara Koel.**

*Jury 18868; Reading Univ./B.M. Expedition 775*  
S-facing slopes with deep rock crevices.

**Poa nemoralis L.**

*Ait Lafkīh 654; Jury 18163, 18351*  
Slopes below cliffs and by stream

**Poa pratensis L.**

*Güemes JGH-1640; Jury 18973*  
Bank of stream.

**Poa supina Schrad.**

*Güemes JGH-1668*  
Rocks in shade.

**Poa trivialis L.**

*Ait Lafkīh 502; Jury 18354, 18973*  
Damp ground by stream.

**Polypogon monspeliensis (L.) Desf.**

*Ait Lafkīh 593*

**Stipa nitens Ball**

*Ait Lafkīh 516; Jury 8848, 18196, 18896*  
S- and SE-facing rocky slopes.

**Trisetum flavescens (L.) Beauv.**

*Ait Lafkīh 520; Jury 8847, 8876, 18170, 18876*  
Rocky, S- and SE-facing slopes and stream banks.

**Vulpia geniculata Link**

*Jury 18139, 18169, 18873*  
Shady area in sheep pen, bank of stream and in deep rock crevices.

## POLYGONACEAE

**Polygonum aviculare L.**

*Jury 8951, 18093, 18175, 18278, 18930*  
Ruderal areas around azib (shepherd huts) and roadsides.

**Polygonum bistorta L.**

*Ait Lafkīh 497; Jury 8936, 18183, 18261, 18658*  
Grassy banks by stream.

**Rumex acetosa L. var. atlantis Maire**

*Damblon* 83/58; *Jury* 8955, 18161  
Waste ground near road and steep E-facing slopes.

**Rumex acetosella L. subsp. pyrenaicus (Pour. ex Lapeyr.) Akeroyd**  
*Jury* 18087  
Ruderal community around azib (shepherd huts).

**Rumex intermedium DC.**

*Ait Lafkih* 640  
Verge of road.

**Rumex patientia L.**

*Jury* 8952  
Waste ground near road.

**Rumex scutatus L. subsp. induratus (Boiss. & Reut.) Nyman**  
*Ait Lafkih* 623; *Jury* 18081, 18208  
Ruderal communities, especially around azib (shepherd huts).

**PORTULACACEAE**

**Montia fontana L. subsp. amporitana Sennen**  
*Jury* 8968, 18244  
Wet gravel along side of stream through grazed pasture.

**POTAMOGETONACEAE**

**Potamogeton natans L.**  
*Jury* 18279  
In lake.

**PRIMULACEAE**

**Androsace maxima L.**  
*Jury* 18245  
Dry, stony, W-facing slope, heavily grazed.

**RANUNCULACEAE**

**Aconitum lycoctonum L. subsp. neapolitanum (Ten.) Nyman**  
*Jury* 18363, 18965  
By stream in gully on N-facing rocky cliffs of Jbel Angour.

**Delphinium balansae Boiss. & Reut.**  
*Jury* 18159  
Steep E-facing slope below sandstone cliffs above stream.

**Myosurus minimus L.**

*Jury 18239*

Dried-up area on winter-flooded plain heavily grazed from August.

**Ranunculus bulbosus subsp. aleae (Willk.) Rouy & Fouc.**

*Jury 8921, 18648; Reading Univ./B.M. Expedition 755*

Grazed pasture below ski-lift and above stream.

**Ranunculus dyris (Maire) H.Lindb.f.**

*Jury 18921*

Damp, peaty mound in pasture.

**Ranunculus granatensis Boiss.**

*Ait Lafkih 498; Jury 8942, 18187, 18352, 18666*

Growing on grassy banks of stream.

**Ranunculus lateriflorus DC.**

*Jury 8941, 18268, 18277*

Dried-up pond areas in stony river and dried areas of lake.

**Ranunculus penicillatus (Dumort.) Bab.**

*Aparicio s.n.; Jury 18255*

In stream by ski lift.

**Ranunculus trichophyllus Chaix**

*Jury 8969, 18192*

In small stream below N-facing sandstone cliffs.

**RESEDACEAE**

**Reseda alba L.**

*Ait Lafkih 642; Jury 8906, 18906*

On S- and SW-facing rocky slopes.

**Reseda luteola L. subsp. luteola**

*Fernández Casas 9511*

**RHAMNACEAE**

**Rhamnus alpinus L.**

*Ait Lafkih 496a; Jury 18315, 18641, 18860; Reading Univ./B.M. Expedition 786*

Vertical cliffs.

**Rhamnus lycioides L. subsp. atlasica (Murb.) Jahand. & Maire**

*Romo 10621 (BC)*

Scrub on sandstone.

## **ROSACEAE**

### **Alchemilla atlantica Lindb.**

*Jury 18353, 18661*

Damp ground by stream on N-facing rocky cliffs of Jbel Angour.

### **Amelanchier ovalis Medik.**

*Ait Lafkhih 489, 496b; Jury 18632, 18862; Reading Univ./B.M. Expedition 784*

N- and W-facing sandstone cliffs.

### **Cotoneaster granatensis Boiss.**

*Jury 18300, 18623, 18637, 18863*

S- and W-facing sandstone cliffs in gorge.

### **Crataegus laciniata Ucria**

*Boratynski & Romo 10622 (BC) & 10579 (BC)*

### **Potentilla pennsylvanica L. subsp. hispanica (Zimmerer) Maire**

*Ait Lafkhih 506; Jury 8852b; Reading Univ./B.M. Expedition 779*

In damp grassland near stream and on slopes.

### **Potentilla recta L. subsp. afra (Pau & Font Quer) Romo**

*Damblon 83/62; Jury 8852a*

On SE-facing slope.

### **Potentilla x ibrahimiana Maire [P. pennsylvanica x P. recta subsp. afra]**

*Güemes JGH-1612*

### **Prunus prostrata Labill.**

*Güemes JGH-1637; Reading Univ./B.M. Expedition 740*

### **Rosa canina L.**

*Jury 18235, 18899*

Dry S-facing rocky banks.

### **Rosa sicula Tratt.**

*Jury 8882, 18878*

S- and SE-facing rocky slopes.

### **Rubus ulmifolius Schott**

*Ait Lafkhih 669; Jury 18325*

S-facing sandstone cliffs.

### **Sanguisorba minor Scop.**

*Ait Lafkhih 611*

### **Sorbus aria (L.) Crantz subsp. meridionalis**

*Güemes JGH-1689; Jury 18855*

N-facing rock crevices.

## RUBIACEAE

### **Asperula aristata L.f.**

*Ait Lafkih 643; Jury 8872; 18110; 18199; 18317; 18330; J. Güemes et al., JGH 1638*  
Rocky slopes.

### **Asperula cynanchica L. subsp. *cynanchica***

*López & Muñoz Garmendia GL 8962; J. Güemes et al. JGH 1691; A. Kool 1037*  
Rocky slopes.

### **Galium aparine L.**

*Jury 18084; 18879, 18942*  
Ruderal community around azib (shepherd huts).

### **Galium lucidum All.**

*Jury 18088*  
Ruderal community around azib (shepherd huts).

### **Galium mollugo L.**

*Jury 8904, 18848*  
On SW-facing rocky slope.

### **Galium parisiense L.**

*Jury, S.L. 18952*  
Stony bank of stream.

## SALICACEAE

### **Populus nigra L.**

*Jury 18124*  
Planted tree in garden of Hotel de l'Angour, 'Chez Juju'.

## SAXIFRAGACEAE

### **Saxifraga carpetana Boiss. & Reut.**

*Féرنandez Casas 9519; A. Kool 1049*

### **Saxifraga granulata L.**

*Reading Univ./B.M. Expedition 730; Jury 19604*  
Growing in very damp rock crevices.

## SCROPHULARIACEAE

### **Scrophularia laevigata Vahl**

*Ait Lafkih 542, Fernández Casas 9515; Jury 18884; López 9119*

Rocky slopes.

**Verbascum cf. calycinum Ball**

*Ait Lafkih 616; Jury 18364*  
Gravelly areas and by road.

**THYMELAEACEAE**

**Daphne laureola L.**

*Ait Lafkih 631; Jury 9015, 18145; Reading Univ./B.M. Expedition 735*  
In shade of large rocks.

**Daphne mauritanica Nieto Fel.**

*Boratynski & Romo 105776b (BC)*

**VALERIANACEAE**

**Centranthus lecoqii Jord. subsp. maroccanus (Rouy) I.B.K.Richardson**

*Ait Lafkih 619; Jury 18221*  
S-facing rocky banks.

**Valeriana tuberosa L.**

*Reading Univ./B.M. Expedition 749*  
Rocky slopes.

**VIOLACEAE**

**Viola kitaibeliana Roemer & Schult.**

*Romo 280585*  
Silicious and rocky soils.

**Viola odorata All.**

*Jury 18881*  
E-facing rock crevices.

**Viola parvula Tineo**

Romo (2007)

**Viola tazzensis Ball**

*C. Blanché, J. Fernández Casas et al. FC 9528*  
Dry areas by road on silicious substrate.