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THE VASCULAR FLORA OF OUKAÏMEDEN, 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This Checklist was originally made by exporting the specimen data resulting from these eight expeditions from our BRAHMS Herbarium database and reorganizing the taxa alphabetically by family.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 Illicebraceae 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 *Scorzoneroideis 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.

PTERIDOPYTES

ASPLENIACEAE

***Asplenium ceterach* L.**

Reading Univ./B.M. Exped. 737

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

M. Ait Lafkih 495; S.L. Jury 8851, 18886

Shady crevices of sandstone rocks.

***Asplenium onopteris* L.**

M. Ait Lafkih 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 Lafkih 630; S.L. Jury 18126, 18202, 19593; Aparicio, Rowe & Silvestre s.n.

Shady crevices.

DRYOPTERIDACEAE

***Polysticum aculatum* (L.) Broth.**

M. Ait Lafkih 644; S.L. Jury 18313

Shady crevices and cave.

POLYPODIACEAE

***Polypodium cambricum* L.**

M. Ait Lafkih 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 Lafkih 603, S.L. Jury 9011, 18312, 18339, 18642, 18655

Shady rock crevices and under rock overhangs.

GYMNOSPERMS

CUPRESSACEAE

Juniperus thurifera L.

M.Ait Lafkih 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 Lafkih 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 Lafkih 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 Lafkih 592

Ruderal community around azib - shepherd huts.

Eryngium bourgatii Gouan

Jury 8880, 18122; Ait Lafkih 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 Lafkih 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 Lafkih 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 Lafkih* 627
Rock crevices on N-facing cliffs.

Anacyclus homogamus (Maire) Humphries

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

Anacyclus pyrethrum L. var. depressus (Ball) Maire

Ait Lafkih 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 caerulea Coss. ex Ball

Ait Lafkih 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 rhaponticoides Coss. & Durieu

Ait Lafkih 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 Lafkih 536
Abundant in degraded areas.

Carduus pycnocephalus L.

Ait Lafkih 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 Lafkih 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 chrysacanthum (Ball) Jahand.

Ait Lafkih 658; Jury 18358, 18659

Damp ground by stream in gulley 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 Lafkih 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 Lafkih 529; Jury 18128, 18334

Crevices of N-facing sandstone cliffs.

Inula montana L.

Ait Lafkih 479; Jury 8873, 18112

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

Jurinea humilis DC.

Ait Lafkih 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 Lafkih 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 Lafkih 595

Steep E-facing slopes.

Mantisalca salmantica (L.) Briq. & Cav.

Ait Lafkih 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.

Scorzoneroidea 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. *aquaticus* (Poir.) 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.) Kerguelen**

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 gymnandra* Gasparr.**

Jury 8998, 18234

Dry S- and E-facing rocky banks.

***Cynoglossum watieri* (Batt. & Maire) Br.-Bl. & Maire**

Jury 18938; Boratyński & Romo 10633 (BC)

Ruderal.

Echium flavum Desf.

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

Echium plantagineum L.

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

Myosotis atlantica Vestergr.

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

Arabis auriculata Lam.

Ait Lafkih 608; Jury 18958
On open slopes.

Arabis erubescens Ball

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

Arabis conrigioides 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 Lafkih 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 Lafkih 487; Güemes et al. 1673; Jury 8886, 18160, 18835

Steep E-facing slopes, N-facing crevices

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

Ait Lafkih 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.Küpper

Syn. *Alyssum spinosum* L.

Ait Lafkih 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 Lafkih 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 Lafkih 607; Fernández Casas 13739
On open slopes.

CALLITRICHACEAE

Callitriche sp.

Jury 18280
In lake.

CAMPANULACEAE

Campanula filicaulis Durieu in Bory & Durieu

Ait Lafkih 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 Lafkih 505; Jury 8845, 8846, 18205, 18319, 18346, 18624, 18856, 18940;
Lewalle 11207; Reading Univ./B.M. Expedition 788

CARYOPHYLLACEAE

Arenaria pungens Lag.

Ait Lafkih 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 gravely valley bottom.

Bufonia mauritanica Murb.

Romo 10633 (BC)

Scrublands on sandstone.

Cerastium arvense L. subsp. arvense

Ait Lafkih 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 Lafkih 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 polycarpus 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 Lafkih 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 gravelly 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 Lafkih 514; Jury 18150

Abundant on somewhat degraded slopes.

Helianthemum helianthemoides (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 Lafkih 649

On Trifolium, etc.

Cuscuta triumvirati Lange

Jury 8881, 18306

Parasitic on Bupleueum 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 Lafkih 530, 651

Sedum caespitosum DC.

Jury 18380

Roadside verges.

Sedum dasyphyllum L.

Ait Lafkih 665; Jury 8964, 18100

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

Sedum modestum Ball

Ait Lafkih 652; Jury 18660

Shady damp crevices on N-facing rocky cliffs.

Sedum surculosum Cass.

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

Soil of shady rock ledges.

Sempervivum atlanticum Ball

Ait Lafkih 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 Lafkih 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 Lafkih 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 Lafkih 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 Lafkih 604; Jury 18905, López 8957

Rocky banks.

Cytisus valdesii Talavera & Gibbs

Ait Lafkih 513; Jury 8879, 18216, 18954

Open, rocky slopes.

Erinacea anthyllis Link

Reading Univ./B.M. Expedition 783

Open, rocky slopes.

Hippocrepis unisiliquosa L.

Ait Lafkih 648

Lotus alpinus Schleicher ex Ramond

Boratynski & Romo 10633 (BC)

Lotus corniculatus L.

Ait Lafkih 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 Lafkih 646

Trifolium arvense L.

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

S-facing rocky banks and ruderal places.

Trifolium campestre Schreb.

Ait Lafkih 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 Lafkih 499; Jury 8914, 18185

Banks of small stream.

Trifolium ochroleucon Huds.

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

Pasture and damp grassland.

Trifolium repens L.

Ait Lafkih 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 onobrychiodes 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 Lafkih 678
Wet flushes.

***Centaureum 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; Güemes 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 Lafkih 493 Jury 9016, 18147; Reading Univ./B.M. Expedition 734
Meadows on steep SE- and E-facing slopes.

HYACINTHACEAE

***Hyacinthoides hispanica* (Mill.) Rothm.**

Ait Lafkih 600; Jury 9022, 18151, 18640
Shady soil pockets below N-facing sandstone cliffs.

Muscari comosum (L.) Mill.

Jury 18223; Fernandez 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 Lafkih 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 Lafkih 576; Jury 8905, 18248, 18889
Dry gravelly areas, stony banks and rocky slopes.

Salvia verbenaca L.
Ait Lafkih 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 Lafkih 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 Lafkih 544, 650; Jury 8843, 8869, 18194, 18336, 18612, 18981; Reading

Univ./B.M. Expedition 732

In rock crevices.

Stachys saxicola Coss. & Ball subsp. villosissima (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 Lafkih 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; Lopez 9082

Wet flush by stream in gulley on N-facing rocky cliffs of Jbel Angour.

Epilobium obscurum Schreb.

Ait Lafkih 636; Jury 18231

Wet flush on S-facing rocky bank.

ORCHIDACEAE

Dactylorhiza elata (Poir.) Soó

Ait Lafkih 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 silicious rocks.

***Veronica verna* L.**

Romo 28.v.1985 (BC)

Silicious 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 Lafkih 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.) *Schröbler & Martius

Ait Lafkih 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. aragonensia (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 Lafkih 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 Lafkih 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 Lafkih 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 Lafkih 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 Lafkih 502; Jury 18354, 18973

Damp ground by stream.

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

Ait Lafkih 593

***Stipa nitens* Ball**

Ait Lafkih 516; Jury 8848, 18196, 18896

S- and SE-facing rocky slopes.

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

Ait Lafkih 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 Lafkih 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 intermedius 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 Lafkih 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* (Zimmer) Maire**

Ait Lafkih 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 Lafkih 669; Jury 18325

S-facing sandstone cliffs.

***Sanguisorba minor* Scop.**

Ait Lafkih 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.**

Fernandez 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.