

# News from

# Jim & Jenny Archibald

'BRYN COLLEN', FFOSTRASOL,  
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## WE SAY HELLO TO THE PRESENT CENTURY : JANUARY, 1996

For decades we have resisted the advice of friends, who have been telling us that we "have to get a computer". As the present century draws to a close, we find ourselves in possession of one. Our younger son, who has just moved to Kansas, is conveniently storing his nearly new PC with us. We suspect that it will be thoroughly outdated by the time he returns. We cannot say that it has made the production of the present list any easier but it should make it a little more legible and aesthetically pleasing. We have kept a

similar format to all our previous lists, so that those of you who take them apart and file them can continue to do so. While we should like a beautifully designed list, 10 pt. type and mean margins are necessary to pack in anything like as much as we usually include. Those who cannot read newspapers may still have problems. Sadly, we have been unsuccessful in locating software to persuade our PC to collect, packet and despatch the seeds. We are not impressed. It seems we are not yet altogether dispensable.

## The Great Californian Wash-out of 1995

This might be an unfair description of our visit to the West in 1995 but it is certainly what had occurred before we arrived. The preceding winter and spring were exceptionally wet. About twice the average rainfall fell in most areas throughout the West. The snow-pack in the great mountain-ranges was almost without precedent and meant that the higher alpine had not even emerged when we left in August. After grumbling about a succession of dry seasons over the past decade, it may seem perverse for us to complain about a very wet one. Although certainly of great advantage to the vegetation in the long-term, it did create a few problems. The earliest flowers, like the Erythroniums, set little seed as there were no pollinating insects about or their pollen was washed off by the rain. Early humming-bird pollinated species, like *Fritillaria recurva*, suffered, as the birds had not arrived from the south. From our point of view, it was a difficult and

extremely late season for seed. We had planned to stay a little later than we have in recent years, in the expectation of collecting more high altitude and late-flowering species. This was not possible as we found the season anything from two weeks to two or more months later than might have been expected. On the credit side, we were fortunate to be able to see superlative displays of flowers in some areas. The White Mountains were incredibly beautiful in late June. The early flowers were very late but the later flowers were on time so that almost everything was out at once. In most areas, it was the year of the Mariposa. The later *Calochortus* appeared in breathtaking quantity. The entire base of the Sawtooth Valley in Idaho was filled with millions of *Calochortus eurycarpus*. Every bulb seemed to have flowered, the smallest producing tiny flowers on short stems, creating a second layer below the larger ones.

## Our high and late Californian friends to the rescue

High and late collections may have been out of the question for us but, thanks to Californian friends, they are not absent from our list. John Andrews and Mike Broder have made October visits to such delectable high spots as Mt. Eddy and Jim and Georgie Robinett have travelled both north and south from their base at Sebastopol to collect lily seed in late September. The latter team will be well-known to many of you and we are grateful to them for enabling us to share their seed collections with you, now that they have discontinued issuing their own annual seed list. While they have not been able to send out either bulbs or seeds in 1995, they hope to be able to distribute living

material again in 1996, (contact them at Robinett Bulb Farm, PO Box 1306, Sebastopol, CA 95473-1306.). Their seed-collecting forays will continue to be necessary for their own propagation programme and we hope you may benefit from time to time. Their late trip up North proved unusually eventful as they found themselves involved in a high-speed car-chase on Patrick Creek road, an old dirt-road between California and Oregon. A Highway Patrol car, lights and sirens going, pursued a station wagon with three men in it, members of a gang of six, who had held up a store in Crescent City and "gone on to do other (unidentified) criminal things". The Wild West lives on.

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IF YOU DO NOT ORDER, YOU SHOULD WRITE TO ASK US TO SEND THE NEXT LIST**

## Drought strikes the green, green hills of home

As our plane returned to the British Isles, the aspect from the air was distinctly Californian. In spite of the statistics beloved of the British, summer of 1995 in Wales in no way compared with our summer of 1976 in Dorset. The clay soil of our cool North slope still held moisture and there was a trickle of water in the stream at the bottom of our valley. Our good friends and neighbours Austin Hill and Rita Jukes had worked hard to keep the container-grown plants (mostly destined to expand the planting in our field in spring, 1996) well-watered. Though

we cannot afford to be too concerned about what happens to our plants in our absence, we did feel more than a little guilty at leaving others with the responsibility of caring for them in such a difficult year. Fortunately the water kept flowing through the pipes in West Wales. Our supply is extracted from the mouth of the River Teifi, of which our own little stream is a tributary, and pumped all the way back up to us. In spite of vocal complaints to the contrary, water remains a cheap commodity in Britain. It should be - we have plenty of it.

## English water goes down the drain

The superfluity of water which falls on Britain makes our 'droughts' the most bizarre fiascos. Like gardeners in many parts of the UK, we have had no cause for complaints against those responsible for supplying us with water. The same could certainly not be said for those who garden in Yorkshire and some other parts of these islands, where 'drought restrictions' continue. Those of you who live in drier climates with seasonal rainfalls would doubtless find the situation here both incomprehensible and surreal. You would expect to pay for what you used. In many parts of England & Wales, 'set charges' are normal. Ten people living in a modest house with leaking taps and watering their garden all day might pay less for their water than one careful person living in a mansion and not watering the garden at all. Don't feel sympathy for the water companies, they knew the situation when water was privatised some years ago. In 1976, most people here felt a (probably misguided) sense of social responsibility in the use

of water. Attempts by some water companies to exploit this and claim an imagined moral high ground have rightly been resisted by their customers. These privatised monopolies are commercial concerns making substantial profits and no mercy should be shown to them by the consumer. Yorkshire Water started off the 1995 summer with its reservoirs full after a very wet winter. It allows a quarter of its water to run away through leaks in its supply system. It then declares record profits. Our own water supply, unlike most in the UK, is metered. We pay for what we use. As far as we are concerned, once the water has passed the meter, it is ours, we have paid for it and we can do whatever we choose to do with it. We are not concerned if the board of Welsh Water supplies it by buying bottles of Perrier and pouring them down the other end of the pipe (which is not far off from what is happening in Yorkshire). The trouble with monopolies is that it is we, the consumers, who will eventually have to pay for this corporate greed and inefficiency.

## Ordering from this list could not be easier

We shall accept your personal cheque in US \$, £ sterling or DM, with two qualifications : cheques in US \$ must be on a US bank account - charges on negotiating cheques on foreign accounts are very high in the USA (foreign banks can sometimes sell you a US \$ cheque drawn on one of their US branches) ; please do not send Eurocheques made out in US \$ - these are unfamiliar to the US banking system. Payments from France can cause problems. While we price in FF, we must ask French customers not to send cheques in FF and especially not to use cheques on 'La Poste'. These have proved very difficult to handle. A Eurocheque made out in £ sterling is excellent ; a Giro payment in sterling is used by many French customers - you can price in FF and have the current equivalent sent to us in £ sterling. FF cash sent by registered letter is also no problem. If fluctuations in exchange rates mean that it is advantageous to select a currency other than your own, please do so - it makes little difference to the operation of our

business. Apart from personal cheques, payments can be made in bank-notes for any of these currencies (please send by registered mail), a bank draft or International Money Order (in sterling for these please). We do not operate a Giro account to enable direct transfers nor do we accept credit card payments at present. If remitting by sterling cheque, it is great help both to you and to us, if you send us an open cheque, limited to the total value of your order. Obviously it cannot be made out for more than the limit but it can certainly be made out for less, avoiding annoying credits or refunds - you will only pay for what we have sent after the order is despatched. If you do not wish to do this, a list of some possible substitutes will be very helpful - we shall not use them unless we have to and, if we do, we always try to send more than the value of the items not supplied. We shall not pay in your cheque until after your order has been sent - it is in our interest, as well as yours, to complete your order as quickly as we can.

**PLEASE HELP US BY PRINTING YOUR NAME & ADDRESS CLEARLY. NO CHARGE FOR AIRMAIL ON SEEDS OR LISTS.**

## New customers please understand

There may be a delay of some weeks before you receive your order. Most orders come in during the first week or so after we send out a list. We usually receive orders very much faster than we can despatch them. If you feel your order is too long in arriving, check with your bank to find out if your cheque has been cashed - we do not pay in cheques until orders have been despatched. If it has been cashed, let us know immediately. One or two items are lost or delayed each year. In such an unlikely event, you will find us totally sympathetic. We are glad to say such problems are very rare. Postal services are on the whole reliable. We try to be as reliable ourselves.

## Species from North America : Seeds from Jim & Jenny Archibald

Most seeds listed here were collected by ourselves during June, July and August, 1995. There is also a substantial number of collections made by others, as well as some cultivated seed. A few species are offered from our seed bank. The date of collection is almost always given. All seed collected prior to 1995 has been stored in low humidity under refrigerated conditions. Experience over several years has convinced us that little, if any, deterioration in viability will have occurred. In some cases, such as *Penstemon*, such storage appears to enhance the capacity for germination.

**NOMENCLATURE** for Californian species follows 'The Jepson Manual', published in 1993, in most cases. This is "good in parts" but no way approaches the outdated 'A Californian Flora' by Munz & Keck (1959), which remains our primary reference. The incomplete but superlative 'Intermountain Flora' and 'A Utah Flora' (Welsh, 1987) are used for taxa occurring within their areas. We edit with gardeners' interests in mind.

**NORTH AMERICAN REFERENCE NUMBERS** printed against names here are now permanent population references, just as in the section dealing with species from Europe and W Asia. When we first issued a seed-list in 1983, we did not envisage making so many collections from outside Europe & SW Asia. We now find ourselves in the position, where there have been several collections from the same population, all with different field numbers. North American species have now been given seven-digit population references, all starting with 1. These numbers run in alphabetical, as well as numerical, order so identification of packets from this list will be simple. The extra digit may be a little confusing but we ask you to bear with us for this season, while we develop a more 'customer-friendly' system of labelling seed-packets. By next year, we hope to have a numbering system to cover all seeds

**CULTIVATED MATERIAL** is denoted by \* and field data in this case applies to the original parent collection. 'No data' material is included on a geographical basis.

**1.010.001 : ACONITUM COLUMBIANUM** (var. *columbianum*) Idaho, Nez Perce Co., Craig Mt., SE of Lewiston. 450m. Wet slope in coniferous woodland. 25.7.95 (A 2m., purple-blue & green-white monkshood. Should be easy in UK.) (15+ seeds) **B**

**1.025.050 : AGASTACHE RUPESTRIS** \* Ex a Sally Walker coll. from Arizona, sent by Panayoti Kelaidis (Col.). Subtle rather than spectacular with aromatic, silvery, lavender-like foliage & heads in "a burnt brownish orange." 60cm. . . . . (20+ seeds) . **B**

### Allium : some worthwhile western onions

This year, thanks to the Robinetts, we have a fine listing. Most are little-known in cultivation but many of the bulbous ones should be little trouble in a bulb-frame in the UK. The more recalcitrant ones are no more difficult than many other N American bulbs. For an overview of the genus in the West and its cultivation, see the article by Jim & Georgie in the 1993 issue of 'Herbertia' (Vol. 49).

**1.030.003 : ALLIUM ACUMINATUM** Idaho, Butte Co., SW of Arco. 1400m. Among *Artemisia* on open, level steppe. 20.7.95 (One of the most showy of the more eastern species. Round, brilliant purple-pink umbels on 15-20cm. stems.) . . . . . (15+ seeds) . **B**

**1.030.301 : ALLIUM BISCEPTRUM** Cal., Alpine Co. 2520m. Granite sand in part-shade in aspen-grove. J. & G. Robinett coll. 2.9.95 (Open, 3cm. umbels of starry pink flowers. Occurs on the higher ranges across to Idaho & Utah.) . . . . . (15+ seeds) . **B**

**1.030.451 : ALLIUM CAMPANULATUM** Cal., Fresno Co. 1700m. Sandy, granitic soil in open woodland. J. & G. Robinett coll. 1.9.95 (Rose-pink, spreading, starry flowers in loose umbels, 4-5cm. across, on 15-20cm. stems.) . . . . . (15+ seeds) . **B**

**1.030.551 : ALLIUM CRATERICOLA** Cal., Lake-Colusa Co. line. 1090m. Serpentine scree in full sun. J. & G. Robinett coll. 26.5.95 (Dense umbels of white to pink flowers nestle, almost stemless, on the one or two, thick, channeled, falcate leaves. A desirable dwarf of exposed volcanic or serpentine habitats but a little difficult and needs patience.) . . . . . (15+ seeds) . **C**

**1.030.600 : ALLIUM CRISPUM** Cal., San Benito Co. 450m. Chaparral on steep, NW-facing, serpentine slope. J. & G. Robinett coll. 28.5.95 (Large, dense umbels of deepest pink to maroon flowers with flaring segments, the three inner ones with crisped, white edges, on 10-15 cm. stems. Endemic to the central coast-ranges - "one of the most striking".) . . . . . (15+ seeds) . **C**

**1.030.702 : ALLIUM DICHLAMYDEUM** \* Cal., Sonoma Co. 10m. Coastal bluff in fog-belt. (One of the best of the larger species with fine, bright-pink heads on 20-30cm. stems. Very satisfactory & trouble-free in a frame in UK.) . . . . . (15+ seeds) . **B**

**1.030.800 : ALLIUM FALCIFOLIUM** Cal., Humboldt Co., SSW of Willow Creek. 1580m. Stony openings among conifers on serpentine. 30.7.95 ( Heads of red-purple flowers on 5cm. stems between two little, thick, falcate leaves.) . . . . . (15+ seeds) . **B**

**1.030.804 : ALLIUM FALCIFOLIUM** Cal., Lake Co. 670m. Serpentine scree in full sun. J. & G. Robinett coll. 11.6.95 (Dark maroon umbels on flat, 1-5 cm. stems with falcate, blue-green leaves. A choice little plant ideal for scree.) . . . . . (15+ seeds) . **B**

**1.031.050 : ALLIUM FIMBRIATUM** var. **PURDYI** Cal., Lake Co. 635m. Gravelly serpentine clay in full sun. J. & G. Robinett coll. 14.7.95 (White to pale lavender, open, 3-4cm. umbels. Occurs in a few dense colonies in a very small area.) . . . . . (15+ seeds) . **B**

**1.031.100 : ALLIUM GEYERI** \* Colorado, Montrose Co., Uncompahgre Plateau. 2900m. Openings in *Populus*-*Abies* woodland. (Quite a dwarf, pale-pink form of this variable, widespread species of the more eastern mountains. 20cm. ) . . . . . (15+ seeds) . **B**

**1.031.600 : ALLIUM JEPSONII** \* Cal., Butte Co. 455m. Moss layer above serpentine cliff in full sun on N-facing slope. (Extremely local in the N Sierran foothills. Dense, white, 3-4cm. umbels on 30-50cm. stems.) . . . . . (15+ seeds) . **C**

- 1.031.700 : ALLIUM LACUNOSUM** (var. *lacunosum*) Cal., San Luis Obispo Co. 730 m. Gravelly serpentine clay in open woodland. J. & G. Robinett coll. 20.7.95 (Umbels of white stars on 10-15cm. stems. From lower elevation serpentines.) . . . . . (15+ seeds) . **B**
- 1.031.800 : ALLIUM LEMMONII** \* Cal., Modoc Co., N of Canby. 1500m. Among volcanic debris on open, clay 'flats'. (Hardy, 20cm. high species in pink to white from the cold, dry uplands of the north all the way across to Idaho.) . . . . . (15+ seeds) . **B**
- 1.032.250 : ALLIUM OBTUSUM** var. **CONSPICUUM** Cal., Fresno Co., E of Shaver Lake (Sierra Nevada E of Merced). 1680m. Farwig & Girard coll. 1995. (Another very local plant with dense heads of pale pink flowers on short stems) . . . . . (15+ seeds) . **C**
- 1.032.500 : ALLIUM PENINSULARE** \* No data. Widespread, lower altitude Coast Range plant from a Wayne Roderick coll. Good heads of red-purple flowers on stems of up to 30cm. Quite easy in a bulb-frame in the UK. . . . . (15+ seeds) . **B**
- 1.032.600 : ALLIUM PLATYCAULE** \* Cal., Modoc Co., Warner Mts. E of Davis Creek. 1750m. Open, gravelly areas. (Round umbels of deep rose with dark anthers on short flat stems between two thick, falcate leaves. A spectacular 'tumble-weed' species, resembling the SW Asian Sect. *Acanthoprason*. Not easy to germinate and grow on, it needs cold winters.) . . . . . (10+ seeds) . **D**
- 1.032.800 : ALLIUM SANBORNII** (var. *sanbornii*) Cal., Yuba Co. 635m. Serpentine scree in full sun. J. & G. Robinett coll. 27.8.95 (Bright pink flowers in very dense, 3-6cm. umbels on 15-40cm. stems. About a month later than the next and usually the last of the Californian onions to flower. Both this and the following race are very local serpentine plants.) . . . . . (15+ seeds) . **C**
- 1.032.850 : ALLIUM SANBORNII** var. **CONGDONII** Cal., Nevada Co. 1060m. Serpentine scree in chaparral. J. & G. Robinett coll. 27.8.95 (Dense umbels of white to pink flowers on 20-40cm. stems in June & July.) . . . . . (15+ seeds) . **C**
- 1.033.602 : ALLIUM VALIDUM** Cal., Placer Co. 1400m. Wet mountain-meadow. J. & G. Robinett coll. 23.9.95 (A big wet-grower, up to 75cm. high, with dense, pale-pink umbels in summer. Should be no trouble outside in the UK.) . . . . . (15+ seeds) . **B**
- 1.060.000 : AQUILEGIA BARNEBYI** Colorado, Rio Blanco Co., above Piceance Creek NW of Rio Blanco. 1980m. Steep-sided gully in loose fragmented shale. 10.7.95 (Endemic to the oil-shale barrens of the Uinta Basin & discovered by Ripley & Barneby in 1948. Glaucous leaves & sticky, 30cm. stems of pink & cream flowers. Growing here easily under glass) . . . . . (15+ seeds) . **D**
- 1.060.100 : AQUILEGIA CANADENSIS** \* No data. Elegant scarlet & yellow eastern version of the next. 50cm. . . . . (30+ seeds) . **A**
- 1.060.804 : AQUILEGIA FORMOSA** Oregon, Josephine Co., E of Takilma. 900m. Loose talus on steep, N-facing slope. 28.7.95 (Most widespread western columbine of moist habitats with scarlet flowers on branching 60cm. stems.) . . . . . (20+ seeds) . **B**
- 1.061.200 : AQUILEGIA LARAMIENSIS** \* Wyoming, Albany Co., Laramie Mts. above Friend Creek. 2280m. Granite fissures and ledges. (Pure white flowers with short, incurved spurs. 10cm. Closest to the Rocky Mt. *A. saximontana*.) . . . . . (15+ seeds) . **D**
- 1.061.300 : AQUILEGIA MICRANTHA** Utah, San Juan Co., above Bluff. 1550m. Seepage lines on shady, sandstone cliffs. 7.7.95 (Many, small, palest blue, cream or white flowers on sticky, 50cm. stems. A Colorado Plateau endemic.) . . . . . (15+ seeds) . **C**
- 1.061.350 : AQUILEGIA** aff. **MICRANTHA** Colorado, Montrose Co., Dolores River Canyon NW of Uravan. 1700m. Sandstone detritus on steep, shaded slope. 9.7.95 (From a very beautiful colony we found in 1989. Perhaps the result of hybridization between *A. micrantha* and *A. elegantula* but maybe another is involved. Not very variable in the flowers - soft, creamy yellows with long spurs tinged with apricot - but leaves and the 30-50cm. stems vary greatly in their glandular pubescence.) . . . . . (20+ seeds) . **C**
- 1.061.800 : AQUILEGIA SCOPULORUM** Utah, Garfield Co., above Butch Cassidy Draw. 2600m. Loose limestone talus on steep slopes. 6.7.95 (Exquisite bluish foliage and all-blue flowers with long spurs. A taller form, 20-30cm. here.) . . . . . (15+ seeds) . **D**
- 1.061.850 : AQUILEGIA SCOPULORUM** Nevada, White Pine Co., Snake Range. 3440m. Exposed limestone talus up to the summit. J. Andrews coll. 14.10.95 (The one the alpine-plant specialist will demand. Reduced races occur on a few of the highest limestones of the Great Basin. Acutely difficult to collect, we grew one many years ago from a Carl Worth coll. It remained compact. Imbricate, blue-grey foliage. Flowers, on stems of a few cm., are entirely rich-blue and long-spurred.) . . . . . (10+ seeds) . **E**
- 1.068.000 : ARCTOMECON CALIFORNICA** Nevada, Clark Co., SE of Valley of Fire. 500m. Exposed ridgetops on eroded clay & gravel hills. 5.6.93 (An extraordinary Nevadan poppy enthused over by Dwight Ripley in 1942: "bluish leaves, clothed in long pale hairs" and 25cm. "smooth stems, almost leafless, each branching into a corymb of fabulous gold poppies." Strictly for the sunniest, best ventilated alpine-house in cold, wet climates - may be ungrowable but worth every effort.) . . . . . (20+ seeds) . **D**
- 1.068.050 : ARCTOMECON HUMILIS** Utah, Washington Co., Bloomington Hills S of St. George. 920m. Tops & sides of ridges on eroded clay hills. 5.6.93 (To Ripley, "one of the most startling plants in all Utah" - rosettes of lobed, blue leaves, clad in long, soft, white hairs; up to 70 white poppies on branching stems to 20cm. but usually 10cm. 'Threatened' here by a housing-development and 'off-road' vehicles. Unpredictable in germination and doubtless difficult.) . . . . . (15+ seeds) . **E**
- 1.070.201 : ARENARIA HOOKERI** Utah, Emery Co., Molen Reef E of Moore. 1935m. J. Andrews coll. 1992 (Seldom seen in gardens but a classic, dense, cushion-plant, covered with fine, stemless, white flowers.) . . . . . (15+ seeds) . **C**
- 1.075.301 : ARGEMONE MUNITA** var. **ARGENTEA** Cal., Inyo Co., White Mts. 2000m. Stony, gravelly banks. 5.8.95 (A Prickly Poppy best sown direct in a hot, dry site. Masses of diaphanous, white Romneya-flowers. 60cm.) . . . . . (20+ seeds) . **A**
- 1.085.202 : ASCLEPIAS CRYPTOCERAS** Colorado, Mesa Co., Gateway. 1600m. Loose, clay slope. 9.7.95 (Bluish leaves on short, prostrate stems. Heads of weird greenish-yellow and rose-purple flowers. It has been flowered in the UK.) . . . . . (5 seeds) . **C**

**Astragalus : Woolly pads & pods of the sagebrush steppes**

This very large and complex genus, monographed by Barneby for N America with 368 species there, has great potential for the skilled specialist. Since we last listed a wide range, in 1989, a good number have been successfully grown to flowering and have even set viable seed in the UK. While Elizabeth Neese's suggestion that the formation of an 'Astragalus Society' would be appropriate has not yet been taken up, they have their dedicated cultivators. In our experience germination is seldom a problem, even with older seed, but chipping and soaking prior to sowing are often suggested. We find they usually come up very quickly, so delaying sowing till spring might obviate winter losses. With few exceptions, noted individually, the following all belong to Sect. *Argophylli*.

- 1.100.401 : ASTRAGALUS AMPHIOXYS** Utah, Kane Co., E of Kanab. 1500m. Sandy clay. 7.7.95 (Silvery tufts with bright purple-pink flowers followed by large, reddish silky pods. Mainly of Colorado Plateau distribution.) . . . . . (10+ seeds) . **C**
- 1.100.650 : ASTRAGALUS ARETIOIDES** Wyoming, Fremont Co., SE of Lander. 2100m. Bare, eroded, clay slope. 14.7.95 (A solid silver mound covered with stemless carmine-purple flowers - the ultimate challenge but very recalcitrant. Few.) . . . (10+ seeds) . **F**
- 1.101.800 : ASTRAGALUS CHAMAELEUCE** Utah, Uintah Co., WSW of Maeser. 2000m. Open, sandstone slopes. 11.7.95 (Tiny grey tufts with huge, spongy, purple-mottled pods, following the loose racemes of pale lavender flowers.) . . . . . (10+ seeds) . **D**
- 1.101.801 : ASTRAGALUS CHAMAELEUCE** Colorado, Rio Blanco Co. 2000m. Fragmented shale. 10.7.95 . . . (10+ seeds) . **D**
- 1.102.100 : ASTRAGALUS COCCINEUS** Cal., Inyo Co., White Mts., near Toll House Springs. 1980m. Loose, stony, clay slope. 25.6.95 (An incredible species, unsurpassed in the brilliance of its elongated, glowing scarlet flowers against the low tufts of woolly white foliage. Amazing, horned, white-velvet pods. It has been grown, flowered and shown in the UK. ) . . . . . (10 seeds) . **D**
- 1.105.500 : ASTRAGALUS LOANUS** Utah, Sevier Co., E of Glenwood. 1960m. Loose, igneous gravels. J. Andrews coll. 29.6.91 (An elegant, condensed narrow-endemic of the Sevier Valley. Silky silver leaves ; white, lavender-tipped flowers and beaked pods, red-tinted and shiny with long hairs. A 'one-off' coll. unlikely to be repeated.) . . . . . (10+ seeds) . **D**
- 1.105.600 : ASTRAGALUS LUTOSUS** Colorado, Rio Blanco Co., NW of Rio Blanco. 2000m. Exposed slopes of loose, fragmented shale. 10.7.95 (The famous, extremely local Dragon Milkvetch of the oil-shale 'barrens', a habitat owned by the 'oil-giants'. Mats of little, fascinatingly pleated, greyish leaves & large, shiny, papery, red-blushed pods. In its own Sect. *Lutosi*.) . . . . (10 seeds) . **E**
- 1.106.050 : ASTRAGALUS MOLLISSIMUS var. THOMPSONIAE** Colorado, Mesa Co., SW of Whitewater. 1800m. Stony, sandstone slope with sparse junipers. 9.7.95 (A lovely plant, almost confined to the Colorado Plateau sandstones. Woolly white tufts send up many-flowered racemes of purple-pink flowers followed by densely white-hairy pods.) . . . . . (10+ seeds) . **C**
- 1.106.700 : ASTRAGALUS MUSINIENSIS** Utah, Emery Co., E of Moore. 1935m Stony clay. J. Andrews coll. 1992. (Tufts of grey, trifoliolate leaves, 3cm. purple racemes & exquisite, inflated, pink-velvet pods. Local in the Canyonlands area.) . . . . (10+ seeds) . **D**
- 1.106.800 : ASTRAGALUS NEWBERRYI** New Mexico, San Juan Co., NW of Aztec. 1900m. Eroded clay hills. 8.7.95 (An extremely compact, pulvinate form here. Vivid purple-pink flowers on firm silver-white mounds.) . . . . . (10+ seeds) . **D**
- 1.106.900 : ASTRAGALUS NEWBERRYI var. CASTOREUS** Utah, Millard Co., E of Garrison. 1500m. Steep, loose, stony slope. 5.7.95 (Showy Great Basin race of this fine, wide-ranging species with larger flowers and leaves.) . . . . . (10+ seeds) . **D**
- 1.108.500 : ASTRAGALUS PURSHII (var. purshii)** Wyoming, Sweetwater Co., SW of Farson. 2010 m. Openings among *Artemisia*. 14.7.95 (The northern type-race, usually white or cream flowers on grey mats. White-felted pods.) . . . . . (10+ seeds) . **C**
- 1.108.550 : ASTRAGALUS PURSHII var. GLAREOSUS** Idaho, Butte Co., NE of Carey. 1520m. SE-facing slope of stony ridge. 20.7.95 (Snake & Columbia Basin race with rather larger, usually pink flowers before the woolly pods.) . . . . . (10+ seeds) . **C**
- 1.108.650 : ASTRAGALUS PURSHII var. TINCTUS** Cal., Kern Co., E of Mt. Pinos. 2530m. Open granite-gravel slope. 2.8.95 (Western race, usually in vivid purple-pink. Same marvellous woolly pods as the others.) . . . . . (10+ seeds) . **C**
- 1.109.100 : ASTRAGALUS SIMPLICIFOLIUS** Wyoming, Carbon Co., above Muddy Gap. 2200m. Shaley, limestone slope. 14.7.95 (Silver buns with stemless, purple-pink flowers. A reduced *A. spatulatus* endemic to the upper Platte Valley.) . . . . (10+ seeds) . **D**
- 1.109.200 : ASTRAGALUS SPATULATUS** Wyoming, Albany Co., NE of Laramie. 2600m. Exposed upland steppe. 15.7.95 (Like the preceding in Sect. *Drabellae*. Tight little tufts of silver, linear leaves. Rich purple-pink forms here.) . . . . . (15+ seeds) . **C**
- 1.110.100 : ASTRAGALUS UNCIALIS** Utah, Millard Co., N of Sevier Lake (dry). 1460m. J. Andrews coll. 29.6.91 (An important coll. from John & most unlikely to be repeated. Barneby describes this as "one of the most ornamental dwarf astragali" - "silvery 3-5 foliolate leaves" and "narrow, long and showy purple flowers which seem quite disproportionately large".) . . . . . (10+ seeds) . **C**
- 1.110.200 : ASTRAGALUS UTAHENSIS** Utah, Salt Lake Co., Parley's Canyon E of Salt Lake City. 1400m. Open, gravelly areas. 12.7.95 (Marcus Jones, pioneer of Utah botany, thought this the most beautiful flower in the state. Mats of white-felted leaves, brilliant carmine-purple racemes and pods clad in long, shaggy silver-white hairs. Not difficult in the UK.) . . . . . (10+ seeds) . **C**

# Calochortus : the mariposas, cat's ears and fairy lanterns

The scope and diversity of this amazing genus is still little appreciated by the skilled growers of Eurasian bulbs, who have developed in recent decades. We continue to expand our numerous collections and the following listing is possibly the most extensive ever offered. This year we can include material from Jim & Georgie Robinett - their knowledge of the Californians in their natural habitats is extensive - and they add to the vast amount of composite knowledge, shared by such enthusiasts as John Andrews, Wayne Roderick, Stan Farwig & Vic Girard, David King, Frank Callahan and Boyd Kline, to make this list possible. Most of the winter & spring growing species from the western USA are here, though we lack the summer-growers which extend south through Mexico to Guatemala. We were also too early in the very late 1995 season to collect much in the North, though we travelled up to Idaho and Washington in late July. Though almost all seed was collected in 1995, we have included a few older collections to fill in gaps - Calochortus seed stores very well. Unusually for us, we do not see an advantage in quoting the sections of the genus against each species. Cultivation can be better learned from noting the habitats of each collection. There are no generalisations to be made about cultivation, in spite of some

dreadfully reprocessed 'received wisdom' we have seen published lately (in 'The Plantsman' for instance). Dr. Sylvia Martinelli's recent accounts in several UK publications are the most reliable available but it must be remembered that she writes from experience of a relatively restricted number of mainly Californian species. The early-flowering, low altitude Fairy Lanterns fit in best with the Mediterranean growth-cycle of many Eurasian bulbs. The late-flowering Mariposas might be compatible with such groups as the *Oncocycclus* & *Regelia* Irises. The species from the cold, dry climates of the Great Basin and further east are proving the most difficult - we suspect they may be best left unwatered until late winter or spring. Even the later Californians seem best left until mid-winter before watering. We are also provisionally convinced that these need no further watering after the first buds open - the quality of the bulbs will be much better. We are trying to establish as many as possible in cultivation and already we have home-grown seed of a few available. We appreciate that the range listed is rather daunting but we cannot overstress their variation. For those new to the genus, a worthwhile 'starter collection' is offered at the end of this section, as well as two other special collections to encourage wider cultivation.

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- 1.150.001 : CALOCHORTUS ALBUS** Cal., Tuolumne Co., Italian Bar NE of Columbia. 750m. Steep scrub-covered slopes. 19.6.95 (The Sierran foothill race of this Fairy Lantern with pendant, globular, pearly-white flowers on 20cm. stems.) . . . . . (20+ seeds) **A**
- 1.150.002 : C. ALBUS** Cal., San Luis Obispo Co., W of Paso Robles. 550m. Steep banks in deciduous woodland. 21.6.95 (Very variable here - ruby to opalescent pinks and whites. This population grades into the York Mt. reds.) . . . . . (20+ seeds) **B**
- 1.150.050 : C. ALBUS - DWARF COASTAL FORM** Cal., San Luis Obispo Co. 660m. Steep, windswept, N-facing serpentine slope. J. & G. Robinett colls. 16.6.95 & 20.7.95 (A reduced, apparently stable, ecotype from a few sites exposed to the Pacific gales - everyone has been trying to collect seed of this but those with drooping capsules are very difficult to gather. Mounds of nodding pink-blushed, pearly globes, virtually on the ground, the whole plant only 5-10cm. high. A sensation.) . . . . . (10+ seeds) **E**
- 1.150.100 : C. ALBUS var. RUBELLUS** Cal., San Luis Obispo Co., W of Templeton. 400m. Steep, stony, shaded banks. 21.6.95 (Famous & outstanding population, on York Mt. in the Coast ranges, with translucent, ruby-pink lanterns. The name is not sustainable but is useful for denoting this colour phase. Awarded a P.C., when shown in the UK in 1995.) . . . . . (20+ seeds) **C**
- 1.150.500 : C. AMABILIS** Cal., Solano Co., Mix Canyon NW of Vacaville. 550m. Steep, scrub-covered slopes. 17.6.95 (Another Fairy Lantern - branching, 20-30cm. stems with nodding flowers in clear, deep yellow with widespreading outer and incurved inner segments. A Coast Range species, certainly one of the easiest to grow under glass in the UK.) . . . . . (20+ seeds) **A**
- 1.150.504 : C. AMABILIS** Cal., Humboldt Co., Eel River Valley. 80m. Steep grassy slope at edge of redwood forest. J. & G. Robinett coll. 16.7.95 (From the wet NW towards its northern limits, this may even suit the UK climate outside.) . . . . . (15+ seeds) **B**
- 1.151.000 : C. AMOENUS** Cal., Tulare Co., NE of Springville. 1100m. Among scrub on steep granite slopes. 20.6.95 (Like the preceding in Subsect. *Pulchelli* but with purple-rose nodding flowers. Not so easy but has been grown well.) . . . . . (20+ seeds) **B**
- 1.151.003 : C. AMOENUS** Cal., Tulare Co., 600m. N-facing clay bank. J. & G. Robinett coll. 22.6.95 . . . . . (20+ seeds) **B**
- 1.151.500 : C. ARGILLOSUS** \* Cal., San Luis Obispo Co., NE of San Luis Obispo. 180m. Among grasses in heavy clay on open slope. (The Reservoir Canyon population listed since 1989 under "*C. simulans*". We now feel that it is more correctly placed here, though it does not quite match the following more northern colonies. An extremely 'growable' plant with us, setting seed well. A lovely, rather dwarf, white Mariposa, more or less flushed lilac, with variable dark basal stains & markings.) . . . . . (20+ seeds) **C**
- 1.151.501 : C. ARGILLOSUS** Cal., San Mateo Co. 150m. Serpentine clay meadow in full sun. J. & G. Robinett coll. 31.7.95 (Possibly the northernmost colony. White flowers, flushed purple externally, with central red-brown 'eyes' in yellow zones on the inner segments, often pink or lavender basally. Don't think this is common because we have four collections.) . . . . . (20+ seeds) **C**
- 1.151.502 : C. ARGILLOSUS** Cal., San Benito Co., Arroyo Dos Picachos. 350m. Meadow in heavy clay. S. Farwig & V. Girard coll. (This is from Hoover's type-locality for this very local, obscure and much misunderstood species.) . . . . . (15+ seeds) **D**
- 1.151.503 : C. ARGILLOSUS** Cal., San Benito Co., Panoche Road, SE of Hollister. 450m. Clay on serpentine slope. S. Farwig & V. Girard coll. 1995 (From pale to deep purple forms noted here by Stan and Vic, during flowering.) . . . . . (15+ seeds) **D**

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**B** : \$3.00 ; £2.00 ; DM5,- ; FF17.-      **D** : \$5.00 ; £3.50 ; DM9,- ; FF30.-      **F** : \$9.00 ; £6.00 ; DM15,- ; FF50.-

# Species from North America : Seeds from Jim & Jenny Archibald

- 1.152.000 : CALOCHORTUS AUREUS** Arizona, Coconino Co., WSW of Kayenta. 1980m. Open areas among Artemisia. 7.7.95 (Superb yellow, clump-forming, tetraploid southern race of *C. nuttallii*. A Colorado Plateau endemic, distributed across N Arizona into NW New Mexico & just entering S Utah. Like the other Mariposas in Subsect. Nuttaliani, not likely to be easy in more temperate areas. Rich soft-yellow 'tulips' with maroon-purple crescents above the nectaries.) ..... (20+ seeds) . **D**
- 1.153.000 : C. BRUNEAUNIS** Cal., Inyo Co., White Mts., Westgard Pass. 2230m. Openings among Artemisia. 5.8.95 (Near the more eastern *C. nuttallii* but distinct in its green-striped segments. Purest solid-white with clean purple spots. ) ..... (20+ seeds) . **C**
- 1.154.000 : C. CATALINAE** Cal., Los Angeles Co., Santa Monica Mts. 540m. Coastal chaparral. J. & G. Robinett coll. 17.6.95 (Erect, white flowers edged with lavender & with dark basal blotches. Once widespread in the seaward-facing canyons around Los Angeles, little of its habitat, some of the most valuable land on earth, remains. Fortunately, not too difficult.) ..... (20+ seeds) . **C**
- 1.155.002 : C. CLAVATUS** Cal., Los Angeles Co., Santa Monica Mts. 520m. In clay among grasses in open woodland. J. & G. Robinett coll. 21.7.95 (A big Mariposa, local on the coastal serpentines. Large, golden-yellow bowls, red-brown lined & hairy inside on zig-zag stems of 30-50cm. Varies from site to site but always sumptuous and not usually difficult to grow.) .... (20+ seeds) . **C**
- 1.155.003 : C. CLAVATUS** Cal., San Luis Obispo Co., Cuesta Ridge. 665m. J. Andrews coll. 1993 ..... (20+ seeds) . **C**
- 1.155.200 : C. CLAVATUS var. AVIUS** Cal., El Dorado Co., ENE of Pollock Pines. 1280m. S. Farwig & V. Girard coll. (Seed from a historic flowering of this disjunct race, so local on the granites of the Sierra Nevada as to be thought all but extinct, until it exploded into flower in 1993. Umbel-like inflorescences of huge, butter-yellow bowls on stems of up to 1m.) .... (20+ seeds) . **D**
- 1.155.500 : C. COERULEUS** Cal., Shasta Co., W of Viola. 1250m. In shade of sparse, coniferous woodland. 29.6.95 (Thanks to Jim Robinett, we are starting to understand this species. Never really sorted out by Ownbey and poorly treated by Ness in 'Jepson' it seems allied to the pale-seeded taxa of the Coast Ranges - some assigned to *C. elegans* - and the distant, isolated *C. westonii*. A tiny plant, a few cm. high, with very hairy, palest lilac flowers - for careful cultivation, cool in summer.) ..... (15+ seeds) . **D**
- 1.156.001 : C. CONCOLOR** Cal., San Diego Co. 1060m. Sandy soil in chaparral. J. & G. Robinett coll. 21.7.95 (The huge Goldenbowl Mariposa from the far south. Big bright-yellow 'tulips' marked inside with dark red, up to 7 on 20-40cm. stems. These southerners have been little tried but will need full light and a warm rest in summer.) ..... (15+ seeds) . **C**
- 1.156.500 : C. COXII** Oregon, Douglas Co., W of Myrtle Creek. 450m. Among grasses & sparse conifers on steep serpentine slopes. 6.7.92 (Narrow endemic described in 1988. About 15cm. high with up to 7, bowl-shaped flowers, white with red striae, densely covered & fringed with yellow to white hairs & with a broad lavender chevron above the green gland. A few.) ... (15+ seeds) . **E**
- 1.157.000 : C. DUNNII** Cal., San Diego Co., SE of Julian. 1350m. Open slopes. J. Andrews coll. 1993 (Local endemic of gabbro-derived clays here & in Mexico. A little white, red-brown-marked Mariposa for the skilled specialist. A few.) .... (15+ seeds) . **F**
- 1.158.000 : C. EURYCARPUS** Idaho, Butte Co., W of Craters of the Moon. 1520m. E & SE-facing slopes of stony ridge. 20.7.95 (Wiry, 30-50cm. stems carry elegant, bowl-shaped flowers in white or lilac-pink, neatly blotched with maroon and striped with green. A steppe species, in Subsect. Nitidi, spread around the N rim of the Great Basin from E Oregon to Montana - covered with snow all winter and not especially warm in summer. In its Nevadan type-locality it grows in alpine-meadows) .... (20+ seeds) . **B**
- 1.158.500 : C. EXCAVATUS** Cal., Inyo Co., Owens Valley S of Bishop. 1350m. Among Rosa & Salix scrub in clay (dry in summer). 27.6.95 (Extremely local Mariposa from a few vernally damp sites in this cold area. In Subsect. Nuttaliani with up to six, widely bell-shaped flowers in pale lavender to white, dark purple at the base.) ..... (20+ seeds) . **D**
- 1.159.000 : C. FLEXUOSUS** Cal., Inyo Co., Amargosa Range, Daylight Pass. 1315m. Along dry gullies. 25.6.95 (A very strange, desert Mariposa, local but widespread all the way across to SW Colorado. Sinuous stems, 30-40cm. long if straightened, twist and spiral. Up to 6 erect, white, lilac-tinged flowers, purple-spotted & yellow-banded inside.) ..... (20+ seeds) . **D**
- 1.161.000 : C. GREENEI** Cal., Siskiyou Co., N of Goosenest Mt. 1920m. J. Andrews coll. 1993 (A very late-flowering, high altitude species from one or two sites in the Cascades on the Oregon-California line. Erect, purple bells on 10-30cm. stems. It should be possible to establish & maintain it in cool climates. A very few seeds left from this small 'one-off' coll.) ..... (15+ seeds) . **F**
- 1.161.500 : C. GUNNISONII** Colorado, Boulder Co., N of Boulder. 2000m. Among grasses in rock detritus on steep, shale ridge. 15.7.95 (Usually white here, intricately purple-pencilled & hairy inside. The very late season made it difficult to update colls. of this. Not easy to germinate well & grow on - needs a cold, dry winter rest. A few.) ..... (15+ seeds) . **B**
- 1.163.001 : C. HOWELLII** Oregon, Josephine Co., Eight Dollar Mt. SW of Selma. 500m. Among sparse Arctostaphylos scrub on open, S-facing slope. 28.7.95 (Utterly distinct until *C. umpquaensis* surfaced. Beautiful, erect flowers on 30-50cm. stems - white, covered with hairs and darkening centrally to smokey brown. Charles Grey records that he found this "very satisfactory in cultivation" in the UK in the 1930's - it is growing well with us and looks as if it will flower next season.) ..... (15+ seeds) . **D**
- 1.163.500 : C. INVENUSTUS** Cal., Ventura Co., Mt. Pinos. 2680m. Alpine steppe, in granite grit. 2.8.95 (About 15cm. high here, with 1-2, erect, pale lavender flowers, basally stained deep purple. A montane species in Subsect. Nuttaliani). ..... (20+ seeds) . **B**
- 1.163.502 : C. INVENUSTUS** Cal., San Diego Co. 1060m. Sandy clay bank in open woodland. J. & G. Robinett coll. 22.7.95 (From one of the most southern localities - 2-3cm wide soft lavender flowers on 10-25cm. stems.) ..... (20+ seeds) . **B**

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- 1.164.000 : CALOCHORTUS KENNEDYI** Cal., Inyo Co., SW of Gilbert Summit. 1620m. Open stony slope with sparse *Artemisia*. 25.6.95 (Incomparable & quite unrivalled in the brilliance of its colour - here tending to luminous orange. In California, a plant of high, cold steppe. Intolerant of superfluous water at any time but it has been flowered from seed in the UK.) . . . (20+ seeds) . **B**
- 1.164.001 : C. KENNEDYI** Cal., Los Angeles Co. 1300m. Desert chaparral. J. & G. Robinett coll. 21.7.95 . . . . . (20+) . **B**
- 1.164.002 : C. KENNEDYI** Cal., Ventura Co., Lockwood Valley. 1540m. Among sparse *Artemisia*. 2.8.95 . . . . . (20+) . **B**
- 1.164.004 : C. KENNEDYI** Cal., Ventura Co., Mt. Pinos. 2530m. Opening among *Pinus*. 2.8.95 (The preceding colls. are from two of the most western populations which tend to rich, solid vermilion reds, usually with black anthers. This is seed is from a few plants growing, with white *C. venustus*, at a very high altitude for these reds.) . . . . . (15+ seeds) . **D**
- 1.164.200 : C. KENNEDYI var. MUNZII** Cal., Inyo Co., Panamint Range. 2130m. Among *Artemisia* in gravelly soil. 25.6.95 (The high altitude race from over 1850m. in the Clark, Providence & Panamint Mts. - intense yellow with black-purple basal markings and anthers. Possibly a great challenge but virtually untried in cultivation.) . . . . . (20+ seeds) . **D**
- 1.164.504 : C. LEICHTLINII** Cal., Fresno Co. 1740m. Open woodland in granite sand. J. & G. Robinett coll. 1.9.95 (The *Mariposa* of the high Sierra Nevada granites. White with a striking black blotch above the yellow base.) . . . . . (20+ seeds) . **C**
- 1.164.505 : C. LEICHTLINII** Cal., Fresno Co. 2180m. Exposed chaparral, in granite sand. J. & G. Robinett coll. 1.9.95 (The highest altitude 1995 Robinett coll. of this. About 30cm. here. This links Subsect. *Venusti* with Subsect. *Nuttalliani*.) . . . . (15+ seeds) . **D**
- 1.166.000 : C. LUTEUS** Cal., Lake Co., N of Clear Lake. 410m. Among grasses on open slope. 1.8.95 (Clear yellow, tinged green basally and with extremely variable brown internal markings. One of the most easily grown *Mariposas*.) . . . . . (20+ seeds) . **A**
- 1.166.001 : C. LUTEUS** Cal., Sonoma Co. 50m. Gravelly clay meadow in full sun. J. & G. Robinett coll. 5.8.95 (Citron-yellow variously marked with red-brown, often with an eye-spot above the gland in this locality. 20-35cm. high.) . . . . . (20+ seeds) . **A**
- 1.166.004 : C. LUTEUS** \* No data. From a very fine creamy-yellow form given to us by Wim de Goede, . A bigger plant than the others here . We guess it may be a hybrid between the Sierran race and *C. superbis*. Grows vigorously.) . . . . . (20+ seeds) . **A**
- 1.166.100 : C. LUTEUS X SUPERBUS** Cal., Lake Co., Walker Ridge. 600m. Open grassy area, in heavy clay. 1.8.95 (Some fine ivories, creams and soft yellows to deep yellow, very variably marked inside.) . . . . . (20+ seeds) . **B**
- 1.167.500 : C. MINIMUS** Cal., Placer Co., Monumental Ridge W of Truckee. 2040m. J. Andrews coll. 1994 (The smallest of all. From the high Sierra Nevada coniferous woodlands. Bell-shaped, white flowers. Under 10cm. Grow it cool.) . . . . . (15+ seeds) . **C**
- 1.168.000 : C. MONOPHYLLUS** Cal., Tuolumne Co. 750m. Open, N-facing clay bank. J. & G. Robinett coll. 22.6.95 (The only yellow in Subsect. *Eleganti*. A plant of openings in coniferous woodland in the N Sierra Nevada & S Cascades, where it often grows with the allied *C. tolmiei*. This is from one of the few 'pure' populations known to the Robinetts. A little 'sweetie', a few cm. high with bright yellow Cat's Ears, and a 'must' for a pan in the alpine-house. Keep it cool when dormant.) . . . . . (15+ seeds) . **D**
- 1.169.500 : C. NUDUS** Cal., Plumas Co., NNW of Quincy. 1100m. Among *Vaccinium* & *Salix* at margin of marshy meadow. 28.6.95 (Another dainty, little plant. Like *C. uniflorus* & *C. minimus*, in Subsect. *Nudi*. About 15cm. high with erect, pale lavender flowers, pencilled with purple basally. Always a moist grower, it should be very easy in the UK) . . . . . (15+ seeds) . **C**
- 1.169.503 : C. NUDUS** Cal., Trinity Co., W of Mt. Eddy. 2080m. Wet mountain-meadow. J. Andrews coll. 1995 (In a few moist alpine-meadows on the high serpentines of the N, where seed ripens late, superlative rich blue-purple populations occur - some people think these are the only 'pure' *C. nudus* (see below). One hesitates to say put it in a peat-bed in the UK as it may be too wet in winter but it will insist on a cool, moist summer - grow it like *Iris winogradowii* or *Crocus scardicus*.) . . . . . (15+ seeds) . **E**
- 1.169.600 : C. NUDUS X MINIMUS** Cal., Plumas Co., N of Spanish Ranch. 1220m. Coniferous woodland. 28.6.95 (These are in effect pinkish versions of *C. minimus*. Ownbey writes at length on these intergrading populations, easily distinguished in seed as their capsules droop, whereas *C. nudus* has upright ones. Always grows in much drier places.) . . . . . (15+ seeds) . **C**
- 1.170.003 : C. NUTTALLII** Colorado, Mesa Co., SW of Whitewater. 1800m. Among *Artemisia* on stony, sandstone slopes. 9.7.95 (This & the next are our 1995 attempts to secure the amazing sugar-pink forms of this species, which flower early from this area into the Uintah Basin of Utah. We have never seen these in flower but the photographs of others inspire us.) . . . . . (20+ seeds) . **C**
- 1.170.004 : C. NUTTALLII** Utah, Uintah Co., WSW of Maeser to Lapoint. 2000m. Among *Artemisia* on open, sandstone slopes. 11.7.95 (We are told most populations around here are bright-pink. If not, they will be white & still beautiful.) . . . . (20+ seeds) . **C**
- 1.170.500 : C. OBISPOENSIS** Cal., San Luis Obispo Co., NE of San Luis Obispo. 150m. Fissures on loose, serpentine cliffs. 21.6.95 (In Sect. *Cyclobothra*, Subsect. *Weediani* but unlike anything else in the genus. Many small flowers on stiff, branching stems - hairy tufted, purple-tipped yellow segments, like a piece of miniature, feather millinery. Though a very local plant, it is growing well with us, raised from our 1989 coll. We hope for cultivated seed next season. Exhibited in the UK in 1995.) . . . . . (15+ seeds) . **D**
- 1.171.000 : C. PALMERI** Cal., Los Angeles Co., San Gabriel Mts., Bandido Camp. 1770m. Open slopes with *Artemisia* & sparse *Pinus*. J. Andrews coll. 1993 (A dainty, little *Mariposa* from the ranges E of Los Angeles, where its flowers look like grass pinks in a European meadow - pink to occasional whites, brown-spotted & yellow-haired inside. About 30cm.) . . . . . (15+ seeds) . **D**
- 1.171.101 : C. PALMERI var. MUNZII** Cal., Riverside Co. 1300m. Sandy clay in open woodland. J. & G. Robinett coll. 22.7.95 (Lacks the stem-bulbils of the type-race. Little-known and very local with bright lavender-pink flowers.) . . . . . (15+ seeds) . **E**

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# Species from North America : Seeds from Jim & Jenny Archibald

- 1.171.500 : CALOCHORTUS PANAMINTENSIS** Cal., Inyo Co., Panamint Mts. 2300m. Stony openings among Pinus & Juniperus. 4.8.95 (The real thing, seen in flower here on 25.6.95. An isolated endemic in Subsect. Nuttaliani, closest to *C. bruneauensis*, stranded on the top of this desert range. Immaculate, white flowers, green-striped externally. A challenge.) . . . . . (15+ seeds) . **E**
- 1.171.510 : C. aff. PANAMINTENSIS** Cal., Kern Co., W of Walker Pass. 1650m. Open stony areas among Artemisia. 3.8.95 (A puzzling, restricted population from the SE limits of the Sierra Nevada, directly WSW of the Panamints but separated by about 120km. of desert. Unspotted, white, green-striped flowers key-out as *C. panamintensis* but a very few are gently flushed rose or lavender. Could equally be aff. *invenustus* or aff. *excavatus* - it needs study.) . . . . . (15+ seeds) . **E**
- 1.173.504 : C. PLUMMERAE** Cal., Riverside Co. 580m. Dry chaparral. J. & G. Robinett coll. 22.7.95 (Superlative, large, late-flowerer in Subsect. Weediani, whose habitats around Los Angeles are diminishing. Great pink bowls, densely golden hairy inside, on branching 60cm. stems. Not difficult with Stan & Vic in California & Boyd Kline in Oregon.) . . . . . (20+ seeds) . **C**
- 1.174.500 : C. PULCHELLUS** \* Cal., Contra Costa Co., Mt. Diablo NE of Danville. 520m. Steep sides of gully. (The first cultivated seed from a small, 1989 coll. of this bright lemon-yellow Fairy Lantern, only known from Mt. Diablo. Distinct from *C. amabilis* in its greener leaves and larger, spherical flowers but seems just as easy to grow. 10-30cm.) . . . . . (15+ seeds) . **C**
- 1.175.800 : C. SIMULANS** Cal., San Luis Obispo Co. 660m. Among chaparral on gritty clay bank. J. & G. Robinett coll. 20.7.95 (The true plant this time - confused by us with *C. argillosus* (both taxa were described by Hoover in 1944), which grows on heavy clays. This inhabits, usually granitic, sands in a very limited, hot, dry zone of the inner S Coast Ranges. Flowers are superficially similar to *C. catalinae* with dark nectaries but can vary to pale yellow edged with rose-pink.) . . . . . (15+ seeds) . **D**
- 1.176.000 : C. SPLENDENS** \* Cal., Ventura Co., off Lockwood Valley Road. Openings among Artemisia in sandy clay. (Beautiful Mariposa, easily grown in our experience. Soft lavender with white, wispy hairs and dark anthers.) . . . . . (20+ seeds) . **A**
- 1.176.001 : C. SPLENDENS** Cal., Lake Co., Walker Ridge. 600m. Openings in scrub over serpentine. 1.8.95 (From near the northern limit for this species, in a form marked basally with deep purple. 30-50cm. high.) . . . . . (20+ seeds) . **B**
- 1.176.004 : C. SPLENDENS** Cal., San Diego Co. 1000m. Clay in open woodland. J. & G. Robinett coll. 22.7.95 (Southern form separated as *C. davidsonianus* on account of its wholly basal white hairs. Lavender-pink.) . . . . . (20+ seeds) . **B**
- 1.176.500 : C. STRIATUS** Cal., Los Angeles Co., N of Lancaster. 760m. Open, level sites among alkaline desert scrub. 24.6.95 (Distinct Mariposa endemic to a few alkaline seeps in the Mojave. Many, pale-lavender flowers veined with maroon-purple, just like the petals of *Geranium* 'Ballerina'. Probably difficult but growing on here quite well so far.) . . . . . (15+ seeds) . **D**
- 1.177.000 : C. SUPERBUS** Cal., Mariposa Co., NNW of Hell Hollow. 700m. Open, stony, serpentine slope. 19.6.95 (From the type-locality of this classic Mariposa, distinct from *C. venustus* in its linear, inverted V-shaped gland. Almost invariably white here with purple-brown blotches & basal markings. Easy to grow with us and now setting seed well.) . . . . . (20+ seeds) . **A**
- 1.177.005 : C. SUPERBUS** Cal., Shasta Co. 780m. Clay meadow in full sun. J. & G. Robinett coll. 14.7.95 (From a very fine population, up in the continental climate of the N, with many lavender & purple-flushed flowers.) . . . . . (20+ seeds) . **B**
- 1.177.020 : C. aff. SUPERBUS** Cal., Santa Clara Co., W of Morgan Hill. 270m. Among sparse scrub. Farwig & Girard coll. (White to purples with an infinity of markings and (nervous breakdown for taxonomists, who tend to ignore such problems) a vast variation in size and shape of the nectaries. When you think you are starting to understand the genus, it all falls apart.) . . . . . (15+ seeds) . **C**
- 1.177.500 : C. SYNTROPHUS** Cal., Shasta Co., N of Montgomery Creek. 580m. Among sparse Quercus on open clay slope. 30.7.95 (A small, isolated population given status as a species by Frank Callahan in 1993 (Herbertia Vol.49). In Subsect. Venusti & defined by Callahan by comparison to *C. superbus*. The superficial impression to us was of a splendid version of *C. leichtlinii*, a species of much higher altitudes to the E & S. Seeds are different to both but, whatever its ancient affinities, it seems distinct with large, solid-white flowers, yellow & hairy at the base & with neat chestnut-brown blotches. 60cm.) . . . . . (15+ seeds) . **E**
- 1.178.002 : C. TOLMIEI** Oregon, Josephine Co., Eight Dollar Mt. SW of Selma. 450m. Open S-facing slope, among volcanic detritus. 13.6.95 (In 1995, we made so many colls. of this little Cat's Ear, the most widespread and arguably the most variable species in this genus, that we should need another page to list them out. You must be content with two particularly fine ones, (from a horticultural viewpoint). Impressively robust here, where Boyd Kline tells us he has found hybrids with *C. uniflorus*.) . . . . . (20+ seeds) . **B**
- 1.178.005 : C. TOLMIEI** Cal., Shasta Co., S of Shingletown. 1000m. Openings in mixed woodland, often in deep shade. 29.6.95 (Also reputedly large-flowered. Both will have rose or purple-tinted white flowers, bearded on the inner segments.) . . . . . (20+ seeds) . **B**
- 1.179.000 : C. UMPQUAENSIS** Oregon, Douglas Co. 300m. Steep serpentine scree in full sun. J. & G. Robinett coll. 1.7.95 (From a different locality to our 1992 coll. but still in the upper drainage of the Umpqua. A very local serpentine-endemic, described in 1989. Closest to *C. howelli* and not unlike it in its very hairy flowers, creamy white with a large maroon-black centre, but substantially different in its large, drooping seed-capsules. Very striking and not too difficult so far in the UK.) . . . . . (15+ seeds) . **E**
- 1.179.500 : C. UNIFLORUS** \* Cal., Lake Co., NE of Middletown. 290m. Open meadow in heavy clay. (A dwarf, lilac flowered member of Subsect. Nudi, easily grown in Europe, where it fits in well with Mediterranean bulbs. In this site, it grows mixed with *C. vestae* but has dropped its seeds and gone dormant before the latter flowers: quite different growth-cycles.) . . . . . (15+ seeds) . **B**

- 1.179.501 : CALOCHORTUS UNIFLORUS** Oregon, Josephine Co., SW of O'Brien. 550m. Wet depressions among sparse conifers. 1.7.95 (The first time we have collected one of the northern populations - the species has a very wide range well into Oregon, always in vernal wet places. This may be possible outside in the UK. Lilac with purple markings above the nectaries.) . . . (15+ seeds) . **B**
- 1.180.500 : C. VENUSTUS** \* Cal., Tuolumne Co., NE of Columbia. 650m. Steep, open, stony slope. (From the classic white form, beautifully and variably patterned basally with dark red on a yellow ground. One of the easiest Mariposas .) . . . . . (20+ seeds) . **A**
- 1.180.505 : C. VENUSTUS** Cal., Kern Co., Mt. Pinos. 2120m. Openings among Pinus. 2.8.95 (White or soft lilac with a ghostly thumbprint of pale blood-red towards the tip of each petal. Growing here with Fremontodendron.) . . . . . (20+ seeds) . **B**
- 1.180.506 : C. VENUSTUS** Cal., Los Angeles Co. 500m. Gritty soil in full sun. J. & G. Robinett coll. 23.7.95 (High-desert population with pinks, roses & lavenders, some with second 'eye-spots'. Variably shaped nectaries.) . . . . . (20+ seeds) . **B**
- 1.180.507 : C. VENUSTUS** Cal., Fresno Co. 1740m. Sparsely wooded slope in sandy, granitic soil. J. & G. Robinett coll. 1.9.95 (The species, distinguished by its rather square nectary, is the ultimate in variability of ground-colour and markings. This population exceeds imagination in shades of pink, purple, red and orange with every combination of these and of the complex blotches and basal markings. Add the next two and you'll cover almost every permutation. A truly wonderful species.) . . . . . (15+ seeds) . **D**
- 1.180.520 : C. VENUSTUS 'AURORA STRAIN'** \* No data. Derived from Stan Farwig & Vic Girard's coloured selections, built up over the years - "like the aurora borealis" - "these grow more spectacular each year." . . . . . (15+ seeds) . **D**
- 1.180.550 : C. VENUSTUS** Cal., Kern Co., Cuddy Valley. 1840m. Openings among Pinus. J. Andrews coll. 1995 (The famous very restricted & unique colony - a series of subtle red shades, like scarlet velvet, faded to varying degrees. Of course, the basal markings are lost but the golden hairs stand out strikingly. The limited habitat here is now heavily grazed by horses.) . . . . . (15+ seeds) . **D**
- 1.181.500 : C. VESTAE** Cal., Mendocino Co., SW of Covelo. 390m. Among grasses on heavy clay slope. 1.8.95 (Double crescent nectaries & a different chromosome number distinguish this from *C. superbis* & *C. venustus*. Spectacular, solid-white flowers with big brown-purple blotches in yellow zones & purple-pencilled bases. A splendid northern mariposa.) . . . . . (20+ seeds) . **A**
- 1.181.505 : C. VESTAE** Cal., Trinity Co. 1030m. Open, grassy, serpentine-clay slope. J. & G. Robinett coll. 19.8.95 (Mostly pink flowered plants here - these colour variations are much less frequent than with *C. venustus*) . . . . . (20+ seeds) . **B**
- 1.181.506 : C. VESTAE** Cal., Trinity Co., 900m. Very open woodland on serpentine clay. J. & G. Robinett coll. 19.8.95 (From a population including many lavender to purple flowers & some very tall, robust plants.) . . . . . (20+ seeds) . **B**
- 1.182.003 : C. WEEDII** (var. *weedii*) Cal., San Diego Co. 750m. Chaparral, in rocky clay. J. & G. Robinett coll. 22.7.95 (Big, southern Cyclobothra in Subsect. Weediani, unlike any other here, except *C. plummerae*. Up to 6, erect, rich-yellow bowls, variably brown-tinted at the rim & intricately marked at the base, filled with long, yellow hairs. 40-80cm.) . . . . . (15+ seeds) . **C**
- 1.182.004 : C. WEEDII** (var. *weedii*) Cal., San Diego Co. 1350m. J. & G. Robinett coll. 17.9.95 (The previous coll. might just contain a few *C. splendens*, which grew with it, this is an altogether 'pure' coll. of this spectacular species.) . . . . . (15+ seeds) . **D**
- 1.182.200 : C. WEEDII** var. *VESTUS* Cal., Monterey Co., Monterey Range, Lottie Potrero. 700m. Serpentine outcrops. J. Andrews coll. 1995 (An odd, little-known, northern disjunct race, thought to have some affinities to *C. obispoensis*. Squarish bowls in creamy, brownish or purplish shades with dark hairs instead of yellow ones. Seldom collected. A few only.) . . . . . (15+ seeds) . **E**
- 1.182.500 : C. WESTONII** Cal., Kern Co., S of Alta Sierra. 2050m. Coniferous woodland. 3.8.95 (A little subalpine Cat's Ear stranded a long way from any relatives, on top of the Greenhorn Mts. at the S end of the Sierra Nevada. About 15cm. with hairy, lilac-tinged bells. Possibly not so difficult as some in the UK, it will not tolerate hot, dry summers.) . . . . . (15+ seeds) . **E**

**Calochortus 'Starter Collection'** Nine of the easiest species to grow, selected to provide a representative range of the variation in the genus : *C. albus* (1.150.001), *C. amabilis* (1.150.500), *C. luteus* (1.166.000), *C. splendens* (1.176.000), *C. superbis* (1.177.000), *C. tolmiei* (1.178.002), *C. uniflorus* (1.179.500), *C. venustus* (1.180.500), *C. vestae* (1.181.500). If you grow Mediterranean bulbs, you can grow these. . . . . **List value \$20.00 or £17. - for only \$15.00 or £10.**

**Calochortus 'Connoisseur's Collection'** Some a little more demanding and some just as easy but from outstanding populations : *C. albus* var. *rubellus* (1.150.100), *C. amoenus* (1.151.000), *C. argillosus* (1.151.500), *C. clavatus* (1.155.003), *C. luteus* x *superbus* (1.166.100), *C. nudus* (1.169.500), *C. splendens* (1.176.001), *C. venustus* in 'Aurora Strain' and the Cuddy Valley reds (1.180.520 & 1.180.550). . . . . **List value \$35.00 or £23. - for only \$20.00 or £15.**

**Calochortus 'Intermountain Collection'** Only for the serious enthusiast & to encourage those who wish to push out the boundaries of our knowledge of cultivation, nine collections mainly from the cold deserts and steppes between the Sierra Nevada and the Rockies. The species from these habitats are proving the most difficult. : *C. aureus* (1.152.000), *C. bruneanus* (1.153.000), *C. eurycarpus* (1.158.000), *C. excavatus* (1.158.500), *C. flexuosus* (1.159.000), *C. invenustus* (1.163.500), *C. kennedyi* (1.164.000), *C. kennedyi munzii* (1.164.200), *C. nuttallii* (1.170.003) . . . . . **List value \$37.00 or £25. - for only \$20.00 or £15.**

**A : \$2.00 ; £1.50 ; DM4,- ; FF13.-      C : \$4.00 ; £2.50 ; DM6,- ; FF21.-      E : \$7.00 ; £4.50 ; DM12,- ; FF40.-**  
**B : \$3.00 ; £2.00 ; DM5,- ; FF17.-      D : \$5.00 ; £3.50 ; DM9,- ; FF30.-      F : \$9.00 ; £6.00 ; DM15,- ; FF50.-**

# Species from North America : Seeds from Jim & Jenny Archibald

- 1.120.000 : BAPTISIA AUSTRALIS** \* No data. About 1.5m. tall, somewhat lupin-like, herbaceous perennial from moist sites in the eastern States. Blue-green leaves on greyish stems and spikes of a "unique, soft, blue-tinted indigo" in summer. . . . . (8 seeds) . **A**
- 1.130.100 : BLOOMERIA CROCEA** Cal., San Diego Co. 1030m. Gravelly clay meadow in open woodland. J. & G. Robinett coll. 22.7.95 (Wide umbels of delicate, golden stars on 20-40cm. stems. Seldom-seen corms near *Brodiaea*.) . . . . . (20+ seeds) . **B**
- 1.130.150 : BLOOMERIA CROCEA var. AUREA** Cal., San Luis Obispo Co. 170m. Among grass on open, heavy clay slope. 21.6.95 (The race from the central Coast Ranges - these infraspecific taxa are no longer recognized in "Jepson" but they correlate with habitat and distribution and may have some significance to gardeners.) . . . . . (20+ seeds) . **B**
- 1.130.200 : BLOOMERIA CROCEA var. MONTANA** Cal., Ventura Co., Wagon Road Canyon. 1450m. Openings among scrub. 2.8.95 (The montane chaparral race. These are really pretty things, well worth growing in the bulb-frame.) . . . . . (20+ seeds) . **B**
- 1.140.100 : BRODIAEA CALIFORNICA** Cal., Yuba Co. 630m. Serpentine scree in chaparral. J. & G. Robinett coll. 27.8.95 (Largest of the genus, about 50cm. here, with loose umbels of violet flowers with contrasting white staminodes.) . . . . . (20+ seeds) . **B**
- 1.140.400 : BRODIAEA ELEGANS** Cal., Shasta Co., S of Shingletown. 1000m. Among grasses in open areas. 30.7.95 (Northern species with blue-violet flowers on stems of about 30cm. Rather *Triteleia*-like but a true *Brodiaea*.) . . . . . (20+ seeds) . **B**
- 1.191.010 : CAMASSIA LEICHTLINII - WHITE FORM** \* No data. From a striking, cream-white clone. 1m. . . . . (20+ seeds) . **A**
- 1.191.101 : CAMASSIA QUAMASH** Oregon, S of Tiller. 460m. Along gully on serpentine slope. 28.7.95 ('Jepson' throws the whole genus under this species - not a lot of help to gardeners with plants from 20cm to 1m. high in anything from white to deep blue. The 'Flora of the Pacific Northwest' maintains 3 species with 6 subspecific taxa. We have not seen these in flower so this name is the best we can provide. 30-50 cm. here. All should be growable in UK gardens, recalling *Eremurus* in their spires of starry flowers but in pale to deeper violet-blues. All are likely to be easy in a well-drained, sunny border in wetter climates.) . . . . . (20+ seeds) . **A**
- 1.191.102 : CAMASSIA QUAMASH** Cal., El Dorado Co. 2000m. Open, wet meadow. J. & G. Robinett coll. 23.9.95 (Racemes of blue-violet flowers on 40-80cm. stems. These habitats are often flooded after snow-melt but dry-out later.) . . . . . (20+ seeds) . **A**
- 1.191.103 : CAMASSIA QUAMASH** Idaho, Valley Co., NNE of Lowman. 2050m. Open, wet meadow in valley bottom. 21.7.95 (Only about 30cm. here and would probably fit into Hitchcock's northern type-race - var. *quamash*) . . . . . (20+ seeds) . **A**
- 1.192.500 : CAMPANULA SCABRELLA** Cal., Trinity-Siskiyou Co., Mt. Eddy. 2740m. Loose serpentine talus on summit slopes. J. Andrews coll., 1995 (Only Californian site for this local alpine, allied to *C. shetleri* & *C. piperi*. Upright, 3-10cm. tufts with a characteristic rough pubescence on the narrow leaves. Starry, pale-blue flowers. Possible in skilled hands.) . . . . . (30+ seeds) . **E**
- 1.200.050 : CASTILLEJA ANGUSTIFOLIA** Cal., Inyo Co., White Mts. W of Westgard Pass. 2230m Among *Artemisia* in gravelly soil. J. Andrews coll. 1995 (Brilliant Paintbrush in the superlative *C. chromosa* complex, one of which we have flowered well here. These can be grown with skill & luck. Liquid feeding in sterile composts can compensate for lack of partners. David Joyner in Salt Lake City sets up mini-ecosystems and grows an amazing & unique collection. Scarlet bracts. 20-30cm.) . . . . . (30+ seeds) . **B**
- 1.200.501 : CASTILLEJA NANA** Cal., Siskiyou Co., Mt. Eddy. 2500m. Serpentine scree. J. Andrews coll. 1995. (Reduced alpine with purplish flowers, the whole plant purple-brown tinted. Often grows without obvious associates.) . . . . . (30+ seeds) . **B**
- 1.215.150 : CENTAUREA ROTHROCKII** \* Originally from a coll. in southern New Mexico. Seed from Richard Riedy, who tells us this is both gorgeous and impressive. With only two species in this genus in N America, this has remained surprisingly obscure. From 50cm. to about 1m. high, if in good soil in sun, with enormous, flattish heads, about 12cm. across, lavender round the edge grading to yellowish white in the centre. An annual, it will probably be best started under glass in spring.) . . . . . (15+ seeds) . **B**
- 1.240.000 : CLINTONIA ANDREWSIANA** Cal., Mendocino Co., W of Comptche. J. Andrews coll. 1995 (Surely the most beautiful in the genus. A plant of damp shade in redwood forests of NW California into SW Oregon. Perfect for a peat-bed in the UK, there were large stands in the RBG, Edinburgh. Umbels of pink to rose flowers followed by glossy, blue fruits. 50cm.) . . . . . (10 seeds) . **C**
- 1.260.000 : CORYDALIS AUREA** Colorado, Rio Blanco Co., NW of Rio Blanco. 1980m. Steep slopes of fragmented shale. 10.7.95 (Compact form, about 10cm. high, of this dwarf perennial. Bluish leaves & bright yellow racemes.) . . . . . (15+ seeds) . **C**
- 1.265.800 : CRYPTANTHA PARADOXA** Colorado, Montrose Co., above Paradox Valley. 1800m. Among *Juniperus* on open, sandstone slopes. 9.7.95 (Fine & extremely local member of the *Boraginaceae*. Not as dwarf as some in this genus, at about 15cm., but splendid, woody-based silvery rosettes and especially large, white, yellow-centred flowers. One of the best.) . . . . . (8 seeds) . **D**
- 1.299.000 : DARLINGTONIA CALIFORNICA** Oregon, Josephine Co., SW of O'Brien. 500m. Wet depressions on open slopes. 28.7.95 (A monotypic genus of insectivorous plants, restricted to S Oregon & N California (see also *Sarracenia*). Great, winged translucent pitchers, about 50 cm. high, overtopped by bizarre yellow-green & dull purple flowers on stems of almost 1m. A montane plant & absolutely temperature-hardy but it does need specialised, wet conditions.) . . . . . (50+ seeds) . **C**
- 1.299.500 : DASYNOTIS DAUBENMIREI** Idaho, Idaho Co., Walde Mt. Lookout. Dry, open meadow among conifers. 1500m. H. Zetterlund coll. 12.6.94 (HZ 94-87) (In the *Boraginaceae* & only known from two sites. Described by Henrik as "a gorgeous plant, clump-forming with narrowly oblanceolate leaves. The flowers are large and of the purest white." 20cm.) . . . . . (5 seeds) . **E**

# Delphinium : scarlet, gold & azure larkspurs of the west

At last we have the year of the Delphinium. Since 1989, we have hoped to be able to strike it lucky with seed. Collecting a wide range is indeed more a matter of luck than planning or skill. Of course, there are many gaps here - less than half the Californians are listed - but the range this season is truly representative of the immense & unique variation of this genus in the American West. All here are more or less summer-dormant perennials, retiring underground to a variety of rootstocks when it is hot and dry. All could be grown in bulb-frame conditions in cooler, summer-wet climates but the larger ones will have to be attempted in the open garden. Choose as well-drained and as sunny a site as possible for all. Though we have never experienced any difficulties personally, seed-

germination has given problems to some in the past. We suggest that they require quite a long cool period. A few degrees above freezing for a couple of months or so should be enough for most. Those from colder areas may need longer. Putting the pots outside in the UK has worked for us. If they do not come up the first year, they come up the next, as with most summer-dormant species. Many of these are very local plants, seldom occurring in large numbers; many flower early and mature seed quickly. Don't miss this opportunity. Taxonomically, the genus is difficult with many hybrids. We have found Michael Warnock's account in the new 'Jepson' very workable and realistic so far and the nomenclature used here, for the Californians, follows his assessment of the genus.

- 1.300.000 : DELPHINIUM ANDERSONII** (var. *andersonii*) Nevada, White Pine Co., NW of Ely. 2200m. Openings among Juniperus in gravelly clay. 4.7.95 (From the winter- cold, interior steppes. Rich pure-blue flowers. 30-50cm.) . . . . . (20+ seeds) . C
- 1.300.100 : D. ANDERSONII** var. **SCAPOSUM** Colorado, Mesa Co., SW of Whitewater. 1800m. Stony, sandstone slopes. 9.7.95 (More eastern race with more distinct cauline leaves and usually much darker blue flowers.) . . . . . (20+ seeds) C
- 1.300.700 : D. CARDINALE** Cal., Ventura Co., NW of Ojai. 650m. Among scrub on steep slope above dry stream-bed. 2.8.95 (Truly breathtaking when we saw it in flower for the first time in 1995. This has no affinities with *D. nudicaule*, in spite of its red flowers, but we suspect records of the two in cultivation have been confused (e.g. the illustration of this in Phillips & Rix 'Perennials' Vol.2 looks like *D. nudicaule* to us). A big plant, well over 2m. here, from a massive rootstock. A much branched stem carries a long succession of opulent flowers in brilliant, eye-burning scarlet-red. Starting in May in nature, there were still a few out in August. Unlike all the others, seed takes a long time to mature. Endemic to the S Coast Ranges just into Mexico, it is recorded up to 1500m. and should be reasonably hardy in the UK, though if foliage appears early, this may need protection.) . . . . . (20+ seeds) . D
- 1.300.701 : D. CARDINALE** Cal., Los Angeles Co., Santa Monica Mts. 500m. N-facing clay bank in chaparral. J. & G. Robinett coll. 21.7.95 (Branching stems to 1m. and more. Considerable differences exist between populations. Try both.) . . . . . (20+ seeds) . D
- 1.300.850 : D. DECORUM** subsp. **TRACEYI** Cal., Siskiyou Co., SW of Castle Lake. 1580m. Openings among scrub on steep, stony slopes. 29.7.95 (Dwarf, montane N Californian race with blue-purple flowers. 10-20cm. Cool summer rest.) . . . . . (20+ seeds) . D
- 1.301.201 : D. GEYERI** Wyoming, Lincoln Co., N of Opal. 2050m. Among grasses in gravelly soil. 14.7.95 (Spread from NW Utah to E of the Rockies, often painting the grassland with rich blue purple. May merge into the *D. virescens* complex of the Great Plains. Used to extremely cold winters, this should be hardy almost anywhere. About 50cm. tall here.) . . . . . (20+ seeds) B
- 1.302.500 : D. LUTEUM** \* Cal., Sonoma Co., SW of Bodega. (This seed sums up what so much of our list is about : grown by Norman Stevens (Cambridge, UK) from seed sent by Henrik Zetterlund (Goteborg, Sweden), harvested from plants raised from an original coll. by Wayne Roderick (California, USA). The species itself hovers on the verge of extinction, known from two small populations growing on seasonally wet cliffs near the coast NW of San Francisco. Precisely the sort of plant the conservation-fascists would like to ban you from growing or us from distributing. Join the club and help to maintain this unique species in cultivation. The only truly yellow N American, about 30cm. tall with waxy, shining, clear bright-yellow flowers.) . . . . . (15+ seeds) . E
- 1.302.700 : D. NUDICAULE** Cal., Plumas Co., S of Greenville. 1370m. Among conifers on steep, gravelly, clay slope. 28.7.95 (A high altitude inland form, about 30cm. high of this scarlet-orange species. Tony Chalkley raised some pinkish flowered plants, possible hybrids with *D. nuttallianum* or a similar species, from a coll. we made here. We saw only this in 1995.) . . . . . (20+ seeds) . C
- 1.302.750 : D. NUDICAULE** Cal., Mendocino Co., Etsel Ridge ESE of Covelo. 1980m. Among rocks on serpentine outcrop. 31.7.95 (A similar form, growing in a precisely similar habitat to the next, which we collected in 1989 in the Lassics N of Zenia and have never been able to relocate. We wonder if there is a distinct race endemic to these high, inaccessible serpentines of the inner N Coast Ranges. Up to 1m. high with the long-spurred, brilliant scarlet flowers held out on long pedicels.) . . . . . (20+ seeds) . D
- 1.302.751 : D. NUDICAULE** \* Cal., Trinity Co., N of Zenia. 1660m. Serpentine outcrop. (1995 seed from our 1989 coll., made about 80km. NW of the above, grown successfully as a border-plant outside by Dinah Batterham (Dorset, UK)) . . . . . (15+seeds) . D
- 1.302.902 : D. NUTTALLIANUM** Cal., Modoc Co., WNW of Canby. 1420m. Vernally wet, open, stony site. 15.6.95 (Possibly this very variable, widespread, deep-blue, dwarf species, 20-30cm. here, though plants in the area keyed-out as *D. depauperatum*. Warnock mentions they can occur together but that the latter flowers later & likes wetter places.) . . . . . (15+ seeds) . C
- 1.303.100 : D. PARISHII** Cal., Inyo Co., SW of Gilbert Summit. 1620m. With sparse Artemisia on open, stony slope. 25.6.95 (Cold-desert species with 50cm. racemes downy, white-eyed flowers in a beautiful pale azure-blue.) . . . . . (20+ seeds) . C
- 1.303.102 : D. PARISHII** Cal., Inyo Co., Panamint Range, Wildrose Canyon. 2130m. Among Juniperus. 25.6.95 . . . . . (20+) . C

## Species from North America : Seeds from Jim & Jenny Archibald

- 1.303.600 : DELPHINIUM PARRYI subsp. PURPUREUM** Cal., Kern Co., W of Frazier Park. 2250m. Among Pinus in granite grit. 23.6.95 (Type-locality coll. of this race endemic to the Transverse Range. Racemes of light-blue, often violet-tinted, flowers, 30-60cm. high. The species as a whole (not to be confused with *D. parishii*) is widespread in S. California.) . . . . . (20+ seeds) . **D**
- 1.304.500 : DELPHINIUM VARIEGATUM** (subsp. *variegatum*) Cal., Mendocino Co., SW of Covelo. 390m. Heavy clay on open, grassy slope. 9.6.95 (A spectacular species around 50cm. high with racemes of flowers in rich, deep royal-blue. Grows well with Stan & Vic in Concord and should be easy in a bulb-frame in the UK, providing a unique colour in spring.) . . . . . (20+ seeds) . **C**
- 1.305.001 : DENDROMECON RIGIDA** Cal., Tulare Co., NE of Springville. 1150m. Among scrub on steep slopes. 2.8.95 (Woody poppy, about 2m. high with brilliant yellow, four-petalled flowers & narrow, bluish, leathery leaves. Usually a success in the UK in a dry, sunny site. Seed is difficult to germinate - try burning over it or put it in an oven for an hour or so.) . . . . . (20+ seeds) . **B**
- 1.305.020 : DENDROMECON RIGIDA** Cal., Santa Barbara Co., Point Sal Ridge. 300m. Exposed, steep, seaward W-facing slope. 22.6.95 (Extremely compact, only 30cm. high here, with very thick, leathery leaves. The result of the Pacific gales and may not be fixed but most prostrate *Ceanothus* in cultivation come from similar sites & retain their character.) . . . . . (15+ seeds) . **D**
- 1.306.001 : DICENTRA CHRYSANTHA** Cal., Lake Co., SE of Hull Mt. 1800m. Steep open slope. 31.7.95 (Californian endemic & a classic fire-follower. Stiff, erect stems of about 1m. from a stout perennial root. Blue-grey, dissected leaves and panicles of upward-facing, bright-yellow bleeding-heart flowers. Treat like *Dendromecon* to germinate - burn it over!) . . . . . (20+ seeds) . **C**
- 1.306.200 : DICENTRA FORMOSA** Cal., Mendocino Co., Etsel Ridge. 1980m. Among scrub in openings among conifers. 31.7.95 (Good deepest pink form from the high serpentines here. Usually an easy 30cm. perennial in UK gardens.) . . . . . (20+ seeds) . **B**
- 1.306.300 : DICENTRA OREGANA** Oregon, Josephine Co., E of Takilma. 900m. Loose serpentine talus on steep slope. 28.7.95 (Merged under the above, in current floras, but most distinct in its 'pure' form, narrowly endemic to serpentine scree in this area. Dwarf (15-20cm.) with much cut blue-grey leaves and shallowly cordate cream, rose-tipped flowers.) . . . . . (20+ seeds) . **C**
- 1.308.000 : DICHELOSTEMMA CAPITATUM** Cal., Tehama Co., NE of Red Bluff. 380m. Among long grass in open area. 30.7.95 (Very widespread & variable corm with dense heads of showy, blue-purple flowers on 30cm. stems.) . . . . . (20+ seeds) . **A**
- 1.308.300 : DICHELOSTEMMA IDA-MAIA** \* Cal., Humboldt Co., NNE of Orleans. 180m. Stony slope at woodland margin. (1995 hand-pollinated seed of this amazing plant, over 1m. when well grown, with pendant, tubular flowers in pure glowing red with greenish-cream segments surrounding the white staminodes. Easy here under glass but will grow outside in UK.) . . . . . (20+ seeds) . **C**
- 1.308.302 : DICHELOSTEMMA IDA-MAIA** Cal., Mendocino Co. 450m. Steep, NW-facing slope. J. & G. Robinett coll. 20.8.95 (We have two other wild colls. by the Robinetts available from this startling endemic of the N Coast Ranges.) . . . . . (20+ seeds) . **C**
- 1.308.501 : DICHELOSTEMMA VOLUBILE** Cal., Fresno Co. 1550m. Open woodland on granite-sand slope. J. & G. Robinett coll. 1.9.95 (While the above can twine a little, this is a real climber with contorted stems to 2m. twisting among scrub. Umbel-like heads of bright pink flowers with cream staminodes. Flowering by the thousand here after a fire & a wet winter.) . . . . . (20+ seeds) . **C**
- 1.309.100 : DISPORUM HOOKERI var. OREGANUM** Idaho, Benewah Co., SW of Sanders. 820m. Mixed coniferous woodland. 23.7.95 (Demure woodlander with pendant, creamy bells followed by bright orange fruits. 50cm.) . . . . . (10 seeds) . **B**

## Dodecatheon : a confusion of shooting stars

- 1.310.500 : DODECATHEON CLEVELANDII** Cal., Santa Barbara Co. 1150m. Serpentine meadow in full sun. J. & G. Robinett coll. 17.6.95 (Splendid summer-dormant plant for the bulb-frame or alpine-house. Showy pink flowers with yellow noses. Do take careful note of the habitats - there are species for both the bulb-frame & peat-bed here.) . . . . . (20+ seeds) . **B**
- 1.311.000 : DODECATHEON HENDERSONII** Cal., Plumas Co., S of Greenville. 1370m. Among conifers on steep, stony slope. 28.6.95 (Characteristic species of northern woodlands. Summer-dormant. Magenta to deep lavender.) . . . . . (20+ seeds) . **A**
- 1.311.001 : DODECATHEON HENDERSONII** Cal., Shasta Co., S of Shingletown. 1000m. Woodland. 29.6.95 . . . (20+ seeds) . **A**
- 1.311.200 : DODECATHEON JEFFREYI** Cal., Trinity Co., Scott Mt. Summit. 1650m. Open, wet meadow in coniferous forest. 29.7.95 (Always in marshy meadows & along streams in the mountains. Varying shades of lavender pink.) . . . . . (30+ seeds) . **A**
- 1.311.300 : DODECATHEON PULCHELLUM** Wyoming, Laramie Co., Horse Creek. 2300m. Among long grass in wet meadow. 15.7.95 (Extremely tall, robust form here with richly coloured flowers in deep pinks & reds.) . . . . . (30+ seeds) . **A**
- 1.311.700 : DODECATHEON SP.** Oregon, Josephine Co., SW of O'Brien. 500m. Clay pockets on level serpentine, briefly wet in spring. 13.6.95 (A distinct little plant, known to Boyd Kline & other local plant-people as 'Illinois Valley Dwarf'. Nothing to do with *D. hendersonii*, we should not hazard a guess as to its affinities. Narrow-leaved and 10cm. in seed.) . . . . . (20+ seeds) . **C**
- 1.312.500 : DRABA QUADRICOSTATA** Cal., Mono Co., N of Conway Summit. 2300m. Rock fissures on volcanic ridge. J. Andrews coll., 1995 (Narrow Sierra Nevada endemic, separated into *Cusickiella quadricostata* in 'Jepson'. One of the most densely caespitose of Californian cushions with pale yellow flowers. Enthusiastically recommended by John.) . . . . . (20+ seeds) . **D**

- 1.315.500 : EPILOBIUM SISKIYOUENSE** Cal., Siskiyou Co., Mt. Eddy. 2630m. Exposed, serpentine slope. J. Andrews coll. 1995 (Now sensibly separated from *E. obcordatum* in 'Jepson', this is very local on the high serpentines in this area and is more or less intermediate between *E. obcordatum* & *E. rigidum* - a superlative trio of alpines for the specialist. Caespitose, woody-based & compact, about 10cm. high, it covers itself with comparatively huge flowers of intense rose-purple.) . . . . . (10 seeds) . **E**
- 1.320.200 : ERIGERON ARGENTATUS** Cal., Inyo Co., Westgard Pass. 2230m. Gravelly soil. J. Andrews coll. 1995 (One of the best medium-sized species. Generous, lilac-blue daisies from narrow-leaved, silvery-grey clumps. 20cm.) . . . . . (20+ seeds) . **B**
- 1.320.400 : ERIGERON COMPACTUS** Nevada, Eureka Co., W of Eureka. 2100m. Expose, bare alkaline 'flats' with sparse Juniperus. 4.7.95 (Firmly compacted, round hummocks cover themselves with daisies on 5cm. stems - usually white, sometimes lilac-pink and red on the reverse of the rays. Described by Dwight Ripley as "one of the choicest of its race.") . . . . . (15+ seeds) . **E**

## Eriogonum : compact buckwheats from mountains and steppes

There are some marvellous alpine-house plants here, though the genus has tended to be more in vogue with rock-gardeners in the USA than alpine-house growers in Europe. There is a good review by Jack Elliott in the summer, 1993 AGS Bulletin. While we have several 1995 collections, we are listing a few of John Andrews earlier collections, extracted from our refrigerated seed-bank. This dry-climate material should still be perfectly viable - most of it would be a lot of trouble and effort to recollect and may never be available again.

- 1.330.200 : ERIOGONUM BREEDLOVEI** (var. *breedlovei*) Cal., Kern Co., Piute Mt. 2400m. J. Andrews coll. 1993 (Only known from the limestone of this one mountain in the southern Sierra Nevada. A bit like *E. kennedyi* with woolly grey mats to 20cm. across. Whitish to reddish flowers. The first & only coll. of this desirable plant.) . . . . . (20+ seeds) . **E**
- 1.330.250 : E. CAESPITOSUM** Cal., Mono Co., White Mts. 2300m. Open, stony, limestone slope. 5.8.95 (One of the best & also one of the easiest to grow among the tightly pulvinate ones. A widely distributed species forming compact mats of tiny, spatulate, white-felted leaves. Clustered yellow heads, opening almost stemless, flush to red as they mature.) . . . . . (20+ seeds) . **C**
- 1.330.500 : E. DOUGLASHII** Cal., Modoc Co., Warner Mts. 2670m. J. Andrews coll. 1991 (Close to the preceding. Hard, white mats to 30cm. across with yellow heads, flushing to red. The true plant - impostors are often grown as this.) . . . . . (20+ seeds) . **D**
- 1.330.850 : E. HOLMGRENII** Nevada, White Pine Co., Snake Range. 3400m. Exposed limestone talus. J. Andrews coll. 14.10.95 (Endemic to this range, well above the bristlecone pines with *Aquilegia scopulorum* & *Primula nevadensis*. Never in cultivation. In Sect. Capitata with other desirable narrow endemics like *E. gracilipes* & *E. kingii*. Raspberry-pink heads.) . . . . . (15+ seeds) . **E**
- 1.330.900 : E. KELLOGII** Cal., Mendocino Co., Red Mt. 1180m. Rocky slopes & screes. J. Andrews coll. 1991 (Only known from the Red Mt. serpentine. Dense, flat, woolly mats. Heads of pink flowers flush to orange. 5cm.) . . . . . (20+ seeds) . **E**
- 1.330.950 : E. KENNEDYI** var. **ALPIGENUM** Cal., Ventura Co., Mt. Pinos. 2600m. Granite grit of exposed summit area. 2.8.95 (Wide hard, silvery white mats with stemless heads of rosy flowers, maturing to rust-red. Stays tight with us.) . . . . . (15+ seeds) . **E**
- 1.331.500 : E. OVALIFOLIUM** Cal., Mono Co., White Mts., Westgard Pass. 2230m. Level, gravelly steppe. 5.8.95 (A widespread, extremely variable group of local taxa, defying all attempts to split it into 'species' - all are beautiful. Woody mats of oval, grey-white leaves send up many 10cm. stems with round heads of flowers, creamy-white maturing to pink here.) . . . . . (20+ seeds) . **C**
- 1.332.500 : E. SISKIYOUENSE** Cal., Trinity Co., Mt. Eddy. 2070m. J. Andrews coll. 1995 (Narrowly endemic to the Mt. Eddy serpentines. Tight, woody-based mats of woolly-backed leaves, rather like a compressed version of *E. umbellatum*. Slender stems of about 5 cm. with a whorl of bracts below the heads, which open yellow & age to red.) . . . . . (15+ seeds) . **D**
- 1.332.600 : E. SOREDIUM** Utah, Beaver Co., Frisco (WNW of Milford). 2010m. Limestone slopes. J. Andrews coll. 1991. (Densely pulvinate, firm, woolly, grey-white mounds, up to 50cm. across, with almost stemless heads of white, sometimes pink-flushed, flowers. Only ever found above the ghost-town of Frisco, on the E side of the Wah Wah Valley.) . . . . . (20+ seeds) . **E**

## Erythronium : the fawn lilies - flowers of the melting snows

We list here an unprecedented range of seed from the western members of this fashionable genus, in spite of a very poor season for these early flowering plants. Most grow in well-drained habitats usually in light shade. When areas are hot & dry in summer, the corms are likely to be growing deeply among stones, where soil-temperature & moisture remain constant. Their preference for serpentine areas is marked - singularly inhospitable, infertile soils, deficient in nitrogen, phosphorous & calcium, with high concentrations of magnesium. We suggest caution in attempting these in pure

peat - a mix of half granite chippings and half sphagnum peat or leafsoil might be more appropriate. Species from warmer, drier summer habitats might be best in well-drained sites in full sun in cool, wet climates. These may need a summer-rest. All seem remarkably temperature-hardy and many grow surprisingly well in the open garden in wetter climates. Seed of most will come up easily after a sufficient cool period but the very high altitude group, (*E. pusaterii*, *E. pluriflorum* & *E. purpurascens*) are difficult to germinate. They appear to require a very long cold period or repeated freezing.

- 1.350.200 : ERYTHRONIUM CALIFORNICUM** Cal., Humboldt Co., SSW of Willow Creek. 1580m. Stony serpentine areas in openings among conifers. 30.7.95 (The lovely species of the N Californian Coast Ranges from here S almost to the Bay area. A plant of foothill woodland & pine forest. Beautifully mottled leaves. Creamy white flowers with yellow throats.) . . . . . (20+ seeds) . **C**

# Species from North America : Seeds from Jim & Jenny Archibald

- 1.350.202 : ERYTHRONIUM CALIFORNICUM** Cal., Trinity Co. 1030m. Serpentine scree in open woodland. J. & G. Robinett coll. 4.7.95 (Population intermediate to *E. multiscapoideum*. From the area we collected seed in 1989 (our 11005)) . . . (20+ seeds) . C
- 1.350.003 : E. CALIFORNICUM** Cal., Mendocino Co., ESE of Covelo. 1600m. Oak woodland in clay. 31.7.95 . . . . (20+ seeds) . C
- 1.350.400 : E. CITRINUM** Oregon, Josephine Co., SW of Selma. 550m. Steep slopes with sparse conifers. 13.6.95 (Mottled leaves & white to cream flowers with lemon bases. Restricted to the Coast Ranges on the California-Oregon line.) . . . . . (20+ seeds) . C
- 1.350.500 : E. CITRINUM var. RODERICKII** Cal., Trinity Co., Scott Mts., between Tangle Blue Creek & Bear Creek. 1250m. openings in coniferous forest. J. Andrews coll. 1995 (Round the mountain from the type locality, where it is shy-flowering. The plant listed in 1989 as a form of *E. californicum* with purple filaments. Nearest recorded populations of *E. citrinum*, *E. hendersonii* & *E. californicum* are all about 35km. distant. This may have something to do with all or any of them.) . . . . . (20+ seeds) . D
- 1.351.000 : E. GRANDIFLORUM (var. grandiflorum)** Utah, Cache Co., above Tony Grove Lake. 2400m. Open slopes with Artemisia. 19.7.95 (Montane, snow-melt plant with a northern & eastern distribution. Outstanding bright yellow flowers and plain green leaves. Here with red-brown anthers - so far S, it usually has yellow-anthers (subsp. *chrysandrum*)). . . . . (20+ seeds) . C
- 1.351.002 : E. GRANDIFLORUM (var. grandiflorum)** Idaho, Nez Perce Co., N of Lake Waha. 300m. Steep slopes, among conifers. 25.7.95 (Applegate assigns an 1892 coll. here to this type-race. Red, white & yellow anthers occur in N Idaho.) . . . (20+ seeds) . C
- 1.351.100 : E. GRANDIFLORUM var. CANDIDUM** Washington, Whitman Co., Steptoe Butte. 1020m. N-facing slope with sparse Pinus. 25.7.95 (1906 type-locality of this white-flowered plant, which may or may not be the same taxon as *E. idahoense* (q.v.) - isolated here on top of a quartzite butte above intensively cultivated palouse country.) . . . . . (15 seeds) . E
- 1.351.101 : E. GRANDIFLORUM var. CANDIDUM** Washington, Whitman Co., Kamiak Butte. 1020m. In mixed coniferous woodland on N-facing slope. 23.7.95 (No early records from here but a twin, quartzite butte habitat.) . . . . . (15 seeds) . E
- 1.351.200 : E. HELENAE** Cal., Lake Co., NW slope of Mt. St. Helena. 700m. Among Pinus & Arctostaphylos on steep, serpentine slope. 17.6.95 (Very limited distribution in this area. A beautiful plant with mottled leaves, quite near *E. californicum* but with yellow anthers and a definite capacity to increase vegetatively. Not difficult but best with a summer reast.) . . . . . (15 seeds) . D
- 1.351.300 : E. HENDERSONII** Oregon, Jackson Co., N of Medford. 400m. Openings among scrub. 2.7.89 (Limited to the Oregon-California borders, a superlative, robust species with dark-mottled leaves. Lavender-pink flowers with dark anthers & a purple base, surrounded by a white or yellow zone. Seems quite easy in a well-drained site in the UK.) . . . . . (20+ seeds) . C
- 1.351.301 : E. HENDERSONII** Oregon, Jackson Co. 1030m.. Wooded, NW-facing slope, in serpentine-clay. J. & G. Robinett coll. 1.7.95 (From the high altitude, Siskiyou Mts. population, growing among the oaks along the California line.) . . . . . (15+ seeds) . C
- 1.351.500 : E. HOWELLII** Oregon, Josephine Co., E of Takilma. 670m. Among conifers on open, turfy, stony slopes. 12.6.95 (Nearest to *E. citrinum* but with no basal appendages. White flowers turn pink as they age. Mottled leaves.) . . . . . (20+ seeds) . C
- 1.351.501 : E. HOWELLII** Oregon, Josephine Co., Waldo. 650m Among Arctostaphylos. 13.6.95 (Type locality) . . . . . (15+) . C
- 1.351.600 : E. IDAHOENSE** Idaho, Kootenai Co., NW of Worley. 800m. Among scrub in Pinus woods - sandy clay. 23.7.95 (Limited to a narrow strip along the Idaho-Washington line, N & S of Coeur d'Alene. White with a greenish centre & white anthers. Unmarked leaves. From Applegate's 1926 type-locality, a very different habitat to the Washington ones listed above.) . . . . . (15 seeds) . E
- 1.351.700 : E. KLAMATHENSE** Cal. Siskiyou Co., SW of Castle Lake. 1580m. Openings among scrub on steep, stony slopes. 29.7.95 (High altitude species, rarely extending below 1500m., & closest to *E. purpurascens*, whose relatives tend to be the more difficult ones to grow and germinate. We have insufficient experience of this to express an opinion or advice. Yellow-centred, milk-white flowers with creamy anthers. Plain bright-green leaves. A local, mountain-plant, mainly of S central Oregon) . . . . . (15 seeds) . D
- 1.351.701 : E. KLAMATHENSE** Cal., Shasta Co. 1200m. Edge of vernal wet meadow in open woodland. J. & G. Robinett coll. 30.6.95 (The preceding was long thought to be the only Californian colony. This is also at quite a low altitude.) . . . . . (15 seeds) . D
- 1.351.900 : E. MONTANUM** Canada, British Columbia, Vancouver Is., San Juan Ridge. 800m. A. Guppy coll. 1995 (The famous & recalcitrant glacier lily of the high ranges in N Oregon, Washington & into Canada. From a comparatively low altitude coll., which may possibly be more accommodating. Great, yellow-centred, white flowers & distinctive, plain-green leaves.) . . . . . (15 seeds) . D
- 1.352.000 : E. MULTISCAPOIDEUM** Cal., Butte Co., N of Magalia. 600m. Under Cupressus on serpentine. 16.6.95 (Mottled leaves White flowers with pale, greenish yellow centres & white anthers. No close affinities among the westerners (though see 1.350.202 population of *E. californicum*) - the only one with stoloniferous corms. Maybe best dryish in summer.) . . . . . (20+ seeds) . C
- 1.352.100 : E. MULTISCAPOIDEUM (E. "cliftonii")** Cal., Butte Co., S of Pulga. 420m. Steep, open, serpentine scree. 16.6.95 (More or less a giant form of the species from this one area. Never described botanically but proving fairly adaptable & growable in the UK, as *E. "cliftonii"*. Quite accommodating in the open garden according to Paul Christian.) . . . . . (15+ seeds) . D
- 1.352.200 : E. NUDOPETALUM** Idaho, Valley Co., NNE of Lowman, along Cache Creek. 2050m. Margin of coniferous woodland. 21.7.95 ('One-off' type-locality coll. of this obscure plant, collected here by Applegate in 1930 but later reduced to a var. of *E. grandiflorum* by Hitchcock. Golden-yellow flowers with dark-red or maroon anthers.) . . . . . (15 seeds) . E

- 1.352.300 : ERYTHRONIUM OREGONUM** (subsp. *oregonum*) Washington, near Ridgefield, along Columbia River. 60m. In mixed woodland. G. Burrell coll., 1995 (From an exceptionally robust form of the type-race with yellow anthers, the one usually grown in the UK. Big white flowers and large, mottled leaves. This & the next should be successful outside in Europe.) . . . (15 seeds) . C
- 1.352.400 : E. OREGONUM subsp. LEUCANDRUM** Oregon, Douglas Co., S of Tiller. 460m. Among Pinus on steep serpentine slopes. 14.6.95 (Race with white anthers, of more limited distribution towards the SE of the species range. The white flowers, often maturing to pink, have striking markings in orange, dark-red or brown around the yellow bases. Superlative.) . . . . (20+ seeds) . C
- 1.352.700 : E. PLURIFLORUM** Cal., Madera Co., Shuteye Peak (Sierra Nevada E of Merced). 2310m. NW-facing granite ledges. J. Andrews coll., 1995 (Described in 1990, though the first coll. was made in 1907 & misidentified by Applegate & others as *E. purpurascens*. Allied to it with plain green leaves but the 30cm. stems carry up to 10 - exceptionally to 20 - nodding, bright yellow flowers, maturing to bronze or pinkish. Isolated high on Chiquito Ridge between Shuteye & Little Shuteye Peaks, it flowers as late as July. John has made a fresh coll. - it *must* be grown. Seems to need prolonged cold to germinate.) . . . . . (20+ seeds) . E
- 1.352.800 : E. PURPURASCENS** Cal., Plumas Co., S of Greenville. 1370 m. Among conifers on steep granite-grit slopes. 28.6.95 (Plain green leaves & yellow-centred white flowers, purple-tinged with age. The most widespread of this trio, most numerous around the upper drainage of the Feather River, reaching to almost 2500m. Quite a low altitude for this here.) . . . . . (15+ seeds) . D
- 1.352.801 : E. PURPURASCENS** Cal., Placer Co., Monumental Ridge (Sierra Nevada W of Truckee). 2060m. J. Andrews coll. 1994 (Robust plants here with up to 11 flowers per stem noted by John. Still very little tried in cultivation.) . . . . . (20+ seeds) . D
- 1.353.000 : E. PUSATERII** Cal., Tulare Co., Jordan Peak (Sierra Nevada ENE of Porterville). 2774m. Granite rock-falls. J. Andrews coll. 1995 (Again described in 1990 - the Purpus coll. of 1895 was placed under *E. purpurascens* & Pusateri's later colls. in *E. grandiflorum*. Like a large *E. purpurascens* with well developed appendages on the segments & a larger yellow centre. The most southern of the westerners, confined to a small area at the sources of the Tule & Kaweah Rivers.) . . . . . (20+ seeds) . E
- 1.353.100 : E. REVOLUTUM** Canada, British Columbia, Vancouver Is., above Skutz Falls. A. Guppy coll., 1995 (Spread S from here all the way to NW California but essentially a coastal plant, seldom above 1000m., of high rainfall areas. Mottled leaves and sumptuous rose-pink flowers make this one of the most desirable & by far the best in moist UK gardens.) . . . . . (20+ seeds) . C
- 1.353.120 : E. REVOLUTUM** \* No data. From the vigorous population in varying shades of pink, naturalised in Peter Chappell's Hampshire garden. If you just want some good garden-plants this is what you should have. . . . . (20+ seeds) . B
- 1.353.300 : E. TUOLUMNENSE** Cal., Tuolumne Co., NE of Columbia. 750m. Steep slopes in deciduous woodland. 19.6.95 (Plain green leaves & up to 5, bright-yellow flowers. Amazingly hardy & easy in European gardens. A low altitude relic, nearest to *E. grandiflorum*, of limited distribution in the wild, though more locally abundant than it was once thought to be.) . . . (15+ seeds) . C

## Fritillaria : specialists of serpentine scree, granite and adobe clay

About one-fifth of this genus occurs in N America, centred on N California, where it appears to be actively evolving, showing much variation within the current concept of each 'species'. Names here mostly follow the account in Jepson, which is itself derivative from work done by Roger MacFarlane, whose names are largely in use in the UK. Some of those who know the genus well in California are not impressed by the current treatment of some 'species'. Individual populations of species like *F. affinis* (*F. lanceolata*) and *F. biflora* can look more distinct than many Mediterranean populations given specific status. It is quantifying the differences and finding a degree

of consistency in them that is the problem. For gardeners, the articles written by Dr. Sylvia Martinelli in the March & June 1992 AGS Bulletins are the most useful references available. Successful cultivation of these plants is much more widespread now than in the past. The basic criteria would appear to be well-drained, lime-free, low nutrient composts and, in the UK, giving them their first winter watering quite late in November, or even December. Excess nitrogen should be avoided, especially for serpentine species - please note our comments about the chemical characteristics of this under *Erythronium*.

- 1.370.000 : FRITILLARIA AFFINIS** (*F. lanceolata*) Cal., Solano Co., NW of Vacaville. 550m. Steep scrub-covered slopes. 17.6.95 (Coast Range form of this immensely variable group distributed in a great arc from around here N to Canada and E to Idaho. Nodding bells mottled in brown-purple & pale yellow. Up to 50cm. here. One of the easier ones in cultivation.) . . . (20+ seeds) . B
- 1.370.001 : F. AFFINIS** \* Cal., Tuolumne Co., W of Chinese Camp. 360m. Chaparral. (Sierra foothill form, somewhat approaching *F. micrantha* in its large green nectary. Cultivated, hand-pollinated, 1995 seed from a small 1989 coll. . . . . (15+ seeds) . B
- 1.370.050 : F. AFFINIS** Oregon, Josephine Co., SW of Selma. 450m. Among volcanic debris on open, S-facing slopes. 13.6.95 (Illinois Valley form, 15-20cm. high, often single-flowered & usually yellowish green with just a few brown lines.) . . . . . (15+ seeds) . C
- 1.370.100 : F. AFFINIS** Washington, Clark Co., near Ridgefield along Columbia River. 60m. Among Symphoricarpos scrub. G. Burrell coll. 1995 (Northern, coastal form with yellow-green flowers, dotted with purple. 30-50cm. high.) . . . . . (20+ seeds) . B

A : \$2.00 ; £1.50 ; DM4,- ; FF13.-      C : \$4.00 ; £2.50 ; DM6,- ; FF21.-      E : \$7.00 ; £4.50 ; DM12,- ; FF40.-  
 B : \$3.00 ; £2.00 ; DM5,- ; FF17.-      D : \$5.00 ; £3.50 ; DM9,- ; FF30.-      F : \$9.00 ; £6.00 ; DM15,- ; FF50.-



# Species from North America : Seeds from Jim & Jenny Archibald

- 1.370.200 : FRITILLARIA AFFINIS** (*F. lanceolata*) Idaho, Kootenai Co., ESE of Worley. 750m. Pinus woodland on sandy clay. 23.7.95 (A giant from the NE extremity of the group distribution. Not the sort of thing expected so far E and just S of the Canadian border. Stout stems, 60cm. or more high, whorled with broadly lanceolate leaves carry up to 8 flowers. It was associated with *Erythronium idahoense* in all three localities, SW of Coeur d'Alene Lake, in pine woods with *Physocarpus* & *Symphoricarpos* on the distinctive sandy clays of this area. We may not be back, so three colls. - should grow outside in UK.) ..... (20+ seeds) . C
- 1.370.201 : F. AFFINIS** Idaho, Benewah Co., E of Plummer. 750m. Pinus woodland. 23.7.95 ..... (20+ seeds) . C
- 1.370.202 : F. AFFINIS** Idaho, Kootenai Co., NW of Worley. 800m. Pinus woodland. 23.7.95 ..... (20+ seeds) . C
- 1.370.301 : F. AGRESTIS** Cal., Alameda Co., ESE of Livermore. 450m. Among grass on clay slopes. 8.6.95 (An adobe-clay plant, the valley-grassland version of *F. biflora*. Once widespread in the Central Valley but now very localised as most of its habitat has been destroyed by agriculture & development. Green-cream bells, purple-brown inside. Up to 50 cm.) ..... (20+ seeds) . C
- 1.370.402 : F. ATROPURPUREA** Cal., Siskiyou Co., SW of Castle Lake. 1580m. Openings among scrub on steep, stony slope. 29.7.95 (A dainty, dwarf form here with wide, creamy bells mottled in purple-brown. 20cm. More or less an alpine or steppe version of *F. affinis*, distributed in an interior parallel arc E to S. Dakota. Always narrower-leaved with open bells.) ..... (15+ seeds) . D
- 1.370.500 : F. BIFLORA** Cal., San Luis Obispo Co., above San Simeon Bay. 10m. Coastal grassland in sandy clay. 21.6.95 (Dark, brown-purple, green-striped bells but very variable. A coastal plant extending S to around the Mexican border - maybe best grown frost-free but remember the coast is cool in summer so do not bake it when dormant. 20-30cm.) ..... (20+ seeds) . B
- 1.370.501 : F. BIFLORA** Cal., Santa Barbara Co. 1150m. NE-sloping, open, serpentine-clay meadow. J. & G. Robinett coll. 17.6.95 (From well above the published maximum altitude, this should be harder than any other population. 10-30cm.) ... (20+ seeds) . C
- 1.370.650 : F. EASTWOODIAE** (*F. phaeanthera*) Cal., Shasta Co., S of Shingletown. 1000m. Openings in mixed woodland. 29.6.95 (A dubious 'species', apparently a fairly recent hybrid between *F. recurva* & *F. micrantha*. Dr. Martinelli describes the colours here as from all red or all apricot to brown-orange edged with yellow and orange with yellow inside. 40cm.) ..... (20+ seeds) . C
- 1.370.800 : F. GLAUCA** Cal., Humboldt Co., SSW of Willow Creek. 1580m. Unstable, serpentine talus on steep, N-facing slope. 30.7.95 (Very dwarf, serpentine-endemic of the NW Coast Ranges, not unlike the Turkish scree-forms of *F. crassifolia*. Thick, glaucous leaves & nodding bells in yellow through to red-browns here. Not too difficult to grow with us.) ..... (15+ seeds) . E
- 1.370.801 : F. GLAUCA** Cal., Mendocino Co., Etsel Ridge ESE of Covelo. 1980m. Steep slope, in loose serpentine scree. 31.7.95 (Not seen in flower here - both predominantly yellow and predominantly brown populations occur in this area.) ..... (15+ seeds) . E
- 1.371.100 : F. LILIACEA** Cal., Marin Co., NW of Nicasio. 15m. Among scrub on low, grassy, coastal hills. 18.6.92 (Very limited distribution N & S of San Francisco but usually quite easy in the UK. Best kept frost-free in winter & cool in summer - we lost stock under glass in the heat of 1995. Bright-green leaves & up 5, pendant, creamy white bells on 30cm. stems.) ..... (15+ seeds) . D
- 1.371.200 : F. MICRANTHA** Cal., Mariposa Co., NE of Coulterville. 1050m. Grassy slope in thin coniferous forest. 19.6.95 (Robust species of the west-central Sierra Nevada foothills. Recorded to 90cm high but 30-50cm here. Up to 10 nodding bells, usually purplish but varying to paler, greener tones & sometimes faintly mottled.) ..... (20+ seeds) . B
- 1.371.201 : F. MICRANTHA** Cal., Tuolumne Co., ESE of Groveland. 950m. Mixed woodland. 19.6.95 ..... (20+ seeds) . B
- 1.371.202 : F. MICRANTHA** Cal., Tuolumne Co., NE of Columbia. 750m. Deciduous woodland. 19.6.95 ..... (20+ seeds) . B
- 1.371.350 : F. OJAIENSIS** Cal., Ventura Co., NNW of Ojai. 533m. J. Andrews coll. 1993 (Untried in cultivation before this coll. - growing on well with us now. Disjunct southern member of the *F. affinis* group with 50cm. stems of widely bell-shaped flowers in dull greenish yellow with sparse to profuse dark dots. The broad, diamond-shaped nectary is diagnostic.) ..... (15+ seeds) . E
- 1.371.500 : F. PINETORUM** Cal., Kern Co., Mt. Pinos. 2650m. In granite grit, among scrub at margin of Pinus woods. 2.8.95 (It was one of the great excitements of 1995 to see this flowering here, soon after snow-melt in late June. In no way could *this* population be confused with *F. atropurpurea*, as stated by Ness - one wonders if he has ever seen a good herbarium specimen far less the living plant. Absolutely distinct here, it resembles *F. falcata* in its wide-open, flat, thick-textured, upward-tilted flowers and fleshy, glaucous foliage but the latter is narrow & channelled. Its shallow bowls are basically lime-yellow but thickly peppered all over with purple-brown dots, densest towards the margin where there is a narrow, clear picotee-edge. The brilliant orange anthers add to the lurid fascination. Less than 15cm. high here, for all we know this may be distinct from the Sierran plants.) ..... (15+ seeds) . D
- 1.371.520 : F. PINETORUM** Cal., Tulare Co., Jordan Peak. 2770m. J. Andrews coll. 1995 (These local, very high altitude plants from the granites of the Sierra Nevada are particularly obscure & have never been grown. John thinks these may be different to the above (from the highest mountain in the Transverse Range) but they have the curious horned capsule, considered unique to this species. We may be dealing with several taxa or intergrades - this is recorded from the White Mts. & Nevada also.) ..... (15+ seeds) . D
- 1.371.600 : F. PLURIFLORA** Cal., Lake Co., Walker Ridge. 600m. Open, grassy areas in heavy clay. 17.6.95 (One of the most distinct & beautiful in the genus, 10-30cm. tall with up to 7, conical bells in a rich, pure unmarked pink. A classic adobe-clay plant from soil that is wet & glutinous in spring but dries like concrete later. A challenge but it has been grown well.) ... (20+ seeds) . C

- 1.371.601 : FRITILLARIA PLURIFLORA** Cal., Colusa Co., Bear Valley. 530m. J. Andrews coll. 1994 . . . . . (20+ seeds) . C
- 1.371.602 : F. PLURIFLORA** Cal., Colusa Co. 400m. Heavy clay of grassy meadow in full sun. J. & G. Robinett coll. 11.6.95 (The populations differ to some extent and our friends Bob & Rannveig Wallis, who grow this as well as anyone in the UK, tell us that they also vary in 'growability' - some are much easier with them than others. The preceding colony has produced white forms and in this one Jim & Georgie tell us they once found a plant with 20 flowers. Intensity of pink can vary also.) . . . . . (20+ seeds) . C
- 1.371.700 : F. PUDICA** Idaho, Butte Co., NE of Carey. 1520m. E & SE-facing slopes of stony ridge. 20.7.95 (Unlike any other N American. Except in its bulb, like the SE Turkish endemic *F. minima*. Nodding, clear-yellow bells, sometimes maturing to orange-red shades, on stems of 20cm. or less. Usually a plant of stony areas in montane steppe, from the NE corner of California up into Canada & SE across to Colorado. Often well-grown in cultivation but not always easy - likes a cold winter.) . . . . . (20+ seeds) . C
- 1.371.701 : F. PUDICA** Washington, Whitman Co., Kamiak Butte. 1020m. Open, SE-facing slope. 22.7.95 . . . . . (20+ seeds) . C
- 1.371.800 : F. PURDYI** Cal., Trinity Co., S of Bear Creek Trailhead. 960m. Open, stony, serpentine slope. 12.6.95 (Local on the N Coast Ranges (here at its NE limit). Now being very successfully grown in Europe. Leaves crowd on the ground with stems of 10cm. or less carrying a few wide, waxy, nodding bells, described by Martinelli as "voluptuously curved", "the shiniest, most delectable fritillaria flowers." Extremely variable in the brown veining & tinting on a green-white ground.) . . . . . (20+ seeds) . C
- 1.371.801 : F. PURDYI** Cal., Mendocino Co., ESE of Covelo. 1980m. Thin soil on serpentine slope. 31.7.95 . . . . . (20+ seeds) . C
- 1.371.802 : F. PURDYI** Cal., Trinity Co. 880m. Serpentine scree in full sun. J. & G. Robinett coll. 4.7.95 (From an area with 140-180cm. of rain a year. Might be worth attempting in scree outside in the UK. "A darling" write Jim & Georgie.) . . (20+ seeds) . C
- 1.371.905 : F. RECURVA \*** Cal., Trinity Co., NNW of Zenia. 1630m. Openings among conifers on serpentine. (No wild seed this year. Only a little hand-pollinated seed of a particularly intense red raised by D. Hoskins from our 1989 coll. here.) . . . . . (10 seeds) . E
- 1.372.000 : F. RECURVA var. COCCINEA** Cal., Lake Co., NW slope of Mt. St. Helena. 700m. Among *Arctostaphylos* on steep, serpentine slope. 17.6.95 (Very uncommon, low altitude & probably difficult race, not recognized by Ness, from a small area on the inner Coast Ranges in Lake & Napa Cos. Segments of the flowers do not recurve at the tips and the colour is said to be a more brilliant scarlet, mottled with yellow. It flowers early & we have not seen it. For warm dry treatment. A few.) . . . . . (10+ seeds) . F
- 1.372.050 : F. RODERICKII \*** Cal., Mendocino Co. Among grass in open woodland on clay. Cultivated seed from the Robinetts, grown from an original coll. by Wayne Roderick. See 'The Backyard' for comments on this 'lost' species. . . . . (15+ seeds) . C
- 1.372.100 : F. STRIATA** Cal., Kern Co., Greenhorn Mts., NE of Bakersfield. 760m. J. Andrews coll. 1992 (Closest to *F. pluriflora*, which grows about 400km. to the N, but utterly distinct in its pendant bells with recurved tips. Described by Alan Galloway, the discoverer, as "white to creamy with purplish dotted striae" - appearing pink - and "with the most delicious fragrance". An adobe-clay species, difficult but by no means impossible. A very few seed-bank seeds left.) . . . . . (10+ seeds) . F
- 1.372.150 : F. VIRIDEA** Cal., San Benito Co., above Clear Creek W of San Benito Mt. 970m. J. Andrews coll. 1995 (A narrow endemic of serpentine-barrens, almost unknown in cultivation until John's 1992 coll. which is growing on well. In the *F. affinis* group but lacking rice-grain bulblets & with the nodding bells only on one side of the 30-50cm. stem. According to Martinelli, variable in green, brown & yellow tones. Ness in 'Jepson' says it is "pale green to almost black, not mottled.") . . . . . (20+ seeds) . E
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- 1.372.700 : GAILLARDIA PINNATIFIDA** Colorado, Mesa Co., Gateway. 1600m. Exposed, steep, loose clay slope. 9.7.95 (Perennial but probably not long-lived, about 30cm. Daisies with soft-yellow rays & purple discs. Hot & dry.) . . . . . (20+ seeds) . B
- 1.373.600 : GENTIANA ANDREWSII \*** UK seed from Dinah Batterham, grown from the population naturalised in Fred Case's Michigan garden & listed by us in 1987. Pinched-in blue flowers from the leaf-axils up the 60cm. stems.) . . . . . (50+ seeds) . B
- 1.375.100 : GILIA AGGREGATA (*Ipomopsis aggregata*)** Colorado, Mesa Co., SW of Whitewater. 1800m. Among *Artemisia* on stony sandstone slope. 9.7.95 (Always a spectacular species. Monocarpic with flat rosettes of exquisitely cut rich-green leaves. Branching, 50cm. stems massed with stary trumpets in scarlet-red. Much enjoyed the 1995 UK summer.) . . . . . (20+ seeds) . A
- 1.375.700 : GILIA CAESPITOSA** Utah, Wayne Co., SE of Teasdale. 2450m. fissures on sloping, white sandstone outcrops. (Still a very little seed left from the 1993 coll. - it was a full month late in flowering here in 1995. Only known from this area, it is a bit like a mound of *Saxifraga cochlearis* with long-tubed, *Dionysia*-flowers in a distinctive, soft orange-scarlet on thready, 5cm. stems. Tenuously established & being propagated vegetatively in the UK. Experienced alpine-house growers only.) . . . . . (10+ seeds) . E
- 1.376.500 : GILIA FORMOSA** New Mexico, San Juan Co., NW of Aztec. 1900m. Ridgetops of eroded clay hills. 8.7.95 (Close, woody-based tufts of tiny, hair-thin, bright-green leaves send up wiry-stemmed panicles of long-tubed flowers in clear pink shot with violet-blue. "The special glory of Aztec...known only from here and as beautiful as it is rare" wrote Dwight Ripley after visiting it in 1943. Now being successfully grown from our 1993 coll. - it even set set in the UK with Jim Lever in 1995. If we could see these two very local species established & maintained in cultivation, it would be a great reward for our efforts.) . . . (20+ seeds) . E
- 1.428.100 : HULSEA NANA** Cal., Siskiyou Co., Mt. Eddy - S side. 2600m. Loose serpentine talus. J. Andrews coll. 1995. (High alpine of distinction with mounds of fascinating, pinnately lobed, woolly foliage and huge, many-rayed, yellow 'daisies' on stems of under 15cm. Not easy but we have grown & flowered it in the past. Maybe best outside in scree.) . . . . . (10+ seeds) . D

**Iris : endless permutations of the pacific coast rainbow**

These Pacific Coast irises (Series Californicae) exemplify better than any other genus how much speciation is proceeding actively in this area - variation, intergradation and hybridization are considerable. Dr. Lee Lenz's 1958 classification (adopted by Munz, by Brian Mathew in 'The Iris' and more or less by "Jepson") is a brilliant and acceptable compromise but do not imagine his taxa are always clearly defined units in the wild. In gardens, much material is of

hybrid origin (bear this in mind with the cultivated seed listed) and remember that many wild plants are likely to be both less showy and less easy to grow than garden hybrids. Most grow wild in light woodland or among scrub, usually on steep slopes - they need excellent drainage and a neutral to slightly acid soil. A site in sun, in N Europe, might be preferable to half-shade. A few, such as *I. hartwegii columbiana*, *I. fernaldii* and *I. munzii*, might be best in a bulb-frame.

- 1.460.000 : IRIS BRACTEATA** Oregon, Josephine Co., Waldo Hill. 650m. Open, stony, serpentine areas, among scrub. 28.7.95 (From near Howell's 1884 type-locality for this very local & distinct species. Thick, broad, leathery leaves & large, showy flowers, always in yellow, veined with maroon or brown. We doubt if much, if any, cultivated stock is 'pure'.) . . . . . (15+ seeds) . C
- 1.460.100 : I. CHRYSOPHYLLA** Oregon, Douglas Co., Calapooya Divide. 1120m. Among scrub at margins of coniferous forest. 6.7.92 (Cream, gold-veined flowers & narrow, glaucous leaves. From a high, cold locality - should suit UK.) . . . . . (15+ seeds) . B
- 1.460.202 : I. DOUGLASIANA** Cal., Sonoma Co., Irish Hill. 150m. grassy slopes with coastal exposure. 18.6.92 (Tough & vigorous, although a low-altitude, coastal plant. Rich purples here. Easy with no particular soil preferences in gardens.) . . . . . (15+ seeds) . B
- 1.460.305 : I. FERNALDII** Cal., Santa Clara Co., W of Morgan Hill. 270m. Among sparse scrub. S.Farwig & V.Girard coll. 1995 (We think this is *I. fernaldii*, though at the S limit of records. Seed is distinct - what else can it be?) . . . . . (8 seeds) . C
- 1.460.310 : I. FERNALDII** \* No data. 1995 seed from Alan Edwards - we had no wild coll. Restricted to the Coast Ranges around San Francisco Bay with unique, narrow, grey leaves and creamy yellow flowers. Good here under glass.) . . . . . (15+ seeds) . B
- 1.460.400 : I. HARTWEGII** (subsp. *hartwegii*) Cal., Fresno Co., Stump Springs Road. 1800m. S.Farwig & V.Girard coll. 1994 (The most widespread race, occurring down the Sierra Nevada. Flowers in both pale yellow & lavender. 30cm.) . . . . . (10+ seeds) . B
- 1.460.600 : I. HARTWEGII** subsp. **COLUMBIANA** Cal., Tuolumne Co., NE of Columbia. 650m. Steep, stony slope. 19.6.95 (Only known from around the type-locality here and "much more attractive" than the type-race according to Victor Cohen. Virtually, a pale-yellow version of splendid *I. munzii*, which grows 225km. to the S. Established with us under glass.) . . . . . (15+ seeds) . C
- 1.460.700 : I. HARTWEGII** subsp. **PINETORUM** Cal., Plumas Co., N of Quincy. 1070m. Openings in coniferous forest. 30.7.95 (A Plumas Co. endemic - the only taxon creeping over to the E slope of the Sierra Nevada. Much dwarfier than the long-stemmed type-race, it often opens two of its creamy yellow flowers simultaneously. A very cold area here.) . . . . . (15+ seeds) . C
- 1.460.800 : I. INNOMINATA** Oregon, Curry Co., N of Agness. 400m. Steep, stony slopes, facing E & SE, in coniferous zone. 2.7.95 (The jewel of the group, as far as rock-gardeners are concerned. Little tufts of very narrow, glossy leaves & 20cm. stems. Victor Cohen describes this population on the divide of the Rogue & Coquille Rivers, in 1965, as "rich golden-yellow & orange" to "pale apricot or light creamy buff." Galen Burrell visiting here in 1993 tells us these are "a beautiful orchid color" with a few creamy ones. You'll have to wait to see these in flower in cultivation. Fully hardy in the UK - grow in lime-free scree.) . . . . . (15+ seeds) . C
- 1.461.150 : I. MISSOURIENSIS** Washington, Whitman Co., Steptoe Butte. 1020m. N-facing slope with sparse Pinus. 25.7.95 (The only one not from Series Californicae- in Longipetalae and very widespread. This is an unusual habitat, growing with *Erythronium* through low scrub, & extremely dwarf form, not more than 30cm. high. Should be pale-blue to lavender-blue.) . . . . . (15+ seeds) . C
- 1.461.300 : I. MUNZII** Cal., Tulare Co., E of Springville. 520m. Among boulders on sides of scrub-filled gully. 20.6.95 (Largest flowered & most spectacular of the group, limited to a few colonies above the Tule & Kaweah Rivers in the S Sierra Nevada. Broad, evergreen leaves & stout 60cm. stems with up to 4 flowers, described by Cohen as "from pale powder-blue through lavender to purple... delicately veined in violet or turquoise-blue." Worth trying against a S wall in the UK.) . . . . . (15+ seeds) . C
- 1.461.520 : I. TENAX** \* No data. Seed from a very fine, rich purple-blue form grown by Alan Edwards - "the ideal blue species for the peat-garden" he says. In nature, distributed widely from Oregon up into Washington. . . . . (15+ seeds) . B
- 1.461.600 : I. TENUISSIMA** Cal., Trinity Co., NNW of Zenia. 1600m. Openings among conifers. 3.7.92 (The species of the N Californian serpentines. Creamy white flowers with horizontal falls. Growable in the UK. About 20cm.) . . . . . (15+ seeds) . B
- 1.461.650 : I. TENUISSIMA** Cal., Humboldt Co., SSW of Willow Creek. 1580m. Stony areas in openings among conifers. 30.7.95 (May have some influence from *I. purdyi* here - larger, flatter flowers with broader falls than normal, in creamy shades veined with purple. The hybrid of this parentage cited by Lenz was collected in this area but 1000m. lower down.) . . . . . (15+ seeds) . C
- 1.461.800 : I. THOMPSONII** Cal., Del Norte Co., SW of Gasquet. 530m. Stony openings among *Arctostaphylos* & sparse conifers. 2.7.95 (Ignored by "Jepson" and Munz & reinstated as a 'good' species in a recent paper. From one of only two places where Boyd Kline considers the 'true' plant grows. We're not worried if you call it *I. innominata* 'Dwarf Purple Form' - the smallest iris in this series - tight tufts of leathery, grassy leaves & short stems. Boyd says it is rich blue-purple.) . . . . . (15+ seeds) . D

- 1.492.000 : LEPIDIUM NANUM** Nevada, Eureka Co., W of Eureka. 2100m. Gravelly bare-patches among sparse Juniperus. 4.7.95 (Classic Great Basin endemic. "Its hummocks look like those of some extra tight Dionysia, of a peculiarly intense shade of sap-green... this is the Draba to end all Drabas..." wrote Dwight Ripley in 1944. Now being successfully grown, it becomes more compact as it ages in cultivation and can produce its stemless, straw-yellow flowers quite generously.) . . . . . (20+ seeds) . E
- 1.493.600 : LESQUERELLA TUMULOSA** Utah, Kane Co., SE of Cannonville. 1500m. Shale ridges. 6.7.95 (Another pulvinate-caespitose crucifer, perhaps the most condensed of the genus, forming dense hard mounds of downy leaves with yellow flowers on 1-4cm. stems. Extremely local on "white bare shale knolls" in this small area of Kane Co.) . . . . . (15+ seeds) . E
- 1.496.500 : LEWISIA COTYLEDON var. HECKNERI** \* Cal., Trinity Co., N of Junction City. 1640m. Fissures on vertical, shaded, serpentine cliffs. (No wild seed at all here in 1995 but we have cultivated seed and it is just as authentic - we grow only this race of *L. cotyledon*, from our 1989 coll., and it thrives unprotected in our deep-scrub bed. A distinct, disjunct taxon limited to this area. Toothed leaf-margins & wide panicles of the largest, most sumptuous flowers, twice the diameter of the type-race, in white richly striped pink. The race which has given size to the garden-hybrids but we'd rather grow the real thing.) . . . . . (20+ seeds) . C
- 1.496.700 : LEWISIA KELLOGGII** Cal., Placer Co., Monumental Ridge. 2060m. J. Andrews coll. 1995 (John has returned to beat the local rodents, which dig-up the roots for food, scattering flowers & seed-capsules widely. A good coll. this year of this very local species (almost all are) mainly from the decomposed granites of the N Sierra Nevada above 2000m. Dense rosettes of leathery, spoon-shaped leaves, withering in summer, on which sit the pink or white flowers on 3cm. stems.) . . . . . (20+ seeds) . E
- 1.497.000 : LEWISIA OPPOSITIFOLIA** Oregon, Josephine Co., Waldo Hill. 600m. Among serpentine detritus along gully. 13.6.95 (Type locality coll. of this summer-dormant species, in its 'pure' form an Illinois Valley endemic. Narrow, blunt, succulent leaves and 15cm. umbels of up to 6 white flowers with red-fringed sepals. A plant of stony areas, very wet in spring.) . . . (20+ seeds) . D
- 1.497.200 : LEWISIA REDIVIVA** Wyoming, Albany Co., E of Centennial. 2700m. In granite grit of open, stony 'flats'. 15.7.95 (We think this is perhaps the most beautiful and thrilling of all N American plants. The tiny clusters of fleshy, linear leaves are hardly noticeable under the huge, diaphanous, water-lily flowers, appearing successively on the shortest of stems. The Wyoming colonies, though wildly variable in flower-shape & colour, are generally of a richer pink than we have seen in gardens.) . . . (20+ seeds) . C
- 1.497.201 : LEWISIA REDIVIVA** \* Wyoming, Fremont Co., Wind River Mts. 3000m. Open alpine-steppe, in granite grit. (A little of our cultivated seed grown from our 1987 coll. of this high colony, still under snow in July, 1995) . . . . . (15+ seeds) . C
- 1.497.202 : LEWISIA REDIVIVA** Idaho, Butte Co., NE of Carey. 1520m. E & SE-facing slopes of stony ridge. 20.7.95 (From a splendid site, which we found in 1989 and where almost all the flowers are white. Not collected by us before.) . . . (15+ seeds) . D
- 1.497.300 : LEWISIA REDIVIVA var. MINOR** Cal., Mono Co., N of Conway Summit. 2200m. J. Andrews coll. 1995 (A high altitude race, from 2000-2700m., most distinct where we have seen it, though ignored by "Jepson", local on the drier interior ranges from the San Bernadinos through the Panamint & White Mts. into W Nevada. An exquisite little plant, altogether a reduced version with rounded, pearl-white flowers and bronze sepals. We cannot over-emphasise how difficult it is to collect seed from these Lewisias - you have to know *exactly* where they grow and be there *exactly* at the right time. They vanish a few weeks after flowering. We tried for this, where we know it, on Mt. Pinos & the White Mts. This may be your only chance.) . . . (15+ seeds) . E

## Lilium : capricious aristocrats from the coast to the high sierras

We have not listed a good range of the western species since 1989. Seed ripens late from mid-September into October, long after we have left California in recent years. Most of the following are from Jim & Georgie Robinett, who know this genus well and can be relied on to collect top-quality, correctly named material, with a few gaps filled in by John Andrews, who can usually be expected to reach the parts other people cannot reach. The species fall very roughly into two groups : the dry-growers with ovoid bulbs with longer, unjointed scales and the wet-growers with rhizomatous bulbs with shorter, jointed scales. In the latter group, *L. pardalinum*, the equivalent of the eastern *L. superbum*, is the focus of a number of taxa. These have been placed under it at subspecific level by Mark Skinner in "Jepson" but we keep them at specific level

here, as we feel this is of more use to gardeners. There is a great deal of introgression and hybridization. Many stands of *L. pardalinum* itself are extremely variable. This & *L. humboldtii*, a dry-grower, have been crossed in cultivation (the old 'Bellingham Hybrids'). There is no reason they & others should not cross in nature. Obviously the wet-growers are going to be much more amenable to the open-garden in cool temperate climates, seldom needing the very wet conditions of their natural habitats. These are well-suited to the peat-bed or similar humus-rich conditions. In all cases, the westerners are plants of lime-free soils. Seed sown in winter should give no problems. We had great success from sowing our 1989 refrigerated, seed-bank seed in January, 1995, so the few collections made pre-1995 need give no concern.

- 1.498.100 : LILIUM BOLANDERI** Cal., Humboldt Co. 1200-1500m. In chaparral on serpentine. J. & G. Robinett coll. 30.9.95 (Maybe the most beautiful & maybe the most difficult. We recently saw a photograph of a splendid plant grown from seed by Jack Brownless in the UK - so it can be done. A serpentine-endemic from the Coast Ranges near the California-Oregon line. It can reach 1m. with up to 7 flowers but is often dwarf - a single huge flower on a 15cm. stem is an incredible sight. Stems whorled with thickish, blue-grey leaves carry horizontal to half-nodding, funnel-shaped flowers in muted crimson (though it can vary to salmon & brick shades), glaucous outside & purple-dotted inside, with dark purple anthers & orange pollen.) . . . . . (15+ seeds) . D

# Species from North America : Seeds from Jim & Jenny Archibald

- 1.498.420 : LILIUM CANADENSE** \* No data. From both red & yellow forms of this elegant eastern lily, most widespread of the N Americans. Stems of about 1.5m. with up to 20 nodding, flaring bells. Easy & flowers quickly from seed. . . . . (20+ seeds) . **B**
- 1.498.500 : L. COLUMBIANUM** Cal., Humboldt Co. 500 m. J. & G. Robinett coll. (The spectacular lily of the redwood glades, extending N from here up into Canada. Up to 30 or so golden orange turkscap flowers, speckled with maroon on stems as much as 2m. high. Segmented bulb-scales but not a plant of really wet sites, often out in the open on N slopes.) . . . . . (15+ seeds) . **B**
- 1.498.800 : L. 'ELDORADO DITCH LILY'** Cal., Eldorado Co. 1000m. J. & G. Robinett coll. 8.9.95 (A mysterious, apparently natural hybrid from along a few man-made watercourses in the N Sierra Nevada. 20-30 upright, flaring bells, usually pink but also sometimes in orange or brick-red. Stems whorled with bright-green leaves can reach 1.5 m.) . . . . . (15+ seeds) . **C**
- 1.498.900 : L. HUMBOLDTII** (subsp. *humboldtii*) Cal., Yuba Co. 550m. J. & G. Robinett coll. 10.95 (Local northern race of this dry-grower from the N Sierra Nevada. Up to 40 strongly recurved, maroon-speckled flowers in orange-yellow. 2m.) . . (15+ seeds) . **D**
- 1.499.000 : L. HUMBOLDTII** subsp. **OCELLATUM** Cal., San Diego Co. 1300m. In chaparral & at woodland margins. J. & G. Robinett coll. 17.9.95 (This "stands in the very first rank of lilies" according to Woodcock & Stearn, who record that it has been seen almost 3m. high with 85 blooms. Possibly from the most southern population of lilies in the West. Large, golden-orange flowers, recurving into globe-shapes, are usually heavily spotted with red-brown, each spot surrounded by a lighter red zone. Sturdy stems to 1.5m. whorled with crinkled, grey-green leaves. Dry-grower reputedly easier than the type-race.) . . . . . (10+ seeds) . **E**
- 1.499.100 : L. KELLEYANUM** Cal., Tulare Co., E side of Moses Mt. 2070m. J. Andrews coll. 1992 (An obscure, high altitude wet-grower from the S Sierra Nevada, collected where Wayne Roderick considers the 'true' species grows - further N it intergrades with *L. parvum*. Up to 25 fragrant, uniformly yellow, pendant, wide bells with dull-red anthers. 1m.) . . . . . (15+ seeds) . **D**
- 1.499.200 : L. KELLOGGII** Cal., Humboldt Co. 800m. J. & G. Robinett coll. 30.9.95 (A dry-grower from around the California-Oregon line, usually in openings among conifers. Can have 15-20 fragrant, turkscap flowers in pink, striped yellow on the basal third of each segment & speckled purple along the edges. Narrow, greyish, crinkled leaves. Usually under 1m.) . . . . . (15+ seeds) . **D**
- 1.499.201 : L. KELLOGGII** Cal., Humboldt Co. 1150m. J. & G. Robinett coll. 30.9.95. Selected deep pink. . . . . (15+ seeds) . **E**
- 1.499.400 : L. MARITIMUM** Cal., Sonoma Co. 30m. Open woodland. J. & G. Robinett coll. 18.8.95 (An uncommon, little lily, reputed always to grow within the sound of the Pacific - almost frost-free in winter & cool in summer. Red-orange, funnel-shaped, slightly nodding flowers, spotted basally. Anything from 1-13 flowers on stems from 25cm. to 1m. or more.) . . . . . (15+ seeds) . **D**
- 1.499.500 : L. MICHIGANENSE** \* UK grown seed from plants raised from our 1987 coll. from the colony naturalised in Fred Case's garden in Saginaw, Michigan. Current fashion is to 'sink' this under *L. canadense* (along with *L. superbum*). This is somewhat intermediate in appearance between these two with maroon-spotted, orange-red turkscap flowers. To 2m.) . . . . . (20+ seeds) . **C**
- 1.499.700 : L. PARDALINUM** Cal., Placer Co. 1400m. Open, wet mountain meadow. J. & G. Robinett coll. 23.9.95 (Most widespread wet-grower, extremely variable but distinct in its very long filaments & capacity to form wide clonal rhizomatous mats. Red-orange turkscap flowers with maroon spots margined with yellow towards the recurving segment-tips.) . . . . . (20+ seeds) . **B**
- 1.499.750 : L. PARDALINUM HYBRID** Cal., Placer Co. 1350m. J. & G. Robinett coll. 23.9.95 (Possibly hybrids here with yellow *L. parvum*, which grows in the area. Nodding flowers on some plants are flatter and golden-orange.) . . . . . (20+ seeds) . **B**
- 1.499.900 : L. PARRYI** Cal., Los Angeles Co., San Gabriel Mts., along Little Rock Creek. 1990m. J. Andrews coll. 1993 (Except for *L. humboldtii ocellatum*, the most southern species and a distinct one - like no other in its strongly fragrant, bright yellow, trumpet-shaped flowers, with a few tiny, sparse maroon dots, held horizontally or slightly nodding - up to 30 on stems of about 2m. A local plant of wet meadows & streamsides in coniferous forest in SW California & Arizona.) . . . . . (20+ seeds) . **D**
- 1.500.000 : L. PARVUM** Cal., El Dorado Co. 1800m. Wet meadow. J. & G. Robinett coll. 23.9.95 (The high altitude wet-grower of the N Sierra Nevada. Upward-facing, bell-shaped flowers, mostly in orange shades here - it tends to vary to yellows lower down and reds higher up. The stems, whorled with leaves can be 2m. high with 40 flowers but are usually a lot less.) . . . . . (20+ seeds) . **C**
- 1.500.050 : L. PARVUM** Cal., Placer Co., Monumental Ridge. 2030m. J. Andrews coll. 1994 (John saw these in flower on his way to collect *Lewisia* seed & returned in September. This seems quite an even, distinct local race with more open, flatter flowers in yellow to clear orange-yellow, fragrant & sometimes with a few crimson spots. A wet-grower, on granite here.) . . . (15+ seeds) . **D**
- 1.500.400 : L. RUBESCENS** Cal., Humboldt Co. 500m. N edge of woodland. J. & G. Robinett coll. 19.8.95 (A dry-grower with stems of up to 2m. carrying 20 or more upward-facing, extremely fragrant, white trumpets, maturing to pink-purple.) . . . (15+ seeds) . **D**
- 1.500.401 : L. RUBESCENS** Cal., Humboldt Co. 80m. Edge of redwood forest in moderate shade. J. & G. Robinett coll. 19.8.95 (Quite a low altitude for this beautiful Coast Range endemic, closest to *L. washingtonianum*, though they can grow together & remain distinct. Apparently it "has unique chromosomes for the genus." The wide trumpets open white with minute purple dots, which suffuse over the surface until it is wine-coloured. Whorls of grey-green leaves with crinkled edges.) . . . . . (15+ seeds) . **D**
- 1.500.500 : L. SHASTENSE** Cal., Shasta Co. 1400m. Wet meadow, along a creek across old lava-flow. J. & G. Robinett coll. 29.9.95 (Wet-grower, currently placed as a subsp. of *L. pardalinum* but does not increase clonally to the same extent. Nearest to *L. vollmeri* with similar two-toned, red-orange flowers but has yellow to orange pollen. Up to 1.8m. with 30 flowers.) . . . . . (20+ seeds) . **C**

**A : \$2.00 ; £1.50 ; DM4,- ; FF13.-      C : \$4.00 ; £2.50 ; DM6,- ; FF21.-      E : \$7.00 ; £4.50 ; DM12,- ; FF40.-**  
**B : \$3.00 ; £2.00 ; DM5,- ; FF17.-      D : \$5.00 ; £3.50 ; DM9,- ; FF30.-      F : \$9.00 ; £6.00 ; DM15,- ; FF50.-**

- 1.500.900 : LILIUM VOLLMERI** Oregon, Josephine Co. 500m. Along wet ditch. J. & G. Robinett coll. 29.9.95 (Wet-grower near the preceding but has purple anthers with red pollen. A really splendid, 2m. high population here. The yellow lily, from this area, which we listed in 1989 as *L. vollmeri* was *L. wigginsii* or an intergrade. Both are local serpentine-species.) . . . . . (15+ seeds) . C
- 1.501.000 : L. WASHINGTONIANUM** (subsp. *washingtonianum*) Cal., Shasta Co. 1000m. Open, level woodland. J. & G. Robinett coll. 29.9.95 (Marvellously fragrant, great flaring white trumpets, up to 12cm. across, face out or nod slightly on stems of 40-120cm., whorled with crinkled, grey-green leaves. A dry-grower and reputedly very difficult to grow well.) . . . . . (15+ seeds) . D
- 1.151.100 : L. WASHINGTONIANUM subsp. PURPURASCENS** Cal., Humboldt Co. 1200m. Among scrub on steep slope. J. & G. Robinett coll. 30.9.95 (The type-race is restricted to N California but this extends to Mt. Hood in Oregon. The bulb-scales are rather different and the flowers slightly smaller but, most obviously, they flush to pink-purple with age.) . . . . . (15+ seeds) . D
- 1.533.350 : LUPINUS LEPIDUS var. SELLULUS** Cal., Mendocino Co., ESE of Covelo. 1980m. Steep slope in loose serpentine scree. 31.8.95 (Dwarf, 20cm., & woolly with grey-white leaves and close-packed racemes of pale violet flowers. The white or yellow banner-patches turn red. This keys-out in Munz as *L. sellulus* subsp. *ursinus* & approaches *L. constancei*.) . . (8 seeds) . D
- 1.622.000 : MIMULUS CARDINALIS** Cal., El Dorado Co. 1300m. Streamside in open woodland. J. & G. Robinett coll. 3.9.95 (A glandular-hairy, rhizomatous perennial with a multitude of striking orange-scarlet flowers streaked with dark red. An eye-catching, hardy (it grows up to 2400m.) wet-grower, surprisingly seldom seen in Europe. 50-90cm. high here.) . . . . . (100+ seeds) . B
- 1.624.000 : MIMULUS LEWISII** Idaho, Custer Co., Galena Summit. 2450m. Streamside. 21.7.95 (Rich, luminous carmine-pink here. Another showy, N American, wet-growing perennial, extending up into Alaska & the Yukon. About 60cm. ) . . . . (100+ seeds) . B
- 1.640.300 : NAMA LOBBII** Cal., Placer Co., Monumental Ridge. 1970m. J. Andrews coll. 1994 (Dwarf, rhizomatous, mat-forming perennial in the Hydrophyllaceae with brilliant, blue-purple borage-like flowers. Worth trying in scree.) . . . . . (20+ seeds) . C
- 1.650.600 : OENOTHERA CAESPITOSA var. CRINITA** Utah, Millard Co., SSE of Garrison. 1600m. Steep, loose, stony slope. 5.7.95 (The most important race of this spectacular & variable species for the alpine-house grower. The dry climate development with downy, grey leaves, this remained in character with us, whereas other races can be more exuberant. A succession of long-tubed, white flowers mature to rosy shades. Will take all the warmth & sun going under glass in the UK.) . . . . . (15+ seeds) . C
- 1.650.800 : OENOTHERA CAESPITOSA var. MARGINATA** Cal., Inyo Co., White Mts. 1980m. Stony clay on loose slope. 5.8.95 (A better one to try outside in sunny scree - some prove quite easy. Similar, huge, white, pink-flushed bowls.) . . . . (15+ seeds) . B
- 1.695.001 : PAEONIA BROWNII** Cal., Plumas Co., ESE of Beckwourth. 1520m. Stony slopes with sparse Artemisia. 28.6.95 (A summer-dormant plant of cold, inland steppe & not at all easy to grow. About 40cm. high with cut, glaucous leaves & globular, nodding flowers. Thick petals in bronze-maroon, thinly margined with yellow.) . . . . . (8 seeds) . D

## Penstemon : the centre of diversity in our seed bank

We had hoped to present you with a good range of 1995 Penstemon collections but the season was such a late one that it was only possible to gather a few of the earlier ones in July & August. Nevertheless, deep in our refrigerator, our seed-bank contains a wide selection of many of the most outstanding western species. In the opinion of many, seven-year old seed gives the best germination. We can give you the opportunity to put this to the test. Jim Almond in the UK has experimented successfully with some of our older Penstemon collections in recent years and we believe everything here will still be perfectly viable. For those not convinced, the date of collection is given in all cases and there are plenty more recent collections here also. The choice is yours. With very few exceptions, these species are from areas with warm dry summers and cold, dry winters. Few can be easily grown outside in climates such as that of the UK, where summer rainfall is high. We have difficulty convincing UK growers that these need the opposite conditions to the widely-grown hybrids, mainly derived from a few Mexican species in Sect. *Elmigeri*, plants of a summer rainfall area and far from typical of this diverse genus. Give all here as much sun as you can in as well-drained a site as possible. Obviously for N European growers, the dwarf species might be more manageable in raised beds, rocks gardens or the alpine-house. The heath-like or thyme-like, mat-forming species in Sect. *Caespitosi* have been very successful in the UK under such conditions. The dwarf members of Sect. *Cristati* are also potentially desirable

alpine-house plants, though many are proving challenging. Many of the better-known and easier rock-garden species are in Sect. *Erianthera* & Sect. *Saccanthera*, most numerous in the Pacific Coast states, though a few extend E into Montana & Utah. The western ones are likely to be easier than the more eastern ones. Though we have only a few representative collections of Sect. *Penstemon*, in general a group of less horticultural value, there are still some good things here and the mountain plants should give little trouble. The taller species in Sect. *Spectabiles*, Sect. *Gentianoides*, etc. are among the most sumptuous of herbaceous perennials but most are essentially desert plants, which, though temperature hardy, will need very sunny, dry conditions to thrive. Remember that this is very much a genus of the intermountain area, where 104 species make their home. There are 63 species listed for Utah with 29 in the Uintah Basin alone. The last, comparatively small area is the centre of diversity for this genus. Species such as we list here are typical of the genus; the Mexicans or eastern woodlanders are the exceptions. We have followed nomenclature used by Holmgren (in the 'Intermountain Flora' & "Jepson") and Neese (in 'A Utah Flora'), all modern accounts. Holmgren's classification into Sections is given after each specific name to give some indication of the plant's affinities. This may be helpful regarding cultivation. Norman Deno has done a lot of work on germination of *Penstemon* and, as a general rule, it may be assumed that almost all the species here are plants which will germinate at a low temperature.

# Species from North America : Seeds from Jim & Jenny Archibald

- 1.700.000 : **PENSTEMON ABIETINUS** (Sect. Caespitosi) Utah, Sevier Co. 2200m. (Heath-like. 15cm. Rich blue.) . . . . . (15+) . **D**
- 1.700.100 : **P. ACAULIS** (Sect. Caespitosi) Wyoming, Sweetwater Co., Lone Pine. 1900 m. J. Andrews coll., 1992. Few . . . . . (10) . **E**
- 1.700.200 : **P. ALBIDUS** (Sect. Cristati) Wyoming, Converse Co. 1980m. 22.7.89 (Plains plant. 20cm. White.) . . . . . (20+) . **B**
- 1.700.300 : **P. ALPINUS** (Sect. Glabri) Colorado, Clear Creek Co. 3100m. 30.8.87 (Scree. 20cm. Brilliant clear-blue.) . . . . . (20+) . **B**
- 1.700.400 : **P. AMBIGUUS** (Sect. Ambigui) New Mexico, San Miguel Co. 2300m. 19.8.87 (60cm. Phlox-like. Pink) . . . . . (20+) . **C**
- 1.700.750 : **P. ANGUSTIFOLIUS** (Sect. Coerulei) Wyoming, Platte Co. 1830m. 21.7.89 (Pure pale azure. 20cm.) . . . . . (20+) . **B**
- 1.700.850 : **P. ANGUSTIFOLIUS** var. **VENOSUS** Utah, San Juan Co. 1600m. 24.6.93 (Soft lavender. 40cm.) . . . . . (20+) . **B**
- 1.701.600 : **P. CAESPITOSUS** var. **DESERTI-PICTI** (Sect. Caespitosi) Utah, Garfield Co. 2260m. J. Andrews, 1992 . . . . . (15+) . **E**
- 1.702.000 : **P. CALCAREUS** (Sect. Cristati) Cal., San Bernardino Co. 1400m. (J. Andrews coll. 1994. Obscure & spectacular, desert-range limestone scree and fissure-plant. Toothed grey leaves. Brilliant pink. 15cm. Alpine-house only in UK.) . . . . . (10+) . **E**
- 1.702.300 : **P. CARNOSUS** (Sect. Coerulei) Colorado, Rio Blanco Co. 2000m. 10.7.95 (Fleshy, blue-grey leaves. Lavender-pink to blue-violet flowers. 15cm. Supposedly endemic to Utah but a lot of species cross the line on the oil-shales here.) . . . . . (15+) . **C**
- 1.702.400 : **P. CENTRANTHIFOLIUS** (Sect. Gentianoides) Cal., Ventura Co. 1450m. 2.8.95 (Scarlet. 60cm.) . . . . . (20+) . **C**
- 1.702.900 : **P. COMARRHENUS** (Sect. Glabri) Utah, Garfield Co. 2600m. 23.8.87 (Soft lavender-blue. 60cm.) . . . . . (20+) . **B**
- 1.703.200 : **P. CRANDALLII** (Sect. Caespitosi) Colorado, Montrose Co. 2900m. 15.7.89 (Thyme-like. Lavender-blue.) . . . . . (15+) . **D**
- 1.703.250 : **P. CRANDALLII** var. **ATRATUS** Utah, Grand Co. 2590m. (Prostrate mats. La Sal Mts. endemic.) . . . . . (15+) . **D**
- 1.703.300 : **P. CYANANTHUS** (Sect. Glabri) Utah, Weber Co. 3100m. 1.8.89 (Big gentian-blue flowers. 80cm.) . . . . . (20+) . **B**
- 1.703.500 : **P. CYANEUS** (Sect. Glabri) Idaho, Custer Co. 2440m. Gravelly banks. 7.8.89 (Showy bright blue. 60cm.) . . . . . (20+) . **B**
- 1.703.600 : **P. CYANOCAULIS** (Sect. Glabri) Colorado, Montrose Co. 1800m. 9.7.95 (Leathery leaves. Blue. 30cm.) . . . . . (20+) . **C**
- 1.703.700 : **P. DAVIDSONII** (Sect. Erianthera) Nevada, Washoe Co. 3050m. 29.8.89 (Mat-forming. Violet-blue.) . . . . . (15+) . **B**
- 1.704.000 : **P. DUCHESNENSIS** (Sect. Cristati) Utah, Duchesne Co. 1900m. J. Andrews, 1993 (Dwarf. Blue-purple.) . . . . . (15+) . **E**
- 1.704.100 : **P. EATONII** (Sect. Elmigera) Utah, San Juan Co. 1550m. 23.6.93 (Eye-burning scarlet tubes. 1m.) . . . . . (20+) . **B**
- 1.704.300 : **P. ERIANTHERUS** (Sect. Cristati) Wyoming, Platte Co. 1830m. 21.7.89 (Pale-violet prairie-plant. 20cm.) . . . . . (20+) . **B**
- 1.704.550 : **P. FLORIDUS** (Sect. Spectabiles) Cal., Inyo Co. 2070m. 5.8.95 (Pouting, rose-pink flowers. 1.2m.) . . . . . (20+) . **C**
- 1.704.650 : **P. FLOWERSII** (Sect. Coerulei) Utah, Uintah Co. 1600m. J. Andrews 1992 (Rose-pink. 20cm.) . . . . . (15+) . **D**
- 1.704.750 : **P. FRANCISCI-PENNELLII** (Sect. Glabri) Nevada, White Pine Co. 3400m. 24.8.87 (Blue-violet. 15cm.) . . . . . (20+) . **C**
- 1.704.800 : **P. FREMONTII** (Sect. Glabri) Colorado, Rio Blanco Co. 1980m. 10.7.95 (Deep blue. 15cm. Scree-form.) . . . . . (15+) . **D**
- 1.704.900 : **P. FRUTICIFORMIS** (Sect. Spectabiles) Cal., Inyo Co. 1830m. 4.8.95 (Purple-streaked lavender. 50cm.) . . . . . (15+) . **D**
- 1.704.950 : **P. FRUTICOSUS** (Sect. Erianthera) Idaho, Custer Co. 1890m. 6.8.89 (Lavender-blue. Shrubby. 30cm.) . . . . . (20+) . **B**
- 1.705.100 : **P. GLABER** (Sect. Glabri) Wyoming, Converse Co. 1980m. 22.7.89 (Richest blue. Decumbent stems.) . . . . . (20+) . **B**
- 1.705.200 : **P. GOODRICHII** (Sect. Cristati) Utah, Uintah Co. 2000m. 11.7.95 (Pale-blue regular flowers. 30cm.) . . . . . (20+) . **C**
- 1.705.300 : **P. GRACILENTUS** (Sect. Saccanthera) Cal., Sierra Co. 2050m. 12.8.89 (Blue-purple. Wiry 60cm. stems) . . . . . (20+) . **B**
- 1.705.400 : **P. GRAHAMII** (Sect. Cristati) Utah, Uintah Co. 1600m. J. Andrews coll. 1992 (Pink. 10cm.) . . . . . (10+) . **E**
- 1.705.500 : **P. GRINELLII** (Sect. Spectabiles) Cal., Los Angeles Co. 750m. 24.6.92 (White to lavender-pink. 60cm.) . . . . . (20+) . **B**
- 1.705.520 : **P. GRINELLII** var. **SCROPHULARIOIDES** Cal., Ventura Co. 1400m. 2.8.95 (More or less violet.) . . . . . (20+) . **B**
- 1.705.600 : **P. HALLII** (Sect. Glabri) Colorado, Park Co. 3800m. 14.8.87 (Luminous red-violet. 15cm.) . . . . . (20+) . **B**
- 1.705.850 : **P. HETEROPHYLLUS** (Sect. Saccanthera) Cal., Butte Co. 1060m. 1993 (Royal-blue to burgundy. 60cm.) . . . . . (20+) . **B**
- 1.706.000 : **P. HUMILIS** (Sect. Penstemon) Idaho, Butte Co. 1520m. (Woody-based mats. Deep-blue whorls. 20cm.) . . . . . (20+) . **B**
- 1.706.200 : **P. IMMANIFESTUS** (Sect. Coerulei) Nev., White Pine Co. 2130m. (Lavender-blue. Blue leaves. 30cm.) . . . . . (20+) . **B**
- 1.706.300 : **P. JAMESII** (Sect. Cristati) New Mexico, San Miguel Co. 2300m. 19.8.87 (Blue-violet. 30cm.) . . . . . (20+) . **B**
- 1.706.400 : **P. JANISHIAE** (Sect. Cristati) Nevada, Eureka Co. 2100m. 20.6.93 (Near *P. grahamii*. Pink. 15cm.) . . . . . (10+) . **D**

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**B** : \$3.00 ; £2.00 ; DM5,- ; FF17.-      **D** : \$5.00 ; £3.50 ; DM9,- ; FF30.-      **F** : \$9.00 ; £6.00 ; DM15,- ; FF50.-

- 1.706.500 : **PENSTEMON LABROSUS** (Sect. *Elmigeria*) Cal., Kern Co. 2250m. 27.8.89 (Elegant orange-scarlet. 50cm) . . (20+) . C
- 1.706.600 : **P. LAETUS** (Sect. *Saccanthera*) Cal. Nevada Co. 1370m. 19.8.89 (Blue-violet. 60cm.) . . . . . (20+) . B
- 1.706.800 : **P. LARICIFOLIUS** (Sect. *Laricifolii*) Wyoming, Hot Springs Co. 1500m. 28.7.89 (Salmon-pink. 15cm.) . . . . (20+) . C
- 1.706.900 : **P. LARICIFOLIUS** var. **EXILIFOLIUS** Wyoming, Albany Co. 27.8.87 (Tiny white race.) . . . . . (15+) . D
- 1.707.100 : **P. LENTUS** (Sect. *Coerulei*) Colorado, San Miguel Co. 2150m. 8.7.95 (Blue. Glauous leaves. 30cm.) . . . . . (20+) . B
- 1.707.150 : **P. LENTUS** var. **ALBIFLORUS** Utah, San Juan Co. 2100m. 6.7.87 (White flushed pink or bluish. 40cm.) . . . (20+) . B
- 1.707.200 : **P. LEONARDII** (Sect. *Saccanthera*) Utah, Weber Co. 3100m. 1.8.89 (Gentian-blue. Low, shrubby. 15cm.) . . . (20+) . D
- 1.707.500 : **P. LINARIOIDES** (Sect. *Caespitosi*) Colorado, San Miguel Co. 2150m. 8.7.95 (Heath-like. Lilac. 15cm.) . . . . (20+) . D
- 1.707.700 : **P. MENSARUM** (Sect. *Glabri*) Colorado, Delta Co. 2600m. 18.7.89 (Deepest royal-blue. 40cm.) . . . . . (20+) . C
- 1.707.900 : **P. MOFFATHI** (Sect. *Cristati*) Colorado, Mesa Co. 1600m. 9.7.95 (Blue-purple. Sticky foliage. 20cm.) . . . . . (20+) . C
- 1.708.000 : **P. MUCRONATUS** (Sect. *Coerulei*) Utah, Daggett Co. 2250m. 25.6.87 (Opalescent lavender-blue. 20cm.) . . . (20+) . C
- 1.708.100 : **P. MONTANUS** (Sect. *Erianthera*) Idaho, Custer Co. 2590m. 7.8.89 (Scree. Lavender. Decumbent.) . . . . . (20+) . B
- 1.708.200 : **P. NANUS** (Sect. *Cristati*) Utah, Millard Co., SSE of Garrison. 1980m. Open slope in calcareous gravel. 5.7.95 (First good coll. we have made. Maybe nearest *P. duchesnensis* - blue-violet with orange-bearded staminodes. 7cm. or less.) . . . . . (15+) . E
- 1.708.500 : **P. NEWBERRYI** (Sect. *Erianthera*) Cal., Madera Co. 1900m. J. Andrews 1995 (Vivid rose-red. 15cm.) . . . . . (20+) . B
- 1.708.600 : **P. NEWBERRYI** var. **SONOMENSIS** Cal., Mendocino Co. 2040m. 19.8.89 (Carmine-purple NW race.) . . . . . (20+) . C
- 1.708.900 : **P. PACHYPHYLLUS** (Sect. *Coerulei*) Nevada, White Pine Co. 2450m. J. Andrews 1995 (Lavender-blue.) . . . . . (20+) . B
- 1.709.100 : **P. PALMERI** (Sect. *Spectabiles*) Nevada, White Pine Co. 2200m. 24.8.87 (Huge pink flowers. 2m.) . . . . . (20+) . B
- 1.709.200 : **P. PALMERI** var. **EGLANDULOSUS** Utah, Kane Co. 1900m. 22.8.87 (Shell-pink. 60cm.) . . . . . (20+) . B
- 1.709.450 : **P. PAYSONIORUM** (Sect. *Glabri*) Wyoming, Lincoln Co. 2050m. 14.7.95 (Rich blue. 20cm.) . . . . . (20+) . C
- 1.709.500 : **P. PERPULCHER** (Sect. *Glabri*) Idaho, Butte Co. 1520m. 20.7.95 (Deep blue. 50cm.) . . . . . (20+) . B
- 1.709.600 : **P. PETIOLATUS** (Sect. *Petioliati*) Nevada, Clark Co., Charleston Mts. 1615m. E-facing limestone cliffs. J. Andrews coll. 1993 (Little-known, very local, dwarf shrub. "Flowers of intense turquoise" and "small leaves sharply toothed.") . . . . . (10+) . E
- 1.710.300 : **P. PURPUSHII** (Sect. *Saccanthera*) Cal., Mendocino Co. 2040m. J. Andrews 1993 (Choice alpine from the N Coast Range serpentines. Mats of little round, ash-grey leaves & baggy, luminous imperial-purple flowers. Grows well with us.) . . . . . (20+) . D
- 1.710.600 : **P. ROSTRIFLORUS** (Sect. *Bridgesiani*) Cal., Mono Co. 2740m. 28.8.89 (Spectacular scarlet tubes. 50cm.) . . . (20+) . B
- 1.710.800 : **P. SCAPOIDES** (Sect. *Saccanthera*) Cal., Inyo Co. 2100m. Gravelly, limestone slope. 5.8.95 (White Mts. endemic. Lilac-blue flowers on wiry, 15cm. stems from grey-leaved, woody-based mats. 15cm.) . . . . . (15+) . D
- 1.710.950 : **P. SCARIOSUS** var. **GARRETTII** (Sect. *Glabri*) Utah, Daggett Co. 2300m. 15.7.87 (Superb blue. 40cm.) . . . (20+) . B
- 1.711.000 : **P. SECUNDIFLORUS** (Sect. *Coerulei*) Wyoming, Albany Co. 2800m. 9.8.87 (Soft lilac-pink. 15cm.) . . . . . (20+) . B
- 1.711.350 : **P. SPECIOSUS** (Sect. *Glabri*) Nev., Washoe Co. 3080m. 29.8.89 (Deep blue shaded violet. Prostrate form) . . . (20+) . C
- 1.711.450 : **P. SPECTABILIS** (Sect. *Spectabiles*) Cal., Riverside Co. 1600m. 25.6.92 (Showy blue-purple. 1m.) . . . . . (20+) . B
- 1.711.700 : **P. STRICTUS** (Sect. *Glabri*) Wyoming, Fremont Co. 2800m. 29.7.89 (Rich blue. Woolly white anthers.) . . . . . (20+) . B
- 1.711.900 : **P. SUBGLABER** (Sect. *Glabri*) Utah, Sevier Co. 2200m. 9.7.89 (Deep blue. Robust. 60cm.) . . . . . (20+) . B
- 1.712.050 : **P. TEUCRIOIDES** (Sect. *Caespitosi*) Colorado, Park Co. 3000m. 6.9.87 (Lavender-blue. 9cm. shrublet.) . . . . . (20+) . C
- 1.712.150 : **P. THOMPSONIAE** subsp. **JAEGERI** (Sect. *Caespitosi*) Nevada, Clark Co. 2500m. J. Andrews 1992 . . . . . (10+) . D
- 1.712.500 : **P. TRACYI** Cal., Trinity Co. 2090m. J. Andrews coll. 1989 (Narrowly endemic to igneous rock crevices in the Trinity Alps. Like nothing else in the genus. Round, leathery leaves & white to pink flowers on 10cm. shrubs. Being grown.) . . . . . (20+) . E
- 1.712.700 : **P. UTAHENSIS** (Sect. *Gentianoides*) Colorado, Mesa Co., Gateway. 1600m. Steep clay slope in full sun. 9.7.95 (One of the most spectacular. Wands of brilliant carmine-red, funnel-shaped flowers. Leathery, blue-grey leaves. 50cm.) . . . . . (20+) . C
- 1.712.900 : **P. VIRENS** (Sect. *Penstemon*) Wyoming, Albany Co. 2250m. 22.7.89 (Violet-blue. 15cm.) . . . . . (20+) . B
- 1.713.100 : **P. VIRGATUS** var. **ASA-GRAYI** (Sect. *Glabri*) Colorado, Park Co. 3100m. 13.8.87 (Rich-blue. 30cm.) . . . . . (20+) . B
- 1.713.400 : **P. WATSONII** (Sect. *Penstemon*) Utah, Piute Co. 2700m. 26.8.87 (Clustered, deep-blue heads. 40cm.) . . . . . (20+) . B
- 1.713.500 : **P. WHIPPLEANUS** (Sect. *Penstemon*) New Mexico, Bernalillo Co. 3500m. 20.8.87 (Wine-purple. 50cm.) . . . (20+) . B



# Species from North America : Seeds from Jim & Jenny Archibald

- 1.751.000 : PHLOX SPECIOSA** Washington, Klickitat Co., summit of Dalles Mt. 700m. G. Burrell coll. 1995 (Handsome, shrubby-based species. In this form with loose cymes of blush-white to light-pink flowers. About 20cm.) . . . . . (10+ seeds) . **B**
- 1.751.100 : PHLOX STANSBURYI** Cal., Mono Co., N of Conway Summit. 2200m. J. Andrews coll. 1995 (From the pinyon-juniper zone of the Sierra Nevada. Usually very large & full, pink to white flowers here. Woody based to 15cm.) . . . . . (10+ seeds) . **C**
- 1.760.300 : POLEMONIUM CHARTACEUM** Cal., Trinity Co., Mt. Eddy. 2740m. Exposed summit area. J. Andrews coll. 1995 (A remarkable disjunct population here. Otherwise known only from above 4000m. in the White Mts. In effect, a miniature *P. viscosum* but distinguished from this & *P. eximium* by its exerted stamens & the papery (chartaceous) base of the petioles. Little tufts of glandular foliage and heads of blue flowers, usually with yellow throats. Should be growable in skilled hands.) . . . . . (10+ seeds) . **E**
- 1.764.100 : POLYSTICHUM LEMMONII** Cal., Trinity Co., Mt. Eddy. 2630m. Open, rocky sites. J. Andrews coll. 1995 (As we are rather short of space in this list, we have edited out ferns for the moment. We must, however, make an exception for this extremely choice and local serpentine species. Stiff, upright leaf-blades, 15-30cm. high. Slow-growing & ideal for a trough or pan.) . . . . . **D**
- 1.768.400 : PRIMULA NEVADENSIS** Nevada, White Pine Co., Snake Range. 3440m. Limestone fell-field. J. Andrews coll. 1995 (Endemic to the summit of this Great Basin Range but now being cultivated from John's 1991 coll. Large, violet-purple, yellow-eyed flowers on short stems. It can make quite large clumps in this site. Probably nearest the Rocky Mt. *P. angustifolia*, it will need similar careful cultivation by the alpine-plant specialist. Possibly best plunged outside in summer in the UK.) . . . . . (20+ seeds) . **E**
- 1.768.600 : PRIMULA SPECUICOLA** Utah, San Juan Co., above Bluff. 1550m. Seepage lines below overhangs on shady sandstone cliffs. 7.7.95 (A very beautiful relic, endemic to the 'hanging gardens' of the Colorado River canyons. Like a giant *P. farinosa* with clumps of dark-green leaves, backed with dense, white farina. Umbels of up to 40 flowers in lavender, pink or white on 15cm. stems. It has been grown magnificently in some UK alpine-houses but is not easy - rich Dionysia-treatment.) . . . . . (50+ seeds) . **D**
- 1.770.000 : PRUNUS ANDERSONII** Cal., San Bernardino Co., Providence Mts. 1400m. Exposed, limestone slope. J. Andrews coll. 1994 (The desert peach - a splendid small shrub. Can reach 2m. but is usually dwarf & of stiff, spiny habit. Deep-pink to red flowers followed by orange-red, downy fruits. Probably not in cultivation in Europe but merits the alpine-house.) . . . . . (5 seeds) . **C**
- 1.811.100 : ROMNEYA TRICHOCALYX** Cal., Ventura Co., NW of Ojai. 1000m. Loose, stony slopes. 2.8.95 (The genus is split into two species in "Jepson" - who are we to disagree. This is the race with hairy sepals. Divided, glaucous foliage & profuse, huge, crinkled white poppies on branching stems up to 2m. high. One of the most famous Californian natives. Reputedly difficult to germinate - try burning it over as for *Dendromecon* & *Dicentra chrysantha*. These are all chaparral plants.) . . . . . (30+ seeds) . **C**
- 1.830.450 : SALVIA DORRII** subsp. **GILMANNII** Cal., Inyo Co., Panamint Range. 2130m. Openings among *Artemisia* in gravelly soil. 4.8.95 (A Great Basin race, included under *S.d.* var. *dorrii* in "Jepson", of this fine, shrubby sage. Spreading clumps with stems & leaves densely white-scaly. About 40cm. here. Whorls of deep purple-blue flowers among rounded bracts.) . . . . . (15+ seeds) . **C**
- 1.836.000 : SARRACENIA PURPUREA** (subsp. *purpurea*) Canada, Nova Scotia, Chebucto Head. Sea-level. J. Weagle coll. 13.9.95 (A special-request coll. from the northern type-race of this fascinating carnivorous plant at about its NE limit. Clumps of beautifully veined traps and weirdly wonderful flowers. This is totally hardy in N Europe in seriously wet, nutrient-free sphagnum-peat in full sun. *Darlingtonia californica* needs similar treatment. These are cool-growers, frozen in winter.) . . . . . (30+ seeds) . **C**
- 1.839.000 : SCOLIOPUS BIGELOVII** Cal., Mendocino Co., W of Boonville. 330m. J. Andrew coll. 1995 (Strange Trillium-relative, local in moist, shady sites in the redwood-forests N from the Bay area. It goes dormant in summer & it is none too easy to time a seed coll. - we have tried ourselves. Two, big, basal, veined & mottled, sheathing leaves. Complex greenish white or yellowish flowers, intricately marked & lined with purple-brown. Will grow in the peat-garden in the UK but best appreciated in a pan. Slow from seed - treat like Trillium. May not germinate the first season but should do so after the second winter.) . . . . . (10+ seeds) . **D**
- 1.840.000 : SCUTELLARIA ANTIRRHINOIDES** Cal., Mendocino Co., ESE of Covelo. 1600m. Fissures on open, serpentine outcrop. 31.7.95 (Wiry, rhizomatous perennial about 20cm. high. Branching stems of blue-violet flowers with white-mottled lips. Attractive and not at all 'leafy' in the wild - worth trying in the scree-bed or a sunny rock-garden site.) . . . . . (15+ seeds) . **C**
- 1.840. 650 : SCUTELLARIA NANA** var. **SAPPHIRINA** Nevada, White Pine Co. SE of Little Antelope Summit. 1980 m. Calcareous clay. 21.6.93 (Just coming into flower here in June, 1995. Tufts of rounded, grey-green leaves & gentian-blue skullcap flowers, only 5 cm. high, pop up from wide-growing subterranean rhizomes. Not difficult under glass but becomes rather leafy with the soft life there - we are told this is growable and more worthwhile outside in scree, in full sun of course.) . . . . . (20+ seeds) . **D**
- 1.855.400 : SILENE HOOKERI** \* Oregon, Josephine Co., E of Takilma. 850m. Openings among conifers, in stony turf. (We have our cultivated stock rolling now under glass - one of our favourite plants. Decumbent stems with downy, greyish leaves & a very long succession of flowers with deeply cut petals, soft salmon-pink in this form. Eventually summer-dormant.) . . . . . (10+ seeds) . **C**
- 1.855.500 : SILENE HOOKERI** subsp. **BOLANDERI** Cal., Trinity Co., S of Hayfork. 750m. Openings among conifers on W-facing slope. 11.6.95 (Limited to this area & utterly distinct horticulturally, though all subspecific divisions are currently disregarded. Large, pure-white flowers with the petal blades deeply cut into linear segments. A plant raised from our 1993 coll. was awarded a PC, when exhibited in the UK in 1995 - full write-up in the Dec., 1995, AGS Bulletin. Reputedly more difficult to maintain than the type-race listed above, we had not enough seed left to try ourselves in 1993. Not easy to collect - a few.) . . . . . (8 seeds) . **E**

- 1.855.501 : SILENE HOOKERI subsp. BOLANDERI** Cal., Trinity Co., W of Weaverville, Munger Gulch. 760m. J. Andrews coll. 1995. (From N of Hayfork Divide but still in the drainage of the Trinity River. Will vary from site to site.) . . . . . (8 seeds) . E
- 1.855.550 : SILENE HOOKERI var. INGRAMII** Oregon, Douglas Co., S of Tiller. 460m. Openings among Pinus on steep serpentine slopes. 14.6.95 (A splendid race & a very local plant indeed, only known from the Roseburg area, along the Umpqua River drainage of SW Oregon. Notably large flowers with each of the 5 petals notched into 4 lobes and richly coloured in a beautiful deep cherry-pink. It no longer grows in several sites once known to Boyd Kline - these should be maintained in cultivation.) . . . . . (8 seeds) . E
- 1.860.300 : SISYRINCHIUM DOUGLASII** Oregon, Jackson Co., Siskiyou Mts. SSE of Ashland. 1370m. Open meadow on SW-facing slope. 3.7.95 (Surely the finest of the genus with "a succession of noble hanging bells in a deep and flashing imperial violet." Early-flowering, 20cm. high and summer-dormant. Growable in the alpine-house or scree-bed in the UK.) . . . . . (15+ seeds) . B
- 1.870.250 : SPHAERALCEA aff. CAESPITOSA** Utah, Millard Co., SSE of Garrison. 1900m. Open slope in calcareous gravel. 5.7.95 (Very variable & probably grading into *S. ambigua* here, though this must be virtually next-door to the type-locality. Woody-based dwarf perennials, 5-25cm. high with tightly clustered orange flowers but foliage is often deeply cut. Typically it should be thick, grey-white & crenate, barely if at all lobed. Our 1993 coll. has produced some good compact plants.) . . . . . (15+ seeds) . C
- 1.890.500 : SYNTHYRIS PLATYCARPA** Idaho, Idaho Co., Selway Falls. 600m. H. Zetterlund coll. 1994 (HZ94-84) (Another very local Idaho endemic sought out by Henrik. Only known from the Selway River area & quite large for the genus - about 30-40cm. in fruit. Semi-deciduous, soft, rounded, reniform leaves, about 10cm. across, & dense racemes of lavender flowers with incised petals. This woodlander should be possible outside in the UK in a humus-rich, semi-shaded bed.) . . . . . (15+ seeds) . D
- 1.920.520 : TRILLIUM RIVALE** \* Cultivated seed from selected clones in Boyd Kline's garden in Medford Oregon - see 'The Backyard'. Gives no trouble from dried seed but may need two cool periods before germination. . . . . E

## **Triteleia : neglected Cinderellas for the bulb-frame and garden**

The Brodiaeas as a whole, now split into several genera, have not yet become a fashionable group of plants. We suspect it is because they lack the aura of difficulty surrounding Calochortus or the American Fritillarias. There are extremely local and possibly difficult species but the following are mostly simply good garden-plants & wonderful for cutting. Considering that many grow with Calochortus, it is surprising that they give so little trouble in cultivation. These are corms with a similar growth-cycle to the Mariposas, flowering late in the season, after they have made their main leaf-growth, but many will thrive in a well-drained, sunny site outside in the UK. In a bulb-frame, they can be splendid. Jim & Georgie Robinett have been making some fine selections, some of which we list here.

- 1.925.100 : TRITELEIA BRIDGESII** Cal., Shasta Co., N of Montgomery Creek. 580m. Among sparse scrub. 30.7.95 (Wide umbels of big, translucent, purple-blue flowers on stems up to 50cm. high. A N Californian plant.) . . . . . (20+ seeds) . B
- 1.925.120 : T. BRIDGESII 'ROBINETT SELECTIONS'** \* Loose, 12cm. umbels of starry flowers, 2cm. wide, in shades of pink, rose & lavender, lighter in the centres & with a glassy appearance. Selected in various N Californian locations. . . . . (20+ seeds) . B
- 1.926.600 : T. IXIOIDES subsp. ANILINA** Cal., Fresno Co. 2450m. Alpine meadow in open woodland. J. & G. Robinett coll. 1.9.95 (Usually under 15cm. high with 6-10cm. umbels of brown-striped, yellow flowers with blue anthers. ) . . . . . (20+ seeds) . B
- 1.926.700 : T. IXIOIDES subsp. SCABRA** Cal., Fresno Co. 1740m. Steep granite-sand slope in open woodland. J. & G. Robinett coll. 1.9.95 (The 'Foothill Pretty Face' with 12cm. umbels of light yellow flowers striped grey on the reverse. 25cm.) . . . . . (20+ seeds) . B
- 1.926.820 : T. LAXA 'GIANT LAVENDER'** Cal., Tulare Co. 600m. 22.6.95. (Robinett selection from the southern Sierra Nevada. The lavender flowers are very large, 4-5cm. across in umbels up to 35cm. wide on stems up to 75cm. high.) . . . . . (20+ seeds) . B
- 1.926.850 : T. LAXA 'HUMBOLDT STAR'** \* Originally selected in Humboldt Co. at 700m. on an open, grassy, S-facing clay bank. Densely packed, 20cm. wide umbels of 50 or more, extremely dark purple flowers. Up to 40cm. high.) . . . . . (20+ seeds) . B
- 1.927.300 : T. PEDUNCULARIS** Cal., Napa Co., Snell Valley. 330m. Vernal wet, open grassland. 17.6.95 (Tall, elegant species with airy umbels of white flowers, sometimes flushed violet outside, on very long pedicels. Up to 80cm tall.) . . . . . (20+ seeds) . B
- 1.975.000 : VERATRUM CALIFORNICUM** Cal., Placer Co. 1400m. Wet mountain meadow. J. & G. Robinett coll. 23.9.95 (Magnificent herbaceous perennial. Huge, pleated, bright-green leaves. Dense panicles of white stars. 1.5m.) . . . . . (15+ seeds) . C
- 1.981.300 : VIOLA CUNEATA** Oregon, Josephine Co., SW of O'Brien. 460m. Openings among conifers. 3.7.95 (Round, white-faced flowers with purple eyes & backs on branching stems about 10cm. high. Summer-dormant serpentine-plant.) . . . . . (10 seeds) . D
- 1.993.500 : YUCCA TOFTIAE** Utah, San Juan Co., White Canyon. 1400m. Open sandstone slope. 7.7.95 (A very local member of the *Y. angustissima* group confined to the Glen Canyon area. Clumps of stiff, leathery, white-margined, filiferous leaves, about 70cm. long, send up branching inflorescences of globose, creamy white bells. Can reach over 3m. in height.) . . . . . (15+ seeds) . C
- 1.993.600 : YUCCA WHIPPLEI subsp. CAESPITOSA** Cal., Tulare Co., NE of Springville. 1150m. Steep, scrub-covered slope. 2.8.95 (Perennial northern race with 3m. high spires of hundreds of cream bells from beautiful rosettes of stiff, spine-tipped leaves. We have flowered this from seed in the UK. Sow in summer - poor germination results from cold-sowing.) . . . . . (15+ seeds) . B
- 1.993.650 : YUCCA WHIPPLEI subsp. INTERMEDIA** Cal., Ventura Co., Wagon Road Canyon. 1450m. Stony slopes. 2.8.95 (Another perennial race, forming side-rosettes after flowering. These races are not recognized in "Jepson".) . . . . . (15+ seeds) . B

# Species from South America : Seeds from Jim & Jenny Archibald

Our April, 1995, list concentrated on South American species, mainly collected by ourselves in Argentina & Chile (1994) and Ecuador (1993). For practical reasons, our future policy will be to concentrate on species from a particular geographical area in each list. This list deals with North American species in some detail. The majority of the South American species listed in 1995 are still available from material stored in low humidity under refrigerated conditions. Most people receiving this list should have already received our 1995 list and should be able to refer to it for full field data on the South American

collections listed in a names-only format here. If you have not received this 1995 list or have mislaid it, we shall be glad to send a copy to you, though we should stress that only the species listed here are still available. Seeds of any species not included in the present list are definitely sold-out. Reference numbers here are our field-numbers, which run in the order of collection. Packets of seeds will carry only these numbers but a check-list of the numbers in numerical order will be sent with orders to make identification simple. Cultivated material (\*) without a field-number should be ordered by name.

13750 ALONSOA MERIDIONALIS	(50+) B	14128 CALCEOLARIA MENDOCINA	(100+) D
14395 ALSTROEMERIA AUREA	(15+) B	13888 CALCEOLARIA NIVALIS	(100+) D
14404 ALSTROEMERIA AUREA	(15+) C	13736 CALCEOLARIA PERFOLIATA	(100+) B
14411 ALSTROEMERIA AUREA	(15+) B	14450 CALCEOLARIA PINIFOLIA	(100+) E
14415 ALSTROEMERIA EXSERENS	(10+) D	14308 CALCEOLARIA TENELLA	(100+) C
* ALSTROEMERIA aff. EXSERENS	(10+) C	14172 CALCEOLARIA SP. (Passo Argentino)	(100+) E
* ALSTROEMERIA GARAVENTAE	(10+) C	14224 CALCEOLARIA SP. (Copahue)	(100+) C
* ALSTROEMERIA HOOKERI	(10+) C	14339 CALCEOLARIA SP. (Nevados de Chillan)	(100+) D
* A. HOOKERI CUMMINGIANA	(10+) D	14430 CALCEOLARIA SP. (Valle Nevado)	(100+) D
* A. LIGTU SIMSII	(10+) C	14151 CASSIA ARNOTTIANA	(8) D
* A. LIGTU HYBRIDS	(20+) A	14184 CASSIA KURTZII	(10) D
14355 ALSTROEMERIA PALLIDA	(10+) C	13841 CLEMATIS SP. (Pichincha. 3600m.)	(15+) C
12590 A. PRESLIANA AUSTRALIS *	(10+) C	14363 CRUCKSHANKSIA HYMENODON	(15+) E
* ALSTROEMERIA PULCHRA	(10+) B	* CYPELLA HERBERTII	(20+) B
14378 ALSTROEMERIA REVOLUTA	(15+) B	* CYPELLA HAUTHALLII var. OPALINA	(20+) E
14348 ALSTROEMERIA UMBELLATA	(10+) D	14149 DRABA GILLIESII	(20+) C
14359 ARGYLIA ADSCENDENS	(15+) C	14326 DRABA MAGELLANICA	(20+) C
14116 ARGYLIA BUSTILLOSII ( <i>A. australis</i> )	(15+) D	12606 EMBOTHRIUM COCCINEUM	(20+) B
14190 ARGYLIA BUSTILLOSII	(15+) D	12620 EMBOTHRIUM COCCINEUM	(10+) D
14186 ARGYLIA ROBUSTA	(15+) C	14008 EPHEDRA AMERICANA	(8) C
14177 ARGYLIA USPALLATENSIS	(15+) C	14156 EPHEDRA SP. (Tunuyan. 2500m)	(10+) C
14169 ASTRAGALUS ARNOTTIANUS	(15+) D	14323 EPHEDRA SP. (Atravesado. 2200m)	(8) C
14315 AZORELLA MADREPORICA	(10+) D	14233 ERYNGIUM EBURNEUM	(20+) B
13678 BARNADESIA ARBOREA	(10+) C	13912 ERYNGIUM HUMILE	(10+) D
14165 BERBERIS EMPETRIFOLIA	(10+) C	13472 ESPELETIA HARTWEGIANA	(10) D
14159 BERBERIS GREVILLEANA	(10) C	12577 FRANCOA SONCHIFOLIA	(50+) B
14238 BERBERIS MONTANA	(10) C	13733 FUCHSIA AYAVACENSIS	(20+) D
13834 BERBERIS SP. (Pichincha. 3200m.)	(10) C	13770 FUCHSIA CORYMBIFLORA	(20+) C
13645 BIDENS HUMILIS	(15+) C	13865 FUCHSIA aff. LOXENSIS	(20+) C
13866 BOMAREA ISOPETALA	(8) E	14301 FUCHSIA MAGELLANICA	(20+) B
13627 B. MULTIFLORA subsp. CALDASII	(8) C	13906 GAULTHERIA AMOENA	(30+) D
13833 B. MULTIFLORA subsp. CALDASII	(8) C	13740 GAULTHERIA FOLIOLOSA	(30+) D
13987 BOMAREA PATAOCENSIS	(8) E	13738 GAULTHERIA GLOMERATA	(30+) D
13761 BOMAREA SP. (Carchi. 3200m.)	(8) C	13712 GAULTHERIA MYRSINOIDES	(50+) C
13876 BRACHYOTUM JAMESONII	(30+) E	13844 GAULTHERIA MYRSINOIDES	(50+) C
13735 BRACHYOTUM LEDIFOLIUM	(30+) D	14004 GAULTHERIA MYRSINOIDES	(50+) C
14429 CAJOPHORA CORONATA	(30+) C	12617 GAULTHERIA MYRSINOIDES	(50+) C
14214 CALANDRINIA AFFINIS	(20+) C	14250 GAULTHERIA PUMILA	(50+) D
14258 C. CAESPITOSA ( <i>C. skottsbergii</i> )	(20+) E	14216 G. PUMILA var. LEUCOCARPA	(30+) D
14340 C. CAESPITOSA ( <i>C. rupestris</i> )	(20+) D	* GAULTHERIA RIGIDA	(30+) C
14213 C. COLCHAGUENSIS (hybrid ?)	(20+) D	14003 GENTIANELLA CERASTIOIDES	(30+) E
14204 CALANDRINIA COLCHAGUENSIS	(20+) D	13848 GENTIANELLA DIFFUSA	(30+) D
14339 CALANDRINIA GRAMINIFOLIA	(20+) E	13880 GENTIANELLA HIRCULUS	(30+) E
14428 CALCEOLARIA ARACHNOIDEA	(100+) C	14452 GENTIANELLA MULTICAULIS	(30+) E
14105 C. BIFLORA ( <i>C. luxurians</i> )	(100+) B	13890 GENTIANELLA STELLARIOIDES	(30+) D
13840 CALCEOLARIA ERICOIDES	(100+) D	14100 GRINDELIA CHILOENSIS	(20+) B
13911 CALCEOLARIA HELIANTHEMOIDES	(100+) C	12610 GUNNERA MAGELLANICA *	(20+) B
14296 CALCEOLARIA LAGUNAE-BLANCAE	(100+) D	* HABRANTHUS ESTENSIS	(20+) C
14404 C. LANCEOLATA var. PUSILLA	(100+) D	14158 JUNELLIA JUNIPERINA	(15+) C

A : \$2.00 ; £1.50 ; DM4,- ; FF13.-

B : \$3.00 ; £2.00 ; DM5,- ; FF17.-

C : \$4.00 ; £2.50 ; DM6,- ; FF21.-

D : \$5.00 ; £3.50 ; DM9,- ; FF30.-

E : \$7.00 ; £4.50 ; DM12,- ; FF40.-

F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

13687 KOHLERIA SP. (Pululahua. 3000m.)	(100+)	D	14371 PUYA CAERULEA	(30+)	C
13706 KOHLERIA SP. (Calacali. 2000m.)	(100+)	D	14369 PUYA VENUSTA	(20+)	C
13626 LAMOUROUXIA VIRGATA	(30+)	C	13718 PUYA SP. (Cuicocha. 3200m.)	(20+)	D
14303 LATHYRUS MAGELLANICUS	(8)	C	14264 RANUNCULUS SEMIVERTICILLATUS	(10)	E
14168 LESQUERELLA MENDOCINA	(15+)	C	14294 RANUNCULUS SEMIVERTICILLATUS	(10)	E
14127 LEUCERIA CANDIDISSIMA	(15+)	E	14333 RHODOLIRION MONTANUM (pink)	(10+)	C
12608 LIBERTIA FORMOSA	(20+)	B	14366 RHODOLIRION MONTANUM (red)	(10+)	C
14247 LOASA NANA	(20+)	D	14422 RHODOLIRION MONTANUM (white)	(10+)	C
14425 LOASA SIGMOIDEA	(20+)	D	14412 RHODOPHIALA ADVENA	(10+)	C
14137 LOASA SP. (Las Lenas. 2350m.)	(20+)	D	14209 RHODOPHIALA ANDICOLA	(10+)	D
14375 LOBELIA TUPA	(50+)	C	14244 RHODOPHIALA ANDICOLA	(10+)	D
14408 MAIHUENIA POEPPIGII	(15+)	C	14277 RHODOPHIALA ARAUCANA	(10+)	E
14152 MAIHUENIA SP. (Los Molles. 2000m.)	(15+)	C	14195 R. ELWESII (or <i>R. mendocina</i> )	(10+)	C
14448 MALESHERBIA LINEARIFOLIA	(20+)	D	14269 RHODOPHIALA ELWESII	(10+)	C
14154 MALESHERBIA LIRANA	(15+)	E	12597 RHODOPHIALA PRATENSIS *	(8)	E
14433 MELOSPERMA ANDICOLA	(15+)	D	14390 RHODOPHIALA SP. (Chillan. 1700m.)	(10+)	D
13679 MICONIA SP. (Pululahua. 3000m.)	(100+)	D	13800 SALVIA HIRTELLA	(10+)	C
13981 MICONIA SP. (Tandapi. 2600m.)	(100+)	D	13930 SALVIA SPRUCEI	(10+)	C
14138 MONTIOPSIS ANDICOLA	(15+)	D	14110 SAXIFRAGA MAGELLANICA	(50+)	B
12311 MONTIOPSIS CISTIFLORA	(15+)	C	14115 SCHIZANTHUS GRAHAMII	(30+)	C
14133 MONTIOPSIS GAYANA	(20+)	C	14427 SCHIZANTHUS HOOKERI	(30+)	B
14360 MONTIOPSIS SERICEA	(30+)	D	14242 SENECIO ARGYREUS		C
14330 MONTIOPSIS SP. (Las Lenas. 2160m.)	(20+)	D	13975 SENECIO FORMOSUS	(20+)	D
14410 MUTISIA DECURRENS	(8)	E	14148 SENECIO GILLIESII		D
12752 MUTISIA OLIGODON (* ex type locality)	(8)	E	13685 SIPHOCAMPYLUS GIGANTEUS	(50+)	C
14283 MUTISIA OLIGODON	(8)	E	14245 SISYRINCHIUM ARENARIUM	(20+)	B
14345 MUTISIA RETRORSA	(8)	E	14211 SISYRINCHIUM FILIFOLIUM JUNCEUM	(15+)	B
14414 MUTISIA ROSEA	(10)	D	14354 S. FILIFOLIUM subsp. JUNCEUM	(15+)	B
14416 MUTISIA SINUATA	(8)	E	14166 SISYRINCHIUM SP. (Tunuyan. 4000m.)	(15+)	D
14270 MUTISIA SPINOSA ( <i>M. retusa</i> )	(10)	C	12502 SOLANUM PINNATUM	(10+)	B
14155 MUTISIA SUBSPINOSA	(8)	E	14178 SOLANUM SP. (Uspallata. 2100m.)	(10+)	B
14175 MUTISIA SUBSPINOSA	(8)	E	14362 SOLARIA SP. (Lagunillas. 2300m.)	(10+)	C
14458 MUTISIA SUBSPINOSA	(8)	E	14377 SOLENOMELUS PEDUNCULATUS	(15+)	C
14373 MUTISIA SUBULATA	(8)	D	12307 SOLENOMELUS SISYRINCHIUM	(20+)	C
14327 NASSAUVIA ARGENTEA	(10+)	C	13720 SPHENOSTIGMA SP. (Cuicocha. 3200m.)	(10+)	D
14266 NASSAUVIA LAGASCAE var. LANATA	(10+)	C	14188 TARASA HUMILIS	(10+)	D
14221 NASSAUVIA PINNIGERA	(10+)	C	13710 TIBOUCHINA GLEASONIANA	(50+)	E
14295 NASSAUVIA PULCHERRIMA	(10+)	C	13752 TIBOUCHINA GROSSA	(50+)	F
14432 NASTANTHUS AGGLOMERATUS	(20+)	B	13922 TIBOUCHINA LAXA	(50+)	C
14144 NOTHOSCORDUM SP. (Las Lenas. 2450m)	(15+)	C	14163 TRECHONAETES LACINIATA	(15+)	C
14446 OENOTHERA ACAULIS	(10+)	C	14246 TRISTAGMA NIVALE	(10+)	D
13644 ONOSERIS HYSSOPIFOLIA	(15+)	C	14423 TRISTAGMA SP. (Valle Nevado. 3100m.)	(10+)	D
13940 ONOSERIS SALICIFOLIA	(15+)	C	14437 TRISTAGMA SP. (La Parva. 3000m.)	(10+)	D
14280 OREOPOLUS GLACIALIS	(8)	E	* TROPAEOLUM AZUREUM	(5)	E
14324 OREOPOLUS GLACIALIS	(8)	E	14182 TROPAEOLUM POLYPHYLLUM	(5)	D
13743 ORTHROSANTHUS CHIMBORACENSIS	(30+)	B	14256 TROPAEOLUM SESSILIFOLIUM	(5+)	D
14252 OURISIA ALPINA	(50+)	E	* TROPAEOLUM SPECIOSUM	(8)	B
14300 OURISIA FRAGRANS	(50+)	E	* TROPAEOLUM TRICOLOR	(8)	C
14388 OURISIA MICROPHYLLA	(50+)	D	14342 VIOLA ATROPURPUREA	(10)	F
* OURISIA MICROPHYLLA - WHITE	(30+)	F	14291 VIOLA COLUMNARIS	(6)	F
14257 OXALIS ADENOPHYLLA	(15+)	C	14311 VIOLA COTYLEDON	(10)	E
14192 OXALIS SP. ( <i>O. compacta</i> ?)	(15+)	C	14400 VIOLA COTYLEDON	(10)	E
14364 PACHYLAENA ATRIPLICIFOLIA	(10)	E	14243 VIOLA DASYPHYLLA	(10)	E
13730 PASSIFLORA MANICATA	(10)	C	14322 VIOLA MACULATA	(10+)	C
14179 PHILIBERTIA GILLIESII	(10+)	C	14282 VIOLA PSEUDO-VULCANICA	(10)	E
13714 PITCAIRNEA SP. (Cuicocha. 3200m.)	(20+)	D	14329 VIOLA aff. PSEUDO-VULCANICA	(10)	E
13824 PITCAIRNEA SP. (Banos. 2000m.)	(20+)	C	14292 VIOLA SACCULUS	(10)	E

Almost all cultivated seed has been harvested in 1995. Alstroemerias here are from Mike Tucker (Somerset, UK), who has been successful in germinating and establishing many of the Axel Brinke collections listed a few years ago. Some of these have produced rather puzzling plants. Our own *A. revoluta* (14378) produced what appears to be *A. ligtu simsii* with Mike. We saw this in flower (with *A. xanthina* as well) and we can only assume three species grew together. Our *Fuchsia canescens* (13597) has produced the obscure and exciting purple-flowered *Lochroma macrocalyx*. We have no idea how this occurred as herbarium specimens and photographs are of the Fuchsia. Put it down to the altitude. We have withdrawn this to sort seed out. Mistakes do occur - we try to make them as infrequent as we can.

A : \$2.00 ; £1.50 ; DM4,- ; FF13.-      C : \$4.00 ; £2.50 ; DM6,- ; FF21.-      E : \$7.00 ; £4.50 ; DM12,- ; FF40.-  
B : \$3.00 ; £2.00 ; DM5,- ; FF17.-      D : \$5.00 ; £3.50 ; DM9,- ; FF30.-      F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

# European, W Asian, N African Species : Seeds from Jim & Jenny Archibald

We have a lot of exciting material from this area but those of you who require full field data or detailed descriptions will either have to be patient or desist from ordering until this can be made available to you in a future list. We shall be featuring the species, listed here in a names-only format, in much more detail, along with additional 1996 seed, later in the year. Those of you who know what you want can order now. We like to list out seed with a reasonable amount of information, as soon as we can after collection, but, with so much material in hand, it is increasingly difficult to manage to do this for everything. There are some interesting 1995 wild collections here from S Greece (by David Hoskins), Crete (by Melvyn Jope) and Syria (by Rannveig Wallis), as well as some unprecedented material from Georgia and other parts of the former USSR, the collection of which has been arranged by Will McLewin in collaboration with local botanists. A few of the 1994 Turkish collections made with Norman Stevens are listed but apart from these almost everything else has been gathered in 1995. The majority of seeds here, however, are from cultivated plants. We are gradually expanding the range of seed harvested

from our own plants (almost all raised from seed of known wild origin) and with the help of other growers hope to list an increasingly complete range of such genera as *Crocus*, *Cyclamen*, *Fritillaria* and *Narcissus*. It all takes time. Cultivated seed is clearly marked ( \* ) and in most cases the parents are from a known wild population. A few cultivated species without field data are now included on a geographical basis and these are marked accordingly : (n.d.), no data, after the name. The six-digit reference numbers here, as is now the case with the seven-digit North American ones, are permanent references for populations within the area of Europe, N Africa (N of the Sahara) and W Asia (W from Pakistan N through the Pamirs, the Tien Shan & the Altai), a distinct floristic area. Seed packets carry only this number but as these run in alphabetical, as well as numerical, order, identification of packets from this list is simple. Nomenclature follows the basic floras, 'Flora Europaea', 'Flora of Turkey' & 'Flora Iranica' with a little editing and updating, if this is felt to be relevant & helpful to gardeners. Collections from the republics of the former USSR are usually listed under the names supplied.

127.203	: ALKANNA AUCHERIANA	.....	(10)	E
130.600	: ALLIUM ATROPURPUREUM *	(n.d.)	(15+)	A
130.650	: ALLIUM BODEANUM *	.....	(8)	E
131.970	: ALLIUM CAESIUM *	.....	(20+)	B
131.000	: ALLIUM CALLIDYCTION *	.....	(15+)	B
134.060	: ALLIUM MYRIANTHEUM *	.....	(20+)	A
134.801	: ALLIUM ORIENTALE	.....	(20+)	A
138.980	: ALLIUM SUWOROWII *	(n.d.)	(20+)	A
153.200	: ANCHUSA UNDULATA	.....	(10+)	B
160.702	: ANEMONE CORONARIA	.....	(20+)	A
161.205	: ANEMONE NARCISSIFLORA	.....	(15+)	A
161.900	: ANEMONE PAVONINA *	.....	(20+)	A
185.550	: ARISTOLOCHIA LONGA subsp.			
	PAUCINERVIS *	.....	(10)	B
194.752	: ARUM ALPINUM *	.....	(10)	B
194.800	: ARUM BALANSANUM *	.....	(8)	D
195.071	: ARUM CONCINNATUM *	.....	(10)	B
195.150	: ARUM CYRENAICUM *	.....	(10)	B
195.160	: ARUM CYRENAICUM *	.....	(10)	B
195.155	: ARUM DIOSCORIDIS	.....	(10)	B
195.510	: ARUM ELONGATUM (ssp. <i>elongatum</i> ) *	.....	(5)	C
196.500	: ARUM NIGRUM *	.....	(10)	C
196.610	: ARUM ORIENTALE (subsp. <i>orientale</i> ) *	.....	(10)	C
197.000	: ARUM PURPUREOSPETHUM *	.....	(8)	E
220.705	: ASTRANTIA MAXIMA *	(n.d.)	(20+)	A
227.702	: BELLEVALIA DUBIA *	.....	(15+)	C
227.703	: BELLEVALIA DUBIA *	.....	(20+)	B
227.770	: BELLEVALIA FORNICULATA *	.....	(15+)	C
228.080	: BELLEVALIA PYCNANTHA *	.....	(15+)	A
228.130	: BELLEVALIA RIXII *	.....	(10)	E
228.150	: BELLEVALIA ROMANA *	.....	(15+)	A
228.410	: BELLEVALIA WEBBIANA *	(n.d.)	(20+)	A
240.000	: BRIMEURA AMETHYSTINA *	.....	(20+)	A
240.100	: BRIMEURA FASTIGIATA *	.....	(15+)	B
245.001	: BUPLEURUM ANGULOSUM *	.....	(15+)	B
245.210	: BUPLEURUM SPINOSUM *	(n.d.)	(20+)	B
264.900	: CAMPANULA TOMMASINIANA	.....	(30+)	C
266.000	: CAMPANULA WALDSTEINIANA *	.....	(30+)	C
274.101	: CARLINA ACANTHIFOLIA *	.....	(8)	C
292.002	: CERCIS SILIQUASTRUM	.....	(10)	A

300.100	: CHRYSANTHEMUM CORONARIUM	.....	(30+)	A
310.600	: CODONOPSIS OBTUSA *	.....	(30+)	A
311.420	: COLCHICUM AUTUMNALE *	(n.d.)	(20+)	A
311.501	: COLCHICUM BALANSAE	.....	(15+)	C
312.800	: COLCHICUM CILICIUM	.....	(15+)	B
313.010	: COLCHICUM CORSICUM *	(n.d.)	(20+)	B
313.405	: COLCHICUM CUPANII	.....	(10+)	C
315.601	: COLCHICUM MACROPHYLLUM	.....	(10+)	C
315.900	: COLCHICUM MONTANUM *	.....	(15+)	B
317.801	: COLCHICUM SPECIOSUM	.....	(15+)	B
318.101	: COLCHICUM TRIGYNUM	.....	(10+)	B
318.204	: COLCHICUM TRIPHYLLUM	.....	(10+)	C
318.804	: COLCHICUM VARIEGATUM *	.....	(8)	D
339.700	: CROCUS ADANENSIS *	.....	(10)	D
340.350	: CROCUS ASUMANIAE *	.....	(10)	C
340.600	: CROCUS BAYTOPIORUM	.....	(10)	D
341.250	: CROCUS BIFLORUS subsp. ISAUERICUS	.....	(10)	B
341.352	: C. BIFLORUS subsp. MELANTHERUS *	.....	(10)	C
341.801	: CROCUS BORYI *	.....	(10)	C
341.880	: CROCUS CAMBESSEDESII *	.....	(10)	D
342.002	: CROCUS CANCELLATUS subsp.			
	MAZZIARICUS	.....	(10)	C
343.000	: CROCUS CASPIUS *	.....	(8)	E
344.610	: CROCUS FLAVUS (subsp. <i>flavus</i> ) * (n.d.)	.....	(15+)	B
344.090	: C. GARGARICUS (subsp. <i>gargaricus</i> )	.....	(15+)	D
345.200	: CROCUS GOULIMYI *	.....	(15+)	A
345.600	: CROCUS HADRIATICUS * (n.d.)	.....	(15+)	C
346.500	: CROCUS KOSANINII *	.....	(10)	D
346.710	: C. KOTSCHYANUS (ssp. <i>kotschyanus</i> ) *	.....	(15+)	A
346.900	: C. KOTSCH. subsp. CAPPADOCICUS	.....	(15+)	C
347.101	: C. KOTSCH. subsp. SUWOROWIANUS *	.....	(15)	C
347.800	: CROCUS MALYI *	.....	(10)	D
348.800	: CROCUS NIVEUS *	.....	(10+)	C
349.610	: CROCUS OREOCRETICUS * (n.d.)	.....	(10+)	C
351.010	: CROCUS ROBERTIANUS *	.....	(10)	D
352.400	: CROCUS SIEBERI (subsp. <i>sieberi</i> )	.....	(10)	D
352.552	: C. SIEBERI subsp. SUBLIMIS *	.....	(15+)	B
358.000	: CYCLAMEN AFRICANUM *	.....	(10+)	C
358.500	: CYCLAMEN BALEARICUM *	.....	(15+)	B
359.003	: CYCLAMEN CILICIUM *	.....	(15+)	B

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F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

363.003 : CYCLAMEN GRAECUM * . . . . . (15+) B	504.700 : FRITILLARIA WHITTALLII . . . . . (10+) E
363.007 : CYCLAMEN GRAECUM * . . . . . (15+) B	507.300 : GAGEA FIBROSA * . . . . . (20+) B
363.008 : CYCLAMEN GRAECUM . . . . . (15+) B	509.300 : GALANTHUS REGINAE-OLGAE * . . . . (10+) C
363.009 : CYCLAMEN GRAECUM . . . . . (15+) B	509.301 : GALANTHUS REGINAE-OLGAE . . . . (10+) C
363.010 : CYCLAMEN GRAECUM * . . . . . (15+) B	515.620 : GENTIANA ASCLEPIADEA * (n.d.) . . (50+) A
363.100 : C. GRAECUM f. ALBUM * . . . . . (10+) D	518.400 : GENTIANA GELIDA * . . . . . (20+) D
364.003 : CYCLAMEN HEDERIFOLIUM * . . . . (15+) A	519.500 : GENTIANA PARADOXA * . . . . . (30+) C
364.050 : CYCLAMEN HEDERIFOLIUM . . . . . (15+) B	521.920 : GENTIANA VERNA * (n.d.) . . . . . (30+) A
364.100 : C. HEDERIFOLIUM f. ALBUM * (n.d.) (20+) B	525.650 : GERANIUM GRACILE . . . . . (10+) B
364.510 : CYCLAMEN INTAMINATUM * . . . . (15+) B	525.750 : GERANIUM IBERICUM . . . . . (10+) B
364.520 : C. INTAMINATUM (plain leaves) * (n.d.) (20) B	526.310 : GERANIUM MACRORRHIZUM * . . . . (10+) A
365.000 : CYCLAMEN LIBANOTICUM * . . . . . (10) E	526.800 : GERANIUM PLATYPETALUM * . . . . (10+) B
365.010 : CYCLAMEN LIBANOTICUM * (n.d.) . (15+) C	526.920 : G. PRATENSE ALBIFLORUM * (n.d.) . (10+) A
366.500 : CYCLAMEN PERSICUM * . . . . . (15+) C	527.005 : GERANIUM PSILOSTEMON . . . . . (10+) B
367.010 : CYCLAMEN PSEUDIBERICUM * (n.d.) (15) C	528.201 : GERANIUM SANGUINEUM * . . . . . (10+) A
367.500 : CYCLAMEN PURPURASCENS * . . . . (10+) C	531.802 : GLADIOLUS ANATOLICUS * . . . . . (20+) B
368.003 : CYCLAMEN REPANDUM subsp. PELOPONNESIACUM * . . . . . (15+) D	531.902 : GLADIOLUS ANTAKIENSIS * . . . . . (20+) B
369.000 : CYCLAMEN ROHLFSIANUM * . . . . . (10+) C	532.602 : GLADIOLUS KOTSCHYANUS * . . . . . (20+) B
372.100 : CYNARA HYSTRIX * . . . . . (5) E	532.605 : GLADIOLUS KOTSCHYANUS * . . . . . (20+) B
384.050 : DAPHNE MEZEREUM - WHITE * (n.d.) . (8) B	534.310 : GLAUCIUM CORNICULATUM * (n.d.) (15+) A
385.401 : DAPHNE SERICEA . . . . . (10) C	551.000 : HANNONIA HESPERIDIUM . . . . . (15+) D
392.300 : DELPHINIUM SEMIBARBATUM * . . . . (20+) B	559.610 : HELICODICEROS MUSCIVORUS * (n.d.) (5) D
408.505 : DIGITALIS LANATA * . . . . . (50+) A	560.628 : HELLEBORUS CYCLOPHYLLUS . . . . . (10+) B
408.300 : DIGITALIS LAMARCKII * . . . . . (50+) B	560.801 : HELLEBORUS DUMETORUM . . . . . (10+) D
409.402 : DIGITALIS OBSCURA * . . . . . (50+) B	561.705 : H. MULTIFIDUS subsp. ISTRICUS . . (15+) D
412.190 : DIONYSIA INVOLUCRATA - WHITE * . (10) F	562.405 : HELLEBORUS ORIENTALIS . . . . . (15+) D
412.400 : DIONYSIA TEUCRIOIDES * . . . . . (15) E	563.000 : HELLEBORUS VESICARIUS . . . . . (8) E
444.080 : EREMURUS ROBUSTUS * (n.d.) . . . . (10) B	572.300 : HYACINTHOIDES REVERCHONII * . . (15+) C
444.101 : EREMURUS SPECTABILIS . . . . . (10) C	572.340 : H. VINCENTINA - WHITE * (n.d.) . . . (10) C
460.010 : ERYNGIUM BOURGATII * (n.d.) . . . (20+) A	572.600 : HYACINTHUS ORIENTALIS subsp. CHIONOPHILUS . . . . . (15+) C
477.002 : EUPHORBIA DENDROIDES . . . . . (10+) C	584.305 : IRIS AUCHERI . . . . . (8) D
477.504 : EUPHORBIA DENTICULATA . . . . . (10+) D	589.801 : IRIS ILLYRICA * . . . . . (10) B
485.060 : FERULA COMMUNIS * (n.d.) . . . . . (20+) A	590.200 : IRIS KERNERIANA * . . . . . (10+) C
490.001 : FRITILLARIA ACMOPETALA . . . . . (15+) B	590.910 : IRIS MAGNIFICA * (n.d.) . . . . . (10+) B
490.010 : FRITILLARIA ACMOPETALA * (n.d.) . (20+) A	591.350 : IRIS ORIENTALIS * . . . . . (15+) A
490.800 : FRITILLARIA ALFREDAE subsp. GLAUCOVIRIDIS * . . . . . (15+) C	592.505 : IRIS PERSICA . . . . . (6) E
492.101 : FRITILLARIA BITHYNICA * . . . . . (10+) C	596.802 : IRIS SCHACHTII * . . . . . (10) C
492.200 : FRITILLARIA BUCHARICA * . . . . . (15+) C	599.001 : IRIS STENOPHYLLA subsp. ALLISONII * (6) E
492.401 : FRITILLARIA CARICA . . . . . (10+) C	599.610 : IRIS SUBBIFLORA * (n.d.) . . . . . (10+) B
493.000 : FRITILLARIA CONICA * . . . . . (10+) D	600.100 : IRIS TROJANA * (n.d.) . . . . . (10+) B
493.503 : F. CRASSIFOLIA subsp. KURDICA * . (10+) C	600.414 : IRIS UNGUICULARIS . . . . . (10) C
494.000 : FRITILLARIA DAVISII * . . . . . (15+) C	618.100 : LATHYRUS AUREUS * (n.d.) . . . . . (10+) A
494.400 : FRITILLARIA DRENOVSKII * . . . . . (10+) E	619.010 : LATHYRUS LATIFOLIUS - WHITE * . . (10+) A
494.800 : FRITILLARIA EHRHARTII * . . . . . (15+) C	619.510 : LATHYRUS ROTUNDIFOLIUS * (n.d.) . (10+) A
495.700 : FRITILLARIA FORBESII * . . . . . (10+) D	619.710 : LATHYRUS TINGITANUS - PINK * . . (10+) A
496.003 : FRITILLARIA GRAECA (var. <i>graeca</i> ) * (15+) C	619.850 : LATHYRUS VERNUS * (n.d.) . . . . . (10+) A
496.501 : FRITILLARIA GUSSICHIAE * . . . . . (10+) D	619.860 : L. VERNUS 'ALBO-ROSEUS' * (n.d.) . . (10+) A
497.610 : FRITILLARIA INVOLUCRATA * (n.d.) (15+) C	620.210 : LAVANDULA DENTATA * (n.d.) . . . . . (20+) B
498.503 : FRITILLARIA LUSITANICA * . . . . . (15+) C	630.410 : LEUCOJUM NICAEENSE * (n.d.) . . . . . (15+) B
499.700 : F. MESSANENSIS subsp. GRACILIS * . (20+) B	630.450 : LEUCOJUM ROSEUM * . . . . . (15+) C
499.910 : F. MICHAILOVSKYI * (n.d.) . . . . . (15+) B	632.401 : LILIUM BULBIFERUM (var. bulbiferum) . (10) B
500.300 : FRITILLARIA MONTANA * . . . . . (15+) B	632.600 : LILIUM CANDIDUM * . . . . . (15+) C
500.303 : FRITILLARIA MONTANA * . . . . . (15+) B	633.202 : LILIUM CHALCEDONICUM * . . . . . (15+) C
501.410 : FRITILLARIA PALLIDIFLORA * (n.d.) (20+) B	633.910 : LILIUM KESSELRINGIANUM . . . . . (15+) E
501.801 : FRITILLARIA PINARDII . . . . . (10+) C	633.950 : LILIUM LEDEBOURII * . . . . . (15+) E
502.400 : FRITILLARIA RADDEANA * . . . . . (10+) C	634.040 : LILIUM MARTAGON * (n.d.) . . . . . (20+) A
502.601 : FRITILLARIA RHODOCANAKIS * . . . (10+) D	634.050 : LILIUM MARTAGON f. ALBUM * (n.d.) (20+) B
502.805 : FRITILLARIA SIBTHORPIANA * . . . . (10+) D	634.150 : LILIUM MONADELPHUM . . . . . (15+) D
503.602 : FRITILLARIA THESSALA * . . . . . (20+) B	634.810 : LILIUM PYRENAICUM * . . . . . (15+) B
503.603 : FRITILLARIA THESSALA * . . . . . (15+) B	635.210 : LILIUM SZOVITSIANUM . . . . . (15+) C
503.700 : F. THESSALA subsp. IONICA * . . . . (20+) C	635.220 : LILIUM SZOVITSIANUM * (n.d.) . . . . (15+) B
503.800 : FRITILLARIA TUBIFORMIS . . . . . (15+) C	641.510 : LINARIA GENISTIFOLIA * . . . . . (20+) B
	687.950 : MUSCARI ANATOLICUM . . . . . (20+) C

# European, W Asian, N African species : Seeds from Jim & Jenny Archibald

688.002 : MUSCARI ARMENIACUM * . . . . . (20+) A	749.602 : PANCRATIUM MARITIMUM . . . . . (5) B
688.101 : MUSCARI AUCHERI * . . . . . (20+) A	758.001 : PELARGONIUM ENDLICHERIANUM * . . (5) D
688.500 : MUSCARI BOURGAEI . . . . . (15+) C	758.100 : PELARGONIUM QUERCETORUM * . . . (5) E
688.600 : MUSCARI CAUCASICUM * . . . . . (15+) A	761.000 : PETROMARULA PINNATA . . . . . (30+) D
689.050 : MUSCARI aff. COMOSUM * . . . . . (15+) A	786.710 : PRIMULA FRONDOSA * (n.d.) . . . . . (30+) A
689.450 : MUSCARI GRANDIFOLIUM * . . . . . (20+) B	789.000 : PRIMULA NIVALIS . . . . . (30+) E
690.010 : MUSCARI MACROCARPUM * (n.d.) . . (10+) C	800.520 : PULSATILLA ALPINA ssp. APIIFOLIA . (15+) B
690.150 : MUSCARI MIRUM * . . . . . (10+) D	800.800 : P. HALLERI subsp. TAURICA . . . . . (15+) C
690.201 : MUSCARI MUSCARIMI . . . . . (10+) C	801.000 : PULSATILLA MONTANA * . . . . . (15+) C
690.700 : MUSCARI PSEUDOMUSCARI * . . . . . (15+) B	808.020 : RAMONDA MYCONI * (n.d.) . . . . . (100+) B
691.201 : MUSCARI TENUIFLORUM * . . . . . (15+) A	827.150 : ROMULEA BULBOCODIUM
693.701 : NARCISSUS ALPESTRIS * . . . . . (10+) E	Knightshayes form * (n.d.) . . (20+) A
695.400 : N. BULBOCODIUM var. GRAELLSII * (15+) C	827.151 : R. BULBOCODIUM - Late form * (n.d.) . (15+) A
696.200 : N. BULBOCODIUM ssp. NIVALIS * . . (15+) B	842.052 : SALVIA ALBIMACULATA * . . . . . (10) E
698.250 : N. BULBOCODIUM var. TENUIFOLIUS* (15) B	842.210 : SALVIA ARGENTEA * (n.d.) . . . . . (20+) A
699.750 : N. CANTABRICUS var. PETUNIOIDES* (10+) E	843.500 : SALVIA CANDIDISSIMA subsp.
699.950 : NARCISSUS CAVANILLESII . . . . . (15+) D	OCCIDENTALIS * . . (15+) B
700.310 : NARCISSUS CYCLAMINEUS * (n.d.) . . (15+) C	844.201 : SALVIA CYANESCENS * . . . . . (20+) B
701.002 : NARCISSUS FERNANDESII * . . . . . (10+) B	844.700 : SALVIA FRIGIDA * . . . . . (20+) B
701.050 : N. aff. FERNANDESII (ex JWB 86-03) * (10+) D	845.201 : SALVIA HYPARGEIA * . . . . . (20+) B
702.450 : NARCISSUS NEVADENSIS * . . . . . (10+) C	845.800 : SALVIA LAVANDULIFOLIA * . . . . . (20+) B
705.100 : N. ROMIEUXII subsp. ROMIEUXII	846.100 : SALVIA MICROSTEGIA * . . . . . (20+) B
var. MESATLANTICUS * (15+) B	846.410 : SALVIA PACHYSTACHYS * (n.d.) . . . . (10+) C
705.120 : N. ROMIEUXII (ex 'Julia Jane' selfed) * . . (10+) E	847.051 : SALVIA RECOGNITA * . . . . . (15+) C
705.200 : N. ROMIEUXII subsp. ROMIEUXII	847.400 : SALVIA SCLAREA * . . . . . (20+) B
var. RIFANUS (ex JWB 89-28) * (15+) B	872.602 : SCILLA AUTUMNALIS * . . . . . (20+) A
705.600 : N. RUPICOLA subsp. MARVIERI * . . . . . (8) C	873.650 : SCILLA HOHENACKERI * . . . . . (15+) B
705.701 : N. RUPICOLA subsp. WATIERI * . . . . . (8) C	873.800 : SCILLA HYACINTHOIDES * . . . . . (15+) B
706.303 : NARCISSUS SEROTINUS . . . . . (15+) C	874.400 : SCILLA LILIO-HYACINTHUS * . . . . . (15+) A
718.350 : ONONIS ROTUNDIFOLIA . . . . . (10+) B	874.800 : SCILLA LITARDIERI * . . . . . (15+) A
720.502 : ONOSMA ALBO-ROSEUM . . . . . (8) B	875.200 : SCILLA MESSENIACA * . . . . . (15+) B
738.100 : ORNITHOGALUM ARCUATUM * . . . . . (20+) B	876.501 : SCILLA PERSICA * . . . . . (15+) B
738.710 : ORNITHOGALUM NARBONENSE * . . . . . (20+) A	876.800 : SCILLA PERUVIANA * . . . . . (10+) A
745.800 : PAEONIA ANOMALA . . . . . (6) C	878.000 : SCILLA VERNA * . . . . . (15+) A
745.950 : P. BIEBERSTEINIANA ( <i>P. tenuifolia</i> grp.) (6) D	933.000 : STERNBERGIA CANDIDA . . . . . (10) E
746.100 : PAEONIA CAMBESSEDESII * . . . . . (8) C	950.003 : THALICTRUM ORIENTALE . . . . . (10+) E
746.150 : P. CAUCASICA ( <i>P. mascula</i> group) . . . . . (6) C	961.260 : TRACHELIUM JACQUINII subsp.
746.640 : P. LITHOPHILA ( <i>P. tenuifolia</i> group) . . . . . (6) D	RUMELIANUM * . . . . . (50+) B
746.680 : PAEONIA MACROPHYLLA	969.252 : TULIPA ARMENA var. LYCICA . . . . . (15+) B
( <i>P. wittmanniana</i> group) . . . . . (5) F	969.253 : TULIPA ARMENA var. LYCICA . . . . . (15+) B
747.100 : PAEONIA MLOKOSEWITSCHII . . . . . (5) F	969.601 : TULIPA CRETICA * . . . . . (15+) C
747.110 : PAEONIA MLOKOSEWITSCHII * (n.d.) . . (5) C	969.900 : TULIPA HETEROPHYLLA . . . . . (10) E
747.150 : P. OFFICINALIS - PINK . . . . . (6) C	971.410 : TULIPA SPRENGERI * (n.d.) . . . . . (20+) A
747.701 : P. PEREGRINA . . . . . (6) C	971.701 : TULIPA SYLVESTRIS . . . . . (15+) B
747.850 : P. STEVENIANA ( <i>P. wittmanniana</i> group) . . (5) F	980.200 : VERBASCUM ARCTURUS * . . . . . (50+) B
747.960 : P. TOMENTOSA ( <i>P. wittmanniana</i> group) . . (5) F	982.551 : VERBASCUM SPODIOTRICHUM * . . . (50+) C
747.980 : P. TRITERNATA ( <i>P. daurica</i> group) . . . . . (6) D	982.950 : VERBASCUM WIEDEMANNIANUM * (50+) B

## Lyon's branches bear fruit in Torquay

We visited our friend Bert Hopwood in Torquay (Devon, UK) a few weeks ago and found that his magnificent specimen of *Lyonothamnus* had set seed well after the warm summer. The Latinised Greek name, "Lyon's shrub", commemorates W.S. Lyon, an "early resident of Los Angeles". This monotypic genus in the Rosaceae grows only on the Channel Islands off the Californian coast. The type race grows on Santa Catalina Is. Bert's plant is *L. floribundus* subsp. *asplenifolius*, which grows on Santa Cruz, Santa Rosa & San Clemente. The islands are not the easiest places to visit now but Bert went to Santa Catalina in the days when he was involved in the motor-cycle industry. He regrets he did not know about *Lyonothamnus* then. Today he grows what must be one of the finest specimens outside California. It is a superb small tree, shapely and with a gnarled, furrowed, red-brown, peeling trunk. The large, leathery, glossy, evergreen leaves are pinnately compound. Flat, wide panicles of white flowers appear in summer. . . . . (20+ seeds) C

## Species from other areas

## Seeds from Jim & Jenny Archibald

In this present list, we include here a few odds & ends from E Asia & Australasia. This is mainly cultivated material (\*), little of it with field data, (n.d. = no data) but there are some outstanding things for the discerning, such as the important collections of *Paeonia emodi* & *Paraquilegia grandiflora* just made in the Garhwal Himalaya. We have omitted South African species altogether, as these will be featured in detail in our next list in summer 1996. You will also have to wait until then for some descriptions and field data.

ACONITUM HEMSLEYANUM	(15+)	B	LILIUM WALLICHIANUM *	(n.d.)	(15+)	C	
ANEMONE RIVULARIS *	(n.d.)	(20+)	A	PAEONIA LACTIFLORA (NE Russia)	(6)	C	
AQUILEGIA SP. (Garhwal Himalaya, N. India)	(15+)	C	PAEONIA EMODI (Garhwal Himalaya, N India)	(6)	E		
ARISAEMA CONSANGUINEUM *	(n.d.)	(10)	B	P. OBOVATA var. JAPONICA *	(6)	E	
A. CONSANGUINEUM (Cangshan, China) *	(10)	C	PARAQUILEGIA GRANDIFLORA (N India)	(15+)	E		
ARISAEMA COSTATUM (Nepal) *	(5)	D	PODOPHYLLUM HEXANDRUM *	(n.d.)	(6)	B	
ARISAEMA FLAVUM *	(n.d.)	(10)	B	PSEUDOPANAX FERROX (New Zealand)	(20+)	C	
ARISAEMA GRIFFITHII var. PRADHANI * (n.d.)	(10)	E	PRIMULA CONCHOLOBA *	(n.d.)	(50+)	C	
ARISAEMA ROBUSTUM *	(n.d.)	(8)	C	PRIMULA HELODOXA ( <i>P. prolifera</i> ) *	(n.d.)	(100+)	A
ARISAEMA SIKOKIANUM *	(n.d.)	(8)	E	PRIMULA JESOANA *	(n.d.)	(50+)	B
ARISAEMA TORTUOSUM *	(n.d.)	(10)	C	PRIMULA SECUNDIFLORA *	(n.d.)	(100+)	A
A. YAMATENSE var. SUGIMOTOI (Honshu, Japan)	(8)	E	RHEUM ALEXANDRAE KGB 767 (China)	(20+)	C		
ARISAEMA SP. ex CT 369 * (Sichuan, China)	(8)	E	RHODODENDRON ALBRECHTII *	(n.d.)	(20+)	B	
BELAMCANDA CHINENSIS *	(n.d.)	(10+)	A	RHODODENDRON AMBIGUUM *	(n.d.)	(20+)	B
CAMPANULA CASHMERIANA *	(n.d.)	(50+)	A	RHODODENDRON ARBOREUM *	(n.d.)	(20+)	B
CARDIOCRINUM GIGANTEUM *	(n.d.)	(20+)	B	RHODODENDRON AUGUSTINII *	(n.d.)	(20+)	B
C. GIGANTEUM var. YUNNANENSE *	(n.d.)	(20+)	B	RHODODENDRON AURICULATUM *	(n.d.)	(20+)	B
CLEMATIS ARISTATA (Tasmania)	(20+)	B	RHODODENDRON CILIATUM *	(n.d.)	(20+)	B	
CLEMATIS NAPAULENSIS *	(n.d.)	(20+)	B	RHODODENDRON CUNEATUM *	(n.d.)	(20+)	B
CODONOPSIS CONVULVACEA *	(n.d.)	(30+)	B	RHODODENDRON DAVIDSONIANUM *	(n.d.)	(20+)	B
DELPHINIUM TATSIENENSE *	(n.d.)	(20+)	B	RHODODENDRON FORTUNEI *	(n.d.)	(20+)	B
DIPLARRHENA LATIFOLIA *	(n.d.)	(20+)	B	RHODODENDRON GLAUCOPHYLLUM *	(n.d.)	(20+)	B
DIPLARRHENA MORAEA *	(n.d.)	(20+)	B	RHODODENDRON GRIERSONIANUM *	(n.d.)	(20+)	B
ERYTHRONIUM JAPONICUM (Honshu, Japan)	(10+)	D	RHODODENDRON GRIFFITHIANUM *	(n.d.)	(20+)	B	
GERANIUM SINENSE *	(n.d.)	(10+)	A	RHODODENDRON HIPPOPHAEOIDES *	(n.d.)	(20+)	B
G. WALLICHIANUM - pink (Garhwal, India) *	(10+)	B	RHODODENDRON KELETICUM *	(n.d.)	(20+)	B	
G. WALLICHIANUM 'BUXTONS VARIETY' *	(10+)	A	RHODODENDRON LEUCASPIS *	(n.d.)	(20+)	B	
IRIS CHRYSOGRAPHES - Black form *	(n.d.)	(20+)	A	RHODODENDRON MORII *	(n.d.)	(20+)	C
IRIS MILESII *	(n.d.)	(10+)	B	R. SCABRIFOLIUM var. SPICIFERUM *	(n.d.)	(20+)	B
IRIS SETOSA (Japan) *	(20+)	A	R. UNIFLORUM var. IMPERATOR *	(n.d.)	(20+)	C	
KIRENGESHOMA PALMATA *	(n.d.)	(15+)	B	RHODODENDRON YUNNANENSE *	(n.d.)	(20+)	B
LEYCESTERIA CROCOTHYRSOS *	(50+)	D	RODGERSIA PINNATA *	(n.d.)	(100+)	B	
LILIUM MACKLINIAE *	(20+)	C	ROSCOEIA CAUTLEIROIDES *	(n.d.)	(20+)	A	
LILIUM NANUM (Garhwal Himalaya, India)	(15+)	D	SELINUM TENUIFOLIUM *	(n.d.)	(15+)	B	
L. SPECIOSUM var. CLIVORUM (Shikoku, Jap) *	(15+)	D	SILENE DELAVAYI ex CLD 778 (Yunnan, China)	(20+)	B		

## A few garden hybrids & selections : Seeds from Jim & Jenny Archibald

While our main aim is to offer you seeds either from the wild plants themselves or from cultivated plants grown from wild seeds, we derive much pleasure in our own garden from cultivars which have been selected from the species or are of hybrid origin. Many are named clones and it is essential that vegetatively propagated stock is obtained from these but with two of our favourite genera, *Cyclamen* and *Helleborus*, sowing seed from selected parents is the best way to propagate them. Both of these are best sown before winter and we shall give them more attention in our summer 1996 list but here are a few now, mainly for southern hemisphere customers. The species will be found in the European & W Asian section. Those listed here are too far removed from wild plants to be included in this. Here is also an appropriate place to list seed from one or two other hybrids which should yield some worthwhile children.

- BERGENIA - FROM RED HYBRIDS** From some of the best modern crimson flowered hybrids : German ones like 'Abendglocken' & 'Admiral' as well as some of our own, like 'Bartok'. Good, tough foliage colours well in winter. .... (50+ seeds) . **B**
- BERGENIA - FROM WHITE HYBRIDS** From our compact white-flowered hybrids, bred from *B. stracheyi* 'Alba', such as 'Britten', 'Bach' & 'Beethoven'. A lot will come apple-blossom pinks. Bronze weather-resistant winter-leaves. .... (50+ seeds) . **B**
- CYCLAMEN COUM - MIXED FORMS** Winter-flowering pinks, reds & whites with plain & patterned foliage. .... (15+ seeds) . **A**
- CYCLAMEN COUM 'PEWTER LEAVES'** From pink, silver-leaved forms & white-flowered 'Maurice Dryden' ... (15+ seeds) . **D**
- CYCLAMEN HEDERIFOLIUM - MIXED LEAF-FORMS** An infinite variety of shapes & patterns. .... (20+ seeds) . **A**

**A** : \$2.00 ; £1.50 ; DM4,- ; FF13.-      **C** : \$4.00 ; £2.50 ; DM6,- ; FF21.-      **E** : \$7.00 ; £4.50 ; DM12,- ; FF40.-  
**B** : \$3.00 ; £2.00 ; DM5,- ; FF17.-      **D** : \$5.00 ; £3.50 ; DM9,- ; FF30.-      **F** : \$9.00 ; £6.00 ; DM15,- ; FF50.-



## A few garden hybrids & selections : Seeds from Jim & Jenny Archibald

- CYCLAMEN HEDERIFOLIUM 'APOLLO STRAIN'** Derived from the original 'Apollo' selected by E. A Bowles as the clone with the most outstanding foliage. Intricately silver-patterned leaves, often pink-flushed when young. . . . . (15+ seeds) . C
- C. HEDERIFOLIUM 'WHITE APOLLO'** White-flowered strain selected by David Hoskins. Similar leaves. . . . . (15+ seeds) . D
- C. HEDERIFOLIUM 'RUBY STRAIN'** At last a selection for the deepest flower colour. Phil Cornish has been working on really rich, glowing ruby-pinks. Always select only the best seedlings from these strains as parents. They will vary. . . . . (10 seeds) . D
- C. HEDERIFOLIUM 'SILVER CLOUD'** Phil Cornish selection with leaves suffused with a white mist. . . . . (10+ seeds) . C
- C. HEDERIFOLIUM 'SILVER LEAVES'** From Jim Almond. Distinct from the preceding. Arrow-head leaves. . . . (10+ seeds) . C
- ERYNGIUM X ZABELII** From 'Slieve Donard' & other clones of this *E. bourgatii* & *E. alpinum* hybrid. . . . . ((20+seeds) . A
- HELLEBORUS from 'COSMOS'** From an excellent vigorous parent with white flowers densely speckled. . . . . (15+ seeds) . C
- HELLEBORUS from 'ORION'** From a primrose yellow with dark nectaries & maroon basal blotch. Seldom produces seedlings like the parent but we have seen a photograph of one that is almost identical. A lottery but all will be beautiful. . . . . (15+ seeds) . C
- HELLEBORUS from 'BUCKSHAW HYBRIDS'** From dark maroon, cream, pink, white & speckled clones. . . . . (20+ seeds) . C
- PAEONIA SUFFRUTICOSA 'CHINESE HYBRIDS'** Cultivated seed from China collected from a wide range of named hybrid clones, singles & doubles, in purple, pink, white & green. If all seedlings look like 'Joseph Rock', don't complain. . . . (6 seeds) . C
- SEMIAQUILEGIA ECALCARATA 'FLORE PLENO'** Spurless, double maroon flowers on 30cm. stems. . . . . (20+ seeds) . A

### Thank you very much and a happy New Year to everyone

While our main aim is to offer you seeds collected by ourselves, a vast amount of help from our friends in Britain and abroad is always much in evidence in our lists. Collectors & growers are mentioned in the North American section but it is not possible to name sources in the subsequent ones. We are grateful to : John Andrews & Mike Broder, Stan Farwig & Vic Girard, Jim & Georgie Robinett (all California, USA), Jim Almond (Shropshire, UK), Dinah Batterham (Dorset, UK), John Blanchard (Dorset, UK), Galen Burrell (Washington, USA), Peter Chappell (Hants., UK), Paul Christian (Clwyd, UK), Phil Cornish (Glos., UK), Tony Dickerson (Worcs., UK), Kath Dryden (Herts., UK), Alan Edwards (Surrey, UK), Don Elick (Japan), Terry Hatch (NZ), Marcus Harvey (Tasmania), Bert Hopwood (Devon, UK), Dave Hoskins (Hants., UK),

Richard Hancock (Hereford, UK), Jim Jones (Massachusetts, USA), Melvyn Jope (Surrey, UK), Ruth Lord (NZ), Panayoti Kelaidis (Colorado, USA), Boyd Kline (Oregon, USA), Will McLewin (Cheshire, UK), Jimmy Persson & Henrik Zetterlund (Sweden), Ivan Rankin (NZ), Richard Riedy (Arizona, USA), Martyn Rix (Devon, UK), Christoph Ruby (Germany), Tom Norman (Dorset, UK), David Stephens (Surrey, UK), Norman Stevens (Cambridge, UK), Geoff Taylor (Dyfed, UK), Mike Tucker (Somerset, UK), Bob & Rannveig Wallis (Dyfed, UK), Peter & Penny Watt (Hants., UK), John Weagle (Nova Scotia, Canada), Michael Wickenden (Kirkcudbright, UK). Our apologies to anyone omitted. Sincere thanks to all and to all our customers for continuing to support our work. Best wishes to all of you for 1996.

### Terry ensures outstanding performance of the Brazilian blue's in Pukekohe

One good and loyal customer said to us recently, "Your seed's expensive but it does come up." We don't think our seed is expensive actually but then we have to finance our collecting and the cultivation of the seed-parents, as well as trying to scrape a living from selling the seed. If you think it is too expensive then the obvious solution is not to buy it and to go to another supplier. We usually reckon that, in most cases, a packet of seeds should be about the same price as a single plant of the species concerned. What should we charge for seed from a plant currently listed at £95 for a bulb, which "may not flower for 14 years". 'Plants of Distinction' (Suffolk, UK) are apparently currently offering *Worsleya rayneri* (under the invalid name *W. procerata*) at this price. Terry Hatch, of Pukekohe, New Zealand, has just sent us a few seeds (which may well flower before 14 years elapse). There are only 60 and we almost did not offer them to you, thinking they were too few to list. However, if we put 3 in each packet and charge code F for it, perhaps 'Plants of Distinction' might buy them all

and turn their £120 investment into £5700 (in less than 14 years). This is the mythical "Blue Amaryllis", a monotypic genus, which has been included in both *Amaryllis* and *Hippeastrum*. It only grows in crevices on sheer, granite cliffs, 1000m. up in the Organ Mts. of Brazil. The strongly falcate leaves emerge from the extraordinarily long-necked bulbs, over 1m. high at maturity (yes, the bulbs), curving down to the ground. The flowering stem appears from the centre of these (after 14 years, maybe) and carries up to eight, huge, pale blue amaryllis-flowers, edged with deeper blue. Grown successfully in parts of the USA, Australia & New Zealand, obviously it needs to be more or less frost-free. Growing it hard with plenty air and sunlight is the recorded recipe for success. Underpotting in fibrous, orchid-type compost and liquid-feeding are recommended. We hope the seed comes up and flowers within 14 years. *Worsleya rayneri* . . . . (3 seeds) . F

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B : \$3.00 ; £2.00 ; DM5,- ; FF17.-    D : \$5.00 ; £3.50 ; DM9,- ; FF30.-    F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

## WALK RIGHT IN TO THE NORTH AMERICAN BACKYARD

While we have no intention of suggesting you can save the world in your backyard, a great number of rare plant species are being preserved and propagated internationally by a few thousand specialist gardeners, many of them in North America. Maintaining these in cultivation is not at all the same as allowing them to survive naturally along with their entire habitat but often these species have already lost much of their habitat or they were extremely local plants in the first place. In

recent years horticulture has sometimes been denigrated. A legislative growth-industry fuelled by bureaucrats and self-serving 'charities' attempts to obstruct the free movement of cultivated material internationally between gardeners. We seek the widest possible dissemination of such material and reassure gardeners that their knowledge, traditional skills and understanding of plant-life will be of greater importance in the future than cosmetic legislation.

### With love from Boyd's purple heart

*Trillium rivale* is not in any way 'endangered' and we have no doubt that every plant of this sold in Europe has been raised from cultivated seed. Nevertheless, the entire genus *Trillium* may be next on the CITES hit-list. While this remains relatively undisturbed in its home, it is certainly local on the serpentines of the Klamath Ranges along the California-Oregon line. Few

people know the plants there better than Boyd Kline, retired joint-founder of the Siskiyou Rare Plant Nursery. For decades Boyd searched for outstanding clones of this little *Trillium* and selected them from seed. His 'Purple Heart' is the most famous but there are fine pinks as well. Seed from Boyd's Medford, Oregon, backyard is listed under 1.920.520 (code E).

### Wayne's baby is alive and well with Jim and Georgie

Extinction caused by taxonomists is increasingly common. When a new account of a genus is written, taxa are simply 'disappeared' by an author who inclines towards 'lumping'. The more specimens looked at and the more wild plants studied, the stronger the inclination may be to 'lump'. This is not so much a reflection of fashion in current taxonomic thinking but a manifestation of the flawed, outdated concepts on which the subject is based. Whatever its pretensions, the function of taxonomy is to provide an efficient labelling system for use in other fields. This it often fails to do. Those involved with conservation might be dismayed when they find their 'rare and endangered species' is extinguished, subsumed into a common, widespread one. Gardeners simply want names to write on labels. From what we have been told, *Fritillaria roderickii* is both rare and endangered but as far as "Jepson", the standard work on the Californian flora, is concerned, it has already vanished, a mere synonym of *F. biflora*. It grows a very long way from any (other) *F. biflora*, up on the NW Pacific coast. If we recollect correctly, Wayne Roderick told us he knew of it in two sites : one in a cemetery and another at the edge of a cliff

which was falling into the sea. It is a dwarf plant, which can be distinguished by its obtuse, rather than flaring, perianth segments in brown, tipped with white. It may have as much to do with *F. liliacea* as with present-day, southern populations of *F. biflora*. Those of you who keep up-to-date with name-changes, will be thinking that what we are writing about is available as *F. biflora* 'Martha Roderick'. Yes and no. 'Martha Roderick' is certainly a clone of *F. roderickii* but she is by no means a typical one. The problem with clones is that they can lose their vigour or succumb to disease. The only way to maintain a plant in the long-term is to keep raising it from seed. This is precisely what Jim & Georgie Robinett have been doing in their backyard at Sebastopol, California, with stock from an original wild collection by Wayne Roderick. Grow 'Martha Roderick' by all means but don't imagine you have typical *F. roderickii* or typical *F. biflora*. Roger Macfarlane is convinced the correct name for *F. roderickii* is *F. grayana* (on priority grounds) but that is another matter. Even if everyone agrees this is the case, at least we still have a name for this race. The Robinett's seed is under ref. 1.372.050 (code C).

### Fashionable Japanese settle on the East Coast

Gardening in the NE Atlantic states of the USA is a challenge. Cold winters are less of a problem than the high humidity of the hot summers. However, many *Epimediums* and *Arisaemas*, from the winter-cold woodlands of Japan, grow to perfection, among them the fashionable *Arisaema sikokianum*, whose large dark purple and white spathes surround the striking white spadix with its globose apex. There is a detailed account of this in the

superlative "Japonica Magnifica" by Raymond Booth & Don Elick, who writes "...the prey of the commercial collector...*A. sikokianum* in its chosen valley has become much reduced in numbers...the tubers cannot be divided...seed is the only way." Find seed from Jim Jones' backyard in Lexington, Massachusetts, in 'Species from other areas' (code E) and establish fertile stock. It can't be done with one collected tuber.

### Eastern sage finds a devotee in New Mexico

Richard Riedy gardens on soul-destroying adobe-clay in Los Lunas, S of Albuquerque, where they had less than half their normal rain in 1995. Severely cold winters and hot summers create further problems. Some of the Turkish steppe species we collected in the 1980's have adapted well. We have been able to list the NE Turkish endemic, violet-purple *Verbascum wiedemannianum* (ref. 980.850) from Richard's backyard seed. Even more local, only known from around the town of Ermenek, SE of Konya, is *Salvia albimaculata*, (ref. 842.052)

which we made a special effort to collect in 1988. This is one of the shrubby-based group with grey, pinnate foliage. Stems of 20-30cm. carry large, striking flowers in royal-blue with tidy white blotches on the lower lips. "Very handsome" comments Ian Hedge in his account of the genus in the 'Flora of Turkey'. Few people germinated the original collection and Richard warns that he has not been successful with garden seed. He propagates it by pegging down the stems. The seed looks good. If you want to try it, it is listed under 842.052 (code E).