

# The Tien Shan

## *The Mountains of Heaven*

### A Greentours Tour Report

9<sup>th</sup> – 25<sup>th</sup> June 2005

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Trip Report written by Paul Cardy

#### **Day 1      Thursday 9<sup>th</sup> June      UK to Almaty**

By the time we had gone through the arrival formalities, although much easier now in the new Almaty Airport, and met Vladimir, it was rather late as we boarded the bus and started the journey up to Cimbulak. Once above Medeo dam we saw a Fox. We arrived in the early hours, there finally being a consensus as to what time it actually was. Vlad and I carried the luggage to the rooms, and we all settled in for a brief night's sleep.

#### **Day 2      Friday 10th June      Tjuk-su Gate**

A 9.30 breakfast allowed us to sleep a little, and we awoke to clear blue skies and snow-capped mountains. Butterflies around the hotel were distinctly European with Small Tortoiseshells, Brimstones, Orange-tips, Large Whites and Wood Whites. Among the flowers noted were *Geranium collinum*, *Geranium albiflorum* and *Pedicularis amoena*. Grey-headed Goldfinches were singing and Common Mynas were much in evidence. The surrounding slopes had many fine stands of Tien Shan Spruce.

Breakfast was a welcome selection of bread, cheese, salad, rice pudding (!), tea, coffee and juice. Anna arrived and was introduced to the group. Three vehicles arrived to drive us some way up the valley. The paved road soon became a rough track but we managed to get several kilometres above the hotel. From the vehicle many lovely plants were seen, including *Primula algida*, *Allium atosanguineum* and *Cortusa broteroi*, and off course we saw all these once we had started our walk.

We set off on foot towards the Tjuk-su Pass, moving at different speeds depending on our interests. There were many fine flowers to be seen and those with Anna made very slow progress as everything was being seen for the first time. Some fine large *Primula turkestanica* bloomed beside wet flushes, together with *Saxifraga hirculus*, *Erigeron aurantiacus* and *Trollius dshungaricus*. *Violas* were well represented, with *Viola altaica* being the commonest, in both purple and yellow forms, as well as *Viola biflora*, *Viola acutifolia*, and *Viola rupestris*. Interesting *Ranunculaceae* are a feature of the area, and along with the *Trollius* already mentioned were *Callianthemum alatavicum*, *Parapyrum anemonoides*, *Anemone protracta*, *Ranunculus alberti*, and the stunning *Paraquilegia anemonoides* which was seen by Vladimir

and Chris nearer to the pass. The unusual looking *Tulipa heterophylla* was very common, and higher up *Tulipa dasystemon* was seen.

First of all a rather drab female Blue-capped Redstart was seen, followed by an attractive male. John spotted a Lammergeier flying around a cliff face and settling on a rocky ledge, and we had scope views of this impressive bird. Those further up with Vladimir also saw Lammergeier. Greenish Warblers were much in evidence, and Choughs and Tree Pipit were also seen. Butterflies were few and far between today.

Grey Marmots were active at the top of a scree slope. Among the many other plants seen this morning were *Gagea neo-popovii*, *Chorispora bungeana*, *Rhodiola linearifolia*, and *Androsace akbaitalensis*.

Sadly it started to rain, but at least we were able to eat our lunch in a dry spell. After the picnic the rain became heavy and we opted to drive lower down, towards the dam, in the hope of drier weather. This worked for a short while but the rain soon caught us up. We did however spend some time exploring a flower rich damp meadow. Here were swathes of *Dactylorhiza umbrosa*, and both *Pedicularis amoena* and *Pedicularis dolichorrhiza*. A fine selection of sedges kept Anna busy with the flora and the local species of Jacob's Ladder was in fine flower, as was the shrubby *Lonicera hispidula*. Labiates were a feature here with both *Dracocephalum nutans* and *Dracocephalum integrifolia*; *Phlomis oreophila* and *Eremostachys speciosa* in flower; and marjoram and *Mentha asiatica* in leaf. *Ligularia macrophylla* and *Rheum wittroeckii* were in flower. Higher up Anna and Chris saw *Asplenium septentrionale*, the local endemic *Oxytropis almatensis*, and *Erysimum diffusum*.

The rain continued so we returned to the hotel, with a chance for some free time before dinner. On the way back to the hotel *Atragene sibirica* and *Orobanchaceae* were seen on the roadsides.

### **Day 3          Saturday 11th June          Cimbulak ski-lift to Talgar Pass**

Another reasonable start to the day soon deteriorated into wet weather. Around the hotel we watched a pair of Common Rosefinches and several Grey-headed Greenfinches and we all admired a fine stand of *Dracocephalum grandiflorum*. The Caraway relative *Vicatia coniiifolia* was found. A few of the group saw a Grey Marmot very close to the hotel.

The day was spent taking the chair lift from the hotel, going up in three stages to the pass at over 3,000 feet. We were very pleased to learn that all three sections were working and this saved us much hard work walking up so we could concentrate on the plants. As we travelled up we saw a good selection of plants in the meadows below us, notably the lovely *Trollius lilacinus*. Corncrakes called continuously, and Greenish Warbler and Tree Pipits were seen.

We stopped at the second station, and explored an area of recent snowmelt below an extensive snow covered slope. *Tulipa heterophylla* was numerous, and among it grew several *Tulipa dasystemon* with upright bright yellow flowers. *Eritrichium villosum* was rather common, and *Ranunculus rubrocalyx* was seen. Both *Gagea emarginata* and *Gagea filiformis*, the latter with small flowers, were here. We were able to photograph some fine *Trollius lilacinus*, with its very distinctive pale bluish flowers.

Anna found a dead Apollo butterfly, trapped inside a discarded plastic cup that had acted as a pitfall trap. This was the relatively small *Parnassius actius minutus*, a *Rhodiola* and *Sedum* feeding species that flies here later in the year. Vlad and I both noticed movement at the same instant and had soon located a Red Pica that we watched running over the rocks. Himalayan Snowcock was heard but remained unseen. *Saxifraga sibirica* and *Papaver tianschanica* were both in bud on a rock whilst *Allium atosanguineum* and *Primula algida* were both common. There were a few fine Spring Gentians, here known as *Gentiana uniflora*.

Despite the poor weather we braved the third stage of the chair lift, the slope below us more or less still covered with snow. At the top we explored a path, but the poor weather and extensive snow produced nothing new. The hardy members of the group set out with Vladimir and Anna to a south facing slope where they found *Pulsatilla campanella* in bud, the odd cushion forming *Thylacospermum caespitosum*, *Sibbaldia tetrandra*, and *Oxytropis chionobia*, among others.

Meanwhile the rest of us made a surprise discovery. The tiny building at the top of the chair lift, which on the outside appeared to be derelict, had on the inside an amazingly warm and cosy little room where tea, coffee, and a selection of cakes and sweets were available. Most of us squeezed into this little refuge, and as each member of the party arrived at the doorway we enjoyed the looks of surprise on their faces. The rain got the better of us and we had to retreat all the way down to the hotel, arriving there to eat our lunch in the dry. We were pleased with all the beautiful plants we'd seen, but sadly the poor weather meant few birds, although on the descent I had seen a Black-throated Accentor. We used the afternoon to go through the already impressive plant list, and catch up on what we had seen.

#### **Day 4            Sunday 12th June            Cimbulak, Almaty, and train to Tukulbas**

The day began with heavy rain that lasted the whole of the morning. We really had been very unlucky with the weather at Cimbulak this year. However undeterred most of us set off to walk down the road towards the Medeo dam. Before long we were admiring meadows with *Pedicularis amoena*, *Dracocephalum nutans*, and *Orobanchis luteus*, with *Atragene sibirica* twining through the trees. A short detour from the road produced some ten spikes of the Coralroot Orchid, *Corallorhiza trigyna*, growing under spruce, and Anna spotted *Goodyera repens* here too, although this was not in flower. Nearby was the lovely *Aquilegia atrovinosa*. Common Rosefinches were much in evidence, and the more prosaic Great Tits, Coal Tits and Mistle Thrushes were seen. John and I saw a Brown Dipper in the rushing stream. The vehicles met us and we drove a short way down to the dam. The southern side of this was covered in the yellow flowered valerian *Patrinia intermedia*. Grey Wagtail was here and more unusually a man dressed in a bear suit.

The beautiful *Erysimum croceum* was found in flower and a side gully produced *Myosotis sparsiflora* and *Papaver croceum*. The attractive longhorn beetle *Agapanthia villosiviridescens* was here associated with umbellifers. Anna and Chris had explored further up the side valley and were rewarded with one of the best plants of the trip, *Paeonia intermedia*, in fine flower. Our driver made himself very popular by producing tea for the rest of us as we waited. On the drive back up a Red Squirrel was seen.

Lunch at the hotel was an excellent combination of salad, chicken noodle soup, and kebabs, which were delicious. It was still raining heavily and we loaded up and headed down to Almaty. A short stop on the way was prompted by some fine *Eremurus robustus*, growing with *Ligularia*

*macrophylla*. Green-veined White was the first of only two butterflies of the day, and here too were Burnet Companion and Small Magpie moths.

Almaty was pleasantly cool today. First stop was to collect our passports and then we visited the wooden cathedral in a park in the centre of town. Here we saw two more Red Squirrels and Ron tried patiently to photograph them. A rather long wait at the train station allowed us to watch the many interesting characters coming and going. When the train did arrive we boarded, with the dubious help of several porters, and took a while arranging and locating all our luggage that had been distributed among our compartments.

We settled down and enjoyed the journey across the steppe, spotting birds in the remaining evening light. Lesser Grey Shrikes were rather common, and Rollers were numerous. Corvids featured heavily, and a few Bee-eaters were seen. We ate our packed dinners, washed down with vodka or beer, and most had a good night's sleep.

## **Day 5            Monday 13<sup>th</sup> June            Dzhabagly and the Koksai Gorge**

We awoke early on the train to the scenery of the western Tien Shan, and saw Rollers and Bee-eaters on the wires. At Tukulbas station we managed to get ourselves and our luggage off the train and were met by Yevgeny and the bus, and taken to Dzhabagly village. We settled into our rooms and ate a welcome breakfast. There was a film crew here today.

After breakfast we set off in the creaky old bus. We were blessed with fine weather. Our destination today was a mountain valley in the far east of the Aksu-Dzhabagly National Park. We stopped first to look at Ters Lake. Eastern Pale Clouded Yellows, Eastern Bath Whites and Central Asian Marbled Whites flew in the sunshine. Among the dragonflies were species of *Lestes* and *Sympetrum*. Gull-billed Terns flew gracefully over the water, Rose-coloured Starlings were numerous, and Lapwing was seen. *Glycyrrhiza aspera* was in flower, and Amphibious Bistort turned areas of the lake pink. The attractive *Butomus umbellatus* was in flower, and *Scirpus palustris* was seen. Oriental Meadow Brown was noted and *Chazara enervata* was common. Among the many other plants were *Potentilla supina*, *Lycopus exaltatus* *Convolvulus lineatus* and *Turgenia latifolia*. A red Oil Beetle was an interesting find.

Further along we had a second stop overlooking the lake. Here we saw the hoped for Demoiselle Crane, four on the far side of the lake. Whiskered Tern and Ruddy Shelduck were here too. Anna continued to find new plants. *Dianthus tetralepis*, *Phlomis salicifolia*, *Linaria popovii*, *Scutellaria androsovii*, *Aster canescens*, *Allium barsczewskii* and *Haplophyllum perforatum* were all here. *Hulthenia persica*, the national flower of Kazakhstan, was in bloom and *Astragalus krausianus* was a west Tien Shan endemic. An Ascelaphid was on the wing.

All along the roadside was the ubiquitous *Sophora alopecuroides* a tall dense-headed cream-flowered legume. By now we had crossed into Kirgizstan (no border controls out here) and the magnificent sight of Manas the highest peak in the area rose up in front of us, a towering 4480m. Below it flowed the Koksai River that had also cut an eponymous gorge. We spent some time exploring this spectacular defile, a product of eroded conglomerate rocks, with towers and fluted cliff walls. On the grassland topping the cliffs were a sea of blue *Gentiana olivieri* and from our viewpoint we also found several *Iris songarica*. Among the many other plants were *Vicia kokanica*, *Astragalus mucidus*, *Scaligera alloides* and *Euphrasia tatarica*. Black-veined

White, Swallowtail and Spotted Fritillary were among the butterflies and the blue *Polyommatus icadius* was here too.

Some of the group were fortunate enough to see three Great Bustards flying along the river bed!

Time was getting on and we stopped for lunch somewhat short of our destination. A good find here was the clouded yellow *Colias romanovii*, and Cardinals nectared on the thistles. Skylark was singing, and *Ixiolirion tataricum* was in flower. Two *Parnassius apollonius* were on the wing.

There were fields of *Eremurus fuscus* as we continued up the Kirgizstan side of the valley where a stream flowed under many semi-defoliated willows (caterpillars had been hard at work) and scattered beneath were *Cortusa turkestanica* and *Dactylorhiza umbrosa*. *Eremurus regelii* and *Eremurus cristatus* were also seen today. Mazarine Blue, Chapman's Blue, and *Glaucopsyche laetifica* were mud puddling. *Polygonatum roseum* was a good find. Several Alpine Lidless Skinks scuttled over the rocks. A male Montagu's Harrier was seen well.

We paused to photograph a blue form of *Iris sogdiana* and the fields of *Eremurus fuscus* and here saw two Little Bustards, so some of the group saw both this and Great Bustard in the same day! We arrived back at Yevgeny's at 6.30 and enjoyed the fine evening and welcome dinner.

## **Day 6          Tuesday 14<sup>th</sup> June          The Karatau**

This morning we had the first haul of moths in Ron's trap, and the numbers were very respectable with some attractive species. Many were familiar (to some of us!) European species, whilst others were Central Asian specialities. Mullein Wave, White Satin, Poplar Grey, Lesser Treble-bar, Lunar Yellow Underwing, Purple Cloud, Ruddy Carpet, Four-spotted, Broom Moth and Uncertain were among the species recorded today.

Our first stop today was at a small pond near Dzhabagly where we saw a Kingfisher, Golden Oriole and Lesser Grey Shrike. There were several dragonflies including *Libellula quadrimaculata*.

Once on the main road we again turned east and climbed gently into the ancient Precambrian rocks of the Karatau Mountains reaching the Kujuk Pass where massed spires of the elegant white *Eremurus tianshanicus* spread over the slopes and bushes of *Acanthophyllum pungens* were smothered in pink flowers that proved a magnet for hundreds of big *Chazara enervata*, Central Asian Marbled White and Spotted Fritillary butterflies. There were various onions on the dry slopes including the bluish *Allium caesium* and the fine pinkish-red *Allium trachyscordum* along with Persian Rose *Hulthemia persica*, the unusual purple *Dodartia orientalis*, Lady's Bedstraw *Galium verum* and a Skullcap *Scutellaria kurssanovii*. The poppy *Glaucium fimbrilligerum* was in flower, and we found *Meristotrophis triphylla*. The Karatau endemics *Allochrusa gypsophiloides* and *Cousinia karatavica* were both here. Three species of Dodder covered much of the roadside vegetation.

Down the road a small stream had *Orthetrum brunneum*, Banded Demoiselle, Silver-spotted Skipper, Yellow-legged Tortoiseshell, Essex Skipper and Small Skipper around it. The most notable butterfly however was *Phoenicurusia margellanica*, a copper relative. We found a leech in the water. A road crew here were bemused by our behaviour.

We continued on to the Karasai Gorge where by now it was very hot. The Rose-coloured Starlings had failed to show up this year (they are dependent on locust populations) but we ventured into the gorge in search of other birds anyway. There were many odonata with Black-tailed Skimmers, darters and Banded Agrions flitting about the stream. Vladimir led us to an occupied Short-toed Eagle nest, the adult circling overhead. We had fine views of an Egyptian Vulture on a nest. Eastern Rock Nuthatches were vociferous and active and Vlad showed us their long-time nest, a rock hard construction of mud, stones and anything else they could plaster together. Pied Wheatears were much in evidence, and again nests were found. Plants here included *Lagochilus platycalyx*, *Delphinium barbatum* and *Cousinia umbrosa*. Mallow Skipper was on the wing.

Lunch was taken in the welcome shade of the Berkara Valley's ash trees. This rather incongruous area of riverine woodland is one of several remnant areas from Kazakstan's past when woodland would have been much more widespread. Nonetheless these areas still harbour an interesting array of species and even around the picnic site were several Nightingales, Upcher's Warblers and three Golden Orioles. Some opted to stay in the shade while the rest of us walked along the valley following the stream from where the odd Marsh Frog leapt out. We saw several *Pseudothecla lunulata* hairstreaks, and Holly Blue. Endemic species of *Malus*, *Pyrus* and *Acer* all grew here.

Then in a shady grove we found a nest of Paradise Flycatcher, and two birds were seen briefly but well several times. These long-tailed, chestnut coloured birds are rather special and quite the last thing you would expect to find in the vast steppes of Kazakstan. Also here were many mud-puddling Essex Skippers. We took various routes back along the stream to the bus.

One last stop was made at a nearby steppe lake where there were several Red-crested Pochard and Ruddy Shelduck. Marsh Harrier hunted over the reeds, and a few Collared Pratincoles, and Redshank were seen. Species of rushes and sedges were numerous. *Delphinium semibarbatum*, *Gratiola officinalis* and *Linum corymbulosum* were identified. An interesting find was the larva of Small Elephant Hawk, the adult of which we would later record in the trap. There were fine views across the steppe to the rising walls of the snow-capped Tien Shan.

On the return journey we made a brief stop to photograph a bizarre bus stop decorated with bits of broken tea pots and cups! After dinner we had a long plant checklist session in my top floor room, which soon filled up with plant specimens.

## **Day 7      Wednesday 15th June      Journey to Mountain House**

New moths in the trap this morning included Lace Border, Pale Shoulder, The Delicate, Toadflax Brocade, and perhaps most impressively a Dewick's Plusia.

After breakfast we assembled our luggage and set off towards the Aksu-Dzhabagly reserve in the bus. At the entrance to the reserve we met our horses and horsemen, and before long we were sized up and presented with a suitable mount. The day was superb weather wise and the initial ride was gentle so we could get used to being on horseback. We started to climb a little, and crossed a stream, and by the first stop, after about forty minutes, we already had a few aching limbs.

Lower down were many mud puddling butterflies, that we would be able to see on our walk down in a few days time. Yellow-legged Tortoiseshell was not uncommon today and there were several Swallowtails, many Black-veined Whites, and many Mazarine Blues. Nightingales sang, and Red-headed Buntings and Oriental Turtle Doves were seen. Here and there were bear droppings on the track.

The meadows were full of flowers. Among the labiates were *Betonica foliosa*, *Nepeta pannonica*, *Dracocephalum integrifolium*, and *Leonurus turkestanicus*. Several species of rose were present, perhaps the most impressive being the large yellow flowered *Rosa kokanica*. The spicate *Veronica spuria* was common in certain areas, and various species of *Allium* were prominent. At our first rest stop the lovely grass *Stipa kirghisorum* was a feature, and John and I decorated our hats with it. New species for the plant list here included *Asyneuma arguta*, *Potentilla feddtschenkoana*, *Bupleurum tianshanicum*, and *Tulipa greigii* in seed. The next rest stop was a long one at the half way house. The plant speciality of this site, the beautiful *Morina kokanica*, was in fine flower today. Here too were *Campanula alberti*, *Polygonum severzovii*, and *Iris sogdiana*. White-capped Bunting was calling and I located it atop a juniper bush. Rufous-naped Tit was seen briefly and Vladimir saw a Yellow-breasted Azure Tit. Clouded Apollos were rather numerous here, and there were several of the attractive *Coenonympha nolckeni*. Niobe Fritillary was seen, and Gill found the moth *Syntomis phegea*. Ron and I walked down a steepish slope to the river below where a cliff face supported many mud puddling butterflies, but sadly the fast flowing stream this year meant we couldn't quite reach them. Through binoculars we could see a variety of blues, most notably Ripart's Anomalous Blue. There were many *Metaporina leucodice* in the meadows and *Cortusa turkestanica* and *Dactylorhiza umbrosa* were in bloom.

After a leisurely lunch and short siesta around the mountain house we were back in the saddle for the third quarter of our journey. This was uneventful, but there were many new plants, perhaps most notably *Linum olgae*. We crossed a wide open meadow where Quails were calling, and *Hypericum elongatum* turned large areas yellow. The last rest stop was wonderful for plants as a very late low lying snow patch supported some fine flowers. No fewer than three species of tulip were here, the stunning red *Tulipa greigii*, and the yellow *Tulipa turkestanica* and *Tulipa kaufmanniana*. Anna found four species of *Gagea*. The highlight however was a beautiful little iris that should have finished flowering in April! This was *Iridodictyum kolpakowskianum*.

Several of us opted to walk the last section of the journey, whilst others continued on horseback. Before long we had arrived at the mountain house with its impressive setting, with snow patches in several of the valleys above. We settled in and had a welcome cup of tea, or beer. The evening was spent relaxing, and four ibex were spotted high up on the juniper covered hillside. Dinner was filling and enjoyable. At dusk Nightjar was heard and Long-eared Owl was glimpsed.

## **Day 8            Thursday 16th June            Ulkun Kaindi Valley**

Another superb day weather wise saw us walking up the Ulkun Kaindi valley from the mountain house, to explore the several snow patches and rocky outcrops. Near the house we admired a large *Lonicera nummularifolia* that was in good flower. Both Whitethroat and Hume's Lesser Whitethroat were active in the bushes. Above the ridge a Lammergeier and a Golden Eagle soared.

The meadows lower down had a wealth of flowers including *Delphinium confusum*, *Gypsophila cephalotes*, *Linum altaicum*, *Polygonum coriarium*, *Gentiana turkestanorum*, *Rhinanthus songoricus* and *Eremurus regelii*. Before long we had reached the first snow patch, where many *Tulipa kaufmanniana* grew with a few *Tulipa dasystemonoides*. The yellow *Colchicum luteum* was in fine flower, and *Corydalis ledebouriana* was here too. Yellow-legged Tortoiseshells and Queen of Spain Fritillaries flew past. Two Blue Whistling Thrushes were seen. A little higher up we found *Tulipa greigii* in fine flower and a side valley was explored by Anna, Chris, Anne and Jean for the rest of the morning.

A Tien Shan Cherry in fine flower attracted a selection of butterflies including Peacock, Brown Argus and Chazara enervata. Large Wall Brown was here too. We pressed on and found fine examples of *Trollius altaicus* and *Anemone protracta*. A Sulphur-bellied Warbler searched a rock face for insects. The highest point for most of us was a rocky outcrop that supported the fine *Primula minkwitziae* which was in fine flower today. Lunch was brought up by three horses and horsemen, and delivered to Anna's group first before being brought up to the rest of us. The horses coped remarkably well on the snow. Chris and Anna opted to walk further up in search of *Paraquilegia anemonoides* and *Stephanocaryum olgae*.

A Haly's Pit Viper was found and we all admired this beautiful but dangerous little snake. Burning Bush was in fine flower at the lunch spot. We found a small lump of bear fur, and later on bear prints across the snow. Nearer to the house some of us saw a Red Marmot, and Brian and Gill flushed a Nightjar.

## **Day 9            Friday 17th June            Ulkun Kaindi Pass**

As it seemed the night would be cool at this altitude we were amazed by the success of the moth trap overnight. We awoke to find the white walls of the mountain house covered in moths and the trap itself was full. We decided to leave the sorting of the contents until the evening when we returned from the day's excursion. John and Anne had had the dubious pleasure of a nocturnal visit from the Forest Dormouse, which although very cute made a nest in their suitcase and ate Anne's shirt.

Another beautiful day saw us back in the saddle and making the steep climb up to the Ulkun Kaindi Pass. As always the horses coped marvellously with this demanding route. The views of the surrounding valleys were very impressive and we watched as the mountain house became ever smaller below us. *Aquilegia atrovinosa* and *Veronica spuria* were in fine flower.

We had a welcome rest stop about half way up and enjoyed the rich and rather different flora. Vladimir soon drew our attention to a Lammergeier that flew very close to us and of which we had views from above. I then located a bear ambling across the opposite slope, through juniper and across a small snow patch. We were able to watch this marvellous animal for some time through Ron's telescope. To add to the excitement a Griffon Vulture landed on top of the opposite cliff.

The second half of the ride took us to the pass where we had fine views of the still unclimbed Bugulutor. The alpine meadow here was full of the lovely yellow *Allium fedschenkoanum* and *Pulsatilla campanella*, as well as *Gageas* and a new borage, *Lindelofia tschimganica*. A pair of Shorelarks was nesting near where the horses had been tethered and we tried our best not to disturb them. Ron managed to get a photograph of a Grey-necked Bunting which nobody else



saw, and which I didn't identify until much later in the trip, having a feeling that the picture he had shown me in the bright sunlight of the pass was in fact something interesting.

Before long we had spotted Ibex, some showing up well on a snow patch. Vladimir led us along the ridge towards a rocky outcrop that supports some fine plants. We were all feeling the altitude and progress was slow. Ron and I concentrated on the butterflies, most of which were very lively and gave us the run around, me trying to get close enough to identify them, and Ron trying to photograph them. Several common species such as Swallowtails were hill topping, and Clouded Apollos were numerous. Two Nettle-tree Butterflies were seen. We were pleased to see at least one *Parnassius tienschanicus*, and the high altitude blue *Agriades pheretiades* was rather common.

Among the many plants found by the botanists were *Ephedra regeliana*, *Cerastium lithospermifolium*, *Ranunculus songoricus*, *Hedysarum fedtschenkoanum*, *Scutellaria flabellulata*, and *Cousinia caespitosa*. Both *Macrotomia euchroma* and *Macrotomia ugamensis* were present. The rocky outcrop supported some fine *Paraquilegia* as well as *Saxifraga alberti* and *Androsace sericea* was common.

I was fortunate to see a Barbary Falcon speeding across the valley below us, a rarely recorded bird in the reserve. Himalayan Snowcock called often but were not seen. Alpine Lidless Skinks were numerous at the pass. Vladimir caught a Dione Snake and we all admired it for some time.

We all walked down at our different paces, some of us much slower than others. The local speciality clouded yellow *Colias wiskotti* was seen on the descent. We all arrived back at the mountain house more than ready for the afternoon refreshments and a shower. There remained the moths to look at, and that kept us busy for some time.

## **Day 10      Saturday 18th June      Baidaksai**

A more leisurely day today saw us heading into the Baidaksai valley, the next along from the mountain house. Once again there was a great haul in the moth trap, with noctuids particularly numerous. A Privet Hawk Moth was in fine condition. New in the trap were Peppered Moth, Wormwood Pug, Star-wort, Purple-shaded Gem, Purple Marbled, and Small Grass Emerald among many others.

Most opted to go on horseback whilst a few of us set out on foot. The weather was again fine. Above the mountain house we saw Blue Whistling Thrush in the stream and admired the many *Rosa kokanica* and *Rosa alberti* in flower. Clouded Apollos and Pale Clouded Yellows were on the wing.

We had to cross a melting snow patch, with fine patches of *Tulipa kaufmanniana* in bloom beside it. Also here was the unusual Berberid *Gymnocarpium alberti*, and two species of *Gagea*. The *Datylorhiza umbrosa* here was particularly robust, and in the wet flushes was much *Cortusa turkestanica*. The first of the day's many *Coenonympha sunbecca* put in an appearance. Both Whitethroat and Hume's Lesser Whitethroat were much in evidence.

A rocky outcrop was very interesting as it had many stone and iron age carvings upon it, of ibex, red deer, and various abstract shapes. Among the flowers were several species of *Potentilla*, and the daisy *Pyrethrum tienschanicus*. Rock Bunting was seen, and Quail called continuously.

Those travelling by horse stopped first at a wet flush where they hoped for *Swertia variabilis* was only in bud but they did however find a very special ground beetle, *Calosoma sycophanta*. Ron found a separate side valley where he was lucky enough to see a False Comma. A snow patch higher up was the target for lunch, but here the *Korolkovia seversovii* was all going over, surprising as we had found so many early flowering species still in bloom this year. No fewer than seventeen Arkhar, or Marco Polo Sheep, were spotted on the snow and scree above. Red Marmot was seen as we ate lunch.

Once again we made the walk down at our own pace, and some returned on horseback. John, Ron and myself were the last back. On our various walks or rides down, among the things seen were Golden Eagle, Black Vulture, a group of forty Alpine Choughs, and Yellow-legged Tortoiseshells.

### **Day 11      Sunday 19<sup>th</sup> June      Journey from Mountain House to Dzhabagly**

There was continued heavy rain overnight, and at breakfast. For a brief time the sky almost cleared and it looked as if we would have fine weather but the clouds came again and the rain continued. We decided to evacuate the Mountain House regardless, as the rain would just make the track worse and worse. Some opted to ride down on the horses, whilst most of us squelched our way slowly down the muddy track, clad in all the warm clothes and waterproofs that we possessed. We said farewell to the Forest Dormouse and set off.

Despite the rain we managed to see several things of interest along the way, and of course the wealth of flowers were still there. Golden Eagle and a Booted Eagle were both seen.

We ate a rather early lunch in the Halfway House, and just as we were to set out again the heavens opened with a ferocious rain-storm, in which the horseriders were caught. Fortunately for the walkers a slight delay meant we were still under the shelter of the house.

The weather improved a little, and there were even a few butterflies on the wing. Cardinal, High Brown Fritillary, Hungarian Glider, Central Asian Marbled White, *Kirinia eversmanni* and the only Glanville Fritillary of the tour were flying in the brief patches of sunshine.

The walk down was rather tiring, more so because the bus had to wait all the way down at the end of the track, not wanting to risk the very muddy road. We were all relieved to finally see it and climb wearily aboard. We arrived back at Yevgeny's in very good time, and were able to dry our things, shower, warm up and put on clean clothes, which was a very welcome luxury.

### **Day 12      Monday 20th June      Dzhabagly or Aksu Canyon**

The weather was back to normal today, with cloudless skies. Strangely there were very few moths in the trap this morning. Ron, Eileen and myself returned to the lower part of the reserve, to properly appreciate the beautiful lower track that we had route marched through yesterday afternoon due to the rain. Primarily we wanted to see butterflies, as this is perhaps the best place for them on the whole trip.

An old Russian army vehicle took us into the reserve, started by crank handle, and was rather a bumpy ride. It was a pleasure to be here today, with a backdrop of snow-capped mountains and

the river cascading nearby. Soon we located a Penduline Tit's nest, and the birds were much in evidence today. Strangely a Yellow-breasted Azure Tit landed on the nest too, opposite it's rightful owner. Golden Orioles and Blue Whistling Thrushes were seen too.

The butterflies lived up to expectations and there were many mud puddling, particularly blues. Mazarine and Osiris Blues were numerous, and there were some very bright Amanda's Blues. The diminutive Odd-spot Blue was a good find, and there was a single *Pseudophilotes vicrama*. A few Yellow-legged Tortoiseshells were on the wing and Hungarian Gliders were much in evidence, settling on both Ron and myself. Cardinals, High Brown and Niobe Fritillaries were all in fine condition. Only a single Swallowtail was seen, as was a single Indian Small White. *Pseudothecla lunulata*, *Melanargia parce*, and *Chazara enervata* were here too. Orbed Red-underwing Skipper and Yellow Banded Skipper were both rather common.

The majority of the group travelled west in the bus to Aksu Canyon with Vladimir and Anna. On the way they stopped on a steepish slope to give the bus a rest, and also to walk along the mainstreet of a typical Kazakh village. Long-legged Buzzard was seen well. Other birds seen were only common species such as Skylark and Quail. *Sergia severzovii* and *Scutellaria immaculata*, two endemics, were both in fine flower and among the many new plants that Anna identified today were *Centaurea turkestanica*, *Scorzonera francheti*, *Selinum kultiasovii*, *Linum pallescens*, *Stipa lessingiana*, *Stipa caucasica*, *Rindera echinata*, *Salvia virgata*, *Haplophyllum latifolium*, *Charedenia orientalis*, *Astragalus pachyrhizus*, *Astragalus dscorniagovii*, *Rhamnus coriacea*, *Oedibasis platycarpa*, *Ferula karatavica*, *Pilopleura kospojanski*, *Allium eriocoleum*, *Olgaea pectinata*, *Crataegus pontica*, *Scabiosa micrantha*, and *Rosa nanothamnus*.

Dinner was eaten early as we had a train to catch. Sad farewells were said to all at the guest house, for their excellent service and friendliness. The horsemen and all from the mountain house came to say goodbye. Abdulhasim whisked us quickly to Tukulbas where the train arrived a little early causing a little panic in getting us and all our luggage on board. Before too long we had all settled in and enjoyed the last of the evening light. I had been planning an evening continuing my plant work for the imminent Dolomites trip but Flora Alpina was taken from me, volume 1 by Jean, and volume 2 by Anna!!

### **Day 13      Tuesday 21st June      Arrival in Almaty, transfer to Observatory**

We arrived on schedule in a very hot Almaty, and were met by our drivers who took us to a restaurant for a welcome buffet breakfast. Traffic was heavy in Almaty today but before too long we were out of the city and climbing up towards Big Almaty Lake. A stop was occasioned by one of the vehicles overheating, but this proved fortuitous for the butterfly enthusiasts as there were two False Commas mud puddling here and Ron was able to get photographs. Also on the wing was the ringlet *Erebia meta*, as well as several familiar European species including Wood White.

Back on the road we had to make several more stops for the overheated vehicle, and then another hold up at a rather officious military check point.

In the afternoon we set out on foot to explore the environs. The weather changed significantly and once again we had rain. However we managed to see a good variety of plants, including several new species to us. Perhaps the most impressive was *Schmalhausenia nidulans*, only seen in bud but a very distinctive plant. There were some fine patches of *Chorispora bungeana* in

flower on river gravel. Brian spotted a new lousewort, *Pedicularis alatauica*, and both *Ranunculus alberti* and *Ranunculus rubrocalyx* were here.

Marmots called regularly and we had reasonable views of them. Birds were few and far between, but at the furthest point of our journey Brown Accentors were active on the rocks and among the juniper. Here too was the lovely *Corydalis gortschakovii*. A hail storm prompted a swift return to the observatory where in the evening we caught up with the checklists.

## **Day 14      Wednesday 22nd June      Cosmos Station**

The moth trap contained some interesting species, and although not many in number they made up for it in beauty. Species identified included The Shears, Purple-shaded Gem, and Shoulder-striped Wainscot. The most impressive was a pure green noctuid, the Burren Green.

We were blessed with fine weather today and we drove up towards the Cosmos Station under cloudless blue skies. A halfway stop proved excellent for butterflies. A flowery slope harboured the ringlet *Erebia meta*, the alpine grayling *Oeneis hora*, Eastern Bath White, the small Marsh Fritillary *Euphydryas aurinia*, and most importantly the apollo *Parnassius delphius*, which really gave us the run around. Water Pipits performed their display flight and continued to do so all day. Among the many fine flowers here were Frog Orchids.

We continued in the vehicles which drove us to 3,333m at the Cosmos station, a bizarre collection of crumbling research buildings atop an apparently subterranean complex of scientific installations like something from a James Bond film. Here we walked slowly due to the altitude, but found many fine alpine plants. The buttercup relative *Oxygraphis glacialis* was here with some beautiful yellow clumps. *Smelowskia calycina* and *Eutrema edwardsi* were two small white flowered crucifers. The lovely Purple Saxifrage, and *Pedicularis oederi* were both European species. *Androsace akbaitalensis*, *Sibbaldia tetrandra*, *Oxytropis chionobia*, *Rhodiola coccinea*, and *Trollius lilacinus* were all here too. On the higher rocks were superb plants of *Paraquilegia anemonoides* and *Primula turkestanica*.

There were more of the same Apollo here, as well as many Small Tortoiseshells and Queen-of-Spain Fritillaries. The impressive Guldenstadt's Redstart was seen and Ron and Vladimir saw Himalayan Accentor. Three or maybe four Lammergeiers passed overhead, followed a little later by a Himalayan Griffon.

## **Day 15      Thursday 23<sup>rd</sup> June      Big Almaty Lake**

The day was spent around Big Almaty Lake, a large glacial lake that is dammed at its outlet. Walking around the shore we saw some twenty-two Ruddy Shelduck, including four well-grown chicks swimming out across the cool blue lake. Beyond the lake an impressive glacier nestled into the valley way up on the Kirgizstan border, the valley flanked all the way up with row upon row of perfectly straight dark green spruce. Several Apollos were flying furiously around a grassy outcrop and Ron and I spent a long time trying to catch up with them. They were finally determined as the nominate subspecies of *Parnassius tianschanicus*, and we saw about fifteen of them today. We saw a similar number of False Commas, a very respectable total. Both the ringlets *Erebia meta* and *Erebia turanica* were on the wing. A very good butterfly day was completed with Yellow-legged Tortoiseshell, Small Copper and *Euphydryas asiatica*.

*Eremurus altaicus*, new to us, was in good flower. Among the many other plants recorded today were *Astragalus alpinus*, *Astragalus lithophilus*, *Allium schoenoprasoides*, *Cerastium dahuricum*, *Ceratocephalus testiculatus*, *Euonymus semenovii*, *Delphinium iliense*, *Alfredia nivea*, *Dracocephalum stamineum*, *Phlomis pratensis* and *Erysimum croceum*.

Nearing the braided river that feeds the lake we were looking out for a very special bird – the Ibisbill – a singularly beautiful wader that nests only on braided mountain rivers. We were not disappointed and after some careful searching two of these fine birds were found, and at close range. They are very well camouflaged against the river gravel. Elsewhere in the rocky outwash plain were a number of bizarre *Schmalhausenia nidulans*, a strange thistle relative. Also here was the pretty large flowered *Chamaenerion latifolium*. We did our best to convince Vladimir that some large and quite clear prints were made by a Snow Leopard. To me they certainly appeared to have been made by a cat, no claws were visible, but he wasn't having any of it.

In a wet flush near the weatherman's cottage were many pale pink *Pedicularis rhinanthoides*, as well as *Clemensia semenovii* and *Gentiana karelini*. Two species of *Potentilla* were added to the list today, *Potentilla nervosa* and *Potentilla virgata*, and three species of Honeysuckle were seen, namely *Lonicera hispida*, *Lonicera karelini* and *Lonicera microphylla*. Black-throated Accentor sat atop a spruce tree.

Lunch was eaten near the vehicles and afterwards we drove down the track below the lake and had a few stops to explore the spruce forest. One slope supported three species of Wintergreen, all in flower – Common, One-flowered and Nodding Wintergreen were all here. We were pleased to find two species of orchids, not a well represented family in the region. Coralroot and Creeping Lady's Tresses were both here. Two or more Nutcrackers were active in the spruces. *Orobus luteus* was in flower.

## **Day 16      Friday 24<sup>th</sup> June      Observatory and Almaty**

The morning was left free for everyone to do their own thing, have a last walk around the observatory, pack slowly and the like. We set off late morning and descended to Almaty, settling into our hotel and enjoying lunch there. In the afternoon Vladimir took most of the group shopping, the shopping centre opposite the hotel being full of character. Some of us felt the minor earthquake that happened in the afternoon whilst others were oblivious to it.

We ate a good farewell dinner in the hotel, and reflected on a very productive and enjoyable tour. We grabbed a few hours sleep before departing in the early hours for the airport. Procedures at the shiny new Almaty Airport are an immeasurable improvement on those in the old buildings, and we were soon in the departure lounge, sleepily waiting to get on the 'plane. Once in Amsterdam we awaited our various connecting flights, myself going to Venice to meet the Dolomites tour.

## Systematic List Number 1(a) Flowers in the Zhalasskiy Alatau

The nomenclature is taken from the flora of the Aksu-Dzhabagly (1973 with, for some species, a 1997 update) Anna Ivaschenko has provided all other nomenclature and more modern nomenclature where appropriate. This first flower list refers to those species observed in the mountains above Almaty known as the Zhalasskiy Alatau. Species recorded this year but not in 2004 are annotated 2005, and conversely those not recorded this year are marked [not in 2005].

A summary of the itinerary in the Zhalasskiy Alatau Mountains :-

June 10 <sup>th</sup>	Tjuk-su Valley and Gate.
June 11 <sup>th</sup>	Cimbulak Ski-lift.
June 12 <sup>th</sup>	Below Cimbulak.
June 21 <sup>st</sup>	Journey to Gaish Astronomical Observatory above Big Almaty Lake – environs.
June 22 <sup>nd</sup>	The Cosmos Station.
June 23 <sup>rd</sup>	Big Almaty Lake and the Observatory area.
June 24 <sup>th</sup>	Observatory area and journey to Almaty.

### Athyriaceae

<i>Cystopteris filix-fragilis</i>	Locally frequent in damp rocky areas, often in shade
<i>Dryopteris filix-mas</i>	Cimbulak

### Ophioglossaceae

<i>Botrychium lunaria</i>	Common in short alpine turf e.g. Observatory
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### Equisetaceae

<i>Equisetum arvense</i>	Cimbulak
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### Aspleniaceae

<i>Asplenium septentrionale</i>	Cimbulak
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### Pinaceae

<i>Picea schrenkiana</i>	The Tien Shan Spruce. Locally dominant.
<i>Pinus sylvestris</i>	Planted

### Cupressaceae

<i>Juniperus pseudosabina</i>	Locally dominant at higher altitudes
<i>Juniperus sibirica</i>	Locally dominant at higher altitudes

### Poaceae

<i>Agrostis turkestanica</i>	Above Cimbulak
<i>Alopecurus pratensis</i>	Cimbulak
<i>Anthoxanthum odoratum</i>	Cimbulak and observatory
<i>Brachypodium sylvaticum</i>	Cimbulak 2005
<i>Bromopsis inermis</i>	Cimbulak 2005
<i>Calamagrostis epigeios</i>	Cimbulak 2005
<i>Cynodon dactylon</i>	Cimbulak 2005
<i>Dactylis glomerata</i>	Widespread and common
<i>Deschampsia koelerioides</i>	Big Almaty Lake
<i>Elymus czimganicus</i>	Big Almaty Lake 2005
<i>Elytrigia repens</i>	Cimbulak 2005
[ <i>Festuca alaica</i> ]	Not 2005]
[ <i>Festuca valesiaca</i> ]	Not 2005]
<i>Helictotrichon pubescens</i>	Observatory
[ <i>Hordeum turkestanicum</i> ]	Not 2005]

<i>Milium effusum</i>	Widespread 2005
<i>Phalarioides arundinacea</i>	Cimbulak 2005
<i>Phleum alpinum</i>	Observatory
<i>Phragmites australis</i>	Cimbulak 2005
<i>Poa alpina</i>	Widespread and common at higher altitudes
<i>Poa angustifolia</i>	Cimbulak
<i>Poa annua</i>	Cimbulak
[ <i>Poa bulbosa</i> ]	Not 2004]
<i>Poa pratensis</i>	Cimbulak
[ <i>Trisetum spicatum</i> ]	Not 2005]

### Cyperaceae

<i>Blysmus compressus</i>	Cimbulak and Observatory 2005
<i>Carex melanantha</i>	Cimbulak
<i>Carex melanostachya</i>	Cimbulak
[ <i>Carex riparia</i> ]	Cimbulak, not 2005]
<i>Cobresia capilliformis</i>	Cimbulak
<i>Eleocharis uniglumis</i>	Cimbulak 2005

### Juncaceae

<i>Juncus articulatus</i>	Observatory 2005
<i>Luzula pallescens</i>	Cimbulak

### Liliaceae

<i>Eremurus altaicus</i>	Big Almaty Lake 2005
<i>Eremurus fuscus</i>	Medium yellow-brownish flowered fox-tail lily, observatory area
<i>Eremurus robustus</i>	In flower below Big Almaty Lake
<i>Gagea emarginata</i>	Cosmos Station and Cimbulak
<i>Gagea filiformis</i>	Cimbulak
<i>Gagea turkestanica</i>	Cimbulak
<i>Gagea michaelis</i>	Big Almaty Lake
<i>Gagea neo-popovii</i>	Scarce. Cimbulak and Cosmos Station 2005
<i>Lloydia serotina</i>	Widespread at high altitude
<i>Tulipa dasystemon</i>	Scattered. Generally near snowmelt – rather similar to the next species although tepals less strongly pointed.
<i>Tulipa heterophylla</i>	Locally frequent at high altitudes. A strange-looking tulip with pale greenish-yellow petals often lined with dark. Was formerly in a different genus.
[ <i>Tulipa ostrowskiana</i> ]	Recorded at Cimbulak for the first time in 2003 and again in 2004 in seed]
<i>Allium amblyophyllum</i>	Widespread
<i>Allium atrosanguineum</i>	Very common at higher altitudes. Short blackish-red flowers in a tight head.
[ <i>Allium caesium</i> ]	Cimbulak not 2005]
[ <i>Allium caeruleum</i> ]	Near Almaty not 2005]
[ <i>Allium fetisovii</i> ]	Not 2005]
<i>Allium karelini</i>	Cimbulak.
[ <i>Allium platyspathium</i> ]	Locally common. Not in 2005]
<i>Allium polyphyllum</i>	Cimbulak
<i>Allium schoenoprasoides</i>	Big Almaty Lake - small chive like <i>Allium</i> .

### Orchidaceae

<i>Dactylorhiza umbrosa</i>	Locally abundant in wet flushes at low-mid altitudes. Typical dactylorhichid with wedge-shaped well patterned lip - as variable in characters as other members of the genus!
<i>Coeloglossum viride</i>	Observatory. Very red-green flowers.
<i>Corallorhiza trifida</i>	Shady banks below Cim Bulak Hotel, and spruce forest near Big Almaty Lake.
<i>Goodyera repens</i>	Leaves and spikes at Cimbulak, and spruce forest at Big Almaty Lake.

### Iridaceae

<i>Crocus alatavicus</i>	seeding only
[ <i>Iris alberti</i> ]	In seed near Almaty not 2005]

**Salicaceae**

<i>Salix alata</i>	Widespread
[ <i>Salix iliensis</i> ]	Widespread
<i>Populus tremula</i>	Widespread

**Betulaceae**

<i>Betula pendula</i>	Widespread
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**Ulmaceae**

<i>Ulmus pumila</i>	Almaty
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**Urticaceae**

<i>Urtica dioica</i>	Widespread
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**Santalaceae**

<i>Thesium alata</i>	Scattered, 2005
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**Cannabaceae**

<i>Cannabis sativa</i>	Roadsides in Almaty
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**Polygonaceae**

<i>Oxyria digyna</i>	Local at high altitudes.
<i>Polygonum aviculare</i>	Scattered 2005
<i>Polygonum coriarium</i>	Cimbulak and observatory
<i>Polygonum nitens</i>	Widespread
<i>Polygonum songoricum</i>	Scattered at higher altitudes
<i>Polygonatum viviparum</i>	Locally abundant
<i>Rheum wittroekii</i>	Widespread and low-mid altitudes
<i>Rumex acetosa</i>	Widespread and common
<i>Rumex crispus</i>	Widespread 2005
<i>Rumex tianshanicus</i>	Scattered

**Chenopodiaceae**

<i>Chenopodium album</i>	Observatory 2005
<i>Chenopodium foliosum</i>	Scattered 2005

**Portulacaceae**

<i>Portulaca oleracea</i>	Almaty 2005
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**Caryophyllaceae**

[ <i>Arenaria serpyllifolia</i> ]	Scattered not 2005]
[ <i>Cerastium arvense</i> ]	not 2005]
<i>Cerastium bungeanum</i>	Cosmos Station 2005
<i>Cerastium cerastoides</i>	Locally abundant at mid altitudes
<i>Cerastium dahuricum</i>	Locally common - the big broad-leaved <i>Cerastium</i>
<i>Cerastium pisillum</i>	Observatory 2005
<i>Cerastium tianschanicum</i>	Cosmos station
[ <i>Dianthus tianshanicus</i> ]	Above Big Almaty Lake. Not in 2004]
<i>Herniaria hirsuta</i>	Observatory
<i>Minuartia meyeri</i>	Observatory
<i>Minuartia krylovii</i>	Observatory
<i>Silene graminifolia</i>	Big Almaty Lake
[ <i>Silene latifolia (vulgaris)</i> ]	Widespread. Not in 2005]
<i>Stellaria graminea</i>	Scattered. Lesser Stitchwort.
<i>Thylacospermium caespitosa</i>	Locally common at higher altitudes. The amazing vegetable sheep – some fine specimens among the rocks above Cimbulak
<i>Tunica stricta</i>	Observatory 2005



## Ranunculaceae

<i>Aconitum leucostomum</i>	Widespread in mid-level meadows. Tall. White to dirty maroon coloured flowers – very like orientale.
<i>Aconitum songoricum</i>	Cimbulak 2005
<i>Aconitum nemorum</i>	Cimbulak 2005
[ <i>Aconitum rotundifolium</i>	In leaf at Cosmos station 2004]
<i>Anemone protracta</i>	Locally abundant at mid-high altitudes. Slopes, screes and streambanks – also by snowmelt. The abundant <i>Anemone narcissiflora</i> look-alike.
<i>Aquilegia atrovinosa</i>	Locally frequent at mid altitudes. Streams and damp screes, also in <i>Juniperus turkestanicus</i> . A stunning dark wine-coloured <i>Aquilegia</i> .
<i>Atragene (Clematis) sibirica</i>	Locally frequent at mid altitude. A beautiful trailing shrub with long-petalled white flowers.
<i>Callianthemum alatavicum</i>	Widespread at high altitudes – pretty white ‘anemone’ like flower with corydalis like foliage.
<i>Ceratocephalus testiculatus</i>	Big Almaty Lake 2005
<i>Delphinium iliense</i>	Big Almaty Lake
<i>Oxygraphis glacialis</i>	Cosmos Station near Snow melt, a bit like a celandine!
<i>Paraquilegia anemonoides</i>	Locally abundant with some superb cushions in flower above the Cosmos Station. Rocks, cliffs and screes at high altitude – a stunning plant with patches of dissect glaucous foliage up to two feet across often totally obscured by a mass of white to blue anemone like flowers. Also Cimbulak.
<i>Parapryrum anemonoides</i>	Scattered – anemone-like, small white flowers.
<i>Pulsatilla campanella</i>	Locally abundant at mid to high altitudes. Drier slopes, screes and near snowmelt.
<i>Ranunculus alberti</i>	Locally common at high altitudes
<i>Ranunculus grandifolius</i>	Scattered at high altitudes
[ <i>Ranunculus rubrocalyx</i>	Cosmos station not 2005]
<i>Ranunculus longicaulis</i>	Big Almaty Lake 2005
[ <i>Ranunculus popovii</i>	2004]
<i>Ranunculus repens</i>	Big Almaty Lake river gravel 2005
<i>Ranunculus rufosepalus</i>	Cimbulak 2005
<i>Ranunculus songoricus</i>	Observatory 2005
[ <i>Ranunculus transiliensis</i>	Not in 2005]
<i>Thalictrum alpinum</i>	Common at high altitude
[ <i>Thalictrum minus</i>	Gaish. Not in 2005]
<i>Thalictrum simplex</i>	Cimbulak
<i>Trollius dshungaricus</i>	Locally frequent at mid altitudes. Large golden-yellow flowers – less orange than <i>Trollius altaicus</i> .
<i>Trollius lilacinus</i>	Possibly the most beautiful plant in the region!

## Paeoniaceae

<i>Paeonia intermedia</i>	Below Cimbulak 2005
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## Berberidaceae

[ <i>Berberis sphaerocarpa</i>	Cimbulak 2004]
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## Papaveraceae

[ <i>Chelidonium majus</i>	Cimbulak not 2005]
<i>Glaucium squamigerum</i>	Observatory
<i>Papaver croceum</i>	Locally frequent at mid altitudes
<i>Papaver tianshanicum</i>	At high altitude – e.g. by the Cosmos Station. Smaller and with a different leaf shape than previous species
[ <i>Roemeria refracta</i>	Tjuk-Su – a plant in a garden. The red poppy with the long thin fruits not 2005]

## Fumariaceae

[ <i>Corydalis glaucescens</i>	Cosmos station 2004]
[ <i>Corydalis capnoides</i>	Cimbulak 2004]
<i>Corydalis gortschakovii</i>	Observatory
[ <i>Cysticorydalis fedtschenkoana</i>	Cosmos Station. Not in 2004]

## Cruciferae

<i>Barbarea plantaginea</i> (=arquata)	Scattered
<i>Capsella bursa-pastoris</i>	Scattered
<i>Cardamine impatiens</i>	Cimbulak and observatory 2005
<i>Chorispora bungeana</i>	Locally frequent at higher altitudes – a very beautiful plant
<i>Draba alpina</i>	Common at high altitude
[ <i>Draba huetii</i>	Cimbulak not 2005]
<i>Draba lanceolata</i>	Cimbulak 2005
<i>Draba nemorosa</i>	Scattered
[ <i>Draba stenocarpa</i>	Big Almaty Lake not 2005]
[ <i>Draba subamplexicaulis</i>	Scattered 2004]
<i>Erysimum croceum</i>	Scattered in meadows. A very striking bright orange flower.
<i>Erysimum diffusum</i>	Cimbulak 2005
[ <i>Erysimum marschallianum</i>	Cimbulak 2004]
<i>Euclidium syriacum</i>	Cimbulak
<i>Eutrema integrifolium</i>	Widespread
<i>Eutrema edwardsii</i>	Cimbulak 2005
<i>Hesperis sibirica</i>	Cimbulak
[ <i>Isatis tinctoria</i>	not 2005]
[ <i>Neuroloma stenophylla</i>	not 2005]
<i>Smelowskia calycina</i>	Cosmos Station
<i>Taphrospermum altaicum</i>	Locally frequent at higher altitudes
<i>Thlaspi arvense</i>	Scattered
<i>Turritis glabra</i>	Scattered

## Crassulaceae

<i>Rhodiola coccinea</i>	Locally common at mid-high altitudes– distinctive. Small with brilliant orange-red ‘flowers’. In wet areas.
<i>Rhodiola linearifolia</i>	Widespread
<i>Rhodiola semenovii</i>	Tjuk-su Valley. Tall with a pyramidal white inflorescence and densely packed bright green foliage. <i>Clementsia semenovii</i> . Also Big Almaty Lake.
<i>Rosularia alpestris</i>	Cosmos Station 2005
<i>Sedum ewersii</i>	Cimbulak
<i>Sedum hybridum</i>	Widespread at mid altitudes

## Saxifragaceae

<i>Chrysosplenium nudicaule</i>	Scattered in wet areas at higher altitudes
<i>Parnassia laxmanni</i>	Observatory. Has the facies of a <i>Cerastium</i> !
<i>Ribes meyeri</i>	Scattered
[ <i>Saxifraga cernua</i>	Cosmos Station 2004]
<i>Saxifraga hirculus</i>	Locally abundant at high altitude especially in wet flushes
<i>Saxifraga macrocalyx</i>	Cosmos Station
<i>Saxifraga oppositifolia</i>	Cosmos Station
<i>Saxifraga sibirica</i>	Widespread and very common
[ <i>Saxifraga stenophylla</i>	Scattered at higher altitudes, like a smaller non-cushion forming <i>hirculus</i> not 2005]

## Rosaceae

<i>Agrimonia asiatica</i>	Near Almaty 2005
<i>Alchemilla tianshanica</i>	Higher altitudes at Cimbulak
<i>Alchemilla sibirica</i>	Widespread
<i>Armeniaca vulgaris</i>	Cimbulak
[ <i>Cotoneaster oligantha</i>	2004]
[ <i>Crataegus almatensis</i>	not 2005]
<i>Dasiphora phyllocalyx</i>	Shrubby Cinquefoil. Widespread.
<i>Fragaria vesca</i>	Observatory
<i>Geum urbanum</i>	Cimbulak
<i>Geum rivale</i>	Cimbulak
[ <i>Malus sieversii</i>	Cimbulak not 2005]
<i>Potentilla asiatica</i>	Widespread - a 'recta'-like species

[ <i>Potentilla biflora</i>	Scattered not 2005]
[ <i>Potentilla bifurca</i>	Cimbulak - the pinnate-leaved <i>Potentilla</i> . Not in 2005]
<i>Potentilla desetorum</i>	Observatory
[ <i>Potentilla evestita</i>	Scattered 2002]
<i>Potentilla gelida</i>	Locally common
<i>Potentilla multifida</i>	Observatory
<i>Potentilla nervosa</i>	Scattered at higher altitudes
<i>Potentilla nivea</i>	very small with whitish leaves, scattered
<i>Potentilla orientalis</i>	Cimbulak
[ <i>Potentilla strigosa</i>	Not in 2005]
<i>Potentilla virgata</i>	Big Almaty Lake 2005
<i>Rosa alberti</i>	Widespread
<i>Rosa platyacantha</i>	Cimbulak. Yellow flowers.
<i>Rubus caesium</i>	Cimbulak
<i>Rubus idaeus</i>	Locally common
[ <i>Rubus saxatilis</i>	not in 2005]
<i>Sanguisorba alpina</i>	Cimbulak 2005
<i>Sibbaldia tetrandra</i>	Widespread at higher altitudes
<i>Sorbus tianshanica</i>	Locally common
<i>Spiraea lasiocarpa</i>	Widespread

### **Adoxaceae**

*Adoxa moschatelliana* Common in damp meadows under shade at Cimbulak

### **Fabaceae**

<i>Astragalus alatavicus</i>	Observatory
<i>Astragalus alpinus</i>	Widespread – the European Alpine Milk Vetch
<i>Astragalus lithophilus</i>	Big Almaty Lake
<i>Astragalus schanginianus</i>	Cimbulak 2004
<i>Cicer songoricum</i>	Observatory 2005
[ <i>Glycirrhiza glabra</i>	Near Almaty not 2004 or 2005]
<i>Hedysarum montanum</i>	Big Almaty Lake not 2004 or 2005]
<i>Hedysarum neglectum</i>	Observatory 2005
<i>Hedysarum semenovii</i>	Widespread
<i>Lathyrus pratensis</i>	Widespread 2005
<i>Lathyrus pisiformis</i>	Big Almaty Lake 2005
<i>Lathyrus tuberosus</i>	Near Almaty 2005
<i>Medicago lupulina</i>	Scattered 2005
<i>Melilotus officinalis</i>	Cimbulak
<i>Orobus luteus</i>	Tjuk-su and the Observatory area
<i>Oxytropis almatensis</i>	Cimbulak and Observatory
<i>Oxytropis brachycarpa</i>	Big Almaty Lake, in bud
<i>Oxytropis chionobia</i>	Scattered
<i>Oxytropis lapponica</i>	Big Almaty Lake and Cimbulak
<i>Oxytropis recognita</i>	Big Almaty Lake 2004
<i>Oxytropis sewerzovii</i>	Widespread 2004
<i>Sophora alopecuroides</i>	Cimbulak
<i>Thermopsis alpina</i>	Locally common on slopes at mid-high altitude. A large woolly lupin-like species. Low growing.
<i>Trifolium pratense</i>	Widespread
<i>Trifolium repens</i>	Widespread
<i>Vicia cracca</i>	Widespread
<i>Vicia sepium</i>	Cimbulak

### **Geraniaceae**

<i>Geranium albiflorum</i>	Locally frequent in meadows at Cimbulak. Small white flowers.
<i>Geranium collinum</i>	Cimbulak
<i>Geranium rectum</i>	Locally common in meadows
<i>Geranium robertianum</i>	Cimbulak 2005
<i>Geranium saxatile</i>	Cosmos Station. Like a stunted high altitude version of <i>pratense</i> .

**Polygalaceae***Polygala hybrida*

Widespread at mid altitudes. The common milkwort.

**Euphorbiaceae***Euphorbia lamprocarpa*

Cimbulak 2005

*Euphorbia tianschanica*

Widespread

**Celastraceae***Euonymus semenovii*

Big Almaty Lake 2005

**Aceraceae**[*Acer negundo*]

Alien. Not 2004 or 2005]

**Balsaminaceae***Impatiens parviflora*

Scattered

**Malvaceae**[*Alcea nudiflora*]

Not in 2004 or 2005]

*Lavatera thuringiaca*

Almaty 2005

**Clusiaceae***Hypericum perforatum*

Cimbulak 2005

*Hypericum hirsutum*

Cimbulak, not in flower

**Tamaricaceae***Myricaria squamosa*

Above Big Almaty Lake

**Violaceae***Viola acutifolia*Local at Cimbulak – a rather leggy version of *Viola biflora* with leaves very pointed*Viola altaica*

Locally abundant at mid - high altitudes. Beautiful ‘mountain pansy’ type coming in two colours – one purple with some yellow in centre and the other creamy-yellow with dark lines

*Viola biflora*

Tjuk-su Gate

*Viola modestula*

2004

*Viola rupestris*

Observatory area and Cimbulak

*Viola tianshanica*

Cosmos Station

[*Viola suavis*]

Cimbulak not 2004 or 2005]

**Elaeagnaceae***Hippophae rhamnoides*

En route to observatory

**Cucurbitaceae**[*Bryonia alba*]

Near Almaty not 2004 or 2005]

**Onagraceae***Chamaenerium angustifolium*

Frequent by riversides at low altitude

*Chamaenerium latifolium*

In river gravels at high altitude above Big Almaty Lake – the short one with the big red-pink flowers!

[*Epilobium subnivale*]

Above Big Almaty Lake. Not in 2004 or 2005]

[*Epilobium hirsutum*]

Cimbulak. Not in 2004 or 2005]

**Apiaceae***Aegopodium alpestre*

Scattered

*Angelica brevicaulis*

Locally common

*Angelica decurrens*

Observatory 2005

*Anthriscus aemula*= *A. sylvestris*. Widespread.[*Bupleurum aureum*]

Cimbulak. Not 2004 or 2005]

<i>Conium maculatum</i>	Observatory area 2005
<i>Ferula stylosa</i>	2004
<i>Heracleum dissectum</i>	Scattered. By streams.
<i>Pachypleurum aemulans</i>	Observatory
[ <i>Schultzia albiflora</i>	Common – low growing umbel, 2004. Not 2005?]
[ <i>Semenovia transiliensis</i>	Widespread not 2004 or 2005?]
<i>Seseli schrenkiana</i>	Cimbulak
<i>Vicatia coniifolia</i>	Widespread at mid-high altitudes
(= <i>Carum atrosanguineum</i> )	

### Pyrolaceae

<i>Moneses uniflora</i>	Below Big Almaty Lake 2005
<i>Orthilia secunda</i>	Below Big Almaty Lake 2005
<i>Pyrola minor</i>	Below Big Almaty Lake 2005

### Primulaceae

<i>Androsace akbeitalensis</i>	Occasional at mid-high altitudes
<i>Androsace fedtschenkoi</i>	Scattered. Basal rosette with a flower stalk terminating in an umbel of creamy-white flowers. Annual.
<i>Androsace septentrionalis</i>	Cosmos Station 2005
<i>Cortusa broteroi</i>	Locally abundant in wet areas at low-high altitudes. Similar to next species but with elongate white and dark stigmal area in centre of flower
<i>Primula algida</i>	Widespread and often abundant at higher altitudes – some particularly fine forms including a pure white one (2004). Very small flowered pinky-purple Primula with 'normal' looking leaves.
[ <i>Primula kaufmanniana</i>	Locally frequent at high altitudes not 2004 or 2005]
<i>Primula nivalis</i>	Scarce at Cimbulak
<i>Primula turkestanica</i>	Apparently a distinct species from the above but the differences did seem unconvincing. Scattered.

### Gentianaceae

[ <i>Gentiana algida</i>	White species found in next valley below the Cosmos station. Not in 2004 or 2005]
[ <i>Gentiana barbata</i>	In seed not in 2004 or 2005]
<i>Gentiana falcata</i>	High altitudes – flowers a little like a <i>Lomatogonium</i> , 2005
<i>Gentiana karelini</i>	Big Almaty Lake 2005 . Minute!
<i>Gentiana kaufmanniana</i>	Scattered, in leaf at Cimbulak
[ <i>Gentiana tianshanica</i>	In seed not in 2004 or 2005]
[ <i>Gentiana turkestanorum</i>	not in 2004 or 2005]
<i>Gentiana uniflora</i>	= <i>G. krylovii</i> = <i>G. verna</i> Towards the Tjuk-su Pass.

### Convolvulaceae

<i>Convolvulus arvensis</i>	Cimbulak 2005
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### Polemoniaceae

<i>Polemonium caucasicum</i>	= <i>P. caeruleum</i> Jacob's Ladder. Locally frequent at low altitudes
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### Boraginaceae

<i>Asperugo procumbens</i>	Cimbulak
<i>Echium vulgare</i>	Cimbulak
<i>Eritrichium villosum</i>	Scattered
<i>Lappula tianshanica</i>	Widespread
<i>Lithospermum officinale</i>	Cimbulak 2005
<i>Myosotis asiatica</i>	Widespread
[ <i>Myosotis micrantha</i>	2004]
<i>Myosotis sparsiflora</i>	Scattered 2005

## **Labiatae**

<i>Dracocephalum grandiflorum</i>	Locally abundant in meadows at mid to high altitude. A very striking species with large brilliant blue flowers – often growing in stands.
<i>Dracocephalum imberbe</i>	Observatory
<i>Dracocephalum integrifolium</i>	Cimbulak 2005
<i>Dracocephalum nutans</i>	Cimbulak
<i>Dracocephalum stamineum</i>	Big Almaty Lake
<i>Eremostachys speciosa</i>	Cimbulak and Observatory
<i>Lamium album</i>	Widespread
<i>Mentha asiatica</i>	Widespread
<i>Origanum vulgare</i>	Widespread
<i>Phlomis oreophila</i>	Locally common at high altitude
<i>Phlomis pratensis</i>	Big Almaty Lake 2005
<i>Prunella vulgaris</i>	Observatory 2005
<i>Salvia deserta</i>	Common at lower altitudes
<i>Thymus seravschanicus</i>	Widespread
<i>Ziziphora bungeana</i>	Observatory

## **Scrophulariaceae**

<i>Euphrasia drosophylla</i>	Big Almaty Lake 2005
<i>Lagotis integrifolia</i>	Cosmos Station
<i>Pedicularis alatauca</i>	Cosmos Station. Pale pink flowers, very white hairy inflorescence.
<i>Pedicularis alberti</i>	In seed at Big Almaty Lake 2005
<i>Pedicularis amoena</i>	Widespread
<i>Pedicularis dolichorrhiza</i>	Locally abundant at mid to high altitudes. The common yellow and white (or creamy) flowered lousewort.
<i>Pedicularis pubiflora</i>	Scattered
<i>Pedicularis oederi</i>	Locally common at mid-high altitude in the Almaty area. Distinctive with bi-coloured (cream and brown) flowers.
<i>Pedicularis rhinanthoides</i>	Uncommon in wet flushes above Big Almaty Lake
<i>Scrophularia incisa</i>	Big Almaty Lake
[ <i>Scrophularis alata</i>	Cimbulak not 2004 or 2005]
[ <i>Verbascum songoricum</i>	Widespread not 2004 or 2005]
[ <i>Verbascum thapsus</i>	Scattered not 2004 or 2005]
<i>Veronica anagallis-aquatica</i>	Cimbulak 2005
<i>Veronica beccabunga</i>	Scattered
<i>Veronica biloba</i>	Observatory 2005
<i>Veronica chamaedrys</i>	Widespread
<i>Veronica campylopoda</i>	Cimbulak 2005
<i>Veronica cardiocarpa</i>	Observatory
[ <i>Veronica porphyriana</i>	Locally common in mid-high level turf. Beautiful dark blue spicate species. 2004]
[ <i>Veronica serpyllifolia</i>	Cimbulak 2004]
<i>Veronica verna</i>	Observatory 2005

## **Plantaginaceae**

<i>Plantago major</i>	Cimbulak 2005
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## **Rubiaceae**

<i>Galium septentrionale</i>	Cimbulak 2005
<i>Galium aparine</i>	Cimbulak 2005

## **Caprifoliaceae**

<i>Lonicera hispida</i>	Widespread. Large flowers.
<i>Lonicera humilis</i>	Scattered.
<i>Lonicera karelinii</i>	Near Big Almaty Lake, and Cimbulak. Two largish bi-coloured flowers.
<i>Lonicera microphylla</i>	Big Almaty Lake 2005
<i>Lonicera semenovi</i>	Big Almaty Lake

## Valerianaceae

*Patrinia intermedia*  
*Valeriana turkestanica*

Scattered. Tight head of bright yellow flowers. 2005.  
Cimbulak and Big Almaty Lake

## Campanulaceae

[*Adenophora himalayana*

Common in turf around the observatory and above Big Almaty Lake. Fairly standard looking bellflower! Not 2004 or 2005]

*Campanula glomerata*

Observatory. The European Clustered Bellflower with a distinctive capitate inflorescence.

*Codonopsis klematidea*

Observatory area. Streamsides, Juniper and spruce forest and damp slopes. Large pale blue bells with orange and black stigma and anthers. Foetid.

## Asteraceae

*Alfredia nivea*

Big Almaty Lake

*Achillea millefolium*

Scattered

*Arctium tomentosum*

Cimbulak 2005

*Artemisia absinthium*

Widespread

*Artemisia aschurbajevii*

Around observatory

*Artemisia dracunculus*

Cimbulak

*Artemisia santolinifolia*

Big Almaty Lake

[*Artemisia sieversiana*

Not 2004 or 2005]

*Artemisia vulgaris*

Widespread

*Aster alpinus*

Widespread at mid-high altitudes

[*Centaurea rhapontica*

Near Almaty 2004]

*Cicerbita azurea*

Observatory area

*Cicerbita tianschanica*

Cimbulak 2005

*Cichorium intybus*

Cimbulak

*Cirsium semenovii*

Widespread

[*Cousinia umbrosa*

Cimbulak not 2004 or 2005]

*Crepis multicaulis*

Observatory

*Crepis sibirica*

Observatory

*Doronicum turkestanorum*

Frequent in meadows and woods at low-high altitude

*Erigeron auranticus*

Common at high altitude in the Almaty area. Gold-coloured flowers.

[*Erigeron heterochaeta*

Scattered. Like Alpine Aster in appearance. 2004]

[*Erigeron lachnocephalus*

Big Almaty Lake. Mauve.]

*Erigeron pseudrigeron*

Observatory 2005

[*Erigeron seravschanicus*

Above Big Almaty Lake and at the Cosmos Station 2004]

*Hieracium aurantiacum*

Observatory

*Inula helenium*

Cimbulak 2005

[*Inula macrophylla*

not 2004 or 2005]

*Leontopodium fedtschenkoanum*

Widespread at altitude

[*Leontopodium ochroleucum*

Cosmos Station 2004]

[*Ligularia heterophylla*

Cosmos Station and above Big Almaty Lake not 2004 or 2005]

*Ligularia macrophylla*

Locally dominant in rich meadows at mid altitudes, also up to high altitudes

*Picris similis*

Observatory

[*Pyrethrum alpinum*

Big Almaty Lake 2004]

[*Rhaponticum sordida*

In leaf 2004]

*Saussurea gnaphaloides*

Cosmos Station. Purple virtually stemless flowers amid grey leaf rosettes.

*Saussurea schangenii*

Cosmos Station

*Schmalhausenia nidulans*

Quite common around the observatory, up towards the Cosmos Station and above Big Almaty Lake. Really the most bizarre-looking thistle with flowers stuck on the sides and top of a very robust stem and with a large basal set of very spiny leaves!

*Solidago dahurica*

Big Almaty Lake 2005

*Tanacetum vulgare*

Cimbulak 2005

[*Taraxacum lilaceum*

Scattered at high altitudes – odd dandelion with funnel-shaped lemon flowers.

Not in 2004 or 2005]

*Taraxacum officinale*

At mid-high altitudes!

*Tragopogon turkestanicus*

Observatory 2005

*Tripleurospermum ambiguum*

Observatory

*Tripleurospermum inodorum*  
*Tussilago farfara*

Cimbulak  
Widespread



## Systematic List Number 1(b) Flowers of Aksu Djabagly area

A summary of the itinerary –

June 13 <sup>th</sup>	Ters Lake and Koksai Gorge
June 14 <sup>th</sup>	Kuyuk Pass, Karasai and Berkara
June 15 <sup>th</sup>	Journey to Mountain House
June 16 <sup>th</sup>	Ulkun Kaindi Valley
June 17 <sup>th</sup>	Ulkun Kaindi Pass
June 18 <sup>th</sup>	Baidaksai
June 19 <sup>th</sup>	Return to Dzhabagly
June 20 <sup>th</sup>	AD lower track, or Aksu Canyon

### Polypodiaceae

<i>Asplenium viride</i>	AD 2005
<i>Cystopteris filix-fragilis</i>	Koksai and AD
[ <i>Dryopteris filix-mas</i> ]	Not in 2004 or 2005]
[ <i>Asplenium ruta-muraria</i> ]	Not in 2004 or 2005]

### Typhaceae

<i>Typha angustifolia</i>	Karatau
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### Alismataceae

[ <i>Alisma loeselii</i> ]	Darbaza Lake 2004.]
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### Butomaceae

<i>Butomus umbellatus</i>	Ters
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### Equisitaceae

<i>Equisetum arvense</i>	Scattered.
<i>Equisetum ramossissimum</i>	AD 2005

### Cupressaceae

<i>Juniperus turkestanica</i>	Locally dominant at altitudes of 2600 – 3150m
<i>Juniperus seravschanica</i>	Locally dominant at mid altitudes
<i>Juniperus semiglobosa</i>	Locally dominant at mid altitudes
<i>Juniperus talassica</i>	<i>semiglobosa</i> x <i>sabina</i> . Koksai 2005

### Ephedraceae

<i>Ephedra equisetina</i>	Frequent in all areas
<i>Ephedra fedtschenkoana</i>	Aksu 2005
<i>Ephedra intermedia</i>	Koksai
<i>Ephedra regeliana</i>	Ulkun Kaindi Pass 2005

### Poaceae

<i>Achnatherum caragana</i>	Karatau
<i>Achnatherum splendens</i>	Karatau
[ <i>Aegilops crassa</i> ]	2004]
<i>Aegilops cylindrica</i>	Karatau
<i>Aegilops triuncialis</i>	Karatau
<i>Agropyron badamense</i>	AD
<i>Agrostis gigantea</i>	Berkara
<i>Alopecurus pratensis</i>	AD
<i>Alopecurus himalaicus</i>	AD
<i>Anisantha tektorum</i>	Karatau
<i>Botriochloa ischaemum</i>	Karatau 2005

<i>Bromopsis inermis</i>	Koksai and AD
<i>Bromopsis turcestanicus</i>	AD 2005
<i>Bromus danthoniae</i>	Koksai
<i>Bromus japonicus</i>	Karatau
<i>Bromus oxyodon</i>	AD
[ <i>Bromus sewerzowii</i>	2004]
[ <i>Calamagrostis epigeios</i>	Koksai Gorge and near Halfway House. Not in 2005.]
<i>Calamagrostis dubia</i>	Ulkun Kaindi Valley
<i>Cynodon dactylon</i>	Koksai and Karatau
<i>Dactylis glomerata</i>	Widespread and common
[ <i>Dactylus himalayensis</i>	2004]
[ <i>Elymus drobovii</i>	2004]
<i>Elytrigia trichophora</i>	Scattered
<i>Elytrigia repens</i>	Karatau
<i>Eremopoa oxyglumis</i>	AD 2005
[ <i>Festuca olgae</i>	Not in 2005]
[ <i>Festuca gigantea</i>	Not in 2005]
<i>Festuca pratensis</i>	Aksu village
<i>Festuca valesiaca</i>	Scattered
<i>Helictotrichon hookeri</i>	Ulkun Kaindi Pass
<i>Helictotrichon altaicum</i>	AD 2005
<i>Hordeum bulbosum</i>	Widespread and abundant
<i>Hordeum leporinum</i>	Karatau
<i>Hordeum brevisubulatum</i>	Koksai
<i>Koeleria cristata</i>	Scattered
<i>Leymus aemulans</i>	Kshi Kaindi
<i>Leymus angustus</i>	AD 2005
<i>Lolium perenne</i>	Karatau
<i>Melica inaequiglumis</i>	Karasai
<i>Melica canescens</i>	AD 2005
<i>Phalarioides arundinacea</i>	Karatau
<i>Phleum alpinum</i>	Baidaksai
<i>Phleum paniculatum</i>	Karatau
<i>Phleum phleoides</i>	Locally frequent in meadows adows at low-mid altitudes
<i>Phragmites australis</i>	Karatau
<i>Piptatherum sogdianum</i>	Baidaksai 2005
<i>Piptatherum songaricum</i>	Kuyuk Pass 2005
<i>Poa alpina</i>	Ulkun Kaindi Pass
<i>Poa angustifolia</i>	Koksai and AD
<i>Poa bulbosa</i>	Widespread
<i>Poa nemoralis</i>	AD
<i>Poa pratensis</i>	Widespread and common
<i>Poa relaxa</i>	AD
<i>Sclerochloa dura</i>	Karatau and AD
<i>Stipa capillata</i>	Locally frequent at lower altitudes
<i>Stipa caucasica</i>	Locally abundant at low-mid altitudes
<i>Stipa kirghisorum</i>	Scattered
<i>Stipa lessingiana</i>	Aksu
<i>Taeniatherum crinitum</i>	Scattered

### **Cyperaceae**

<i>Carex litvinowii</i>	AD 2005
<i>Carex mealnostahya</i>	AD 2005
<i>Carex turcestanica</i>	AD 2005

### **Araceae**

<i>Arum korolkovii</i>	Berkara
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### **Juncaceae**

<i>Juncus articulatus</i>	Locally common 2005
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*Juncus bufonius* Karatau 2005  
*Juncus gerardii* Karatau 2005

## Colchicaceae

*Colchicum luteum* By snow in the Ulkun Kaindi valley

## Liliaceae

*Eremurus lactiflorus* In seed at Kuyuk Pass. Sparse flowered spike of largish white flowers. Inflated round seed capsules distinctive.

*Eremurus regelii* Locally abundant at low - mid altitudes. Tall (up to 2.5m) dense flowered spike of brownish flowers. Seed capsules small round and variously ridged. Hybridises with *fuscus* at Koksai Gorge.

[*Eremurus sogdianus* 2004]  
*Eremurus tianshanicus* Tall columnar densish spike of off-white flowers. Kuyuk Pass.  
*Eremurus fuscus* Koksai 2005  
*Eremurus cristatus* Koksai 2005  
*Eremurus fuscus* x *E. regelii* Koksia Gorge  
*Gagea capillifolia* Ulkun Kaindi Valley  
*Gagea dshungarica* High altitudes in the reserve. Large leaves, small flowers.  
*Gagea emarginata* Locally common in the reserve.  
*Gagea filiformis* Ulkun Kaindi Valley, Pass, and Baidaksai  
*Gagea gageoides* AD  
*Gagea minutiflora* Ulkun Kaindi Valley  
*Gagea olgae* Ulkun Kaindi Pass  
*Gagea popovii* Aksu 2005  
*Gagea turkestanica* Ulkun Kaindi Pass and Valley  
*Gagea vvedenskyi* A few in the reserve  
[*Gagea ugamica* Ulkun Kaindi Pass and Baidaksai. 2004]  
*Korolkovia severzovii* In seed at Berkara, several in AD, in seed at Aksu.  
*Lloydia serotina* Snowdon lily. Ulkun Kaindi Pass.  
*Rhinopetalum stenanthrum* Noted in seed. Seed capsules about 12mm long and 12mm diameter with strong ridges. Ulkun Kaindi Valley.

*Polygonatum roseum* Occasional at low altitude. Mostly along stream banks. More upright than following species with pale pink to light rose flowers, normally two per whorl of leaves. Koksai 2005

*Polygonatum severzovii* Halfway House.  
*Tulipa bifloriformis* In seed at Kuyuk Pass  
*Tulipa dasystemonoides* Locally abundant on snowmelt from mid to high altitudes. Narrow pointed white tepals with a yellow centre and two long and narrow leaves (5-8mm)  
*Tulipa greigii* Red Data Book species. Frequent at low altitude in seed. A few in flower in Ulkun Kaindi Valley.  
*Tulipa kaufmanniana* Red Data Book species. Locally abundant at mid-high altitudes - usually seen in flower next to snowmelt. Rather blunt bright yellow tepals of very variable size, leaves normally 2, between 10 and 40mm wide, up to 150mm long, unspotted  
[*Tulipa orthopoda* In seed at Kuyuk Pass not 2004].  
*Tulipa kolpakowskiana* In seed at Koksai 2005  
*Tulipa turkestanica* Some plants in flower in Ulkun Kaindi Valley, and in flower on Pass.  
*Allium barszczewskii* Locally common at low-mid altitude. Sparse red flowers.  
*Allium caesium* Widespread – the larger blue allium.  
[*Allium collis-magni* Berkara 2004]  
*Allium drobovii* Widespread in bud – large pale one.  
*Allium eriocoleum* Aksu 2005  
*Allium fedtschenkoanum* Locally common at high altitude on lush meadows below snowmelt. Ulkun Kaindi Pass and Baidaksai  
*Allium fetissoyii* Widespread  
[*Allium filidens* Berkara and Steppe Lakes]  
*Allium hymenorrhizum* Probably the most common allium - rather ordinary looking with quite large hemispherical heads of pale pink flowers  
*Allium karataviense* Occasional on dry stoney slopes and scree at low-mid altitudes, usually on south facing slopes. Flowering in Ulkun Kaindi 2005

<i>Allium kokanicum</i>	Ulkun Kaindi Pass 2005
[ <i>Allium kuyukense</i>	Kuyuk Pass]
<i>Allium logicuspis</i>	Karasai 2005
<i>Allium oreophilum</i>	Ulkun Kaindi Pass – beautiful dwarf rich red-maroon flowered species on screes.
<i>Allium polyphyllum</i>	Common at high altitude – distinctive layered leaves
<i>Allium sewerzovii</i>	Locally frequent
<i>Allium trachyscordum</i>	Kuyuk Pass

### **Amaryllidaceae**

<i>Ixiolirion tataricum</i>	Locally abundant at low-high altitudes. Blue flowers like a flared campanula in appearance
<i>Ungernia severzovii</i>	In leaf at Koksai. Large brick red bloom when in flower, leaves rather like an <i>Eremurus</i> but more in the arrangement of a <i>Juno</i> Iris. Likes very dry slopes

### **Iridaceae**

<i>Crocus alatavicus</i>	In seed at Aksu 2005
<i>Iridodictyum kolpakovskianum</i>	AD, on the ascent to the Mountain House, 2005
[ <i>Iris korolkovii</i>	Some fine flowers at Aksu in 2003]
<i>Iris sogdiana</i>	Locally abundant at low-mid altitude. Rather foetid leaves about 15mm across. Flower white with some yellow at base of very narrow standards and falls. Sometimes suffused with pink or mauve. Damp areas and meadows.
<i>Iris (Juno) coerulea</i>	Locally frequent at low-mid altitudes. Slopes and screes. In flower in Ulkun Kaindi Valley. Elegant <i>Juno</i> iris with rather narrower leaves than following species - not as widely white-margined either. Sky-blue flowers.
<i>Iris (Juno) orchioides</i>	Locally frequent at mid-high altitudes - only noted on either side of the Ulkun Kaindi pass - most common on south facing stabilised scree slopes on the Aksu side of the pass. More leaves than precious species with wide white margin, overall a rather bigger plant - gorgeous yellow flowers. Only in seed 2005.
<i>Iris songorica</i>	In flower at the Koksai Gorge

### **Orchidaceae**

[ <i>Epipactis helleborine (=latifolia)</i>	Scattered. Broad-leaved Helleborine]
<i>Dactylorhiza umbrosa</i>	Locally abundant in wet flushes at low-mid altitudes. Typical dactylorhiza with wedge-shaped well patterned lip - as variable in characters as other members of the genus!

### **Salicaceae**

<i>Populus nigra</i>	Berkara
[ <i>Salix excelsa</i>	Dzhabagly]
<i>Salix neidzweckii</i>	In the reserve
<i>Salix linearifolia</i>	Karatau

### **Betulaceae**

<i>Betula talassica</i>	Locally frequent along streams in juniper forest. This species has very pale, almost white bark
<i>Betula turkestanica</i>	Locally frequent along streams at low-mid altitudes. Reddish tinge to bark. Apparent intermediates noted.

### **Ulmaceae**

<i>Celtis caucasica</i>	Berkara
<i>Ulmus pumila</i>	Berkara

### **Urticaceae**

<i>Parietaria micrantha</i>	Aksu
<i>Urtica dioica</i>	Widespread

## Santalaceae

*Thesium brevibracteatum* AD

## Polgonaceae

*Atraphaxis pyrifolia* Locally common  
*Atraphaxis frutescens* Kuyuk Pass 2005  
[*Oxyria digyna* Local at high altitudes – much commoner in the latter area]  
*Polygonum amphibium* Ters Lake 2005  
*Polygonum aviculare* Scattered  
*Polygonum coriarium* Widespread. The 'Alpine Bistort' look-alike  
*Polygonum hissaricum* Ulkun Kaindi Valley and Pass. Large leaves, green flowers.  
*Polygonatum nitens* Frequent at mid altitudes. Columnar spike - looking rather like a normal Bistort  
*Polygonum polycnemoides* Karatau  
*Polygonum undulatum* Common at mid-high altitudes  
*Polygonum viviparum* Koksai  
*Rheum maximowiczii* Scattered at low to mid altitudes. The 'Rhubarb'-like plant with large leaves and a spike of very red dock-like flowers  
*Rumex crispus* Widespread

## Chenopodiaceae

[*Ceratoides latens* Steppe lakes 2004]  
*Chenopodium album* 2005  
*Chenopodium foliosum* Around the Mountain House etc.  
*Polycnemum arvense* Steppe Lakes 2005  
*Rhaphidophyton regelii* Red Data Book species. Occasional at low altitudes in Karatau. Endemic.

## Caryophyllaceae

[*Acanthophyllum pungens* Steppe lakes]  
*Allochrusa gypsophiloides* Red Data Book species. Kuyuk Pass. Sprays of white *Gypsophila* like flowers  
*Arenaria griffithii* Most days in AD  
[*Arenaria serpyllifolia* not 2004 or 2005]  
[*Cerastium arvense* Widespread]  
*Cerastium bungeanum* Widespread  
*Cerastium cerastoides* AD 2005  
*Cerastium dahuricum* Widespread  
*Cerastium lithospermifolium* Ulkun Kaindi Pass  
[*Dianthus hoeltzeri* Scattered on drier slopes everywhere. Not in 2004 or 2005]  
*Dianthus karataviensis* Koksai 2005  
*Dianthus tetralepis* Taskol  
*Gypsophila cephalotes* Ulkun Kaindi Pass and Koksai  
*Herniaria hirsuta* Widespread  
*Melandrium turkestanicum* AD  
*Petrorhagia alpina* = *Tunica stricta* Common in the reserve  
*Silene brachuica* Koksai  
*Silene kuschakewiczii* AD  
[*Silene venosa* Steppe lakes]  
*Silene latifolia* (vulgaris) Widespread  
[*Silene volgensis* Koksai Gorge]  
*Stellaria graminea* Widespread. Lesser Stitchwort.  
[*Vaccaria pyramidata* Dzhabagly]  
[*Velezia rigida* 2004]

## Ranunculaceae

*Aconitum rotundifolium* In leaf at AD 2005  
*Aconitum talassicum* Noted in the small spring behind the Halfway House and in the Koksai Gorge. Small Monkshood with bright light blue flowers.  
*Adonis parviflora* Noted in the reserve and Koksai  
*Anemone protracta* Locally abundant at mid-high altitudes. Slopes, screes and streambanks – also by snowmelt. The abundant *Anemone narcissiflora* look-alike

<i>Anemone petiolulosa</i>	AD
<i>Aquilegia atrovinosa</i>	Locally frequent at mid altitudes. Streams and damp screes, also in <i>Juniperus turkestanicus</i> . A stunning dark wine-coloured <i>Aquilegia</i> Ters Lake not 2004 or 2005]
[ <i>Batrachium divaricatum</i>	Koksai 2005
<i>Ceratocephalus testiculatus</i>	Pretty white 'anemone' like flower with corydalis like foliage]
[ <i>Callianthemum alatavicum</i>	AD
<i>Clematis orientalis</i>	AD
<i>Delphinium barbatum</i>	Karasai 2005
<i>Delphinium confusum</i>	AD
<i>Delphinium semibarbatum</i>	Steppe Lakes
<i>Erianthis longistipitata</i>	AD
<i>Paraquilegia caespitosa</i>	Ulkun Kaindi Pass. Cushions in flower. Rocks, cliffs and screes at high altitude – a stunning plant with patches of dissect glaucous foliage up to two feet across often totally obscured by a mass of white to blue anemone like flowers. Note, this is a distinct species from that seen above Almaty, previously we have treated them as one species.
[ <i>Parapryum anemonoides</i>	2004]
<i>Pulsatilla campanella</i>	Locally abundant at mid to high altitudes. Drier slopes, screes and near snowmelt
<i>Ranunculus paucidentatus</i>	Scattered in the reserve
<i>Ranunculus polyanthemus</i>	Scattered - very similar to <i>Ranunculus acris</i> or Meadow Buttercup
<i>Ranunculus regelianus</i>	Scattered in the reserve
<i>Ranunculus songoricus</i>	Ulkun Kaindi Pass
<i>Ranunculus rufosepalus</i>	AD
<i>Thalictrum isopyroides</i>	Ulkun Kaindi Pass
<i>Thalictrum minus</i>	Widespread
<i>Thalictrum simplex</i>	Widespread at low to mid altitudes.
<i>Trollius altaicus</i>	Locally abundant at mid to high altitudes. Large orange-yellow Globeflower with a relatively open flower. Damp areas, streambanks and snowmelt

### **Berberidaceae**

<i>Berberis oblonga</i>	Scattered
<i>Gymnospermium alberti</i>	En route to Baidaksai 2005

### **Papaveraceae**

<i>Glaucium fimbriigerum</i>	Kuyuk Pass
[ <i>Glaucium elegans</i>	Kuyuk Pass not 2004 or 2005]
<i>Glaucium squamigerum</i>	Koksai
<i>Papaver croceum</i>	Locally common on Ulkun Kaindi Pass and Valley.
[ <i>Papaver litwinovii</i>	not 2004 or 2005]
<i>Roemeria refracta</i>	Koksai

### **Fumariaceae**

[ <i>Corydalis gortschakovii</i>	Noted from north facing slopes among <i>Juniperus turkestanicus</i> scrub on the Ulkun Kaindi pass and valley. Probably 2004.]
<i>Corydalis ledebouriana</i>	Ulkun Kaindi Valley and Baidaksai where common by snow melt
[ <i>Fumaria vaillantii</i>	Kuyuk Pass not 2004 or 2005]

### **Capparidaceae**

<i>Capparis herbacea</i>	Berkara
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### **Cruciferae**

<i>Alyssum campestre</i>	Scattered 2005
<i>Alyssum stenostachyum</i>	AD
<i>Arabis kokanica</i>	Ulkun Kaindi Pass
<i>Barbarea plantaginea</i>	Scattered 2005
<i>Brassica campestris</i>	Scattered
<i>Camelina microcarpa</i>	Koksai
<i>Cardamine densiflora</i>	Near Dzhabagly

<i>Capsella bursa-pastoris</i>	Steppe
<i>Cardaria pubescens</i>	Aksu 2005
<i>Cardaria draba</i>	AD 2005
<i>Crambe orientalis</i>	Scattered
<i>Draba huetii</i>	AD 2005
[ <i>Draba lanceolata</i>	2004]
[ <i>Draba melanopus</i>	Ulkun Kaindi Pass not 2004 or 2005]
[ <i>Draba talassica</i>	Ulkun Kaindi Pass not 2004 or 2005]
<i>Draba stenocarpa</i>	AD 2005
<i>Erysimum diffusum</i>	Scattered
<i>Erysimum humillimum</i>	Ulkun Kaindi Pass
<i>Erysimum marschallianum</i>	Koksai and Ad 2005
<i>Euclidium syriacum</i>	Karatau 2005
[ <i>Megacarpaea orbiculata</i>	not 2004 or 2005]
<i>Parrya albidum</i>	Local on the Ulkun Kaindi Pass and Valley
<i>Sisymbrium altissimum</i>	Karatau 2005
<i>Sisymbrium loeselii</i>	Scattered
[ <i>Sisymbrium brassiciforme</i>	Kuyuk Pass not 2004 or 2005]
<i>Tauscheria lasiocarpa</i>	Koksai 2005
<i>Thlaspi perfoliatum</i>	Widespread
<i>Thlaspi ferganense</i>	Ulkun Kaindi Pass 2005
<i>Turritis glabra</i>	Widespread

### Crassulaceae

<i>Pseudosedum longidentatum</i>	Baidaksai
<i>Rhodiola heterodontha</i>	Common around Ulkun Kaindi and Baidaksai
<i>Rhodiola semenovii</i>	Local in wet areas in the Ulkun Kaindi Valley and Baidaksai. Tall with a pyramidal white inflorescence and densely packed bright green foliage. 2005.
<i>Rosularia alpestris</i>	Ulkun Kaindi Valley, Pass, and Baidaksai
<i>Rosularia turkestanica</i>	Aksu
<i>Sedum alberti</i>	Koksai and Baidaksai
[ <i>Sedum pentapetalum</i>	Aksu not 2004 or 2005]

### Saxifragaceae

[ <i>Parnassia palustris</i>	Scattered in wet flushes – in leaf]
[ <i>Ribes meyeri</i>	]
<i>Saxifraga alberti</i>	Ulkun Kaindi Pass
<i>Saxifraga sibirica</i>	Scattered

### Rosaceae

<i>Agrimonia asiatica</i>	Berkara and AD
<i>Amygdalus petunnikovii</i>	A shrubby 'Almond'. AD 2005
[ <i>Amygdalus spinosissima</i>	2004]
<i>Alchemilla retropilosa</i>	Koksai and AD
<i>Armeniaca vulgaris</i>	Ad 2005. RDB.
<i>Cerasus erythropcarpa</i>	AD
<i>Cerasus tianshanica</i>	Frequent at low to mid altitudes. The virtually procumbent little cherry
<i>Cotoneaster multiflorus</i>	Scattered
<i>Cotoneaster pojarkovae</i>	Ulkun Kaindi Pass 2005
<i>Cotoneaster suavis</i>	Ulkun Kaindi Pass and Baidaksai 2005
[ <i>Cotoneaster karatavica</i>	2004]
[ <i>Crataegus korolkovii</i>	Baidaksai not 2004 or 2005]
<i>Crataegus pontica</i>	Noted from the Aksu Gorge 2005
<i>Crataegus turkestanica</i>	Widespread
<i>Dasiphora phyllocalyx</i>	Occasional at low-mid altitudes 2005. Shrubby Cinquefoil.
<i>Geum urbanum</i>	AD
<i>Hulthemia persica</i>	Kuyuk Pass
[ <i>Malus niedzwetzkyana</i>	Scattered. Not 2004 or 2005]
<i>Malus sieversii</i>	Scattered

<i>[Orthurus kokanicus</i>	2004]
<i>Padellus mahaleb</i>	Scattered
<i>Potentilla asiatica</i>	Widespread - a 'recta'-like species
<i>[Potentilla desertorum</i>	2004]
<i>Potentilla fedtschenkoana</i>	Locally frequent. Endemic
<i>[Potentilla gelida</i>	Ulkun Kaindi Pass and Valley. Not in 2005]
<i>Potentilla hololeuca</i>	Locally common on the Ulkun Kaindi Pass and Valley - very silvery hairy
<i>Potentilla orientalis</i>	Locally common
<i>[Potentilla songorica</i>	Aksu 2004]
<i>Potentilla supina</i>	Steppe Lakes 2005
<i>Potentilla reptans</i>	Berkara
<i>Potentilla transcaspia</i>	Occasional low-mid altitudes. Another 'recta'-like species but this time with grey undersides to the leaves
<i>Poterium polygamum</i>	Scattered – salad burnet!
<i>Prunus sogdiana (divaricata)</i>	Scattered
<i>Pyrus regelli</i>	Karatau
<i>Rosa alberti</i>	Widespread
<i>[Rosa beggeriana</i>	2004]
<i>Rosa canina</i>	Berkara, cultivated
<i>Rosa corymbifera</i>	Karatau
<i>Rosa fedtschenkoana</i>	Locally common at low-mid altitudes. Large white flowers
<i>Rosa hissarica</i>	Ulkun Kaindi Valley
<i>Rosa kokanica</i>	Common at low altitudes. A rather scrappy looking <i>Rosa</i> with many sharp spines
<i>Rosa maracandica</i>	Scattered
<i>Rosa nanothamnos</i>	Aksu Gorge. Small white flowers – only about 2cm across
<i>[Rosa platycantha</i>	2004]
<i>Rubus caesium</i>	Scattered
<i>Sanguisorba alpina</i>	Locally dominant along streams at low to mid altitudes. Bears like it!
<i>Sanguisorba officinalis</i>	Occasional at low to mid altitudes in meadows
<i>Sanguisorba riparia</i>	AD 2005
<i>Sorbus persica</i>	Locally frequent at low altitude
<i>Spiraea hypericifolia</i>	Widespread
<i>Spiraea pilosa</i>	Locally common

## **Fabaceae**

<i>Alhagi sparsifolia</i>	Karatau 2005
<i>[Astragalus abolinii</i>	Aksu, not in 2005]
<i>Astragalus aksaricus</i>	Ulkun Kaindi Pass
<i>Astragalus alaicus</i>	Ulkun Kaindi Valley 2005
<i>Astragalus alopecias</i>	Koksai Gorge 2005
<i>Astragalus andaulgensis</i>	AD 2005
<i>Astragalus anisomerus</i>	Widespread. Yellow flowers
<i>Astragalus atrovinosus</i>	Ulkun Kaindi Pass
<i>Astragalus ashuturi</i>	Ulkun Kaindi Pass
<i>Astragalus fedtschenkoanus</i>	Ulkun Kaindi Pass 2005
<i>Astragalus inaequalifolius</i>	Halfway House
<i>Astragalus krauseanus</i>	Koksai 2005. Yellow flowers.
<i>[Astragalus lanuginosus</i>	Karasai and Kuyuk Pass 2003 not 2004 or 2005]
<i>Astragalus macrotropis</i>	Koksai 2005
<i>[Astragalus megalomerus</i>	Aksu]
<i>Astragalus mucidus</i>	Koksai 2005, yellow flowers
<i>Astragalus nematodes</i>	Aksu 2005
<i>Astragalus neo-lipskyanus</i>	Karatau
<i>Astragalus pachyrrhizus</i>	Aksu
<i>Astragalus pterocephalus</i>	Koksai 2005
<i>Astragalus platyphyllos</i>	Koksai 2005. Pink flowers.
<i>[Astragalus pseudomacropterus</i>	Not in 2004 or 2005]
<i>[Astragalus schmalhauseni</i>	Kuyuk Pass not 2004 or 2005]
<i>Astragalus schrenkianus</i>	Kuyuk Pass



<i>Astragalus severzowii</i>	Occasional at low to mid altitudes. One of the most distinctive <i>Astragalus</i> . Up to 70cm tall with yellow flowers and amazing furry white seedpods which are up to 20mm across
<i>Astragalus sieversianus</i>	Scattered
<i>Astragalus skorniakovii</i>	Aksu and Kuyuk Pass
<i>Astragalus ugamicus</i>	Scattered
<i>Caragana kirghisorum</i>	Karasai 2005
<i>Chesneya ternata</i>	Koksai 2005
[ <i>Cicer flexuosum</i>	Noted from low-mid altitudes. South-facing. Not in 2004 or 2005]
<i>Cicer songoricum</i>	Mid-altitudes. Ulkun Kaindi Pass etc.
<i>Glycyrrhiza aspera</i>	Scattered 2005
<i>Glycyrrhiza glabra</i>	Karatau 2005
[ <i>Glycyrrhiza uralensis</i>	Berkara]
<i>Vexibia alopecuroides</i>	Scattered 2005
<i>Hedysarum acutifolium</i>	Koksai
<i>Hedysarum talassicus (cephalotes)</i>	Occasional at mid altitudes - the very beautiful bright pink flowered <i>Hedysarum</i> Endemic
<i>Hedysarum fedtschenkoanum</i>	Ulkun Kaindi Pass 2005. Very beautiful 'furry' species which had reddish-purplish-pink flowers – two other species in the complex – taxonomically difficult]
<i>Hedysarum flavescens</i>	Occasional along riversides at low-mid altitudes
<i>Hedysarum sewerzovii</i>	Aksu
<i>Hedysarum tashkenticum</i>	Aksu
<i>Halimodendron halodendron</i>	Koksai 2005
<i>Lathyrus pratensis</i>	Widespread
<i>Lotus sergievskae</i>	Steppe Lakes 2005
<i>Medicago lupulina</i>	Widespread
[ <i>Medicago minima</i>	Aksu]
<i>Medicago sativa</i>	Steppe Lakes
[ <i>Medicago rigidula</i>	2004]
<i>Medicago tianshanica</i>	Widespread
<i>Melilotus officinalis</i>	Widespread
<i>Melissitus tianshanicus</i>	Scattered
<i>Merystrotropis triphyllus</i>	Kuyuk Pass
<i>Onobrychis chorassanica</i>	Koksai Gorge
<i>Onobrychis echidna</i>	Occasional. The spiny domed shrub with purple flowers
[ <i>Onobrychis grandis</i>	Aksu]
<i>Onobrychis sativa</i>	In cultivation
[ <i>Oxytropis albovillosa</i>	Ulkun Kaindi Pass]
<i>Oxytropis auliatensis</i>	Scattered 2005
[ <i>Oxytropis caespitulosa</i>	2004]
<i>Oxytropis pilosissima</i>	Koksai and AD 2005
<i>Oxytropis talassica</i>	Ulkun Kaindi Pass and Valley, Baidaksai – tall and red-purple, Endemic
<i>Oxytropis terekensis</i>	Ulkun Kaindi Pass 2005
<i>Oxytropis trichocalycina</i>	Aksu
<i>Trifolium pratense</i>	Widespread
<i>Trifolium repens</i>	Widespread
<i>Trigonella ornata</i>	Kuyuk Pass 2005
<i>Vicia kokanica</i>	Locally common
<i>Vicia tenuifolia</i>	Common at low altitude. Resembles <i>Vicia cracca</i>

## Geraniaceae

<i>Erodium cicutarium</i>	Karasai and Aksu.
[ <i>Geranium collinum</i>	Widespread in various forms. Not in 2005]
<i>Geranium divaricatum</i>	Karatau and AD
<i>Geranium pusillum</i>	Karatau 2005
[ <i>Geranium pratense</i>	2004]
<i>Geranium saxatile</i>	Locally common at mid to high altitudes. Like a stunted high altitude version of <i>pratense</i>
<i>Geranium transversale</i>	Koksai

**Biebersteiniaceae**

[*Biebesteinia multifida* 2004]

**Linaceae**

*Linum altaicum*

Locally frequent at high altitude. The big blue one

*Linum olgae*

Locally frequent at low altitude. The large pink flowered *Linum*

*Linum pallescens*

Aksu

*Linum corymbulosum*

Steppe Lakes 2005

**Rutaceae**

*Dictamnus angustifolius*

Local at low-mid altitudes in Kshi Kaindi

*Haplophyllum latifolium*

Aksu

*Haplophyllum perforatum*

Kuyuk Pass

**Polygalaceae**

*Polygala hybrida*

Widespread at mid altitudes. The common milkwort

**Euphorbiaceae**

*Euphorbia humilis*

Occasional at mid-high altitudes

*Euphorbia jaxartica*

Scattered

*Euphorbia seravschanica*

Ulkun Kaindi 2005

*Euphorbia talastavica*

Ulkun Kaindi Pass and Valley

**Anacardiaceae**

[*Pistacea vera*

2004]

**Celastraceae**

*Euonymus koopmannii*

Endangered species. Occasional. Rather different from west European members of the genus, looking rather like a *Rubiacean* with whorls of leaves, 4-merous brown flowers and a sprawling herbaceous habit.

**Aceraceae**

*Acer semenovii*

Berkara

**Balsaminaceae**

*Impatiens parviflora*

Karatau

**Rhamnaceae**

[*Rhamnus cathartica*

Occasional at low altitudes]

*Rhamnus coriacea*

AD

**Vitaceae**

[*Vitis vinifera*

Berkara]

**Malvaceae**

*Alcea nudiflora*

Common along tracks and roads.

*Althaea armeniaca*

Karasai 2005

*Malva neglecta*

Scattered

**Tamaraciceae**

*Tamarix ramosissima*

Karatau

**Guttiferae**

*Hypericum elongatum*

Locally abundant especially at mid altitudes. An elongate inflorescence of rather large pale yellow flowers

*Hypericum perforatum*

Widespread

*Hypericum scabrum* Locally abundant at low to mid altitudes. Flattish topped heads of bright yellow flowers and a rough (scabrid) stem

### **Violaceae**

*Viola biflora* At c.2500-2700m in the Ulkun Kaindi Valley growing in rock crevices in cliffs.  
*Viola modestula (occulta)* Scattered  
*Viola rupestris* Scattered  
*Viola suavis* Scattered

### **Elaeagnaceae**

*Elaeagnus oxycarpa* Scattered  
*Hippophae rhamnoides* Occasional at low altitudes.

### **Thymelaeaceae**

*Thymelaea passerina* Karatau 2005

### **Onagraceae**

*Chamaenaerium angustifolium* Scattered  
*Epilobium adnatum* Baidaksai 2005  
 [*Epilobium tianschanicum* not 2004 or 2005]  
 [*Epilobium hirsutum* not 2004 or 2005]  
*Epilobium velutinum* Steppe Lakes

### **Apiaceae**

*Aegopodium tadchikorum* Widespread  
 [*Aegopodium alpestre* Koksai Gorge. Not in 2005]  
*Angelica decurrens* Koksai  
*Anthriscus glacialis* Baidaksai  
*Anthriscus turkestanicum* AD 2005  
*Bupleurum tianshanicum* Scattered at mid altitudes and in the Aksu Canyon  
*Carum carvi* AD  
*Conioselinum tataricum* Baidaksai 2005  
*Conium maculatum* Scattered  
*Daucus carota* Steppe Lakes 2005  
*Elaeosticta alliodes* Steppe Lakes and AD  
*Elaeosticta setacea* Scattered  
*Ferula karatavienses* Scattered  
*Ferula karatavica* Kuyuk Pass  
*Ferula kirjalovii* AD 2005  
 [*Ferula leucographa* 2004]  
*Ferula penninervis* Locally frequent at low-mid altitudes  
 [*Ferula samarkandica* Scattered.]  
*Ferula talassica (renardii)* Ulkun Kaindi Pass and Valley.  
*Ferula tenuisecta* Locally dominant especially at low altitudes but locally frequent even at high altitudes  
 [*Heracleum dissectum* Scattered. By streams in the Kshi Kaindi. Not in 2005]  
*Ligusticum talassica* Ulkun Kaindi Pass  
*Kosopoljanskia turkestanica* Koksai 2005, Endemic  
*Mediasia macrophylla* Locally common  
*Melabaila tordyloides* AD 2005  
*Muretia transitoria* Locally frequent at low altitude. Tall, slender with small yellow umbel, 2005  
*Oedibasis apiculata* Scattered 2005  
*Oedibasis platycarpa* AD 2005  
*Pachypleurum aemulans* Ulkun Kaindi Pass 2005  
*Paraligusticum discolor* Locally abundant at low-mid altitudes  
*Prangos pabularia* Locally abundant at low altitudes  
*Prangos uloptera* Steppe Lakes  
 [*Psammogeton barszczovii* Steppe Lakes 2003 not 2004 or 2005]  
*Scandix stellata* Scattered

[ <i>Scaligera setaceae</i>	Locally common]
<i>Schtschurovskia meifolia</i>	Ulkun Kaindi Pass and Valley
<i>Schrenkia congesta</i>	Juniper forests
<i>Schrenkia golickeana</i>	Widespread
<i>Schrenkia involucrata</i>	Karatau
[ <i>Schrenkia vaginata</i>	Kuyuk Pass 2003 not 2004 or 2005]
<i>Selinum coriacium</i>	Scattered
<i>Selinum kultiassovii</i>	Aksu
<i>Seseli mucronatum</i>	Koksai 2005
<i>Seseli schrenkiana</i>	Very common
<i>Seseli setifera</i>	AD 2005
<i>Seseli talassica</i>	Aksu 2005
<i>Torilis leptophylla</i>	Berkara
<i>Turgenia latifolia</i>	Scattered
<i>Vicatia conifolia</i>	Widespread at mid-high altitudes

### Pyrolaceae

[ <i>Pyrola rotundifolia</i>	Locally frequent in damp birch/willow groves, e.g. in the Ulkun Kaindi and Kshi Kaindi]
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### Primulaceae

<i>Anagallis arvensis</i>	Kuyuk Pass, red flowers
<i>Anagallis caerulea</i>	Koksai, blue flowers
<i>Androsace fedtschenkoi</i>	Ulkun Kaindi Pass
<i>Androsace sericea</i>	Locally abundant at high altitudes. Cushion forming perennial with leaves c. 2mm wide in a rosette where the leaves curve upwards but the rosette stays relatively open. White flowers with yellow or red eye
<i>Androsace turczaninovii</i>	Steppe Lakes 2005
<i>Cortusa turkistanica</i>	Locally abundant in wet flushes at low-mid altitudes. A very beautiful plant with large semi-orbicular toothed leaves of a bright green, rather rough on the upper surface and umbels of pink-purple flowers
<i>Primula algida</i>	By recent snowmelt and meadows at mid to high altitudes. The very small flowered pinky-purple <i>Primula</i> with 'normal' looking leaves
<i>Primula minkwitziae</i>	On rocks and cliffs at mid to high altitudes, usually north facing. Noted in upper Ulkun Kaindi Valley. Larger, brighter pink-red flowers than previous species with distinctive orbicular leaves. Habitat also distinctive - normally only found in rock crevices although occasionally also on screens

### Plumbaginaceae

<i>Acantholimon alberti</i>	Locally frequent at low to mid altitudes
[ <i>Acantholimon aulieatense</i>	Steppe Lakes]
<i>Acantholimon alatavicum</i>	Ulkun Kaindi Pass 2005
[ <i>Limonium myrianthum</i>	Taskol. Not 2004 or 2005]
[ <i>Limonium gmelinii</i>	Taskol. Not 2004 or 2005]

### Oleaceae

<i>Fraxinus sogdiana</i>	Berkara
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### Gentianaceae

<i>Centaurium pulchellum</i>	Steppe Lakes 2005
[ <i>Gentiana karelini</i>	Ulkun Kaindi Pass. Minute!]
<i>Gentiana olivieri</i>	Locally frequent in seed on all types of ground from low-mid altitudes
<i>Gentiana tianshanica</i>	AD 2005
<i>Gentiana turkestanorum</i>	AD 2005
<i>Swertia variabilis</i>	Wet flushes in Baidiksai valley, in bud, also Koksai in bud

### Convolvulaceae

<i>Convolvulus arvensis</i>	Scattered
<i>Convolvulus lineatus</i>	Occasional at low altitudes
<i>Convolvulus pseudocantabricus</i>	Karatau

## Cuscutaceae

<i>Cuscuta brevistyla</i>	Kuyuk Pass 2005
<i>Cuscuta engelmannii</i>	AD 2005
<i>Cuscuta lehmanniana</i>	Kuyuk Pass 2005
<i>Cuscuta epithymum</i>	Kuyuk Pass 2005

## Boraginaceae

<i>Anchusa italica</i>	AD and Koksai etc.
<i>Asperugo procumbens</i>	Low altitudes in the reserve and Koksai
<i>Echium italicum</i>	Koksai and Karasai
<i>Heterocarium rigidum</i>	Koksai 2005
<i>Lappula microcarpa</i>	Widespread
<i>Lindelofia macrostyla</i>	Karasai and AD. Substantial 'symphytum'-like borage with far-protruding style.
<i>Lindelofia tschimganica</i>	AD. Red flowers.
<i>Macrotomia euchroma</i>	Ulkun Kaindi Pass
<i>Macrotomia ugamensis</i>	Locally frequent at mid to high altitudes. Both species of <i>Macrotomia</i> have dark purple-black flowers, and linear-spatulate leaves and grow to about 20cm. The above species has much narrower leaves (c.10mm maximum) and is much greyer hairy with darker flowers. Endemic.
<i>Myosotis asiatica</i>	Widespread
<i>Myosotis micrantha</i>	Koksai and AD 2005
<i>Myosotis sparsiflora</i>	Karasai
<i>Onosma dichroanthum</i>	Koksai
<i>Onosma irritans</i>	Ulkun Kaindi Valley and Kuyuk Pass
<i>Rhytispermum arvense</i>	Scattered 2005
<i>Rhytispermum tenuiflorum</i>	Koksai 2005
<i>Rindera echinata</i>	Aksu 2005
<i>Rindera oblongifolia</i>	Ulkun Kaindi Valley
[ <i>Rindera tianshanica</i>	2004]
<i>Rochelia campanulata</i>	Koksai 2005
<i>Rochelia cardiosepala</i>	Koksai and AD 2005
<i>Solenanthus circinnatus</i>	Scattered in AD
<i>Stephanocaryum olgae</i>	Growing on rock faces and in crevices at about 2400m - 2500m in the Ulkun Kaindi Valley. Flowers like an <i>Eritrichium</i> or a large sky-blue <i>Myosotis</i> , grows quite tight against the rock-face.
<i>Trachelanthus korolkovii</i>	AD 2005
<i>Trichodesma incanum</i>	Berkara

## Verbenaceae

<i>Verbena officinalis</i>	Karasai 2005
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## Labiatae

<i>Acinos graveolens</i>	Aksu 2005
<i>Betonica foliosa</i>	Locally abundant at low altitudes
<i>Dracocephalum integrifolium</i>	Scattered – leaves undivided. Rocky places
<i>Dracocephalum nutans</i>	AD
[ <i>Eremostachys karatavica</i>	Kuyuk Pass 2004]
<i>Eremostachys speciosa</i>	Occasional at mid altitudes
<i>Eremostachys tianshanica</i>	Ulkun Kaindi Pass – short robust species with very white hairy inflorescence and orange flowers
<i>Lagochilus platycalyx</i>	Karasai
<i>Lagochilus tianschanicus</i>	Ulkun Kaindi Pass
<i>Lamium album</i>	AD
<i>Leonurus turkestanicus</i>	AD
<i>Lophanthus schrenkii</i>	In leaf in Ulkun Kaindi Valley
<i>Lophanthus tschimganicus</i>	Ulkun Kaindi
<i>Lycopus exaltatus</i>	Koksai 2005
<i>Mentha arvensis</i>	Ters Lake
<i>Mentha asiatica</i>	Widespread
<i>Nepeta cataria</i>	Karatau

<i>Nepeta mariae</i>	Ulkun Kaindi Pass and Baidaksai
<i>Nepeta pannonica</i>	Locally abundant in meadows at low altitude.
<i>Nepeta ucrainica</i>	Koksai 2005
<i>Origanum tyttanthum</i>	Frequent at low to mid altitudes
<i>Phlomis brachystegia</i>	Scattered
<i>Phlomis salicifolia</i>	Karasai etc.
<i>Prunella vulgaris</i>	Berkara 2005
[ <i>Pseuderemostachys sewerzowii</i>	2004]
<i>Salvia deserta</i>	Locally abundant at low altitudes
<i>Salvia sclarea</i>	Steppe Lakes etc.
<i>Salvia aethiopsis</i>	Steppe Lakes
<i>Salvia virgata</i>	Aksu
<i>Scutellaria androsovii</i>	Koksai 2005
<i>Scutellaria cordifrons</i>	Locally frequent in the Ulkun Valley and Pass
<i>Scutellaria flabellulata</i>	Ulkun Kaindi Pass 2005.
<i>Scutellaria immaculata</i>	Aksu Gorge
<i>Scutellaria kurssanovii</i>	Taskol, Kuyuk Pass and Karasai
<i>Scutellaria linczevskii</i>	Ulkun Kaindi Pass 2005
[ <i>Scutellaria subcaespitosa</i>	Aksu 2003 not 2004 or 2005]
<i>Stachyopsis oblongata</i>	Ulkun Kaindi Valley and Pass, and Baidaksai
<i>Teucrium scordioides</i>	Steppe Lakes
<i>Thymus dmitrievae</i>	AD
<i>Thymus karatavicus</i>	Koksai
<i>Ziziphora bungeana</i>	Widespread
<i>Ziziphora clinopodioides</i>	Ulkun Kaindi Pass 2005
[ <i>Ziziphora pamiroalaica</i>	Ulkun Kaindi Pass not in 2004 or 2005]
<i>Ziziphora tenuior</i>	Kuyuk Pass

## Solanaceae

<i>Hyoscyamus niger</i>	Koksai and Halfway House 2005
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## Scrophulariaceae

<i>Bungeana vesiculifera</i>	Aksu
<i>Dodartia orientalis</i>	Karatau
<i>Euphrasia tartarica</i>	Scattered
<i>Gratiola officinalis</i>	Steppe Lakes 2005
<i>Leptorhabdos parviflora</i>	Berkara
<i>Linaria popovii</i>	Berkara etc.
<i>Odontites serotina</i>	Steppe Lakes
<i>Pedicularis dolichorrhiza</i>	Locally abundant at mid to high altitudes. The common yellow and white (or creamy) flowered lousewort
	Koksai, in seed. Endemic.
	2004]
	Very widespread. Red – an early flowerer.
	AD
	Occasional at mid altitudes.
	Ulkun Kaindi Valley etc. By streams
	Karatau
	Steppe Lakes, in seed 2005
	Widespread and common
	not 2004 or 2005]
	Scattered
	Widespread
	AD
	Scattered at low to mid altitude. Another large 'spicate' <i>veronica</i> .
	Ulkun Kaindi Pass, white flowers

## Orobanchaceae

[ <i>Orobanche amoena</i>	Koksai. Not in 2004 or 2005]
<i>Orobanche kotschyi</i>	Scattered 2005
<i>Orobanche sordida</i>	AD
<i>Orobanche uralensis</i>	Koksai 2005

## Lentibulariaceae

[ <i>Utricularia vulgaris</i>	not in 2004 or 2005]
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## Plantaginaceae

<i>Plantago arachnoidea</i>	Ulkun Kaindi Pass 2005
<i>Plantago lanceolata</i>	Locally frequent at low to mid altitude
<i>Plantago major</i>	Karatau
[ <i>Plantago maritima</i>	Steppe Lakes not in 2004 or 2005]

## Rubiaceae

<i>Asperula humifusa</i>	Steppe Lakes 2005
<i>Asperula setosa</i>	Scattered
<i>Callipeltis cucullaris</i>	Aksu Canyon, Koksai
[ <i>Crucianella exasperata</i>	Steppe Lakes not 2004 or 2005]
[ <i>Galium aparine</i>	not 2004]
<i>Galium karataviense</i>	Scattered in the reserve
<i>Galium pamiro-alaicum</i> = <i>G. verum</i>	Frequent at low to mid altitudes
<i>Galium saurense</i>	Ulkun Kaindi Pass 2005
<i>Galium septentrionale</i>	At low to mid altitudes
<i>Galium tenuissimum</i>	Koksai
[ <i>Galium verticillatum</i>	Steppe Lakes and Kuyuk Pass 2004]
<i>Rubia regelii</i>	On rocks on the Ulkun Kaindi Pass

## Caprifoliaceae

<i>Lonicera cinerea</i>	Ulkun Kaindi Pass and Valley 2005
<i>Lonicera karelinii</i>	Frequent at low to mid altitudes. Two largish bi-coloured flowers.
<i>Lonicera microphylla</i>	Frequent at high altitudes, particularly Ulkun Kaindi pass.
<i>Lonicera nummulariifolia</i>	Locally abundant at low to middle altitudes.
[ <i>Lonicera olgae</i>	Ulkun Kaindi Pass not 2004 or 2005]
[ <i>Lonicera stenantha</i>	2004]
<i>Lonicera tianshanica</i>	Quite common at mid altitudes

## Valerianaceae

<i>Valeriana fedtschenkoi</i>	Occasional at mid to high altitudes
<i>Valeriana ficariifolia</i>	AD

## Morinaceae

<i>Morina kokanica</i>	Noted from among the Juniper forest around the halfway house where it was quite common and in the Ulkun Kaindi Valley, where in leaf
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## Dipsacaceae

<i>Dipsacus azureus</i>	Occasional at low to mid altitudes
<i>Scabiosa micrantha</i>	Aksu and AD
<i>Scabiosa songarica</i>	Scattered

## Campanulaceae

<i>Asyneuma argutum</i>	Quite common at low-mid altitude.
<i>Campanula alberti</i>	Scattered
[ <i>Campanula capusii</i> (= <i>lehmanniana</i> )	Rocks and cliffs on the Ulkun Kaindi Pass. Tends to grow in inaccessible localities - only the first was approachable and then with difficulty. Narrow strap shaped leaves, stems in a cluster to 30cm with single large open blue 'bellflower'. Style undivided. Not 2004 or 2005]
<i>Campanula glomerata</i>	Widespread. The European Clustered Bellflower with a distinctive capitate inflorescence
<i>Cylindrocarpa severzovii</i>	Ulkun Kaindi Pass 2005. Endemic.
<i>Sergia severzovii</i>	Aksu Gorge where reasonably common along south facing cliffs - particularly near the top. A very slight plant with rather open 1cm long blue flowers and narrow toothed strap shaped leaves. 2003 in leaf.
<i>Codonopsis klematidea</i>	Widespread. Streamsides, Juniper and spruce forest and damp slopes. Large pale blue bells with orange and black stigma and anthers. Foetid.

## Asteraceae

<i>Achillea biebersteinii</i> (= <i>micrantha</i> )	Widespread. Bright yellow.
<i>Achillea filipendulina</i>	Widespread. Bright yellow
<i>Achillea millefolium</i>	Widespread
<i>Acroptilon australe</i>	Steppe Lakes 2005
<i>Arctium tomentosum</i>	Widespread. Very much liked by the horses!
<i>Artemisia absinthium</i>	Widespread
<i>Artemisia aschurbajevii</i>	Ulkun Kaindi Pass and Valley 2005
<i>Artemisia dracunculoides</i>	Widespread
<i>Artemisia karatavica</i>	Karatau
<i>Artemisia persica</i>	Ulkun Kaindi Valley etc.
<i>Artemisia rutifolia</i>	Aksu Canyon
<i>Artemisia santolinifolia</i>	Locally frequent at higher altitudes
<i>Artemisia serotina</i>	Koksai 2005
<i>Artemisia sieversiana</i>	Koksai 2005
<i>Artemisia vulgaris</i>	Widespread
<i>Aster alpinus</i>	Ulkun Kaindi Pass
<i>Aster canescens</i>	Koksai Gorge 2005
[ <i>Aster popovii</i>	Cliffs in the Koksai Gorge. Not in 2004 or 2005]
<i>Carduus nutans</i>	Karatau
<i>Carthamnus lanatus</i>	Karatau
<i>Centaurea iberica</i>	Common along roadsides
<i>Centaurea depressa</i>	Koksai 2005
<i>Centaurea ruthenica</i>	Ulkun Kaindi Pass and Valley – largish yellow flowers
<i>Centaurea squarrosa</i>	Scattered
<i>Centaurea turkestanica</i>	Aksu 2005
[ <i>Centaurea pulchella</i>	Karasai. Not 2004 or 2005]
<i>Chardinia orientalis</i>	Aksu Gorge 2005
[ <i>Chondrilla aspera</i>	Steppe Lakes not 2004 or 2005]
<i>Cirsium incanum</i>	Aksu
<i>Cirsium turkestanicum</i>	AD
[ <i>Cichorium intybus</i>	not 2004 or 2005]
<i>Cousinia albertii</i>	Karatau. Endemic.
<i>Cousinia caespitosa</i>	Ulkun Kaindi Pass
<i>Cousinia fetissovii</i>	Ulkun Kaindi Valley (bud) and Baidaksai
<i>Cousinia karatavica</i>	Kuyuk Pass
<i>Cousinia microcarpa</i>	Aksu
<i>Cousinia minkwitziae</i>	Occasional at lower altitudes
<i>Cousinia severtzovii</i>	AD
<i>Cousinia sydariensis</i>	Karatau 2005
<i>Cousinia umbrosa</i>	Widespread
<i>Crepis multicaulis</i>	AD 2005
[ <i>Crepis oreades</i>	Ulkun Kaindi Pass and Valley. Not in 2004 or 2005]
<i>Crupina vulgaris</i>	Karatau



<i>Echinops karatavicus</i>	Karasai
<i>Echinops talassicus</i>	AD 2005
<i>Echinops tschimganicus</i>	Koksai. Endemic.
<i>Erigeron acer</i>	Koksai 2005
<i>Erigeron cabulicus</i>	Frequent at mid-high altitude. Orange!
[ <i>Erigeron chorrosanicus</i>	In bud. Not 2004 or 2005]
[ <i>Erigeron pallidus</i>	Pale cream. Aksu]
[ <i>Erigeron pseuderigeron</i>	Koksai Gorge. Not in 2005]
<i>Erigeron seravshaicius</i>	AD 2005
<i>Filago arvensis</i>	Kuyuk Pass
[ <i>Galatella coriacea</i>	Occasional in meadows – aster-like]
<i>Handelia trichophylla</i>	Koksai Gorge
<i>Helichrysum maracandicum</i>	AD
<i>Hieraceum echioides</i>	AD
<i>Hieraceum viosum</i>	AD
<i>Hippolytia megacephala</i>	Ulkun Kaindi Pass 2005
<i>Inula macrophylla</i>	Aksu Canyon and Karatau
<i>Inula rhizocephala</i>	Ulkun Kaindi Valley and Pass
<i>Jurinea algida</i>	AD
<i>Jurinea suffruticosa</i>	AD
<i>Koelinia linearis</i>	Petrol station!
<i>Lactuca serriola</i>	Karatau 2005
[ <i>Leontopodium ochroleucum</i>	Ulkun Kaindi Pass, not 2004 or 2005]
<i>Ligularia karataviensis</i>	Karatau 2005
<i>Ligularia macrophylla</i>	Locally dominant in rich meadows especially at mid altitudes, also up to high altitudes
<i>Ligularia songorica</i>	AD
[ <i>Ligularis talassica</i>	Leaves at Baidaksai not 2004 or 2005]
<i>Microcephala subglobosa</i>	Taskol 2005
<i>Olgaea pectinata</i>	Aksu
<i>Onopordon acanthium</i>	Scattered
[ <i>Pentanema albertoregelia</i>	2004]
<i>Pyrethrum tianshanicum</i>	Ulkun Kaindi Valley and Baidaksai
<i>Pyrethrum transiliense</i>	Ulkun Kaindi Pass
<i>Saussurea elegans</i>	AD
<i>Scorzonera franchtii</i>	Scattered 2005
<i>Scorzonera inconspicua</i>	Widespread
<i>Scorzonera petrovii</i>	AD
[ <i>Scorzonera turkestanica</i>	Scattered. Not in 2004 or 2005]
[ <i>Senecio racemulifer</i>	Ulkun Kaindi Valley. Not in 2004 or 2005]
<i>Serratula lyratifolia</i>	Ulkun Kaindi Pass
<i>Solidago dahurica</i> (=virgaurea)	Widespread
<i>Sonchus arvensis</i>	Koksai 2005
[ <i>Steptirhamphus crassicaulis</i>	Kuyuk Pass not 2004 or 2005]
<i>Syreitschikovia spinulosa</i>	Ulkun Kaindi Pass. Very rare – known only from this spot in the reserve and only a few outside it! 2005
<i>Tanacetum pseudachillea</i>	Widespread
<i>Tanacetum turlanicum</i>	Scattered
<i>Taraxacum montanum</i>	AD 2005
<i>Taraxacum officinale</i>	Widespread
<i>Tragopogon marginifolius</i>	Koksai
<i>Tragopogon pseudomajor</i>	Koksai
[ <i>Tragopogon pratensis</i>	Scattered not 2004 or 2005]
<i>Tragopogon turkestanicus</i>	Widespread
<i>Tragopogon vvedenskyi</i>	Karasai and AD
<i>Trichanthemis radiata</i>	Koksai Gorge
<i>Tripleurospermum inodorum</i>	Widespread
<i>Tussilago farfara</i>	AD
[ <i>Xeranthemum longipapposum</i>	Kuyuk Pass 2004]
<i>Xanthium strumarium</i>	Steppe Lakes 2005

Some Naturalised Species

*Armeniaca vulgaris*

*Salix alba*

*Caragana arborescens*

Aksu Canyon

Planted above the mountain house!

## Systematic List Number 2      Butterflies

The taxonomy and nomenclature for the following list has been taken from 'Die Tagfalter Nordwestasiens' by Lukhtanov and Lukhtanov (1994). As an indication of abundance the number of days out of fifteen on which each species was seen is given. AD = Aksu-Dzhabagly Reserve. CB = Cim Bulak, OB = Observatory

### ***Papilionidae***

Swallowtail	<i>Papilio machaon</i> <i>Parnassius actius</i>	Common in AD with several seen every day 7/15 Subspecies <i>minutus</i> . A dead individual above Cimbulak.
	<i>Parnassius tienshanicus</i>	Subspecies <i>tienshanicus</i> . 15+ at OB. 1/15
	<i>Parnassius apollonius</i>	Subspecies <i>chimganus</i> . 2 in AD 2/15 Subspecies <i>poseidon</i> . 2 at Koksai, and a wing at Baidaksai. 1/15
Clouded Apollo	<i>Parnassius delphius</i> <i>Parnassius mnemosyne</i>	Subspecies <i>albulus</i> . 5+ below Cosmos Station. 1/15 Subspecies <i>valentinae</i> . Common in AD and Aksu. 5/15 Subspecies <i>orientalis</i> . OB. 1/15

### ***Pieridae***

Orange-Tip	<i>Anthocharis cardamines</i>	Widespread and locally common 7/15
Black-veined White	<i>Aporia crataegi</i>	Subspecies <i>naryana</i> . Very common in AD 8/15
Eastern Pale Clouded Yellow	<i>Colias erate</i>	Widespread in Dzhabagly area, and OB. 10/15
Pale Clouded Yellow	<i>Colias hyale</i> <i>Colias romanovi</i> <i>Colias wiskotti</i>	Scattered, CB and Karasai 3/15 Koksai. 1/15 Subspecies <i>draconis</i> . 1 below Ulkun Kaindi Pass. 1/15
Brimstone	<i>Gonepteryx rhamni</i>	CB and OB 5/15
Wood White	<i>Leptidea sinapis</i>	Widespread 9/15
Large White	<i>Pieris brassicae</i>	Several in Almaty area. 4/15
Green-veined White	<i>Pieris napi</i>	Subspecies <i>muechi</i> . Almaty area 2/15
Small White	<i>Pieris rapae</i> <i>Pieris canidia</i>	Scarce, only Karatau 1/15 Subspecies <i>paleoartica</i> . 1 in AD on lower track. 1/15
Krueper's Small White	<i>Pieris krueperi</i> <i>Metaporia leucodice</i>	1 below Big Almaty Lake. 1/15
Eastern Bath White	<i>Pontia edusa</i>	Widespread, Koksai, and numerous in AD. 6/15 1 at Koksai, common above Almaty. 4/15

### ***Lycaenidae***

	<i>Pseudotoecla lunulata</i> <i>Phoenicurusia margelanica</i>	Subspecies <i>acaudata</i> . 5+ at Berkara, 2 in AD 2/15 1 at Kuyuk Pass. 1/15
Small Copper	<i>Lycaena phlaeas</i>	Singletons in Karatau and AD, 5+ at OB. 3/15
Holly Blue	<i>Celastrina argiolus</i>	Widespread in small numbers. 6/15
Osiris Blue	<i>Cupido osiris</i>	Common at AD, lower track 1/15
Green-underside Blue	<i>Glaucopsyche alexis</i> <i>Pseudophilotes vicrama</i>	Koksai and AD 2/15 1, AD lower track. 1/15
Odd-spot Blue	<i>Turanana endymion</i>	Subspecies <i>tschatkalica</i> . 4, AD lower track. 1/15
Brown Argus	<i>Aricia agestis</i>	Widespread, common in AD 8/15
Mountain Argus	<i>Aricia artaxerxes</i>	AD 1/15
Idas Blue	<i>Plebejus idas</i>	2 on lower track at AD. 1/15
Mazarine Blue	<i>Cyaniris semiargus</i> <i>Agriades pheretiades</i>	Very common in AD and OB 10/15 Subspecies <i>pheres</i> . A strong colony on Ulkun Kaindi Pass. 1/15
Amanda's Blue	<i>Agrodiaetus amanda</i>	Common on AD lower track 1/15
Chapman's Blue	<i>Agrodiaetus thersites</i>	Karatau. 1/15
Ripart's Anomalous Blue	<i>Agrodiaetus ripartii</i> <i>Polyommatus icadius</i>	1 in AD. 1/15 Scattered in AD etc. 6/15
Common Blue	<i>Polyommatus icarus</i>	Scarce 2/15

## ***Nymphalidae***

High Brown Fritillary	<i>Argynnis adippe</i>	A few in AD 2/15
Niobe Fritillary	<i>Argynnis niobe</i>	2 in AD, 1 of form <i>eris</i> 2/15
Cardinal	<i>Argynnis pandora</i>	Widespread, common in AD 7/15
	<i>Clossiana erubescens</i>	Several around OB, possibly in AD 2/15
Queen of Spain Fritillary	<i>Issoria lathonia</i>	Common in all areas 10/15
Glanville Fritillary	<i>Melitaea cinxia</i>	Subspecies <i>clarissa</i> . AD 1/15
Freyer's Fritillary	<i>Melitaea arduinna</i>	AD 1/15
Knapweed Fritillary	<i>Melitaea phoebe</i>	1 at Koksai 1/15
Spotted Fritillary	<i>Melitaea didyma</i>	Subspecies <i>turkestanica</i> . Karatau and Koksai 2/15
	<i>Melitaea ala</i>	En Route to Aksu 1/15
	<i>Euphydryas asiatica</i>	A few at OB 1/15
Hungarian Glider	<i>Neptis rivularis</i>	1 at Cimbulak, 7+ in AD, Aksu, and OB 4/15
False Comma	<i>Nymphalis vau-album</i>	1 at Baidaksai, and 18+ in OB area. 3/15
Yellow-legged Tortoiseshell	<i>Nymphalis xanthomelas</i>	Common in AD, also at OB 7/15
Small Tortoiseshell	<i>Aglais urticae</i>	Widespread and common 9/15
Peacock	<i>Inachis io</i>	Common in AD and at OB 7/15
Red Admiral	<i>Vanessa atalanta</i>	A few in AD 2/15
Painted Lady	<i>Cynthia cardui</i>	Widespread 10/15

## ***Libytheidae***

Nettle-Tree Butterfly	<i>Libythea celtis</i>	A total of 8 in AD 3/15
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## ***Satyridae***

Hermit	<i>Chazara enervata</i>	Locally numerous 9/15
	<i>Chazara briseus</i>	Subspecies <i>magna</i> . 2 in Karatau. 1/15
	<i>Oeneis hora</i>	Several in OB area 2/15
Great Sooty Satyr	<i>Satyrus ferula</i>	Koksai 1/15
	<i>Erebia turanica</i>	Subspecies <i>laeta</i> . OB 1/15
	<i>Erebia meta</i>	Subspecies <i>alexandra</i> . Several in OB area. 3/15
	<i>Coenonympha nolckeni</i>	Common in AD 6/15
	<i>Coenonympha sunbecca</i>	Subspecies <i>sunbecca</i> . OB area. 2/15
		Subspecies <i>alexandra</i> . Locally common in AD 3/15
Small Heath	<i>Coenonympha pamphilus</i>	Widespread 8/15
Oriental Meadow Brown	<i>Hyponphele lupina</i>	Ters and Karatau 2/15
Central Asian Marbled White	<i>Melanargia parce</i>	Locally common 5/15
	<i>Lasiommata eversmanni</i>	Common in lower AD 2/15
Large Wall Brown	<i>Lasiommata maera</i>	A few in AD 2/15

## ***Hesperiidae***

Yellow-banded Skipper	<i>Pyrgus sidae</i>	Scattered, common locally in AD 4/15
Orbed Red-underwing Skipper	<i>Spialia orbifer</i>	1 in Koksai, several lower track AD 2/15
Mallow Skipper	<i>Carcharodus alceae</i>	Scattered records 3/15
Large Skipper	<i>Ochlodes venatus</i>	Subspecies <i>faunus</i> . AD lower track 1/15
Silver-spotted Skipper	<i>Hesperia comma</i>	1 in Karatau 1/15
Small Skipper	<i>Thymelicus sylvestris</i>	Scarce 2/15
Essex Skipper	<i>Thymelicus lineola</i>	Scattered records, locally common 3/15

## Systematic List Number 3      Moths

A bonus this year was the moth trap (a Heath trap), brought along by Ron Waters, and operated whenever possible in Dzhabagly village, at the Mountain House, and at the observatory. Being unprepared I had little of the relevant literature with me, but was able to identify those species familiar to me at the time, and more later from Ron's photos. There remain several unidentified species, hopefully more names will be added to this list in time. Of interest was the disproportionate number of species of Hadeninae.

### ***Ethmiidae***

*Ethmia bipunctella*      This or a closely related species

### ***Tortricidae***

*Agapeta hamana*      Dzhabagly

*Epiblema uddmanniana*

### ***Pyralidae***

*Hypsopygia costalis*      Gold Fringe      Dzhabagly

*Eurrhyncha hortulata*      Small Magpie      Near Almaty

*Thysanotia chrysonuchella*

*Phlyctaenia coronata*      Mountain House

### ***Geometrinae***

*Hemistola chrysoprasaria*      Small Emerald      This or a closely related species

*Chlorissa viridata*      Small Grass Emerald      Mountain House

### ***Sterrhinae***

*Scopula ornata*      Lace Border      This or possibly a closely related species. Mountain House and Dzhabagly

*Scopula marginepunctata*      Mullein Wave      Dzhabagly and Mountain House

*Idaea aversata*      Riband Wave      Dzhabagly

*Idaea deversaria*

*Idaea sylvestraria*      Dotted-border Wave      Mountain House

### ***Larentiinae***

*Catarhoe rubidata*      Ruddy Carpet      Dzhabagly and Mountain House

*Catarhoe cuculata*      Royal Mantle      Mountain House

*Camptogramma bilineata*      Yellow Shell      Mountain House, very dark form

*Cosmorhoe ocellata*      Purple-bar      Mountain House

*Electrophaes corylata*      Broken-barred Carpet

*Eupithecia centaureata*      Lime-speck Pug      Dzhabagly and Mountain House

*Eupithecia absinthiata*      Wormwood Pug      Mountain House

*Eupithecia succentaureata*      Bordered Pug      Mountain House

*Eupithecia extensaria*      Scarce Pug      Mountain House. Probably ssp. *sydyi*, larvae on *Artemisia santolinifolia*.

*Eupithecia venosata*      Netted Pug      Mountain House

*Eupithecia spp.*      Pugs      Several unidentified at Mountain House.

*Aplocera plagiata*      Treble-bar      Mountain House

*Aplocera efformata*      Lesser Treble-bar      Dzhabagly

### ***Ennominae***

*Alcis repandata*      Mottled Beauty      Dzhabagly, Mountain House, and Observatory

*Conchia mundataria*

*Odontopera bidentata*      Scalloped Hazel

<i>Ourapteryx sambucaria</i>	Swallow-tailed Moth	Mountain House
<i>Biston betularia</i>	Peppered Moth	Mountain House
<i>Hypomecis punctinalis</i>	Pale Oak Beauty	Mountain House
<i>Siona lineata</i>	Black-veined Moth	
<b><i>Sphingidae</i></b>		
<i>Sphinx ligustri</i>	Privet Hawk	Mountain House
<i>Deilephila porcellus</i>	Small Elephant Hawk Lakes.	Mountain House. Larva at Steppe
<i>Smerinthus kindermanni</i>		Probably this species at the Mountain House. Similar to Eyed Hawk.
<i>Macroglossum stellatarum</i>	Humming-bird Hawk	
<b><i>Notodontidae</i></b>		
<i>Cerura vinula</i>	Puss Moth	Mountain House
<b><i>Lymantriidae</i></b>		
<i>Leucoma salicis</i>	White Satin	Dzhabagly
<i>Lymantria dispar</i>	Gypsy Moth	A female in Dzhabagly
<b><i>Arctiidae</i></b>		
<i>Arctia caja</i>	Garden Tiger	Larva Mountain House.
<i>Chelis maculosa</i>		
<i>Tyria jacobaeae</i>	Cinnabar	
<b><i>Ctenuchidae</i></b>		
<b><i>Syntominiinae</i></b>		
<i>Amata phegea</i>	Nine-spotted	
<b><i>Noctuidae</i></b>		
<b><i>Noctuinae</i></b>		
<i>Agrotis cinerea</i>	Light Feathered Rustic	Dzhabagly
<i>Agrotis exclamationis</i>	Heart and Dart	Dzhabagly, Mountain House
<i>Ochropleura flammatra</i>	Black Collar	Dzhabagly
<i>Noctua orbona</i>	Lunar Yellow Underwing	Dzhabagly, Mountain House
<i>Xestia c-nigrum</i>	Setaceous Hebrew Character	Dzhabagly
<b><i>Hadeninae</i></b>		
<i>Discestra trifolii</i>	Nutmeg	Dzhabagly
<i>Hada plebeja</i>	Shears	Observatory
<i>Polia nebulosa</i>	Grey Arches	Mountain House
<i>Heliophobus reticulatus</i>	Bordered Gothic	Mountain House
<i>Melanchra pisi</i>	Broom Moth	Dzhabagly
<i>Lacanobia contigua</i>	Beautiful Brocade	Mountain House
<i>Lacanobia thalassina</i>	Pale-shouldered Brocade	Mountain House
<i>Lacanobia suasa</i>	Dog's Tooth	Dzhabagly
<i>Lacanobia oleracea</i>	Bright-line Brown-eye	Dzhabagly
<i>Hecatera bicolorata</i>	Broad-barred White	Mountain House
<i>Hadena compta</i>	Varied Coronet	Possibly this species
<i>Hadena confusa</i>	Marbled Coronet	Several records
<i>Hadena rivularis</i>	Campion	Mountain House
<i>Hadena perplexa</i>	Tawny Shears	Mountain House
<i>Mythimna conigera</i>	Brown-line Bright-eye	Mountain House
<i>Mythimna vitellina</i>	Delicate	Dzhabagly
<i>Mythimna l-album</i>	L-album Wainscot	Dzhabagly and Mountain House
<i>Mythimna comma</i>	Shoulder-striped Wainscot	Common
<i>Mythimna putrescens</i>	Devonshire Wainscot	Mountain House

## **Cuculliinae**

*Cucullia* sp.

Similar to *C. asteris*. Mountain House.

*Calophasia lunula*  
*Brachylomis viminalis*

Toadflax Brocade  
Minor Shoulder-knot

Dzhabagly and Mountain House  
Dzhabagly

## **Acronictinae**

*Acronicta megacephala*  
*Acronicta psi*

Poplar Grey  
Grey Dagger

Dzhabagly  
Dzhabagly

## **Amphipyridae**

*Amphipyra tragopoginis*  
*Actinotia polyodon*  
*Parastichtis ypsilon*  
*Apamea monoglypha*  
*Apamea epomidion*  
*Apamea lateritia*

Mouse Moth  
Purple Cloud  
Dingy Shears  
Dark Arches  
Clouded Brindle

Mountain House  
Dzhabagly, Mountain House  
Mountain House  
Mountain House  
Dzhabagly  
Several of probably this species,  
but very pale.

*Calamia tridens*  
*Hoplodrina alsines*  
*Hoplodrina ambigua*  
*Caradrina morpheus*  
*Elaphria venustula*

Burren Green  
Uncertain  
Vine's Rustic  
Mottled Rustic  
Rosy Marbled

Several at Observatory  
Dzhabagly  
Dzhabagly  
Dzhabagly  
Mountain House

## **Acontiinae**

*Acontia lucida*

Pale Shoulder

Dzhabagly

## **Chloephorinae**

*Nycteola revayana*

Oak Nycteoline

Dzhabagly. Possibly a closely related species.

## **Plusiinae**

*Macdunnoughia confusa*  
*Cornutiplusia circumflexa*  
*Autographa jota*  
*Autographa gamma*  
*Euchalcia consona*  
*Euchalcia variabilis*

Dewick's Plusia  
Plain Golden-Y  
Silver Y  
Purple-shaded Gem

Dzhabagly and Mountain House  
Mountain House  
Observatory and Mountain House

## **Ophiderinae**

*Tyta luctuosa*  
*Phytometra viridaria*

Four-spotted  
Small Purple-barred

Dzhabagly  
Aksu-Dzhabagly

## **Catocalinae**

*Drasteria cailino*  
*Euclidia glyphica*  
*Callistege mi*

Burnet Companion  
Mother Shipton

Several at the Mountain House

## Systematic List Number 4                      Mammals

Grey Long-eared Bat	<i>Plecotus austriacus</i>	Noted around the mountain house
Pipistrelle	<i>Pipistrellus pipistrellus</i>	Dzhabagly and AD
Severtzov's Jerboa	<i>Allactaga severtzovi</i>	1 dead in the Karatau
Wood Mouse	<i>Apodemus sylvaticus</i>	A few near the Mountain House
Long-tailed Marmot	<i>Marmota caudata</i>	Only a few in the reserve this year
Grey Marmot	<i>Marmota baibacina</i>	Several at Cimbulak and Observatory area
Turkestan Red Pika	<i>Ochotona rutila</i>	1 at Cimbulak, 1 daily at Observatory
Forest Dormouse	<i>Dryomys nitedula</i>	An integral part of the groups sleeping quarters in the mountain house and the yurts
Red Squirrel	<i>Sciurus vulgaris</i>	2 in Almaty, 1 at Medeo.
Fox	<i>Vulpes vulpes</i>	Seen in the early hours as we arrived at Cimbulak
Isabelline Brown Bear	<i>Ursus arctos</i>	Subspecies ' <i>isabellinus</i> ' Very few sightings this year, but 2 seen very well. Plenty of sign, e.g. fur and droppings.
Wild Boar	<i>Sus scrofa</i>	Rooting activity in AD
Arkhar	<i>Ovis ammon karelini</i>	17 at Baidaksai. A highly endangered subspecies.
Siberian Ibex	<i>Capra sibirica</i>	Total of 39 sightings. Maximum daily count was 28 and they were noted on four of the days in AD. Droppings at Cimbulak.

## Systematic List Number 5                      Reptiles and Amphibians

Marsh Frog	<i>Rana ridibunda</i>	Common in all steppe wetlands.
Steppe Runner	<i>Eremias arguta uzbekistana</i>	Koksai and Karatau
Alpine Lidless Skink	<i>Asymblespharus alaicus</i>	Locally abundant at higher altitudes in the reserve. Noted on 5 days.
Halys Pit Viper	<i>Agkistrodon halys</i>	1 in the Ulkun Kaindi Valley
Dice Snake	<i>Natrix tessellata</i>	1 at Ters Lake
Dione Snake	<i>Elaphus dione</i>	1 in Koksai and 1 on Ulkun Kaindi Pass



## Systematic List Number 6      Birds

Great Crested Grebe	<i>Podiceps cristatus</i>	Steppe Lakes
Grey Heron	<i>Ardea cinerea</i>	Scattered among the steppe lakes
Black Stork	<i>Ciconia nigra</i>	1 on the way to Aksu
Ruddy Shelduck	<i>Tadorna ferruginea</i>	Scattered steppe records. 22 + 4 young at Big Almaty Lake
Mallard	<i>Anas platyrhynchos</i>	2, Steppe Lakes
Red-crested Pochard	<i>Netta rufina</i>	9, Steppe Lakes
Lammergeier	<i>Gypaetus barbatus</i>	2 at Cimbulak, 2 in AD, and 4+ at Observatory
Egyptian Vulture	<i>Neophron percnopterus</i>	Nesting in Karasai Gorge, and at Aksu
Griffon Vulture	<i>Gyps fulvus</i>	Only 2, AD.
Himalayan Griffon Vulture	<i>Gyps himalayensis</i>	1 from Cosmos Station
Black Vulture	<i>Aegypius monachus</i>	Scattered records, a total of 5 birds
Short-toed Eagle	<i>Circaetus gallicus</i>	Nesting in the Karasai Gorge
Marsh Harrier	<i>Circus aeruginosus</i>	Steppe Lakes
Montagu's Harrier	<i>Circus pygargus</i>	A male in the Ters valley
Sparrowhawk	<i>Accipiter nisus</i>	Singles noted on two days
Long-legged Buzzard	<i>Buteo rufinus</i>	Singles noted on two days
Golden Eagle	<i>Aquila chrysaetos</i>	Seen on four days in the reserve, maximum of 2 in a day
Booted Eagle	<i>Hieraetus pennatus</i>	1 seen on the descent from the Mountain House
Kestrel	<i>Falco tinnunculus</i>	Noted on most days, particularly in the reserve
Hobby	<i>Falco subbuteo</i>	Widespread and reasonably common. Maximum daily count of 5+.
Barbary Falcon	<i>Falco peregrinoides</i>	1 from Ulkun Kaindi Pass was a good record
Himalayan Snowcock	<i>Tetraoallus himalayensis</i>	Heard at higher altitudes, but a feather found at Ulkun Kaindi Pass was the closest we got!
Chukar	<i>Alectoris chukar</i>	Heard in the reserve
Grey Partridge	<i>Perdix perdix</i>	A few in AD
Quail	<i>Coturnix coturnix</i>	Mostly noted from the reserve where quite common, heard often.
Corncrake	<i>Crex crex</i>	Heard at Cimbulak and AD
Moorhen	<i>Gallinula chloropus</i>	Scattered in the steppe lakes
Coot	<i>Fulica atra</i>	Steppe lakes
Demoiselle Crane	<i>Anthropoides virgo</i>	5 at Ters Lake
Little Bustard	<i>Tetrax tetrax</i>	2 near Koksai Gorge
Great Bustard	<i>Otis tarda</i>	2 near Koksai Gorge
Collared Pratincole	<i>Glareola pratincola</i>	3 only on steppe, much less common than formerly
Lapwing	<i>Vanellus vanellus</i>	Fairly common around steppe lakes
Ibisbill	<i>Ibidorhyncha struthersi</i>	2 at Big Almaty Lake
Redshank	<i>Tringa totanus</i>	A few at Steppe Lakes
Greenshank	<i>Tringa nebularia</i>	Steppe Lakes
Common Sandpiper	<i>Actitis hypoleucos</i>	Noted on 1 day
Black-headed Gull	<i>Larus ridibundus</i>	Steppe Lakes
Yellow-legged Herring Gull	<i>Larus (argentatus) cachinnans</i>	Steppe Lakes
Gull-billed Tern	<i>Gelochelidon nilotica</i>	Scattered among steppe lakes
Whiskered Tern	<i>Chlidonias hybridus</i>	Ters Lake
Rock Dove	<i>Columba livia</i>	Quite common in the Karatau and around fringes of the reserve - some areas also contained Feral Pigeons.
Woodpigeon	<i>Columba palumbus</i>	Common in reserve and scattered outside
Collared Dove	<i>Streptopelia decaocto</i>	Quite common in villages
Rufous Turtle Dove	<i>Streptopelia orientalis</i>	Common above 1500m in reserve, scattered elsewhere
Laughing Dove	<i>Streptopelia senegalensis</i>	Very common in villages - much more so than Collared Dove
Cuckoo	<i>Cuculus canorus</i>	Heard almost daily

Scops Owl	<i>Otus scops</i>	Heard only at Berkara
Long-eared Owl	<i>Asio otus</i>	1 from Mountain House
Nightjar	<i>Caprimulgus caprimulgus</i>	Heard and seen once in the Aksu-Dzhabagly Reserve
Common Swift	<i>Apus apus</i>	A few noted in the Karatau
Common Kingfisher	<i>Alcedo atthis</i>	Near Dzhabagly
European Bee-eater	<i>Merops apiaster</i>	Noted frequently in the Karatau and steppes
Roller	<i>Coracias garrulus</i>	Common outside reserve
Hoopoe	<i>Upupa epops</i>	Seen on only 2 days
Great-spotted Woodpecker	<i>Dendrocopos major</i>	Big Almaty Lake
Calandra Lark	<i>Melanocorypha calandra</i>	Several in the Karatau and steppes
Skylark	<i>Alauda arvensis</i>	Scattered
Shore Lark	<i>Eremophila alpestris</i>	A nest on Ulkun Kaindi Pass, with 3 chicks attended by a pair
Swallow	<i>Hirundo rustica</i>	Fairly common in the steppes and in villages
House Martin	<i>Delichon urbica</i>	Only at Cimbulak
Tawny Pipit	<i>Anthus campestris</i>	A few noted in the Ters valley and steppes
Tree Pipit	<i>Anthus trivialis</i>	Scattered records
Water Pipit	<i>Anthus spinoletta</i>	A few noted high in the Aksu-Dzhabagly Reserve and Observatory area
Grey Wagtail	<i>Motacilla cinerea</i>	Scattered riverside records
Masked Wagtail	<i>Motacilla personata</i>	Common in the villages
Brown Dipper	<i>Cinclus pallasi</i>	1 at Cimbulak
Himalayan Accentor	<i>Prunella himalayana</i>	2 at Cosmos Station
Brown Accentor	<i>Prunella fulvescens</i>	Observatory area
Black-throated Accentor	<i>Prunella atrogularis</i>	Singletons at Cimbulak and Observatory
Nightingale	<i>Luscinia megarhynchos</i>	Heard frequently and seen often too
Himalayan Rubythroat	<i>Luscinia pectoralis</i>	A few in Observatory area
Blue-headed Redstart	<i>Phoenicurus coeruleocephalus</i>	A pair at Cimbulak
Guldenstadt's Redstart	<i>Phoenicurus erythrogastor</i>	3 at Cosmos Station
Stonechat	<i>Saxicola torquata</i>	A few noted in the reserve
Pied Wheatear	<i>Oenanthe pleschanka</i>	Karasai Gorge
Northern Wheatear	<i>Oenanthe oenanthe</i>	Ters Valley
Blackbird	<i>Turdus merula</i>	Not uncommon in lower reaches of reserve
Mistle Thrush	<i>Turdus viscivorus</i>	Scattered records, in small numbers
Blue Whistling Thrush	<i>Myiophonus caeruleus</i>	Common along streams in the reserve, and in Koksai
Cetti's Warbler	<i>Cettia cetti</i>	Heard in Karatau
Upcher's Warbler	<i>Hippolais languida</i>	4 at Berkara
Hume's Lesser Whitethroat	<i>Sylvia althaea</i>	Very common among Juniper scrub in the reserve
Common Whitethroat	<i>Sylvia communis</i>	Seen on most days in AD
Greenish Warbler	<i>Phylloscopus trochiloides</i>	Daily at Cimbulak
Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>	1 in the Ulkun Kaindi Valley
Hume's Yellow-browed Warbler	<i>Phylloscopus humei</i>	A few at Cimbulak
Spotted Flycatcher	<i>Muscicapa striata</i>	Common at Berkara where several nests found
Paradise Flycatcher	<i>Tersiphone paradisi</i>	Two pairs with nests at Berkara
Yellow-breasted Tit	<i>Parus flavipectus</i>	Seen around the Halfway House and along the lower track in AD
Great Tit	<i>Parus major</i>	Cimbulak
Rufous-naped Tit	<i>Parus rufonuchalis</i>	1 only in the Aksu-Dzhabagly Reserve
Coal Tit	<i>Parus ater</i>	Cimbulak
Eastern Rock Nuthatch	<i>Sitta tephronata</i>	Karasai Gorge where also a nest
Penduline Tit	<i>Remiz pendulinus</i>	The White-crowned subspecies <i>coronatus</i> . Berkara, and 2 with nest along lower track in AD, with a <i>Parus flavipectus</i> perched on the nest alongside
Golden Oriole	<i>Oriolus oriolus</i>	Scattered, common outside reserve
Lesser Grey Shrike	<i>Lanius minor</i>	Common outside of reserve
Long-tailed Shrike	<i>Lanius schach</i>	Quite common outside reserve - mostly around villages

Magpie	<i>Pica pica</i>	Common - even up to 3000m
Alpine Chough	<i>Pyrrhocorax gracilus</i>	Large numbers seen on several occasions in the Aksu-Dzhabagly Reserve – also Cimbulak and Observatory
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Much scarcer than above species in the reserve, seen on only one day there, also 2 at Cimbulak
Jackdaw	<i>Corvus monedula</i>	Common outside reserve
Rook	<i>Corvus frugilegus</i>	Scattered in the steppe areas, locally numerous
Carrion Crow	<i>Corvus corone</i>	Subspecies <i>orientalis</i> . Common
Raven	<i>Corvus corax</i>	Scattered – noted on 5 days
Nutcracker	<i>Nucifraga caryocatactes</i>	2+ below Big Almaty Lake
Indian Mynah	<i>Acridotheres tristis</i>	Very common everywhere - even at 3000+m!
Starling	<i>Sturnus vulgaris</i>	Quite common outside reserve
Rose-coloured Starling	<i>Sturnus roseus</i>	Very common outside reserve
Indian Sparrow	<i>Passer indicus</i>	This species is virtually impossible to tell apart from House Sparrow, <i>Passer domesticus</i> , in the field. However all sparrows outside the major cities in this area are this species
House Sparrow	<i>Passer domesticus</i>	Only in Almaty
Spanish Sparrow	<i>Passer hispaniolensis</i>	Not recorded this year !?
Tree Sparrow	<i>Passer montanus</i>	Quite common in the villages
Red-fronted Serin	<i>Serinus pusillus</i>	Daily in Observatory area
Goldfinch	<i>Carduelis carduelis</i>	The Grey-headed subspecies <i>caniceps</i> . Often treated as a separate species by Russian and some western ornithologists. Daily in Almaty area
Linnet	<i>Carduelis cannabina</i>	Observatory area
Hodgson's Rosy Finch	<i>Leucosticte nemoricola</i>	Ulkun Kaindi Pass and Cosmos Station
Common Rosefinch	<i>Carpodacus erythrinus</i>	Scattered records in both areas
Red-mantled Rosefinch	<i>Carpodacus rhodochlamys</i>	Ulkun Kaindi Pass and Observatory area
White-winged Grosbeak	<i>Mycerobas carnipes</i>	A few in Observatory area
Rock Bunting	<i>Emberiza cia</i>	Common in reserve
White-capped Bunting	<i>Emberiza stewartii</i>	Only seen near the Halfway House
Grey-necked Bunting	<i>Emberiza buchanani</i>	1 on Ulkun Kaindi Pass, seen and photographed by RW
Red-headed Bunting	<i>Emberiza buchanani</i>	Generally common, particularly in the reserve
Corn Bunting	<i>Miliaria calandra</i>	Common in steppes