

The Tien Shan

The Mountains of Heaven

A Greentours Trip Report

8th to 24th June 2003

Led by Vladimir Kolbintsev, Anna Ivaschenko and Paul Cardy

Trip Report by Paul Cardy

Day 1 Sunday 8th June Departure

We took off from various UK airports and met up for the Almaty flight at Frankfurt which took off on time.

Day 2 Monday 9th June Cimbulak ski-lift to Talgar Pass

I did not arrive in Kazakhstan until the early hours of the 10th June, as I had come directly from leading a tour in Hungary. Therefore it is rather difficult for me to give an account of the first day at Cimbulak! In the capable hands of Vlad and Anna the group used the ski-lift near the hotel to take them up to more interesting altitudes.

Among the many fine plants seen were *Tulipa dasystemon*, *Tulipa heterophylla*, *Callianthemum alatavicum* and *Paraquilegia anemonoides*. The star birds were two Himalayan Snowcock, a Himalayan Rubythroat, and Hodgson's Mountain Finch.

Day 3 Tuesday 10th June Tjuk-su Gate

Whilst we ate breakfast I met the group and I heard all about the wonderful day they had enjoyed yesterday. After breakfast we drove up the valley as far as we could get in the bus and from there we walked up to about 3000 metres nearly getting to the pass (The Tjuk-su Gate). As we climbed the valley following the stream we were assaulted by new plants and there were many interesting animals too. Two Lammergeiers drifted across the valley along with two. Alpine Accentors and Brown Accentor were both here. A total of five Grey Marmots were encountered today, and we also saw a Stoat and a Red Squirrel. Among the many plant highlights were both *Primula algida* and *Primula nivalis*, and the very pretty *Chorispora bungeana*. *Allium polyphyllum* and *Allium atosanguineum* were both here. The edelweiss *Leontopodium fedschenkoanum* was in good flower. *Rhodiola linearifolia*, *Codonopsis klematidea* and the lovely *Aquilegia atrovinosa* added to the variety. The sedges *Carex melanostaehya* and *Carex riparia* were common and the genus

Dracocephalum was well represented with *Dracocephalum imberbe*, *Dracocephalum grandiflorum* and *Dracocephalum nutans*. The butterflies had a distinctly European feel with Orange-tip, Brimstone, Green-veined White and Small Tortoiseshell while a Peak White was the most unusual species seen. Some ten Common Swifts were the only ones seen all trip, as was a Wren. Greenish Warblers were numerous in the Tien Shan Spruce, with some Hume's Yellow-browed Warblers, and two Sulphur-bellied Warblers were seen on a rocky slope. Both Chough and Alpine Chough called overhead, and Himalayan Snowcock was heard. A single Hodgson's Mountain Finch was recorded, and a Goshawk was seen. Jean, Pat and I had turned back before everyone else, and whilst we waited at the bus we were fortunate to see a group of Siberian Ibex, a male and three females on the rocks very close by. We watched them for some time. Anna was surprised when I told her as they are rarely seen in this area. Nearer to the hotel we found some Frog Orchids, and heard a Corncrake.

Day 4 Wednesday 11th June Cimbulak, Almaty, and Train

The morning was spent walking down the road below the hotel, which was very pleasant on such a fine day. Several butterflies were on the wing among them the Central Asian specialities *Coenonympha sunbecca* and *Erebia turanica* in good numbers. Black-veined White, Peacock, Mazarine Blue and Lesser Spotted Fritillary were all here too. A Sparrowhawk flew over and Brown Dipper inhabited the river. Walking up onto a lush meadow we found a wealth of flowers, with *Dactylorhiza umbrosa*, *Polygonum coriarium*, *P. nitens*, *Aconitum leucostomum*, *Bupleurum aureum* and *Origanum vulgare* all in fine flower. Nearby a rocky outcrop was particularly interesting especially for *Tulipa ostrowskiana*, a new record for us for this trip. *Asplenium septentrionale* grew on the rocks and the attractive *Corydalis capnoides* was found. After a picnic lunch in the meadow we drove up to the hotel to pack and then headed down to Almaty. There we completed a variety of tasks such as changing money and buying postcards, as well as a little sightseeing including the wooden cathedral.

In the evening we took the overnight train west towards Aksu-Dzhabagly reserve. There were several hours of light left and as the train trundled across the steppe with fine views of the snow capped mountains to the south, we saw many birds. Corvids were numerous, and we saw our first Rose-coloured Starlings. Bee-eaters, Rollers, Lesser Kestrels and Lesser Grey Shrikes perched on the wires. Black-winged Stilt, Great Egret, Ruddy Shelduck, and Garganey hunted in the fields. The highlight was at least ten Short-eared Owls, one after the other, hunting over the steppe.

Day 5 Thursday 12th June Kuyuk Pass, Karasai Gorge and Berkara

We left the warm cocoon of the train at dawn, having arrived at Tukulbas station on time. We were met by Yevgeny and whisked back to his comfortable village homestay in Dzhabagly. Overcast conditions with occasional showers was the order of the day, which suited us fine as the steppe desert we were busy in today can get rather hot at this time of year. After breakfast and a shower we headed off towards the Silk Road. Our first scheduled stop was in the Karatau at the Kuyuk Pass. *Eremurus tianshanica* was here in bud but later we would see it in flower. Birds here included our first Red-headed Buntings, and the rather unexpected Gull-billed Tern. There were many fine

flowers here and Anna was kept busy answering all our questions, and of course naming everything we saw. Both *Glaucium elegans* and *Glaucium fimbrilligerum* were in flower, as was *Eremostachys karatavica*. *Atraphaxis frutescens* and *Meristotrophis triphylla* were among the many other species seen. Black-veined White was very numerous today, and Central Asian Marbled White was also reasonably common and Spotted Fritillary was also seen. *Iris songarica* was found in leaf.

Moving on we headed for Karasai Gorge where we found nesting Egyptian Vultures and two Short-toed Eagles. We were also fortunate to see nesting Eastern Rock Nuthatches, of which we had good views. A highlight here was an Eagle Owl that we disturbed from its' roost site on the cliff face. Pied Wheatear was also here. Mountain Brown Argus was on the wing. Among the plants here were *Lindelofia macrostyla*, *Scutellaria kurssanovii*, and *Echinops karatavicus*. Large-toothed Suslik was a good find.

For our lunch we drove on to the abandoned children's camp at Berkara to look for Asian Paradise Flycatcher. We soon found this species along the stream and it did not disappoint us. There was an incredibly high density of Spotted Flycatchers and Nightingales. I saw an Upcher's Warbler and a Penduline Tit nest was found. Among the several butterflies here were Holly Blue, Yellow-legged Tortoiseshell, *Spialia orbifer* and the Central Asian speciality *Pseudothecla acaudata*. *Allium filidens*, *Allium collis-magni* and *Linaria popovii* were all in flower here. Also seen today was a Collared Pratincole, Calandra Lark, Hobby, and many Rollers. We were all rather tired after a night on the train and ready for dinner back at Yevgeny's and a good nights sleep.

Day 6 Friday 13th June Aksu Gorge

In the morning we drove to the Aksu Gorge, with a few breaks on the way to allow the bus a break from the climb. In the small village of Irsu we walked along the main street with it's fascinating scenes of everyday Kazakh life. This is a regular Greentours stop and Vladimir often hands out photos of the children sent to him by previous clients. Next stop was the gorge – a spectacular rift in the landscape. Dropping in along a narrow path we marvelled at a host of new plants including the lovely yellow *Scutellaria immaculata* and *Bungea vesiculifera*. We were too early to see the elegant drooping amaryllis *Ungernia severtzovi* which was in leaf at this time of year. Butterflies included *Metaporia leucodice*, Green Hairstreak, a female Pale Clouded Yellow, and Green-underside Blue. Most of us were content to walk just some way into the gorge whilst a few continued to a promontory about half way down. *Cerasus tianschanica*, *Onosma dichroantha*, *Cousinia tianschanica*, *Erigeron pallidus* and *Rosularia turkestanica* were among the many flowers here today.

The gorge is always a great spot for raptors, and allows good views. Today we saw two Lammergeiers, two Black Vultures, Sparrowhawk, Long-legged Buzzard, an immature Booted Eagle, Hobby and Kestrel. Alpine Swift was also here and White-capped Bunting was heard. Both Dione Snake and Mountain Racer were seen today.

After lunch we drove some way and then walked in the meadows at the top of the gorge. Due to the rather late season we found many excellent things still in flower, not least the early blooming *Tulipa greigii* of which there were a few fine examples here. A real highlight was the lovely *Iris korolkovii*, again in fine flower, and a new species for this trip. *Eremurus lactiflorus* and *Eremurus*

regelii were both seen today. Among the many *Astragalus* species that Anna identified today were *Astragalus abolinii*, *Astragalus macrotropis* and *Astragalus skorniakovii*. *Silene brachuica*, *Silene korschinskyi*, *Arum korolkovii*, *Oxytropis trichocalycina* and *Linum pallescens* were all found today. There were many large mushrooms growing in the meadows here, of questionable edibility, but Anna gathered them anyway just in case!

Day 7 Saturday 14th June Horse-ride up to the Mountain House

After a restful night's sleep and a filling breakfast we headed (with a mixture of excitement and trepidation) to our rendezvous with the horses that were to carry us to the Mountain House. The weather was fine with clear blue skies. Having been introduced to and mounted on our horses we joined the procession walking ever upwards. The group all coped well in the saddle, or at least they appeared to! The horses were docile and responsive, and the slow ride up through lovely flowery meadows was very enjoyable. *Iris sogdiana* and *Eremurus regelii* were both in flower. A Hobby sped past and Long-tailed Shrike was seen. A timely stop one quarter of the way up had us admiring a selection of flowers. The lovely pink *Linum olgae* was here, and *Ixiolirion tataricum* became common. The yellow *Rosa kokanica* was much in evidence, with sprays of *Polygonum undulatum*, *Pseudosedum longidentatum* and *Equisetum equisetina* also seen. Clouded Apollos were numerous, whilst Mazarine Blue and Queen-of-Spain Fritillary were also on the wing. It was pleasing to see several of the Central Asian speciality *Coenonympha nolckeni*.

By the time we got to the Halfway House we were ready for a good rest and lunch. Around the house we saw a fantastic pair of Yellow-breasted Tits, Red-mantled Rosefinch, Common Rosefinch and Goldfinches. Kestrel and Sparrowhawk flew along the valley below and both White-capped and Rock Buntings were here. Before lunch we took a short walk to the lookout above the waterfall enjoying new plants such as *Corthusa turkestanica*, *Eremurus lactiflorus*, *Onosma irritans* and *Polygonatum sewerzovii*. Birds included three Griffon Vultures and Blue Whistling Thrush. Swallowtail was on the wing and we saw the stunning large apollo *Parnassius apollonius*. Osiris Blue was also found. Alpine Lidless Skinks scuttled on the rocks, and I saw a Haly's Pit Viper. The Burning Bush *Dictamnus angustifolius* was in flower and the unusual and rare spindle *Euonymus koopmanni* was found. Lunch followed, and we relaxed around the Halfway House before remounting the horses and continuing our journey.

The rest of the journey was made in bright sunshine through flower-filled meadows of extraordinary beauty which were alive with the calls of Quail and Red-headed Buntings. The fantastic views back to Dzhabagly village held our attention for some time. At the top of the hill most of us elected to dismount and walk the last mile and rest our weary bits, especially as some of us had experienced a little horse trouble. Arriving at the house we were greeted with a welcome table full of various drinks and then got the guided tour of the rooms and facilities. Vladimir and I were sleeping in remarkably comfortable and cosy tents beside the Mountain House.

During a fairly lazy late afternoon we scanned the crags for mammals – eventually turning up six Siberian Ibex, two males, two females, and two immatures. At dinner Jean entertained us with tales of Big Bill Campbell and his Rocky Mountain Rhythm, and yodellers Jimmy Hawthorne and Norman Harper, and we all passed round 'the old Apple Jack.'

Day 8**Sunday 15th June****Ulkun Kaindi Valley**

There had been a little light rain overnight, and initially the morning was cloudy, but the day remained dry. A substantial breakfast was served and then we set off walking up the Ulkun Kaindi Valley that sweeps up above the Mountain House. After the ride of yesterday we decided a horseless day was preferable. Our walk took us through flower rich meadows. We could see that the upper valley was heavily influenced by the river and avalanches. The snow was still laying remarkably low this year, and consequently few butterflies were on the wing, with *Geranium Argus* the only species of note. Many plants typical of higher up were present at this relatively low altitude. As we climbed we enjoyed plants such as *Ferula talassica*, *Phlomis brachystegia* and *Allium polyphyllum* and as we got higher the delicate pink flax *Linum olgae* and the low-growing *Rosa hissarica* appeared. The white *Anemone protracta* and the yellow *Trollius altaicus* were in abundant flower. Today was a superb day for tulips and as well as both *Tulipa kaufmanniana* and *Tulipa dasystemonoides* in fine flower beside the first snow patch, we found the early flowering *Tulipa greigii* still in bloom beside a side valley snow patch. Alpine Choughs flew over the crags and the magnificent Lammergeier was seen. Hume's Lesser Whitethroat was common in the meadows. Among the many other flowers were the blue *Linum altaicum*; *Rhodiola heterodonta*; *Macrotomia ugamense*; and two species of *Cousinia* – *C.caespitosa* and *C.fetisovii*, in bud. We reached some rocky outcrops where we found the fine *Primula minkwitziae* in flower, alongside *Androsace setacea* and *Corydalis ledebouriana*. *Hedysarum cephalotes* was just coming into flower. Anna identified no fewer than six species of *Gagea* today.

Lunch was delivered by horse, and Tony and I rested lower down whilst the rest of the group followed Vlad and Anna in an assault on the plants found higher on the hill. Climbing up the snow we were led on by Vlad shouting more new plant names from above. During this period we saw the beautiful *Paraquilegia anemonoides*, a real star among the flowers here, as well as *Juno coerulea* in fine flower. *Ranunculus rufosepalus* was also here. A male Ibex was spotted, and Alpine Lidless Skinks became common. Lower down after much perseverance I located a single Long-tailed Marmot sitting and surveying his domain. Tired, but happy, we settled into the easy domestic routine of the Mountain House. Drinks, showers, dinner, log session and bed. The cute Forest Dormouse was removed from the kitchen.

Day 9**Monday 16th June****Ulkun Kaindi Pass**

The dawned fine for our high altitude ascent with the horses. Mounting up we all felt much more familiar with our horses and we headed straight off up the ridge for the 900m climb. A male Common Rosefinch was calling heartily as we left. Initially we climbed through lush meadows of *Ligularia* and *Polygonum*. The climb was steep and the vegetation changed markedly, becoming rocky juniper scrub. The beautiful *Aquilegia atrovinosa* was in flower. We stopped halfway for a rest and to give the horses a bit of recovery time. Tree Pipit was seen here, and was heard throughout the day. *Oxytropis albobiliosa*, *Onobrychis echidna*, *Aster alpinus* and *Juno orchioides* were all in flower. Both *Macrotomia ugamense* and *Macrotomia euchroma* were here, the latter producing a red dye at the base. No fewer than 27 Ibex were grazing on the opposite slope and we watched them for some time in the telescope. *Androsace sericea* was very common and White-winged Grosbeak was seen.

Arriving near the top of the pass we gratefully got off our horses and walked the 30 metres to the ridge-top. The wet flushes supported the fine *Allium fedschenkoi*, and *Pulsatilla campanella*. The view that greeted us was spectacular. In front of us rose Bugulutor, the unclimbed 4000 m peak and its attendant massif. Behind us we could see over to the Karatau Mountains and familiar haunts from the last few days. Vladimir spotted first one, and then a second Bear, ambling through a meadow below us, and we had fine views in the scope. Then we found an even closer one on the scree slope. These are Isabelline Brown Bears and have a characteristic pale colouration. More Ibex were seen, Shore Lark was here, and Alpine Lidless Skinks were numerous. Vlad and Anna led us along a knife-edge ridge, one side warm and covered in scree and the other much steeper and covered in *Trollius* and other vegetation. Rock gardens along the ridge included species such as *Valeriana fedschenkoi*, *Potentilla hololeuca* and *Androsace sericea*. We especially enjoyed the *Hedysarum acutifolium* and *Gypsophila cephalotes*. We had fine views of a male Blue-capped Redstart perched on a pinnacle of rock, and two Brown Accentors were seen. Some ten Swallowtails were flying along the ridge, exhibiting hill-topping behaviour, but otherwise butterflies were conspicuous by their absence.

Scrambling yet further we got to a large outcrop and by carefully skirting around it we managed to find some of the real high altitude specialities; *Primula minkwitziae* and *Paraquilegia* being the highlights again. The latter was in particularly fine flower. *Lloydia serotina*, *Neurocoma albidum*, *Gagea filiformis*, *Gagea emarginata* and *Saxifraga alberti* were all here too. Chough and Alpine Chough both circled above us. Among the many other plants seen up here were *Tulipa dasystemonoides*, *Tulipa kaufmanniana*, *Ranunculus paucidentatus*, and *Plantago arachnoidea*. A Burnet Moth larva was found on *Potentilla*.

Before we knew it we had to return for the lunch that had been spread out by the horsemen in the fantastic *Allium* meadow and we enjoyed the splendid sunny weather. After lunch some of the group skirted a patch of snow and saw *Tulipa turkestanica* and *Viola rupestris*. Golden Eagle soared overhead, and Water Pipit was seen. On the walk down we saw Sparrowhawk and Hobby, and Greenish Warblers were active in the junipers. Brown Argus and a single *Coenonympha sunbecca* were on the wing. *Allium karataviense*, *Lagochilus tianschanicus* and *Polygonum coriaria* were all in flower.

Day 10 Tuesday 17th June Baidaksai Valley

Today we took to our horses again to be transported to the next valley along from the Mountain House – the Baidaksai Valley. After a short ride, on which Vlad spotted a Mountain Racer whilst on horseback, we arrived at our dropping off point. Here we admired some fine Bronze and Iron Age stone carvings of animals – ibex, arkhaz, wild boar and red deer. The distinctive pale grey small heath relative *Coenonympha sunbecca* was numerous today. In a gully where the snow had only recently melted were abundant *Tulipa dasystemonoides* and *T. kaufmanniana*. The attractive *Corydalis ledebouriana* was also here in good numbers. We were impressed by the huge leaves of *Rheum maximowickii*, and *Pyrethrum tianschanicus* and *Solenanthes circinnatus* were in flower. Rock Buntings flew around the outcrop, and a Quail was flushed from the grass. Nearby we saw *Pedicularis dubia* and *P. dolichorrhiza*. Several butterflies were on the wing, namely Eastern Pale Clouded Yellow, Wood White and Clouded Apollo. We rode or walked up to a snow patch, and above us saw two Arkhar, a very rare subspecies of Marco Polo Sheep. Some fine bushes of

Onobrychis echidna were in flower. Some of us walked across the snow and up to a rocky outcrop. We were rewarded with one of the plant spectacles of the trip, with first one and then many more fine *Korolkovia severzovii*, a beautiful fritillary. As well as the normal form there were several dark flowered individuals. Here also was patch of red-flowered *Tulipa kaufmanniana*. Once again Anna found no fewer than six species of *Gagea*. *Androsace fedschenkoi* was also here, and Siberian Stonechat was seen.

We returned to the lush meadow to eat lunch, and reflect on the marvellous floral show we had just seen. Whilst we'd been gone Ian was lucky enough to see two Bears, perhaps the same mother and one year old cub that we had seen from the pass yesterday. There were many marmot holes up here but the animals themselves remained elusive.

After lunch we slowly made our way back through the fields back down to the Mountain House. *Malus sieversii* was seen in bloom as was the white flowered *Rosa alberti*. *Leontice alberti* was found beside a stream, and we saw the leaves of *Ligularia talassica*, a rare endemic. A single *Coenonympha nolckenii* was on the wing. Back at base we found a Colorado Beetle near the house, and in the evening 15 Ibex were spotted through the telescopes, with many more appearing later. Some even disturbed Snowcock as they moved across the slopes. Two Bears seen in the distance was a very good end to another productive day.

Day 11 Wednesday 18th June The Journey Down

After breakfast Vlad led some of us on foot down the track and we headed off towards the river through the meadows and juniper forest we had seen below us when we rode to the Mountain House four days ago. The meadows were as spectacular as ever, and the weather was again fine. We had been extremely lucky for the duration of our stay up here. Jean and Pat opted to return by the supply truck, having a reasonably comfortable journey sitting on a mattress in the back, Tony saddled up and rode with the horsemen all the way back, most of the group walked to the Halfway House and then rode the second half, whilst I walked the whole way. Blue Whistling Thrush was singing as we left, and a young Marmot was seen before we headed off across the meadow. Black Vulture circled above, and a Roe Deer was seen. Among the many flowers were *Codonopsis klematidea*, *Delphinium confusum* and *Rhinanthus songoricus*. Clouded Apollo was common. In the juniper forest we heard Rufous-naped Tits, and saw Yellow-breasted Tits. Two female Blue-headed Redstarts were seen and some of the group saw a Tawny Owl. An immature Lammergeier soared above us. Freyer's Fritillary was a good butterfly find. A rock face supported *Silene kuschakewiczii* and *Campanula alberti*. Having entered the *Betula turkestanica* woodland the shady streams supported some fine *Corthusa turkestanica*, *Pyrola rotundifolia* and *Dactylorhiza umbrosa*. Some fine *Polygonatum roseum* was found, and *Euonymus koopmannii*. High Brown Fritillary and Cardinal were seen.

We ate lunch in the Kshi Kaindi valley below the Halfway House. The usually very good butterfly mud-puddling spot here was rather poorly attended today, although there were many Mazarine Blues, a late flying Orange-tip, *Metaporia leucodice*, Yellow-legged Tortoiseshell, and Hungarian Glider. After lunch most of the group elected to ride the rest of the way, and I alone walked. On the way I saw two Tolai Hares, and Penduline Tits. The highlight for me was the superb red and

black spider *Eresus niger*, also a European species but the first I had seen. A pond supported many dragonflies including *Libellula depressa* and *Libellula quadrimaculata* as well as species of *Cordulegaster* and *Aeschna*. Golden Oriole was singing here and Marsh Frogs were numerous.

Re-united with the group we admired a patch of wet track with many mud puddling butterflies, especially Black-veined Whites. Green-underside Blue, *Glaucopsyche charybdis*, *Pseudophilotes vicrama*, *Polyommatus icadius*, Amanda's Blue, and Yellow-banded Skipper all helped to make this the most productive butterfly day so far. In the village we found ourselves back in the land of Red-headed Buntings and Lesser Grey Shrikes. Arriving back at Yevgeny's we made ourselves comfortable and looked forward to the evening meal.

Day 12 Thursday 19th June Ters Lake, Kuyuk Pass and Taskol Lake

Having all slept well after the exertions of yesterday we boarded the bus for a more leisurely day. First stop was just outside the village where we saw a Kingfisher at a roadside pond. From there we continued on to Ters Lake – a large lake partially covered in Amphibious Water-bistort and very good for birds. A total of five Demoiselle Cranes was seen, and Common Terns and Marsh Harrier flew over the water. Marsh Frogs were much in evidence and more than one Dice Snake was seen in the water. Vladimir spotted a Muskrat in the waterside vegetation, this being an introduced species here. *Melanargia parce* and *Hyponephele lupina* were on the wing. A short drive took us to the Kuyuk Pass where *Eremurus tianschanicus* was in good flower. The butterfly *Chazara enervata* was amazingly numerous here, and Spotted Fritillary was also seen. We had a close look at a stunning *Cordulegaster* dragonfly. *Orobanche uralensis* was found parasitising *Artemisia*. There was a fine selection of *Orthoptera* at this site with a bewildering variety. A highlight was the bizarre Solifugid or Sun Spider *Paragaleodes heliophilus*, which looked very dangerous! There was also a congregation of roosting cicada.

On the way to Taskol Lake we saw a Black Stork, and a Black Vulture circled close overhead. Stopping on the steppe near the lake we found *Centaureum pulchellum* and two species of Sea Lavender. A Ferruginous Duck flew past, and Ruddy Shelduck, Redshank and Collared Pratincole were all seen. The Black-winged Stilts were not at all happy with our presence. The attractive *Ascelaphus macaronius* was on the wing and an *Empusa pennata* took a liking to Pat. *Anax parthenope* and *Agrion virgo* were both here. We saw an immature Pied Wheatear and on the lake itself we saw Pochard, Red-crested Pochard, and several families of Great Crested Grebes. Gull-billed Terns and Sand Martins were on the wing whilst Rollers perched on the wires and a Cuckoo was seen well. We were pleased to find *Delphinium semibarbatum* in flower. The small yellow *Linum corymbulosum* and *Dianthus tetrolepis* were pleasing finds. Vlad impressed us by catching a Dice Snake.

We returned mid afternoon to Yevgeny's and ate an early dinner at 6.30 as we had a train to catch! We said our farewells to all the excellent staff in Dzhabagly and were driven to Tukulbas station. The train arrived punctually and after a little organisation we were all installed in our sleeping compartments and relaxed and enjoyed the scenery in the last of the evening light before getting some sleep.

Day 13

Friday 20th June

Almaty and Journey to Gaish Observatory

We awoke to see large numbers of Rose-coloured Starlings gathered on various stationary trains and rolling stock in the sidings. The train arrived in Almaty at 10.00 a.m. and we duly met up with our driver and headed for our breakfast stop. This was very welcome, in a small hotel in the city. After breakfast we headed on out of Almaty, with a stop to stock up on drink and snacks, and started climbing up towards Gaish Observatory. At the lower altitudes were many fine flowers, not least *Eremurus robustus* in very good flower. Here too were *Aconitum leucostomum*, *Ligularia heterophylla*, *Erigeron aurantiacum*, *Erysimum croceum*, *Hedysarum montanum* and *Corthusa broteroi*. The clematis *Atragene sibirica* was very common. We stopped after about an hour to take a break and here under the dense canopy of Tien Shan Spruce found the very attractive *Lathyrus pisiformis* as well as *Minuartia verna*. Hume's Yellow-browed Warblers were active in the trees. *Pyrola minor* was in bud. A very well marked Green-veined White was found and the bog fritillary relative *Clossiana erubescens* was rather common.

Early afternoon saw us arriving at the Gaish Observatory – a rather atmospheric astronomical research facility that has seen better days. Heavy rain and hail greeted our arrival and in a few minutes I got soaked as I opened the gate so we could drive through. The whole place looks like the set of a seventies sci-fi series with observatory domes and various strange rusting machinery dotted about. We were soon settled into our rooms and enjoying a hearty lunch. Rather suitably, and to our amusement, the waitresses were wearing Thunderbirds uniforms.

After lunch it was still raining but undeterred we headed across the valley to search for birds and plants. The Observatory surroundings yielded Red-fronted Serins, whilst Snowcock called continuously and four were seen flying. Two Ruddy Shelduck were a surprising sight. The white flowered *Eritrichium vilosum* was common in the short turf and several Moonworts were found. *Leontopodium fedschenkoanum*, *Gagea emarginata*, *Gagea filiformis*, *Chorispora bungeana*, *Rhodiola linariifolia*, *Pulsatilla campanella*, and *Viola rupestris* were all recorded. The very strange (and wonderfully named) *Schmalhausenia nidulans* was not yet in flower but the leaf rosettes were in themselves impressive. *Ranunculus alberti* was seen, having almost green flowers. Grey Marmots and Red Pikas were both seen. The rain became heavier and we retreated to the Observatory. In the evening we kept warm by playing table tennis, which was rather fun.

Day 14

Saturday 21st June

Cosmos Station and Gaish Observatory

We awoke to a cloudless blue sky in great contrast to yesterday. After breakfast we headed higher up by bus to the Cosmos Station, at an altitude of 3,400m. A stop half way up had us watching Lammergeier and Golden Eagle in the same field of view. We had fine views of Big Almaty Lake below us. We reached the rather odd Cosmos Station, again resembling a set from a seventies sci-fi series, where apparently a lot goes on underground, a la James Bond! The alpine flora here was superb and despite our shortness of breath due to the altitude we walked a little higher and found many beautiful small flowered plants. The 'buttercup' *Oxygraphis glacialis* was growing here and the attractive *Pedicularis oederi*. The crucifers *Smelowskia calycina* and *Eutrema edwardsi* were in flower. *Androsace akbaitalensis*, *Sibbaldia tetrandra*, *Oxytropis chionobia*, *Rhodiola coccinea*, and *Trollius lilacinus* were all here too. The only butterflies seen today were Queen-of-Spain Fritillary

and Small Tortoiseshell, both often seen at high altitude in Europe too.

We were greeted by a fine male Guldenstadt's Redstart of which we had fine views, followed by a female. Northern Wheatears were much in evidence, and Hodgson's Mountain Finch was common today. Water Pipits were also common. We had some very good views of Grey Marmots today, even of two fighting, and we watched for some time as they stood on their hindlegs pushing each other and tumbling over. A little higher up we found some superb *Paraquilegia anemonoides*, and the beautiful *Saxifraga oppositifolia* was in fine flower. *Lloydia serotina* was here too. After an enjoyable and well presented lunch inside the spacious bus some walked slowly all the way down to the Observatory with Vlad and Anna, whilst most of the group came with me in the bus about half way down and walked from there. Tree Pipits were common, and we had fine views of a male Himalayan Rubythroat sitting atop a bush only fifteen feet from us. The view in the telescope was breathtaking. Later we saw a singing male Rubythroat, as well as Brown Accentor, Red-mantled Rosefinch and Red-fronted Serins.

Anna found a new *Gagea* – *Gagea michaelis* whilst David and Margaret were fortunate to see Eversmann's Redstart near the Observatory and they also found a Grizzled Skipper and *Pyrgus malvae*. In the evening the ping pong tournament resumed.

Day 15 Sunday 22nd June Big Almaty Lake and Gaish Observatory

The weather had changed dramatically and there was continuous rain all day today. We rather begrudgingly decided that we should stay at the Observatory with periodic meetings to decide if we should go out. The weather really was appalling and we ended up staying in all morning, but it did allow us a chance to catch up on our notes. A very interesting diversion was provided by a visit to one of the telescopes housed in one of the huge domes. One of the helpful scientists was pleased to show us around and explain things to us. He showed us a selection of stunning photographs on the computer that had been taken through the telescope. Those of Jupiter and it's four moons were particularly fascinating. Sadly the telescope is now little used and is underfunded. Jean was pleased to be allowed access to the fuse box room where she took photographs of the world class fuse box for a mutual friend of ours to add to his collection (!).

After lunch we went out regardless of the continuing rain, and headed down in a UAZ to Big Almaty Lake. Here clad in all the waterproofs we owned (in my case none) we tramped across the dam and up to the extensive area of alluvial gravel. Our target was that most unusual and sought-after wader the Ibisbill, and we were not disappointed. Anna has a great skill in locating these birds and today it was she who flushed one, which landed again allowing superb views. Rather more prosaically Common and Green Sandpipers were here too. *Myricaria squamosa* was seen, as was the large flowered *Epilobium latifolium* and *Astragalus lithophilus* and *Oxytropis lapponica* were both in flower. A wet flush supported some fine *Primula nivea* and *Pedicularis rhinanthoides*. Black-throated Accentor was seen in the rather dull conditions but of course no butterflies were on the wing. The attractive *Erysimum croceum* and *Erigeron aurantiacum* were both here, and Red-mantled Rosefinch and Red-fronted Serin.

Day 16 Monday 23rd June Journey to Almaty

A farewell walk around the Observatory yielded Black-throated Accentor, and Snowcock and Lammergeier were seen. *Erebia turanica* was on the wing in the sunshine and the marsh fritillary relative *Euphydryas asiatica* was a good find. There was some fine *Corydalis* in flower. On our journey down we saw more fighting marmots. A stop beside the stream yielded Brown Dipper and Grey Wagtail, and *Allium schoenoprasoides* and *Erysimum croceum* were in flower. Orange-tip and Green-veined White were on the wing. A stop at much lower altitude near Almaty produced a host of new plants. There was some fine *Eremurus robustus* in flower here and rather inexplicably a local man brought armfuls he had picked and tried to give them to us. A Horsfield's Tortoise was a puzzling find and Vlad thought it must have been released here. The only Black Kite of the trip flew over. Among the many new plants here were *Allium caeruleum*, *Centaurea rhapontica*, *Glycyrrhiza glabra*, *Agrimonia asiatica*, *Lathyrus tuberosus*, *Inula macrophylla*, *Isatis tinctoria*, *Oxytropis almatensis*, *Saussurea elegans*, *Hieracium dublitschi*, *Artemisia sieversiana* and *Delphinium iliense*.

After settling into to our hotel we walked a short distance to a rather strange pavement café where we ate an odd lunch, that we chose by going inside and pointing at things behind glass that were duly heated up!! Almaty was very hot today. The afternoon was left free for sightseeing, shopping or sleeping!

If lunch was strange then our farewell dinner eaten in a hotel in the city centre was even stranger. The dining room resembled a huge yurt complete with paintings of Central Asian scenes around the walls. The staff were fantastically dour, and the service was interesting. We were the only customers in the cavernous room! We remembered our favourite moments of the last fortnight and thanked Vlad and Anna for all their hard work. Then it was back to the hotel to snatch some sleep before we made the early morning journey to the airport for our flight. Despite my warnings to the group that departure procedures at Almaty airport could be rather time consuming we were almost first in the queue and all went very smoothly. Some of us were excited by the fact that Big Bill Campbell, Jimmy Hawthorne, and Pepe Jamarillo were all on the same flight as us!!

Day 17 Tuesday 24th June Arrival in the UK

Having arrived on time at Heathrow we said our sad farewells and travelled home.

Systematic Lists

A Summary of the Itinerary:-

1. 9th June Cimbulak Ski-lift
2. 10th June Tjuk-su Valley and Gate
3. 11th June Cimbulak and Almaty. Train to Dzhabagly.
4. 12th June Arrival in Dzhabagly. Kuyuk Pass. Karasai Gorge. Berkara.
5. 13th June Aksu Canyon
6. 14th June Journey to the Mountain House
7. 15th June Ulkun Kaindi Valley
8. 16th June Ulkun Kaindi Pass
9. 17th June Baidaksai
10. 18th June Journey down to Dzhabagly
11. 19th June Steppe Lakes and Kuyuk Pass. Train to Almaty.
12. 20th June Arrival in Almaty. To Big Almaty Lake and Observatory.
13. 21st June Cosmos Station. Observatory.
14. 22nd June Observatory. Big Almaty Lake.
15. 23rd June To Almaty.

Systematic List Number 3(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 2002 are annotated 2003, and conversely those not recorded this year are marked 'not in 2003'.

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

June 9 th	Cimbulak Ski-lift
June 10 th	Tjuk-su Valley and Gate
June 11 th	Cimbulak and Almaty
June 20 th	Journey to Gaish Astronomical Observatory above Big Almaty Lake – environs.
June 21 st	The Cosmos Station.
June 22 nd	Big Almaty Lake and the Observatory area
June 23 rd	Journey to Almaty

Athyriaceae

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

Ophioglossaceae

<i>Botrychium lunaria</i>	Common in short alpine turf
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Equisetaceae

<i>Equisetum arvense</i>	Big Almaty Lake
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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>	Cosmos station
<i>Anthoxanthum alpinum</i>	Widespread and common
<i>Dactylis glomerata</i>	
<i>Deschampsia koelerioides</i>	
<i>Festuca alaica</i>	

<i>Festuca valesiaca</i>	
<i>Helictotrichon pubescens</i>	Widespread
<i>Hordeum turkestanicum</i>	
<i>Phleum alpinum</i>	Widespread at high altitudes
<i>Poa alpina</i>	Widespread and common at higher altitudes
<i>Poa angustifolia</i>	Widespread
<i>Poa annua</i>	
<i>Poa bulbosa</i>	
<i>Poa pratensis</i>	Widespread and common
<i>Trisetum spicatum</i>	

Cyperaceae

<i>Carex melanantha</i>	Widespread
<i>Carex melanostachya</i>	Cimbulak
<i>Carex riparia</i>	Cimbulak
<i>Cobresia capilliformis</i>	Cosmos station

Juncaceae

<i>Luzula pallescens</i>	Cimbulak
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Liliaceae

<i>Eremurus fuscus</i>	Medium yellow-brownish flowered fox-tail lily
<i>Eremurus robustus</i>	In flower below Big Almaty Lake
<i>Gagea emarginata</i>	Cosmos Station and Cimbulak
<i>Gagea filiformis</i>	Widespread
<i>Gagea turkestanica</i>	Big Almaty Lake
<i>Gagea michaelis</i>	Big Almaty Lake
<i>Gagea neo-popovii</i>	Scarce
<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
<i>Allium amblyophyllum</i>	
<i>Allium atrosanguineum</i>	Very common at higher altitudes. Short with dark blackish-red flowers in a tight head
<i>Allium caesium</i>	Cimbulak 2003.
<i>Allium caeruleum</i>	Near Almaty
<i>Allium karelini</i>	Scattered at high altitudes. Not seen in 2003.
<i>Allium platyspathium</i>	Locally common. Not in 2003.
<i>Allium polyphyllum</i>	Widespread
<i>Allium schoenoprasoides</i>	Widespread at high altitudes - small chive like <i>Allium</i> .

Orchidaceae

<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!
<i>Coeloglossum viride</i>	Occasional in meadows. Very red-green flowers

Iridaceae

<i>Crocus alatavicus</i>	seeding only
<i>Iris alberti</i>	In seed near Almaty

Salicaceae

Salix alata
Salix iliensis
Populus tremula

Betulaceae

Betula pendula

Urticaceae

Urtica dioica Widespread

Santalaceae

Thesium alata Scattered. Not in 2003.

Cannabaceae

Cannabis sativa Roadsides in Almaty

Polygonaceae

Oxyria digyna Local at high altitudes.
Polygonum coriarium Cimbulak
Polygonum nitens Widespread
Polygonum songoricum Scattered at higher altitudes
Polygonatum viviparum Locally abundant
Rheum wittroekii Widespread and low-mid altitudes
Rumex acetosa Widespread and common
Rumex tianshanicus Scattered

Caryophyllaceae

Arenaria serpyllifolia Scattered
Cerastium arvense Locally abundant at mid altitudes
Cerastium cerastoides Locally common - the big broad-leaved *Cerastium*
Cerastium dahuricum Cosmos station
Dianthus tianshanicus Above Big Almaty Lake. Not in 2003.
Herniaria hirsuta Occasional
Melandrium triste
Minuartia verna Widespread
Minuartia kryloviana Occasional at mid to high altitudes
Silene graminifolia Scattered
Silene latifolia (vulgaris) Widespread. Not in 2003.
Stellaria graminea Scattered. Lesser Stitchwort.
Thylacospermium caespitosa Locally common at higher altitudes. The amazing vegetable sheep – some fine specimens among the rocks above Cimbulak

Ranunculaceae

Aconitum leucostomum Widespread in mid-level meadows. Tall. White to dirty maroon coloured flowers – very like orientale
Aconitum songoricum Cimbulak
Aconitum rotundifolium In leaf at Cosmos station
Anemone protracta AD & locally abundant at mid-high altitudes. Slopes, screes and streambanks – also by snowmelt. The abundant *Anemone narcissiflora* look-alike
Aquilegia atrovinosa Locally frequent at mid altitudes. Streams and damp screes, also in *Juniperus turkestanicus*. A stunning dark wine-coloured *aquilegia*

<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 2003
<i>Delphinium iliense</i>	
<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
<i>Parapryum 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
<i>Ranunculus longicaulis</i>	
<i>Ranunculus transiliensis</i>	Not in 2003
<i>Thalictrum alpinum</i>	Common at high altitude
<i>Thalictrum minus</i>	Gaish. Not in 2003.
<i>Thalictrum simplex</i>	Scattered
<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!

Berberidaceae

Berberis sphaerocarpa Cimbulak

Papaveraceae

Chelidonium majus Cimbulak

Glaucium squamigerum

Papaver croceum

Papaver tianshanicum

Locally frequent at mid altitudes

At high altitude – e.g. by the Cosmos Station. Smaller and with a different leaf shape than previous species

Roemeria refracta

Tjuk-Su – a plant in a garden. The red poppy with the long thin fruits

Fumariaceae

Corydalis glaucescens Cosmos station

Corydalis capnoides Cimbulak 2003.

Corydalis gortschakovii Local at mid-high altitudes. Not in 2003.

Cysticorydalis fedtschenkoana Cosmos Station. Not in 2003.

Cruciferae

Barbarea plantaginea (=arquata) Scattered

Capsella bursa-pastoris Tjuk-Su

Cardamine impatiens Cimbulak

Chorispora bungeana Locally frequent at higher altitudes – a very beautiful plant

Draba alpina Common at high altitude

Draba huetii Cimbulak

Draba nemorosa Big Almaty Lake

Draba stenocarpa Big Almaty Lake

Draba subamplexicaulis Scattered

Erysimum croceum Scattered in meadows. A very striking bright orange flower

Erysimum marschallianum Cimbulak

Eutrema integrifolium Widespread

<i>Eutrema edwardsii</i>	Local at high altitudes
<i>Isatis tinctoria</i>	
<i>Neuroloma stenophylla</i>	
<i>Smelowskia calycina</i>	Cosmos Station
<i>Taphrospermum altaicum</i>	Locally frequent at higher altitudes
<i>Thlaspi arvense</i>	Scattered. Not in 2003.
<i>Turritis glabra</i>	

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>Sedum ewersii</i>	Local at higher altitudes
<i>Sedum hybridum</i>	Widespread at mid altitudes

Saxifragaceae

<i>Chrysosplenium nudicaule</i>	Scattered in wet areas at higher altitudes
<i>Parnassia laxmanni</i>	Widespread. Has the facies of a <i>Cerastium</i> ! Not in 2003.
<i>Ribes meyeri</i>	Scattered
<i>Saxifraga hirculus</i>	Locally abundant at high altitude especially in wet flushes
<i>Saxifraga oppositifolia</i>	Scattered at higher altitudes
<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>

Rosaceae

<i>Agrimonia asiatica</i>	Near Almaty
<i>Alchemilla tianshanica</i>	Widespread and common
<i>Armeniaca vulgaris</i>	Scattered
<i>Crataegus almatensis</i>	
<i>Dasiphora phyllocalyx</i>	Shrubby Cinquefoil
<i>Fragaria viridis</i>	Widespread
<i>Geum urbanum</i>	
<i>Geum rivale</i>	
<i>Malus sieversii</i>	Cimbulak
<i>Potentilla asiatica</i>	Widespread - a ‘ <i>recta</i> ’-like species
<i>Potentilla biflora</i>	Scattered
<i>Potentilla bifurca</i>	Cimbulak - the pinnate-leaved <i>Potentilla</i> . Not in 2003.
<i>Potentilla desetorum</i>	Scattered
<i>Potentilla evestita</i>	Scattered. Not in 2003.
<i>Potentilla gelida</i>	Locally common
<i>Potentilla multifida</i>	Scattered
<i>Potentilla nervosa</i>	Scattered at higher altitudes
<i>Potentilla orientalis</i>	Cimbulak
<i>Potentilla strigosa</i>	Not in 2003.
<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>	
<i>Sibbaldia tetrandra</i>	Widespread at higher altitudes
<i>Sorbus tianshanica</i>	Locally common
<i>Spirea tianshanica</i>	Widespread

Adoxaceae

Adoxa moschatelliana Common in damp meadows under shade

Fabaceae

Astragalus alatavicus
Astragalus alpinus Widespread – the European Alpine Milk Vetch
Astragalus lithophilus Scattered
Astragalus schanginianus Cimbulak
Glycyrrhiza glabra Near Almaty
Hedysarum montanum Big Almaty Lake
Hedysarum neglectum Locally common
Hedysarum semenowii Widespread
Lathyrus pratensis Widespread
Lathyrus pisiformis Big Almaty Lake
Lathyrus tuberosus Near Almaty
Medicago lupulina Occasional at low altitude
Melilotus officinalis
Orobanchus luteus Tjuk-su and the Observatory area
Oxytropis almatensis
Oxytropis brachycarpa Big Almaty Lake
Oxytropis chionobia Scattered
Oxytropis lapponica Big Almaty Lake
Oxytropis recognita Big Almaty Lake
Oxytropis sewerzovii Widespread
Sophora alopecuroides Cimbulak
Thermopsis alpina Locally common on slopes at mid-high altitude. A large woolly lupin-like species – not seen in flower. Low growing
Trifolium pratense Widespread
Trifolium repens Widespread
Vicia cracca Widespread
Vicia sepium

Geraniaceae

Geranium albiflorum Locally frequent in meadows. Small white flowers
Geranium collinum Widespread in various forms
Geranium rectum Locally common in meadows
Geranium saxatile Cosmos Station. Like a stunted high altitude version of *pratense*. Not in 2003.

Rutaceae

Dictamnus angustifolius

Polygalaceae

Polygala hybrida Widespread at mid altitudes. The common milkwort.

Euphorbiaceae

Euphorbia tianschanica Widespread

Celastraceae

Euonymus semenovii Cimbulak 2003

Aceraceae

Acer negundo

Balsaminaceae

Impatiens parviflora

Malvaceae

Alcea nudiflora

Lavatera thuringiaca

Not in 2003.

Scattered at low-mid altitudes. Not in 2003.

Clusiaceae

Hypericum hirsutum

Cimbulak

Tamaricaceae

Myricaria squamosa

Above Big Almaty Lake

Violaceae

Viola acutifolia

Viola altaica

Viola biflora

Viola rupestris

Viola tianshanica

Viola suavis

Local in meadows above Big Almaty Lake – a rather leggy version of *Viola biflora* with leaves very pointed

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

Tjuk-su Gate

Observatory area

Widespread

Cimbulak

Elaeagnaceae

Hippophae rhamnoides

En route to observatory

Cucurbitaceae

Bryonia alba

Near Almaty

Onagraceae

Chamaenerium angustifolium

Chamaenerium latifolium

Epilobium subnivale

Epilobium hirsutum

Frequent by riversides at low altitude

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

Above Big Almaty Lake. Not in 2003.

Cimbulak.

Apiaceae

Aegopodium alpestre

Angelica brevicaulis

Angelica decurrens

Anthriscus aemula

Bupleurum aureum

Heracleum dissectum

Pachypleurum condensatum

Schultzia albiflora

Semenovia transiliensis

Vicatia coniiifolia

(=*Carum atrosanguineum*)

Scattered

Locally common

Cimbulak

= *A. sylvestris*. Widespread.

Cimbulak.

Scattered. By streams.

Common – low growing umbel

Widespread

Widespread at mid-high altitudes

Pyrolaceae

Moneses uniflora

Orthilia secunda

Below Big Almaty Lake. Not in 2003.

Cimbulak.

Pyrola minor Scattered under spruce woods

Primulaceae

Androsace akbeitalensis
Androsace fedtschenkoi

Occasional at mid-high altitudes
Scattered. Basal rosette with a flower stalk terminating in an umbel of creamy-white flowers. Annual

Cortusa broteroi

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

Primula algida

Widespread and often abundant at higher altitudes – some particularly fine forms. Very small flowered pinky-purple *Primula* with 'normal' looking leaves

Primula kaufmanniana

Locally frequent at high altitudes.

Primula nivalis

Widespread.

Gentianaceae

Gentiana algida
Gentiana barbata
Gentiana falcata
Gentiana karelini
Gentiana kaufmanniana
Gentiana tianshanica
Gentiana turkestanorum
Gentiana uniflora

White species found in next valley below the Cosmos station. Not in 2003.

In seed

High altitudes – flowers a little like a *Lomatogonium*. Not in 2003.

Widespread at high altitudes. Minute! Not in 2003.

Scattered

In seed

In a small corrie near the second stage of the Cimbulak ski lift – like *G.verna*
Not in 2003.

Polemoniaceae

Polemonium caucasicum

Jacob's Ladder. Locally frequent at low altitudes

Boraginaceae

Asperugo procumbens
Echium vulgare
Eritrichium villosum
Lappula tianshanica
Myosotis asiatica

Scattered

Widespread

Scattered

Widespread

Widespread

Labiatae

Dracocephalum grandiflorum

Locally abundant in meadows at mid to high altitude. A very striking species with large brilliant blue flowers – often growing in stands

Dracocephalum imberbe

Widespread – often on rocks

Dracocephalum nutans

Scattered

Dracocephalum stamineum

Big Almaty Lake

Eremostachys speciosa

Cimbulak

Lamium album

Widespread

Mentha asiatica

Origanum vulgare

Phlomis oreophila

Locally common at high altitude

Salvia deserta

Common at lower altitudes

Thymus seravschanicus

Widespread

Scrophulariaceae

Lagotis integrifolia

Cosmos Station

Pedicularis altaica

Cosmos Station. Pale pink flowers, very white hairy inflorescence

Pedicularis amoena

Widespread

<i>Pedicularis dolichorrhiza</i>	Locally abundant at mid to high altitudes. The common yellow and white (or creamy) flowered louseworts
<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>Scrophularia alata</i>	Cimbulak
<i>Verbasum songoricum</i>	Widespread
<i>Verbascum thapsus</i>	Scattered
<i>Veronica beccabunga</i>	Scattered
<i>Veronica chamaedrys</i>	Widespread
<i>Veronica porphyriana</i>	Locally common in mid-high level turf. Beautiful dark blue spicate species
<i>Veronica serpyllifolia</i>	Cimbulak

Rubiaceae

<i>Galium septentrionale</i>	
<i>Galium aparine</i>	

Caprifoliaceae

<i>Lonicera hispida</i>	Tjuk-su and above Cimbulak. Big flowers
<i>Lonicera humilis</i>	Scattered
<i>Lonicera karelinii</i>	Near Big Almaty Lake. Two largish bi-coloured flowers
<i>Lonicera semenovi</i>	Big Almaty Lake

Valerianaceae

<i>Patrinia intermedia</i>	Scattered. Tight head of bright yellow flowers. Not in 2003.
<i>Valeriana turkestanica</i>	Cimbulak

Campanulaceae

<i>Adenophora himalayana</i>	Common in turf around the observatory and above Big Almaty Lake. Fairly standard looking bellflower! In leaf 2003.
<i>Campanula glomerata</i>	Widespread. The European Clustered Bellflower with a distinctive capitate inflorescence
<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>Alfredia nivea</i>	Scattered
<i>Achillea millefolium</i>	
<i>Artemisia absinthium</i>	Widespread
<i>Artemisia aschurbajevii</i>	Around observatory
<i>Artemisia santolinifolia</i>	Locally frequent at higher altitudes
<i>Artemisia sieversiana</i>	
<i>Artemisia vulgaris</i>	Widespread
<i>Aster alpinus</i>	Widespread at mid-high altitudes
<i>Centaurea rhapontica</i>	Near Almaty.
<i>Cicerbita azurea</i>	Widespread.
<i>Cicerbita tianschanica</i>	
<i>Cirsium semenovii</i>	Widespread.
<i>Cousinia umbrosa</i>	Cimbulak
<i>Crepis sibirica</i>	Cimbulak
<i>Doronicum turkestanorum</i>	Frequent in meadows and woods at low-high altitude
<i>Erigeron auranticus</i>	Common at high altitude in the Almaty area. Gold-coloured flowers

<i>Erigeron heterochaeta</i>	Scattered. Like Alpine Aster in appearance
<i>Erigeron lachnocephalus</i>	Big Almaty Lake. Mauve.
<i>Erigeron seravschanicus</i>	Above Big Almaty Lake and at the Cosmos Station. Not 2003.
<i>Hieracium dublitschi</i>	
<i>Inula helenium</i>	Cimbulak
<i>Inula macrophylla</i>	
<i>Leontopodium fedtschenkoanum</i>	Widespread at altitude
<i>Leontopodium ochroleucum</i>	Cosmos Station
<i>Ligularia heterophylla</i>	Cosmos Station and above Big Almaty Lake
<i>Ligularia macrophylla</i>	Locally dominant in rich meadows at mid altitudes, also up to high altitudes
<i>Picris similis</i>	In leaf
<i>Pyrethrum alpinum</i>	Big Almaty Lake
<i>Rhaponticum sordida</i>	In leaf
<i>Saussurea elegans</i>	
<i>Saussurea gnaphaloides</i>	Cosmos Station. Purple virtually stemless flowers amid grey leaf rosettes
<i>Saussurea schanginiana</i>	Cosmos Station
<i>Schmalhausenia nidulans</i>	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!
<i>Taraxacum lilaceum</i>	Scattered at high altitudes – odd dandelion with funnel-shaped lemon flowers. Not in 2003.
<i>Taraxacum officinale</i>	At mid-high altitudes!
<i>Tripleurospermum ambiguum</i>	Widespread
<i>Tussilago farfara</i>	

Systematic List Number 3(b) Flowers of Aksu Djabagly area

A summary of the itinerary –

June 12 th	Kuyuk Pass, Karasay Gorge, and Berkara
June 13 th	Aksu Canyon
June 14 th	Journey to the Mountain House
June 15 th	Ulkun Kaindi Valley
June 16 th	Ulkun Kaindi Pass
June 17 th	Baidaksai
June 18 th	Return to Djabagly
June 19 th	Steppe Lakes, Ters and Taskol, and Kuyuk Pass

Polypodiaceae

Asplenium viride

Cystopteris filix-fragilis

Asplenium ruta-muraria Not in 2003.

Typhaceae

Typha angustifolia Scattered

Alismataceae

Alisma loeselii Darbaza Lake. Not in 2003.

Butomaceae

Butomias umbellatus Ters

Equisitaceae

Equisetum arvense Scattered

Equisetum ramossissimum

Cupressaceae

Juniperus turkestanica Locally dominant at altitudes of 2600 – 3150m

Juniperus seravschanica Locally dominant at mid altitudes

Juniperus semiglobosa Locally dominant at mid altitudes

Juniperus sabina
Gorge. Not in 2003.

Koksai

Ephedraceae

Ephedra equisetina Frequent in all areas

Ephedra fedtschenkoana Ulkun Kaindi Pass

Ephedra intermedia Kuyuk Pass

Poaceae

Achnatherum caragana

Achnatherum splendens

Aegilops crassa

Aegilops cylindrica

Agropyron pectinatum

Agrostis gigantea

Alopecurus pratensis

<i>Alopecurus himalaicus</i>		
<i>Anisantha tektorum</i>		
<i>Bromus danthoniae</i>		
<i>Bromus japonicus</i>		
<i>Bromus inermis</i>	Locally frequent	
<i>Bromus oxydon</i>		
<i>Bromus sewerzowii</i>		
<i>Calamagrostis epigeios</i>	Koksai Gorge and near Halfway House. Not in 2003.	
<i>Calamagrostis dubia</i>	Ulkun Kaindi Valley	
<i>Cynodon dactylon</i>		
<i>Dactylis glomerata</i>	Widespread and common	
<i>Dactylus himalayensis</i>		
<i>Elymus drobovii</i>		
<i>Elytrigia trichophora</i>	Scattered	
<i>Elytrigia repens</i>		
<i>Festuca olgae</i>		
<i>Festuca gigantea</i>		
<i>Festuca pratensis</i>		
<i>Festuca valesiaca</i>		
<i>Helictotrichin hookeri</i>	Ulkun Kaindi Pass	
<i>Hordeum bulbosum</i>	Widespread and abundant	
<i>Hordeum leporinum</i>		
<i>Hordeum turkestanicum</i>		
<i>Koeleria cristata</i>		
<i>Leymus aemulans</i>		Kshi Kaindi
<i>Lolium perenne</i>		
<i>Melica inaequiglumis</i>		
<i>Phalarioides arundinacea</i>	Koksai Gorge.	
<i>Phleum alpinum</i>	Ulkun Kaindi .	
<i>Phleum paniculatum</i>		
<i>Phleum phleoides</i>	Locally frequent in meadows at low-mid altitudes	
<i>Phragmites australis</i>		
<i>Poa alpina</i>	Ulkun Kaindi Pass.	
<i>Poa angustifolia</i>		
<i>Poa bulbosa</i>		
<i>Poa nemoralis</i>		
<i>Poa pratensis</i>	Widespread and common	
<i>Poa relaxa</i>	Locally frequent	
<i>Sclerochloa dura</i>		
<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>		
<i>Taeniatherum crinitum</i>	Scattered	

Araceae

Arum korolkovii Aksu-Dzhabagly

Liliaceae

Eremurus lactiflorus A few in Aksu-Dzhabagly, in seed at Kuyuk Pass, and in flower at Aksu Gorge. Sparse flowered Spike of largish white flowers. Inflated round seed capsules distinctive.

<i>Eremurus regelii</i>	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 <i>fuscus</i> at Koksai Gorge.
<i>Eremurus tianshanicus</i>	Tall columnar densish spike of off-white flowers. Kuyuk Pass.
<i>Gagea capillifolia</i>	Ulkun Kaindi Valley.
<i>Gagea dshungarica</i>	High altitudes in the reserve.
<i>Gagea emarginata</i>	Locally common in the reserve.
<i>Gagea filiformis</i>	Ulkun Kaindi Valley, Pass, and Baidaksai.
<i>Gagea minutiflora</i>	Ulkun Kaindi Valley, Pass, and Baidaksai.
<i>Gagea olgae</i>	Ulkun Kaindi Pass.
<i>Gagea turkestanica</i>	Ulkun Kaindi Pass and Valley.
<i>Gagea vvedenskyi</i>	A few in the reserve.
<i>Gagea ugamica</i>	Ulkun Kaindi Pass and Baidaksai.
<i>Korolkovia severzovii</i>	Some fine flowers at Baidaksai.
<i>Lloydia serotina</i>	Snowdon lily. Ulkun Kaindi Pass.
<i>Rhinopetalum stenanthrum</i>	Noted in seed. Seed capsules about 12mm long and 12mm diameter with strong ridges
<i>Polygonatum roseum</i>	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
<i>Polygonatum severzovii</i>	
<i>Tulipa bifloriformis</i>	In seed at Koksai. Not in 2003.
<i>Tulipa dasystemonoides</i>	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)
<i>Tulipa greigii</i>	Red Data Book species. Frequent at low altitude in seed. 2 in flower in Ulkun Kaindi Valley.
<i>Tulipa kaufmanniana</i>	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
<i>Tulipa orthopoda</i>	In seed at Kuyuk Pass.
<i>Tulipa turkestanica</i>	Some plants in seed in Ulkun Kaindi Valley, and in flower on Pass.
<i>Allium barszczewskii</i>	Locally common at low-mid altitude. Sparse red flowers.
<i>Allium caesium</i>	Widespread – the larger blue allium.
<i>Allium coeruleum</i>	Locally frequent at low altitudes. The little blue one.
<i>Allium collis-magni</i>	Berkara 2003
<i>Allium drobovii</i>	Widespread in bud – large pale one
<i>Allium fedtschenkoanum</i>	Locally common at high altitude on lush meadows below snowmelt. Ulkun Kaindi Pass and Baidaksai
<i>Allium fetissovii</i>	Widespread
<i>Allium filidens</i>	Berkara and Steppe Lakes 2003
<i>Allium hymenorhizum</i>	Probably the most common allium - rather ordinary looking with quite large hemispherical heads of pale pink flowers
<i>Allium karataviense</i>	Occasional on dry stoney slopes and screes at low-mid altitudes, usually on south facing slopes
<i>Allium kokanicum</i>	Scattered. Not in 2003.
<i>Allium kuyukense</i>	Kuyuk Pass 2003
<i>Allium oreophilum</i>	Ulkun Kaindi Pass – beautiful dwarf rich red-maroon flowered species on Screes. Not in 2003.
<i>Allium polyphyllum</i>	Common at high altitude – distinctive layered leaves
<i>Allium sewerzovii</i>	Locally frequent
<i>Allium trachyscandum</i>	Kuyuk Pass 2003

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 Aksu Gorge. 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

Crocus alatavicus

In seed at Baidaksai 2003

Iris korolkovii

Some fine flowers at Aksu in 2003

Iris sogdiana

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.

Iris (Juno) coerulea

Locally frequent at low-mid altitudes. Slopes and screes. In flower in Ulkun Kaindi Valley. Elegant *Juno* iris with rather narrower leaves than following species - not as widely white-margined either. Sky-blue flowers.

Iris (Juno) orchioides

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.

Iris songorica

In leaf at the Kuyuk Pass 2003

Orchidaceae

Epipactis helleborine (=latifolia)

Scattered. Broad-leaved Helleborine! Not in 2003.

Dactylorhiza umbrosa

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

Populus talassica

Salix excelsa

Dzhabagly

Salix neidzwickii

In the reserve

Betulaceae

Betula talassica

Locally frequent along streams in juniper forest. This species has very pale, almost white bark

Betula turkestanica

Locally frequent along streams at low-mid altitudes. Reddish tinge to bark. Apparent intermediates noted.

Ulmaceae

Celtis caucasica

Aksu

Urticaceae

Parietaria micrantha

Urtica dioica

Widespread

Santalaceae

Thesium brevibracteatum

Polygonaceae

Atraphaxis pyrifolia

Locally common

Atraphaxis frutescens

Kuyuk Pass 2003

Oxyria digyna

Local at high altitudes - much commoner in the latter area

Polygonum amphibum

Ters Lake

Polygonum aviculare

Polygonum coriarium

Widespread. The 'Alpine Bistort' look-alike

Polygonum hissaricum

Ulkun Kaindi Valley and Pass

Polygonatum nitens

Frequent at mid altitudes. Columnar spike - looking rather like a normal Bistort

Polygonatum undulatum

Common at mid-high altitudes

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
Chenopodium foliosum Around the Mountain House
Rhaphidophyton regelii Red Data Book species. Occasional at low altitudes.

Caryophyllaceae

Acanthophyllum pungens Steppe lakes
Allochrusa gypsophiloides Red Data Book species. Aksu Canyon. Sprays of white *Gypsophila* like flowers
Arenaria griffithii Baidaksai
Arenaria serpyllifolia
Cerastium arvense Widespread
Cerastium bungeanum Widespread
Cerastium dahuricum Widespread
Cerastium lithospermifolium Ulkun Kaindi Pass
Dianthus hoeltzeri Scattered on drier slopes everywhere. Not in 2003
Dianthus karataviensis Scattered. Not in 2003
Dianthus tetralapis Taskol
Gypsophila cephalotes Ulkun Kaindi Pass
Herniaria hirsuta Widespread
Melandrium turkestanicum Scattered
Petrorhagia alpina Common in the reserve
Silene brachuica Kuyuk Pass
Silene kuschakewiczii Scattered
Silene venosa Steppe lakes
Silene latifolia (vulgaris) Widespread
Silene volgensis Koksai Gorge
Stellaria graminea Widespread. Lesser Stitchwort.
Vaccaria pyramidata Dzhabagly

Ranunculaceae

Aconitum talassicum Noted in the small spring behind the Halfway House and in the Koksai Gorge. Small Monkshood with bright light blue flowers. In leaf 2003.
Adonis parviflora Noted in the reserve
Anemone protracta Locally abundant at mid-high altitudes. Slopes, screes and streambanks – also by snowmelt. The abundant *Anemone narcissiflora* look-alike
Anemone petiolulosa In seed in the reserve
Aquilegia atrovinosa Locally frequent at mid altitudes. Streams and damp screes, also in *Juniperus turkestanicus*. A stunning dark wine-coloured *aquilegia*
Batrachium divaricatum Ters Lake
Callianthemum alatavicum Pretty white 'anemone' like flower with corydalis like foliage
Clematis orientalis Noted in seed
Delphinium confusum
Delphinium semibarbatum Near Taskol
Erianthis longistipitata Noted in leaf
Paraquilegia anemonoides 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
Pulsatilla campanella Locally abundant at mid to high altitudes. Drier slopes, screes and near Snowmelt
Ranunculus paucidentatus Scattered in the reserve
Ranunculus polyanthemus Scattered - very similar to *Ranunculus acris* or Meadow Buttercup
Ranunculus regelianus Scattered in the reserve

<i>Ranunculus rufosepalus</i>	Noted from stabilised screes on the south (Aksu) side of the Ulkun Kaindi Pass and in the Valley and Baidaksai
<i>Thalictrum isopyroides</i>	Ulkun Kaindi Pass and Valley, and Kuyuk 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>	
<i>Gymnospermium alberti</i>	Baidaksai 2003

Papaveraceae

<i>Glaucium fimbriigerum</i>	Kuyuk Pass and steppe lakes
<i>Glaucium elegans</i>	Kuyuk Pass
<i>Glaucium squamigerum</i>	
<i>Papaver croceum</i>	Locally common on Ulkun Kaindi Pass and Valley.
<i>Papaver litwinovii</i>	
<i>Roemeria refracta</i>	Widespread

Fumariaceae

<i>Corydalis gortschakovii</i>	Noted from north facing slopes among <i>Juniperus turkestanicus</i> scrub on the Ulkun Kaindi pass and valley. Not in 2003.
<i>Corydalis ledebouriana</i>	Ulkun Kaindi Valley and Baidaksai where common 2003
<i>Fumaria vaillantii</i>	Kuyuk Pass

Capparidaceae

<i>Capparis spinosa</i>	Karatau
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Cruciferae

<i>Alyssum stenostachyum</i>	Kuyuk Pass
<i>Arabis kokanica</i>	Ulkun Kaindi Pass
<i>Camelina microcarpa</i>	Taskol
<i>Capsella bursa-pastoris</i>	
<i>Crambe orientalis</i>	Scattered
<i>Draba melanopus</i>	Ulkun Kaindi Pass
<i>Draba talassica</i>	Ulkun Kaindi Pass
<i>Erysimum diffusum</i>	Scattered
<i>Erysimum humillimum</i>	
<i>Neurolooma albidum</i>	Higher altitudes in the reserve
<i>Megacarpaea orbiculata</i>	
<i>Parrya albidum</i>	Local on the Ulkun Kaindi Pass and Valley. Not in 2003
<i>Sysimbrium loeselii</i>	
<i>Sisymbrium brassiciforme</i>	Kuyuk Pass
<i>Thlaspi perfoliatum</i>	Widespread
<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
<i>Rosularia alpestris</i>	Ulkun Kaindi Valley, Pass, and Baidaksai

Rosularia turkestanica
Sedum alberti
Sedum pentapetalum

Aksu and baidaksai
Aksu

Saxifragaceae

Parnassia palustris
Ribes meyeri
Saxifraga alberti
Saxifraga sibirica

Scattered in wet flushes – in leaf
Ulkun Kaindi Pass
Scattered

Rosaceae

Amygdalus petunnikovii
Amygdalus communis
Alchemilla retropilosa
Cerasus erythrocarpa
Cerasus tianshanica
Cotoneaster multiflorus
Crataegus korolkovii
Crataegus pontica
Crataegus turkestanica
Dasiphora phyllocalyx
Geum urbanum
Hulthemia persica
Malus niedzwetzkyana
Malus sieversii
Orthurus kokainicus
Padellus mahaleb
Potentilla asiatica
Potentilla fedtschenkoana
Potentilla gelida
Potentilla hololeuca
Potentilla orientalis
Potentilla songorica
Potentilla supina
Potentilla reptans
Potentilla transcaspia

Poterium polygonum
Prunus sogdiana (divaricata)
Pyrus regelli
Rosa alberti
Rosa korymbifera
Rosa fedtschenkoana
Rosa hissarica
Rosa kokanica
Rosa maracandica
Rosa nanothamnos
Rubus caesium
Sanguisorba alpina
Sanguisorba officinalis
Sorbus persica
Spiraea hypericifolia
Spirea pilosa

A shrubby 'Almond'. Aksu
Baidaksai 2003
Aksu
Frequent at low to mid altitudes. The virtually procumbent little cherry
Scattered
Baidaksai 2003
Noted from the Aksu Gorge
Widespread
Occasional at low-mid altitudes. Shrubby Cinquefoil
Widespread
Kuyuk Pass
Scattered
Scattered
Scattered
Widespread - a 'recta'-like species
Locally frequent
Ulkun Kaindi Pass and Valley. Not in 2003
Locally common on the Ulkun Kaindi Pass and Valley - very silvery hairy
Locally common
Aksu
Steppe Lakes 2003
Berkara
Occasional low-mid altitudes. Another 'recta'-like species but this time with grey undersides to the leaves
Scattered – salad burnet!
Widespread
Karatau
Locally common at low-mid altitudes. Large white flowers
Ulkun Kaindi Valley
Common at low altitudes. A rather scrappy looking *Rosa* with many sharp spines
Scattered
Aksu Gorge. Small white flowers – only about 2cm across
Scattered
Locally dominant along streams at low to mid altitudes. Bears like it!
Occasional at low to mid altitudes in meadows
Locally frequent at low altitude
Widespread
Locally common

Fabaceae

<i>Astragalus abolinii</i>	Aksu
<i>Astragalus aksaricus</i>	Ulkun Kaindi Pass and Valley
<i>Astragalus alaicus</i>	Ulkun Kaindi Valley. Not in 2003
<i>Astragalus alopecias</i>	Koksai Gorge. Not in 2003
<i>Astragalus anisomerus</i>	Widespread. Yellow flowers
<i>Astragalus atrovinosus</i>	Widespread
<i>Astragalus ashuturi</i>	Ulkun Kaindi Pass. Not in 2003
<i>Astragalus fedtschenkoanus</i>	Ulkun Kaindi Valley 2003
<i>Astragalus inaequalifolius</i>	
<i>Astragalus krauseanus</i>	Aksu 2003. Yellow flowers
<i>Astragalus lanuginosus</i>	Karasai and Kuyuk Pass 2003
<i>Astragalus macrotropis</i>	Aksu 2003
<i>Astragalus megalomerus</i>	Aksu 2003
<i>Astragalus nematodes</i>	Kuyuk Pass 2003
<i>Astragalus neo-lipskyanus</i>	Scattered at lower altitudes
<i>Astragalus pachyrrhizus</i>	Steppe Lakes and in seed at Aksu 2003
<i>Astragalus platyphyllos</i>	Kuyuk Pass 2003
<i>Astragalus pseudomacropterus</i>	Not in 2003
<i>Astragalus schmalhauseni</i>	Kuyuk Pass 2003
<i>Astragalus schrenkianus</i>	Kuyuk Pass 2003
<i>Astragalus severzowii</i>	Occasional at low to mid altitudes. One of the most distinctive <i>Astragalus</i> 's. 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 2003
<i>Astragalus ugamicus</i>	Scattered
<i>Cicer flexuosum</i>	Noted from low-mid altitudes. South-facing. Not in 2003
<i>Cicer songoricum</i>	Mid-altitudes. Ulkun Kaindi Pass etc.
<i>Glycyrrhiza aspera</i>	Kuyuk Pass and Berkara
<i>Glycyrrhiza uralensis</i>	Berkara
<i>Halimodendron holodendrum</i>	Karatau
<i>Hedysarum acutifolium</i>	Ulkun Kaindi Pass
<i>Hedysarum cephalotes</i>	Occasional at mid altitudes - the very beautiful bright pink flowered <i>Hedysarum</i>
<i>Hedysarum fedtschenkoanum</i>	Locally frequent at mid altitudes. Not in 2003. 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 2003
<i>Lathyrus pratensis</i>	Widespread
<i>Medicago lupulina</i>	Widespread
<i>Medicago minima</i>	Aksu
<i>Medicago sativa</i>	Steppe Lakes
<i>Medicago tianshanica</i>	Widespread
<i>Melilotus officinalis</i>	Widespread
<i>Merystrotropis triphylla</i>	Kuyuk Pass
<i>Onobrychis chorassanica</i>	Koksai Gorge. Not in 2003
<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>	
<i>Oxytropis tachtensis</i>	Near Mountain House etc.
<i>Oxytropis talassica</i>	Ulkun Kaindi Pass and Valley – tall and red-purple
<i>Oxytropis trichocalycina</i>	Aksu
<i>Trifolium pratense</i>	Widespread
<i>Trifolium repens</i>	Widespread

Vicia kokanica Locally common
Vicia tenuifolia Common at low altitude. Resembles *Vicia cracca* and *Vicia villosa*

Geraniaceae

Erodium cicutarium Karasai and Aksu.
Geranium collinum Widespread in various forms
Geranium divaricatum Karasai and Aksu
Geranium pusillum Aksu
Geranium saxatile Locally common at mid to high altitudes. Like a stunted high altitude version of *pratense*
Geranium transversale Baidaksai

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 Taskol 2003

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 Occasional at mid-high altitudes
Euphorbia talastavica Ulkun Kaindi Pass and Valley

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 Aksu Gorge

Vitaceae

Vitis vinifera Berkara

Malvaceae

Alcea nudiflora

Common along tracks and roads.

Malva neglecta

Scattered

Tamaraciceae

Tamarix ramosissima

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

Scattered

Viola rupestris

Scattered

Elaeagnaceae

Elaeagnus angustifolius

Aksu Canyon

Hippophae rhamnoides

Occasional at low altitudes.

Thymelaeaceae

Thymelaea passerina

Taskol 2003

Onograceae

Epilobium tianschanicum

Epilobium hirsutum

Epilobium velutinum

Steppe Lakes

Apiaceae

Aegopodium podagraria

Widespread

Aegopodium alpestre

Koksai Gorge. Not in 2003

Anthriscus glacialis

Baidaksai 2003

Bupleurum tianshanicum

Scattered at mid altitudes and in the Aksu Canyon

Carum carvi

Scattered.

Conioselinum tataricum

Baidaksai

Conium maculatum

Daucus carota

Steppe Lakes

Elaeosticta alliodes

Steppe Lakes

Elaeosticta setaceae

Scattered

Ferula karatavienses

Scattered

Ferula karatavica

Aksu Canyon and Kuyuk Pass

Ferula penninervis

Locally frequent at low-mid altitudes

Ferula samarkandica

Scattered. Not in 2003

Ferula talassica

Ulkun Kaindi Pass and Valley. AKA *Ferula renardii*

Ferula tenuisecta

Locally dominant especially at low altitudes but locally frequent even at high altitudes

Heracleum dissectum

Scattered. By streams in the Kshi Kaindi

Ligusticum talassica

Ulkun Kaindi Pass

Kosopoljanskia turkestanica

Not in 2003

Mediasia macrophylla

Locally common

Melabaila tordyloides

Widespread

<i>Muretia transitoria</i>	Locally frequent at low altitude. Tall, slender with small yellow umbel
<i>Oedibasis apiculata</i>	Scattered. Not in 2003
<i>Oedibasis platycarpa</i>	
<i>Paraligusticum discolor</i>	Locally abundant at low-mid altitudes
<i>Prangos pabularia</i>	Locally abundant at low altitudes
<i>Prangos uloptera</i>	Steppe Lakes
<i>Psammogeton barszczovii</i>	Steppe Lakes 2003
<i>Scandix stellata</i>	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 vaginata</i>	Kuyuk Pass 2003
<i>Schtschurovskia meifolia</i>	Scattered
<i>Selinum coriacium</i>	Scattered
<i>Selinum kultiassovii</i>	Aksu
<i>Seseli schrenkiana</i>	Very common
<i>Seseli talassica</i>	Scattered
<i>Torilis leptophylla</i>	Berkara
<i>Vicatia coniiifolia</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>	
<i>Androsace fedtschenkoi</i>	Widespread
<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>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 Primula 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>Limonium myrianthum</i>	Taskol
<i>Limonium gmellinii</i>	Taskol

Oleaceae

<i>Fraxinus sogdiana</i>	Berkara
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Gentianaceae

<i>Centaurium pulchellum</i>	Steppe Lakes and Berkara
<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>	Ulkun Kaindi Pass
<i>Gentiana turkestanorum</i>	Ulkun Kaindi Valley
<i>Swerztia variabilis</i>	Wet flushes in Baidiksai valley, in bud

Convolvulaceae

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

Cuscutaceae

<i>Cuscuta brevistyla</i>	Koksai Gorge. Not in 2003
<i>Cuscuta campestris</i>	
<i>Cuscuta engelmannii</i>	Ulkun Kaindi Valley

Boraginaceae

<i>Anchusa italica</i>	
<i>Asperugo procumbens</i>	Low altitudes in the reserve
<i>Echium italicum</i>	
<i>Echium vulgare</i>	
<i>Lappula microcarpa</i>	Widespread
<i>Lindelofia macrostyla</i>	Karasai. Substantial 'symphytum'-like borage with far-protruding style
<i>Lindelofia tschimganica</i>	By snowmelt at Baidaksai – orange-flowered
<i>Lithospermum officinale</i>	
<i>Macrotomia euchroma</i>	Upper Ulkun Kaindi Valley
<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
<i>Myosotis asiatica</i>	Widespread
<i>Myosotis micrantha</i>	Baidaksai
<i>Myosotis suaveolens</i>	Scattered
<i>Onosma dichroanthum</i>	Aksu
<i>Onosma irritans</i>	Ulkun Kaindi Valley
<i>Rhynchospermum arvense</i>	Scattered
<i>Rindera echinata</i>	In seed at Aksu
<i>Rindera oblongifolia</i>	Ulkun Kaindi Valley and in seed at Aksu
<i>Rochelia campanulata</i>	Kuyuk Pass in seed
<i>Rochelia cardiosepala</i>	Kuyuk Pass in seed
<i>Solenanthes circinnatus</i>	Scattered
<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>	Aksu

Labiatae

<i>Acinos graveolens</i>	Aksu
<i>Betonica foliosa</i>	Locally abundant at low altitudes
<i>Dracocephalum integrifolium</i>	Scattered – leaves undivided. Rocky places
<i>Dracocephalum nutans</i>	Widespread
<i>Eremostachys karatavica</i>	Kuyuk Pass
<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>	Kuyuk Pass
<i>Lagochilus tianschanicus</i>	Ulkun Kaindi Pass

<i>Lamium album</i>	
<i>Leonurus turkestanicus</i>	
<i>Lophanthus schrenkii</i>	In leaf in Ulkun Kaindi Valley
<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>	Aksu 2003
<i>Origanum tyttanthum</i>	Frequent at low to mid altitudes
<i>Phlomis brachystegia</i>	Scattered
<i>Phlomis salicifolia</i>	Aksu canyon etc
<i>Pseuderemostachys sewerzowii</i>	Aksu
<i>Salvia deserta</i>	Locally abundant at low altitudes
<i>Salvia sclarea</i>	Steppe Lakes
<i>Salvia aethiopis</i>	Steppe Lakes
<i>Scutellaria cordifrons</i>	Locally frequent in the Ulkun Valley and Pass
<i>Scutellaria immaculata</i>	Aksu Gorge
<i>Scutellaria kurssanovii</i>	Taskol, Kuyuk Pass and Karasai
<i>Scutellaria linczevskii</i>	Ulkun Kaindi Pass
<i>Scutellaria subcaespitosa</i>	Aksu 2003
<i>Stachyopsis oblongata</i>	Ulkun Kaindi Valley and Pass, and Baidaksai
<i>Thymus karatavicus</i>	Scattered
<i>Ziziphora bungeana</i>	Widespread
<i>Ziziphora clinopodioides</i>	Ulkun Kaindi Pass and Valley, Koksai. Not in 2003
<i>Ziziphora pamiroalaica</i>	Ulkun Kaindi Pass
<i>Ziziphora tenuior</i>	Steppe Lakes

Solanaceae

Hyoscyamus niger

Scrophulariaceae

<i>Dodartia orientalis</i>	Scattered
<i>Euphrasia tartarica</i>	Scattered
<i>Linaria popovii</i>	Berkara.
<i>Pedicularis dolichorrhiza</i>	Locally abundant at mid to high altitudes. The common yellow and white (or creamy) flowered lousewort
<i>Pedicularis dubia</i>	Locally common at mid-high altitude. The other creamy one
<i>Pedicularis olgae</i>	Very widespread. Red – an early flowerer
<i>Rhinanthus songaricus</i>	Occasional at mid altitudes.
<i>Scrophularia incisa</i>	Ulkun Kaindi Valley. By streams
<i>Scrophularia alata</i>	
<i>Verbascum songoricum</i>	Widespread and common
<i>Verbascum turkestanicum</i>	
<i>Veronica anagallis-aquatica</i>	
<i>Veronica beccabunga</i>	Widespread
<i>Veronica laeta</i>	Baidaksai, in bud
<i>Veronica spuria</i>	Scattered at low to mid altitude. Another large 'spicate' <i>veronica</i>

Orobanchaceae

<i>Orobanche amoena</i>	Koksai. Not in 2003
<i>Orobanche kotschyi</i>	
<i>Orobanche sordida</i>	Ulkun Kaindi Pass. Not in 2003
<i>Orobanche uralensis</i>	Taskol

Lentibulariaceae

Utricularia vulgaris

Plantaginaceae

Plantago arachnoidea

Ulkun Kaindi Pass

Plantago lanceolata

Locally frequent at low to mid altitude

Plantago major

Plantago maritima

Steppe Lakes

Rubiaceae

Asperula humifusa

Steppe Lakes

Asperula setosa

Scattered

Callipeltis cucullaris

Aksu Canyon, Koksai

Crucianella exasperata

Steppe Lakes

Galium aparine

Galium karataviense

Scattered in the reserve

Galium pamiro-alaicum

Frequent at low to mid altitudes

Galium septentrionale

At low to mid altitudes

Galium tenuissimum

Scattered

Galium verticillatum

Steppe Lakes and Kuyuk Pass

Rubia regelii

On rocks on the Ulkun Kaindi Pass

Caprifoliaceae

Lonicera cinerea

Ulkun Kaindi Pass and Valley

Lonicera karelinii

Frequent at low to mid altitudes. Two largish bi-coloured flowers

Lonicera microphylla

Frequent at high altitudes, particularly Ulkun Kaindi pass.

Lonicera nummulariifolia

Locally abundant at low to middle altitudes.

Lonicera olgae

Ulkun Kaindi Pass

Lonicera tianshanica

Quite common at mid altitudes

Valerianaceae

Valeriana fedtschenkoi

Occasional at mid to high altitudes

Valeriana ficariifolia

Morinaceae

Morina kokanica

Noted from among the Juniper forest around the halfway house where it was quite common and in the Ulkun Kaindi Valley

Dipsacaceae

Dipsacus azureus

Occasional at low to mid altitudes

Scabiosa micrantha

Aksu

Scabiosa songarica

Scattered

Campanulaceae

Asyneuma argutum

Quite common at low-mid altitude. 2003 in bud

Campanula alberti

Campanula capusii (= *lehmanniana*) 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.

Campanula glomerata

Widespread. The European Clustered Bellflower with a distinctive capitate inflorescence

Cylindrocarpa severzovii

Ulkun Kaindi Pass 2003. 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> =(micrantha)	Widespread. Bright yellow.
<i>Achillea filipendulina</i>	Widespread. Bright yellow
<i>Achillea millefolium</i>	Widespread
<i>Acroptilon australe</i>	Steppe Lakes
<i>Arctium tomentosum</i>	Widespread. Very much liked by the horses!
<i>Artemisia absinthium</i>	Widespread
<i>Artemisia aschurbajevii</i>	Ulkun Kaind Pass and Valley.
<i>Artemisia dracunculus</i>	Widespread
<i>Artemisia karatavica</i>	Karatau
<i>Artemisia persica</i>	Ulkun Kaindi Valley etc.
<i>Artemisia rutifolia</i>	Aksu Canyon, Karatau and Baidaksai
<i>Artemisia santolinifolia</i>	Locally frequent at higher altitudes
<i>Artemisia serotina</i>	Taskol and Kuyuk Pass
<i>Artemisia vulgaris</i>	Widespread
<i>Aster alpinus</i>	Widespread at mid-high altitudes
<i>Aster canescens</i>	Koksai Gorge. Not in 2003
<i>Aster popovii</i>	Cliffs in the Koksai Gorge. Not in 2003
<i>Carduus nutans</i>	
<i>Carthamnus lanatus</i>	Karatau
<i>Centaurea iberica</i>	Common along roadsides. Not in 2003
<i>Centaurea depressa</i>	
<i>Centaurea ruthenica</i>	Ulkun Kaindi Pass and Valley – largish yellow flowers
<i>Centaurea squarrosa</i>	Scattered
<i>Centaurea pulchella</i>	Karasai
<i>Chardinia orientalis</i>	Aksu Gorge
<i>Chondrilla aspera</i>	Steppe Lakes
<i>Cirsium incanum</i>	Steppe Lakes
<i>Cichorium intybus</i>	
<i>Cousinia albertii</i>	Berkara
<i>Cousinia caespitosa</i>	Ulkun Kaindi Pass and Valley
<i>Cousinia fetisovii</i>	Ulkun Kaindi Valley (bud) and Baidaksai
<i>Cousinia karatavica</i>	Steppe Lakes and Karatau
<i>Cousinia microcarpa</i>	Scattered
<i>Cousinia minkwitziae</i>	Occasional at low altitudes
<i>Cousinia severtzowii</i>	Widespread
<i>Cousinia sydariensis</i>	Steppe Lakes
<i>Cousinia umbrosa</i>	Widespread
<i>Crepis oreades</i>	Ulkun Kaindi Pass and Valley. Not in 2003
<i>Crupina vulgaris</i>	Aksu
<i>Echinops karatavicus</i>	Karasai and Aksu
<i>Echinops talassicus</i>	Scattered
<i>Echinops tschimganicus</i>	Widespread
<i>Erigeron cabulicus</i>	Frequent at mid-high altitude. Orange! Not in 2003
<i>Erigeron chorrosanicus</i>	In bud
<i>Erigeron pallidus</i>	Pale cream. Aksu
<i>Erigeron pseudrigeron</i>	Koksai Gorge. Not in 2003
<i>Erigeron seravshaicius</i>	Not in 2003
<i>Filago arvensis</i>	Aksu Canyon, Kuyuk Pass
<i>Galatella coriacea</i>	Occasional in meadows – aster-like

<i>Handelia trichophylla</i>	Koksai Gorge. Not in 2003
<i>Helichrysum maracandicum</i>	Widespread
<i>Hieraceum echioides</i>	Widespread.
<i>Hieraceum virosum</i>	
<i>Inula grandis</i> (= <i>macrophylla</i>)	Aksu Canyon.
<i>Inula rhizocephala</i>	Koksai Gorge and Ulkun Kaindi Valley and Pass. Not in 2003
<i>Jurinea algida</i>	Ulkun Kaindi Pass
<i>Leontopodium ochroleucum</i>	Ulkun Kaindi Pass 2003
<i>Ligularia karataviensis</i>	Aksu
<i>Ligularia macrophylla</i>	Locally dominant in rich meadows especially at mid altitudes, also up to high altitudes
<i>Ligularia songorica</i>	Widespread
<i>Ligularis talassica</i>	Leaves at Baidaksai
<i>Olgaea pectinata</i>	
<i>Onopordon acanthium</i>	Scattered
<i>Pyrethrum tianshanicum</i>	Ulkun Kaindi Valley and Baidaksai
<i>Pyrethrum transiliense</i>	Ulkun Kaindi Pass and Valley. Not in 2003
<i>Scorzonera franchtii</i>	Scattered
<i>Scorzonera inconspicua</i>	Widespread
<i>Scorzonera turkestanica</i>	Scattered. Not in 2003
<i>Senecio racemulifer</i>	Ulkun Kaindi Valley. Not in 2003
<i>Solidago virgaurea</i>	Widespread
<i>Steptirhamphus crassicaulis</i>	Kuyuk Pass
<i>Syreitschikovia spinulosa</i>	Ulkun Kaindi Pass. Very rare – known only from this spot in the reserve and only a few outside it! Not in 2003
<i>Tanacetum pseudachillea</i>	Widespread
<i>Taraxacum officinale</i>	
<i>Tragopogon marginifolius</i>	Aksu
<i>Tragopogon pseudomajor</i>	Aksu
<i>Tragopogon pratensis</i>	Scattered
<i>Tragopogon turkestanicus</i>	Widespread
<i>Tragopogon vvedenskyi</i>	Karasai
<i>Trichanthemis radiata</i>	Koksai Gorge
<i>Tripleurospermum inodorum</i>	Widespread
<i>Tussilago farfara</i>	Widespread
<i>Xeranthemum longipapposum</i>	Kuyuk Pass

Some Naturalised Species

<i>Armeniaca vulgaris</i>	
<i>Salix alba</i>	Aksu Canyon
<i>Caragana arborscens</i>	Planted above the mountain house!

Systematic List Number 4 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.

Papilionidae

<i>Papilio machaon</i>	Swallowtail	Up to 10 a day in AD. 6/15
<i>Parnassius apollonicus</i>		ssp. <i>poseidon</i> . 2 near the Halfway House. 1/15
<i>Parnassius mnemosyne</i>	Clouded Apollo	ssp. <i>valentinae</i> . Common in AD. 5/15

Pieridae

<i>Anthocharis cardamines</i>	Orange-Tip	Widespread in small numbers. 5/15
<i>Aporia crataegi</i>	Black-veined White	Widespread and locally very common. 5/15
<i>Metaporia leucodice</i>		Small numbers at Aksu, AD and Big Almaty Lake. 3/15
<i>Colias erate</i>	Eastern Pale Clouded Yellow	Scattered records in the western Tian Shan. 4/15
<i>Colias hyale</i>	Pale Clouded Yellow	A female at Aksu and a male in AD. 2/15
<i>Gonepteryx rhami</i>	Brimstone	Not uncommon in Almaty area and 1 in AD. 5/15
<i>Leptidea sinapis</i>	Wood White	Scattered records. 4/15
<i>Pieris brassicae</i>	Large White	Scattered records. 3/15
<i>Pieris napi muechi</i>	Green-veined White	Scattered records. 4/15
<i>Pontia callidice</i>	Peak White	1 at Cimbulak. 1/15

Lycaenidae

<i>Callophrys rubi</i>	Green Hairstreak	2 at Aksu, and near Almaty. 2/15
<i>Pseudothecle lunulata</i>		ssp. <i>acaudata</i> . Berkara. 1/15
<i>Celastrina argiolus</i>	Holly Blue	Karatau. 1/15
<i>Cupido osiris</i>	Osiris Blue	Scattered records. 2/15
<i>Glaucopsyche alexis</i>	Green-underside Blue	A few in AD. 2/15
<i>Glaucopsyche laetifica</i>		Low altitude in AD. 1/15
<i>Pseudophilotes vicrama</i>		1 in AD. 1/15
<i>Aricia agestis</i>	Brown Argus	Scarce in AD. 1/15
<i>Aricia artaxerxes</i>	Mountain Argus	Karatau and AD. 2/15
<i>Eumedonia eumedon</i>	Geranium Argus	2 in Ulkun Kaindi Valley. 1/15
<i>Cyaniris semiargus</i>	Mazarine Blue	Widespread and locally common. 4/15
<i>Agrodiaetus amandus</i>	Amanda's Blue	Low altitudes in AD. 1/15
<i>Polyommatus icarus</i>	Common Blue	Only in Karatau. 1/15
<i>Polyommatus icadius</i>		Low altitude in AD. 1/15

Nymphalidae

<i>Argynnis adippe</i>	High Brown Fritillary	Scarce in AD. 1/15
<i>Argynnis pandora</i>	Cardinal	2 in AD. 1/15
<i>Clossiana erubescens</i>		Big Almaty Lake. 1/15
<i>Issoria lathonia</i>	Queen of Spain Fritillary	Widespread in small numbers. 7/15
<i>Melitaea didyma</i>	Spotted Fritillary	ssp. <i>turkestanica</i> . Kuyuk Pass and Aksu. 3/15
<i>Melitaea trivialis</i>	Lesser Spotted Fritillary	ssp. <i>catapelia</i> . Cimbulak. 1/15
<i>Melitaea arduinna</i>	Freyer's Fritillary	Scarce in AD. 1/15

<i>Euphydryas asiatica</i>		Below Big Almaty Lake. 1/15
<i>Neptis rivularis</i>	Hungarian Glider	Low altitude in AD and near Almaty. 2/15
<i>Nymphalis xanthomelas</i>	Yellow-legged Tortoiseshell	1 in Berkara and 2 in AD. 2/15
<i>Aglais urticae</i>	Small Tortoiseshell	Widespread and common. 10/15
<i>Inachis io</i>	Peacock	5 at Cimbulak, and 1 below Big Almaty Lake. 2/15
<i>Vanessa atalanta</i>	Red Admiral	Cimbulak. 1/15
<i>Cynthia cardui</i>	Painted Lady	Widespread in small numbers. 4/15

Satyridae

<i>Chazara enervata</i>		Locally very common on the Kuyuk Pass. 1/15
<i>Coenonympha nolckeni</i>		Locally common in AD. 4/15
<i>Coenonympha pamphilus</i>	Small Heath	Widespread. 4/15
<i>Coenonympha sunbecca</i>		ssp. <i>alexandra</i> . Widespread and locally very Common. 6/15
<i>Erebia turanica</i>		ssp. <i>laeta</i> . c.10 at Cimbulak and 1 at Big Almaty Lake. 2/15
<i>Hyponephele lupina</i>	Oriental Meadow Brown	Karatau. 2/15
<i>Melanargia parce</i>	Central Asian Marbled White	Very common in the Karatau. 2/15

Hesperiidae

<i>Spialia orbifer</i>	Orbed Red-underwing Skipper	Scattered records. 3/15
<i>Pyrgus sidae</i>	Yellow-banded Skipper	c.10 in AD. 1/15
<i>Pyrgus malvae</i>	Grizzled Skipper	Big Almaty Lake. 2/15
<i>Thymelicus lineola</i>	Essex Skipper	Karatau. 1/15
<i>Thymelicus sylvestris</i>	Small Skipper	Karatau. 1/15

Systematic List Number 5 Birds

The taxonomy is largely taken from Professor Edward Gavrillov's summary of status and distribution to be found in the 'Guide to the Birds of the Kazakhstan Republic' published in 2000. A few common names and subspecies details are taken from MacKinnon and Phillipps's Birds of China also published in 2000.

To give an idea of frequency of sightings we give a figure at the end of the comments section which indicates the number of days out of 14 on which a species was seen – 6/14 means that a species was noted on 6 days out of 14. 'Leader only records' are indicated by the leaders initials – PC= Paul Cardy, VK = Vladimir Kolbintsev. AD = Aksu-Dzhabagly.

Great Crested Grebe	<i>Podiceps cristatus</i>	Common on Steppe Lakes. 1/15
Great White Egret	<i>Egretta alba</i>	From train near Almaty and Steppe Lakes. 2/15
Grey Heron	<i>Ardea cinerea</i>	As above. 2/15
Black Stork	<i>Ciconia nigra</i>	1 in the Karatau. 1/15
Ruddy Shelduck	<i>Tadorna ferruginea</i>	Scattered. 4/15
Mallard	<i>Anas platyrhynchos</i>	Near Almaty. 1/15
Garganey	<i>Anas querquedula</i>	3 near Almaty. 1/15
Red-crested Pochard	<i>Netta rufina</i>	A male at the Steppe Lakes. 1/15
Pochard	<i>Aythya rufina</i>	A pair at the Steppe Lakes.
Ferruginous Duck	<i>Aythya nyroca</i>	1 at Steppe Lakes. 1/15
Black Kite	<i>Milvus migrans</i>	1 near Almaty. 1/15
Lammergeier	<i>Gypaetus barbatus</i>	Widespread in small numbers. A total of 9 birds. 6/15
Egyptian Vulture	<i>Neophron percnopterus</i>	Nesting in the Karasai Gorge. 1/15
Griffon Vulture	<i>Gyps fulvus</i>	Cimbulak and Aksu-Dzhabagly. 3/15
Black Vulture	<i>Aegypius monachus</i>	Several in AD. 4/15
Short-toed Eagle	<i>Circus gallicus</i>	2 in the Karasai Gorge. 1/15
Marsh Harrier	<i>Circus aeruginosus</i>	Steppe Lakes. 1/15
Montagu's Harrier	<i>Circus pygargus</i>	1 in western Tian Shan. 1/15
Goshawk	<i>Accipiter gentilis</i>	1 at Cimbulak. 1/15
Sparrowhawk	<i>Accipiter nisus</i>	Widespread in small numbers. 6/15
Long-legged Buzzard	<i>Buteo rufinus</i>	Scattered records. 4/15
Golden Eagle	<i>Aquila chrysaetos</i>	Singletons in AD and Big Almaty Lake. 3/15
Booted Eagle	<i>Hieraetus pennatus</i>	An immature at Aksu. 1/15
Lesser Kestrel	<i>Falco naumanni</i>	Near Almaty. 1/15
Common Kestrel	<i>Falco tinnunculus</i>	Widespread. 12/15
Hobby	<i>Falco subbuteo</i>	Scattered. A maximum of 4. 9/15
Barbary Falcon	<i>Falco peregrinoides</i>	Near the Observatory. 1/15
Himalayan Snowcock	<i>Tetraogallus himalayensis</i>	Widespread in small numbers in both areas. Heard often, and a maximum of 4 seen in one day. 8/15
Chukar	<i>Alectoris chukar</i>	Regular in AD. 7/15
Grey Partridge	<i>Perdix perdix</i>	Daily in AD. 6/15
Quail	<i>Coturnix coturnix</i>	Heard often in AD and sometimes seen. 4/15
Corncrake	<i>Crex crex</i>	Heard at Cimbulak.
Moorhen	<i>Gallinula chloropus</i>	Dzhabagly area and Steppe Lakes. 2/15
Coot	<i>Fulica atra</i>	Steppe Lakes. 1/15
Demoiselle Crane	<i>Anthropoides virgo</i>	5 at Ters Lake. 1/15
Black-winged Stilt	<i>Himantopus himantopus</i>	Scattered in suitable habitat. 3/15
Collared Pratincole	<i>Glareola pratincola</i>	Karatau and Steppe Lakes. 2/15
Little Ringed Plover	<i>Charadrius dubius</i>	Karatau. 1/15

Lapwing	<i>Vanellus vanellus</i>	Steppe Lakes. 2/15
Ibisbill	<i>Ibidorhyncha struthersi</i>	1 at Big Almaty Lake. 1/15
Common Redshank	<i>Tringa totanus</i>	Steppe Lakes. 1/15
Green Sandpiper	<i>Tringa ochropus</i>	Big Almaty Lake. 1/15
Common Sandpiper	<i>Actitis hypoleucos</i>	1 at Big Almaty Lake. 1/15
Black-headed Gull	<i>Larus ridibundus</i>	Scattered records. 1/15
Gull-billed Tern	<i>Gelochelidon nilotica</i>	Karatau. 2/15
Common Tern	<i>Sterna hirundo</i>	Steppe Lakes. 1/15
Rock Dove	<i>Columba livia</i>	Widespread. 7/15
Woodpigeon	<i>Columba palumbus</i>	Widespread. 9/15
Collared Dove	<i>Streptopelia decaocto</i>	Common in western Tian Shan, but not in AD reserve. 5/15
Rufous Turtle Dove	<i>Streptopelia orientalis</i>	Widespread and common. 10/15
Laughing Dove	<i>Streptopelia senegalensis</i>	Widespread. 6/15
Cuckoo	<i>Cuculus canorus</i>	Heard daily and sometimes seen. 15/15
Scops Owl	<i>Otus scops</i>	Heard in Dzhabagly village.
Eagle Owl	<i>Bubo bubo</i>	1 in Karasai Gorge.
Tawny Owl	<i>Strix aluco</i>	1 in AD. 1/15
Short-eared Owl	<i>Asio flammeus</i>	10+ seen from the train. 2/15
Nightjar	<i>Caprimulgus europaeus</i>	Heard in various places.
Common Swift	<i>Apus apus</i>	Only at Cimbulak. 1/15
Alpine Swift	<i>Apus melba</i>	Aksu Canyon. 1/15
Common Kingfisher	<i>Alcedo atthis</i>	1 near Dzhabagly. 1/15
European Bee-eater	<i>Merops apiaster</i>	Widespread. 4/15
Roller	<i>Coracias garrulus</i>	Widespread. Many seen from the train. 5/15
Hoopoe	<i>Upupa epops</i>	Scattered. 5/15
Great Spotted Woodpecker	<i>Dendrocopos major</i>	1 at Cimbulak. 1/15
Calandra Lark	<i>Melanocorypha calandra</i>	Widespread in steppe habitat. 4/15
Crested Lark	<i>Galerida cristata</i>	Karatau and Steppe Lakes. 2/15
Skylark	<i>Alauda arvensis</i>	Scattered. 2/15
Shore Lark	<i>Eremophila alpestris</i>	2 at Ulkun Kaindi Pass. 1/15
Sand Martin	<i>Riparia riparia</i>	Steppe Lakes. 1/15
Swallow	<i>Hirundo rustica</i>	Widespread. 7/15
Red-rumped Swallow	<i>Hirundo daurica</i>	1 from the train. 1/15
House Martin	<i>Delichon urbica</i>	Cimbulak. 1/15
Tawny Pipit	<i>Anthus campestris</i>	1 at the Steppe Lakes. 1/15
Tree Pipit	<i>Anthus trivialis</i>	Scattered records. 4/15
Water Pipit	<i>Anthus spinoletta</i>	Widespread. Common near the Cosmos Station. 4/15
Grey Wagtail	<i>Motacilla cinerea</i>	Scattered records. 5/15
Masked Wagtail	<i>Motacilla personata</i>	Dzhabagly area and Almaty area. 3/15
Dipper	<i>Cinclus cinclus</i>	Scarce in AD, usually heard. 3/15
Brown Dipper	<i>Cinclus pallasi</i>	Cimbulak and below Big Almaty Lake. 3/15
Wren	<i>Troglodytes troglodytes</i>	1 at Cimbulak and heard in AD. 2/15
Brown Accentor	<i>Prunella fulvescens</i>	Widespread in small numbers. 5/15
Alpine Accentor	<i>Prunella collaris</i>	2 at Cimbulak. 1/15
Himalayan Accentor	<i>Prunella himalayana</i>	Above the Observatory. 1/15
Black-throated Accentor	<i>Prunella atrogularis</i>	Big Almaty Lake. 3/15
Nightingale	<i>Luscinia megarhynchos</i>	Heard often Common at Berkara. 6/15
Himalayan Rubythroat	<i>Luscinia pectoralis</i>	1 at Cimbulak and 3 males near the Observatory. 2/15
Blue-headed Redstart	<i>Phoenicurus coeruleocephalus</i>	A male and 2 females in AD. 2/15
Eversmann's Redstart	<i>Phoenicurus erythronotus</i>	Near the Observatory. 1/15
Guldenstadt's Redstart	<i>Phoenicurus erythrogaster</i>	A pair at the Cosmos Station. 1/15
Siberian Stonechat	<i>Saxicola (torquata) maura</i>	Widespread in AD. 5/15
Northern Wheatear	<i>Oenanthe oenanthe</i>	Observatory area. 2/15

Pied Wheatear	<i>Oenanthe pleschanka</i>	Steppe lakes and Karasai Gorge. 2/15
Blackbird	<i>Turdus merula</i>	Widespread. 9/15
Mistle Thrush	<i>Turdus viscivorus</i>	Widespread in the hills. 9/15
Blue Whistling Thrush	<i>Myiophonus caeruleus</i>	Heard often in AD, and seen there and below Big Almaty Lake. 6/15
Upcher's Warbler	<i>Hippolais languida</i>	1 at Berkara (PC). 1/15
Hume's Lesser Whitethroat	<i>Sylvia curruca althaea</i>	Common in AD. 6/15
Common Whitethroat	<i>Sylvia communis</i>	A few in AD. 3/15
Greenish Warbler	<i>Phylloscopus trochiloides</i>	Locally common in woodlands and forests. 3/15
Hume's Yellow-browed Warbler	<i>Phylloscopus humei</i>	Common at Cimbulak, also seen at Big Almaty Lake. 3/15
Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>	2 at Cimbulak. 2/15
Spotted Flycatcher	<i>Muscicapa striata</i>	Common at Berkara. 1/15
Paradise Flycatcher	<i>Terpsiphone paradisi</i>	Berkara. 1/15
Yellow-breasted Tit	<i>Parus flavipectus</i>	A total of 4 in AD. 3/15
Great Tit	<i>Parus major</i>	Cimbulak. 3/15
Rufous-naped Tit	<i>Parus rufonuchalis</i>	Scarce in AD. 2/15
Eastern Rock Nuthatch	<i>Sitta tephronata</i>	Nesting at Karasai Gorge. 1/15
Penduline Tit	<i>Remiz pendulinus coronatus</i>	Nesting at Berkara, and 1 in AD. 2/15
Golden Oriole	<i>Oriolus oriolus</i>	Scattered records. 5/15
Lesser Grey Shrike	<i>Lanius minor</i>	Widespread in western Tian Shan. 7/15
Long-tailed Shrike	<i>Lanius schach</i>	Scattered. 4/15
Magpie	<i>Pica pica</i>	Widespread. 14/15
Alpine Chough	<i>Pyrrhocorax graculus</i>	Widespread and locally numerous as in AD. 8/15
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Scarce at Cimbulak and in AD. 2/15
Jackdaw	<i>Corvus monedula</i>	Widespread and locally abundant. 5/15
Rook	<i>Corvus frugilegus</i>	Only seen from the train. 3/15
Carrion Crow	<i>Corvus corone</i>	Widespread. 11/15
Raven	<i>Corvus corax</i>	Widespread in low numbers. 4/15
Starling	<i>Sturnus vulgaris</i>	Widespread. 5/15
Rose-coloured Starling	<i>Sturnus roseus</i>	Widespread in steppe. 5/15
Common Myna	<i>Acridotheres tristis</i>	Widespread. 15/15
House Sparrow	<i>Passer domesticus</i>	Only in Almaty. 2/15
Indian Sparrow	<i>Passer indicus</i>	Scattered records. 3/15
Tree Sparrow	<i>Passer montanus</i>	Scattered records. 3/15
Red-fronted Serin	<i>Serinus pusillus</i>	Observatory area. 4/15
Grey-headed Goldfinch	<i>Carduelis carduelis caniceps</i>	Widespread. 7/15
Hodgson's Rosy Finch	<i>Leucosticte arctoa</i>	Cimbulak and Cosmos Station. 3/15
Common Rosefinch	<i>Carpodacus erythrinus</i>	Widespread. 10/15
Red-mantled Rosefinch	<i>Carpodacus rhodochlamys</i>	Widespread in AD and Observatory area. 6/15
Great Rosefinch	<i>Carpodacus rubicilla</i>	A male near the Observatory. 1/15
White-winged Grosbeak	<i>Mycerobas carnipes</i>	Widespread in small numbers. 5/15
Rock Bunting	<i>Emberiza cia</i>	Regular in AD. 5/15
White-capped Bunting	<i>Emberiza stewartii</i>	A male in AD, and heard there and at Aksu. 3/15
Red-headed Bunting	<i>Emberiza bruniceps</i>	Widespread. 6/15
Corn Bunting	<i>Miliaria calandra</i>	From the train and at Aksu. 2/15