

# Alpine Flowers of the Tien Shan

Naturetrek Tour Report

23 June - 5 July 2007

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Report compiled by Neil Anderson



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Joan Harris  
Barbara Muston  
Dr Chris Bucke  
Colin Boswell

## Day 1

Saturday 23rd June

### Heathrow- Almaty

It was a good feeling heading east to escape the dreary grey skies of the UK. Unfortunately the flight departing Heathrow was an hour late departing Heathrow for Frankfurt, making things tight for our connecting flight. Though the entire group made this second flight, for four of us, our luggage didn't!

## Day 2

Sunday 24th June

### Almaty—train journey

Following a night's sleep & a varied breakfast in Hotel Otrar we ventured to the market so that those without spare clothes could purchase some cheap spares until our luggage caught up with us! Mission accomplished we headed up to the skating rink, which at 2000 metres, is one of the highest in the world. No we didn't do a Torvill & Dean but admired the view plus looked at some of our first plants: elegant yellow spikes of *Ligularia macrophylla*, pale mauve spires of *Aconitum leucostomum* and yellow heads of *Patrinia intermedia*. Many butterflies were also enjoying the warm sunshine with apollo, swallowtail, hermits and more familiar painted ladies.

Having enjoyed a tasty picnic lunch we headed back to Almaty to visit the city museum to learn more about the history and culture of Kazakhstan. We also did a tourist run to visit the Russian Orthodox Church in the central park, the war memorial, a Muslim Church and Old Town Square. At 18.40 we boarded our sleeper for the journey across the steppes to South Kazakhstan.

## Day 3

Monday 25th June

### Tulkubas, guest house, Kok Sai Gorge

We arrived at our comfortable guest house after a 30 minute journey from Tulkubas station, where our train arrived at 7.00. Margaret opted out of the day's activities to relax in the village and visited the local museum. The rest of us headed for the journey to Kok Sai Gorge with various botanical stops en route.

Chris spotted some yellow spikes which resulted in our first stop to admire *Delphinium semibarbatum*. The next stop was to look at the fabulous white spires of *Eremurus tianschanicus*. Colin became very animated when he discovered his holy grail on the first day! As an Allium farmer his desire was to find *A. longicuspis* in the wild and we were given an interesting mini-lecture on the history of garlic cultivation. We had one further stop before our destination to see the bizarre architectural flowers of *Astragalus alopecias*.

On arrival at Kok Sai we had our picnic before investigating the flora. Amongst the floral delights were white roses, mauve *Cortusa turkestanica*, a Primula relative, and the marsh orchid, *Dactylorhiza rosea* as well as Hypericums and Geraniums.

After a couple of hours we were met by a truculent park official who forbade us to take any more photos and we were escorted back in our bus to their barracks for an hour's detention while our apparent trespass was resolved – it appears we may have strayed over a border into a neighboring country!

## Day 4

Tuesday 26th June

### Guesthouse, mountain house

For the four of us without luggage it was a relief to be reunited with our cases! At breakfast we surprised Peter with a “Happy Birthday” chorus and card, while Anna kindly donated a fine book to which she was a contributor - the perfect gift which Peter will treasure!

Soon we were off to meet our horses for the 12km ride up to the mountain house. Some of the party had previous equestrian experience, but all coped well. We were greeted by a calling hoopoe on a farm building roof and Red-headed Buntings were singing from almost every bush. Higher up we heard Nightingale song as well as several quail.

Everybody agreed the flowers and the views were stunning. Lower down this was dominated by purple betony and yellow yarrows. One of the most stunning plants was *Morina kokanica*. Just before lunch at the half-way house we admired the waterfall, near which was *Dracocephalum bipinnatum*.

Reaching the upper meadows was truly a picture with white umbels of *Scaligera setacea*, various Alliums, blue *Veronica spuria* and *Delphinium confusum*, yellow *Galium verum*, and many butterflies. We arrived at 17.00 allowing time for a basic shower before a fine meal at 20.00.

## Day 5

Wednesday 27th June

Barbara, Margaret and Sheila had the delights of sleeping in a yurt whilst the rest of us resided in the mountain house. Following breakfast we ascended to view some petroglyphs which depicted ibex and wild sheep. We found two new roses, the yellow *R. kokanica* and the dwarf *R. hissarica* with white flowers growing on rocks.

We returned for lunch at 13.00 before exploring a nearby dry streambed. Amongst the plants here were the statuesque *Eremurus regelii*, blue *Ixiolirion tataricum* and the rare endemic spiny thistle, *Cousinia tianschanica*.

## Day 6

Thursday 28th June

### Ulken Kaindy Pass

As we sat for breakfast there was a cry of “bear!” from the local horsemen, which resulted in a rapid exit outside. After some frustrating scanning many of us saw a distant Isabelline brown bear, of which about 60 reside in the park.

For the next couple of hours we were on our horses for the ascent to the ridge, passing many fine flowers en route. At the ridge we admired the vista of neighbouring mountains. Walking along were some exquisite alpenines such as *Androsace sericea*, maroon *Allium oreophilum* and orange *Erigeron cabulicus*.

Following lunch in cooling conditions we started to descend, revelling in the orange swathes of *Trollius altaicus* as well as white *Anemone protracta* and a large colony of yellowish *Allium fedtschenkoana*.

After our return Colin, Elaine and Barbara indulged in some extra horse riding with a local guide which was great fun for them!

## Day 7

Friday 29th June

### Mountain house - guest house

After some heavy overnight showers the three yurt inhabitants appeared a little damp for breakfast. It was soon time to leave the atmospheric mountain house and descend initially through the flower filled meadows and then through the juniper woods before lunch was taken in a shady spot.

Having completed the first part of the descent on foot we then completed the second part on horseback, apart from Chris and Peter who preferred Shank’s pony!! Janet and Sheila opted to visit the local museum after our return to the guest house. Others visited a local farm to watch a mare being milked and collect the results!

## Day 8

Saturday 30th June

### Aksu Gorge, train Almaty

Our final destination in South Kazakhstan was the nearby Aksu (meaning White River) Gorge. We stopped to observe some thermalling Black and Egyptian vultures as well as some gaudy Bee-eaters on wires. Another stop was to examine the culture of a local village where we saw stock dung being dried for winter fuel as well as some bread ovens.

The gorge itself is now off limits though we admired a Golden Eagle as it soared past. Growing on the conglomerate rock at the top were various specialities of this habitat such as *Sergia sewersonii*. Seeing the unusual daffodil relative, *Ungernia sewersonii* in flower was rewarding.

A few more field stops were made before our return to the village. Further excitement was provided by our bus grinding to a halt and then being ferried by cars. Such is the resourcefulness of our bus driver it was fully repaired for our trip to the station!

## Day 9

Sunday 1st July

### Almaty, Observatory

We arrived back at Almaty 2 Station at 8.30 to be transported to hotel Otrar for breakfast. After purchasing essentials such as a supply of booze we began our ascent to the observatory. The latter is rather surreal, like an outcast from some 1970's b-movie, but proves to be a comfortable base for our 3 days here, situated at 2800m in the north Tien Shan Mountains.

Half the group joined Anna for an afternoon stroll. Here was a roving flock of Alpine Choughs, while the flowers were diverse, such as *Cortusa brotheri*, the tiny chive, *A. scoenoprasoides* and a highlight the yellow *Corydalis gortschakovii*. Nearby we enjoyed the antics of grey marmots and a couple of red pikas. A fine end to our day in the field!

## Day 10

Monday 2nd July

### Observatory, Almaty Lake

With half the party still poorly from a bug, the rest of us went down in the bus to Almaty Lake. As we set off the skies opened with much thunder so we returned to the sanctuary of the vehicle. After 30 minutes or so we set off again and discovered the fine *Chamnerion latifolium* and some yellow cushions of *Sedum hybridum*. Further rain had us sheltering under the Tien Shan spruce. Further downpours resulted in us returning and failing in our quest to see Ibisbill.

Lunch was taken on the bus before returning to base. Following a siesta a few of us explored a nearby ravine for an interesting walk, a few new plants and more marmots. Dinner was enlivened by a small Irish TV crew who were filming locally for a series called a "Postcard from Home".

## Day 11

Tuesday 3rd July

### Cosmos station

Today the group headed up by bus to the Cosmos Station at 3300m. This is the kingdom of alpine cushions with some bizarre plants such as *Saussurea* species. Four species of saxifrage were seen, while a real highlight was *Paraquiligea grandiflora*.

Being high in the mountains the weather can be changeable and so it was with thundery rain, snow and hailstorms which made for some interesting photos. Due to the adverse conditions the party returned by 14.00 for reviving hot tea and showers!

## Day 12

Wednesday 4th July

### Observatory, Almaty

We departed the observatory at 10.00 to begin our drop into Almaty with several botanical stops. Almaty Lake was briefly visited for those that missed out the first time which was fortuitous with the discovery of three species of flowering gentian- full marks to Margaret's sharp eye.

Another stop was to see the rare *Erysimum croceum*. A picnic lunch by a stream proved an idyllic stop before our final plant hunt where we saw two towering species of *Inula* and *Lavatera thuringica*.

We said our sad farewell to the incomparable Anna and headed back to Hotel Otrar. A few of the group decided to visit the Green Market. After dinner at the nearby Czech restaurant the group prepared for the farewell journey to the airport.

## Day 13

Thursday 5th July

### Almaty, Heathrow

Despite a delay leaving Almaty, a stop in the capital in Astana, we arrived in Frankfurt an hour ahead of schedule, before catching the Heathrow flight where goodbyes were said and fond memories of an enjoyable trip. The warmth of the local people always shone through and everybody was struck by this.

## Species Lists

### Plants

#### **Alliaceae**

*Allium amblyophyllum* (*A. platyspathum*)  
*A. atrosanguineum*.  
*A. barszczewskii*  
*A. caesium*  
*A. caeruleum*  
*A. drobovii*  
*A. eriocoleum*  
*A. fedtschenkoana*  
*A. fetissoyii*

*A. hymenophyllum*  
*A. karataviense*  
*A. kokanicum*  
*A. longicuspis*  
*A. oreophilum*  
*A. pallassii*  
*A. polyphyllum*  
*A. sewersowii*  
*A. turkestanicum*

#### **Amaryllidaceae**

*Ungernia sewersowii*

#### **Asphodelaceae**

*Eremurus..altaicus*  
*E. fuscus*  
*E. lactiflorus*

*E. regelii*  
*E. robustus*  
*E. tianschanicus*

#### **Colchicaceae**

*Colchicum luteum*

#### **Convallariaceae**

*Polygonatum roseum*

*P. sewersowii*

#### **Iridaceae**

*Iris alberti*

*I. sogdiana*

#### **Ixioliriaceae**

*Ixiolirion tataricum*

#### **Liliaceae**

*Fritillaria sewersowii*  
*Gagea filiformis*  
*Lloydia serotina*  
*Tulipa dasystemonoides*

*T. greigii*  
*T. heterophylla*  
*T. kaufmanniana*  
*T. turkestanica*

#### **Orchidaceae**

*Coeloglossum viride* (=*D. viridis*)  
*Dactylorhiza rosea*  
*D. umbrosa*

*Epipactis latifolia*  
*Goodyera repens*

### DICOTS

#### **Aceraceae**

*Acer negundo*

*A. semonovii*

#### **Apiaceae**

*Aegopodium alpestris*  
*A. tadshikorum*  
*Anaclospermum simplex*

*Mediasia macrophylla*  
*Muretia transitoria*  
*Oedibasis platycarpa*

*Angelica brevicaulis*  
*A. decurrens*  
*Bupleurum tianschanicum*  
*Conium maculatum*  
*Daucus carota*  
*Ferula karatavica*  
*F. penninervis*  
*F. renardii*  
*F. tenuisecta*  
*Filopleura kosopolyanskii*  
*Heracleum dissectum*  
*Libanotis talassica*  
*Ligusticum discolour*  
*L. talassicum*

**Asteraceae**

*A. micrantha* (*A. biebersteinia*)  
*A. millefolium*  
*Acroptilon australis*  
*Alphredia nivalis*  
*Anaphalis racemifera*  
*Arctium tomentosum*  
*Artemisia absinthium*  
*A. dracunculus*  
*A. junceum*  
*A. persica*  
*A. rutifolia*  
*A. santolinifolia*  
*A. serotina*  
*Aster alpinus*  
*A. canescens*  
*Carthamus lanatus*  
*C. tinctoria*  
*Centaurea depressa*  
*C. iberica*  
*C. ruthenica*  
*C. squarrosa*  
*C. turkestanica*  
*Cichorium intybus*  
*Cirsium seminovii*  
*C. turkestanicum*  
*Cousinia caespitosa*  
*C. fetissoyii*  
*C. karatavica*  
*C. microcarpa*  
*C. minkwitziae*  
*C. sewersowii*  
*C. syrdariensis*  
*C. tianschanicum*  
*C. turkestanica*  
*C. umbrosa*  
*Doronicum turkestanicum*  
*Echinops chantaricus*  
*E. karatavicus*

**Balsminaceae**

*Pachypleurum alpinum*  
*Prangos pabularia*  
*P. uloptera*  
*Scaligera alliodes*  
*S. setacea*  
*Schrenkia congesta*  
*S. golickeana*  
*Schtschurowskia meifolia*  
*Selinum coriaceum*  
*Semonovia transiliensis*  
*Seseli condensatum*  
*S. schrenkiana*  
*Tugernia latifolia*  
  
*E. tschinganicus*  
*Erigeron aurantiacus*  
*E. cabulicus*  
*E. heterochaeta*  
*E. lachnocephalus*  
*E. pallidus*  
*E. pseudeseravschanicus*  
*E. seravschanicus*  
*Galatella chromopappus*  
*Handelia trichophylla*  
*Helichrysum samarkandica*  
*Hieracium echiodes*  
*H. virosum*  
*Inula cephalorhiza*  
*I. helenium*  
*I. macrophylla*  
*Jurinea algida*  
*Leontopodium fedtschenkoanum*  
*L. ochroleucum*  
*Ligularia macrophylla*  
*L. songorica*  
*Olgaea pectinata*  
*Onopordum acanthium*  
*Pyrethrum tianschanicum*  
*Saussurea schanginii*  
*S. sordida*  
*S. gnaphaloides*  
*Scmalhaussenia nidulans*  
*Scorzonera inconspicua*  
*S. petrovii*  
*Tanacetum pseudoachillea*  
*Taraxacum officinale* agg  
*Tragopogon turkestanica*  
*Tripleurospermum inodorum*  
*Tussilago farfara*  
*Waldheimia tridactylites*  
*Xeranthemum longipapposa*



*Impatiens noli-tangere*

**Berberidaceae**

*Berberis oblonga*

*B.sphaerocarpa*

**Betulaceae**

*Betula talassica*

*B. turkestanica*

*Anchusa azurea*

*Echium vulgare*

*Eritrichium tianschanicum*

*Lappula microcarpa*

*L. tianschanicum*

*Lindelophia macrostyla*

*Macrotoma euchroma*

*M.ugamensis*

*Myosotis asiaticus*

*Onosma dicroa nthum*

*O. irritans*

**Brassicaceae**

*Chorispota integrifolia*

*Crambe orientalis*

*Draba alpina*

*Erysimum croceum*

*E.diffusum*

*Parrya albida*

*Sisymbrium loeselii*

*Smelowskia calycina*

**Campanulaceae**

*Adenophora himalayana*

*Campanula alberti*

*C. glomerata*

*C. limoniana*

*Codonopsis clematidea*

*Cylindrocarpa sewersowii*

*Phyteuma argutum*

*Sergia sewersowii*

**Caprifoliaceae**

*Lonicera cinerea*

*L. hispida*

*L. karelinii*

*L. microphylla*

*L. nummularifolia*

*L. stenantha*

*L.tartarica*

*L. tianschanica*

**Caryophyllaceae**

*Acanthophyllum pungens*

*Allochrusa gypsopholoides*

*Arenaria griffithii*

*Cerastium cerastiodes*

*C. dahuricum*

*Dianthus hoeltzeri*

*D. karataviense*

*D.tetralaevis*

*D.tianschanicus*

*Gypsophila cephalotis*

*Minuartia kryloviarica*

*Silene graminifolia*

*S. kuschakewiczii*

*S. mishakewiczii*

*S.triste*

*S.vulgaris*

*S.wolgensis*

*Stellaria fontana*

*S.graminea*

*Thylacospermium caespitosum*

**Celastraceae**

*Euonymus koopmannii*

*E.semonovii*

**Chenopodiaceae**

*Chenopodium album*

*Rhaphidophyton regelii*

**Chrysosplenaceae**

*Chrysosplenium nudicaule*

**Convolvulaceae**

*Convolvulus arvensis*  
*C. lineatus*

*C. pseudocantabrica*

#### **Crassulaceae**

*Pseudosedum longidentatum*  
*Rosularia coccinea*  
*R. heterodonta*  
*R. linarifolia*

*Sedum alberti*  
*S. ewersii*  
*S. hybridum*

#### **Cuscutaceae**

*Cuscuta engelmannii*

*C. lehmeniana*

#### **Dictamnaceae**

*Dictamnus angustifolia*

#### **Dipsacaceae**

*Dipsacus azureus*  
*Scabiosa micrantha*

*S. songoricus*

#### **Euphorbiaceae**

*E. jaxarctica*

#### **Fabaceae**

*Astragalus aksaricus*  
*A. alatavicus*  
*A. alpinus*  
*A. alopecias*  
*A. aschutaria*  
*A. macrotropis*  
*A. platyphyllos*  
*A. pseudomacropteris*  
*A. sieversianus*  
*A. tibhetanus*  
*A. ugamicus*  
*Cicer flexuosum*  
*C. songoricum*  
*Glycorhiza uralensis*  
*Hedysarum fedtschenkoanum*  
*H. flavescens*  
*H. montanum*  
*H. semonovii*  
*H. neglectum*  
*H. talassicum*  
*Lathyrus pisiformis*  
*L. pratensis*  
*L. tuberosa*

*Melilotus albus*  
*M. officinalis*  
*Medicago falcata*  
*M. sativus*  
*Melissitus tianschanicus*  
*Meristotropis triphylla*  
*Onobrychis echidna*  
*Orobus luteus*  
*Oxytropis albob villosa*  
*O. almatensis*  
*O. aluetensis*  
*O. brachycarpus*  
*O. lapponica*  
*O. recognita*  
*O. talassicum*  
*Sophora alepocuroides*  
*Thermopsis alpina*  
*Trifolium pratense*  
*T. repens*  
*Vicia cracca*  
*V. kokanica*  
*V. tenuifolia*

#### **Fumariaceae**

*Corydalis glaucescens*  
*C. gortschakovii*

*Cysticorydalis fedtschenkoana*

#### **Gentianaceae**

*Gentiana falcata*  
*G. karelinii*

*G. tianschanicum*  
*Gentianella turkestanorum*

*G. kaufmaniana*  
*G. olivieri*

*Swertia variabilis*

#### **Geraniaceae**

*Biebersteinia multifida*  
*Geranium collinum*  
*G. pratense*

*G. rectum*  
*G. saxatile*

#### **Grossulariaceae**

*Ribes meyerii*

#### **Hypericaceae**

*Hypericum elongatum*  
*H. hirsutum*

*H. perforatum*  
*H. scabrum*

#### **Lamiaceae**

*Betonica foliosa*  
*Dodartia orientalis*  
*Dracocephalum bipinnatum*  
*D. grandiflorum*  
*D. imberbe*  
*D. nutans*  
*D. stamineum*  
*Eremostachys platycalyx*  
*E. speciosa*  
*E. tianschanicus*  
*Lamium album*  
*Leonurus turkestanicus*  
*Lophanthus schrenki*  
*Mentha asiaticus*  
*Nepeta pannonica*  
*N. mariae*  
*Origanum tyttanthum*  
*O. vulgare*  
*Phlomis brachystegia*

*P. eriophila*  
*P. pratensis*  
*P. salicifolia*  
*P. tuberosa*  
*Salvia aethiopsis*  
*S. deserti*  
*S. sclarea*  
*Scutellaria cordifrons*  
*S. flabellulata*  
*S. immaculata*  
*S. linczewskii*  
*S. transiliensis*  
*Stachyopsis lamiifolia*  
*S. oblongata*  
*Thymus karatavicus*  
*T. seranschanicus*  
*Ziziphora bungeana*  
*Z. pamirealaica*

#### **Linaceae**

*Linum altaicum*  
*L. pallescens*

*L. olgae*

#### **Malvaceae**

*Althaea armenaica*  
*Alcea nudiflora*

*Lavatera thuringiaca*  
*Malva neglecta*

#### **Morinaceae**

*Morina kokanica*

#### **Onagraceae**

*Chamnerion angustifolium*  
*C. latifolium*

*E. tianschanicum*

#### **Orobanchaceae**

*Orobranche kotschyi*  
*O. sordida*

*O. uralensis*

#### **Papaveraceae**

*Glaucium squamigerum*  
*Papaver croceum*

*P. tianschanica*  
*Roemeria refracta*

#### **Plantaginaceae**

*Plantago arachnoidea*

*P. lanceolata*

#### **Plumbaginaceae**

*Acantholimon alberti*

#### **Polemoniaceae**

*Polemonium caeruleum*

#### **Polygonaceae**

*Atraphaxis pyrifolia*  
*Koenigia islandica*  
*Oxyria digyna*  
*Polygonum coriarium*  
*P. hissaricum*  
*P. nitens*  
*P. songoricum*

*P. undulatum*  
*P. viviparum*  
*Rheum maximoviczii*  
*R. wittrockii*  
*Rumex crispus*  
*R. tianschanicus*

#### **Primulaceae**

*Androsace arbajtalensis*  
*A. sericea*  
*Cortusa brotheri*

*C. turkestanica*  
*Primula algida*  
*P. nivalis*

#### **Pyrolaceae**

*Moneses uniflora*  
*Orthilia secunda*

*Pyrola. rotundifolia*

#### **Ranunculaceae**

*Aconitum leucostomum*  
*A. nemorum*  
*A. songoricum*  
*A. rotundifolium*  
*A. talassicum*  
*Anemone protracta*  
*Aquilegia atrovinosa*  
*Atragene sibirica*  
*Callianthemum alatavicum*  
*Delphinium confusum*  
*D. iliense*

*D. semibarbatum*  
*Paraquilegia grandiflorum*  
*Paropyrum anemonoides*  
*Pulsatilla campanella*  
*Ranunculus alberti*  
*R. grandiflorum*  
*R. longicaulis*  
*R. rufosepalus*  
*Thalictrum simplex*  
*Trollius altaicus*  
*T. dschungaricus*

#### **Rhamnaceae**

*Rhamnus cathartica*

*R. coriaceus*

#### **Rosaceae**

*Agrimonia asiatica*  
*Alchemilla sibirica*  
*A. tianschanicus*  
*Cotoneaster suavis*  
*Crataegus korolkowii*  
*C. pontica*  
*C. turkestanica*

*P. orientalis*  
*P. transcaspia*  
*Prunus erythrocarpa*  
*P. tianschanicus*  
*Rosa alberti*  
*R. beggariana*  
*R. fedtschenkoana*

*Fragaria viridis*  
*Geum rivale*  
*G. urbanum*  
*Malus sieversii*  
*Orthorus kokanica*  
*Padus mahaleb*  
*Potentilla asiaticus*  
*P. desertorum*  
*P. fedtschenkoana*  
*P. hololeuca*  
*P. impolita*  
*P. multifida*  
*P. nervosa*

**Rubiaceae**

*Asperula humifusa*  
*A. karataviense*  
*Galium aparine*

**Rutaceae**

*Haplophyllum perforatum*

**Saxifragaceae**

*Parnassia laxmannii*  
*P. palustris*  
*Saxifraga hirculus*

**Scrophulariaceae**

*Euphrasia bajancolica*  
*E. tatarica*  
*Lagotis integrifolia*  
*Pedicularis alatauca*  
*P. dolichorhiza*  
*P. korolokovii*  
*P. oederii*  
*P. rhinanthoides*  
*P. talassica*

**Solanaceae**

*Hyoscyamus niger*

**Tamaricaceae**

*Tamarix ramosissima*

**Ulmaceae**

*Celtis caucasica*

**Valerianaceae**

*Patrinia intermedia*  
*Valeriana fedtschenkoana*

**Violaceae**

*Viola acutifolia*  
*V. altaica*

*R. hissoaria*  
*R. kokanica*  
*R. nanothamnus*  
*R. persica*  
*Rubus caesius*  
*Sanguisorba alpina*  
*S. minor*  
*S. officinalis*  
*Sibbaldia pentandra*  
*Spiraea hypericifolia*  
*S. lasiocarpa*  
*S. pilosa*  
*S. rupestris*

*G. septentrionale*  
*G. verum*  
*Rubia regelii*

*S. macrocalyx*  
*S. oppositifolia*  
*S. sibirica*

*Scrophularia alata*  
*S. incisa*  
*Verbascum songoricum*  
*Veronica anagallis-aquatica*  
*V. beccabunga*  
*V. chamaedrys*  
*V. laeta*  
*V. porphyriana*  
*V. spuria*

*V. turkestanica*

*V. rupestris*  
*V. tianschanica*

**GYMNOSPERMS****Cupressaceae**

*Juniperus pseudosabina*  
*J. semiglobosa*

*J. seravschanica*  
*J. turkestanica*

**Ephedraceae**

*Ephedra equisetina*

**Pinaceae**

*Picea schrenkiana*

**FERNS**

*Botrychium lunaria*  
*Cystopteris fragilis*

*Dryopteris filix-mas*

## Birds

Grey Heron	Black-throated Accentor
Black Stork	Blackbird
Ruddy Shelduck	Mistle Thrush
Mallard	Nightingale (H)
Golden Eagle	Himalayan Rubythroat
Black Vulture	Siberian Stonechat
Egyptian Vulture	Golden Oriole
Lammergeier	Hume's Warbler
Black (eared) Kite	Greenish warbler
Montagu's Harrier	Whitethroat
Sparrowhawk	Hume's Lesser Whitethroat
Kestrel	White-crowned Penduline Tit (H)
Hobby	Great Tit
Steppe Buzzard	Turkestan Tit
Long-legged Buzzard	Songar Tit
Grey Partridge	Yellow-breasted Azure Tit
Pheasant	Rufous-naped Tit
Quail	Lesser Grey Shrike
Moorhen	Long-tailed Shrike
Black-winged Stilt	Carrion Crow
Common Sandpiper	Rook
Black-headed Gull	Jackdaw
Common Tern	Alpine Chough
Wood Pigeon	Magpie
Feral Pigeon	Starling
Collared Dove	Rose-coloured Starling
European Turtle Dove	House Sparrow
Oriental Turtle Dove	Indian Sparrow
Laughing Dove	Tree Sparrow
Cuckoo	Spanish Sparrow
Roller	Red-mantled Rosefinch
Bee-eater	Common Rosefinch
Hoopoe	Grey-faced Goldfinch
Barn Swallow	Red-fronted Serin
House Martin	Plain Mountain Finch
Water Pipit	White-winged Grosbeak
Masked Wagtail	Rock Bunting
Grey Wagtail	White-capped Bunting
Wren (H)	Red-headed Bunting
Brown Dipper	<b>H = heard</b>

## Mammals

Isabelline Brown Bear  
 Red Deer  
 Ibex  
 Grey Marmot

Red Pika  
 Forest Dormouse  
 Red Squirrel

## Reptiles

Haly's Pit-viper

Alpine Lidless Skink

## Butterflies and Moth

Swallowtail  
 Apollo *Parnassius apollonius*  
     *P. maximus*  
     *P. tianschanicus*  
 Eastern Bath White  
 Small White  
 Black-veined White  
*Metaporia leucodice*  
 Wood White  
 Brimstone  
 Orange Tip  
 Eastern Clouded Yellow  
 Peacock  
 Yellow-legged Tortoiseshell  
 Painted Lady  
 Queen of Spain Fritillary  
 Hungarian Glider

Cardinal  
*Boloria generator*  
 Brown Argus  
 Common Blue  
*Polyommatus icadius*  
 Holly Blue  
 Small Copper  
 Erebia meta  
 Hermit, *Chazara enervata*  
 Meadow Brown  
 Marbled White sp- *Melanargia parce*  
 Marbled Skipper  
 Hummingbird Hawkmoth  
 Brimstone Moth  
 Swallow-tailed Moth  
 Silver-Y

## Other Fauna

Praying Mantis sp  
 Carpenter Bee

*Mylabris* sp Beetle  
 Rosechafer

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