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Virtual visits to differing locations in Kyrgyzstan are featured this month. Nazgul Kenzhebaeva and Frazer Henderson have a particular interest in the flora of the Tien Shan and take us on a trip to the Sary Chalek reserve, while Frazer also writes about several areas in the country where he has botanised as an enthusiastic amateur, particularly in search of tulips.



Nazgul Kenzhebaeva is senior researcher in mountain ecosystems at the Institute of Water and Hydropower of the National Academy of Sciences of the Kyrgyz Republic. She researches extensively into permaculture and the benefits it can bring to isolated, remote semi-desert, and mountainous villages.

Frazer Henderson is a geographer and enthusiastic amateur botanist. His various interests include travel and the genus *Tulipa* and Crassulaceae.

Cover image is *Tulipa heterophylla* by Frazer Henderson.



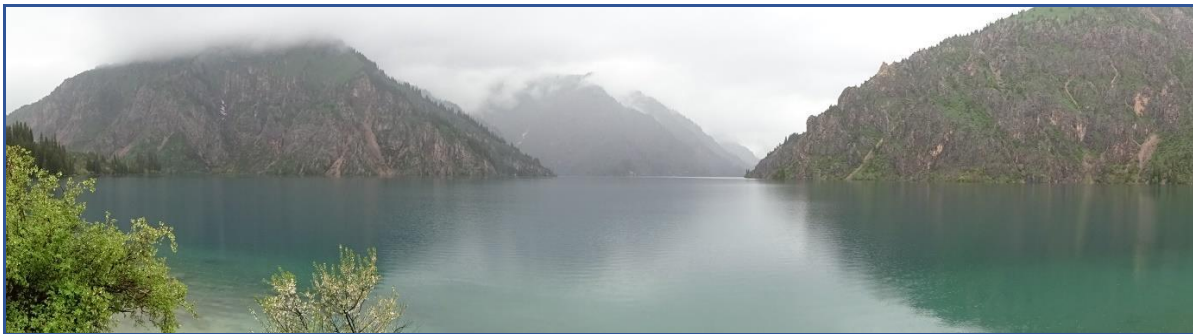
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--- Bulbs of the World ---

The Yellow Bucket's floral delights

by Nazgul Kenzhebaeva and Frazer Henderson

Sary-Chelek (literally Yellow Bucket) is a sublime alpine lake named as such, presumably by those with a highly developed artistic sense of imagination, because its deep blue waters in autumn contrast with the coppery-yellowing foliage of shore-side trees. [1] The lake also gives its name to the surrounding reserve and in a country studded with botanical gems and beautiful alpine scenery the Sary Chalek State Biosphere Reserve is a true jewel. Its mountain tops, scree slopes, woodlands and particularly its meadows hold a wonderful range of plants including many endemic species. Additionally, within the reserve's attractive topography, sit a further six, small, sky-mirroring lakes.



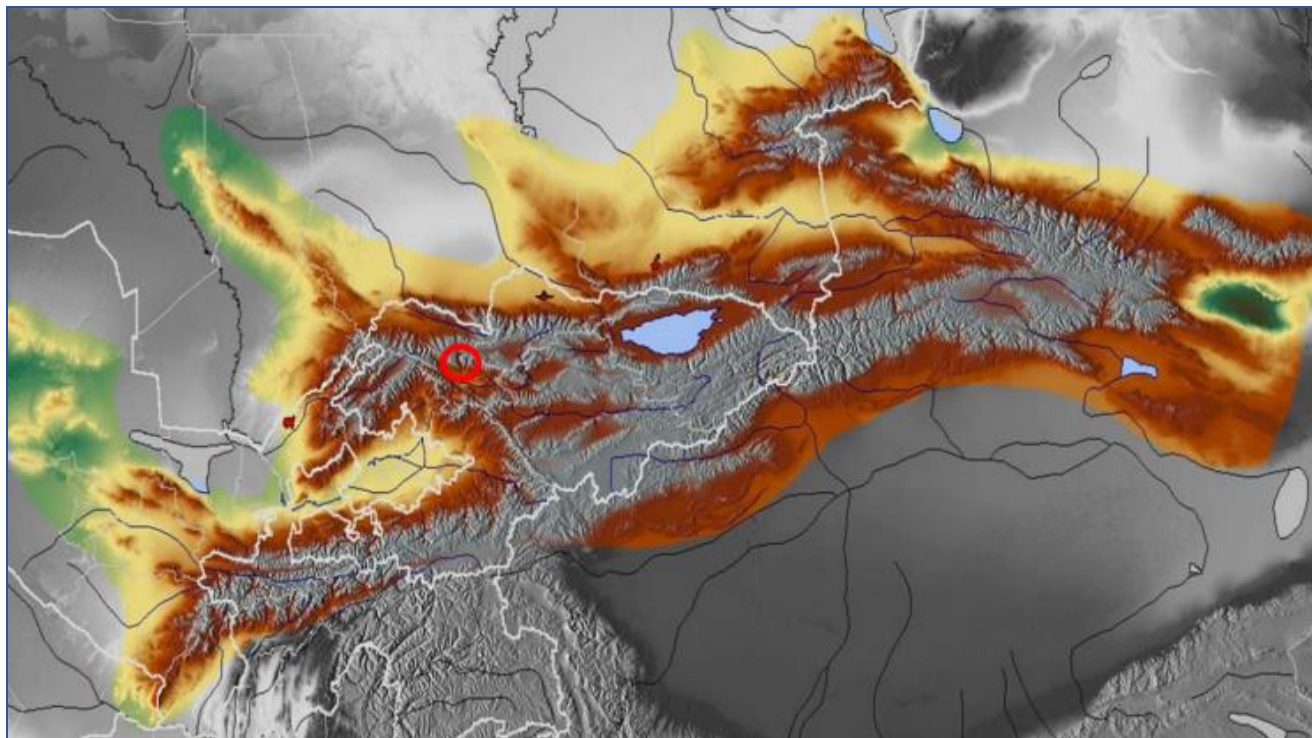
Sary-Chelek lake

Sary-Chelek lake was formed about ten thousand years ago due to flooding of land created by either a fault-line shift or the collapse of ridges associated with intense mountain-forming processes. At a length of 7.5 km with an average width of 0.65 km (maximum 2.28 km) the lake is the fourth largest in Kyrgyzstan. It has a maximum depth of 234 metres (second deepest) and rests at 1,873 metres asl.. The water level fluctuates and the highest level is in May, the lowest in December. The water temperature is a pleasant +19.8°C in summer and a decidedly chilly -4°C to 0°C in winter.

In 1925, Professor D.N.Kashkarov, Central Asian State University (Tashkent), one of the first researchers of the lake, initially promoted the creation of a protected area around Sary-Chelek. It wasn't, however, until 1947 that a prototype reserve was established based on the southern section of state forest land near the village of Arkyt. In 1959 that area was incorporated within the newly designated Sary-Chelek Nut-Bearing Reserve (which in 1978 became the Sary-Chelek State Biosphere Reserve). The reserve consists of two forestries: Sary-Cheleksky and Arkitsky.

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The Kirghiz Soviet Socialist Republic, in establishing the reserve set out its main purpose as being to preserve and study the entire natural complex of geological formations, lakes, groundwater, soil, vegetation and fauna, as well as rare and endangered animal and plant species in the natural state. That was a far-sighted purpose aligning conservation with scientific study and something that other jurisdictions ought to have considered when establishing their own reserves.



Map: The location of Sary-Chelek (circled in red) within the Tien Shan range and within the national borders of Kyrgyzstan

Located in a high-mountain basin, the reserve (23,868 hectares) is protected from the northwest, northeast and southwest by high ridges (the highest point being 4,247 metres asl.). As a consequence, the climate is relatively mild, with dry winters and warm, humid summers. The average monthly air temperature in January is -4.9°C , sometimes with frosts down to -27°C . The average temperature in June is 21.9°C and the maximum temperature is 38°C in July. The average annual precipitation is 836 mm (33 inches) (comparable to Perth, Scotland).

Situated in Jalal-Abad Province in Western Kyrgyzstan, some 550 km from Bishkek, Kyrgyzstan's capital, the reserve is north of Arkyt (the park headquarters and nearest village) at the eastern end of the Chatkal Range. Before the area became known as Sary-Chelek it was called Arkut which means in Kyrgyz "Ar turduu kut berekeluu zher" – a place of various benefits/riches. The name is not accidental, as there is everything necessary for human life

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here: pure water, wood for shelter and warmth and a multitude of edible fruits (e.g. apple, plum, pear, blackberry, raspberry, currant, walnut) and animals. Over time, the name of the locality Arkut became Arkyt where the village of the same name is now located.



Entrance to the reserve

Access to the park is via a gated entrance on the Arkyt road, and a small charge is payable. From the entrance to the main lake is about three hours of largely uphill walking or a shortish car ride (FH can attest that a car ride is preferable going uphill and then after a day's botanising a

pleasant, mainly downhill stroll back to accommodation in Arkyt). There are several trails within the park available for self-guided treks however care must be taken as there are many precipitous slopes and mobile screes. Guides and the hiring of horses, if required, can be arranged in Arkyt. Camping is permitted but only where the access road terminates at the southern end of Sary–Chelek lake. There are no facilities within the reserve, so visitors need to bring with them all their requirements.

A view looking up towards the reserve. The lack



of domestic grazing means that shrubs and broad-leaved trees, particularly at lower altitudes, can regenerate more easily but at the expense of open meadows.

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The flora is varied and broadly has an altitudinal distribution comprising initially of light forest and meadows, then walnut and fruit trees, shrubs and prangos-inula meadows above 1000 metres, then a subalpine shrub-meadow belt from 2000 metres with an alpine meadow belt above 2500 metres. To date 877 plant species have been recorded and a small, illustrated selection is presented below to give a sense of the reserve's floral riches.



An old growth, pollarded *Juglans regia*

Reflecting its status as a productive state forest the reserve contains nut and fruit bearing trees as well conifers grown for timber. The lower reaches of the reserve, below 2000 metres, contain walnut (*Juglans regia*), apples (*Malus sieversii*, *Malus niedzwetzkyana* both red-listed), pears (including the red-listed *Pyrus korshinskyi*) as well as, in slightly more open woodland *Prunus divaricata*, *Sorbus persica*, *Prunus sogdiana* and *Sorbus persica* (red-listed), and various hawthorns including *Crataegus knorringiana*. A few aged, large-girthed, pollarded walnut

specimens still survive and add character and visual charm to the plantations as well as aiding the diversity of the ecosystem. The main walnut forest, indeed the world's largest producer of walnuts, is at Arslanbob 100 km due east. The maple *Acer turkestanicum* is regenerating well in open situations. The large dark coniferous forest comprises predominantly spruce (*Picea schrenkiana*) and the Tien Shan fir (*Abies semenovii*). Open alpine areas are punctuated with *Juniperus semiglobosa* and occasional *JJ. turkestanica*, *pseudosabina* and *seravschanica*. A number of exotics including *Pseudotsuga taxifolia*, *Abies nordmanniana*, *Pinus sylvestris*, *Larix sibirica* and *Quercus robur* were introduced and trialled during the Soviet era and many stands and specimens remain.

In spring the deciduous woods are enlivened by many thousands of the orange-yellow flowers of *Trollius dschungaricus*, a species endemic to the Tien Shan, and the white-green, bonneted inflorescence of the scrambling *Codonopsis clematidea* a tuberous geophyte which looks like an inter-genetic cross between a campanula and a clematis.

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Trollius dschungaricus flower



Codonopsis clematidea flower

In the shrub-meadow belt there is a wide range of species including the white-flowered *Rosa laxa*, the yellow-bloomed *Rosa kokanica* and *Rosa beggeriana* another white-flowered rose which tends to hold its flowers in corymbs.



Rosa laxa



Rosa kokanica

The bearded iris, *Iris alberti*, features heavily within the reserve. The blooms produced vary from lavender to dark blue, veined ochre on the falls. As well as *I. alberti*, some of which reached 50 cms, there is the smaller (up to 25 cm) seemingly ubiquitous *I. ruthenica* (Section Limnaris) which can be found in high densities both in open deciduous woodland and in more open meadows. Though *I. ruthenica* usually has a deep blue-purple flower white coloured specimens have been recorded in the reserve.

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Colour variation of *Iris alberti*



Iris ruthenica



In lightly wooded meadow margins can be found the striking *Solenanthus circinnatus* with its exerted stamens. A member of the Borage family it can reach well over a metre in height and is found from Turkiye to western Xinjiang and Himalaya. Another tall (120 cms) eye-catching herbaceous plant is *Dictamnus angustifolius* (Rutaceae) with its purple-veined leaves which rises like an exclamation mark within the prangos-ferula meadows. It has toxic leaves and possesses a high-level of volatile oils which clearly prove attractive to bee-flies (*Bombylius* spp).

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Solenanthus circinnatus.



Dictamnus angustifolius habitat.



Dictamnus angustifolius, close-up of flower.

Other notable plants of the meadows or woodland margins include the statuesque aster *Inula macrophylla*, *Ligularia thomsonii*, *Ligularia heterophylla*, the white-flowered *Lamium album*, the metre high *Pedicularis dolichorrhiza*, *Paeonia intermedia*, which is abundant, and *Polygonatum roseum*.

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Inula macrophylla



Lamium album



Pedicularis dolichorrhiza



Polygonatum roseum

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Paeonia intermedia, habitat and flower.

The reserve is perhaps best known botanically as being the type location for the endemic *Tulipa x anadroma*. Though over 10,000 flowering plants have been recorded the species is listed in the national red book and classified as Vulnerable by IUCN because of its limited distribution. It is an attractive, predominantly red-flowered species with keeled leaves along their midrib. It flowers from April (lower altitude) through to June (higher elevations).



Tulipa x anadroma



Tulipa x anadroma

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Allium species feature heavily within the reserve from the tall and numerous *A. aflatunense*, which adds a purple haze to the upland meadows, to the squat, scree-loving *A. karataviense*. Other notable species include *AA. caeruleum*, *caesium*, *margaritaceum*, *oreoscordum*, *pallasii*, *platyspathum*, *pskemense* and the rare *viridiflorum*.



Meadows of *Allium aflatunense*



Allium karataviense

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Allium margaritaceum and *Allium oreoprasum*



Allium caesium and *Allium platyspathum*



Allium pallasii and *A. oreoscordum*

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A. caeruleum and *A. viridiflorum*

The extensive meadows of *Prangos pabularia* and *Ferula prangifolia* provide a wonderful feathery foil for *Bistorta elliptica*, various *Eremurus* species and of course, *Allium aflatunense* which punctuate the greenscape as exclamation marks.



Allium aflatunense meadow

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In addition to its plants the reserve has a rich fauna. Over 150 bird species have been recorded which represents around 50% of Kyrgyzstan's documented avifauna. Notable species include Red-necked Grebe, *Podiceps grisegena*, Osprey, *Pandion haliaetus*, Booted eagle, *Hieraaetus pennatus*, Tawny eagle, *Aquila rapax*, Cinerous vulture, *Aegypius monachus*, Bearded vulture, *Gypaetus barbatus*, Egyptian vulture, *Neophron percnopterus*, Ibisbill, *Ibidorhyncha struthersii*, White-winged woodpecker, *Dendrocopus leucopterus* and Indian paradise flycatcher, *Terpsiphone paradisi*.

Only two amphibian species are present, the indigenous Xinjiang toad, *Bufo pewzowi*, and the acclimatized Marsh Frog, *Pelophylax ridibundus* and reptiles are represented by seven species of skinks, lizards and snakes. There is a wide variety of mammals; 35 species have been recorded, including snow leopard, *Uncia uncia*, lynx, *Lynx lynx*, wolf, *Canis lupus*, jackel, *Canis aureus*, brown bear, *Ursus arctos*, various deer (such as *Cervus Canadensis*, *Cervus elaphus* and *Capreolus pygargus*), ibex, *Capra sibirica*, porcupine, *Hystrix indica*, beech marten, *Martes foina*, and the rare desert long-eared bat, *Otonycteris hemprichi*.

As previously advised, there are a number of trails within the reserve but the best in order to see a wide selection of plants is the one which starts at the southern end of the car park and incorporates six of the seven lakes before returning to the car park from an easterly direction. This self-guided trek can be undertaken comfortably within a day.



The lakes

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The smaller lakes which can all be seen within a single day's walk.

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Evening view of Sary Chelek with a meadow largely of *Prangos pabularia* and *Ferula penninervis* in the foreground.

We have only shown a glimpse of the botanical riches of the reserve but hopefully such a partial view has piqued your interest for there is much to see and explore and, hopefully, Sary-Chelek will find its way onto your own botanical bucket list.

[1] An alternative legend, recalled by foresters, is that long ago a master craftsman lived in the area and fashioned various wooden bowls (in Kyrgyz 'chelek') from local junipers. Not wishing to kill the trees the craftsman only cut off the edge of the trunk and the bowls were therefore yellowish (in Kyrgyz 'Sary') in colour. Local people bought the bowls, and the area became known as Sary-Chelek. Foresters claim that even today there are junipers with trunks that show where carvings had been made previously to create wooden bowls.



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--- Travels in Kyrgyzstan ---

An amateur in the field – searching for tulips in Kyrgyzstan

by Frazer Henderson

Kyrgyzstan, in truth, was inevitable: my interest in tulips has directed me ever eastwards. It started when a teenager with a rash, pre-Christmas purchase of bulbs. When they became goblets of claret the following spring I was hooked and in subsequent years further purchases followed and later in my own gardens, in tune with the prevailing gardening trend, tulips were planted in blocks or drifts, in mixed or single colour combinations, or in complementary or clashing companionship with other bulbs or flowers. Growing bulbs quickly merged with exhibiting flowers which lead to membership both of the SRGC and the Wakefield & North of England Tulip Society where, through the latter, I have gained a greater appreciation and knowledge of the social, cultural and economic history of tulips which, in turn, stimulated numerous visits to the Netherlands to further my interest of the species and its cultivated forms in the country's art galleries, museums and botanic gardens. With the Ottomans playing such an influential role in popularising tulips it made sense to visit Istanbul to explore the cultural associations of this beguiling flower through its rich heritage and narrative accounts.



Tulipa tetraphylla, Jeti-Ögüz

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As I trod ever backwards in time, and geographically eastwards, I came to appreciate more fully that my next stop on this journey of exploration would have to be the Tien Shan, central Asia, famed as being the site of origin and diversity for *Tulipa* species.



Habitat with Tien Shan to the south.

And so in early Spring 2015, I found myself, an amateur ‘botanist’ on my initial field expedition to Kyrgyzstan to search for species tulips at the very heart of the Tien Shan range. The 2015 trip was subsequently followed by trips in 2016 and 2018 (twice). Alas, my planned 2020, 2021 and 2022 visits had to be cancelled due to coronavirus though I did manage a short trip in early 2023 which I combined with an exploration of south-eastern Kazakhstan. As anyone with an interest in *Tulipa* knows, its taxonomy is considered to be difficult and frustrating. A comprehensive list of all species known to exist in Kyrgyzstan is presented (see Table) with an indication of those that are endemic. Currently there are 29 confirmed species with the most recent, *T. pseudoferganica*, described only in 2023. [Ed: A further species *T. lazkovii*, taking the total to 30, was recently described in [IRG 168](#) January 2024.] Fortunately, the principal aim of my trips has been to see and enjoy plants in situ rather than to engage simply in an exercise of accumulating ‘ticks’ quickly on a species list. Accordingly, this report is not a comprehensive review of every species nor their distribution within the country but

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rather a selective, highly personal reflection of some of the highlights from tours of the country.

Table: Known Tulipa species found in Kyrgyzstan and their endemic status.

Species	Endemic	Species	Endemic
<i>T. affinis</i> Z.Botsch.		<i>T. ostrowskiana</i> Regel	
<i>T. anadroma</i> Z.Botsch.	✓	<i>T. platystemon</i> Vved.	✓
<i>T. bifloriformis</i> Vved.		<i>T.pseudoferganica</i> Lazkov	✓
<i>T. binutans</i> Vved.		<i>T. rosea</i> Vved.	
<i>T. dasystemon</i> Regel		<i>T. subbiflora</i> Vved.	✓
<i>T. dasystemonoides</i> Vved.		<i>T. talassica</i> Lazkov	✓
<i>T. dubia</i> Vved.		<i>T. tarda</i> Stapf	
<i>T. ferganica</i> Vved.		<i>T. tetraphylla</i> Regel	
<i>T. greigii</i> Regel		<i>T. tianschanica</i> Regel	
<i>T. heterophylla</i> (Regel) Baker		<i>T. toktogulica</i> Wilson & Lazkov	✓
<i>T. jacquesii</i> Zonn.	✓	<i>T. tschimganica</i> Z. Botsch.	
<i>T. kaufmanniana</i> Regel		<i>T. turkestanica</i> Regel	
<i>T. kolpakowskiana</i> Regel		<i>T. zenaidae</i> Vved.	
<i>T. korolkowii</i> Regel		<i>T. zonneveldii</i> J.de Groot&Tojibaev	✓
<i>T. neustruevae</i> Pobeb.	✓		

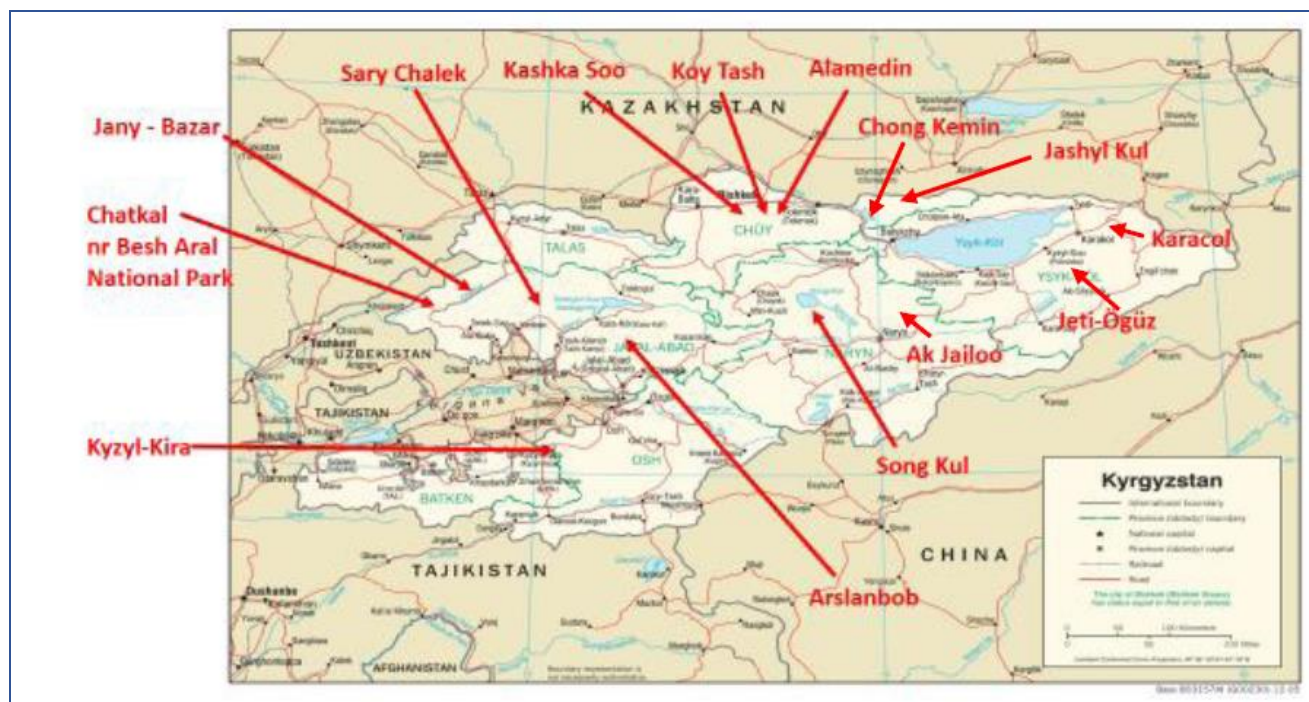


Figure: Topographical map of Kyrgyzstan annotated with locations of sites discussed.



The Seven Bulls, Jety-Ögüz



Tulipa tetraphylla on the ridges.

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Jeti-Ögüz

The valley of Jeti-Ögüz, named after a huge sandstone formation, said to resemble seven bulls at rest, begins at the village of the same name and climbs southwards past a sanatorium and then via a number of mountain meadows (or 'jailoos') to the upper reaches of the central Tien Shan. On the opposite side of the valley to the inanimate bulls there is a folding landscape starry with flowery jewels. Under the protection of thickets can be found the nodding, ruby bells of *Fritillaria walujewii* and in more open situations the deep, almost kyanite blue of *Iris ruthenica*, as well as thousands of the sunny *Tulipa tetraphylla*.



Fritillaria walujewii.



Tulipa tetraphylla - reverse tepals.

Though all the tulip flowers inspected were bright yellow on the internal tepals, the reverse colours, particularly on the outer tepals, varied from specimen to specimen across a broad spectrum, from blush-pink and yellow-green through to magenta and matt blue-green.

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In a couple of specimens the outer tepals extended well beyond the internal ones forming distinct points reminiscent of *T. acuminata*. The number of leaves, as others have noted, is variable despite what is implied by its name, indeed, I found specimens varying from three leaves through to seven, though the over-whelming majority studied appeared to have four linear leaves, often much longer than the stem. Fed on a diet of cloned, garden bulbs I had been unprepared for the huge variability in field specimens and it became surprisingly easy for me to think that I was viewing new species (or at least sub-species) and then speculate on what they might be called scientifically and whether or not it would be appropriate to include my own name in the epithet: such is the ego of the amateur engaged in a sole enterprise! The distribution of the species, according to the Kyrgyz Checklist, is in the north and central parts of the country but absent from the lower plains close to Bishkek. My subsequent travels around the country certainly seemed to bear that out.



Iris ruthenica with *Tulipa tetraphylla*.

Iris ruthenica in bud

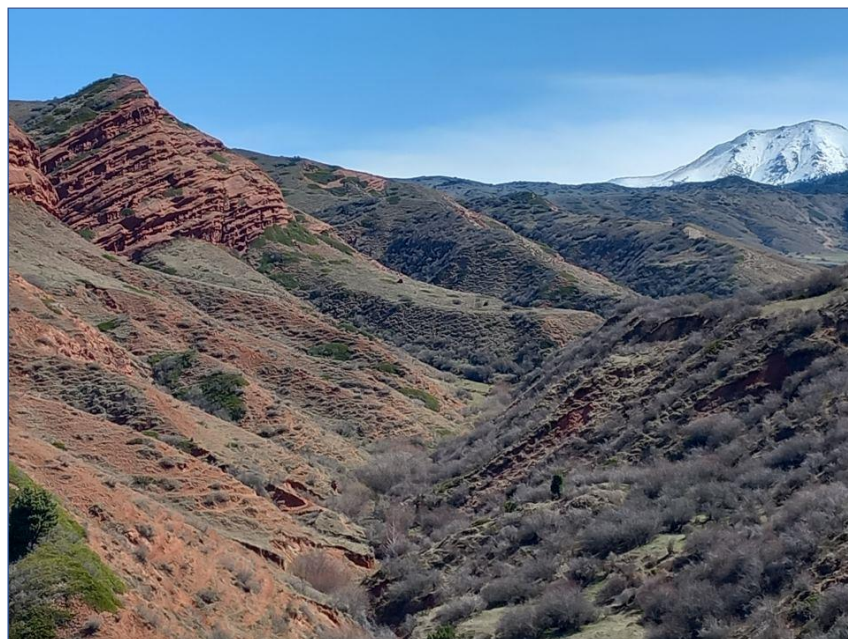


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Tulipa tetraphylla - on ridge - Jeti-Ögüz.

Eastern sandstone
ridges opposite
Jeti-Ögüz.



Ridges – note the snow on
the far peak - Jeti-Ögüz.

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Ski Runs and Ski Lodges, Karakol.

Karakol Valley

After a twelve km uphill walk from the town of Karakol I arrived at the ski centre which sits at about 2300m a.s.l. and looked back northwards through stands of *Picea schrenkiana*, the Tien Shan spruce, at the spectacular Karakol valley and beyond to Issyk-Kul, the second largest alpine lake in the world. Despite a persistent, chilling draught from the glaciers the snow continued to melt in front of an advancing spring revealing mountain glades above the ski centre swathed in *Crocus alatavicus* and *Gagea* spp. with, here and there, clumps of *Tulipa heterophylla*.



Crocus alatavicus - woodland – Karakol.

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Crocus alata - style and stamens



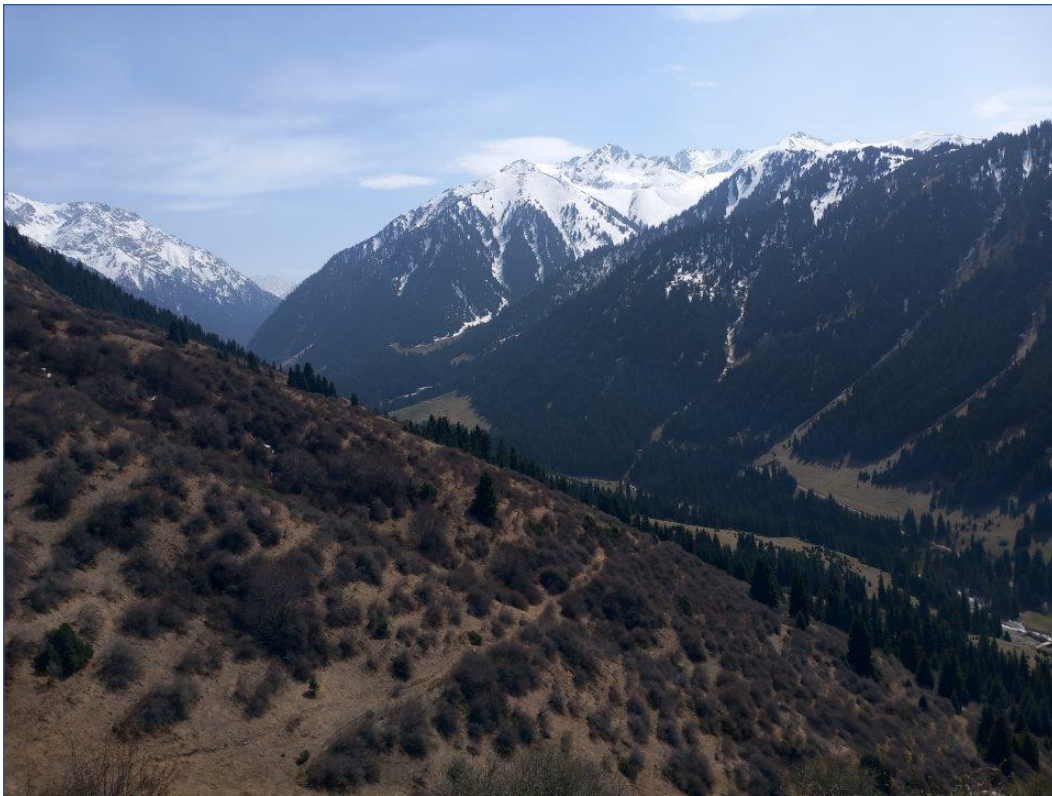
Tulipa heterophylla

The tulip species, *Tulipa heterophylla*, belongs to sub-section *Orithyia*, which characteristically has two leaves, yellow tepals and a normal style on top of the ovary. The style on all the specimens inspected extended to, and sometimes beyond the height of the stamens. The flowers appeared to have a slight waist and, whilst not appearing to have the pronounced bend or droop from the stem that is ascribed to them in the literature, possessed a discernible lateral inclination. The insides of all the tepals were a bright, fresh yellow, with the three-line striations of the reverse of the internal tepals showing through. The reverse of the external tepals were stained lime-green.

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Crocus alata.



The walk back to my lodgings naturally passed quicker than the trudging ascent, buoyed not only by going downhill but in having seen a superb species in a spectacular setting.

The walk down the mountain – Karakol.

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Tulipa tianschanica - yellow form.

Chong Kemin

Chong Kemin is a broad, 80 km long valley, situated to the north of the Kungay Alatau range and south of the parallel Zailiysky Alatau range on the Kazakh border. The valley contains a mix of natural and pastoral landscapes bounded by upland meadows, coniferous forests, alpine lakes and snow-capped mountains. About 20 km from the western entrance of the valley where the Chong Kemin river has cut a deeper gorge, I located an expanse of about two hundred or so of *Tulipa tianschanica* scattered over the

length of about one hundred metres of dense scrub vegetation with occasional open areas of stony ground holding *Tragopogon ruber* (Asteraceae), *Ixiolirion tataricum* and *Primula algida*.



Tragopogon ruber

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Ixolirion tataricum

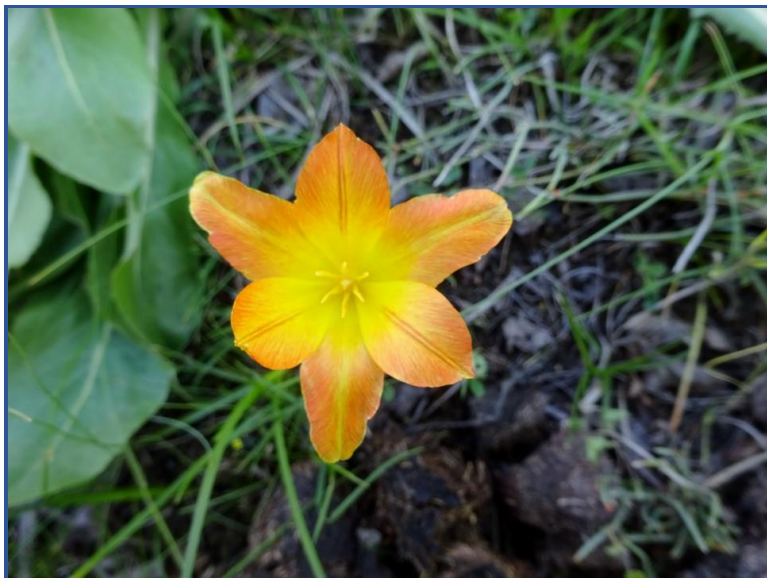
The tulip was highly variable: some with flowers of pure bright yellow reminiscent of *T. kolpakowskiana*; others, an attractive dusky orange on the inside and lemon-yellow on the reverse; and yet a few yellow with a dingy violet reverse on the outer tepals, identical to that illustrated by Diane Everett in *The genus Tulipa – tulips of the world*. It is at such moments

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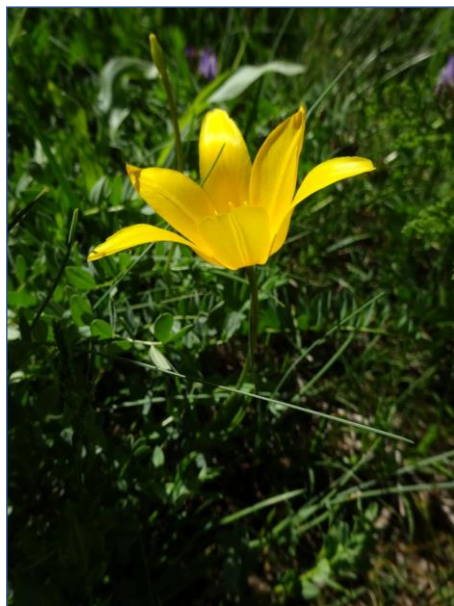
that one is tempted to paraphrase Martyn Rix in his foreword to the Everett's monograph and admit that the variability and diversity of tulips in the wild both fascinates and frustrates in equal measure. What I quickly established is that of all the morphological features flower colour is often the least reliable in the identification of individual species.



Tulipa tianschanica - close up.



Tulipa tianschanica - orange form.



Tulipa tianschanica – lemon yellow form



Tulipa tianschanica -
swollen filaments.

Tulipa tianschanica - patterning on an external tepal.



Jashyl Kul

At the eastern end of Chong Kemin sits Jashyl Kul (Green Lake). To the south of the lake up a short, steep, stony escarpment I found *T. tarda* in well-cropped, rolling grassland. The flowers have an egg-yolk centre which is surrounded by a bright, white halo. The plants are small, between four and ten cms high, and eminently suitable for a rock garden or exhibition

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pot. Indeed, I have seen specimens at alpine plant shows, though not with the radiance and purity of colour seen that day in the Chong Kemin. Within Kyrgyzstan the species is restricted to the Chong Kemin and the neighbouring Kichi Kemin valley. I was fortunate to see other specimens with a much bolder and extensive reverse patterning of greenish violet at higher elevations on the fringes of glades bordering the valley on the northern slopes of the Kungay Alatau.



Green Lake.



Tulipa tarda.



Tulipa tarda - Jashyl Kul.

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Paeonia hybrida var. *intermedia*, Kegeti

Kegeti Valley

The Kegeti Valley in the Kyrgyz Alatau range lies 14 km to the southwest of the famous Burana tower, which is in fact a minaret originally dating from the 10th century and one of the oldest monuments in Kyrgyzstan. The valley is lush and, on an east facing hillside, densely covered in *Paeonia hybrid/intermedia*, I espied the glossy scarlet flowers of *T. ostrowskiana*. The specimens were highly variable in height with some reaching up to 40cm through the vegetation.



On an overcast day I had to prise the flowers apart in order to establish diagnostic features and observe a central deep-green, almost olive, blotch with a narrow, roughly delineated yellow border. The filaments, ovary and stigma were a soft pink and the anthers black. Additionally, there were some yellow flowered forms with the same deep-green blotch but yellow filaments

and anthers, a light green ovary and a yellow stigma. The yellow flowered plants seemed to accord completely with the descriptions within Everett's monograph of a yellow form of *T. ostrowskiana*. However, in slightly more open ground I found a small number – no more than

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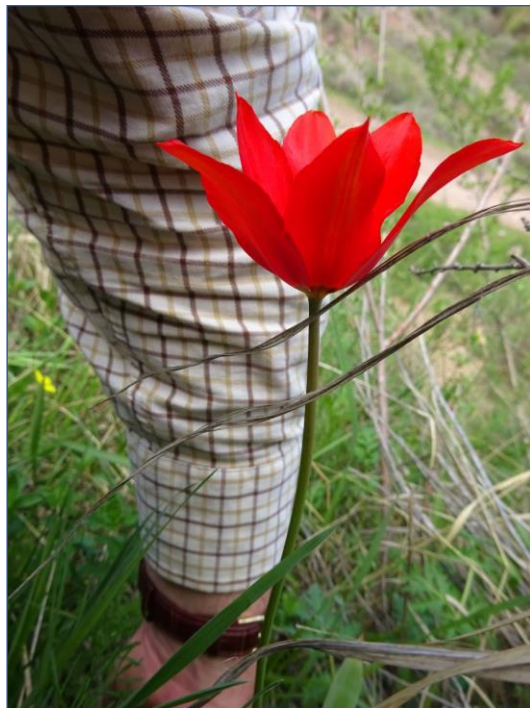
ten – of yellow flowering forms with no blotches, and anthers twice as long as their yellow filaments. The ovary was green and the stigma yellow. The leaves were nearly as long as the plant was high. Could this be *T. kolpakowskiana*?

Tulipa ostrowskiana - note height.

The plants were certainly shorter, at 16-20 cms, than many of *T. ostrowskiana*, but could that be due to the more open aspect and lack of competing vegetation? The two species are known to hybridize – could that be the cause of the few specimens of yellow *T.*

ostrowskiana showing an orange reverse on the external tepals? Interestingly, John Page, as reported in the RHS Daffodil, Snowdrop and Tulip Yearbook 2010, found a similar occurrence in the Kordai area to the west of Almaty, Kazakhstan and

experienced both the same pleasure that I was enjoying at the variation amongst the flower forms as well as similar difficulty in ascribing individual plants to a particular species. Perhaps pleasure and frustration in equal measure would be the defining characteristic of field expeditions: time would indeed tell.



Tulipa ostrowskiana and *Ranunculus* sp.



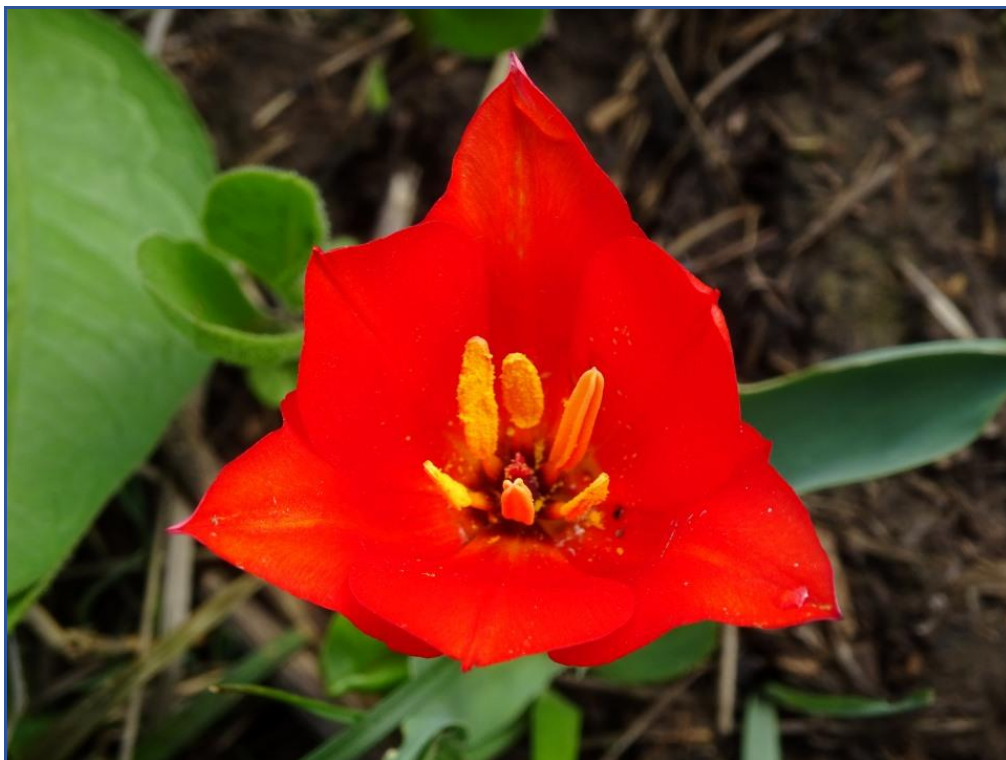
Tulipa zenaidae – Alamedin.

Alamedin

A mere one hour's journey south of Bishkek, the capital, lies the attractive Alamedin valley within the Kyrgyz Alatau range. The access road to the valley passes the former Soviet Sanatorium of Tyopyle Klyuchi with its radioactive spa waters before petering out some jolting 20 minutes later at a Yurt Camp from which a trekking route on the eastern banks of the Alamedin river extends into the heart of wonderful alpine scenery with flower-rich meadows studded with the blooms of *Tulipa zenaidae*. The plants viewed were surprisingly consistent: a large basal leaf up to four cm wide with a prominent red tip and two well-spaced

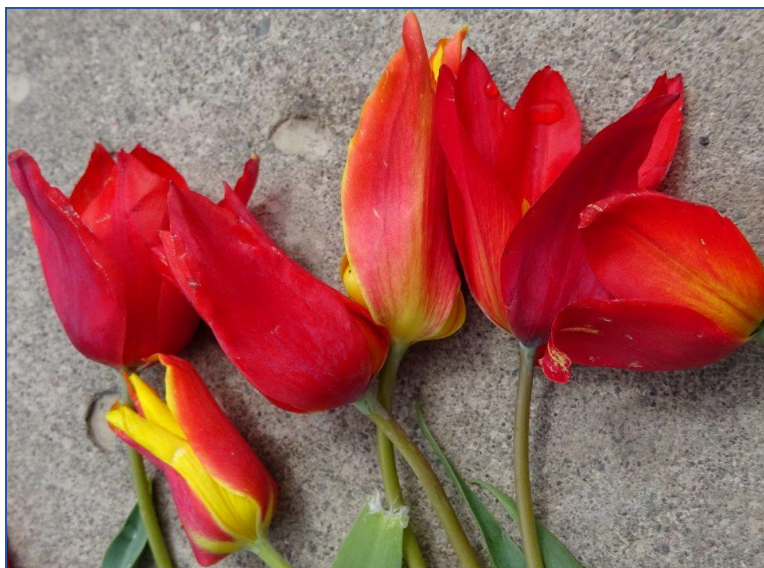
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lanceolate stem-leaves with a single flower held well above the leaves on a strong stem which was green at base and progressively darkened to a soft maroon towards the flower. In the sun the flowers opened to bright yellow with a very small black central blotch. The reverse of the outer tepals were red varying from a slight blush to a rich, red gloss, reminiscent of British telephone boxes. Very occasionally an all-yellow flower with a green midrib on its outer tepals was observed.



Tulipa zenaidae - orange-red form.

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Monument and tulips left there.

Not far from Alamedin, near the village of Koy-Tash, is situated the Ata Beyit Memorial commemorating the victims of Stalin's purges during the 1930s. Around the memorial scattered bunches of tulips had been left by visitors and, I noted, amongst them scarlet-flowered forms of *T. zenaidae*. A quick foray in the surrounding fields identified a number of deflowered plants but still a few in full bloom.



Tulipa greigii habitat, Kashka-Soo.

Kashka-Soo

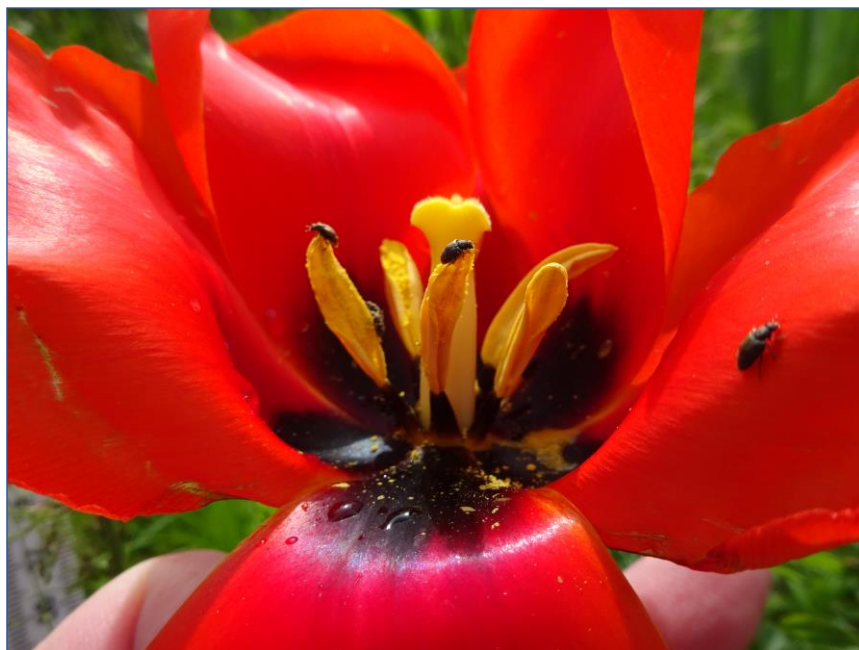
To the west of Ata Beyit lies the small town of Kashka-Soo, and it was here in its southern hills that I searched for *Tulipa greigii*. It had been a frustrating and boring day: I'd seemingly searched every fold in the pleated hills to no avail. I had found plants but sadly only after indiscriminate goats had beaten me leaving only decapitated stems and well-chewed leaves. The distinctive, purple-sploded leaves were seemingly destined to be the sum of my engagement with the species which has been

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the basis of so many familiar, garden varieties. I resolved to walk down one final cleft in the landscape before leaving for the city and there before me, as I tried to control unalloyed joy, lay a splattering of blood red on a green-brown background. There were eighteen blooms, and whilst in shape and dimension they were reminiscent of bone-china teacups they sat boldly on sturdy stems some of which reached 40 cm. The plants lacked the substantial colour variation that others have witnessed in populations elsewhere. I took measurements of leaves and stems and recorded every feature even peering inside every bloom and noting



that each had six black basal blotches separated by thin yellow-green edges with black-violet filaments banded top and bottom in yellow. My tulip hunting in Kyrgyzstan, I reflected, was becoming perilously close to being an obsession!



Tulipa greigii - stamens and beetles.

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Song Kul

At an altitude of 3018 metres Song Kul is one of the highest alpine lakes in the country and lies south, south-east of Bishkek. Due to its elevated location it is only accessible during the summer months and even then snow, hail and high wind can be experienced causing extensive problems. On the southern hills at an elevation just shy of 4000 metres there were carpets of alpine plants including low-growing *Tulipa dasystemon*.



Tulipa dasystemon - sessile.

The blooms of many were little more than five cm high. Some even simply lacked a stem of any appreciable length and rested just above the leaves. One can only presume that this is an adaptive feature to the harsh climatic conditions. It was also noted that the stamens were of variable length, the three aligning with the inner tepals being noticeably longer than the others. A more extensive review of tulips and other plants at Song Kul is available in The Rock Garden (Issue 144).



Tulipa dasystemon in habitat.

Below: *Tulipa dasystemon* – variation in filament lengths.



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Mountains and walnut forests, Arslanbob.



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Arslanbob

Some nine hours of hard driving south of Bishkek, off the main road to Osh, lies the mountain village of Arslanbob. This ethnic Uzbek community lies at the centre of the world's largest walnut (*Juglans regia*) forest. There is much conjecture about the forest's origin with various individuals including, somewhat fancifully, the ubiquitous Alexander the Great being cited for its initial planting. Whatever its origins it forms a spectacular view when perched on the encircling mountains, where on 45° stony slopes, (presumed) *Iris graeberiana* and squat forms of *Tulipa ferganica* bask in the intense sunshine and survey the scene. The flower opens to a lemon yellow with variable hues of mandarin through to bright red, with, keeping the allusion to fruit, a hint of orange on its reverse. The tulip, which is abundant in the region, takes its name from the wide Fergana Valley which sits nearby to the south mainly in present day Uzbekistan. I did also record some all-yellow forms much further south in the country some two hours east of the town of Kyzyl-Kira. It proved to be a long day of slow, hard driving, hiking and searching enlivened, aside from seeing the tulips, only by the presence of a distant herd of yaks and the calls of marmots.



Caterpillars on a Walnut tree.

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Tulipa ferganica



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Sary Chalek

The Sary Chalek Biosphere Reserve is a genuine treasure in a country studded with botanical gems and beautiful alpine scenery. It's breath-taking – quite literally - high mountain tops, scree slopes, sky-mirroring lakes and flower-rich jalloos (mountain pastures) hold a wonderful range of plants including the endemic *Tulipa x anadroma* some specimens of which, of this yellow-flowered species, exceeded 40cm. It was noticeable that it tended to grow at a very high density in more open areas associated with shrubs and other bulbous plants, such as *Iris alberti* and *I. ruthenica* and numerous allium species, rather than on the forest margins or mountain slopes.



Sary Chelek with *Allium aflatunense*.



Tulipa anadroma.

A few specimens of *Tulipa neustruevae* were also recorded. The small, yellow flowers were stained green on the reverse outer tepals and though considered by some authorities as being a

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lower altitude form of *Tulipa dasystemon*, their different colour, form and habitat seemed at least in my limited experience to give credence to them being distinct species or sub-species. At the entrance to the reserve lies the village of Arkyt and on a rocky slope I found intriguing small tulips, in fruit, with, unusually, spherical capsules growing amongst irises and the rare *Allium viridiflorum*. Despite consulting various authorities their identification remains a mystery and thus provides a justifiable reason (or should that be an excuse) for a return trip to view the plants in flower!



Iris alberti.

Iris ruthenica.



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Chatkal

Near the Besh Aral State Reserve, which lies in the far west of the country, I recorded some tatty, red-flowered forms of *Tulipa kaufmanniana* in stony grassland.



Alas, the weather remained overcast and the flowers tightly closed so I could not appreciate the so-called water-lily effect of the splayed tepals. Though there are many colour forms in cultivation I only saw those of a vermilion hue. It may be a common tulip with western gardeners but in its native environment the species is considered under threat and is, accordingly, included within the Kyrgyz Red Data Book. Further north beyond the village of Jany-Bazar, an exploration of a narrow valley produced sightings of the multi-flowered *Tulipa bifloriformis*. Above its two widely spaced leaves I noted a maximum, in this locality, of no more than six flowers per stem. When reflecting on my tulip hunting

trips to Kyrgyzstan I can confirm that there had been periods of exhaustion, frustration and even, dare I say, ennui but as Frank Kingdon Ward [1937] wrote about plant exploration "... the discovery [of a given plant] when it comes and the experience when it is reached have all the excitement that exploration ever had in the days when it was still possible to discover oceans and continents." Hyperbole? Perhaps, but, in truth, it's not far off the mark, particularly when I recall my highly vocal exaltations in seeing *T. greigii* in the wild for the first time!

Acknowledgements

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