Jiptik 2014

Report compiled by Edward Lemon, Martin Jones and John Proctor

1 Abstract

In Autumn 2013 We (Ed Lemon, Martin Jones and John Proctor) planned an expedition to the Jiptik Valley in the Pamir Alai mountains, south-west Kyrgyzstan. Our principal targets were the north face of Muz-Tok (5066m) and a nearby unclimbed peak of circa 5000m altitude. The valley was visited in 2009 by an MEF-funded expedition, but overall has seen few visits by mountaineers.

Arguably, mountaineers have been put off by the valley's proximity to the location where 4 American climbers famously escaped after being kidnapped by the Islamic Movement of Uzbekistan (IMU) in 2000. While the IMU were driven from the area over a decade ago access remains difficult for political reasons. Road access to the Jiptik valley from Kyrgyzstan's southern capital, Osh, involves an excursion into Tajikistan, then back into Kyrgyzstan, then into a Tajik enclave in Kyrgyzstan (Vorukh), then back into Kyrgyzstan. Petty disputes between the Kyrgyz and Tajik sides frequently lead to closure of the borders. For this reason, we carefully researched a backup location – a range of mountains slightly further east in the Pamir Alai, south-west of the village of Zardaly and to the east of the Matcha pass from Tajikistan. The range is not to our knowledge previously visited by mountaineers and features unclimbed peaks up to ca. 5300m altitude.

Unfortunately, Ed Lemon was denied his Tajik visa for political reasons. Since access to the Jiptik valley involves multiple incursions by road into Tajikistan (border posts are present) we were forced to change plans and visit our backup destination. Whilst some exploration of the Jiptik valley has taken place, the only information we had available about our backup destination was from google earth and the Soviet map (good but out of date – glaciers in the region have changed a lot since the 1980s). We had little idea what to expect. In the event we had a (relatively) easy passage as far as basecamp, with donkeys available to transport most of our gear.

However, we did not even get an opportunity to use our climbing harnesses as access into the mountains was consistently blocked by obstacles in the two deep-sided valleys which we explored and most glaciers in the area are not passable. The valley bottoms lie at circa 2500m whilst the principal summits are over 5000m. Access through the valleys is frequently blocked by steep unstable mud slopes. Glaciers are either too steep and crevassed to navigate with any degree of safety or have receded to leave behind gorges with sheer rock walls.

Whilst we did not get to actually climb we did make extensive use of our ropes, for a number of extremely exciting river crossings.

2 Introduction and background

2.1 The Jiptik valley

Our original objectives in the Jiptik Valley remain unclimbed and there is plenty of potential for first ascents in the valley. The Jiptik range saw little climbing during the Soviet era - a handful of easy routes were climbed. After the collapse of the USSR, the range remained untouched until 1996 when Paul Hersey travelled to the Jiptik valley and climbed Kyzyl Muz (5,127m), Muz-Tash (5040 m), Pik 4900 m, and Pik 4720 m. In 2009 Hersey returned to Jiptik with Graham Zimmerman and Yewjin Tan. The group climbed a new route on the north face of Kyzyl Muz and identified the north face of Muz-Tok (5,066m) as an excellent unclimbed objective (AAJ 2009). Muz-Tok has been climbed once (during the Soviet era) via the south-west ridge.

Hersey et al. left stating that "the Jiptik holds many excellent possibilities for technical first ascents, generally on steep ice." However, since their expedition the area has seen relatively little attention. In 2010 a group from MGU (Moscow State University) entered the valley from the Tajik side, crossing the Biksu pass (Photos: http://www.panoramio.com/user/268724/tags/Киргизия). Matthew Burdekin and Polly Harmer (UK) planned to attempt the north face of Muz-Tok in 2012, but unfortunately the expedition did not go ahead as planned. We compiled this climbing history from Soviet era reports (in Russian), AAJ and other internet articles.
Road access to the Jiptik valley from Kyrgyzstan's southern capital, Osh, involves an excursion into Tajikistan, then back into Kyrgyzstan, then into a Tajik enclave in Kyrgyzstan (Vorukh), then back into Kyrgyzstan. Petty disputes between the Kyrgyz and Tajik sides frequently lead to closure of the borders. So if you want to go there you have to be prepared to deal with a degree of uncertainty in the run-up to departure.
Our original objectives were as follows and still present interesting challenges for future expeditions:

Fig. 1: Unclimbed 5,000m peak
Photo: Graham Zimmermann

Fig 2: North Face of Muz-Tok.
Photo: Graham Zimmermann

2.2 The political situation in south-west Kyrgyzstan

With two revolutions and outbreaks of ethnic violence in the past ten years, Kyrgyzstan remains politically volatile. The security situation in Batken, with its numerous border disputes surrounding Uzbek and Tajik enclaves, presents particular challenges for access. Future expeditions should read up on this as much as possible before going. Useful English language websites covering the region include www.rferl.org, and www.eurasianet.org.
In particular, there is an ongoing border dispute between Tajikistan and Kyrgzystan in Vorukh (see map in appendix). The border in this area has yet to be delimited and since January there have been a number of armed incidents; the latest incident on 25 August 2014 left two border guards dead. Periodically, the Kyrgyz block access to Vorukh, and the Tajiks can retaliate by blocking access to Ak-Sai, a Kyrgyz town only connected to the country's road network via Tajikistan. The Kyrgyz are slowly constructing a new road to connect Ak-Sai without the need to travel via Tajikistan,

but when significant progress is made with the road construction, this is often the spark for further violence[1].

2.1 Zardaly and the Matcha pass

From the point when the expedition was first conceived it was always clear that there was a certain probability that the political / security situation would prevent us from accessing the Jiptik valley. We therefore planned (as discussed in our application) to have a backup objective in the western Kokshaal-too ready in case it was required. However, it became clear as the departure date drew closer that we could not be 100% certain of being able to access the Jiptik valley until we turned up at the military checkpoint guarding access to the Tajik enclave of Vorukh wanting to come through. At that stage, switching plans to a backup objective in the western Kokshaal-too would not be feasible; it would involve a day's driving back to Osh, then a day's driving to Bishkek, then we would have to engage a different logistics company, obtain different permits, then make a further 3 day's driving to reach the western Kokshaal-too – not realistic in the limited time we had available for our expedition. So instead we sought a backup objective closer to Jiptik, that we could switch to at short notice if required.

We had a look at a few other ranges in the Pamir Alai to the east of the Jiptik valley and therefore not requiring access via Vorukh. Eventually we decided upon a range of glaciated peaks up to 5,300m altitude south of the village of Zardaly, on the Tajik border. We found a number of accounts online of groups who had travelled upstream along the main river that flows into Zardaly, the Ak-Terek river, and had crossed into Tajikistan at the glaciated Matcha pass (joining the Zerafshan glacier). But we could find no accounts (in English or in Russian) of climbing in the range of mountains between the Ak-Terek river and the Tajik border. We had only google earth and the soviet maps of the area (see section 3.4). Figure 3 is the Soviet military map of the range. See also appendix for the location of the range within south-west Kyrgyzstan.

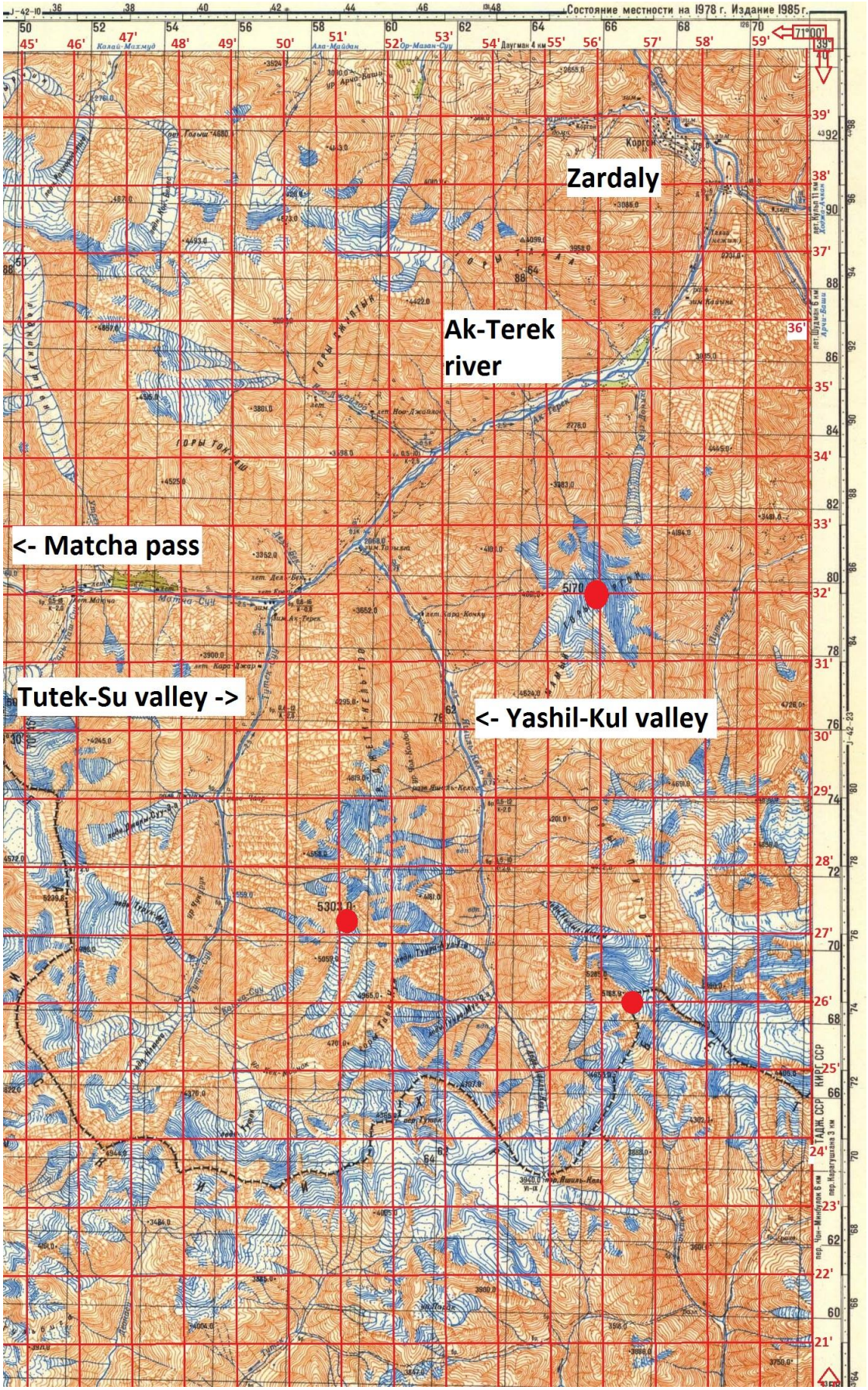


Figure 3. Section of 1:100,000 Soviet map showing range. Unclimbed 5,000m peaks marked with red circles.

3 Planning and organisation of the expedition

3.1 Political problems

We were forced to change to our backup objective. In order to reach the Jiptik valley it is necessary to travel through the Tajik exclave of Vorukh. Unfortunately, in June 2014 a researcher employed by the University of Exeter on the same project as Ed Lemon was arrested and charged with spying in Tajikistan. Edward's supervisor, Dr John Heathershaw, was deported from the country. When Edward went to apply for his Tajik visa, he was denied. His association with the University of Exeter and his criticism of the government of Tajikistan may have rendered him *persona non grata*. Access to the Jiptik valley was therefore not possible for us. Even if this incident had not occurred, it is uncertain if access would have been possible due to recent escalations in the political situation around Vorukh (see section 2.2).

3.2 Transport

All three of us flew to Osh via Istanbul on Turkish Airlines. By flying to Osh, rather than Bishkek, we saved ourselves two days.

We enlisted the services of the Batken Travel Service to access the mountains. Although we could have recruited drivers locally and saved money, we decided that the saving would have been a false economy; the total for transfers from Osh to Zardaly was 600 euros. Batken Travel provided us with relatively reliable 4x4 vehicles (we only suffered one puncture!). The drivers were reliable and Zhunusbek Karazakov, director of Batken Travel Service, proved to be helpful in organising logistics before and during the trip. Local public transport from Osh to Batken currently passes through the Uzbek enclave of Sokh (see appendix). The transport we arranged in advance did not pass through Sokh so we avoided hassle with border guards and the need to obtain Uzbek visas.

3.3 Equipment

Equipment for a three man team was put together based around our previous climbing experience in the region. Climbing equipment was only one of the major considerations with food and cooking systems another.

Clothing and camping equipment

Clothing was an assortment across the team including Paramo Velez Smocks and Paramo Aspira trousers. Softshell, waterproof and insulating clothing were worn by all three members of the team as they saw appropriate.

Sleeping bags were Rab Quantum Endurance 800 and Alpkit Pipedreams. We used an Alpkit two-man geodesic tent as well as a Karrimor one man tent at base camp. The two-man tent was large enough to accommodate all three team member on days spent at altitude which lightened the load during the climbing.

Boots were spread across two manufacturers with La Sportiva Nepal Extremes and Baturas worn as well as Scarpa Phantoms. All boots, sleeping bags and clothing mentioned above were sufficient to preserve warmth and comfort for the team.

Climbing Equipment

The usual equipment was carried per person, axes, crampons etc. We took a limited ice rack consisting of 5 ice screws, a dead man and a screamer. We carried two ropes to afford the maximum climbing opportunities as a threesome. Even as a team there are differences in opinion about which climbing equipment is essential but each member of the team carried his own means of ascending and descending the rope.

Cooking System

A Optimus Svea was chosen as the main cooking system for the expedition. The petrol stove had proven itself on previous expeditions and runs on almost all flammable liquids. To fuel it we purchased petrol on the drive in to the mountains. The petrol choices were somewhat variable and experience told us not to use the cheapest on offer. Despite spending a little more on fuel the stove still suffered, as the fuel we burnt left significant residues and soot on the stove. This led to issues when using the stove for the prolonged period of the expedition. In addition to these problems the soot added to the problem of burning petrol at altitude.

The reserve stove was a primus XGK expedition stove. It was used towards the end of the expedition as the build up of soot and debris in the Svea began to render it useless. The XGK performed well on the low quality fuel but was significantly harder to manage and afforded us much less control over what we were cooking.

We also cooked frequently on an open fire in the later stages of the expedition; dead vegetation to burn was plentiful.

Food

From the UK we decided to take rations for high altitude mountain days. They consisted of:

- 3 days of boil in the bag dinners. (High energy, quick and easy to prepare)
- 3 days of freeze dried rations.
- 3 freeze dried breakfast rations.

We also decided to supplement our diet when at high altitude with a number of commercially available energy gels and protein bars. These included:

- 21 Cliff Shot Energy Gels
- 6 Cliff Builders Bar protein bars
- 6 SIS Energy/Protein bars
- 3 packs of Cliff Shot Blox

The only other equipment of note that was carried was a homemade USB charger for electronic devices. It was manufactured by John Proctor and provided an efficient and quick way of recharging MP3 players, kindles and mobile phones. The charger used AA batteries to recharge these items. We found this charger more effective to use than the commercially available chargers often taken on expeditions.

3.4 Mapping

We used the 1:100 000 scale Soviet military map of the area; available to download for free in high resolution from maps.vlasenko.net. The quality of the surveying on the Soviet maps is always very high but – especially this year – we found that glaciers have receded somewhat since the surveying was done in circa 1980.

The map datum on the Soviet military maps (Pulkovo 1942 Krasovskii spheroid) is not a widely used datum nowadays. We therefore superimposed the WGS84 datum gridlines (the datum used by google earth and widely available on GPS systems) using the same methodology as JP's expedition in 2013[2]. We used a Garmin eTrex 10 GPS set up to receive both GPS and GLONASS signals, and were able to quickly and easily locate ourselves on the map at all times. This was really useful, for instance to resolve discussions with our driver about our location.

3.5 Medical / 1st aid provisions

A reasonably comprehensive first aid kit was taken as listed below. Advice was sought from the literature[3][4] and our medical adviser (Dr. Michael Finegan) as to the contents. Items in bold were actually used / taken during the expedition.

In terms of information, we took the literature[3][4] with us and made arrangements to contact our medical adviser via the satellite phone if needed. JP has basic outdoor first aid training. From experience on both this and previous expeditions we would say that (apart from suncream) diclofenac and ciprofloxacin are the most important items.

By the end of the expedition MJ could barely walk without taking Declofenac after he injured his knee during a river crossing and we all required Ciprofloxacin after eating fruit which our host family in Zardaly had "washed" in a ditch of stagnant water. It is amazing what modern medicine can do; with Ciprofloxacin you can go from feeling at death's door to being in a fit state for reasonably hard exercise in just 24 hours.

Medicines

- Painkillers – **Declofenac** (strongest), Ibuprofen, **Paracetamol**, Aspirin (also good for snow-blindness according to literature[3] and JP previous experience).
- Altitude-related illnesses – Diamox, dexamethasone and nifedipine for emergency use.
- Metronidazole (antibiotic - main treatment for suspected ghiardia)
- **Ciprofloxacin** (antibiotic - main treatment for bacterial diarrhoea or suspected typhoid)
- Piriton (antihistamine)
- Imodium
- ORS (Oral Rehydration Solution) – **Dioralyte**
- Insect repellent
- **High factor suncream**
- Domperidone (anti-nausea)

Instruments

- Tweezers
- Safety pins
- Protective gloves
- scissors

Dressings & Wound care

- **Plasters of different sizes**
- Plaster tape
- Blister covers
- Gauze squares, absorbent pads, wound dressings of various sizes
- Bandages, slings
- Sealed antiseptic wipes
- Gaffer tape

4 The Expedition

4.1 Purchase of provisions, travel to base camp

On our arrival in Osh we decided to seek out the famed bazaar to try and purchase provisions. We decided on pasta and noodles as the staple carbs. These were easy to source in the bazaar or local supermarkets and reasonably priced. Most food we had decided to take was easily sourced in the bazaar. We were able to purchase large packs of dried noodles, vegetables and spices to cook with. We took a selection of spices and dried fruit as well as basic root vegetables that last a prolonged period of time.

We supplemented this in the local supermarkets. The supermarket was the perfect place to purchase cheese, sausage, chocolate and dried pasta. These supermarkets are not comparable to supermarkets in the UK, however, they do have most of the basics you could want.

We were also able to purchase large washing style bags to store the food during the journey to base camp. We also didn't have to buy any food for at higher altitude as we had brought freeze dried and wet rations from the UK. We brought a large water container and a large plastic container for the petrol for the stove from the UK. We were pleasantly surprised by how easy it was to source supplies for the expedition in Osh and completed our shopping within the day having landed in Kyrgyzstan at 0400 that morning.

The journey to base camp began in Osh with a privately hired car that took us to Batken. Here, we met the contact who had organised all our permits and transport and transferred from the saloon vehicle we had used to a four wheel drive. The GB badged, Honda CRV then took us to Zardaly. This journey was not a simple one and the driver had to stop and ask directions on multiple occasions. The road was difficult and would be un-passable in anything lower than a four wheel drive. There were a couple of occasions where we had to get out of the vehicle with a couple of packs to allow the suspension to rise enough to clear the road. The drive from Osh to Zardaly took a full day, with the majority of that time spent travelling from Batken to Zardaly.

Having arrived in Zardaly we were able to negotiate the hire of a family's donkeys to take us higher into the mountains. The family claimed to know the valley we wanted to use for base camp as they went hunting there. The original price was to be $400 however; we negotiated it down to $200. This bought us two donkeys carrying a large proportion of the load. Each expedition member needed to carry a large rucksack also for the walk in. The path began as a well-defined track however the further into the walk the less defined it became. We set off on the walk c. 0700 and didn't arrive at base camp until c. 1800. The terrain was hard and involved numerous sections of wading in glacial melt water streams.

Figure 4. Some photographs from the walk-in to base camp.

Eventually, we were able to see the valley on the other side of the main river however it was inconceivable with the river height to cross straight across. Our guide led us on up the valley where we saw a small shepherd's settlement inside the confluence of two rivers. Both rivers were bridged using rudimental log bridges and here we were able to cross to the desired side of the main river.

We decided to set up camp where the Yashil-Kul valley meets the main Ak-Terek river after a long and increasingly wet walk. Here we set up both tents and cooked setting up our base camp. The man and our donkeys set off back down the valley almost as soon as we had arrived having agreed a date and time for him to return to take us out of the valley.

4.2 Attempts to climb in the Yashil-Kul valley

We first explored the Yashil-Kul valley (name comes from Soviet map), shown running south to north in figure 3. The valley floor is particularly low (varying from 2,200m to 3,000m) compared to the adjacent mountain tops at up to 5,300m. For most of the length of the valley the steep and precipitous valley sides offered no chance to access the upper slopes of the mountains. Photos in next figure offer an appropriate impression of the valley sides.

Figure 5. Precipitous sides of the Yashil-Kul valley preventing access to mountains above. Lower panel also shows dwelling of the family who provided donkeys for the river crossing (on right, red tarpaulin).

Judging from the map however, there were some locations near the top of the valley where we might be able to break through. Firstly, it appeared that a gently sloping glacier at the top of the valley led all the way to the Yashil-Kul pass, from which adjacent peaks should be accessible. Secondly, it appeared that a side valley on the east offered an accessible route onto the rather pointy unclimbed peak in the photo below.

Figure 6. Attractive unclimbed peak on Kyrgyz-Tajik border near head of Yashil-Kul valley; Marked in red on map in figure 3. 71°56.6’ E, 38°26.0’ N.

Unfortunately it turned out that the gently sloping glacier leading to the Yashil-Kul pass had receded significantly since the Soviet map was produced, leaving behind the scene in figure 7. We explored higher up on the right as well but it appears there is no passable route now to the Yashil-Kul pass (at least in summer).

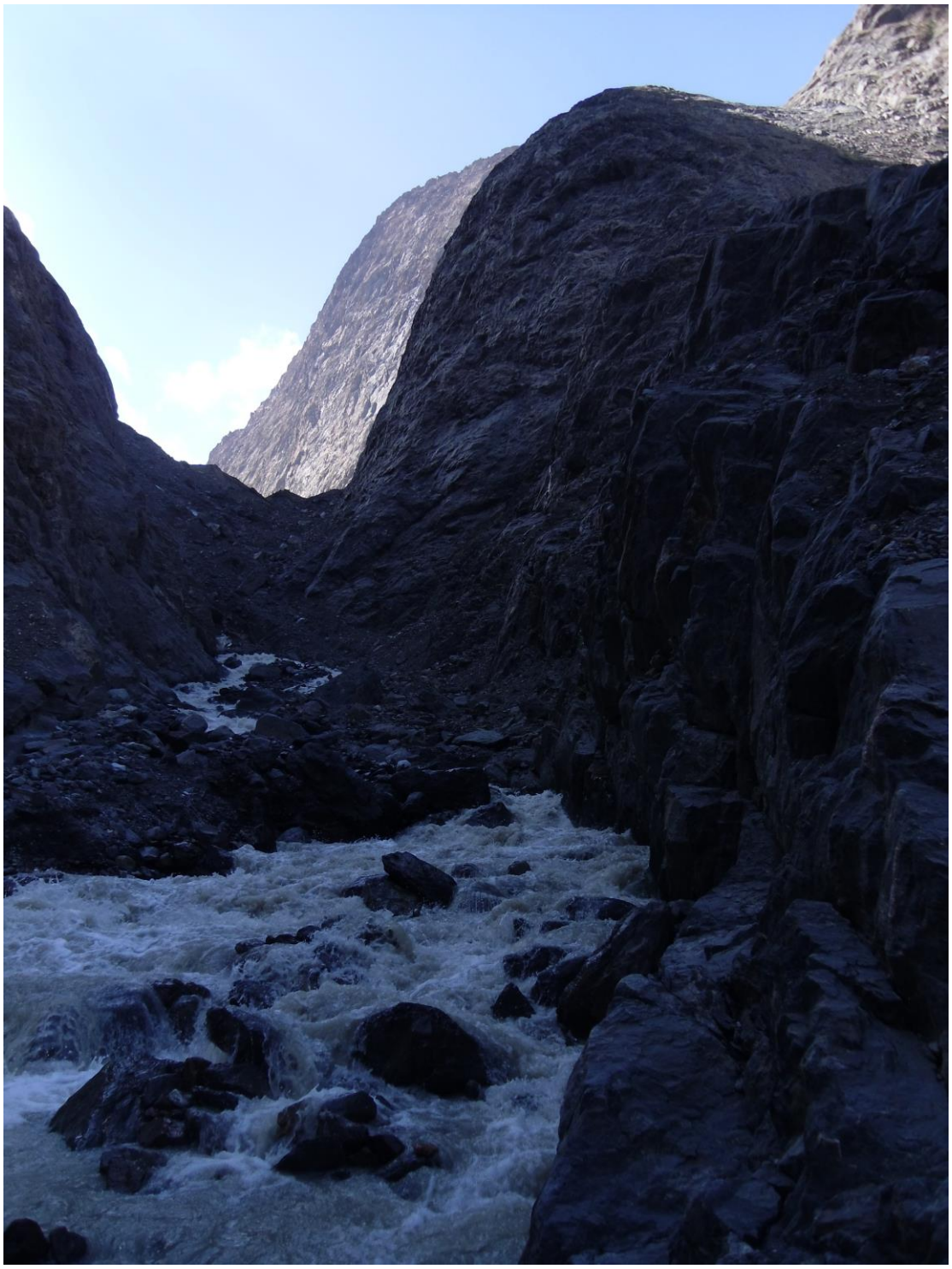


Figure 7. Gorge left behind by receding glacier leading to Yashil-Kul pass.

We therefore focussed our efforts on the peak shown in figure 6, to be accessed via the glacier shown in figure 8, a detail from the map shown above in figure 3.

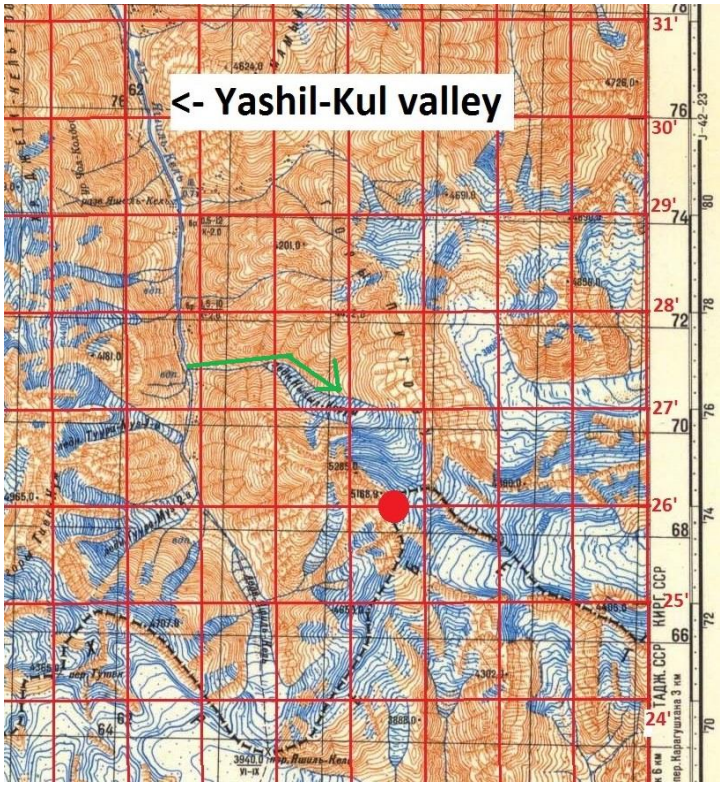


Figure 8. Unclimbed peak (red dot, surveyed by the Russians as 5169m) near head of Yashil-Kul valley. Attempted route to access the peak shown in green.

However, we first had to get across the river (the approach up the valley thus far is on the western side). We befriended a family of shepherds who lived in the valley during the summer, and arranged to hire donkeys from them to cross the river. The father of the family, Rufus, was able to provide his local knowledge regarding the best places to cross the river. We crossed the river with the aid of security provided by ropes and the donkeys had to be brave. Figures 9 and 10.

Figure 9. Difficult river crossing to reach our objective. The donkey has just gone on strike and refuses to go further. Our shepherd friend Rufus (on L, wearing khaki) tries to gently encourage it.

Figure 10. Ed being assisted by Rufus on the river crossing.

We continued to the foot of the glacier where we unloaded the donkeys, repacked our bags and continued on foot. Right from the start, the glacier was too heavily crevassed to walk on but this was not an immediate concern as we were able to make fast (if tiring) progress along ridge, moraine and scree up the north side of the glacier (as marked in figure 8). We camped at an uncomfortable campsite at ca. 3,800m according to the GPS. Figure 11.

Figure 11. Campsite at 3,800m.

From this campsite we at first tried to continue along the ridge at the side of the glacier but were forced to conclude that we had no choice but to eventually go down onto the glacier itself. It was now clear (figure 12) that the glacier was completely impassable so we reluctantly decided to retreat.

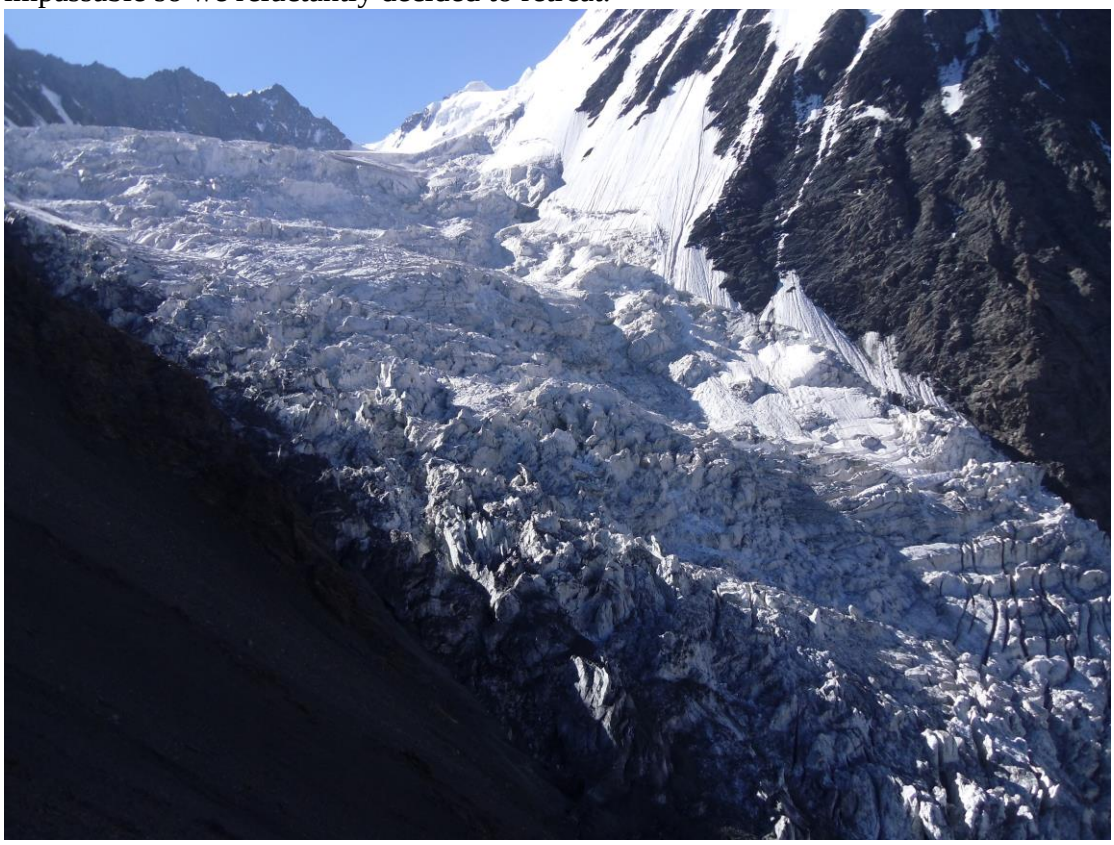


Figure 12. Impassable glacier, forcing our retreat.

On our retreat, we also spent considerable time trying to convince ourselves that a safe way up the mountainside shown in figure 13 could be found. This is the face of the first mountain to the right (west) of the Yashil-Kul pass as you approach it up the Yashil-Kul valley. After much deliberation, we were forced to conclude that there was not an acceptably safe way up.

Figure 13. Another objective for which we could find no acceptably safe access route.

4.3 Attempts to climb in the Tutek-Su valley

The next valley along to the west from the Yashil-Kul valley is the Tutek-Su valley. We finished our expedition with an excursion up this valley; carrying a light rack for speed to seek out any objectives where we might make a quick ascent before time ran out. Whilst it is used for grazing, the valley is uninhabited so we picked our way up it on our own. The 12 km trip up the valley to where it branches into two parts started with a section of wading through sections of river beneath a mud cliff, then had some pleasant and enjoyable sections trekking along the stony flood plain of the river, then also some sections traversing steep and unstable dirt slopes, and some sections of jungle-bashing. We walked up the eastern side of the valley floor. On the way up the valley, we found an objective on the western side which could repay a visit with a large rack and rock shoes (figure 14). It is probably accessible by walking up the western side of the valley.

Figure 14. Unclimbed objective on western side of Tutek-Su valley.

Where the valley splits (39°25'58.75"N, 70°48'8.55"E), we chose the left hand side (eastern fork) on the basis that the peaks visible in the glacial cirque above the western fork (figure 15) were likely to be technically challenging and hence too time-consuming for the limited time we had left.

Figure 15. Unclimbed peaks above western fork of Tutek-Su valley.

We progressed up the eastern fork of the valley doing an increasingly difficult traverse on steep unstable ground above the river, and eventually had to accept that the way was blocked by the aftermath of a landslide; the terrain was not passable with a reasonable degree of safety. Figure 16. We were now out of time as our transport back to Zardaly was arriving in just 2 days.

Figure 16. Aftermath of landslide blocking our progress to peaks at head of eastern branch of Tutek-Su valley.

5 Some conclusions

We are convinced that the Yashil-Kul valley offers no climbing possibilities. However, the attractive unclimbed peak at its head (figure 6) may be accessible from other directions. In the Tutek-Su valley, the unclimbed peaks above the western fork (figure 15) are probably accessible; the only reason we did not investigate further is because we were out of time. The steep objective shown in figure 14 is almost certainly accessible via a walk along the western side of the Tutek-Su valley. The rock is limestone; it might be ok. Are you feeling lucky?

6 The team

Edward Lemon, 25. Ph.D. student, University of Exeter.

Edward has been climbing for over seven years. Edward has spent three summers in the Alps and Andes climbing a number of routes up to TD +. He has ice climbed to WI5 in Italy, France and Norway. He is confident climbing Scottish Winter Vs. He has also climbed a number of long Scottish rock routes including the Old Man of Hoy (E1), The Needle (E1), Steeple (E2) and The Bat (E2).

He has participated in three new routing expeditions, two of which were in Kyrgyzstan (2009, 2011) and one in Tajikistan (2012, with John Proctor). During these expeditions Edward summited six virgin peaks. The hardest new route that he established was the south-west face of Egemendelukk (ED1) in 2011. Edward lived in Central Asia for two years and speaks fluent Russian.

John Proctor, 31. Lecturer, University of Salford.

John has been climbing for 9 years. He has 7 years and over 20 routes of Alpine experience gained in the Tien Shan, Pamirs, Mont Blanc Massif, Valais Alps and, in winter, the Atlas mountains in Morocco. Highlights are exploratory trips to Pamirs (2012, 2013) and Tien Shan (2010).

John winter climbs up to (occasionally!) grade V. He regularly rock climbs on mountain crags and sea cliffs – for example Old Man of Stoer, Breeches Rock. He has also climbed a number of new routes on the sea cliffs near Berwick-upon-Tweed, and climbed in Norway and New Hampshire. This will be John's 4th expedition to climb new routes in central Asia.

Email john.proctor1982@gmail.com or j.e.proctor@salford.ac.uk for high-res photos, maps etc.

Martin Jones, 27. Primary School Teacher, South London.

Martin has been climbing for the past 10 years. He has spent two summers in the Alps climbing to TD. Martin has climbed rock in the UK to HVS. He has climbed ice in the French alps to WI5 as well as climbing Scottish IV and Vs consistently. Martin has also tried his hand at European Mixed climbing to M6+.

Martin has been on one previous expedition to central Asia. In 2009 Martin joined Ed in Kyrgyzstan summiting five new peaks including Pik Katherine via a Scottish V route, Chos Bros.

7 Miscellaneous

7.1 Acknowledgements

Photos in this report are copyright © John Proctor. We would like to acknowledge advice on matters relating to the local politics from Dr. Madeleine Reeves.

7.2 Accounts

Income	**Expenditure**
MEF Grant £2,000	Insurance £1,200
BMC Grant £650	Flights £1,950
Personal: £1,850	Transfers £700
	Donkeys £200
	Permits £80
	Food £150
	Satellite Phone £220
Total: £4,500	**Total:** £4,500

8 References

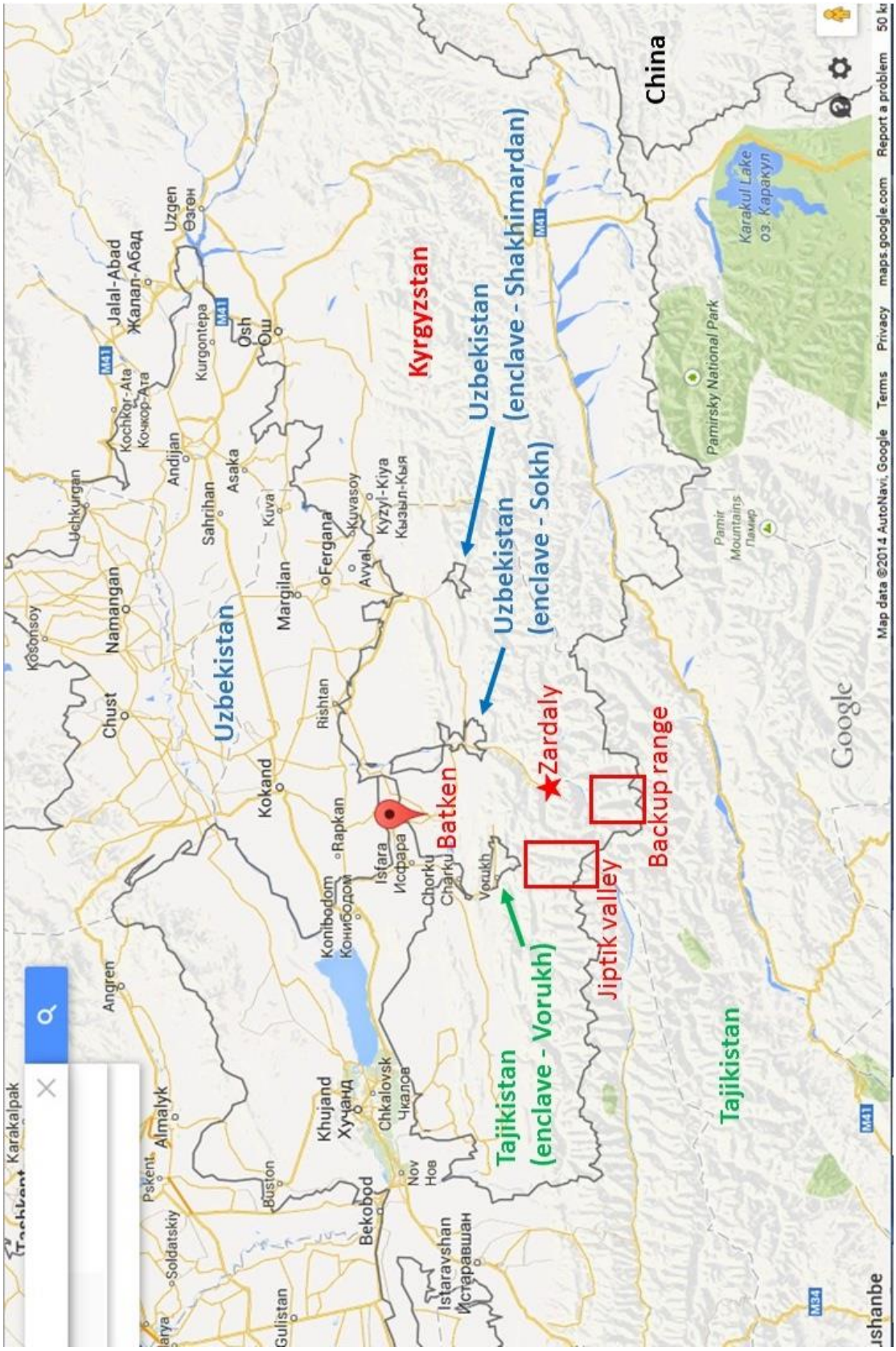
[1] http://www.eurasianet.org/node/67974

[2] https://britishmuzkol2013.wordpress.com/2013/07/08/the-geeks-shall-inherit-the-earth/

[3] Pocket First Aid and Wilderness Medicine, J Duff and P Gormly, Cicerone (2008)

[4] P Bärtsch and ER Swenson, NEJM vol. **368**, pg. 2294 (2013) [pdf of this extremely informative article on treatments for altitude sickness is available online]

Appendix



Map of south-west Kyrgyzstan and neighbouring areas showing locations of our main objective (the Jiptik valley) and the backup range that we eventually visited. Main

towns / cities and enclaves of Tajikistan and Uzbekistan within Kyrgyzstan are also shown. Recent local advice is the only reliable source of information as to the current locations of roads and borders. For instance, the google map above shows the road to Zardaly as passing through the Uzbek enclave of Sokh. In fact, there is now a road that skirts round this enclave which we took on our expedition.