

# **New Zealand Solu Khumbu Alpine Style Expedition 2011: Final Report**



Mountaineering expedition to the Solu Khumbu region of Nepal to attempt new routes on Kyajo Ri and Kusum Kanguru climbing in alpine style.

March – May 2011.

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## **SUMMARY**

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In March of 2011 the Zealand Solu Khumbu Alpine Style Expedition travelled to the Solu Khumbu region of Eastern Nepal to attempt new mountaineering routes on the Northeast face of Kyajo Ri (6186m) and Southwest face of Kusum Kanguru (6367m) – climbing in light weight alpine style. The climbing team consisted of three members, Ben Dare, Steven Fortune and Mike Rowe, all of whom are of New Zealand nationality. And the expedition was funded by a combination of external sponsorship and personal contributions from the individual team members. The Solu Khumbu region was selected for the expedition destination due to its relative accessibility and well established trekking and climbing support infrastructure. While the specific objective peaks of Kyajo Ri and Kusum Kanguru were chosen because of low climbing permit fees, as both are classified as Trekking Peaks, and for the potential of new routes to be climbed. Both peaks were accessed on foot from the village of Lukla, where the team flew to from Kathmandu, using the extensive network of trekking trails that service the area. While in Nepal the majority of day to day operations, such as sourcing local food supplies and porters, was conducted via the trekking agency engaged by the expedition – Parikrama Treks & Expeditions. They were also responsible for applying for and obtaining the peak climbing and Sagarmatha National Park entrance permits and for booking accommodation at local lodges during the approach treks. Ultimately the expedition was unsuccessful in its attempts to climb the originally proposed new direct routes on Kyajo Ri and Kusum Kanguru, however a potential new route was climbed on the edge of the Southwest face of Kusum Kanguru to a high point on the Northwest ridge. The lack of success on the proposed routes can largely be attributed to the unseasonal weather conditions encountered which resulted in significant snowfall and avalanche activity on both faces, rendering the intended climbs unsafe to attempt.

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## INTRODUCTION

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The Zealand Solu Khumbu Alpine Style Expedition was a mountaineering expedition to the Solu Khumbu region of Eastern Nepal with two primary climbing objectives. These were to attempt new unclimbed routes on the Northeast face of Kyajo Ri (6186m) and the Southwest face of Kusum Kanguru (6367m). The idea behind, and motivation, for the expedition came about from a desire by leader Ben Dare to progress from climbing locally within New Zealand and experience alpine climbing in the greater ranges of the world. Nepal, and in particular the Solu Khumbu region, was chosen due to its relative accessibility, established tourist infrastructure and an abundance of peaks with various technical aspects all within the desired height range of 6000-6500m.

In addition to the desire to climb in the Himalaya to pursue personal ambitions another motivation for the expedition was to act as role models for future generations of New Zealand climbers. We hoped that by achieving our climbing objectives we would act to provide inspiration to aspiring young alpinists to realise that New Zealand mountaineers can climb at the highest level. And to hopefully encourage them to form their own plans of climbing in the greater ranges and to develop these ambitions and have belief in their abilities to fulfil them.

Traditionally Himalayan climbing has been approached by the adoption of 'Siege Style' tactics by large expeditions climbing non-technical routes on large scale peaks. However as the majority of these peaks have now been climbed, attention has shifted to smaller teams climbing highly technical routes at lower altitudes. This 'Alpine Style' approach involves the climbing team pushing for the summit in a single drive without the support of stoked camps and fixed ropes and places great demand on the technical skill, fitness and commitment of the individual climbers. We hoped that by climbing new technical mountaineering routes of a world class nature, we would show that Kiwi alpinists can contribute from the front in this new wave of Himalayan climbing.

Prior to departing for Nepal the expectations of the expedition members were that we had a realistic chance of achieving our objectives on Kyajo Ri and Kusum Kanguru. However like any mountaineering expedition there were a number of factors involved beyond the control, or influence, of those involved that could have a large impact on the expedition outcome. So although we did have some expectations of success we were also approaching the situation with an open mind and a willingness to accept conditions as we found them.

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## DESTINATION AREA

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The Solu Khumbu region is located in the Northeastern corner of Nepal and falls largely within the boundaries of the Sagarmatha National Park - refer the location map below. It is home to many of the worlds highest and most picturesque mountains and has for generations been an inspiration for climbers the world over. These peaks have provided untold tales of breakthrough ascents and classic routes alike, with New Zealand mountaineers having a proud history in the area, including first ascents of the regions two most famous peaks - Everest and Ama Dablam. This fact acted as a motivator to all members of the expedition team and by attempting new technical mountaineering routes we hoped to continue this proud tradition.



**Map of Nepal with the expedition objective peaks, Kyajo Ri and Kusum Kanguru, indicated.**

As mentioned above in the INTRODUCTION the climbing area, and objective peaks, were selected based on a number of various contributing factors.

Firstly the Khumbu region is one of the most popular tourist destinations in Nepal, with tens of thousands of trekkers and climbers travelling to the area annually, and is primarily serviced by the cultural and tourist hub of Namche Bazaar. This influx of visitors has led to the development of a range of infrastructure to service the tourist population. And as a result it is comparatively straight forward for a climbing expedition to equip itself with supplies and services locally. This process can be further simplified by engaging a trekking agency, typically based in Kathmandu, to assist with organising and dealing with logistics locally.

A key component of this tourism infrastructure is the comprehensive network of well maintained trails that provide access throughout the region. This allows most peaks within the area to be reached with relative ease – although it should be noted that some more isolated areas, such as the Southern aspects of Kusum Kanguru, have no established trails and complicated route finding and trail clearing is required to gain access.

Both Kyajo Ri and Kusum Kanguru are classified by the Nepal Mountaineering Association (NMA) as Trekking Peaks. They are two of a group of thirty three peaks distributed throughout the country, primarily in the Everest and Annapurna regions, ranging from between 5550-6654m in elevation. Which have been set aside by the Nepalese Ministry of Tourism and the NMA to provide affordable and accessible mountaineering opportunities in the Himalaya, without the typically hefty permit costs associated with high altitude climbing. This

comparatively low peak permit cost, of US\$500 and US\$300 for Kyajo Ri and Kusum Kanguru respectively as opposed to US\$600 for a typical peak in the 6000-6500m elevation range, was a large contributing factor in selecting the objective peaks. As from the outset the expedition was operating within a very limited budget range. In addition the Garbage Deposit, a compulsory requirement for all Trekking and Expedition peaks in Nepal, is also significantly lower for the designated Trekking Peaks. And finally the height of the peaks was ideally suited to our requirements as typically the expedition members only had limited experience climbing at altitude and we wanted to limit the detrimental affects of this.

Even though they are categorised as Trekking Peaks both Kyajo Ri and Kusum Kanguru offer the potential for highly technical routes on several aspects and Kusum Kanguru in particular presents a formidable climbing challenge from all approaches. This combination of accessibility, affordability, and the promise of technically challenging climbing on potential new routes at a moderate altitude provided the perfect objective solutions for a light weight and low budget expedition such as ours.

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## EXPEDITION MEMBERS

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### Expedition Leader:

**Name:** Ben Dare  
**Age:** 27

### Experience:

With over five years climbing experience in New Zealand, Ben has climbed extensively in both the North Island, on Mounts Ruapehu and Taranaki, and throughout the Southern Alps. Since relocating to Queenstown in 2008 he has been able to develop his technical climbing skills on a range of ice, mixed and rock routes in the Queenstown and Wanaka regions as well as in the greater ranges. This has led to, and helped develop, a desire to explore and attempt long technical and committing alpine routes.

### Climbing highlights:

First ascents of new routes on the South face of Mt Earnslaw (Mount Cook alpine grade 5+, solo), the West face of Mt Earnslaw (Mount Cook alpine grade 4, solo), the West face of The Remarkables (mixed grade M4, WI3, solo), the South face of Mt Tutoko (Mount Cook alpine grade 4) and the South face of Malte Brun (Mount Cook alpine grade 4+). As well a number of classic alpine routes including the South face and Coxcomb ridge of Mt Aspiring (Mount Cook alpine grade 4, solo) and the second ascent of *Lust For Life* on the South face of Mt Barnicoat (Mount Cook alpine grade 5+).

Two seasons winter mixed and ice climbing in The Remarkables range with numerous ascents of "traditional" mixed routes up to grade M6. New routes on the South face of Single Cone (grade M4+, rock grade 17, solo and rock grade 18), the West face of Single Cone, *Fire in the Sky* (grade M6, solo), *Stairway to Methven* (grade M5) and the Southwest spur of Single Cone (rock grade 17). As well as waterfall ice routes up to grade WI5.



**Ben Dare. Photo Mike Rowe.**

**Name:** Mike Rowe  
**Age:** 27

**Experience:**

Mike is a NZMGA trainee climber guide and is extremely enthusiastic about spending time in the mountains. He enjoys this time in a number of different disciplines: Ski touring, snow kiting, rock climbing, ice climbing and general mountaineering. Mike has climbed extensively in the Southern Alps over the past five years as well as abroad.

**Climbing highlights:**

First ascent of new routes on the West face of The Remarkables (Mount Cook alpine grade 4) and the South face of Malte Brun (Mount Cook alpine grade 4+). In addition to several classic alpine climbs including the South face of Douglas peak (Mount Cook alpine grade 5+), South face of Mt Cook (Mount Cook alpine grade 5), and the Balfour face of Tasman (Mount Cook alpine grade 5).



*Mike Rowe. Photo Steven Fortune.*

Over 60 days rock climbing at Australia's Mt Arapiles in the past two years.

2007 expedition to the Peruvian and Bolivian Andes, climbing a number of 6000m peaks including ascents of Alpamayo (5,947m) and Chopicalqui (6,354m).

Mike has made numerous trips to Wye creek to climb waterfall ice up to WI5. While ski touring on both sides of the main divide has given Mike the experience to back up his guiding avalanche qualifications. And he recently completed a ski descent of the Northwest face of the Minarets.

**Name:** Steven Fortune  
**Age:** 31

**Experience:**

Steven has over twelve years outdoors experience tramping and alpine climbing in New Zealand. He has a passion for climbing large technical mixed faces and has experience on such climbs in the European Alps and Alaska. Prior to departing for Nepal Steven was based in Scotland for several years which provided an excellent opportunity for improving technical climbing skills on rock, mixed and ice routes, and lead to a natural progression and desire to apply these skills to big faces in Nepal.

**Climbing highlights:**

First ascent of the South face of Mt McKerrow (Mount Cook alpine grade 4), second ascent of the North buttress of Mt



*Steven Fortune. Photo Ben Dare.*

Hopkins (Mount Cook alpine grade 5), ascents of several classic alpine routes including the South face of Douglas Peak (Mount Cook grade alpine 5+) and the Hooker face of Mt Cook (Mount Cook alpine grade 4).

Three seasons Scottish Winter Climbing: numerous routes up to Scottish grade VII, including *Darth Vader* - Ben Nevis, *Central Buttress* - Stob Coire nan Lochan and the first ascent of *Postal Strike* - Creag Meagaidh.

Experienced rock climber, up to UK grade E4. Climbed on numerous mountain crags in New Zealand and throughout Europe.

Climbed waterfall ice routes up to grade WI6 (*Repentance Super* - Cogne).

Successful trips to the European Alps, climbing the Grandes Jorasses (4208m) North face via the Croz Spur (IFAS grade ED) and the *Colton-MacIntyre* route (IFAS grade ED2).

2009 expedition to Alaska, climbing Mt Hunter (4442m) via the North Buttress (Alaskan alpine grade 6).

All team members are of New Zealand nationality.

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## ITINERARY

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The expedition members all met in Kathmandu on the 30<sup>th</sup> of March 2011. Both Ben Dare and Mike Rowe made the journey to Nepal from New Zealand while Steven Fortune joined the group from Edinburgh, Scotland. The duration of the expedition lasted until the 3<sup>rd</sup> of May when the group flew back from Lukla to Kathmandu.

A detailed itinerary of the expedition is given below:

|  |   |
|--|---|
| Day 01 _ (April 1 <sup>st</sup> ):                           | Fly to Lukla from Kathmandu.  |
| Day 02 _ (April 2 <sup>nd</sup> ):                           | Trek to Manjo.  |
| Day 03 _ (April 3 <sup>rd</sup> ):                           | Trek to Namche Bazaar.  |
| Day 04 _ (April 4 <sup>th</sup> ):                           | Rest day in Namche Bazaar.  |
| Day 05 _ (April 5 <sup>th</sup> ):                           | Trek to Phortse Thanga.   |
| Day 06 _ (April 6 <sup>th</sup> ):                           | Trek to Machermo.   |
| Day 07 _ (April 7 <sup>th</sup> ):                           | Trek to Kyajo Ri base camp and return to Machermo.  |
| Days 08/09 _ (April 8 <sup>th</sup> -9 <sup>th</sup> ):      | Rest days at Kyajo Ri base camp.  |
| Days 10/12 _ (April 10 <sup>th</sup> -12 <sup>th</sup> ):    | Climbing period to attempt the Southwest ridge as an acclimatization climb and to investigate the proposed descent route. |
| Days 13/14 _ (April 13 <sup>th</sup> -14 <sup>th</sup> ):    | Rest days at Kyajo Ri base camp.  |
| Day 15 _ (April 15 <sup>th</sup> ):                          | Climbing period to attempt new route on Northeast face. Abandoned due to poor snow conditions.                            |
| Day 16 _ (April 16 <sup>th</sup> ):                          | Trek to Dole.   |
| Day 17 _ (April 17 <sup>th</sup> ):                          | Trek to Namche Bazaar.  |
| Day 18 _ (April 18 <sup>th</sup> ):                          | Trek to Thado Khoshi.   |
| Days 19/20 _ (April 19 <sup>th</sup> -20 <sup>th</sup> ):    | Trek to Kusum Kanguru base camp.  |
| Day 21 _ (April 21 <sup>st</sup> ):                          | Climb to Kusum Kanguru high camp below the Southwest face and return to base camp.  |
| Day 22 _ (April 22 <sup>nd</sup> -30):                       | Rest day at Kusum Kanguru base camp.  |
| Days 23-25 _ (April 23 <sup>rd</sup> -25 <sup>th</sup> ):    | Kusum Kanguru high camp. Return to base camp on the 25 <sup>th</sup> .  |
| Days 26-27 _ (April 26 <sup>th</sup> -27 <sup>th</sup> ):    | Rest day at Kusum Kanguru base camp.  |
| Days 28-31 _ (April 28 <sup>th</sup> -May 1 <sup>st</sup> ): | Climbing period to attempt new route on the Southwest face.   |
| Day 32 _ (May 2 <sup>nd</sup> ):                             | Trek to Lukla.  |
| Day 33 _ (May 3 <sup>rd</sup> ):                             | Fly Lukla to Kathmandu.   |



In addition to the initial thirty three expedition days a flexible timeframe was negotiated with the trekking agency with which we were travelling to allow for the ability to extend the expedition duration by up to an extra week to compensate for any delays that may have arose. To ensure that this was possible we delayed our flights out from Kathmandu until the 11th of May. Ultimately this extension of the expedition was not required and we returned on the initially specified date of the 3<sup>rd</sup> of May.

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## **MOUNTAINEERING OBJECTIVES**

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The Zealand Solu Khumbu Alpine Style Expedition had two primary mountaineering objectives; these were to attempt to climb new technical mountaineering routes on Kyajo Ri and Kusum Kanguru in light weight alpine style.

After selecting the objective peaks for the expedition a range of various sources were used to research the established existing routes on the peaks, the potential for any new climbs, the best way to access our proposed base camp sites, as well as any additional supporting information on aspects such as permits and sourcing local supplies etc. The bulk of this research was done online and a number of very helpful websites were used. The following websites were particularly helpful when it came to finding information relating to:

Trekking Peaks in Nepal –

[http://www.nepalmountaineering.org/nma\\_peaks.php](http://www.nepalmountaineering.org/nma_peaks.php)

[http://www.visitnepal.com/getaway/nepal\\_peaks\\_climbing/list\\_of\\_peaks.htm](http://www.visitnepal.com/getaway/nepal_peaks_climbing/list_of_peaks.htm)

Expedition Peaks in Nepal –

<http://www.expeditionnepal.com/expedition/mountain-list.php>

<http://www.trekkingencounters.com/expeditions/expeditions/nepal-expeditions.html>

Existing routes on the objective peaks –

<http://aaj.americanalpineclub.org/>

[http://www.adventurefairsteps.biz/mountaineering/kusumkanguru\\_details.htm](http://www.adventurefairsteps.biz/mountaineering/kusumkanguru_details.htm)

<http://www.thebmc.co.uk/News.aspx?id=3486>

<http://www.climbing.com/news/hotflashes/nepalfas/>

<http://www.summitpost.org/sw-ridge-first-recorded-ascent-of-the-mountain/169080>

Satellite images and maps of the Khumbu region –

<http://www.google.com/earth/index.html>

<http://maps.google.com/>

In addition to the research conducted online contact was made with a number of individuals who had either had previous experience climbing on the objective peaks – or on expedition climbing in the Himalaya in general. Stephen Venables was extremely helpful when it came to providing a range of information on all aspects of the Southwest face of Kusum Kanguru while Craig Jefferies, Graham Zimmerman, Penny Goddard and Rob Addis all gave valuable insights on Himalayan expedition climbing from a New Zealand perspective.

### **KYAJO RI**

At 6186m Kyajo Ri is the highest peak within the Khumuche Himal and is situated in the heart of the Sagarmatha National Park. However it was not until 2002 that the Nepalese Ministry of Tourism officially opened the peak to climbers. And hence it only has a very short and limited mountaineering history; with only two established routes to the summit - via the Southwest

and Southeast ridges. While all previous successful ascents, and the vast majority of attempts, have been focused on the Southern side of Kyajo Ri the Northern aspects of the peak have largely remained untouched. And only a small number of expeditions to date have ventured onto the steep North and Northeast faces – with the only successful climb being made by the Italian pair of Enrico Bonino and Nicolas Meli in 2010 on the Northeast face to a high point on the North ridge before descending without reaching the summit. Our proposed new route was to follow the lower section of the Italian route before branching off directly to the summit as opposed to topping out on the ridge. The North ridge itself also remains unclimbed and presents a worthy challenge for future expeditions.



***The Northeast face of Kyajo Ri. Photo Ben Dare.***

Access to the peak was gained from the village of Machermo in the Gokyo valley. There is a clearly marked trail, with cairns, leading to the prominent terrace below the base of the Northeast face on which our base camp was established at a height of 5050m. Note that more specific details of the access routes used to gain the base camp sites for each peak is given below in TRAVEL AND TRANSPORT.

The first climbing excursion of the expedition was an attempt on the standard Southwest ridge route of Kyajo Ri, which reached a maximum height of approximately 6000m. The summit bid however was abandoned and the team retreated due to deteriorating weather conditions and an injury to Ben Dare – who was struck on the hand by falling ice. To access the Southwest ridge we first had to climb over the Southeast col (5500m) at the base of the ridge to gain the slopes above the Kyajo Ri glacier and below the South face. As reported by previous parties conditions on the glacier to access the col at the base of the Southeast ridge appear to be deteriorating, with significant steps encountered at both the head and toe of the glacier. While the lower step was easily negotiated via a moderate ice gully the upper step presented significantly more difficulty. The direct approach to the col itself was barred by a slightly overhanging rock wall some 40m in height. We avoided this obstacle by climbing a pitch of steep mixed ground left of the overhangs before traversing back right into the prominent snow gully leading to the col itself. The descent was made by rappelling directly down from the col – established anchor points can be identified by a number of old slings left insitu. Progress on

the glacier itself was straightforward and while some crevasses were visible they were avoided without difficulty.

From the col, where previous parties had first descended to the Kyajo Ri glacier before re-ascending to the Southwest ridge, we followed an alternative route to access the col at the base of the ridge by traversing directly under the South face. No technical climbing was encountered on the traverse however some route finding was required to descend into the gully leading up from the Kyajo Ri glacier to the col. We established a well sheltered camp site at the mid-way point of the traverse at a height of approximately 5550m. It was also noted during the traverse that there is the possibility for potential new direct mixed routes on the South face. However some sections of rock on the face appeared to be of dubious quality and would require significant ice to be climbed safely.

Conditions on the Southwest ridge itself were favourable until beyond the prominent rock band above the col and consisted of moderately angled snow and ice slopes. The rock band itself also presented little difficulty and was climbed in two pitches through non-technical mixed ground. Above this however continuous slopes of brittle 'dinner plating' ice were encountered which slowed progress considerably. While not very steep, with a maximum angle of approximately 60-65 degrees, the climbing was very taxing and following the injury to Ben Dare and with steadily worsening weather the decision was made to abandon the climb. The descent was made by rappelling off v-thread anchors until the rock band where fixed anchor points were found from previous parties.

The attempt on the Northeast face was undertaken by a climbing team of two, Steven Fortune and Mike Rowe, after Ben Dare was forced to withdraw due to his injured hand and severe migraine headaches. During the attempt a maximum height of approximately 5700m was attained on the upper face, above the lower hanging glacier, before continuous spindrift avalanches forced the pair to retreat. The prominent gully up which the route lead acted as a funnel for snow accumulated on the upper reaches of the face and became unsafe to climb when further snow began to fall – which in turn triggered the avalanche activity.



***Ben Dare on the col at the base of the Southeast ridge on Kyajo Ri. Photo Steven Fortune.***



***Mike Rowe ascending the lower Southwest ridge of Kyajo Ri. Photo Steven Fortune.***



***Mike Rowe climbing on the Northeast face of Kyajo Ri. Photos Steven Fortune.***

Access to the upper face was gained following a right to left rising traverse under the terminal ice fall at the base of the hanging glacier. Conditions through, and around, the ice fall appeared to have improved from those encountered by the previous Italian party in 2010, who were forced to avoid the ice fall and climb a direct line through the adjacent rock bluffs further to the right. And while steep ice was encountered at the base of the face the gradient soon relented and the ice gave way to snow slopes on the upper traverse and hanging glacier itself. However due to the accumulation of recent snowfall – at times up to waist deep – upward progress was extremely difficult and strenuous. Above this the terrain again steepened and began to lead into the gully line that the proposed route intended to follow. And although from a distance conditions appeared to be promising the team experienced significantly less ice on the upper face than was anticipated. Instead they found large sections of bare rock to be visible, typically covered with unstable powder snow, and only limited sections of thin ice were present.

It should also be noted that the lower section of the route climbed, to the level of the hanging glacier, would provide access to the unclimbed North ridge.

## ***KUSUM KANGURU***

Kusum Kanguru, 6367m, is located in the Charpati Himal just beyond the border of the Sagarmatha National Park and is on the boundary of the adjoining Makalu Barun National Park.

The first ascent of the peak was achieved in 1979 via the Southeast face and Northeast ridge by a Japanese expedition of Takeshi Kanazawa, Hideako Naoi, Hajime Vematsu, Mansanori Miyano and Tomooh Toyoda and followed four previously unsuccessful attempts by British, New Zealand and two prior Japanese expeditions. Since then all of the major faces and ridges have had routes established on them, none of which presents an easy climb to the summit.

The strikingly steep Southwest face has for years awed and inspired climbers and trekkers alike as they travel the route into the Everest region between Lukla and Namche Bazaar.

However due to the committing nature of the approach up the Thado Khoshi Khola gorge and its close proximity to several of the worlds highest peaks it has largely escaped the attention of dedicated climbing parties. The 1400m high face offers a mixture of technical mixed climbing on rock, snow and ice directly to the main summit. And to date has only one existing route - which skirts the right-hand edge of the face before hitting the base of the prominent step in the South Ridge. This step known as 'The Dream Pillar' was first climbed by the highly talented British pairing of Stephen Venables and Dick Renshaw in 1991. The first ascent of which earned the team a nomination for the coveted Piolets d'Or, or "Golden Ice Axe", the highest award available to international alpine climbers in recognition for their efforts. The peak also holds special significance in New Zealand Himalayan history as it was the scene of an impressive first ascent by the legendary alpinist Bill Denz who completed a solo traverse of the three main peaks, via the Southwest Buttress and West Face, in 1981.



*The Southwest face of Kusum Kanguru. Photo Steven Fortune.*

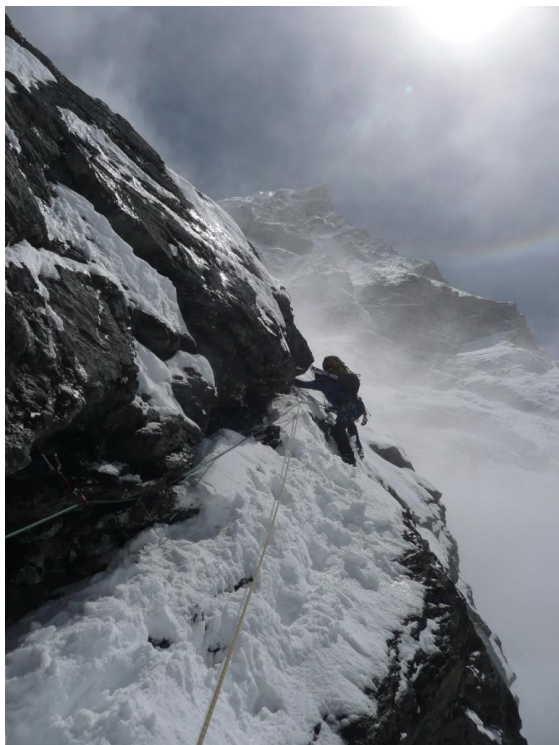
Access to Kusum Kanguru was gained up the Thado Koshi Khola, as per previous expeditions, and our base camp was established above the tree line at approximately 3850m.



*The stark contrast in conditions on the Southwest face of Kusum Kanguru throughout the time spent at the mountain. Photos Mike Rowe, left, and Ben Dare, right.*



***Mike Rowe, upper climber, and Ben Dare ascending snow slopes on the lower Southwest face. Photo Steven Fortune.***



***Ben Dare leading on the second pitch of the rock rib. Photo Steven Fortune.***

When the expedition first arrived at base camp the Southwest face was very bare and almost completely devoid of snow and ice - then followed a sustained period of snowfall which covered the face with a thick coating of unconsolidated and unstable powder snow. This in turn led to widespread avalanche activity and poor climbing conditions on the upper face. Without these poor conditions it is the belief of the team that the proposed direct line up the centre of the face would be climbable. A gully line just left of centre on the face contained significant amounts of ice and could likely provide a feasible start to the route and access to the upper face. Above the lower section of the gully there appeared to be two realistic alternatives, firstly to continue to follow the prominent gully line or secondly to traverse onto the central rib directly below the main summit. Both of which would ultimately lead to a point at approximately two thirds height on the face, from where options were evident both to the right, directly to the Central summit, and left, to a headwall between the Central and West summits, of the upper gully section. It was noted that there was no evidence of recent significant rockfall down any of the prominent gullies on the face – as been reported by previous expeditions. There is also potential for an appealing line to follow the prominent prow of the left-hand, or West, buttress/pillar to the West Peak.

All attempts at the proposed new direct line were however abandoned due to the high level of avalanche activity occurring on the face as a result of the recent snowfall – especially down the lower left-hand gully line. The team made three separate climbs to our high camp site at 4900m, where we spent several days waiting in vain for conditions to improve. Consequently an alternative objective was attempted up the far left of the face to the Northwest ridge below the West peak. The line climbed followed the right-hand most of three rock ribs that lead to the col in the ridge below the West peak. Access to the rock rib itself was gained at a height of approximately 4800m via a series of interlinked snow and ice fields. The rib provided 1000m of mixed climbing to the ridge, with the lower section being on predominantly steep snow slopes while above the terrain steepened and was more mixed in nature. Where climbing up

grade M5 was encountered. Due to the abundance of fresh snow on the face the progress made was very slow and significant avalanche activity was witnessed in the gullies either

side of the rib we climbed. Upon reaching the ridge the climb was abandoned, because of dwindling food supplies and an imminent return flight from Lukla to Kathmandu, and the team did not attempt to progress up over the West Peak to the Central summit as was initially planned. The descent was made by rappelling down a wide gully, left of the route climbed, during the early morning when avalanche conditions were most stable. A suitable bivouac camp site was found on a narrow snow arête high on the rib at just below 5300m and was utilized on both the ascent and descent.



*Left, Steven Fortune on the central section of the rock rib. Photo Ben Dare. And right, Ben Dare on the final pitch to the Northwest ridge. Photo Steven Fortune.*

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## PERMISSION AND PERMITS

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As with all Expedition and Trekking peaks in Nepal a climbing permit was required by the Nepal Mountaineering Association (NMA) to attempt both Kyajo Ri and Kusum Kanguru. However as previously mentioned above in *DESTINATION AREA* both peaks are classified as Trekking peaks and as a result have significantly lower permit costs than other peaks of a similar height. The application for the climbing permits was made by the trekking agency engaged by the expedition – Parikrama Treks & Expeditions. Both of which were obtained without issue or delay. For reference to future expeditions to the area, the Trekking Agencies' Association of Nepal website gives details for all registered trekking agencies operating in Nepal:

[http://www.taan.org.np/member\\_directory](http://www.taan.org.np/member_directory)

In addition to the climbing permits the expedition members also required permits to enter the Sagarmatha National Park, US\$20 per person, and tourist visas to enter Nepal. Ninety day, multiple entry tourist visas were used by all at a cost of US\$100 per person. As with the climbing permits the Nation Park entry permits were applied for by Parikrama Treks & Expeditions while the tourist entry visas were applied for and granted at Tribhuvan International Airport upon entry into Nepal.

All of the expedition climbing equipment, with the exception of some minor items such as cord and webbing, was assembled prior to leaving and flown to Nepal. We found it both less

expensive and more convenient to transport all of the climbing equipment as additional luggage on the international flights as opposed to sending it over at an earlier date via air freight. And no problems were experienced with customs clearance when entering the country. We would recommend this approach to any other small scale and light weight expeditions similar to our own as an efficient, secure and cost effective method of bringing equipment into Nepal.

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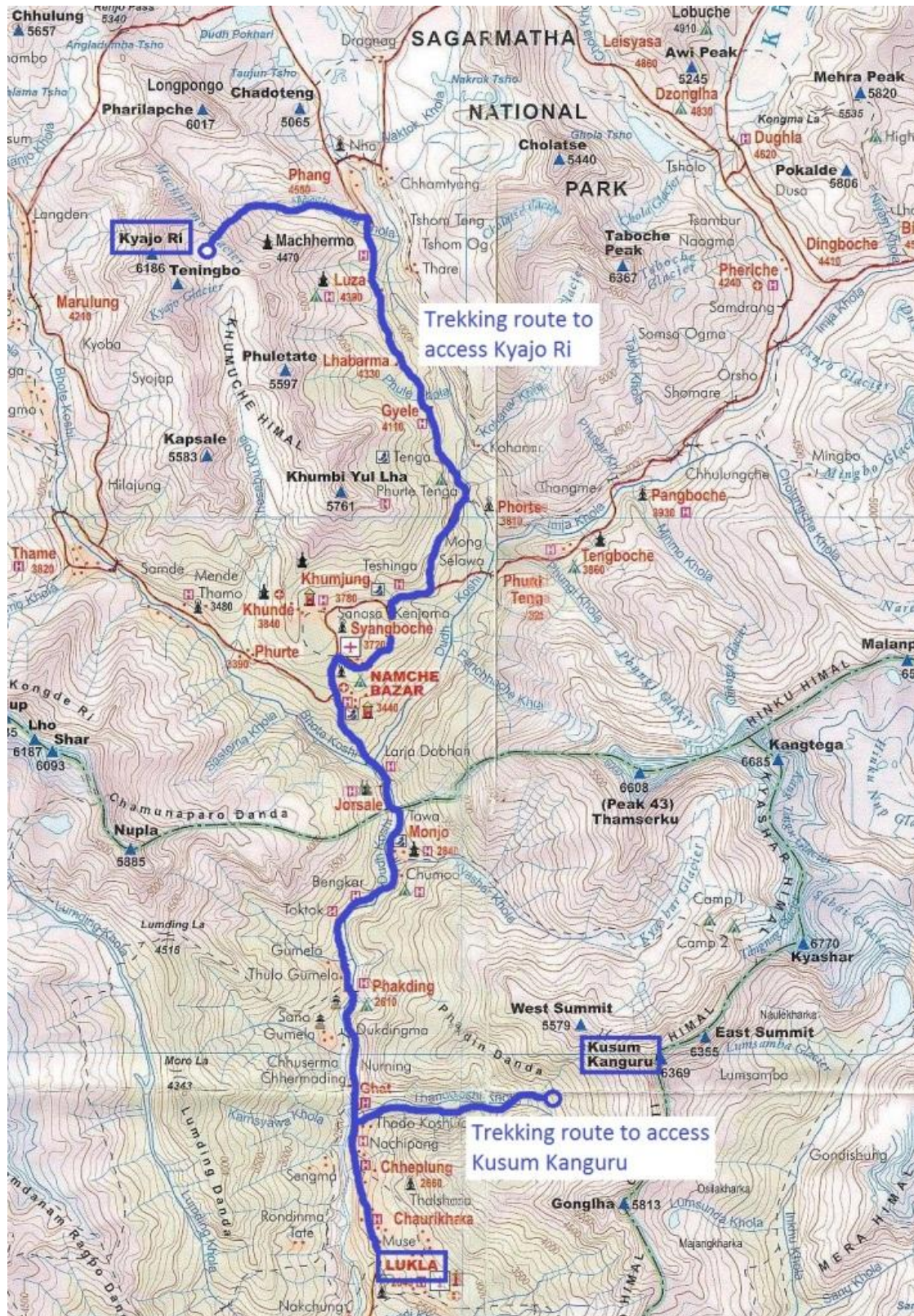
## **TRAVEL AND TRANSPORT**

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All three expedition members arrived in Nepal at Tribhuvan International Airport in Kathmandu. This is the only airport in the country that services international flights and they are readily available from most major cities in Asia. From Kathmandu we flew domestically to Lukla, which is the gateway to the Khumbu region. Note that even though there are regular services between Kathmandu and Lukla, and flights can be booked at short notice, it definitely pays to book in advance. As inclement weather often results in delayed flights, sometimes for a number of days, and long queues of passengers trying to board the next available flight form at the airport.

Beyond Lukla our trek into the mountains began and all further progress was made on foot using the well established trail that leads to Namche Bazaar and beyond. There is no vehicle access beyond Lukla and while there is an airfield at Namche Bazaar it is typically only used to transport freight and in the event of an emergency. In Lukla we also hired local porters to transport all of the expedition equipment and food – the actual sourcing of which had been carried out in advance by Parikrama Treks & Expeditions. And we found that the main trekking trails to Namche Bazaar and within the Gokyo valley provided good access to where we branched off to reach our base camp sites below Kusum Kanguru and Kyajo Ri respectively.





**Trekking routes used to access Kyajo Ri and Kusum Kanguru.**

After trekking up the Gokyo valley from Namche Bazaar to the village of Machhermo, access to the Kyajo Ri base camp site was gained via a clearly marked trail leading up from the village. The trail itself begins at the rear of the village, near the medical centre on the true left of the

Macherma Khola, and leads to the prominent terrace below the base of the Northeast face where the camp was established at a height of 5050m.



***Access route to the Northeast face of Kyajo Ri.***

While the Southwest face of Kusum Kanguru was accessed via the Thado Khoshi Khola from the Dudh Koshi River valley and the village of Thado Khoshi on the main trekking route between Lukla and Namche Bazaar. As with previous expeditions to visit the valley it was noted that logging within the lower sections has opened a series of well established trails leading up the valley, starting out on the true left, which give easy access to the higher reaches of the river. Above this there are no clear paths and our progress slowed, but was greatly helped by the assistance of a local guide that we hired in Thado Khoshi – who had previously been up the valley. A time of two days was taken to reach base camp at a height of 3850m. After the first day we established an intermediate camp on the true right bank under a prominent rock overhang at a fork in the river. Before following the, main, right-hand branch the following day and cutting up into the bamboo forests, on the true right, when the river became gorgy. Evidence of a previously established base camp at just over 4000m was subsequently discovered and appeared to be in a more suitable location. If any future parties are wishing to make further attempts on the Southwest face it is strongly recommended that a local guide is used to assist with gaining access up the Thado Khoshi Khola to base camp.



***Accessing the Northeast face of Kyajo Ri, left, and the Southwest face of Kusum Kanguru, right.  
Photos by Steven Fortune.***



*Access route to the Southwest face of Kusum Kanguru.*

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## FOOD AND ACCOMMODATION

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While trekking between our base camp sites we stayed at a range of tea houses and lodges. These can be found in abundance along the main trails and provide trekkers with both budget accommodation and a selection of food - breakfast, lunch and dinner. After leaving the main trails and climbing to our base camp sites we stayed in tents, comprised of a combination of those provided by Parikrama Treks & Expeditions and those brought by the expedition members. During our time at base camp the trekking agency also provided a cook and we predominantly ate local food – the majority of which had been purchased in Kathmandu prior to departure. When we climbed above base camp and established high camps all three climbers stayed in a single two man tent which we had brought to Nepal with us. And typically ate more specialist mountain foods that had been purchased in New Zealand and brought to Nepal - supplemented with additional supplies purchased in Kathmandu and Namche Bazaar. These specialist foods consisted of dehydrated meals, muesli and energy bars, chocolate, sweets, nuts and gels.

Throughout the expedition we found water supplies to be plentiful and to originate from a range of sources. While trekking between base camp sites we typically drank water from the lodges – treated either with a Steri-pen or chorline tablets – or hot tea. And when selecting our base camp locations we took special care to ensure that there was a supply of fresh running water within close proximity. While climbing all drinking water was obtained by melting snow and or ice.

Fuel for cooking was also readily available in the main centres and we were able to purchase gas in Kathmandu, Lukla and Namche bazaar to be used while we were climbing. Fuel for the kerosene stove that was used while at base camp was also easily sourced.

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## COMMUNICATION

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Prior to departing from New Zealand all correspondence with our contacts in Nepal was undertaken via email. This proved to be a very efficient and cost effective method of communication. When in Nepal we had intended to use mobile phones and wireless internet, using the same mobile network, as our main communication channels. This decision was based on information received from previous parties who had visited the region, and the local

mobile phone network provider, that there was extensive network coverage in the areas we were planning to visit and replaced our initial intention to use a satellite phone. This however did not always prove to be the case and the coverage was not as extensive as first anticipated. While trekking along the main trails we found that the network coverage was typically reliable but when we ventured off the trails to access our base camp sites the limits of the coverage quickly became apparent. Especially at the Kyajo Ri base camp, where we did not receive any coverage, while at the Kusum Kanguru we only received limited and sporadic coverage. Based on our experiences we would recommend that if future expeditions to the region desire to be able to maintain reliable contact with external parties when away from the main trails then they would be best to use a satellite phone.

We also found that the only reliable locations where landline phones, internet and mail facilities could be found were in Namche Bazaar and Lukla. This was also the case for power supply to charge portable electronic devices and computers etcetera.

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## FUNDRAISING AND FINANCES

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Compiling an estimate of the likely costs for the expedition was one of the first main tasks undertaken once the objective peaks and nature of the climbing to be used during the attempts was decided - as these aspects were two of the largest variables that could impact on the final expedition cost. Firstly the size and location of the objective peaks dictated the permit fees and accessibility. And secondly the nature in which we were to attempt our climbs would also have a significant impact on the associated cost - in general light weight alpine style expeditions are considerably cheaper than the traditional siege type expeditions. However from the very outset it was not expected that the expedition would be fully funded and it was assumed that significant personal contributions would also be required. And we are very grateful for the generous contributions that we received.

Once an estimate of the likely costs was established then the task of trying to raise sufficient funds was started. This was approached from a number of different angles. Initially a number of established organizations, those offering specific mountaineering expedition grants, were approached. This brought about typically favourable results and was by far our most productive source of income; bringing in significant contributions from Sport and Recreation New Zealand, the New Zealand Alpine Club and the Mount Everest Foundation. Of particular use, and a valuable source of information for future New Zealand based expeditions, was the list of potential funders located on the Climbing Overseas page of the New Zealand Alpine Club website:

<http://alpineclub.org.nz/climb/overseas>

Following this a number of smaller private organizations were contacted. As opposed to the first group, who were offering dedicated funding grants, this second group was typically comprised of companies who supplied equipment or supplies that would be required for the expedition. The outcome of this second round of applications was not as successful as the first but nonetheless still resulted in valuable support from Icebreaker, in the form of baselayer clothing, and nutritional supplements from Leppin Sport - through their parent company the Voyager Group Ltd. In addition to the above mentioned supporters the existing personal sponsorship arrangement between Ben Dare and Iclimb provided a range of climbing equipment and clothing for the expedition.

In order to manage the expedition finances a dedicated bank account was opened in New Zealand into which all funding contributions were deposited. When payments were required to be made then the necessary funds were transferred, either domestically or internationally, as required.

A summary of the expedition finances, income and expenditure, is given below:

For clarity NZ\$1.00 = approximately GBP£0.49

| <b>EXPEDITION EXPENDITURE</b> |   |                 |
|-------------------------------|---|-----------------|
| ITEM                          | COMMENT   | COST (NZ\$)     |
| Travel                        | International travel<br>Domestic travel   | \$6,666         |
| Accommodation                 | Hotel in Kathmandu  | \$257           |
| Trekking agency expenses      | Peak permits<br>Porters (incl. insurances)<br>Accommodation in trekking lodges (incl. meals)<br>Liaison officer/trekking guide<br>Cook (incl. food, fuel & equipment)<br>NMA Garbage Deposit<br>Agency fees | \$12,986        |
| Equipment                     | Climbing equipment<br>Clothing  | \$6,402         |
| Insurance                     | Climbing insurance from the New Zealand Alpine Club   | \$1,688         |
| Food/meals                    | Base camp/trekking food<br>Mountain/climbing food<br>Food/meals in Kathmandu  | \$1,766         |
| Medical supplies              | Customised medical kit (incl. altitude drugs)<br>Inoculations   | \$1,155         |
| Communication                 | Internet access<br>Phone calls  | \$157           |
| Sundry                        | Marketing<br>Tipping<br>Laundry   | \$1,168         |
|                               | <b>TOTAL EXPENDITURE</b>  | <b>\$32,245</b> |

| <b>EXPEDITION INCOME</b>         |  |                 |
|----------------------------------|--|-----------------|
| SOURCE                           | COMMENT  | INCOME (NZ\$)   |
| Mount Everest Foundation         | All contributions are in the form of monetary payments UNO | \$1,531         |
| Sport and Recreation New Zealand |  | \$10,000        |
| New Zealand Alpine Club          |  | \$2,000         |
| Icebreaker NZ                    | Provided base layer clothing                               | \$600           |
| Leppin Sport                     | Provided nutritional supplements                           | \$128           |
| Iclimb                           | Personal gear sponsor of Ben Dare                          | \$2,212         |
|                                  | <b>TOTAL INCOME</b>  | <b>\$16,471</b> |

|   |                  |
|---|------------------|
| <b>EXPEDITION FINANCIAL BALANCE (<i>Income minus expenditure</i>)</b> | <b>-\$15,774</b> |
|---|------------------|

Note that this deficit in the final expedition balance was made up for by personal contributions made by the individual expedition members. In addition, a significant proportion of the

climbing equipment used during the expedition consisted of existing equipment already possessed by the expedition members and is not included in the budget figures above.

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## **RISK AND HAZARDS**

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Prior to departing for Nepal a comprehensive Risk Management and Environmental Impact Plan was prepared as part of the funding agreement with Sport and Recreation New Zealand - a copy of which can be found attached as Appendix 1. This outlined and assessed all of the potential risks and hazards that the expedition could be exposed to and highlighted the steps in place to mitigate against them.

When identifying the potential risks they were categorized into two broad groups. The first addressed those risks that were specifically associated with the climbing phases of the expedition and covered both objective risks related to altitude, temperature and terrain and subjective risks such as climber competence and fitness, and equipment. While the second category was focused more on generalized and non-climbing related risks including political instability, loss of equipment, travel delays, sickness/injury and weather conditions. More detailed coverage of the identified risks and the associated mitigation strategies can be found in sections A: MAJOR RISKS IDENTIFIED and B: RISK MITIGATION STRATEGIES of Appendix 1. To compliment the steps taken towards avoiding the recognized risks the climbing members of the expedition were all covered by comprehensive mountaineering insurance policies, with full rescue and recovery coverage, taken out from the New Zealand Alpine Club and underwritten by ACE Insurance Ltd. We found that the coverage offered was very comprehensive, the club was very easy to deal with and the price was extremely competitive. All non-climbing members, those employed directly by Parikrama Treks & Expeditions, were also covered by an independent insurance policy taken out by the trekking agency.

In addition to the identification and mitigation of risks the Plan also encompassed the emergency support contact details for the expedition and its members, both in Nepal and in New Zealand. And the methods by which the expedition team could raise the alarm and communicate externally in the event of an emergency as well as a detailed inventory of all expedition equipment. Further to this it also covered first aid and medication supplies and environmental impact reduction strategies, both of which are covered below in MEDICAL ARRANGEMENTS and ENVIRONMENTAL AND SOCIAL IMPACTS respectively.

On the whole the Risk Management and Environmental Impact Plan was an effective means by which to recognize and prepare for the various risks that we were likely to encounter during the expedition. And with the gift of hindsight there are very few aspects that would need to be refined and altered following our experiences in Nepal. The only key facet that did have obvious room for improvement was the way in which we communicated and received weather forecasts while in the more remote areas where mobile network coverage was limited. On the main trails, and in Lukla and Namche Bazaar, this proved to be an efficient way of staying informed however a satellite phone would have been vastly more effective at our base camp sites – as was originally intended.

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## **MEDICAL ARRANGEMENTS**

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All three climbing team members have completed various levels of outdoor first aid and mountain safety training. In particular Mike Rowe is a qualified New Zealand Mountain Guide Association trainee climbing guide with additional advanced first aid qualifications including training in Pre-Hospital Emergency Care. He is also a member of the West Coast Alpine Cliff Rescue (ACR) team, a division of the Land Search and Rescue, and has completed SARINZ courses in Foundation Rope Rescue, Vertical Rope Rescue and Advanced Rope Rescue. While Steven Fortune has completed New Zealand Mountain Safety Council Wilderness First

Aid Alpine 1 training and Ben Dare is a member of the Wakatipu Land Search and Rescue (SAR) team and has completed St Johns Outdoor First Aid training.

In addition to the above prior training completed before leaving for Nepal the team also completed a series of inoculations against local endemic diseases and infections, such as Hepatitis A, Hepatitis B, Typhoid, and Polio before departing, and took with them a comprehensive first aid medical supply kit. A full record of which can be found in Section F: EXPEDITION FIRST AID/MEDICATION LIST of the Risk Management and Environmental Impact Plan attached as Appendix 1. Also when climbing at altitudes in excess of 5000m the climbing team took Acetazolamide (Diamox) as preventative treatment for acute mountain sickness and to assist with the acclimatization process.

Throughout the duration of the expedition none of the members, both climbing and support, experienced any serious accidents or illness. Some minor injuries and sickness were encountered, such as the injury to Ben Dare's hand, but these were all fully recovered from during the expedition.

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## **ENVIRONMENTAL AND SOCIAL IMPACTS**

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One of the key focal points of the expedition planning from the very outset was trying to ensure that, as an expedition team, we had the ability to function effectively while maintaining the ability to guarantee that any potential environmental impacts were kept to an absolute minimum. This was sustained throughout all phases of the expedition and the guidelines established in the Risk Management and Environmental Impact Plan, refer section H: ENVIRONMENTAL IMPACT REDUCTION STRATEGIES of Appendix 1, were followed as closely as possible. This was done by removing any excess packaging from all food and equipment before entering the mountains and by ensuring that all non-burnable rubbish was carried out with us and disposed of in an appropriate manner. In addition all human waste was buried well away from the site of any waterways and campsites were returned to as near as practically possible to their original state. And only a minimum of climbing equipment – slings and anchors left at rappel stations - was left on the mountains following our descent. The only incident we had with any of the above points is when leaving the site of the Kyajo Ri base camp we noticed that some of the expedition support staff had buried rubbish under rocks while we were away climbing. This however was quickly rectified and we ensured that it was carried down with us along with the remainder of our waste material.

Further to the above it is also a requirement of the Nepalese Mountaineering Association that all expeditions granted a climbing permit must first pay a Garbage Deposit of US\$250. This is to ensure that all waste material is removed from the mountains and in particular from base camp sites and is then refunded at the end of the expedition with proof that all rubbish was disposed of correctly. As part of our arrangement with Parikrama Treks & Expeditions they paid, and were refunded, the Garbage Deposit for both peaks.

In addition to the environmental interaction and impact of the expedition the team also had extensive contact with the local communities in Nepal – both socially and economically. Socially this gave the climbing team the chance to experience a diverse culture which differed significantly from our own - as for us all it was our first climbing expedition to Nepal. And we found that in all our contact and interactions with the local people they were very friendly and easy to deal with. We also made a point of only employing local staff, as opposed to those from an international organization or agency, to try to ensure that all economic contributions went, as much as possible, directly into the local community. This proved to be an effective way to operate – especially as we had no experience with sourcing local resources such as food, porters and guides. And also staying and eating at local tea houses and lodges was a low stress and cost effective way to manage accommodation and provisions while on the approach treks that further contributed to the local economy.

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## CONCLUSIONS

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The Solu Khumbu region of Nepal offers mountaineers the opportunity to climb on a vast range of peaks of varying height and technical difficulty. Amongst these are a number which are classified as Trekking peaks and can be climbed for a significantly reduced permit fee. Many of these Trekking peaks also possess the potential for new technical alpine routes on large unclimbed faces. The area is equipped with a well developed tourist infrastructure which offers relatively easy accessibility and an abundance of local resources and supplies with which an expedition can equip itself.

When preparing for the expedition to attempt new routes on Kyajo Ri and Kusum Kanguru it was found that the majority of preliminary research and planning could be efficiently conducted online - where an abundance of information relating to the available peaks, the potential for new routes and the various funding sources available could be sourced. And when the objective peaks had been selected engaging a local, Nepalese, trekking agency proved to be an effective and stress-free way to obtain climbing permits and acquire local resources such as porters and food - especially for expeditions without prior experience in the area. In addition preparing a comprehensive Risk Management and Environmental Impact Plan prior to departing for Nepal was an effective means of identifying and assessing the potential risks and hazards that the expedition could be exposed to and the steps that could be implemented to mitigate against them. It also provided the basis for compiling detailed lists of all equipment and medical supplies required and the ways by which to reduce the local environmental and social impacts of the expedition as a whole.

During the approach trek to our base camps below both Kyajo Ri and Kusum Kanguru stopping at local lodges and tea houses, which can be found in abundance along the main trails, was an effective way to provide both food and accommodation for the expedition members. Upon leaving the established trekking trails it was discovered that while access to the base camp site below the Northeast face of Kyajo Ri was relatively straight forward the use of a local guide is recommended when approaching Kusum Kanguru via the Thado Koshi Khola. And when attempting to communicate externally from within the Khumbu it was possible to use mobile phones and wireless internet during the approach phases but the network coverage was very limited, or nonexistent, at the base camp sites. Future expeditions are recommended to use a satellite phone as an alternative means of communication.

And while ultimately the Zealand Solu Khumbu Alpine Style Expedition was unsuccessful in its attempts to climb the originally proposed new direct alpine style routes on the Northeast and Southwest faces of Kyajo Ri and Kusum Kanguru respectively. Some consolation was gained by the potential new route climbed on the edge of the Southwest face of Kusum Kanguru as an alternative to the line that was initially intended. This lack of success on the proposed new routes can largely be attributed to the unseasonal weather conditions encountered. And as result the expedition team experienced significant avalanche activity on both faces which rendered the intended climbs unsafe to attempt.



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## **ACKNOWLEDGEMENTS**

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Firstly we would like to express our thanks to all of our sponsors and funders, whose support has been invaluable and without which the expedition would not have been able to proceed. The Mount Everest Foundation, Sport and Recreation New Zealand (SPARC), the New Zealand Alpine Club (NZAC), Iclimb, Icebreaker NZ and Leppin Sport - all of your contributions are greatly appreciated and it has been a pleasure to work with you. We are also eternally grateful to all those who assisted with the preliminary planning of the expedition, with giving information on our objective peaks, on climbing in the greater ranges and for providing assistance while we were in Nepal, Stephen Venables, Allan Uren, Anne Braun-Elwert, Craig Jefferies, Graham Zimmerman, Penny Goddard, Lindsay Griffin, Victor Saunders, Glenn Pennycook, Grant Guise, Rob Addis, Ben McLauchlan and all of the team at Parikrama Treks and Expeditions. And also a final thank you to all those who followed our progress in Nepal and offered their encouragement and support.

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## **APPENDIX**

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### **Appendix 1: Risk Management and Environmental Impact Plan**



2010 SPARC Hillary Expedition

**NEW ZEALAND SOLU KHUMBU  
ALPINE-STYLE EXPEDITION**

**RISK MANAGEMENT AND  
ENVIRONMENTAL IMPACT PLAN**

Prepared By:

A handwritten signature in blue ink, appearing to read "Ben Dare". The signature is written in a cursive style with some loops and flourishes.

Ben Dare  
February 2011

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## SECTION A: MAJOR RISKS IDENTIFIED

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When identifying and addressing the various risks associated with the expedition they will be separated into two main categories. The first of these categories will deal with those risks identified as being specifically related to the climbing phases of the expedition. And the second category will consist of more generalised risks that may occur during the time spent travelling to and from Nepal, and during the treks to and from base camps, it will also encompass other non-climbing related risks.

### A1: CLIMBING SPECIFIC RISKS IDENTIFIED

When climbing on our proposed new routes on Kusum Kanguru and Kyajo Ri there are a range of potential risks that have been identified. These have loosely been grouped into two sub-categories; objective risks and subjective risks. Objective risks are those that exist or occur without the influence of the climbing team and are inherent to the location of the climb, while subjective risks are those that relate directly to factors introduced by the climbers themselves.

#### Objective Risks:

- |                           |  |
|---------------------------|--|
| Acute Mountain Sickness – | Commonly referred to as altitude sickness and is the body's reaction to a lack of oxygen at high altitude, caused by ascending at a faster rate than a climber is acclimatized to. Typically occurs in one of two forms, High Altitude Cerebral Edema (HACE) and High Altitude Pulmonary Edema (HAPE). HACE involves a swelling of the brain which prevents it from functioning in the normal way. While HAPE is an excess fluid build up in the lungs, either in the lung tissue itself or in the space normally used for gas exchange, resulting in individuals being unable to perform gas exchange properly and get enough oxygen to function normally. Both forms of Acute Mountain Sickness can potentially be fatal.                      |
| Sun Related Injuries –    | Exposure to the sun and solar radiation increases significantly with altitude and the associated thinning of the atmosphere. This in turn can be further amplified by the effects of reflection from snow and ice. Common injuries related to exposure to excess solar radiation in alpine environments include, sunburn, sun stroke, snow blindness and dehydration.  |
| Cold Related Injuries –   | The often harsh and cold conditions encountered in alpine environments can lead to a range serious injuries; the most prevalent of which are frostbite and hypothermia. Frostbite sets in when the body is exposed to temperatures of, or below, zero degrees Celsius and involves the freezing of skin tissue and blood vessels in the extremities followed in extreme cases by freezing of deeper tissue and eventually bone. Hypothermia begins when the core body temperature drops below 35 degrees Celsius and can have fatal consequences if the core temperature is not raised. The onset and effects of both frostbite and hypothermia can be greatly enhanced by the presence of inclement weather such as snow storms and high winds. |
| Terrain Related Risks –   | The very steep nature of most alpine terrain means that they are often inherently unstable and constantly changing. As a result of this steep alpine faces are frequently prone to being swept by rockfall, icefall, and avalanches.   |

### Subjective Risks:

Subjective risks are directly related to and influenced by the actions and decisions a climber makes while on a mountain. These actions and decisions can be affected by a range of factors including:

- Fatigue/Fitness
- Technical difficulty of the terrain versus the ability of a climber
- Equipment
- Ignorance of route/conditions

The result of poor decision making and action taking increases the likelihood of an accident occurring such as a climber falling.

### **A2: GENERAL RISKS IDENTIFIED**

When not directly involved in climbing activities there are an additional range of risks that have been identified. These include:

Political Instability – The current political situation in Nepal, and in particular within the Khumbu region, is currently stable and is not considered to be a serious risk.

Government Bureaucracy – Delays in the issuing of tourist visas and peak permits.

Loss of Equipment – Climbing equipment, first aid equipment, tents, food etc.

Travel Delay – Delays in arriving in Nepal and while trekking to and from base camps.

Sickness/Injury – The sickness that we will have the highest risk of contracting during our time in Nepal is Diarrhea. This is typically caused by Giardia, Amoebic Dysentery, or food poisoning. Other potential health risks include endemic diseases such as Hepatitis A, Hepatitis B, Typhoid, and Polio, which have all been identified as being present in the areas we will visit. There is also the risk of sustaining an injury during the trek to and from the base camps.

Weather Conditions – This will be dealt with in two separate sections. The first will cover Approach Weather and the possibility of inclement weather conditions occurring while in Kathmandu, which could possibly delay flights to Lukla, and while trekking to and from base camps. The second section will deal with Mountain Weather conditions while on the peaks attempting our proposed routes, and the associated risks and possible delays.

The influence of adverse weather during the climbing periods is identified as been one of the greatest risks that the expedition is exposed to. For if conditions are unfavourable then they have the potential to render our objectives un-climbable. And if we do manage to launch an attempt and encounter poor weather the risk of exposure and cold related injuries such as hypothermia and frostbite, as detailed above in section A1: CLIMBING SPECIFIC RISKS IDENTIFIED, will be significantly increased.

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## **SECTION B: RISK MITIGATION STRATEGIES**

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As above in SECTION A: MAJOR RISKS IDENTIFIED the mitigation strategies for the various risks identified shall be separated into two main categories, climbing specific risks and general risks.

### **B1: CLIMBING SPECIFIC RISK MITIGATION**

#### Objective Risks:

- Acute Mountain Sickness – The key to reducing the risk of contracting Acute Mountain Sickness will be to ensure that we have had time to sufficiently acclimatize over an extended period of time prior to attempting our new routes. We plan to achieve this by extending the length of the approach trek, which is one of the main reasons we are attempting the climb on Kyajo Ri before approaching Kusum Kanguru, and by completing a number of training climbs prior to our main attempts. During this time we will adopt the proven acclimatization technique of ‘climbing high and sleeping low’ and hope to investigate and attempt the standard, South-West ridge, route on Kyajo Ri. This will allow us to acclimatize up to over 6000m and to become familiar with our proposed descent route. In addition to being well acclimatized we are all thoroughly versed in recognizing the primary symptoms of both HACE and HAPE and will immediately descend if symptoms present. Climbing in a group of three will allow us to continuously monitor the other team members and reduce the possibility of symptoms going unnoticed. We will also be carrying specialized medication to combat the onset, and assist with the treatment, of both HACE and HAPE. Refer SECTION F: EXPEDITION FIRST AID/MEDICATION LIST below for details.
- Sun Related Injuries – The risk of suffering from sun related injuries such as sunburn, sun stroke, and snow blindness will be reduced by implementing protective measures such as wearing full length clothing, hats, sunglasses/goggles, sun block and protective lip balm. The risk of dehydration can be minimized by maintaining a high intake of fluids and by using electrolyte supplements.
- Cold Related Injuries – As with sun related injuries the best mitigation for cold related injuries is prevention rather than cure. By ensuring that the expedition members are equipped with specialized insulated clothing and equipment we will minimize the risk of developing cold related injuries such as frostbite and hypothermia. This includes multiple layer gloves and plastic climbing boots with separate liners and insulated super-gaiters, to protect our extremities which are most at risk from frostbite, and down jackets and sleeping bags to ensure our core temperatures are maintained when we are inactive at belays and camp sites. We will also be wearing several layers of thermal and fleece base layer clothing. Wearing multiple layers allows for air pockets to be trapped within the clothing, and between layers, which greatly helps to moderate and maintain a higher overall body temperature.

Terrain Related Risks – The risk posed by steep and exposed terrain is best mitigated by experience and the ability to read the mountain conditions and assess potential dangers presented. All three team members have extensive experience on various mountainous terrain types; rock, ice and snow, and are well versed with the risks associated with each. Where possible we will avoid terrain traps such as narrow gullies, which can act as funnels for falling rock and ice, and lee-ward or sun exposed snow slopes, which are prone to avalanching. We will also watch for tell tale signs of recent falling material, such as debris cones, and under no circumstances will we attempt to climb a line which we deem to have unacceptable objective risk.

#### Subjective Risks:

In an effort to reduce the impact of subjective risks, and the factors that can lead to them occurring, we will implement a range of measures. This will include:

Fatigue/Fitness – Completing an intensive fitness training program prior to departing for Nepal to guarantee that we are in peak physical condition. Ensuring that we are properly acclimatized and well rested when we attempt our climbs and by eating high energy foods and supplements combined with drinking sufficient fluids to avoid dehydration.

Technical difficulty – We are under no illusion about the technical difficulties that we will likely encounter during our proposed climbs. However we have all previously climbed on similar technical terrain and by arriving at the base of the routes in peak condition we are confident that any obstacles can be overcome.

Equipment – We will take an extensive array of specialist equipment with us to Nepal to optimize our chance of success. All of which is of a very high quality and is either new or in near new condition. Refer SECTION E: EXPEDITION EQUIPMENT LIST below for a comprehensive break down.

Ignorance of route/conditions – As part of the expedition planning phase in depth research has been completed on both objective peaks to ensure that as a team we are as informed on the nature of our proposed routes as we can possibly be. This has included directly contacting members of previous expeditions to the peaks and other experienced Himalayan climbers and by reading previous expedition reports.

By attempting our objectives climbing in Alpine Style we will be travelling as a small light-weight and fully self-sufficient team. This means that we will be able to operate on the mountain without assistance from external parties and be able to be completely self-reliant and capable of self rescue.

All three team members are skilled alpinists who have had experience in both ascending and descending steep terrain in unfavourable conditions. Mike is also a qualified New Zealand Mountain Guide Association Climbing Guide with additional advanced first aid qualifications including training in Pre-Hospital Emergency Care. He is also a member of the West Coast Alpine Cliff Rescue (ACR) team, a division of the Land Search and Rescue, and has completed SARINZ courses in Foundation Rope Rescue, Vertical Rope Rescue and Advanced Rope Rescue. Steven has completed New Zealand Mountain Safety Council Wilderness First Aid Alpine 1 training and Ben is a member of the Wakatipu Land Search and Rescue (SAR) team and has completed St Johns Outdoor First Aid training.

None of the team members have any pre-existing medical conditions.

While climbing on both peaks the team will carry with them a satellite phone. This will allow for quick and efficient communication with external parties. In particular it will allow us to stay regularly updated with weather conditions and also in the unlikely event of an accident to call for assistance. If this does occur we have comprehensive Rescue and Recovery insurance to cover the costs of a possible rescue/evacuation. Hand held GPS units will also be carried to assist with navigation in unfavourable conditions such as white outs.

In the event that our hand-held communications fail while on a climb we will also have a set non-direct signal procedure established with the base camp team members. Where possible this will involve daily signal flashing, using head torches, at a predetermined time every evening to indicate that we are not in distress. We will also have a separate signaling system for if we are in distress and need to relay this to base camp. Prior to embarking on our climbs we will also leave detailed intentions at base camp. This will include our intended ascent and descent routes and the time likely to be taken on the climb. From this a panic date will be established, allowing sufficient time for the possibility of unanticipated delays, and if this date is reached without our return then the alarm will be raised from base camp.

Further to this we will also register our intentions, including a detailed itinerary, with family, friends, the New Zealand Consulate and the Nepal Mountaineering Association prior to disembarking from Kathmandu. From this an expedition panic date will be set. Also throughout the duration of the expedition we will have access to the internet and other communications when we pass through local centres such as Lukla and Namche Bazaar and we will adjust our itinerary as required if it differs from that originally intended. The trekking company, Parikrama Treks & Expeditions Ltd, also has a similar intentions system established and the on the ground expedition team members will be in constant contact with the head office in Kathmandu. If this communications flow is disrupted, or if we exceed our panic date, then the alarm will be raised with the Nepal Mountaineering Association and Himalayan Rescue Association (Nepal).

## **B2: GENERAL RISK MITIGATION**

|                          |  |
|--------------------------|--|
| Political Instability –  | As previously mentioned we do not consider political instability to be a serious threat to the expedition; however in the unlikely event of instability, such as war etc., we have coverage in our insurance to assist with an evacuation back to New Zealand.   |
| Government Bureaucracy – | In order to reduce the potential risk associated with government bureaucracy we have pre-booked our peak permits through a registered trekking agency, Parikrama Treks & Expeditions, and hence we do not anticipate any delays. Tourist visas will be applied for, and granted, prior to leaving New Zealand. |
| Loss of Equipment –      | Typically we will carry additional spares of all essential equipment such as climbing ropes and protection (ice screws and wires etc.) Replacements for all other equipment, both climbing and general, will be able to be purchased in Kathmandu or Namche Bazaar.  |
| Travel Delay –           | To compensate for any possible travel delays we have negotiated a flexible timeframe with the trekking agency and have the ability to extend the expedition duration by up to an extra week. To allow for this we have delayed our flights out from Kathmandu until the 11th of May.                           |
| Sickness/Injury –        | To reduce the risk of sickness we will only eat freshly prepared and cooked food on the trek, and dehydrated and pre-packaged  |



food while climbing, and drink only treated water. In the event of sickness occurring we will have a selection of anti-diarrheals and anti-biotics available to use. Also prior to leaving for Nepal all of the expedition members have visited a medical travel consultant and have had a series of inoculations to minimize the risk of contracting local endemic diseases. This includes vaccinations for Hepatitis A, Hepatitis B, Typhoid, Tetanus and Polio.

#### Weather Conditions –

**Approach weather:** Two main weather associated risk areas have been identified during the approach phase. The first is adverse weather delaying the flights to and from Lukla and the second is delays encountered while we are trekking to and from our base camps. To counter for this we have been generous with the allocation of time for these sections and have allowed for an additional week by which we can extend the expedition duration if required. However as we will be in Nepal well before the onset of the annual monsoon season we anticipate that weather conditions are likely to be stable. And we do not foresee any significant delays occurring as a result of poor weather conditions.

**Mountain weather:** This is deemed to be an area of greater risk to the success of the expedition, as unfavourable weather conditions have the potential to severely hamper progress on our intended routes. When in the Khumbu we will constantly be monitoring the weather and the condition of our intended routes and will only begin an attempt when both are stable and safe. This will be done using forecast updates received online while in Namche Bazaar, via satellite phone and mobile phone when we are trekking and at base camp and by using the local knowledge of the liaison officer and other staff provided by the trekking agency. We will also use the satellite and mobile phones during our climbs to ensure that we are continually updated with current weather conditions. And if we are warned of the approach of, or encounter, a significant weather event while on a climb we are prepared to abandon the attempt and descend immediately. We have allowed sufficient time in our proposed itinerary to launch multiple attempts on our objectives if at first we are not successful. And in the event of being caught out in bad weather while high on either of the peaks we will have adequate clothing, equipment and provisions to hunker down and sit it out an for an extended period of time.

However as mentioned above we anticipate that weather conditions will typically be stable throughout the duration of our time in Nepal. And we do not expect to encounter any significant snow fall events and the greatest threat will likely be presented by high wind speeds at altitude.

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## **SECTION C: EMERGENCY SUPPORT CONTACT DETAILS**

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In the event of an emergency that cannot be effectively dealt with internally by the expedition members, and requires external support, some or all of the following emergency contacts may be

called upon for assistance. The various emergency supports have been grouped into those in Nepal and those based in New Zealand.

#### **C1: EMERGENCY SUPPORT CONTACT DETAILS - NEPAL**

Name: New Zealand Honorary Consulate Kathmandu, Nepal

Street Address: Tiger Mountain Pvt Ltd  
Gongabu  
Kathmandu  
Nepal

Postal Address: P.O. Box 242  
Kathmandu  
Nepal

Telephone: +977 4354237  
+977 4361500

Facsimile: +977 4361600

Email: nzconsulate@tigermountain.com

Staff Details: Lisa Choegy (Honorary Consul)

Name: Parikrama Treks & Expeditions Ltd.  
(Trekking agency with whom the expedition is traveling)

Postal Address: GPO. Box 7105  
Hattigauda 2  
Kathmandu  
Nepal

Telephone: +977 1 4379006  
+977 98510 56547

Facsimile: +977 1 4379712

Email: parikrama@wlink.com.np

Staff Details: Bal Kumar Basnet (Owner/Managing Director)

Name: Nepal Mountaineering Association

Postal Address: P.O.Box: 1435  
Nagpokhari, Naxal  
Kathmandu  
Nepal

Telephone: +977 1 4434525  
+977 1 4435442

Facsimile: +977 1 4434578

Email: office@nepalmountaineering.org  
peaks@nma.wlink.com.np

Name: Himalayan Rescue Association Nepal

Street Address: Lazimpat Road (adjacent to the north gate of the Royal Palace)  
Lainchaur  
Kathmandu  
Nepal

Postal Address: P.O. Box No. 4944  
Kathmandu  
Nepal  
Telephone: +977 1 4440292  
+977 1 4440293  
Facsimile: +977 1 4411956  
Email: hra@mail.com.np

The Himalayan Rescue Association Nepal also has medical clinics located within the Khumbu region in Pheriche and at Everest Base Camp.

Name: CIWEC Clinic Travel Medicine Center  
  
Street Address: Lazimpat Road (adjacent to the north gate of the Royal Palace)  
Lainchaur  
Kathmandu  
Nepal  
Postal Address: PO Box 12895  
Kathmandu  
Nepal  
Telephone: +977 1 442 4111 (Medical Unit)  
+977 1 444 0100 (Dental Unit)  
Facsimile: +977 1 441 2590  
Email: info@ciwec-clinic.com (Medical Unit)  
ciwecdental@subisu.net.np (Dental Unit)

Name: Nepal International Clinic  
  
Street Address: Narayanhiti Path (opposite the south gate of the Royal Palace)  
Lainchaur  
Kathmandu  
Nepal  
Postal Address: GPO BOX 3596  
Kathmandu  
Nepal  
Telephone: +977 1 4434642  
+977 1 4435357  
Facsimile: +977 1 434713  
Email: nic@naxal.wlink.com.np

## **C2: EMERGENCY SUPPORT CONTACT DETAILS – NEW ZEALAND**

The emergency support details for each of the expedition team members are provided below.

Name: Ben Dare  
  
Next of kin: Casey Dare  
Relationship: Brother  
  
Street Address: 33 Valley Road  
Mt Maunagnui 3116  
New Zealand  
Telephone: +64 21 204 0367

Name: Steven Fortune

Next of kin: David Fortune  
Relationship: Father

Street Address: 40 Dunster Street  
Burnside  
Christchurch 8053  
New Zealand

Telephone: +64 3 358 9952

Name: Mike Rowe

Next of kin: Sue and Graham Rowe  
Relationship: Mother and father respectively.

Street Address: 53 Spencer Street  
Crofton Downs  
Wellington 6035  
New Zealand

Telephone: +64 4 4795136 (Home)  
+64 21 169 4623 (Mobile - Sue Rowe)  
+64 21 265 7153 (Mobile - Graham Rowe)

Insurance details: All expedition team members have taken out an International Climbing Travel Insurance policy through the New Zealand Alpine Club (NZAC). The policy is arranged through Alpine Risk Management Ltd and underwritten by ACE Insurance Ltd. It provides coverage for personal accident (including search and rescue), medical expenses, loss of deposits and baggage, resumption of travel and missed transport connection, personal liability and political and natural disaster evacuation. The policy coverage has been extended to include high risk activities such as trekking and mountaineering.

Contact details: New Zealand Alpine Club  
PO Box 786  
Christchurch 8140  
New Zealand  
Telephone: +64 3 377 7595  
Facsimile: +64 3 377 7594  
Email: insurance@alpineclub.org.nz

Alpine Risk Management Ltd  
PO Box 31301  
Milford, North Shore City 0741  
New Zealand  
Telephone: +64 9 478 6327  
Facsimile: +64 9 478 6324  
Email: peter@alpinerisk.co.nz

ACE Insurance Ltd  
PO Box 734  
Auckland 1140  
New Zealand  
Telephone: +64 9 377 1459  
Facsimile: +64 9 303 1909

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## **SECTION D: EMERGENCY COMMUNICATION**

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If an incident occurs that requires any, or all, of the emergency support contacts identified above in SECTION C: EMERGENCY SUPPORT CONTACT DETAILS to be called upon for assistance the following methods of communication will be available to the expedition team members.

**Satellite Phone:** The team will carry with them a satellite phone throughout the time spent in the Khumbu region. This will be able to be used at all locations throughout the expedition and will allow us to stay regularly updated with weather conditions and to be able to contact emergency services for assistance in the event of an accident or emergency.

**Mobile Phone:** The team will also carry with them a mobile phone. Although this will not be as versatile as the satellite phone there is extensive mobile coverage available in the Khumbu region, which typically extends to all major trekking routes and to exposed areas with high elevation. We anticipate that we will be able receive coverage throughout the duration of our approach treks, from high vantage points around our base camps and when climbing high on our intended routes.

**Email:** By carrying the satellite and mobile phones we will also be able to gain access to the internet and emails. A portable netbook computer will also be carried as far as the base camps to allow for access to the internet.

**Mountain Radio:** The liaison officer appointed by the trekking agency engaged by the expedition, Parikrama Treks & Expeditions Ltd., will be equipped with a two-way mountain radio. This will stay with the liaison officer at base camp and will be able to be used during the trekking stages and while at base camp.

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## **SECTION E: EXPEDITION EQUIPMENT LIST**

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When listing the various items of expedition equipment the following categories will be used, Expedition Equipment, Trekking Equipment, Communication Equipment and First Aid/Medical.

### **E1: EXPEDITION EQUIPMENT (Provided by the climbing team)**

Climbing specific:

- Dynamic climbing ropes (including spares)
- Static haul lines
- Prussic cord
- Tape slings
- Crampons
- Ice axes/hammers
- Plastic mountaineering boots
- Rock climbing shoes
- Insulated super gaiters
- Rock protection (camalots/friends, wires, hexs, pitons)
- Ice protection (ice screws)

- Snow protection (snow stakes, dead-man anchors)
- Belay device
- Ascenders/descenders
- Pulleys
- Climbing harness
- Knife
- Compass
- Whistle
- Carabiners (locking and non-locking)
- Helmets
- Climbing packs
- Climbing food/nutritional supplements
- Climbing stove and cooking equipment

Clothing:

- Base layer (underwear) merino or polypro
- Socks (trekking and climbing) and down booties
- Gloves (climbing, liners and over gloves/mitts)
- Beanies/balaclavas
- Trekking clothing (light weight pants and shirts)
- Mid layer pants and jackets (fleece/merino/soft shell)
- Insulation layer (down jackets)
- Shell jacket
- Shell pants

Shelter/Sleeping:

- Climbing tents (including spare)
- Bivvy bags
- Climbing sleeping bags
- Base camp sleeping bags (spare)
- Sleeping mats (inflatable and closed cell foam)

Miscellaneous:

- Sunglasses
- Goggles
- Head-torches
- Hand held GPS device
- Watches with digital altimeter
- Approach shoes/hiking boots
- Trekking poles
- Water bottles and hydration packs
- Daypacks
- Cameras
- Travel towels
- Toiletries
- Cooking equipment
- Fuel for cooking
- Trekking food/snacks
- Maps

**E2: TREKKING EQUIPMENT (Provided by the trekking agency)**

All of the equipment listed below is provided for the expedition members by the trekking agency, Parikrama Treks & Expeditions, during the treks to and from and while staying at the base camps.

- Tents and shelter
- Cooking equipment and fuel
- All food for main meals, three per day.

### **E3: COMMUNICATION EQUIPMENT**

Refer SECTION D: EMERGENCY COMMUNICATION above for specific details of the communication equipment that the expedition team will be taking.

### **E4: FIRST AID/MEDICAL**

Refer SECTION F: EXPEDITION FIRST AID/ MEDICATION LIST below for specific details of the first aid/medical supplies that the expedition team will be taking.

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## **SECTION F: EXPEDITION FIRST AID/MEDICATION LIST**

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During our time in Nepal we will carry with us a specialized medical first aid kit. This will include items to cover general first aid incidents as well as more specific items associated with high altitude alpine climbing. A summary of the contents of the first aid kit is given below.

- Plasters
- Bandages
- Butterfly bandages
- Triangular bandage
- Large compression bandage
- Gauze pads/wraps
- Trainers adhesive tape
- Scissors/Pen knife
- Thermometer
- Needle and thread
- Safety pins
- Rubber gloves (non-latex)
- Mouth-to-mouth barrier
  
- Antiseptic wipes
- Anti-bacterial cream
- Insect repellent
- Calamine lotion
- Cough drops
- Lemsip Flu with paracetamol
  
- Eye drops
- Sterile eye bath
- Soap
- High factor sun cream
- Sun-protection lip balm
  
- Electrolyte and Glucose replacements
- Gel shots (simple carbohydrate replacement)

- Emergency 'space' blanket
- Acetazolamide (Diamox) (for use as treatment for AMS)
- Dexamethasone (for use as treatment for AMS)
- Nifedipine (for use as treatment for AMS)
- Mid-strength pain relief (Paracetamol and Nurofen)
- High-strength pain relief (Tramadol and Codedine)
- Antihistamine
- Antacid tablets
- Laxative tablets
- IMODIUM (Loperamide) (anti-diarrheal)
- Ciprofloxacin (general anti-bacterial/anti-biotic)
- Water treatment (chlorine) tablets

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## **SECTION G: EXPEDITION ITINERARY**

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All of the expedition members will arrive in Kathmandu by the 30<sup>th</sup> of March 2011 and will fly on to Lukla on the 1<sup>st</sup> of April. The itinerary for the expedition, ex Kathmandu, is as follows.

|  |  |
|--|--|
| Day 01 _ (April 1 <sup>st</sup> ):                       | Fly to Lukla and trek to Phakding.   |
| Day 02 _ (April 2 <sup>nd</sup> ):                       | Trek to Namche Bazaar.   |
| Day 03 _ (April 3 <sup>rd</sup> ):                       | Rest day in Namche.  |
| Day 04 _ (April 4 <sup>th</sup> ):                       | Trek to Dole.  |
| Day 05 _ (April 5 <sup>th</sup> ):                       | Trek to Machhermo.   |
| Day 06 _ (April 6 <sup>th</sup> ):                       | Trek to Kyajo Ri base camp.  |
| Days 07/10 _ (April 7 <sup>th</sup> -10 <sup>th</sup> ): | Acclimatization period -including investigation of the descent route off the back of the mountain. |
| Day 11/12 _ (April 11 <sup>th</sup> -12 <sup>th</sup> ): | Rest days or additional acclimatization.   |
| Day 13/17 _ (April 13 <sup>th</sup> -17 <sup>th</sup> ): | Climbing period to attempt new route.  |
| Day 18 _ (April 18 <sup>th</sup> ):                      | Trek to Namche Bazaar.   |
| Day 19 _ (April 19 <sup>th</sup> ):                      | Trek to Manjo.   |
| Day 20 _ (April 20 <sup>th</sup> ):                      | Trek to Kharka.  |
| Day 21 _ (April 21 <sup>st</sup> ):                      | Trek to Kusum Kanguru base camp.   |
| Day 22/30 _ (April 22 <sup>nd</sup> -30 <sup>th</sup> ): | Climbing period to attempt new route.  |
| Day 31 _ (May 1 <sup>st</sup> ):                         | Trek to Manjo.   |
| Day 32 _ (May 2 <sup>nd</sup> ):                         | Trek to Lukla.   |
| Day 33 _ (May 3 <sup>rd</sup> ):                         | Fly Lukla - Kathmandu.   |

In addition to the initial thirty three expedition days we have negotiated a flexible timeframe with the trekking agency and have the ability to extend the expedition duration by up to an extra week to compensate for any delays that may arise. To allow for this we have delayed our flights out from Kathmandu until the 11th of May.

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## **SECTION H: ENVIRONMENTAL IMPACT REDUCTION STRATEGIES**

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One of the key drivers for the expedition's adoption of a light weight Alpine Style approach is so that as a team we can operate fast and efficiently while having an absolute minimal impact on the local environment. It is our utmost intention to leave as little evidence of our passing as possible during our time spent in the Solu Khumbu region. This applies to our time spent on the approach, at base camp



and while on the mountain climbing. By operating as a small independent team we will not require the use of a generator at Base Camp and all cooking and melting of drinking water, for all stages of the expedition, will be completed using portable gas stoves. As a result no fossil fuels or wood will be consumed throughout the duration of the expedition.

In an effort to further minimise the environmental impacts of our stay in Nepal we will endeavour to:

- Remove all unnecessary packaging from equipment and provisions prior to entering the mountains.
- Remove all non-burnable refuse from the site of all camps, to be disposed of at an approved facility.
- All human waste will either be burnt or buried in a suitable location away from any waterways.
- When leaving all campsites they will be returned as near as possible to their original natural state.
- While climbing all equipment, such as ropes, will be removed during our descent. This is a critical aspect of climbing in Alpine Style.

As part of our strong ethos towards environmental sustainability we will also adhere to the guidelines and recommendations of the International Mountaineering and Climbing Federation (UIAA) publications, *The Ethical Code - Principles and Practice for Expeditions* and the *Guidelines For Eco-Compatible Expeditions*.

The Nepalese Mountaineering Association (NMA) also has in place strict waste management provisions which we must consent to prior to the issuing of any Peak Permit. A requirement of these provisions is that every Peak Permit applicant must pay a Garbage Deposit to ensure that all expedition waste material is removed from the mountain and Base camp areas. This is strictly monitored and enforced by the Liaison Officer who accompanies the expedition at all times.