

A wide-angle photograph of a snow-covered mountain valley. The foreground is dominated by a vast expanse of snow, marked with numerous tracks from vehicles or equipment. The middle ground shows a valley floor leading towards a range of rugged, snow-capped mountains. The sky is filled with soft, white clouds, and the overall lighting is bright, suggesting a clear day. The text is overlaid in the upper half of the image.

***Tactical
Considerations for
Cold Regions and
Mountain Operations***

Outline

- ***Cold Regions Environments***
 - ***Military aspects of terrain in cold regions environment***
 - ***Case Studies***
 - ***Trends***
- ***Mountain Environments***
 - ***Military aspects of terrain in a mountainous environment***
 - ***Case Studies***
 - ***Trends***
- ***Overall Trends***

Movement and Maneuver

- *Movement* refers to the shifting of forces on the battlefield. The key to moving successfully involves selecting the best combination of movement formations and movement techniques for each situation.
 - » FM 3-21.8
- *Maneuver* is the employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission.
 - » FM 3-90
- Tactical Maneuver = Fire + Movement

Tactical Maneuver

- Tactical Maneuver is the way in which Infantry platoons and squads apply combat power
- Understanding the terrain is critical for leaders in the application of the fundamentals of shoot and move.

Terrain Related Skills for Leaders

- Leaders must:
 - Know how to land navigate under all conditions
 - Understand the basics of how to analyze terrain (OAKOC)
 - Understand how to integrate the aspects of fire (direct and indirect) and tactical movement to fit the terrain
 - Understand how to apply generic tactics and techniques to the terrain they are in

» FM 3-21.8, para 1-48

Cold Regions Environments

Observation/Fields of Fire, Cold Regions

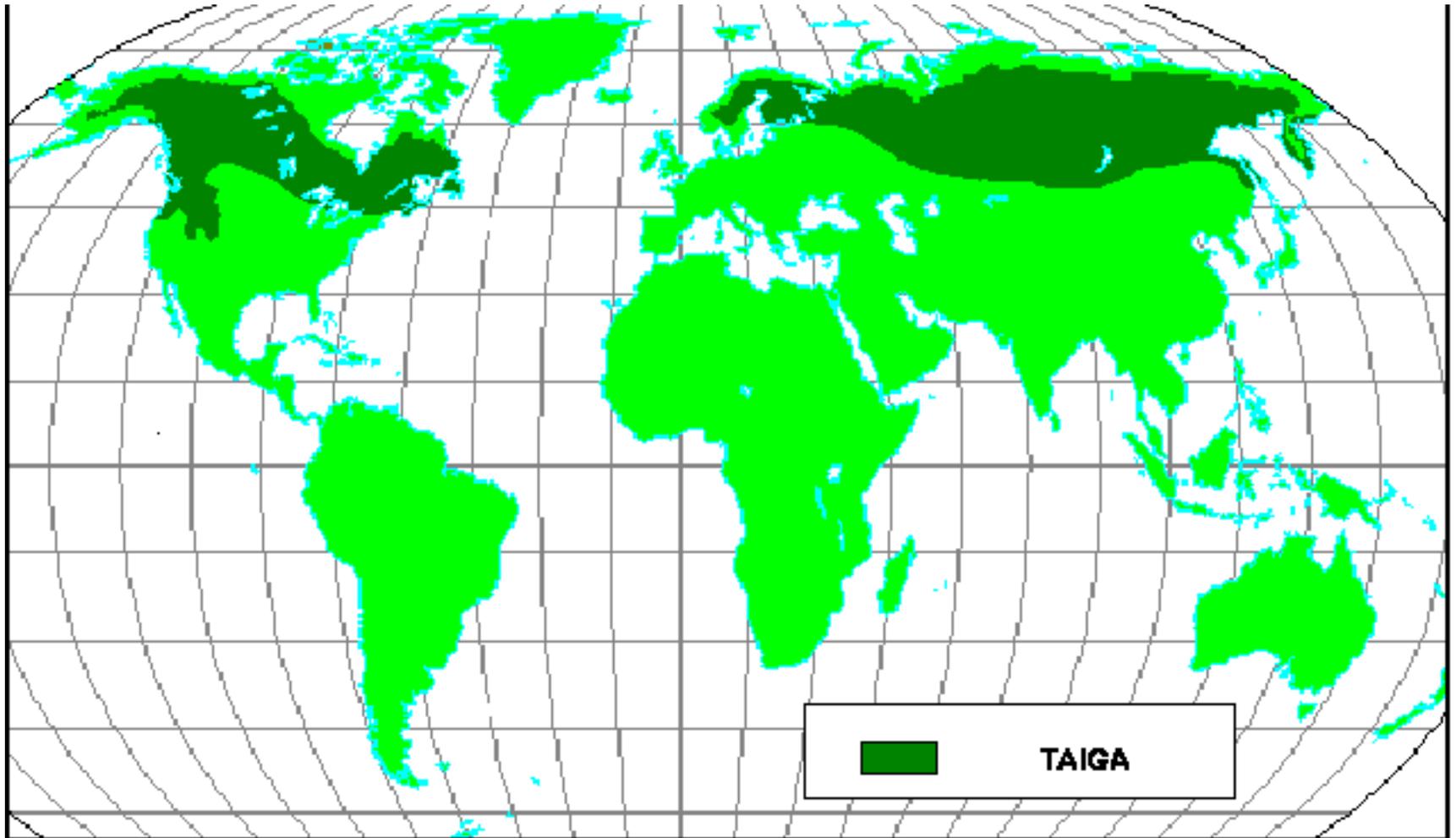
- ***Observation / Fields of Fire***
 - ***Arctic (tundra)***
 - ***Tundra - Generally very open and unrestricted***
 - ***Sub-Arctic (forested)***
 - ***Generally restricted***

Observation/Fields of Fire: Siberian Tundra



© www.arcticphoto.co.uk

Extent of Boreal Forests



***Observation
/Fields of
Fire:
Boreal
Forest,
Western
Alberta***



Avenues of Approach, Cold Regions

- ***Avenues of Approach***

- ***Mounted***

- ***Man made roads or cleared paths on frozen bodies of water***

- ***Dismounted***

- ***Roads, trails and very slow movement in snow***

- ***Ski/Snowshoe equipped troops***

- ***Unrestricted***

Avenues of Approach: Nunuvvat, Canada



© www.arcticphoto.co.uk

Avenues of Approach: Boreal Forest



Avenues of Approach: Boreal Forest



© www.arcticphoto.co.uk

Avenues of Approach: Boreal Forest



Key Terrain, Cold Regions

- ***Key Terrain***
 - ***Roads – Any road network is by far THE key terrain***
 - ***Shelter – Greatly adds to survivability and combat effectiveness.***

Obstacles, Cold Regions

- ***Obstacles***

- ***Arctic and Sub-Arctic***

- ***Deep snow a significant obstacle to vehicular and non-ski / snowshoe equipped dismounted movement. **Most terrain is no go for vehicular movement.*****

- ***Arctic***

- ***swampy ground makes for very difficult movement even for dismounted troops***

Obstacles: Northern Finland



Obstacles: Northwest Territories



Cover and Concealment, Cold Regions

- ***Cover and Concealment***
 - ***Arctic***

- *little cover, less concealment*
- *tracks left in snow make concealment difficult*

- ***Sub-Arctic***

- *similar to temperate regions*
- *limited cover – small trees*
- *good concealment*

Cover and Concealment: Siberian Tundra



© www.arcticphoto.co.uk

Cover and Concealment: Boreal Forest, Labrador, Canada

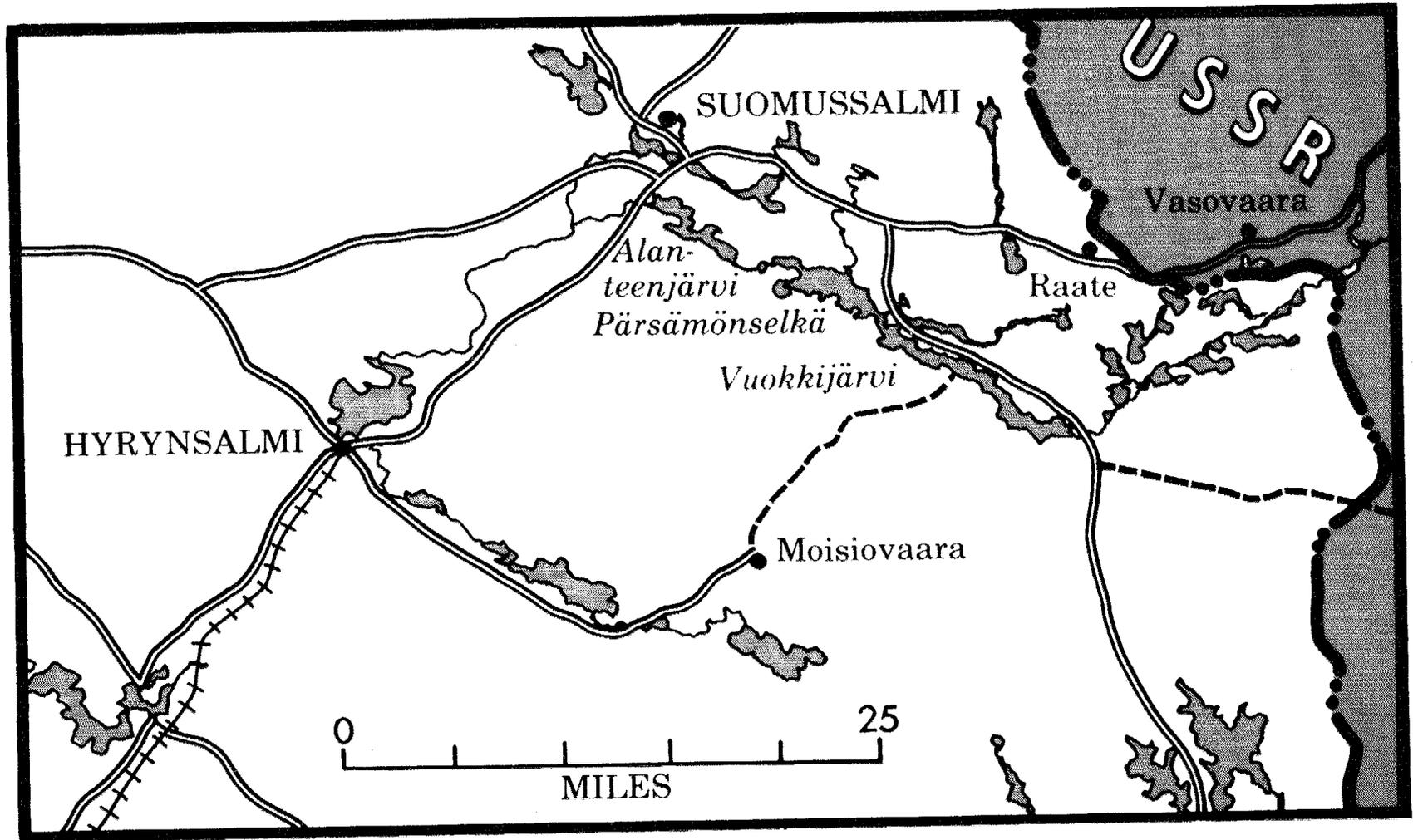


Case Study: Suomussalmi

***Finnish victory on the Raate Road
December 1939***



Suomossalmi and Raate



Map 5. General locale of Suomussalmi-Raate Campaign.

Battle of Suomussalmi

- ***Deep snow and thick forest – contrasted Finns and Soviets***
 - ***Finns very mobile***
 - ***Soldiers all competent skiers***
 - ***Built ice roads along Raate road***
 - ***created “mottis” at will by violently attacking road out of forests***
 - ***Reports of Finns skiing up to 20-30 km a night***
 - ***Soviets were not***
 - ***No snowshoes, few skis, no training – difficult movement in deep snow***
 - ***Feared the forest and the Finnish “White Death”***
 - ***Motorized army fixed to Raate road***

Forest Road in Finland



Forest Road in Finland



Soviet Convoy on Raate Road



Battle of Suomussalmi

- ***Sharp contrast between Cold Regions ability of Finn and Soviet armies***
 - ***Finns did well in cold***
 - ***Ahkio Groups***
 - ***Soldiers native to area and climate***
 - ***Adequately clothed***
 - ***Outdoor skills***
 - ***Soviets did not***
 - ***Lacked knowledge and equipment to warm men***
 - ***Soldiers primarily from Ukraine***
 - ***Unsuitable clothing and equipment***
 - ***Often killed while huddled around camp fires or in stupor***

Finnish Ski Troops



Finnish Ski Troops With Tent



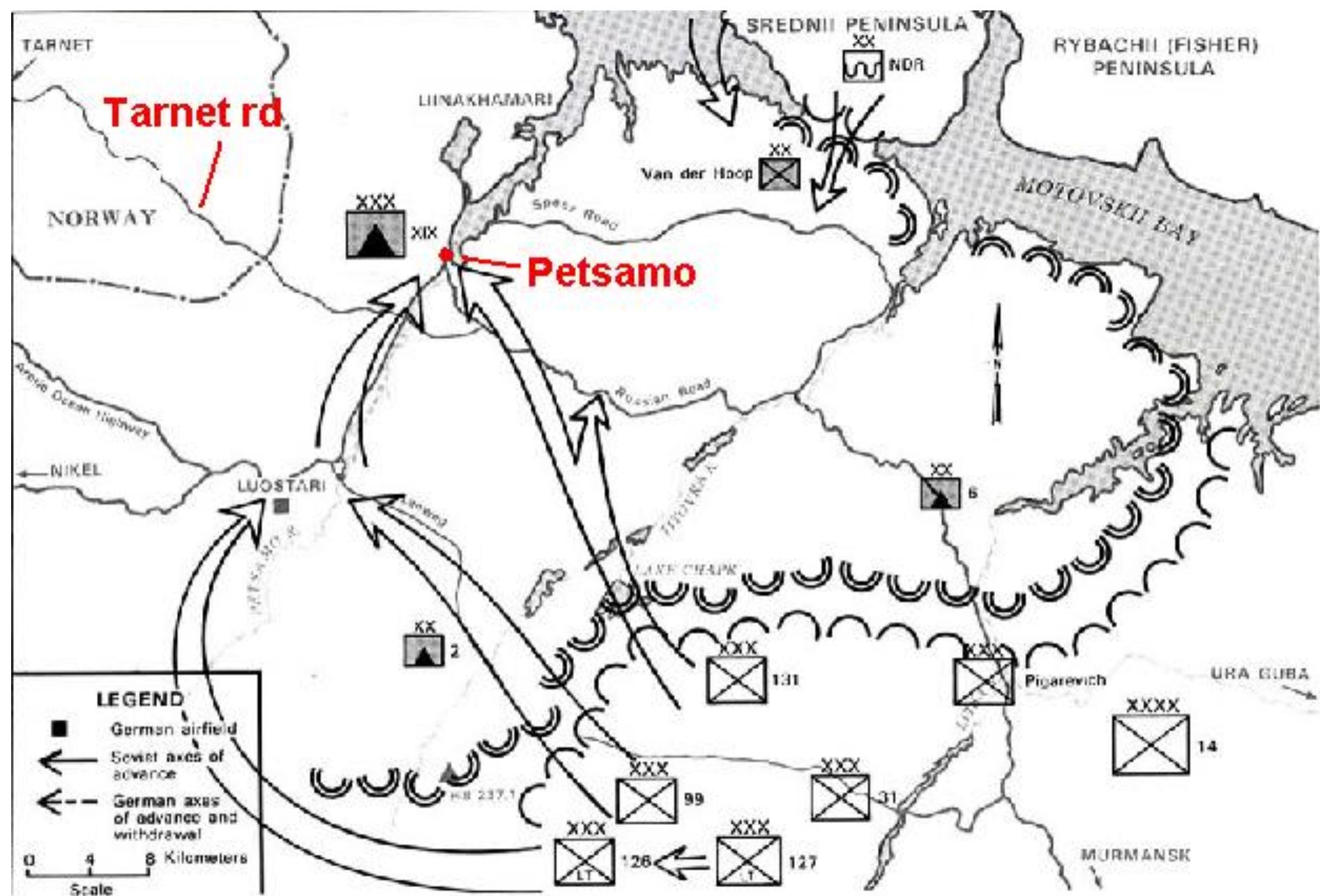
Frozen Soviet Soldier



***Case Study:
Petsamo-Kirkenes***

Red Army Offensive October 1944





Petsamo-Kirkenes – Phase 1

- ***Restrictive terrain and sparse roads allowed German escape***
 - ***Soviet artillery couldn't interdict Tarnet road during German retreat from Petsamo***
 - ***Artillery fixed to roads***
 - ***Roads choked by traffic volume***
 - ***Three day pause after seizure of Petsamo allowed organized German retreat***
 - ***Infantry exhausted by terrain, ran out of supplies***
 - ***Logistics train slowed high traffic on few roads***

Soviet horses with ammunition



Petsamo-Kirkenes – Phase 2

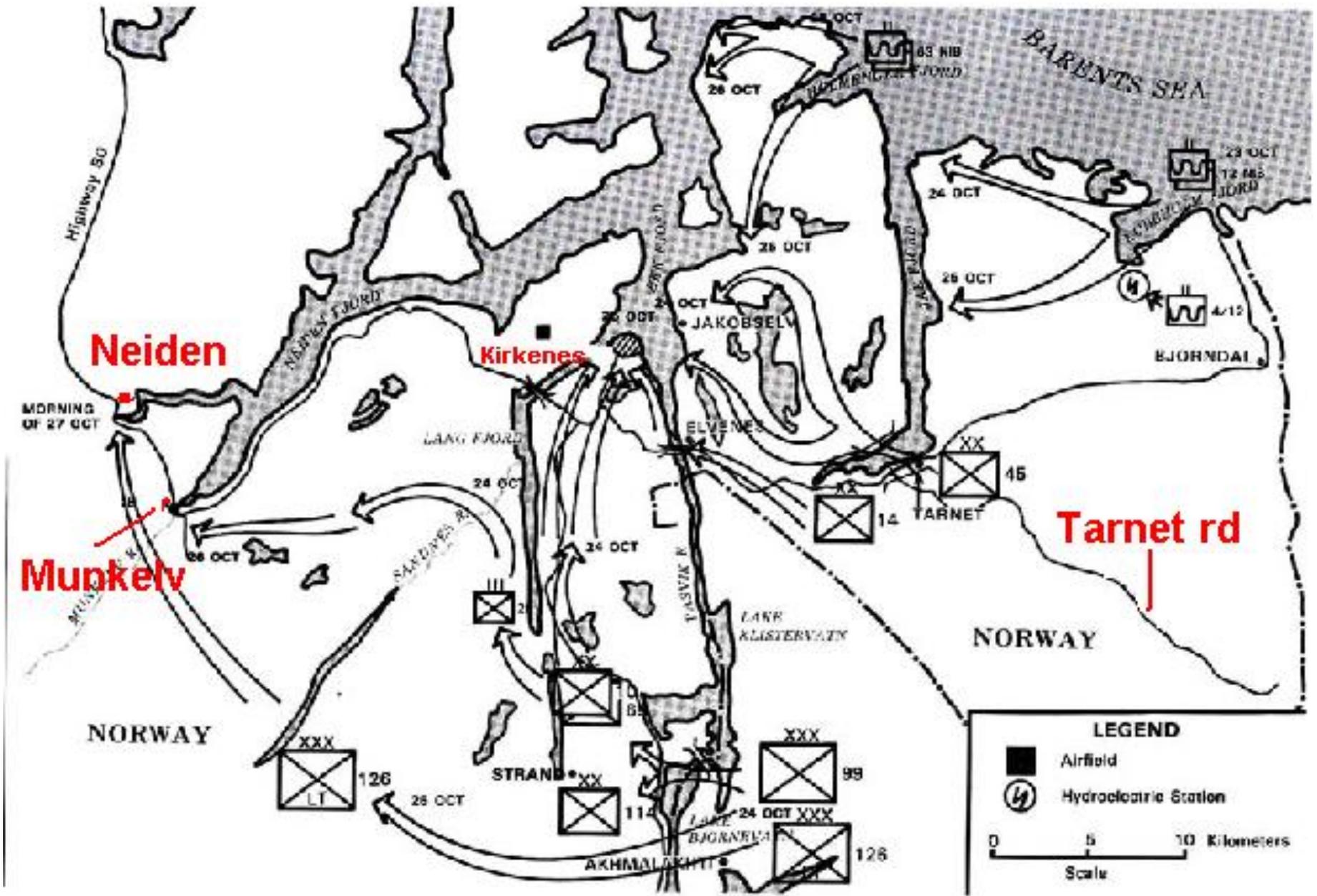
- ***Restrictive terrain and sparse roads again allowed German escape***
 - ***Terrain favored defense***
 - ***Swampy ground – hard to flank German positions on roads***
 - ***Open, rocky, hilly terrain – small German rearguards effective***
 - ***Result – Soviets couldn't fix or mass on German units***

Terrain near Tarnet Road



Norwegian Highway





Petsamo-Kirkenes – Phase 3

- ***Restrictive terrain and sparse roads allowed final German escape***
 - ***Soviets couldn't envelop Munkelv in a timely manner***
 - ***Soviet commander ordered long cross-country march***
 - ***126th Light Rifle Corps exhausted by terrain, forced to halt***
 - ***10th Guards division assumed mission, moved on shorter route, arrived at Munkelv too late***

Common Themes, Cold Regions

- ***Armies not prepared (equipment, and mindset) for cold***
 - ***Armies that expect soldiers to “make do” lost many men***
 - ***Temperate clothing and inadequate equipment***
 - ***No access to shelter in sub-zero temperatures***
 - ***Results in loss of combat effectiveness and death***
 - ***Not a tactical objective for commanders inexperienced in cold***
 - ***References***
 - ***German Army, Barbarossa***
 - ***Soviet Army, invasion of Finland 1939 ¹***
 - ***Austro-Hungarian Winter offensive in Carpathians January 1915 ²***

Common Themes, Cold Regions

- ***Roads and Shelter - The Key Terrain in Arctic***
 - ***Sparse road network the dominating factor in arctic***
 - ***virtually all operations focus on seizing, retaining, and building roads***
 - ***Mechanized armies very much tied to roads***
 - ***Armor performance tied to snow depth and quality***
 - » ***(tactical mobility)***
 - ***Logistical support for armor still totally tied to roads***
 - » ***(operational mobility)***
 - ***Senior German commanders agreed after war with Russia that control of existing road network is one of the most important factors in fighting in Cold Regions.***

Common Themes, Cold Regions

- ***Roads and Shelter - The Key Terrain in Arctic***
 - ***Shelter critical in frigid weather***
 - ***Both seizing and retaining it for you and denying it from enemy***
 - ***Control of limited roads***
 - ***Needs to be a top priority***
 - ***References***
 - ***Soviet Petsamo-Kirkenes operation*** ³
 - ***Soviet Army, invasion of Finland 1939*** ⁴
 - ***German Army experience on Eastern Front 1941-44*** ⁵

Mountains

Terrain, Mountains

- ***Observation / Fields of Fire***
 - ***Open or restricted depending on intra-visibility lines***
 - ***Mutually supporting and well placed OPs can dominate a battlefield***

Terrain, Mountains

- ***Avenues of Approach***
 - ***Dismounted – Vary from non-existent to limited depending on soldier skill level.***
 - ***All avenues involve slow movement.***
 - ***Mounted – Very limited access into a mountainous region. Access through mountains on passes***

Pakistani Patrol at 20,000 ft.



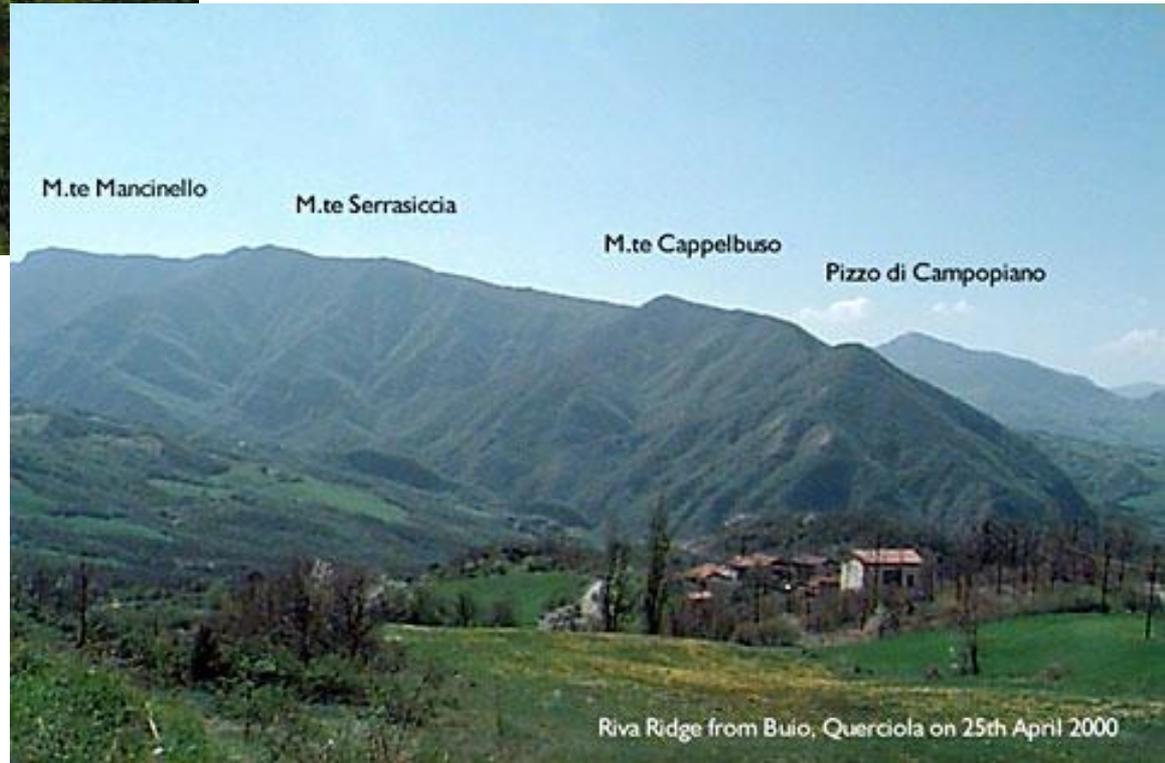
Terrain, Mountains

- ***Key Terrain***
 - ***Roads, trails, foot paths, ridgelines, climbable routes***
 - ***Anything that facilitates movement***
 - ***Passes (roads)***
 - ***High ground***

Apennines, Italy



Riva Ridge →



Riva Ridge from Buio, Querciola on 25th April 2000

Terrain, Mountains

- ***Obstacles***
 - ***Technical obstacles***
 - ***Most terrain is***
 - ***no-go to vehicular movement***
 - ***slow-go or no-go for dismounted movement***

Terrain, Mountains

- ***Obstacles con't***
 - ***“...the lack of usable roads or trails for wheeled vehicles, and the sea of mud created by the continuous rains, made supply by carrying parties mandatory...”***
 - ***“...the battalion was being supported by artillery fire at its maximum ranges. Forward movement of the battalion was dependent on how soon the artillery could move in the roadless country.”***
 - ***Quotes from WWII mountain combat veterans while at the USAIS.***

Terrain, Mountains

- ***Cover and Concealment***
 - ***Terrain can mask movement if used correctly***
 - ***Used poorly, the terrain can leave you exposed***
 - ***Valley floors, and the roads that run through them generally provide poor cover and concealment***
 - ***Lack of vegetation may reduce concealment***

Afghanistan



***Case Study:
Mount De La Difensa***

***First Special Service Force
December 1943***

F.S.S.F.

- ***American unit***
 - ***American and Canadian officers and soldiers***

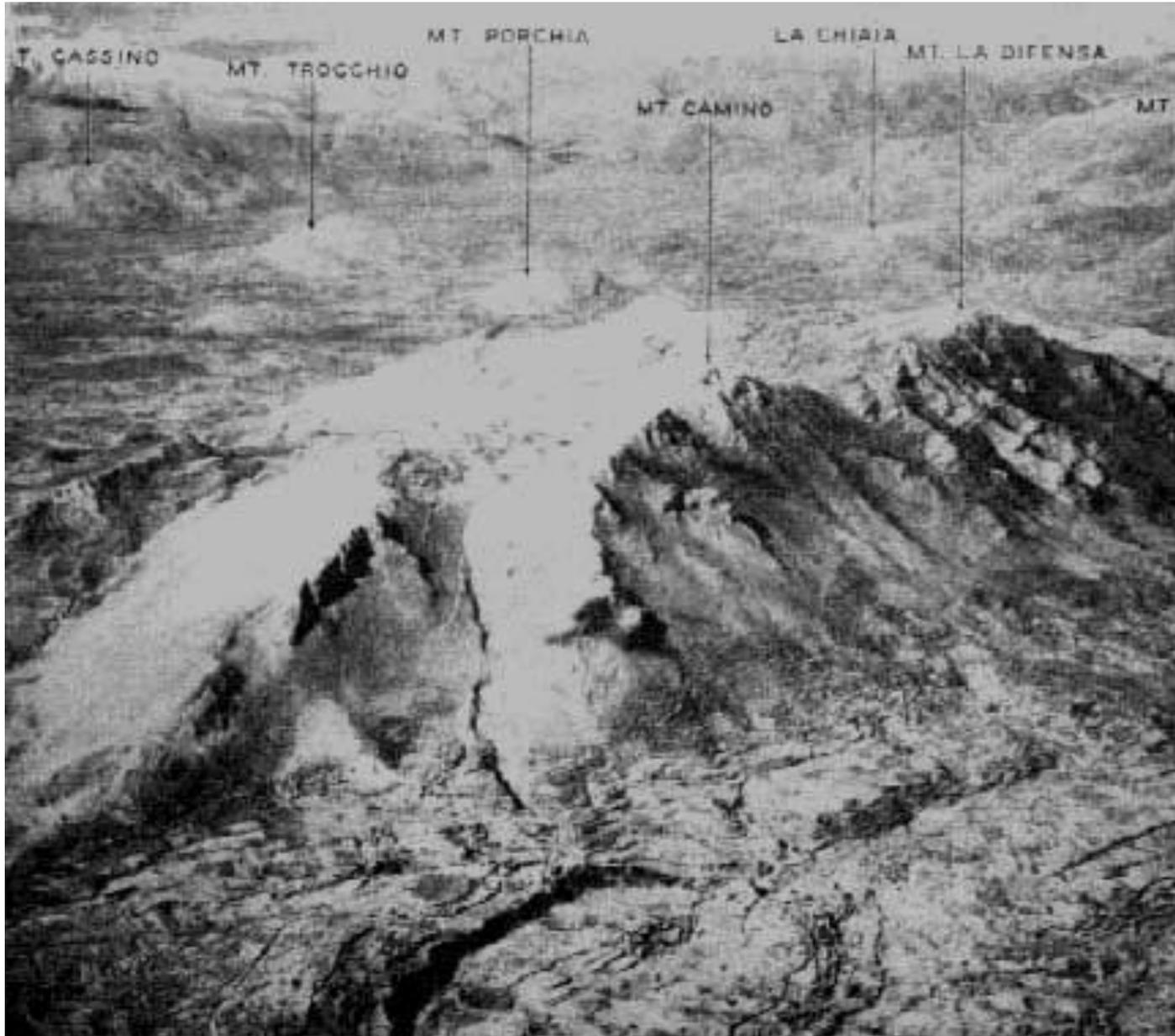
- ***Brigade size – 3 regiments with a support battalion***

F.S.S.F.

- ***Stood up in early 1942***
 - ***Mission to perform strategic raids throughout Norway***
 - ***9 months of mountain training***
 - ***Rocky mountains in Montana***
 - ***Finished in Vermont***

- ***Subordinate units***
 - ***2 section platoons***
 - ***60 man companies***
 - ***200 man battalions***
 - ***600 man regiments***

Mount de la Difensa



F.S.S.F.

- ***Mountaineering skills opened up a denied avenue of approach***
 - ***Scaling of cliffs at Mount de la Defensa a key to success***
- ***Junior leaders carried fight after scaling cliffs***

F.S.S.F.

- ***Logistics difficult, supplies came up by hand***
 - ***Heavy fog - bad weather for helicopters even today***
 - ***Whole regiment (equiv of Bn) dedicated to re-supply***

***Case Study:
Operation Anaconda***

CJTF Mountain

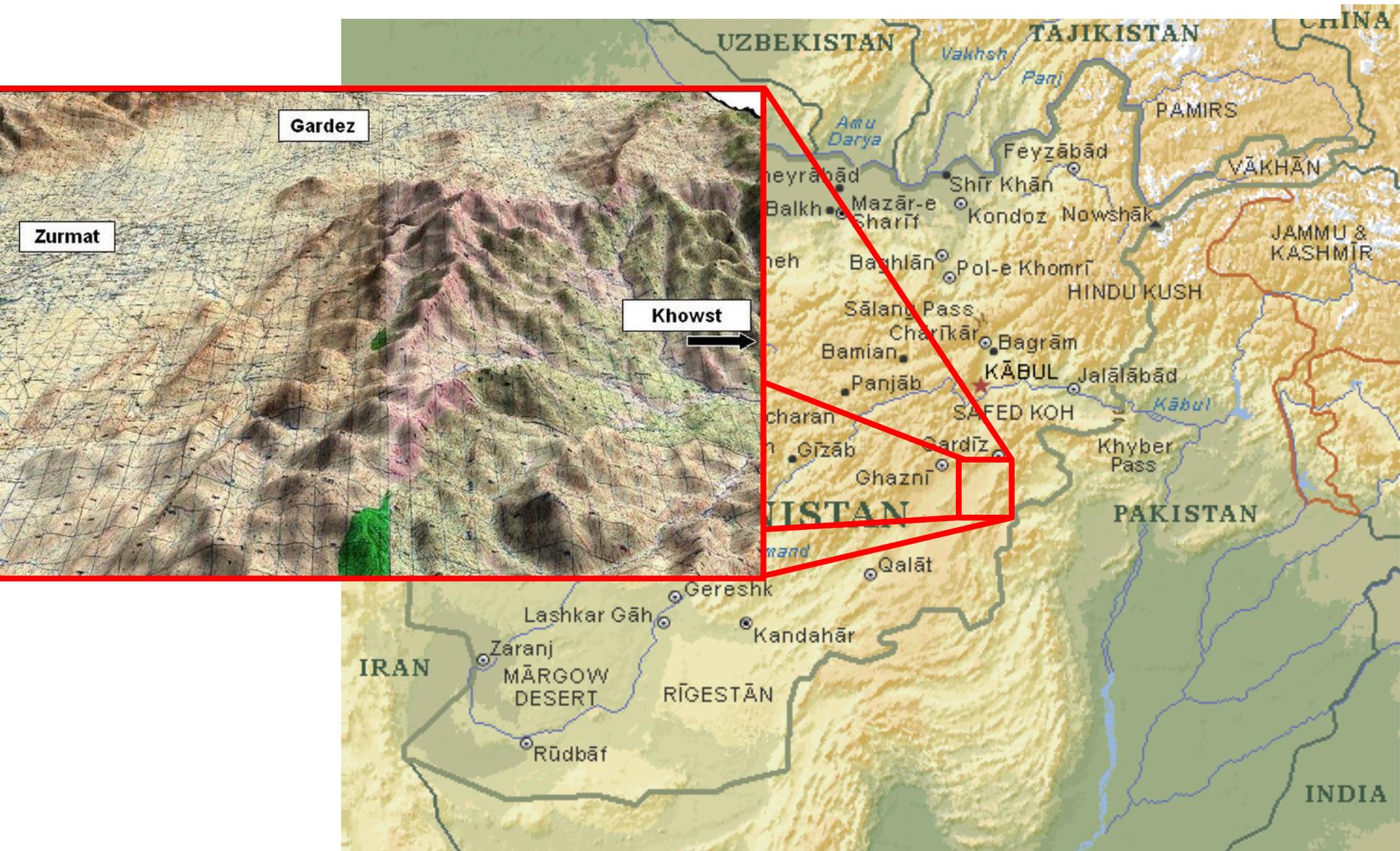
OEF

2-19 March 2002

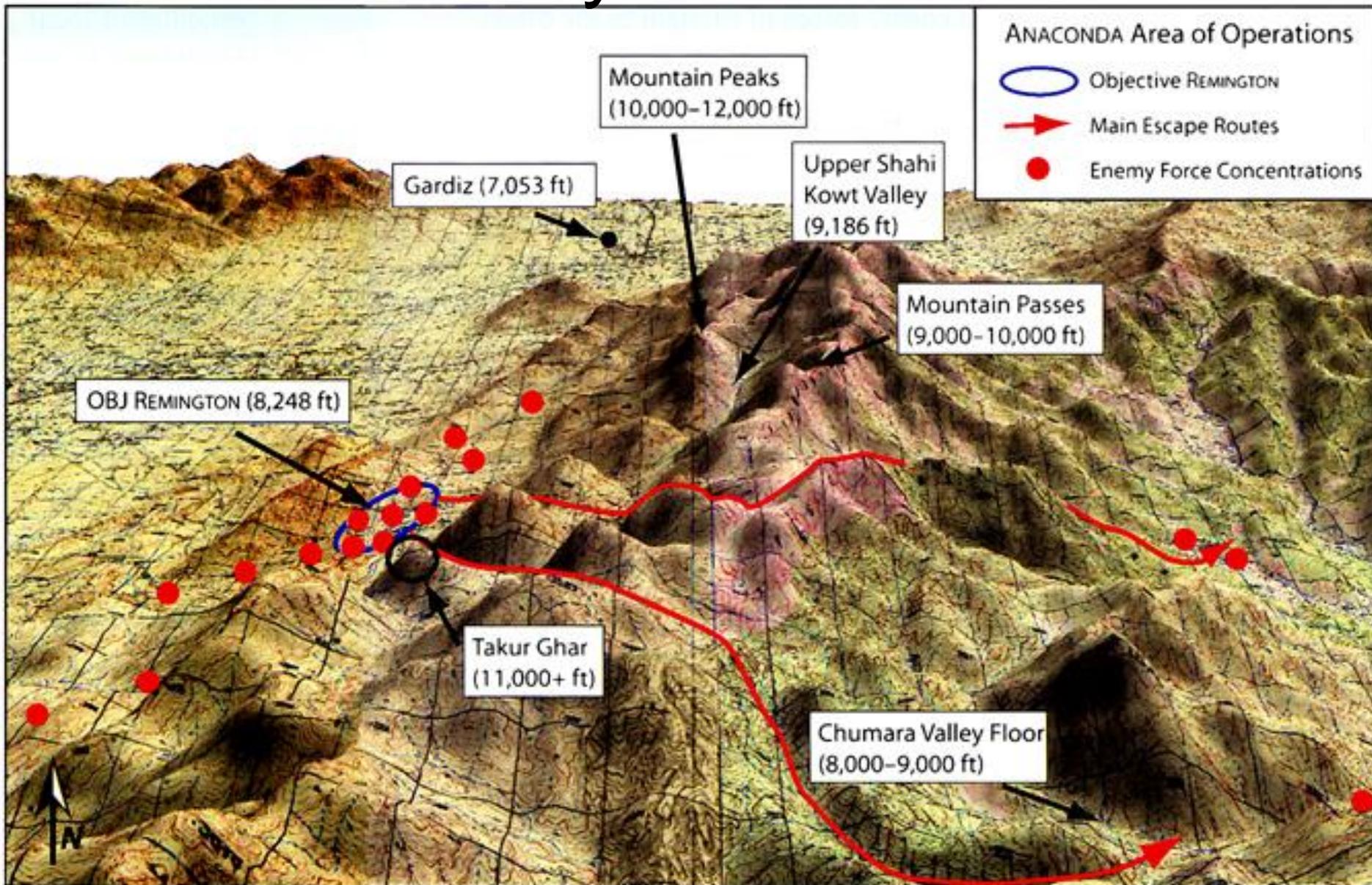
Background

- 19 October – mid-December 2001
 - SOF partnered with NA secured The northern portion of Afghanistan to Kabul and Khandahar
- December – February 2001
 - Tora Bora Battle
 - Build-up of Conventional Forces
 - Ever increasing numbers of fighters in the Shahi Kowt Valley reported through various intelligence sources

The Shahi Kowt Valley



Enemy SITTEMP



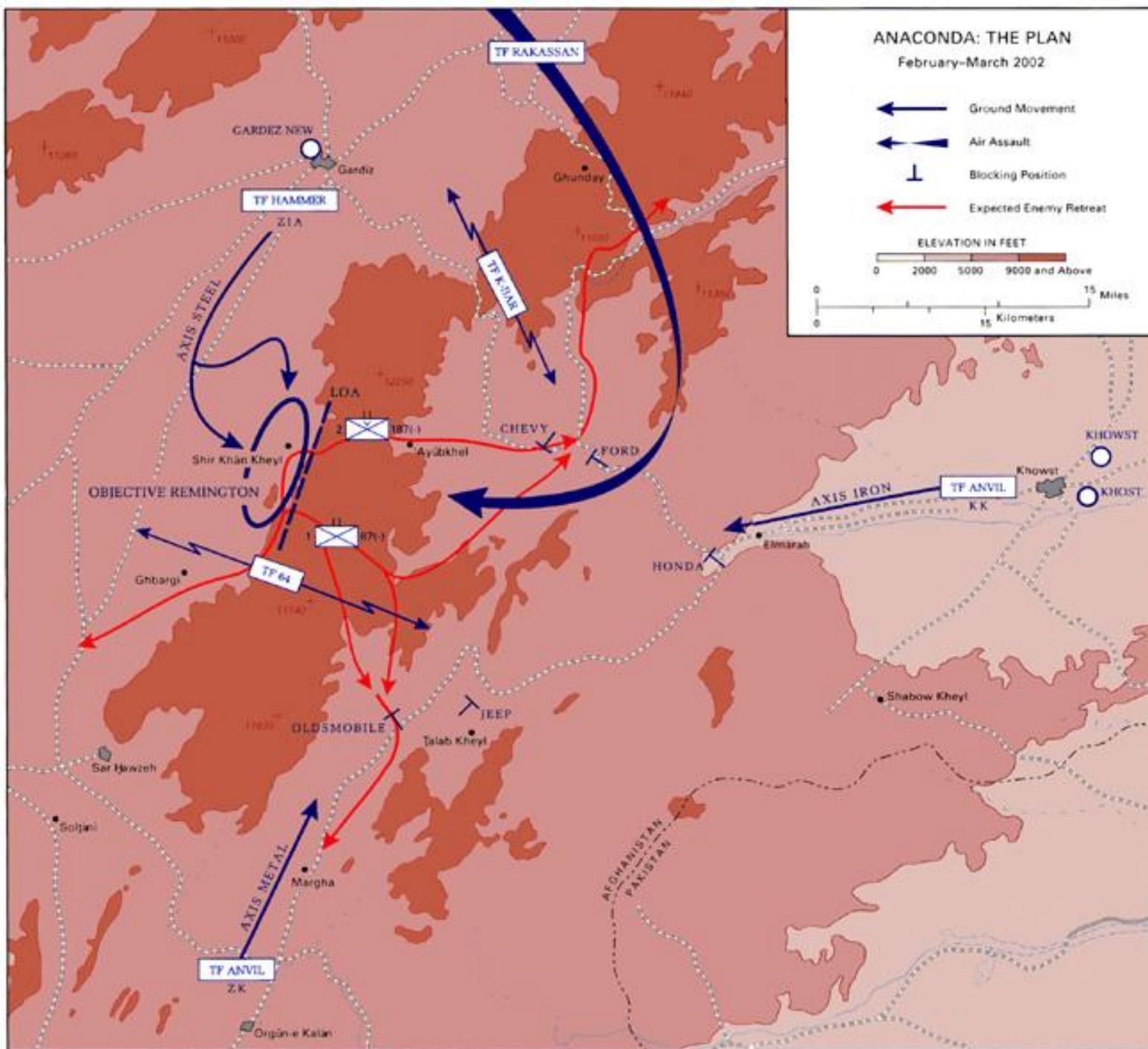
ANACONDA: THE PLAN

February–March 2002

- ← Ground Movement
- ← Air Assault
- ⊥ Blocking Position
- ← Expected Enemy Retreat

ELEVATION IN FEET

0 2000 5000 9000 and Above



THE PLAN UP CLOSE INTO THE VALLEY

2 March 2002

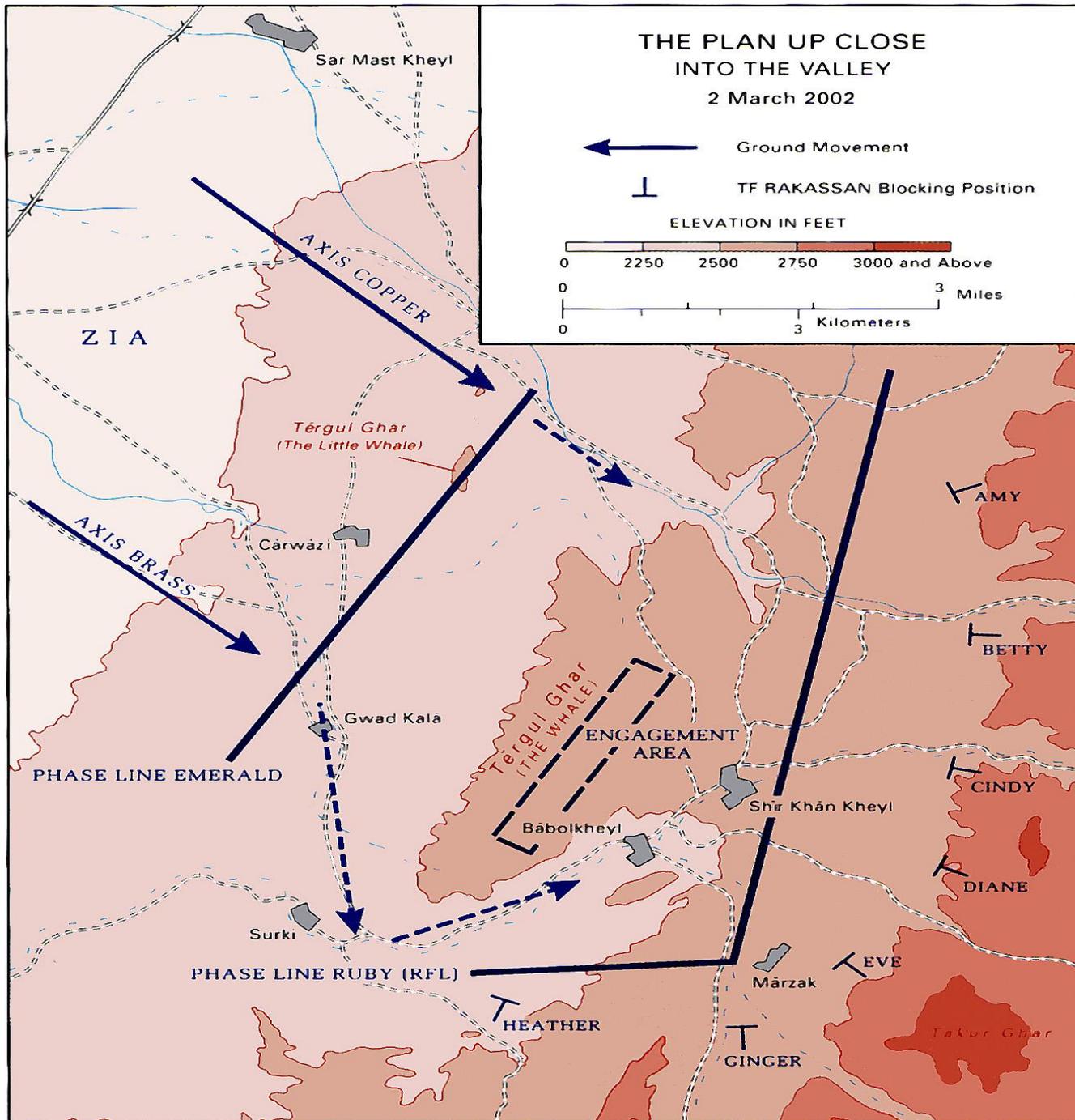
← Ground Movement
⊥ TF RAKASSAN Blocking Position

ELEVATION IN FEET

0 2250 2500 2750 3000 and Above

0 3 Miles

0 3 Kilometers



The Operation

- TF Hammer's advance along Axis Steel
 - As they departed main route and began traveling on secondary roads, several vehicles became stuck and one overturned. Many AMF set out on foot.
 - Received constant fire (primarily mortars) from enemy positions in the ridgeline
 - Returned to base after nightfall without achieving their objective
 - Received limited air support due to other events on the battlefield
- Loss of momentum of overall operation

The Operation

- TF Rakassan's Air Assault
 - Scheduled for two lifts of 7 CH-47's
 - 2d lift delayed several hours due to unexpected fog covering passes
 - Came under heavy fire immediately upon landing
 - 1st BN, 87th IN took particularly heavy mortar fire while trying to establish BPs Heather and Ginger
 - 120mm quickly ran out of ammunition
 - Apaches were bright spot of fire support
 - CAS poorly coordinated and artillery non-existent

Common Themes, Mountains

- ***Combat decentralized, focused on small units***
 - ***Large operations difficult - Terrain and sparse road network***
 - ***Inadequate mutual support between units.***
 - ***Junior leaders - capable of and allowed to practice initiative and flexibility.***
 - ***Small units must have indirect fire support that can fire into dead space and that the unit controls (ie organic mortars)***
 - ***References***
 - ***Soviet Invasion of Afghanistan⁶***
 - ***First Special Service Force, Italy, WWII⁷***

Common Themes, Mountains

- ***Decentralized Nature of Mountain Fighting –***
 - ***“...the weather and terrain forced the regimental commander to decentralize his command. Most companies were fighting to secure objectives which in no way were in contact with another company...”***

WWII mountain vet

Common Themes, Mountains

- ***Difficulty of Logistics in Mountains***
 - ***Supplies come only by men, mule, or helicopter***
 - ***Helicopters subject to altitude, weather, and enemy ADA threat***
 - ***Often even mules won't work, supplies packed in by soldier***
 - First Special Service Force dedicated one whole battalion to moving supplies at Mount de la Difensa***

Common Themes, Mountains

- ***Difficulty of Logistics continued***
 - ***“Gator” vehicle working well in Afghanistan***
 - ***“...the rate of advance was determined largely by the progress made by engineers in the construction of supply and evacuation roads...” – WWII mountain vet***
 - ***References***
 - ***Soviet Invasion of Afghanistan*** ⁸
 - ***10th Mtn Div, Italy, WWII*** ⁹
 - ***10th Mtn Div, Afghanistan, OEF*** ¹⁰
 - ***First Special Service Force, Italy, WWII*** ¹¹
 - ***Experience of Indian Army on Saichen Glacier*** ¹²

Common Themes, Mountains

- ***High level of physical fitness is critical***
 - ***Any movement in mountains very fatiguing***
 - ***Supplies, equipment, and casualties often must be moved by soldiers over difficult terrain***
 - ***Higher level of fitness means better performance at altitude***

Common Themes, Mountains

- ***High level of physical fitness is critical***
 - ***“...the movement started out with a rest period of 5 minutes every half-hour of climbing, but as the company neared the top, five minute rest periods came every 10 minutes...”***
WWII mountain vet
 - ***References***
 - ***10th MTN DIV, OEF*** ¹³
 - ***Experience of US First Special Service Force, Italy WWII***¹⁴
 - ***Chinese invasion of North Korea***¹⁵
 - ***Ranger Regiment, OEF***

Common Themes

Overall

Common Themes, Overall

- ***Senior Leaders Must Respect Degree of Impact of Climate and Terrain on Operations***
 - ***“Can-do” attitude - good for executers, Bad For Planners***
 - ***“Ambitious and ill-conceived plans have proved very costly”***
 - ***MAJ Muhammad Asim Malik,
Pakistan Army Saichen Glacier veteran speaking about operations in history and during Indo-Pakistan conflict.***

Common Themes, Overall

- ***Senior Leaders Must Respect Degree of Impact of Climate and Terrain on Operations***
 - ***Slower Tempo - due to slower movement rates and difficulty of logistics***
 - ***Don't outrun your logistics***
 - ***Control of Key terrain often most important tactical consideration (avenues of approach and shelter)***

Common Themes, Overall

- ***Soldier and small unit skills critical to fight***
 - ***Without Cold Regions field craft units fall apart***
 - ***Light infantry skilled in skiing only way to fight away from roads in arctic***
 - ***Germans found that only Mountain or Ski units functioned well in arctic (6th SS Mountain Division, 20th Mountain Army)***

Common Themes, Overall

- ***Soldier and small unit skills critical to fight***
 - ***Mountaineering skills open up otherwise denied avenues of approach in mountains***
 - ***Junior leader performance key to success***
 - ***Must display initiative, aggressiveness, mental toughness, and constantly monitor soldiers***

Common Themes, Overall

- ***Mountainous and Cold Regions
Environments are often one and the same***
 - ***Freezing and snow levels are variable in mountains severe weather and snow can occur at any time¹⁷***
 - ***References***
 - ***Austro-Hungarian Winter offensive in Carpathians January 1915¹⁶***
 - ***10th Mtn Div, Afghanistan, OEF¹⁷***
 - ***Indo-Pak conflict on Saichen Glacier¹⁸***
 - ***Italian and Austro-Hungarian fighting in Alps in WWI***
 - ***USMC and Norwegian army conference on Cold Regions operations¹⁹***

Summary

- ***Respect climate and terrain. Planners and Commanders should be realistic, not optimistic***
- ***Logistical capabilities must limit operational plans***
- ***Both environments require special skills, if not specialized units.***
- ***Altitude and steep terrain will break a unit not physically ready for mountains***
- ***Mountains = cold and snow, in any season***

Quotes

“Dependence on technology...revealed a reluctance on the part of the Soviets to close with the rebels in isolated small-scale combat”

Scott McMichael, pg127 Stumbling Bear

Quotes

“Humans are more important than hardware. Quality is better than Quantity.”

5th Special Forces Group OEF / OIF AAR comments at 2003 Infantry Conference.

Quotes

“(We) relied way too much on air support, didn’t do enough ground tactics.”

SSG from 10th Mountain Division, Operation Anaconda, Afghanistan

Quotes

“Rotary aviation is Achilles heel – requires intensive management.”

“Mortars are very effective – biggest organic killers”

10th MTN DIV AAR comments from OEF at 2003 Infantry conference

Quotes

“101st / 10th Mtn / Rangers / SFG all emphasized the importance of physical fitness whether in OIF’s urban operations environment or OEF’s challenging mountains and altitude”

Common themes summary, 2003 Infantry Conference

Quotes

“The U.S. Army needs to maintain at least one animal transport regiment of mules with its own trainers and handlers to augment existing logistic support .”

“The U.S. Army does not conduct collective training specific to mountain warfare, but rather it focuses more on survival training rather than high altitude combat.”

MAJ Muhammad Asim Malik – Recommendations to improve US Army mountain warfare capability

Quotes

“Generally, senior leaders consider themselves well equipped for planning and conducting operations in any kind of environment. This is unfortunately not always true. From my personal experience, on the whole, commanders who served in the mountains as young leaders are far better at understanding and planning for this environment. “

***MAJ Muhammad Asim Malik, Pakistan Army Saichen
Glacier veteran***

Quotes

“Climate is a dynamic force (in the Russian expanse); the key to successful military operations. He who recognizes and respects this force can overcome it; he who disregards or underestimates it is threatened with failure or destruction.

In 1941 the Wehrmacht did not recognize this force and was not prepared to withstand its effects. Crisis upon crisis and unnecessary suffering were the result. Only the ability of German soldiers to bear up under misfortune prevented disaster. But the German Army never recovered from the first hard blow.”

Former German Army Group Commander, Eastern Front WWII