A Comprehensive Survey of Rock Art in Upper Tibet.
Volume I. Eastern Byang thang

# A Comprehensive Survey of Rock Art in Upper Tibet

## Volume I

## Eastern Byang thang

John Vincent Bellezza

Archaeopress Archaeology

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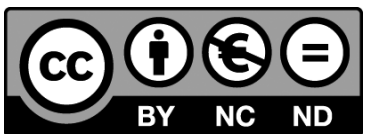
Cover: Gnam mtsho (Sky Lake) from the southeast side of the lake. Photograph was taken in the early morning during placid weather. Spine: Outline of Inv. no. S1_L9_C11a: stag. Protohistoric Period. Cat107.

Maps and diagrams by Brian Sebastian and John Vincent Bellezza.

This volume has undergone minor revisions and corrections since its initial printing.



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# Acknowledgements

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As an independent researcher and explorer with little recourse to university and corporate sponsorship, every act of kindness shown to me by friends, colleagues and strangers alike, whether it was material or informational in nature, assumes special significance. Nonetheless, I have enjoyed much intellectual liberty in my quest to elucidate the ancient cultural make-up of Tibet, managing to be free of burdensome teaching assignments and faculty obligations. Operating independently has also allowed me to remain vigilant regarding the pet theories of others and the latest socio-political trends in academia. Yet, I am always cognizant of the fact that the liberty I have attained was largely empowered by the generosity and goodwill of others.

I am most fortunate to have been guided and befriended by many Tibetans over the course of launching expeditions to uppermost Tibet. This volume is the fruit of fieldwork and exploration in Tibet initiated in 1986, none of which would have been possible without the assistance of literally thousands of shepherds, farmers, monks, scholars, and government officials in Tibet. The drivers, cooks and guides who helped run many of my expeditions often had to endure difficult conditions and they command my respect. Although even those Tibetans whom I remember most must remain unnamed for the time being, their contributions are much appreciated. I also want to heartily thank the dear friends who accompanied me on expeditions to Tibet. Of special note is the late C. Ashely McAllen M.D., who participated in and helped fund fieldwork in 1999 and 2004–2007. His memory is cherished. Special thanks go out to R. Claire Bellezza who helped make the 1994 expedition to Upper Tibet especially pleasurable. Many friends have offered moral and material encouragement over the decades of exploration and research on which this work rests. It is with much satisfaction that I salute them all. Family members have been steadfast in their support of my labours and have helped me as best they could. Expressing the debt of gratitude owed and affection I have for them is beyond my powers as a writer to express.

Despite any shortcomings in this book, as surely there are, I sincerely hope that all those who have assisted me (directly or indirectly) in writing it will not see their efforts as having been made in vain.

# Precis

This volume comprehensively documents rock art in Upper Tibet,[1] the first of five books planned on the subject. Rock art, the alteration of natural rock surfaces as cultural productions, is typically one of the most durable of archaeological assets worldwide. The territory referred to as Upper Tibet in this work occupies much of the western half of the Tibetan Plateau, the highest part of the highest plateau on earth.[2] The Tibetan Plateau is strategically situated in the heart of Asia and covers an area of approximately 2,400,000 km². To the west and south lies the Indian Subcontinent and Burma, while cultural China occupies the east and Inner Asia is in the north. The pictographs (rock paintings) and petroglyphs (rock carvings),[3] rock art sites, and descriptions and analyses presented in this work are the direct result of intensive fieldwork conducted by the author in Upper Tibet between 1995 and 2016. By organizing rock art as well as related findings collected on eighteen major expeditions into a single research framework,[4] a coherent exposition of this area of inquiry is achieved. The present volume and others of the series, examine the physical, aesthetic and semantic characteristics of rock art in Upper Tibet. It is subject to archaeological, historical and ethnographic investigation, which lays the foundation for systematically exploring various questions regarding the role of rock art in forging Upper Tibet's past. As is conveyed in this and other volumes of the series, rock art in this territory serves as a kind of cultural bridge spanning some 3000 years. Hence, this corpus of primary materials is uniquely placed chronologically, enabling the distant past to set the stage for gaining new perspectives on the more familiar Tibetan legacies of later times.

The study of rock art is of much value, for it provides a great wealth of information on ancient settlement and culture in Tibet (as it does worldwide). These paintings and carvings on stone represent a continuous record of habitation and cultural development over a wide swath of Tibet, beginning no later than the Late Bronze Age and continuing until *c.* 1400 AD and even to the present day. The origins of the large fund of rock art in Upper Tibet can be traced back to no later than the Late Bronze Age (*c.* 1200–700 BC) and persisted as an interrelated cultural, regional and technological expression in the Iron Age (ca. 700–100 BC) and Protohistoric period (*c.* 100 BC – 600 AD). The rock art of this Late Prehistoric era (*c.* 1200 BC – 600 AD) is primarily characterized by zoomorphic depiction and close interactions between animals and humans in both hunting and non-hunting contexts. In the Early Historic period (*c.* 600–1000 AD), the rock art of Upper Tibet began to chronicle numerous encounters between Buddhist and non-Buddhist religions and sometimes appears alongside Tibetan rock inscriptions. As this book and others in the same series demonstrate, it is in the rock art of Upper Tibet that some of the most widespread icons and symbols adopted by the two Lamaist religions (Buddhism and Yungdrung Bon) first manifested. Yet, there was no complete break with the past and hunting displays and anthropomorphic and zoomorphic portraiture continued to fascinate rock art makers in the Early Historic period and Vestigial period (*c.* 1000–1400 AD). The old tradition of carving and painting natural rock surfaces in Upper Tibet, often relying upon preestablished themes and scene architecture, continued until as late as *c.* 14th century AD, before largely disappearing from the archaeological record (Bellezza 2020b). Nonetheless, there is also a smaller body of rock paintings and carvings that prevailed in the Late Historic period (*c.* 1400–1950 AD), which extends traditional legacies of figuration to within living memory.

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[1] This territory falls under the jurisdiction of the Tibet Autonomous Region of the Peoples Republic of China. In premodern times, it was part of lands ruled by the Lhasa government (Sde pa gzhung).

[2] West of Upper Tibet, the 'Western Tibetan Plateau' includes the regions of Ladakh and Spiti under Indian jurisdiction, Baltistan in Pakistan, and Transhimalayan areas of Nepal (Humla, Dolpo, Mustang, etc.). There are manifold commonalities in the content of rock art on the Western Tibetan Plateau. Adjacent tracts to the east of Upper Tibet, in what are now the Mtsho nub and Yul shul Prefectures of Qinghai province on the Eastern Tibetan Plateau, also share an interrelated physical and cultural environment with the Western Tibetan Plateau.

[3] Pictographs (rock paintings) are also known as cave paintings, cave drawings, rock paintings, and rupestrian paintings. Synonyms for petroglyphs include rock engravings/etchings, and rupestrian carvings/engravings/etchings.

[4] These expeditions were planned and executed by the author with local residents acting as guides and providing logistical support on a voluntary basis. Friends of the author also accompanied him on several of the campaigns to survey rock art, sometimes participating in its documentation. In expeditions launched after 1998, paid staff was a critical element of most missions. Staff members were engaged in the operation and maintenance of transport vehicles, cooking and other camp chores, and as liaisons with government officials. The expeditions in which rock art was surveyed are as follows: Divine Dyads Expedition, year two (1995), Changthang Phase II Expedition, year one (1997), Changthang Phase II Expedition, year two (1998), Changthang Circuit Expedition (1999), Upper Tibet Circumnavigation Expedition (2000), Upper Tibet Antiquities Expedition (2001), High Tibet Circle Expedition (2002), High Tibet Antiquities Expedition (2003), High Tibet Welfare Expedition (2004), Tibet Upland Expedition (2005), Tibet Ice Lakes Expedition (2006), Tibet Highland Expedition (2006), Wild Yak Lands Expedition (2007), Sky Lake Expedition I (2008), Upper Tibetan Rock Art Expedition I (2010), Upper Tibetan Rock Art Expedition II, year one (2011), Sky Lake Expedition II (2012), and Upper Tibetan Rock Art Expedition II, year two (2013). Each of the expeditions in which rock art was catalogued were between one and six months in length. As well as these expeditions, rock art was documented on two shorter excursions to Upper Tibet in 2014 and 2016.

In addition to this work and its focus on the eastern portion of Upper Tibet, there are four other volumes planned for the series which, when brought to fruition, will constitute the most extensive study of rock art conducted in Upper Tibet to date. All five volumes are contracted for publication by Archaeopress (Oxford) and are expected to appear in print over the next three years. This first volume inventories rock art in a region called the Eastern Byang thang (pronounced Changthang).[5] Like this book, Volumes II, III and IV consist of regional surveys of rock art and are geographically organized from east to west. The second volume is devoted to the rock art of the Central and Western Byang thang, while the third and fourth volumes examine the rock art of Stod in the far west of Tibet. In total, around 12,000 rock art subjects are to be individually inventoried through the compilation of standardized sets of data. Basic information on rock art production techniques, subject identification, thematic class, mode of presentation, physical condition, estimated age, and relative location, etc. are supplied for each piece of rock art. In addition to the datasets, the first four volumes of the series offer rock art site descriptions and assess the cultural, religious and artistic development of these locations. Particularly in this first volume on the rock art of the Eastern Byang thang, a spectrum of collateral archaeological sites (residential, ceremonial and funerary) is scrutinized. When viewed in combination with these monumental assets, the social and economic context of rock art in the region comes into sharper focus. The fifth and final volume of the series contains the bulk of the text, a rigorous examination of the ideological, technical, chronological, cross-cultural comparative, and statistical aspects of rock art in Upper Tibet. Drawing from the inventory, the significance of rock art to an understanding of the cultural and historical development of Tibet and its place in the archaeological mosaic of Eurasia more widely is plumbed in depth. There are also extensive methodological and theoretical discussions planned for the fifth volume, which situate the rock art of Upper Tibet in a broader academic and artistic ambit.

[5] In this work the most widely used system of Roman transliteration of Tibetan terms, which is called modified Wylie, is uniformly employed for consistency and accuracy. Without the degree of linguistic precision offered by the correct rendering of Tibetan terms, the cultural and historical analyses undertaken in this volume and others in the series would be seriously compromised. To avoid unwieldy repetitions, it was decided that phonetic equivalents of Tibetan terms would not be included in the work. However, Tibetan words that have been adopted into the English language (e.g. lama, Lhasa) appear as they do in English. It should be emphasized that the system of transliteration employed in this work differs greatly from Sinicized designations of Tibetan terms which are now frequently used in science publications worldwide. For example, the Tibetan word for lake *mtsho* (pronounced *tsho*) is often written as *co* in technical articles. It is the author's view that the confusion engendered by disparate systems of transliteration is best overcome by the embrace of Tibetan linguistic traditions in this work.

# Section I

# General Introduction

## Ia. A Geographic, Environmental, and Administrative Review

Upper Tibet consists of two major regions that are traditionally known to Tibetans as Byang thang and Stod.[1] The larger Byang thang (literally: Northern Plains), a sprawling expanse of mountain ranges, basins and plains, occupies the eastern two-thirds of the territory, while the valleys, mountain ranges and badlands of Stod are situated in the far west. However, the physiographic boundary between the Byang thang and Stod is not clearly demarcated; rather they overlap as the high tablelands of the former give way to the lower elevation of the valleys of the latter. In fact, the Western Byang thang is often seen as an integral part of Stod, because it too was, and still is, administered by Mnga' ris (now a prefecture of the TAR). The Byang thang is set north of the two main Transhimalayan ranges. In geographic parlance, these two ranges have come to be called Gnyan chen thang lha (eastern subdivision) and Gangs ti se (western subdivision), which in scientific literature are spelled in a variety of ways.[2] In the west, the northern boundary of Upper Tibet is formed by the Kunlun Mountains, which demarcates sections of the border between the provinces of TAR (Tibet Autonomous Region) and Xinjiang in the PRC (Peoples Republic of China). In the east, the northern bounds of Upper Tibet are formed by the Gdang la (Tanggula) range, which divides the TAR and Qinghai provinces. The Byang thang is a descriptive geographic term that refers to the topographic characteristics of the region and does not carry any weight as political geographic nomenclature. It has often been used by residents of primarily agrarian Central Tibetan (in places such as Lhasa and Shigatse) to mean rather ambiguously the homeland of their stock-rearing northern neighbours. That is also the case with Byang, a toponym that refers rather inexactly to the vast northern regions of the herders. From this word comes *byang ba* (northerner), which denotes the herders or *'brog pa* of the north.[3] Although the term Byang thang does not appear to be of ancient origins, the use of the word Byang to denote some or all of the Byang thang has a long historical pedigree.[4]

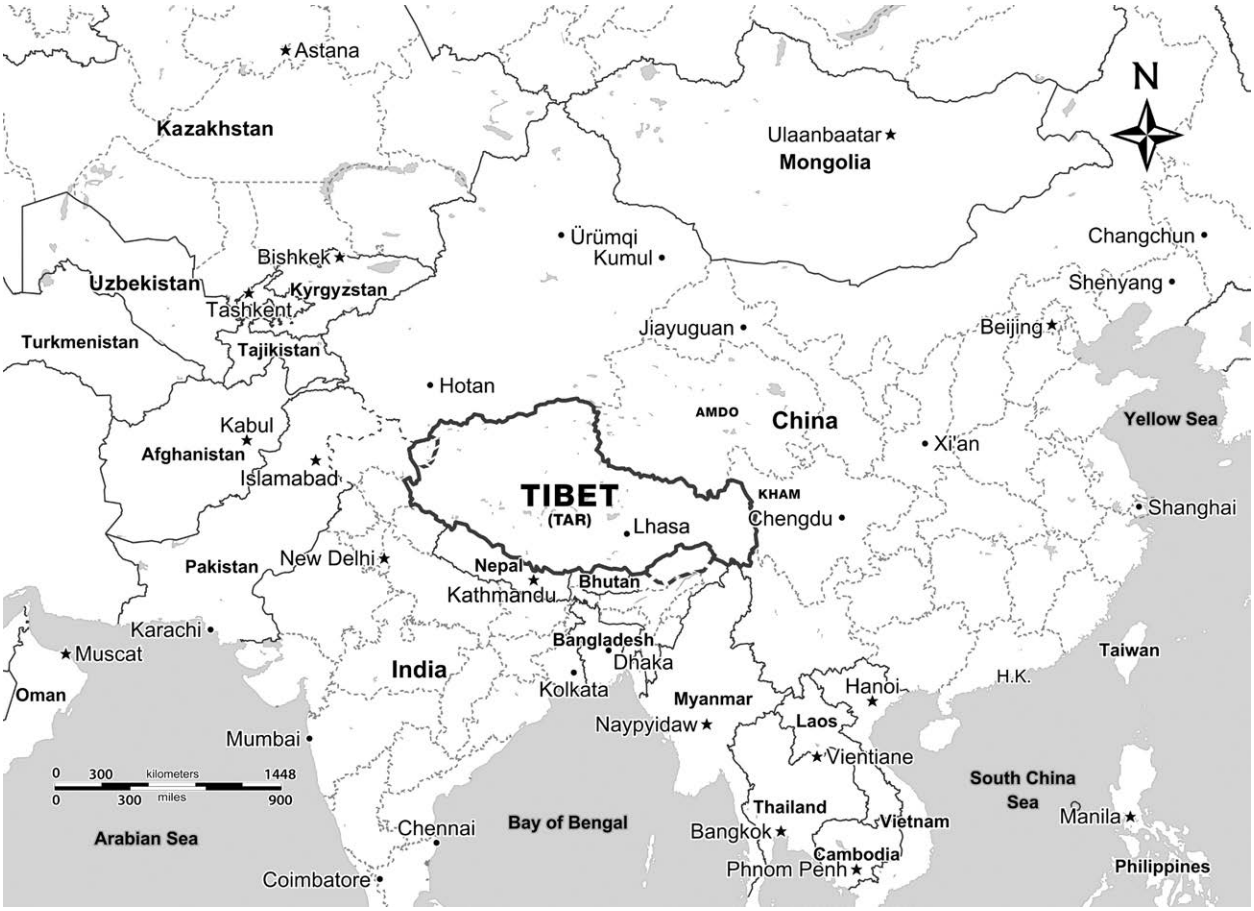
This first volume in the series on the rock art of Upper Tibet is dedicated to the pictographs of the eastern quarter of Upper Tibet, a region referred to as the Eastern Byang thang. In terms of biogeographical and physiographic make-up, the Eastern Byang thang stretches all the way east to Sog County (94° E), but this survey is only concerned with the territory set west of 91° E. The Eastern Byang thang is demarcated in this study as extending as far west as 88.4° E, which coincides with the Rgyal gangs ri (a meridian range of lofty peaks) and Ske ring mtsho (a very large salt lake), both of which are in Shan rtsa County. Although the Eastern Byang thang reaches all the way north to the Kunlun Mountains, the rock art surveyed is concentrated in the

[1] The earliest known documents and inscriptions in Tibetan date to the 7th and 8th centuries AD, where it appears as a highly sophisticated language that exhibits a mature grammar and syntax and an extensive vocabulary. Clearly, the origins of the Tibetan language lie in a much earlier period. Therefore, an understanding of Tibetan is a vital tool in the investigation of the cultural context of Upper Tibetan rock art, especially for that produced after the 7th century AD. According to Tibetan written sources, prior to the 7th century AD and the annexation of Upper Tibet into the Tibetan empire, two other Tibeto-Burman languages were spoken there: Zhang zhung (in the west) and Sum pa (in the east). Extant lexicons in Zhang zhung are scanty and what are purportedly terms of Sum pa language origin occur in Yungdrung Bon liturgical texts. Words and passages in these two languages have been written using the Tibetan script, mostly postdating the 11th century AD, and admit of lexical and orthographic innovations that arose subsequent to their use as spoken languages in Upper Tibet, beclouding their earlier vernacular forms. On the Zhang zhung language, see, e.g. Martin 2010; Hummel 2000; Dagkar 2003: 10–41.

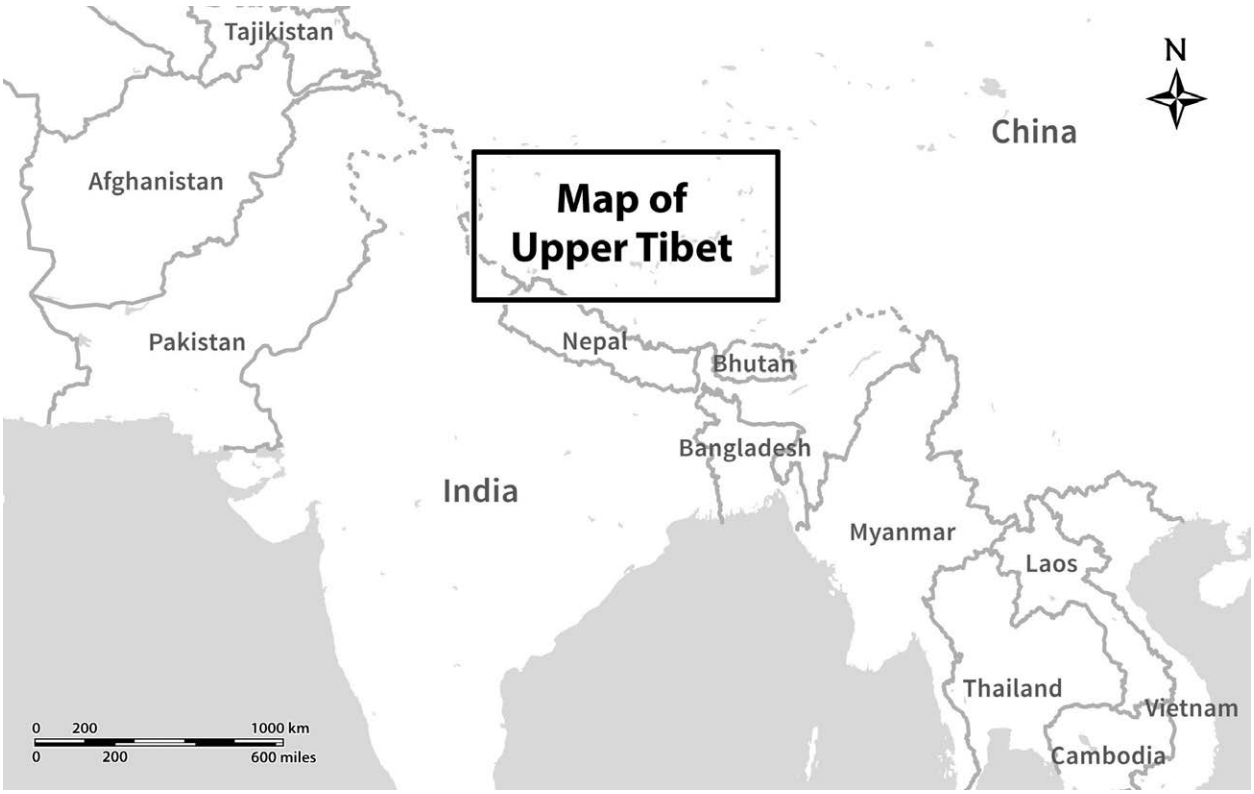
[2] In the English language, the Transhimalayan (also Trans-Himalayan) range of Gnyan chen thang lha is frequently rendered phonetically as Nyenchen Tanglha, while the established Chinese spelling is Nyainqêntanglha. The Transhimalayan range of Gangs ti se appears in various forms with Gangdise, Gangdese, and Gangdisi commonly encountered, but also as Gangdisê in pinyin (official system of transliteration used in the PRC).

[3] On the culture and way of life of the *'brog pa*, see, e.g. Bellezza 1997a; 2014c: 47–73; Norbu 1997; Goldstein and Beall 1990; Ekvall 1968.

[4] One ancient recorded form is Byang 'brog (Pastures of the North/Wilderness of the North), which is closely associated with the hunting of wild yaks and deer in several Old Tibetan historical and funerary and curative ritual manuscripts that date to the Early Historic period. Another form found in Tibetan manuscripts of the Early Historic period is Byang ka snam brgyad, a region of eight parts (*snam brgyad*, Classical Tibetan: *rnam brgyad*), which appears to be synonymous with some or all of the Byang thang. On these Old Tibetan terms, see Bellezza 2008: 519, 520; 2010: 69; 2013a: 210, 238, 239. Byang ka, meaning 'north' or perhaps more precisely 'expanse of the north', parallels other geographic terminology; e.g. *thang ka* (plain) *sna ka* (prow of a ridge).




Map 1. Map of the Tibetan Plateau and adjoining countries. The TAR (Tibet Autonomous Region) is highlighted in the middle of the map. This region corresponds with what is sometimes called Inner Tibet.




Map 2. Location of Upper Tibet, see Map 3 for site locations.

southernmost portion of the region (below 32° N). In the current system of political geography instituted by the PRC, the Eastern Byang thang falls mostly under the jurisdiction of Nag chu, one of six prefectures of the TAR. Rock art is found in Dpal mgon County (*rdzong* in Tibetan; *xiàn* in pinyin) in the east and Shan rtsa County in the west, two subdivisions of Nag chu Prefecture. A tiny portion of the Eastern Byang thang, coinciding with the eastern half of the Lake Gnam mtsho basin,[5] is placed in 'Dam gzhung County, Lhasa Prefecture. In the premodern political geography of Tibet employed by the Lhasa government (Sde pa gzhung), the Eastern Byang thang was apportioned into several major and many minor regions, which were owned by various aristocratic, abbatial and monastic estates, or ruled directly by the government. The traditional classification and administration of regions in Upper Tibet is an involved historical subject to which only the briefest of introductions can be given here. One broad administrative region was traditionally called Byang rigs sde bzhi, the four divisions of which encompassed the Eastern Byang thang west of 91° E. According to the Tibetan geographic text *'Dzam gling rgyas bshad*, Byang rigs sde bzhi was made up of four districts: Nag tshang, Gnam ru, Nag chu and Yangs pa can (Wylie (1962: 88).[6] The basic geographic unit and taxation entity of each district in old Tibet consisted of amalgamations of pastoral encampments generally known as *tsho pa* and *shog kha*, which for simplicity's sake are called 'confederated areas' in this work. Lake Gnam mtsho, in the southeast corner of the Eastern Byang thang, was divided between the eight confederated areas of 'Dam gzhung, the seven confederated areas of Sa skya and the 13 confederated areas of Gnam ru. West of Gnam mtsho there were the confederated areas of G.yag pa, which were grouped into several subdistricts (G.yag pa thar ma, G.yag pa pro mo drug bcu (sp?) and G.yag pa grum pa). The western portion of the Eastern Byang thang belonged to the six confederated areas of Nag tshang. Three other important districts on the Eastern Byang thang were Nag chu kha, A mdo and Bar tha, none of which contain rock art recorded by the author.

Like the rest of the Byang thang, the Eastern Byang thang is almost all given over to a pastoralist economy and semi-nomadic way of life. It is a cold, semiarid to arid region with dramatic diurnal temperature fluctuations due to the extremely high elevation. The cultivation of barley is limited to a few enclaves and much of this grain never matures and ends up as animal feed. Local herders known as *'brog pa* raise yaks, sheep, goats, and horses, eking out a livelihood in very harsh conditions. The Byang thang averages more than 4700 m in elevation, ranging from 4450 m in the most depressed lake basins to 5300 m on the plains of the north and northwest. It is beset by unpredictable and fast changing weather conditions as well as stiff winds much of the time. The region enjoys a summer season of only around eight weeks in length. Subfreezing temperatures must be contended with for the remainder of the year. Even in the middle of the summer blizzards may hit, often wiping out great numbers of livestock. The Eastern Byang thang, the wettest part of Upper Tibet, only receives *c.* 400 mm precipitation in the east and 300 mm in the west (Lu *et al*. 2019; Schaller 1998: 29).[7] The lower rainfall in the west of the Eastern Byang thang is part of a wider trend of decreased precipitation and temperatures on the Tibetan Plateau from the southeast to the northwest. This trend is accounted for by increased continentality, higher elevation and higher latitude on a southeast to the northwest transect. The climate of this very elevated landmass is strongly influenced by the Indian summer monsoon, this being particularly true of the Eastern Byang thang. The interaction of the westerlies with the Indian southwestern monsoon are pivotal forces in the climate of the Byang thang. The Byang thang, an integral biogeographical zone, is noteworthy for its many brackish, saline, and freshwater lakes. The two largest lakes in the region are Gnam mtsho (slightly brackish) and Zi leng mtsho (saline), both of which are situated on the Eastern Byang thang. The Tibetan Plateau contains 52% of the lakes (covering an area of 40,000 km²) of the PRC, (Wu *et al*. 2019), the majority of which are found on the Byang thang. Due to glacial loss (overall *c.* 15% in last 30 years), rising temperatures, and generally more precipitation, some lakes of the Byang-thang lakes are among the fastest growing in world.

The cold, semi-arid climate and high-altitude southern tier of the Byang thang is comprised mainly of so-called alpine grasslands, an ideal resource for the keeping of livestock. Much of the Eastern Byang thang is blanketed in alpine meadow (pasture) and alpine steppe vegetation, with Kobresia pygmaea

[5] The neologism 'Lake Gnam mtsho' is used to make it clear to readers that this refers to a lake. This toponym is a tautology as '*mtsho*' means 'lake' in Tibet.

[6] Yangs pa can is a pastoralist region south of the Transhimalaya, under which the important pastoralist region of 'Dam gzhung (also south of the Transhimalaya) is presumably subsumed in this scheme of classification.

[7] The 300 mm isoline is found just west of the Shen rtsa County seat (Lu *et al.* 2019). In the county seat of Gnam ru (Chinese: Baingoin), 70 km northwest of the Gnam mtsho, total annual precipitation, measured from 1957 to 2010, varied between 170 mm and 469 mm with a mean of 312 mm (Liang *et al*. 2012). There has been a trend to warmer and wetter conditions on the Tibetan Plateau in the last few decades. On these recent climatic phenomena, see Li *et al*. 2010. Wang *et al.* (2008) state that surface temperatures on the Tibetan Plateau have increased by *c.* 1.8°C over the last 50 years and further increases may lead to enhanced summer rainfall. Based on more comprehensive meteorological data, Zhong *et al.* (2019) identify a consistent warming trend from 1960–2014, the average increase being 2.2 times the global mean.

predominating in the former and Stipa purpurea being the dominant perennial grass in the latter biome.[8] Hummock swamps consisting primarily of Kobresia schoenoides are scattered around many areas of the Eastern Byang thang.[9] Herbaceous plants belonging to the genus *Artemisia* are prolific in the region. Dwarf willows (genus *Salix* L.) and junipers (Juniperus pingii var. wilsonii) grow in some protected south-facing locations, particularly near the limestone and granite formations that encircle Gnam mtsho. There is also a special vegetation linked to geothermal sites.[10] In the northern tier of the Eastern Byang thang (above 33°N) there is transition from alpine meadows to high-cold desert.[11] While there are trees, flowers and perhaps other vegetation depicted in the rock art of Upper Tibet, their identification is uncertain.

The zoomorphic rock art of Upper Tibet is characterized by wild ungulates, large carnivores and birds that are mostly native to the territory. Thanks to its vast wild pasturelands, the Byang thang once supported large populations of wild herbivores including the now rare wild yak (Bos grunniens), the endemic white-lipped deer (Cervus albirostris; now restricted to the eastern margin of the Eastern Byang thang), Tibetan wild ass (Equus hemionus; the largest species of wild ass in the world), Tibetan antelope (Pantholops hodgsoni), argali (Ovis ammon hodgsoni; the largest wild sheep species in the world), blue sheep (Pseudois nayaur), and Tibetan gazelle (Procapra picticaudata), all of which are represented in the rock art of Upper Tibet. Other common but smaller mammalian species in the territory, such as the Tibetan woolly hare (Lepus oiostolus), Himalayan marmot (Marmota himalayana), and black-lipped pika (Ochotona curzoniae), are little seen in rock art.[12] Large carnivores on the Byang thang are the brown bear (Ursus arctos), snow leopard (Panthera uncia), wolf (Canis lupus), and lynx (Felis lynx). In addition to the tiger, these large wild carnivores are fairly common portrayals in Upper Tibetan rock art. The Tibetan sand fox (Vulpes ferrilata) and red fox (Vulpes vulpes) also occur on the Byang thang but they appear to be little depicted in rock art. It is reported that 67 species of birds breed on the Byang thang and 156 species in the far west of Tibet, which are mostly comprised of Palearctic species but with some Sino-Himalayan species as well (Vaurie 1972: 110–144).[13] Bar-headed Goose (Anser indicus), followed by Brown-headed Gull (Larus brunnicephalus), Ruddy Shelduck (Tadorna ferruginea) and Great Black-headed Gull (L. ichthyaetus) made up 81.2% of all the waterbirds counted on an extensive survey carried out in the southern tier of the Byang thang (Zhang *et al.* 2015). Ravens, tit warblers, snow finches, ground choughs, snowcocks, sand grouse, larks, and desert wheatears are also common in the southern Byang-thang (Yeshe De Project 1986: 56). Black-necked Cranes (Grus nigricollis) were counted at 39 lakes in Nag chu and Mnga' ris Prefectures (Zhang *et al.* 2015). A wide range of raptors fly in the skies of the Byang thang, including those belonging to the families of Falconidae, Strigidae and Accipitridae. Many taxa of birds, especially birds of prey, grace the rock art of Upper Tibet.

It is widely accepted that the formation of the Tibetan Plateau was mainly the result of the collision of the Indian and Eurasian tectonic plates during the Cenozoic and the subsequent subduction of the Indian plate beneath the Eurasian plate.[14] The Tibetan Plateau has had a huge bearing on shaping the global climate and in the distribution of biogeographical zones in Eurasia. The Tibetan Plateau is the youngest example of continent-to-continent collision, subduction and spreading, which was initiated 50–70 million years ago (Liu *et al.* 2019). The modern deformation regime was established 8–15 million years ago (Royden *et al.* 2008). The plate tectonic forces that formed the Tibetan Plateau occurred in stages, producing six nearly east-west oriented crustal blocks or terranes that are accreted to Eurasia. The Tibetan orogenic belt consists of (from south to north) the Himalayan, Lhasa, Qiangtang, Songpan-Ganzi-Hoh-Xil, Kunlun-Qaidam, and Qilian blocks, each of which is separated from one another by suture zones (Liu *et al.* 2019; Spicer *et al.* 2021). Upper Tibet is composed of the Himalayan block and two terranes, Lhasa and Qiangtang (each measuring 1000 km in length and 200–400 km wide), which are separated from one another by the Indus-Yarlung suture zone (consisting of a depression with two axial rivers flowing in opposite directions) and the Bangong-Nujiang suture zone (running north of Ru thog, Sger rste, Nyi ma and Nag chu) respectively. The

[8] Around 60% of the entire area of the Tibetan Plateau is composed of alpine steppe (S. purpurea and Carex high-cold steppe), alpine meadow (Kobresia and forb high-cold meadow), and alpine sparse vegetation (Ni and Herzschuh 2011: 431). Miehe *et al.* (2011) estimate that grasslands belonging to the Poaceae and Cyperaceae families and cushion plants in the central and western highlands of Tibet cover around 800,000 km². Kobresia pastures constitute the largest pastoral alpine ecosystem in the world, the main component of which is an endemic dwarf sedge, Kobresia pygmaea, which forms a tough cover of turf secured by a felty root mat that on the southern Byang thang extends west to the 82nd meridian (Miehe *et al.* 2019). The typical alpine steppe community of S. purpurea is sparse, with plant coverage not more than 20% (Chang: 1981).

[9] It is reported that hummock swamps of the Cyperaceae family cover 80,000 km² of the Tibetan highlands (Miehe *et al.* 2011).

[10] More than 600 geothermal sites have been documented in the TAR (Gustafsson 1993: 26).

[11] Carex moorcroftii and Ceratoides compacta are the dominant species in the northernmost tier of the Byang thang (Chang 1981).

[12] For a general study of large mammals on the Byang thang, see Schaller 1998; 'Animal Diversity Web (ADW)': https://animaldiversity.org/. Selected wildlife of Upper Tibet will be examined in more detail in Vol. V of this study.

[13] For a list of bird species found on the Tibetan Plateau, see 'Avibase – The World Bird Database': https://avibase.bsc-eoc.org/checklist.jsp?region=cnti

[14] However, it is not yet known precisely when Cretaceous sedimentary formations associated with the orogenic cycles responsible for the Tethys Sea closure on the Byang thang took place. Dates range from the early to late Cretaceous. On questions related to the Tethys Sea closure, see Liu *et al.* 2018.

Qiangtang terrane was accreted to the Songpan-Ganzi terrane in the north along the Jinsha Suture during the late Triassic or early Jurassic, while the Lhasa terrane was accreted to the Qiangtang terrane along the Banggong Suture during the early Cretaceous (Dewey *et al.* 1988; Liu *et al.* 2015). The Qiangtang terrane is covered in Mesozoic strata with outcrops of granitoids and volcanic rocks, while the Bangong-Nujiang suture zone is composed of scattered ophiolitic fragments and Jurassic flysch, the remnants of the Bangong-Nujiang Tethys (Liu *et al.* 2018). The Lhasa terrane, which underthrusts the Qiangtang block, is bounded on the south by the Gangdese (Transhimlayan) belt of magmatic rocks. South of that is the Himalayan orogenic belt. The Lhasa terrane is distinguished by the huge Early Jurassic-Middle Eocene Gangdese magmatic belt in the south and by Palaeozoic-Mesozoic strata in the centre and north (Liu *et al.* 2018). The Gangdese magmatic belt is thought to have formed during the north-dipping subduction of the Indus-Yarlung Tethyan lithosphere, or alternatively, after the collision of the Indian and Eurasian plates along the Indus-Yarlung suture (Liu *et al.* 2018). The Byang-thang has ample reserves of soda, borax, asbestos, graphite, iron, gypsum, quartz, and gold (Yeshe De Project 1986: 56).

### Ib. Ancient Cultural Characteristics of the Eastern Byang thang

This résumé of the ancient cultural characteristics of the Eastern Byang thang serves as a prelude to more extensive treatment of the subject planned for Vol. V of the series. It is designed to equip the reader with an archaeological and historical orientation to the region, thereby placing the rock art inventoried in this work in a broader context.

The southern tier of the Eastern Byang thang has been long settled by human beings, with the earliest occupation potentially dating to the Upper Palaeolithic some 20,000 to 40,000 years ago.[15] Although traces of early human settlement have been discovered in the northern part of the Eastern Byang thang, it is the south of the region (below the 32nd parallel) that was and is most amenable to colonization. The south is warmer, wetter and on average lower in elevation than the north (much of the north is covered in permafrost). Hence, it is no surprise that the southern tier of the Eastern Byang thang is where the rock art and associated structural remains of the Late Prehistoric era are distributed. At a place called Nwya Devu, in the southern part of the Eastern Byang thang (Shan rtsa County, Gzhung smad Township), the first excavation of a stratified site on the Tibetan Plateau believed to be of Palaeolithic antiquity was conducted between 2013 and 2018. Nwya Devu is not far from rock art sites S21 and S22 of this volume. Relying upon optically stimulated luminescence (OSL) dating techniques, the earliest of the three strata excavated at Nwya Devu. and by extension the lithic assemblage it contained, which is marked by relatively advanced prismatic core and blade technology (blade cores, flake cores, blades, flakes, and others), are estimated to date from 30,000 to as much as 40,000–45,000 years ago (Zhang *et al.* 2018). While this forgoing study requires much follow-up work, including the discovery of other stratified sites that potentially predate the Last Glacial Maximum (18,000–24,000 years ago), it is indicative of the longstanding nature of human activity in Upper Tibet.[16]

[15] It is still not known when the earliest homo sapiens colonizers reached the Tibetan Plateau. A paucity of ancient human remains in secure archaeological contexts has impeded an understanding of the population history of this huge territory. Lu *et al.* (2016) conclude that the genetic origins of the Tibetans are considerably more ancient and more complex than previously thought, pushing them back to at least 40,000 years before present. The evidence presented in the Lu *et al.* study indicates the existence of both Palaeolithic and Neolithic ancestries in the Tibetan gene pool (paternal and maternal lineages), establishing continuities between the prehistoric inhabitants and those of today. Based on the findings of various other studies as well as their own, Liu *et al.* (2022) conclude that the Tibetan genetic patrimony rests on a substratum of Palaeolithic Eurasian ancestry (making up as much as 20% of the Tibetan lineage), yet most of their ancestry is held in common with Late Neolithic populations of the Upper Yellow River basin, particularly those that belonged to the Qijia culture. Nevertheless, Liu *et al.* (2022) hold that genetic links between Tibetans and lowlanders probably cannot be fully accounted for by wholesale migration emanating from the Upper Yellow River basin, which served as a vehicle for the spread of barley cultivation and domestic animals on the Plateau, *c.* the early to middle second millennium BC. Based on major differences in the archaeological cultures of the Tibetan Plateau and Upper Yellow River basin and the distribution of adaptive alleles related to hypoxia, Liu *et al.* (2022) consider that the Tibetan genetic pool potentially formed well before 2000 BC. In addition to examining the phylogenetic data of other East Asian populations, He *et al.* (2021) collected genome-wide data of 78 modern Tibetans that they differentiate into 11 geographic regions, as well as genomic data from eight genetically related ancient humans discovered in the Mustang region of Nepal (Chokhopani, Mebrak and Samdzong burials), which date between *c.* 800 BC – 500 AD. The He *et al.* (2021) study holds that modern Tibetans can be divided into several population substructures: Central Tibetans have predominant Palaeolithic and Neolithic ancestries derived from indigenous hunting-foraging groups stemming from early Eurasian lineages and the Yellow River basin respectively, while Amdo Tibetans on the northeast part of the Plateau have an admixture of 2% or 3% western Eurasian haplotypes, and Kham Tibetans in the southeast have strong Neolithic Southeast Asian affinities. Presumably, for the purposes of their study, He *et al.* (2021), subsume adjoining parts of Upper Tibet under Central Tibet, but nowhere is this made manifest. Another recent study of genome-wide SNP data by Ma *et al.* (2022) suggests that the general pattern of allele and haplotype sharing between Tibetans living in eastern Nag chu (Sbra chen County), Lhasa, Shigatse, and Chamdo is characterized by a significant degree of genetic homogeny. Thus, this study refers to these overlapping groups or clades as 'core Tibetans'. The Ma *et al.* (2022) study reaffirms that the so-called core Tibetans share much of their genetic ancestry with the prehistoric populations in Mustang noted above. The scope of genetic drift and admixture and its implications for an understanding of Tibetan population history discussed in the studies outlined in this note are preliminary in nature. The sampling of larger quantities of ancient nuclear and mitochondrial DNA is sorely needed if the historical and spatial relationships between the prehistoric and contemporary populations of Tibet are to be more accurately fixed.

[16] On potential Palaeolithic sites more generally on the Tibetan Plateau, see Aldenderfer and Zhang 2004; d'Alpoim Guedes and Aldenderfer 2020.

Wang *et al.* (2020), show that the Central Tibetans are closely related genetically to the inhabitants of Chokhopani (*c.* 800–600 BC), Mustang.[17] A more extensive study of ancient genomes from Transhimalayan regions of Nepal pushes the formation of the Tibetan gene pool back to *c.* 1500–1300 BC, at least 500 years earlier than findings from Chokhopani (*Liu et al.* 2022). This study is based on genome-wide data that was obtained through DNA extracted from dental materials that belonged to 38 individuals in seven burial sites in the Mustang and Manang regions of Nepal, which range in age from *c.* 1500 BC – 650 AD.[18] These are highly significant findings because they indicate that the demographic composition of Tibetans has been relatively stable since no later than the Late Bronze Age. Thus, it appears that the rock art corpus of Upper Tibet was primarily the production of individuals possessing a Tibetan genetic profile. It follows that the thematic, artistic, and technical developments in the rock art of the territory can mostly be assigned to endogenous cultural processes rather than to major demographic shifts in the population. That historic Tibetans are largely of the same ancestry as their Late Prehistoric forebears goes some way to explaining the manifold continuities exhibited in the content of rock art, not just in Upper Tibet but across much of the Plateau (this topic will be discussed in Vol. V of the series). Nevertheless, allowance must also be made for certain rock art compositions having been made by non-Tibetans, e.g. that which occurs in site S1.

The rock art of Upper Tibet provides a great wealth of information on ancient settlement and culture in the region, but only many millennia after Nwya Devu. Rock art paintings and carvings represent a continuous record of habitation and cultural development in Upper Tibet beginning no later than the Late Bronze Age and continuing until *c.* 1400 AD and even to the present day. Relatively little is still known about the Neolithic in Upper Tibet, a time before rock art production began in that territory.[19] Although it is very likely that some sites in which rock art occurs were exploited by antecedent Neolithic hunting and foraging peoples, who may not have left behind permanent dwellings or other fixed structures, the cultural and linguistic relationship between them and creators of early rock art in Upper Tibet remains shrouded in mystery.[20] Nonetheless, that Upper Tibetans in the Late Bronze Age and Iron Age chiefly developed endogenously from in-situ Neolithic hunting, foraging, agrarian and/or pastoral societies is supported by genomic findings, which indicate that there was no fundamental demographic break in Tibetan populations after the Late Neolithic (*c.* 2000–1500 BC).

The rock art of the Eastern Byang is almost entirely comprised of pictographs, while petroglyphs predominate in the rest of Upper Tibet. The tradition of pictographic rock art on the Tibetan Plateau is clearly centred on the Eastern Byang thang.[21] Almost all rock art sites of the Eastern Byang thang are associated with natural parietal structures, which exist in the limestone outcrops and escarpments that dot the region. The ample limestone formations of the Eastern Byang thang

[17] There are also strong genetic affinities between modern-day Tibetans and Sherpa and members of the Bsam rdzong (Samdzong) culture in Mustang (*c.* 400–700 AD). See Aldenderfer and Eng 2016.

[18] Genetic profiles were obtained from (Suila (1494–1317 BC), Lubrak (1269–1123 BC), Rhirhi (805–767 BC), Kyang (695–206 BC), Chokhopani (801–770 BC), Mebrak (500 BC to 1 AD), and Samdzong (450–650 AD), all of which have been shown to be closely related to contemporary Tibetans and Sherpas. Genetic differentiation from lowland populations and the formation of the Tibetan gene pool is now traceable through dental materials from Suila and Lubrak to *c.* 1500–1300 BC. However, due to a lack of DNA predating 1500 BC, it is still not known when the Tibetan genome was first constituted. A Tibetan genetic cline extending from northeastern Tibet to the Himalaya has been identified, which is theorized to be the result of population and linguistic dispersal originating in the northeastern fringes of the Plateau. See, as above, Liu *et al.* 2022.

[19] Aldenderfer (2007) reviews archaeological evidence for Neolithic settlement in three major regions of the Tibetan Plateau: Amdo (Qinghai Plateau), Kham and Central Tibet. Neolithic sites in these three regions have been provisionally dated using chronometric means to a maximum of 6700, 5800, and 3800 years ago respectively. I estimate that *c.* 40 sites identified as Neolithic have been discovered on the Tibetan Plateau by Chinese archaeologists since the 1980s. On the Neolithic in Tibet, also see Chayet 1994: 34–55; Aldenderfer and Zhang 2004: 26–40; d'Alpoim Guedes and Aldenderfer 2020.

[20] It appears that it was the native inhabitants of Upper Tibet who incorporated bronze and iron technologies from North Inner Asian sources into their cultural matrix in the Late Bronze Age and Iron Age (Bellezza 2020a; *Flight of the Khyung*: www.tibetarchaeology.com/february-2016/ and www.tibetarchaeology.com/march-2016/). This indigenous adaptation of Eurasian technological advances coincided with other innovations that led to more socially and economically complex societies in Late Bronze Age and Iron Age Upper Tibet (Bellezza 2020c). Cao *et al.* (2022) observe that the repertory of copper and arsenical copper tools and ornaments from burials of Gepa Serul (*c.* 1600–1100 BC), in far western Tibet, have strong affinities with those of bronze cultures of the Eastern Steppe and Northern Zone. Lead isotope values of most objects from Gepa Serul are characterized as highly radiogenic lead (HRL) but differ markedly from HRL ores used in the Central Plains, Hexi Corridor and Xinjiang; therefore, direct transmission of metallurgical technologies and objects to far western Tibet is not likely (Cao *et al.* 2022). That Tibetan copper alloy objects of the Late Prehistoric era are derivative and not simple copies of those belonging to the Northern Zone (Northwest China) and Xinjiang is supported by the typological study of a wide range of metallic objects (Bellezza 2020a; 2020c). Yet, this does not rule out foreign groups through invasion, migration or marriage as having contributed to the cultural florescence of Upper Tibet in the Late Prehistoric era. Any such interactions may have involved introgression or perhaps the mixing of novel haplotypes into the Upper Tibetan gene pool but this remains to be determined. The welter of clans and tribes, some of foreign origins, stated in Tibetan literature to have settled in Upper Tibet does suggest a process of demic augmentation in the region over the long haul. The timescale and intensity of this process however is unclear in the texts. Our understanding of the phylogenetic evolution of human populations in Upper Tibet will remain speculative until ancient DNA is recovered from the territory and genetically analyzed.

[21] The tradition of creating pictographs also occurs at seven sites on the Central and Western Byang thang and at two sites in Stod, but the majority of rock paintings are on the Eastern Byang thang. Pictographs of Ladakh, Zanskar and Spiti, regions on the western edge of the Tibetan Plateau, share cultural affinities with those in Upper Tibet. Ancient rock paintings have also been documented in southeastern Tibet but these belong to a substantially different aesthetic tradition than Upper Tibet.

are part of Jurassic and Cretaceous strata that were laid down across the entire southernmost swath of the Byang thang. In the harsh climatic and environmental conditions of the region natural parietal structures would have exerted a strong pull on the inhabitants from earliest times. The shallow caves, overhangs, fissures, niches, and larger caverns in the limestone formations were choice locations for rock art makers, furnishing an ideal environment for the preservation of rock paintings as well as shelter for artists as they painted, and for those who came to view their work. Only one rock art site on the Eastern Byang thang (S14) is in an alternative geological setting.

Twenty-nine rock art sites have been surveyed on the Eastern Byang thang. 1935 rock art subjects were inventoried separately at these sites.[22] The rock paintings of the Eastern Byang thang are mainly concentrated in just two areas: the Gnam mtsho and Mtsho sngon lake basins. Of all the rock art inventoried on the Eastern Byang thang, 85% occurs at the 12 sites that ring Gnam mtsho, making it one of most important repositories of this archaeological and artistic asset in Upper Tibet. Much of the balance of rock art is found at 12 sites in the Mtsho sngon (Blue Lake) basin. Produced over a timeframe of roughly two millennia, the ancient rock art of the Eastern Byang thang varies greatly in subject matter, style, and execution. However, almost all of it is part and parcel of the same regional tradition of pictograph making. In turn, the rock art of the Eastern Byang thang shares much of its content and form in common with the rest of Upper Tibet, while having weaker stylistic and thematic affinities with adjoining territories of the Tibetan Plateau and Himalayan rimland. This permits us to speak of an integral tradition of rock art production extending from Gnam mtsho in the east to Gu ge and Ru thog in far western Tibet, as well as a more dispersed greater Plateau tradition. The Upper Tibetan tradition of rock art betokens vibrant cultural, social, and economic links that extended across the territory, which emerged in the Late Bronze Age and persisted throughout the rest of the Late Prehistoric era and into the Historic era. A deeply entrenched artistic and technological groundwork in the Upper Tibetan rock art zone, notwithstanding, there are also many unique and idiosyncratic rock art creations that herald the skills, proclivities, and imagination of individual artists and groups of artists.[23]

Only around 25% of rock subjects on the Eastern Byang thang potentially date to the Late Bronze Age (*c.* 1200–700 BC), Iron Age (*c.* 700–100 BC) and Protohistoric period (*c.* 100 BC – 600 AD). The largest single source of rock art assigned to the Late Prehistoric era on the Eastern Byang thang is site S12, a small cave on the north-western side of Gnam mtsho. The rock art of the Late Prehistoric era on the Eastern Byang thang, and more generally in Upper Tibet, is characterized by several major themes that shape the content of most compositions. These include solitary anthropomorphic renditions, solitary and group portraits of animals and birds, hunting scenes, alternative scenes featuring anthropomorphs and zoomorphs in close association with one another, and symbolic subjects of which the swastika is paramount. More minor compositions (e.g. simple geometrics, desultory lines, scribbles, etc.) aside, more than 90% of all rock art compositions attributed to the Late Prehistoric era on the Eastern Byang thang and other parts of Upper Tibet is counted among these five overarching themes. The fairly restricted range of compositions in the Late Prehistoric era is indicative of systems of social organization and economic production in Upper Tibet that were not as varied or developed as those that prevailed in the Historic era.

Between 1609 to 1736 rock art subjects inventoried separately on the Eastern Byang thang are thought to predate the Late Historic period (*c.* 1400–1950 AD), while 199 to 326 subjects are assigned to the Late Historic period (and a few to the Modern period).[24] Nearly all rock art attributed to the Late Historic period in the region is found around the shores of Gnam mtsho. Of rock art produced prior to the Late Historic period on the Eastern Byang thang, around 70% is assigned to the Early Historic period (*c.* 600–1000 AD) and Vestigial period (*c.* 1000–1400 AD). The high proportion of rock art made in the Historic era sets the Eastern Byang apart from other regions of Upper Tibet, where rock art of the Late Prehistoric era predominates. If the rich tableau of figures and symbols assigned to the Late Prehistoric era in site S12 is not counted, subjects belonging to the Historic era comprise *c.* 85% of all rock art on the Eastern Byang thang. Of the 300 rock art subjects inventoried in sites S13–29, 289 to 298 subjects predate the Late Historic period. Unlike Gnam mtsho, there is exceedingly little rock art belonging to the Late Historic period at these sites (only upwards of 11 subjects are assigned to the Late Historic period in rock art sites S13–29). Also, relatively little rock art is attributed to the Protohistoric period and virtually nothing from antecedent periods occurs in S13–S29 (a more thorough

[22] In this work, each individual piece of rock art is called a 'subject'. The rock art of Upper Tibet is divided into two major categories of depiction: animate and animate. Animate subjects are subdivided into two major groups: anthropomorphic and zoomorphic (with therianthropic subjects also represented), while inanimate subjects include geometrics, architectural structures, symbols, and various minor compositions. Rock art is broadly classified chronologically as either belonging to the Late Prehistoric era (*c.* 1200 BC – 600 AD) or the Historic era (600–1950 CE). The basic terms, categories and chronology of rock art are defined in Section IIc of the work.

[23] Furthermore, there are several groups of anthropomorphic (mascoids, bi-triangular bodied) and zoomorphic (arcuate body ornamentation) depictions in Upper Tibet found only in Ru thog.

[24] The numerical discrepancy of subjects predating the Late Historic period and of those that belong to other periods reflects uncertainties inherent in the chronological system of rock art classification used in this work. For a discussion of this matter, see Section IIc.

statistical analysis of Upper Tibetan rock art is planned for Vol. V of the series).

A significant minority of rock art of the Eastern Byang thang made during the Early Historic and Vestigial periods continued to conform to modes of subject and scene selection established in the Late Prehistoric era. This traditional or more conservative body of rock art adheres to the broad themes noted for rock art in the Late Prehistoric era (e.g. hunting scenes, anthropomorphic and zoomorphic portraiture, etc.). While a large body of religiously themed rock art appeared on the Eastern Byang thang in the Early Historic period, the thematic continuity exhibited by other rock art demonstrates that there was no large tear in the pre-existing cultural fabric of the region or in Upper Tibet more broadly. That Upper Tibet entered a more advanced social, economic and political regime in the Early Historic period is borne out by the appearance of a more diverse rock art repertory. This is mirrored in the historical record, for in the 7th century AD much of the Tibetan Plateau came under imperial rule. The Tibetan empire expanded its political and territorial grip until reaching its greatest extent in the 8th and first half of the 9th centuries AD. The formation of the Tibetan empire and its multifarious contacts with foreign peoples inexorably altered the cultural complexion of Upper Tibet and other Tibetan territories. Among the greatest cultural feats of the Imperial period (*c.* 600–850 AD) was the invention of a system of Tibetan writing and the introduction of Indian Buddhism. Rock art of the Early Historic period in Upper Tibet embodied these two major cultural achievements, as Buddhist-inspired religious symbolism and Tibetan inscriptions took centre stage at sites throughout the territory. The exceedingly influential cultural layer that was added to the rock art corpus of Upper Tibet in the Early Historic period was given shape by new channels of religious belief and devotion that proliferated in this territory. One centre of these changes was the Eastern Byang thang.

The religious rock art (symbolic and representational) that came out of the Eastern Byang thang in the Early Historic period underlines distinct sectarian affiliations. The study of Tibetan historical literature, buttressed by the rock art and epigraphic records, attests to the presence of two main religious orders that surfaced in Upper Tibet in the Early Historic period: Buddhism and a non-Buddhist entity. Very much has been written about the introduction of Buddhism in Tibet and its doctrinal and ecclesiastic underpinnings, and readers wanting to learn more are encouraged to consult this voluminous literature. The category of non-Buddhist religion, however, requires a bit more explanation as it is not so well appreciated. As used in this work, the term 'non-Buddhist' refers to various religious traditions and adherents known to Tibetans as *bon* or *bon po*.[25] *Bon*, a blanket native category, embraces disparate priesthoods, beliefs and ritual practices that are believed to have circulated in the Late Prehistoric era (how these personnel and their doctrines and institutions may have been organized remains obscure). The term *bon* is also used to denote the successors of pre-established religious customs and lineages who lived in Tibet in the Early Historic period. As an alternative and largely indigenous religious system, the *bon po* operated independently and in parallel with Buddhism in the Early Historic period, at least at first. Nevertheless, over time there was much intellectual and artistic crossover between Buddhism and those still identifying as non-Buddhists, which culminated in the late 10th and 11th centuries AD in the emergence of a syncretistic religion known as Yungdrung Bon (G.yung drung Bon).[26] The rock art and rock epigraphy of Upper Tibet, especially that of the Eastern Byang thang, constitute two of the most complete bodies of evidence that document the Buddhist and non-Buddhist systems of religion and the interactions that took place between them in the Early Historic period. The spread of religious content in rock art and rock inscriptions on the Eastern Byang thang gained even more momentum in the Vestigial period, as the interplay between the two chief religious orders reached a crescendo.

In the rock art of the Eastern Byang thang, the two fundamental kinds of religion, Buddhist and non-Buddhist, were articulated in an extensive repertoire of sacred symbols, e.g. the swastika, five-pointed stars, stepped structures, and endless knots, etc. Discerning the sectarian orientation of religiously inspired rock art on the Eastern Byang thang is much aided by Tibetan rock inscriptions, which were made in the same parietal structures and in some instances as part of the same compositions as sacred symbolism. The spatial relationships between the rock art subjects and epigraphs of the two major religious categories is also very revealing. The concentration of religious rock art belonging to one or the other religious order in certain parietal structures, the placement of pictographs and inscriptions seemingly with no regard for those already present on rock surface, and their defacement and erasure illustrate the scope and nature of sectarian interactions in the Early Historicand Vestigial periods. The superimposition and deliberate damage of religious pictographs and inscriptions suggests that competition was a key preoccupation of rock art makers (specific examples are offered throughout the course of the book). Any such sectarian tensions are likely to have acted as a major motivational factor in the creation of

[25] There is a growing scholarly literature on the ancient *bon po*. For bibliographic information and further background, consult my various publications.

[26] On the relationship between *bon* traditions and the Lamaist religion of Yungdrung Bon, see Kværne 1972; Bellezza 2008; 2013; Karmay 1998;

countervailing pictographs and inscriptions, as rival parties sought to exert actual or symbolic control over sites. This is exemplified in the painted swastikas hailing from the Early Historic and Vestigial periods that litter rock art sites on the Eastern Byang thang. Those facing in counter-clockwise (non-Buddhist) and clockwise (Buddhist) directions were commonly added to the same rock surfaces in a disorderly or ad hoc fashion. Sectarian distinctions associated with the orientation of the swastika can be traced to the Imperial period, a by-product of religious differentiation between Buddhists and those maintaining a religious order based on older indigenous or hybridized traditions. However, not all of the religiously inspired rock art of the Eastern Byang thang and other parts of Upper Tibet was the result of competition and conflict. Certain pictographs painted in the Vestigial and Late Historic periods appear to innocently mark sacred features in natural parietal structures, or to document their use by meditators (*sgom chen*) and worshippers (*mchod pa*). After *c.* 1000 AD, Buddhism consolidated its control over much of the Tibetan Plateau. By the close of the Vestigial period, followers of Yungdrung Bon and any surviving archaic *bon* cultists had been converted in most parts of Upper Tibet to the prevailing faith. Unrepentant Yungdrung Bon adherents who were displaced tended to move south into Central Tibet and eastwards into the Tibetan cultural territories of Kham (Khams) and Amdo (A mdo). The status of Buddhism as the paramount religion in Upper Tibet more or less coincided with the end of the bulk of rock art production in Upper Tibet. To what degree the disappearance of archaic *bon* traditions and Yungdrung Bon might have contributed to the demise of rock art remains unclear. With the subsidence of sectarian opposition there was no longer any compelling motivation to outdo rivals in rock art and inscription making. Nonetheless, the popularity of alternative forms of art and craft, and possibly growing literacy, are likely to have also played a major role in the steep decline in rock art production in Upper Tibet after *c.* 1300 AD.

Twenty-two of the 29 rock art sites surveyed on the Eastern Byang thang are closely associated with archaic structural remains, which occur either in the same natural parietal structure or close by in the same limestone formation. The most commonly built archaic structures were cliff shelters (also called rock shelters and cave shelters), which typically consist of a façade, a masonry front that served to insulate the interior from the elements. The observations offered below help distinguish archaic cliff shelters from later variants constructed by Buddhist practitioners. All of the abandoned ancient cliff shelters of the Eastern Byang thang are now heavily degraded, impeding an assessment of their original design, plan, and manner of construction. Certain others are likely to have been incorporated into Buddhist facilities, which appeared on the Eastern Byang thang mostly after 1000 AD, eliminating or concealing their older structural characteristics. Parietal installations in the limestone formations of the region, which range in age from the Late Prehistoric era to Early Historic period, vary in size from shallow caves with elementary masonry façades to multiroomed complexes that spill out well beyond the cave or overhang that serves as their core. More elaborate cliff shelters are endowed with anterooms, exterior walled enclosures, internal wall partitions, stone and adobe fixtures, and unidentified stone structures that belonged to the same residential complexes.[27] The various structural elements of cliff shelters were constructed of local pieces of limestone (raw and hewn), which were assembled into walls with random rubble textures (dry stone and mortared). Internal subsidiary structures include shelves, niches, alcoves, and platforms made of stone and mud, or hewn out of the natural walls of caves.

None of the archaic cliff shelters of the Eastern Byang thang have been securely dated utilizing chronometric methods. Thus, we must fall back on informed approaches to assess their age. As the observations offered below suggest, they appear to have been founded and in active use during the Late Prehistoric era and Early Historic period, a timespan of some two millennia.[28] Of course, many of the caves, clefts, and overhangs around which they came up are likely to have been the focus of attention, and possibly occupation, long before masonry structures were built to expand their usefulness. The archaic morphological traits of cliff shelters, siting in desolate locations, lack of prevailing cultural emblems, and their devotional and intellectual abandonment by the current Tibetan population allude to their antiquity. The massive masonry front walls and careful drystone construction of some examples are hardly matched by the Buddhist hermitages and temples built into parietal structures, which were founded more recently on the Eastern Byang thang. These tend to have more crudely and lightly built walls and occur in still well-trammelled locations. In contrast, many of the archaic cliff shelters are situated in limestone formations that were vacated and never redeveloped by later inhabitants. The now deserted tips of headlands around Lake Gnam mtsho

[27] Small and largescale freestanding residential structures, various kinds of fortifications, a diverse array of tombs and other types of funerary structures, which exhibit archaic design and morphological features, supply a continuous record of habitation and cultural development in Upper Tibet from the Late Bronze Age until the Vestigial period. These assemblages of monuments have been the object systematic exploration and research by the author since the early 1990s. Most are distributed on the Central and Western Byang thang and in Stod, not on the Eastern Byang thang. For information on their function, age and cultural and historical significance, see Bellezza 2008; 2011; 2014a; 2014c; 2020c.

[28] It is certainly possible that cliff shelters in Upper Tibet were first developed during the Late Neolithic; however, archaeological evidence for this has yet to be identified.

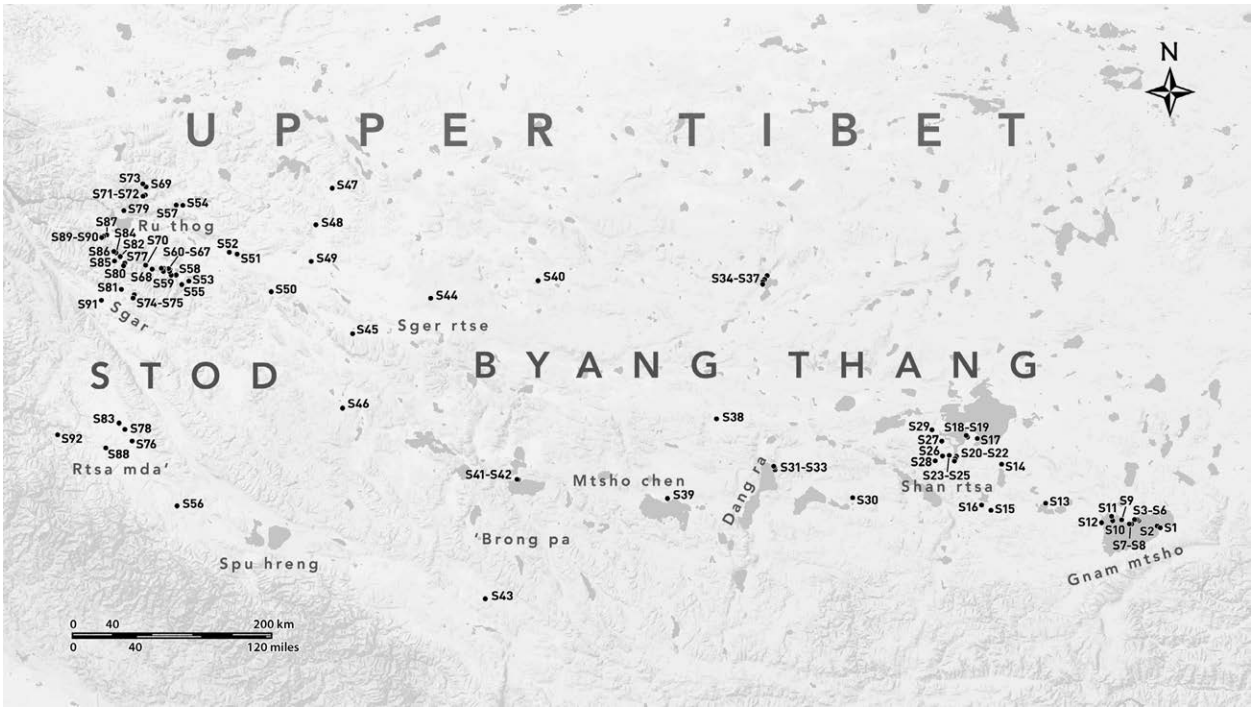
are a case in point. A cultural distinction as compared with Buddhist facilities that developed around parietal structures in Upper Tibet is the absence of religious markers and emblems, such as the tying of prayer flags (*rlung rta*), mantras inscribed on stones, deposition of moulded clay plaques with sacred images (*tsha tsha*), and the erection of tiered monuments known as *chorten* (*mchod rten*). Most tellingly, even derelict Buddhist facilities, as many now are, are acknowledged in Tibetan historical and biographical texts and by the local oral tradition. As a rule, accounts about their founding, legends regaling the exploits of saints that frequented them, and myths concerning the sacred and extraordinary qualities of Buddhist sites circulate locally, if not more widely. Not so with archaic cliff shelters. These are rarely distinguished with Buddhist religious indicators or even acknowledged in the history and lore of the region. In historical terms, the archaic cliff shelters have become the other.

Archaic cliff shelters were once the most common enduring residential structures on the Eastern Byang thang (their importance is somewhat diminished in more westerly regions of Upper Tibet by the existence of various kinds of archaic freestanding residential complexes). Aside from considering that cliff shelters probably fulfilled domiciliary, economic, ceremonial and ritual purposes, the specific functions attached to them on a site-by-site basis have not been determined with any assurance. The uses of archaic cliff shelters seem to have varied considerably according to their size and design. The smallest and least substantial ones had no domiciliary functions, although they could have been occupied on a temporary or seasonal basis as bivouacs. Other minor examples may have been established as shrines or tabernacles, which is supported by religious-themed rock art decorating the walls of some of them (the most common subject is the swastika oriented in a counter-clockwise direction). On the other hand, caverns with massive front walls, anterooms and internal partitions were probably occupied as permanent habitations. In addition to residential and economic functions, major cliff shelters probably acted as cult venues and sanctuaries where ceremonial and ritual operations were conducted. Although cliff shelters were the prime form of imperishable residential construction on the Eastern Byang thang during the Late Prehistoric era and Early Historic period, their numbers were never large enough to accommodate more than a very small fraction of the total population, even when making allowance for others that have disappeared over the years, or which where engulfed by the raising of Buddhist facilities. Hence, specialized functions and exclusive patterns of occupation are likely to be implicated in their construction and tenure. If accessibility or ownership was restricted this would indicate that elite social roles were accorded to them, such as those exercised by a priesthood or ruling class. This is particularly likely for the largest and most intricate cliff shelters.

Three-quarters of rock art sites on the Eastern Byang thang are linked to ancient built cliff shelters. This significant spatial correlation between the two archaeological assets suggests that they are interrelated cultural expressions. Potentially, rock art production was intertwined with the residential, ceremonial and ritual activities that transpired in the same parietal structures hosting anthropogenic modifications. However, as none of the built cliff shelters or rock art have been precisely dated, cliff shelter building and rock art production as allied cultural functions is just one of three historical scenarios that must be put forward. It is also possible that rock art makers were attracted to pre-existing cliff shelters; these two cultural expressions being incidental but not directly related to one another. Inversely, builders of cliff shelters may have chosen places for construction that already had rock art. Given the broad chronological scope of rock art production on the Eastern Byang thang, all three historical scenarios, depending on location and circumstance, are plausible. We are thus inclined to see rock art production as both tied to as well as unrelated to cliff shelter construction in the region.

### Ic. Rock Art Sites of Upper Tibet

To fix the locations of rock art sites as accurately as possible, GPS coordinates (latitude and longitude), using the WGS 84 (World Geodetic System), are furnished for each of them in the Table below. For rock art sites occupying large areas, the coordinates provided are for a centralized location within them. A variety of handheld consumer-grade GPS (Global Positioning System) units have been employed in the field to obtain the GPS coordinates of rock art and other types of archaeological sites in Upper Tibet since 1999. GPS units have varying levels of accuracy. In general terms, the GPS coordinates of rock art sites provided should be accurate to within *c.* 30 m; however, the standard deviation for any specific set of coordinates given remains unknown. In addition to inherent technical limitations pertaining to receiver design and quality, other factors that help determine the accuracy of a GPS unit include satellite geometry, signal blockage, atmospheric conditions, and topography, Reduced battery power can also affect the sensitivity of GPS readings. It must also be noted that GPS base stations were not established in the field (these are used to introduce a correction factor to the GPS signals received). All coordinates in this work are given in decimal degrees:




Map 3. Locations (digital degrees) of rock art sites in Upper Tibet surveyed in this work.

| Site No. | Site Name | North Latitude | East Longitude |
|---|---|---|---|
| Site 1 | Bkra shis do chen | 30.775956 | 90.867194 |
| Site 2 | Bkra shis do chung | 30.766667 | 90.9 |
| Site 3 | Rta mchog ngang pa do | 30.8325 | 90.67 |
| Site 4 | Just West of Ngang pa do | 30.8419 | 90.655433 |
| Site 5 | Further West of Ngang pa do | 30.842167 | 90.642333 |
| Site 6 | North of Khyi rgan gag pa do | 30.842133 | 90.6252 |
| Site 7 | Lug do | 30.801667 | 90.595 |
| Site 8 | Ra ma do | 30.8 | 90.57 |
| Site 9 | Stong shong phug | 30.839317 | 90.487217 |
| Site 10 | Se mo do/Srin mo do/Nang do | 30.831667 | 90.391667 |
| Site 11 | Rigs lnga do | 30.871667 | 90.38 |
| Site 12 | Lce do | 30.813 | 90.273333 |
| Site 13 | Sha ba brag Thang stong phug | 30.991667 | 89.675 |
| Site 14 | Kong chung | 31.348233 | 89.204533 |
| Site 15 | Gnam g.yang phug | 30.927083 | 89.090817 |
| Site 16 | Lha ris sgrub phug | 30.975183 | 88.990533 |
| Site 17 | Slob dpon phug | 31.582667 | 88.945167 |
| Site 18 | Sho lo phug | 31.595333 | 88.8405 |
| Site 19 | Lha 'dre phug | 31.61 | 88.826667 |
| Site 20 | Gzims phug btsan khang | 31.420567 | 88.7227 |
| Site 21 | Dpal gzims phug | 31.399 | 88.709333 |
| Site 22 | Rdo 'khor phug pa | 31.377333 | 88.699867 |

| Site No. | Site Name | North Latitude | East Longitude |
|---|---|---|---|
| Site 23 | Dgon ro dmar lding/Lcags sgo brag | 31.428 | 88.6525 |
| Site 24 | Lha 'dre tshogs khang | 31.428167 | 88.6495 |
| Site 25 | Dar lung phug | 31.4292 | 88.645383 |
| Site 26* | Skyid sgrom sgo gru bzhi | 31.423333 | 88.573333 |
| Site 27 | Sgar gsol brag phug | 31.558667 | 88.565667 |
| Site 28 | Chu ro | 31.379233 | 88.495267 |
| Site 29 | O rtsal phug | 31.661733 | 88.4605 |
| Site 30 | Bshag bsangs | 31.042133 | 87.613083 |
| Site 31 | Dar chung | 31.297333 | 86.783 |
| Site 32 | Sgo bdag | 31.321 | 86.7775 |
| Site 33* | Am nag | 31.329333 | 86.769333 |
| Site 34 | Rong rde'u sna lhas | 33.052983 | 86.699417 |
| Site 35 | Sngon gdong | 33.019883 | 86.672567 |
| Site 36 | Gyam gdong | 32.996067 | 86.653517 |
| Site 37 | Rgya rug | 32.975917 | 86.6509 |
| Site 38 | Brag khung mdzes po | 31.761667 | 86.158333 |
| Site 39 | Mu ro ri (L1) | 31.03534 | 85.63404 |
| Site 40 | Rta ri brag phug | 33.006667 | 84.251667 |
| Site 41 | 'Phrang lam | 31.2062 | 84.039767 |
| Site 42 | Lha khang dmar chags | 31.20995 | 84.02606 |
| Site 43 | Rdzong pi phi | 30.113333 | 83.686667 |
| Site 44 | Ri rgyal | 32.849983 | 83.104217 |
| Site 45 | Dkyil grum | 32.531067 | 82.269783 |
| Site 46 | Bong lhas brag (near Skya bo klu khang) | 31.858333 | 82.161667 |
| Site 47 | Ba'o lhas | 33.831667 | 82.051667 |
| Site 48 | Phru gu dbyar ka | 33.506667 | 81.876667 |
| Site 49 | Sngor gyam | 33.18 | 81.826667 |
| Site 50 | Steng rtse mtshams khang | 32.908333 | 81.4 |
| Site 51 | Brag lung nub ma | 33.245 | 81.035 |
| Site 52 | Kham pa rwa co | 33.261667 | 80.951667 |
| Site 53 | Gong ra/Gong kha | 33.003333 | 80.519667 |
| Site 54 | Chu mkhar gyam | 33.68 | 80.455 |
| Site 55 | Skabs ren spungs ri | 32.973167 | 80.443833 |
| Site 56 | Tham ka can | 30.967167 | 80.393 |
| Site 57 | Rta pa gong g.yag | 33.681983 | 80.3845 |
| Site 58 | Ser tshogs rdo ring | 33.058017 | 80.38325 |
| Site 59 | Mchod rten sbug sna kha | 33.5557 | 80.330533 |
| Site 60 | Brag gdong East | 33.104183 | 80.318333 |
| Site 61 | Glog phug mkhar | 33.091 | 80.314167 |
| Site 62 | Brag gdong West | 33.115 | 80.302667 |
| Site 63 | Gyam rag (East) | 33.114933 | 80.254917 |
| Site 64 | Rtwa med god sa mon dur | 33.117033 | 80.252033 |

*The geocoordinates provided for S26 and S33 have not been GPS verified.

| Site No. | Site Name | North Latitude | East Longitude |
|---|---|---|---|
| Site 65 | Rwa 'brog 'phrang | 33.101667 | 80.251333 |
| Site 66 | Sgog ra | 33.091667 | 80.246667 |
| Site 67 | Skal khra mon dur | 33.118717 | 80.22465 |
| Site 68 | Sna kha sogs and Mtha' rung | 33.110333 | 80.127167 |
| Site 69 | Mtha' kham pa ri | 33.843833 | 80.061867 |
| Site 70 | Nag skyom | 33.146133 | 80.05715 |
| Site 71 | Rgyab lung | 33.771667 | 80.053333 |
| Site 72 | Brag gtsug | 33.76055 | 80.030067 |
| Site 73 | Gna' bo lung | 33.8705 | 80.028 |
| Site 74 | Chu lung | 32.881667 | 79.936667 |
| Site 75 | Gyam kham pa | 32.85125 | 79.923367 |
| Site 76 | Rdu ru can | 31.56 | 79.913333 |
| Site 77 | Ri mo gdong | 33.165 | 79.835 |
| Site 78 | Sa snying | 31.6659 | 79.835667 |
| Site 79 | Rno ba g.yang rdo | 33.633167 | 79.824333 |
| Site 80 | Nag khung rdo ring | 33.141667 | 79.821667 |
| Site 81 | Gri'u chu thang | 32.93 | 79.798333 |
| Site 82 | She rang sna kha shar ma | 33.222317 | 79.786167 |
| Site 83 | 'Bri mo spo ba | 31.72285 | 79.773417 |
| Site 84 | Rdzong chen | 33.2575 | 79.741667 |
| Site 85 | She rang mkhar lung | 33.1835 | 79.725333 |
| Site 86 | Rdzong chung | 33.268667 | 79.7185 |
| Site 87 | Ru thog rdzong | 33.416833 | 79.642 |
| Site 88 | Gser sgam | 31.496667 | 79.631667 |
| Site 89 | Lu ring sna ka | 33.401983 | 79.607617 |
| Site 90 | Mar lung | 33.393333 | 79.588333 |
| Site 91 | Brag gyam | 32.831667 | 79.585 |
| Site 92 | Rgyal la lding | 31.616667 | 79.116667 |