

## *A Checklist of Hypotheses for the Yeti*

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### **Abstract**

This paper provides a checklist of 35 hypotheses concerning the identity of the yeti – a hairy creature in Sherpa folklore, Tibetan literature, and cryptozoology. Most scientists dismiss the idea the yeti is an unidentified animal and instead suggest known animal misidentifications such as bears (e.g., *Ursus thibetanus thibetanus*) to explain yeti stories by the Sherpa as well as reported sightings of the creature at high altitudes in the Eastern Himalayas. Reports of yeti tracks in the snow (typically above 15,000 ft.) have been explained by many different animals.

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### **Introduction**

Paxton and Shine (2016) compiled a list of hypotheses of the putative monster in Loch Ness, Scotland. In a similar style, this paper compiles hypotheses of the yeti, most commonly reported as leaving footprints in the Eastern Himalayas but also surrounding region, including Tibetan Plateau. Stories of the yeti in Nepal are prevalent in Sherpa<sup>1</sup> folklore (Stoner, 1955; Dhakal, 1991) and Nepalese shamanism (Peters, 1997, 2004). The Sherpa migrated from Tibet into Nepal, about 600 years ago and Tibetan literature refers to the yeti under different names (Capper, 2012). A similar creature to the yeti (named *migoi*) appear in folk tales from Bhutan (Choden, 1997) and Lepchas of Sikkim also know of a yeti-like monster, the *chu mung*

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<sup>1</sup>Non-Sherpa Nepalis call the yeti different names including *ban manche*.

(Siiger, 1978). The physical appearance of yetis varies in stories and eyewitness accounts although all reports seemingly describe the yeti as hairy; Sherpa and Bhutanese traditions claim there are two or three yeti (or *migoi*) types varying in size, colour, locomotion, and behaviour (Oppitz, 1968: 138; Majupuria and Kumar, 1993: 12-13; Forth, 2008: 188-190). Capper (2012) argues there are different types of yetis in Tibetan Buddhism; only one is violent; most are friendly.<sup>2</sup>

## Eyewitness accounts / track reports

Eyewitness accounts of the yeti and track reports are mostly from high altitude slopes by explorers and mountaineers in the Himalayas (often above 15,000 ft. and a maximum of 22,000 ft.).<sup>3</sup> Sherpa claim yetis live below snowline but above timberline in the alpine tundra (Stoner, 1955: 45, 64) and could descend as low as 10,000 ft. to timberline (Napier, 1976: 52). On the other hand, yetis are believed to “travel across high altitude snowfields to move to a different valley or to feed on the saline mosses of the glaciers” (Capper, 2012). There are seldom reports of yeti tracks below snowline.<sup>4</sup> Dubious claims of yeti physical evidence (bones, skin, and hair) have been proven since the 1960s to belong to humans, bears, serows and snow leopards when analysed (Loxton and Prothero, 2013: 98-99). Footprints cannot be considered evidence for the existence of the yeti as an unidentified animal since they are “often susceptible of alternative explanation” (Hill, 1961, for different explanations see the checklist). Napier (1976: 128) notes that tracks in snow are “subjected to melting, sublimation or to the effects of high winds or blizzards could easily become so distorted that precise identification becomes impossible” (the melting enlarges the size of footprints). Some tracks are suspected to be hoaxes or made up as publicity stunts and this is certainly the case since few footprints at high altitudes have been verified by independent eyewitnesses – owing to their remote location and most do not have photographs.<sup>5</sup>

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<sup>2</sup>In Western literature e.g., Izzard (1955), the yeti has been called “abominable snowman”, but this is a misnomer.

<sup>3</sup>See the table “Sightings and footprints of the Yeti in the Himalayas since 1915” in Napier (1976).

<sup>4</sup>The Himalayan snowline is typically around 16400 ft. (5000 meters) but is lower in the south.

<sup>5</sup>An exception includes the famous photos the mountaineer Eric Shipton took in 1951 (Ward, 1997). Sceptics consider the footprints a hoax (Gillman, 1989; Loxton and Prothero, 2013: 86-88) or bear tracks (Taylor, 2017). Napier (1976: 117) points out the possibility the tracks could have melted by sun before Shipton discovered them.

## Explanations

A popular hypothesis is the yeti is a known bear (Lan *et al.* 2017) and the Sherpa identify one type of yeti (Stoner, 1955: 64) with the Himalayan brown (or so-called red) bear (*Ursus arctos isabellinus*). In the early 20th century, the Himalayan brown bear hypothesis was notably supported by zoologist Reginald I. Pocock. Yeti tracks are reported as mostly humanlike with five or four toe prints; bear tracks are similar to human footprints by superimposition (if a bear's hindfoot print overlaps its forefoot). However, not all types of yetis are identified as bears by the Sherpa (Capper, 2012) and the bear hypothesis cannot explain reports above an altitude of 16,600 ft – the highest altitude Himalayan brown bears have been observed (Napier, 1976: 125). Another problem is nearly all sightings and footprint reports of the yeti are from the Eastern Himalayas, but the Himalayan brown bear is largely restricted in its habitat range to the Western Himalayas; very small numbers live in Nepal but are absent from Bhutan (Aryal *et al.* 2010). This means the Himalayan brown bear is an unlikely yeti candidate. Sherpa presumably identify one variant of yeti in their folklore with the Himalayan brown bear because it “virtually never makes its appearance in the Sherpa country” (Stoner, 1955: 64) and is thus seen as mysterious.

Taylor (2017) instead argues a more likely yeti candidate is the Tibetan black bear (*Ursus thibetanus thibetanus*), however, this bear tends to live at lower altitudes than the Himalayan brown bear and cannot explain any eyewitness accounts or reported tracks at elevation above snowline. For the same reason neither the Himalayan black bear (*Ursus thibetanus laniger*) or Tibetan blue bear (*Ursus arctos pruinosus*) suggested by Jackson (1999) are good candidates because they do not live at altitudes above snowline and the maximum elevation the rare blue bear dwells is 12,000 ft., furthermore, a sizable number of tracks are reported in Winter when bears hibernate; the bear hypothesis is quite improbable (Perry, 1981: 98). Another possibility is the yeti is not a bear but another known animal eyewitnesses confuse. The latter is likely when it is realised eyewitnesses tend to claim to have observed a yeti for only a short duration from long distances and sometimes in poor weather (blizzards) e.g., cryptozoology literature includes an eyewitness account by N. A. Tombazi who claimed in 1925 to have seen a “figure in outline exactly like a human being” at about 15,000 ft., Zemu Glacier, Sikkim (Sanderson, 1961: 260). Tombazi reported seeing the figure from a long distance of 274 meters (900 feet) for a minute.

There are numerous plausible known animal hypotheses that aren't bears for yeti sightings (see checklist) as well as prosaic explanations as simple as mistaking mountain rocks (Rickard, 1988). Eyewitness reports are anecdotal and cannot be verified without physical evidence, but some are more reliable than others, for example if a report was made by someone famil-

iar with the fauna of their surroundings (this would decrease the likelihood of misidentifying a yeti with a known animal). It is remarkable no first-hand eyewitness accounts of the yeti have been made by big game hunters, zoologists, or wildlife biologists; most reports are by mountaineers and explorers who are laypersons when it comes to knowledge of fauna.<sup>6</sup> The common assumption Sherpa mountain guides are wildlife experts and won't misidentify yetis for known animals in the Himalayas is questionable. Sherpas never hunt bears or snow leopards; their animal expertise is supposedly limited to the yak (Napier, 1976: 54). Eyewitness accounts by Sherpa of the yeti (unlike reports by explorers in the region) are rarely first-hand but second/third hand,<sup>7</sup> meaning the reports have been modified heavily by oral retellings and are at best, hearsay; like Sherpa oral traditions these accounts are embellished, so it will be hard distinguishing fact from fiction.

There are a number of far-fetched to unbelievable hypotheses of the yeti as an unidentified or elusive animal (see checklist). These range from relict hominoids (e.g., Neanderthals, *Homo erectus*), *Gigantopithecus* to unknown species (or subspecies) of orangutans, gorillas and even bears. These ideas are not taken serious by most scientists because they lack evidence and there are parsimonious and more reasonable explanations. The most straightforward explanation for tracks is they were left by humans for example it has been argued ascetics (hermits) leave them at high altitudes up to 20,000 ft. (Eichinger, 1959). Sykes *et al.* (2014) analysed the DNA of thirty hair samples purported to be from “anomalous primates”. All but two hair samples were proven to be known domesticated and wild animals (plus one human sample). The two unusual samples (from Bhutan and Kashmir) did not match any known animal and were speculated to be from an unknown species of polar bear, or polar and brown bear hybrids. Sykes *et al.* were though likely mistaken. Pine and Gutiérrez (2015) criticise Sykes *et al.*'s study noting there's “no reason to believe that... [the] two samples came from anything but ordinary brown bears”.

## Checklist of hypotheses

Some hypotheses for yeti footprints are not applicable to eyewitness accounts and/or folk tales. Hoaxes, optical illusions, snow blindness, hallucinations (especially if induced by acute mountain sickness) undoubtedly explain a number of sightings and/or track reports of yetis, but these mundane explanations are excluded. The main proponents of each hypothesis are named and referenced including persons who first suggested the explanation or idea, unless it

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<sup>6</sup>See the list of eyewitness reports from the 19th to mid-20th century in Sanderson (1961: 260-264).

<sup>7</sup>The ethnologist Christoph von Fürer-Haimendorf claimed he had “never met a Sherpa who has actually seen a Yeti”; he was told of sightings, but eyewitnesses were “strangely unavailable” to corroborate (Napier, 1976: 51).

is not known who came up with the hypothesis (labelled “?”).

## Hypotheses for yeti footprint reports, eyewitness accounts and folk tales

\* Explanation only for eyewitness accounts and/or folk tales

\*\* Explanation only for footprint reports

## Known animal hypotheses

1. Himalayan brown bear (*Ursus arctos isabellinus*) | Waddell, 1899: 223; Smythe, 1937; Pocock, 1941: 183; Pranavananda, 1955; Straus, 1956; Messner, 2000.
2. Tibetan blue bear (*Ursus arctos pruinosus*) | Schäfer; 1938; Jackson, 1999; Messner, 2000.
3. Tibetan black bear (*Ursus thibetanus thibetanus*) | Napier, 1976: 175; Taylor, 2017.
4. Himalayan black bear (*Ursus thibetanus laniger*) | Napier, 1976: 175.
5. Polar bear / brown bear hybrids (*Ursus maritimus* / *Ursus arctos*) | Sykes *et al.* 2014; Sykes, 2016: 284-293.
6. Nepal gray langur (*Semnopithecus schistaceus*) | Terence Morrison-Scott.<sup>8</sup>
7. Kashmir gray langur (*Semnopithecus ajax*) | Whitaker, 1948.
8. Hanuman langur (*Semnopithecus entellus*) | ?
9. Himalayan wolf\*\* (*Canis lupus chanco*) | Howard-Bury, 1921: 141.
10. Eurasian otter\*\* (*Lutra lutra*) | Letter to editor of *The Times*, 1937.<sup>9</sup>
11. Snow leopard (*Panthera uncia*) | Kaulbeck, 1937; Hillard, 1989: 208.
12. Yak (*Bos mutus* or *Bos grunniens*) | ?
13. Himalayan goral\*\* (*Naemorhedus goral*) | Taylor-Ide, 1987.

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<sup>8</sup>See Heuvelmans (1995: 161).

<sup>9</sup>Possibly a joke; see Soule (1966: 90).

14. Red panda\*\* (*Ailurus fulgens*) | ?
15. Animals jumping on all fours\*\* | Wood, 1948.
16. Melting of tracks by animals\*\* | Hillary, 1961; Napier, 1976: 128.
17. Tracks made by rows of birds\*\* | Napier, 1976: 128.

## Natural object hypotheses

1. Rocks\* | Woolridge, 1987; Taylor-Ide, 1987; Rickard, 1988.

## Human hypotheses

1. Humans with deformed feet\*\* | Ward, 1997, 1999.
2. Humans with hypertrichosis\* | Berman, 1999.
3. Ascetics (mountain hermits)\* | Eichinger, 1959; Capper, 2016: 183.
4. Bearded European missionaries\* | Smith, unpublished.<sup>10</sup>
5. Villagers wearing certain footgear\*\* | Enders, 1957; Peissel, 1960.

## Unknown animal hypotheses

1. Unidentified / elusive giant macaque | Sanderson, 1961: 275.
2. Unidentified / elusive giant monkey | Elwes, 1915; Sanderson, 1961: 275
3. Unidentified / elusive giant ape | Elwes, 1915; Ley, 1955: 105; Swan, 1958
4. Unidentified / elusive giant langur | Dyhrenfurth, 1955: 49; Hutchinson, 1989: 282.
5. Unidentified / elusive giant gibbon | Hutchinson, 1989: 282.

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<sup>10</sup> Unpublished manuscript. The author's own hypothesis for the yeti in Sherpa folk tales and Tibetan literature is they originated from encounters of Tibetans with Jesuit missionaries from Europe (17th to 18th centuries) since Tibetans were unfamiliar with their hairier appearance (long beards); see Smith (2021) for a similar hypothesis about the yeren.

6. Unknown / elusive orangutan (*Pongo*) | Desmond Doig<sup>11</sup>; Heuvelmans, 1986.
7. Unknown / elusive polar bear (*Ursus maritimus*) | Sykes *et al.* 2014; Sykes, 2016: 284-293.

## Relict hominoid hypotheses

1. Neanderthal or archaic humans (*Homo sapiens neanderthalensis*) | Porshnev, 1968 [2017]; Bayanov, 2012.
2. *Homo erectus* | ?
3. *Paranthropus* | Strassenburgh, 1971.

## Relict ape hypotheses

1. *Gigantopithecus* | Heuvelmans, 1952; Tschernetzky, 1954, 1955; Slick, 1958; Coon, 1954: 28; 1962: 207; Reynolds, 1967: 102; McNeely *et al.* 1973; Shackley, 1983: 171.
2. *Sivapithecus* / *Dyropithecus indicus* | Heuvelmans, 1986; Hall, 1993.

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<sup>11</sup>See Critchfield (1979).

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