*Tetrapod Zoology*

# A new living species of large mammal: hello, Tapirus kabomani!

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By Darren Naish on December 17, 2013



Illustration of Tapirus kabomani by G. Braga, from Cozzuol et al. (2013).

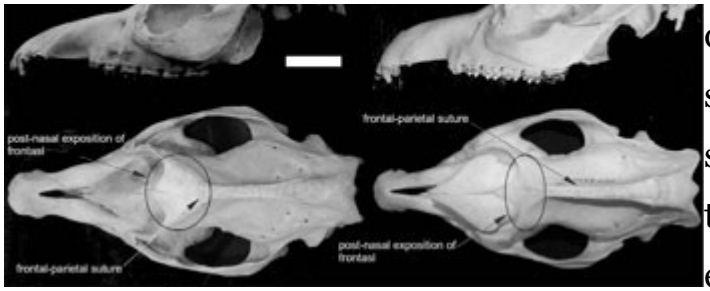
For some considerable time now, there have been rumours of an incredible zoological discovery: a new species of living perissodactyl – a tapir – due to be announced from the Amazon. At long last, the paper is out. Published in *Journal of Mammalogy*, and authored by Mario Cozzuol and a team of colleagues, it describes the new *Tapirus* species *T. kabomani*, first realised to be novel following the recognition of specimens obtained by Brazilian indigenous hunters in 2009, and since recognised in museum collections (Cozzuol *et al.* 2013). This is the first officially recognised new tapir to be described since 1865 (when Baird's tapir *T. bairdii* was named).

*T. kabomani* is known from several specimens obtained by local hunters. The type specimen is a young adult male (represented by both skin and skeleton) and other recently hunted specimens are known as well. Perhaps most remarkable is the fact that a partial skull and skin collected by Theodore Roosevelt in 1912 (and today residing in the collections of the American Museum of Natural History in New York) also belongs to this species (Cozzuol *et al.* 2013). As so often turns out to be the case, this 'new' species has in fact been sitting on a museum shelf for about 100 years. Ah, hindsight. The species name honours the local Paumarí name for tapir, 'Arabo kabomani'.

## *Tapirus kabomani* is morphologically distinct from other tapirs




How is *T. kabomani*




Skulls of T. kabomani and T. terrestris compared (sorry for small size, you'll have to see the paper for the details). From Cozzuol et al. (2013).

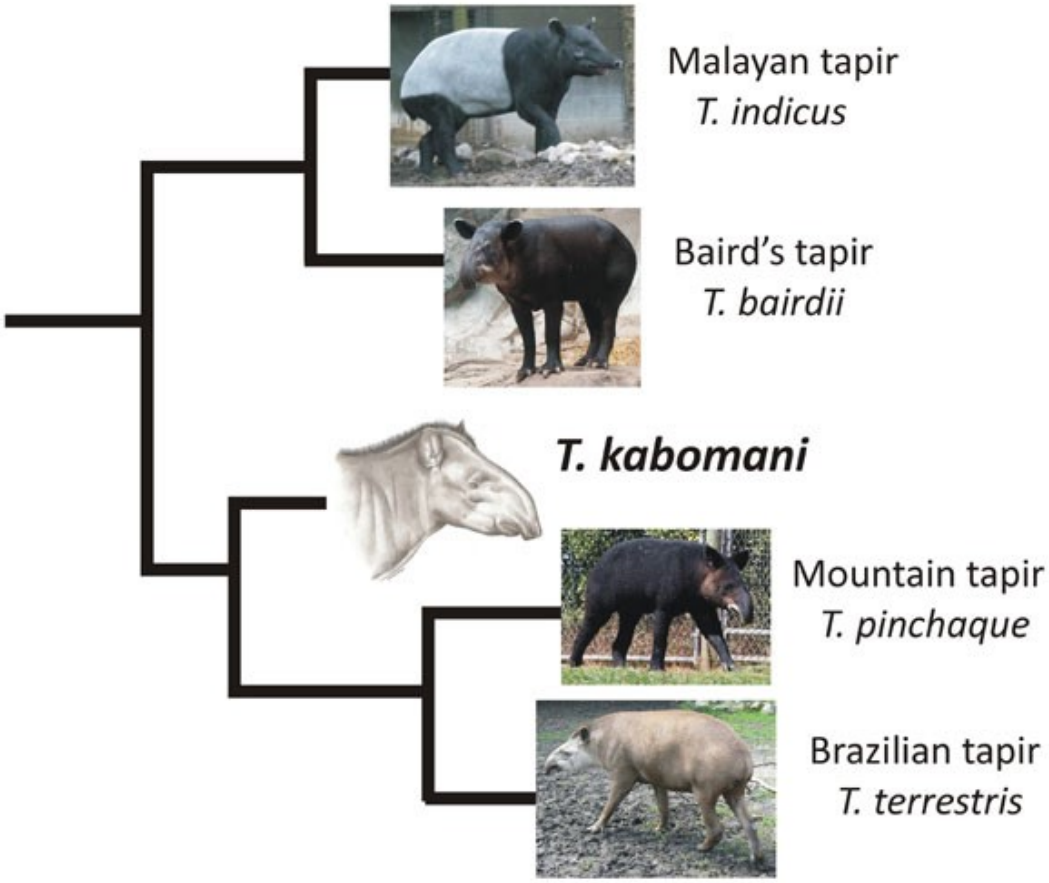
distinguished as a new species? For a start, it's small: 1.3 m long, 90 cm tall at shoulder, and estimated to weigh about 110 kg. This makes it the smallest living tapir. In life, it is especially dark, with a lower mane and broader forehead than the well known and familiar Brazilian or Lowland tapir *T. terrestris*.

Several cranial characters clearly allow its differentiation from *T. terrestris* and other tapirs. Compared to *T. terrestris*, *T. kabomani* has broader, more inflated frontal bones, a lower sagittal crest and shallower, smaller concavities on the top of its snout. Cozzuol *et al.* (2013) include a figure that shows some of the main cranial differences between *T. kabomani* and *T. terrestris*: the most obvious concern the form of the sagittal crest and position of the fronto-parietal suture, though you can also see that *T. kabomani* has a rather more gracile, far straighter rostrum than *T. terrestris* (does this mean anything for feeding behaviour and ecology?). Now that we know what to look for, it should be easy to spot additional *T. kabomani* skulls in collections.

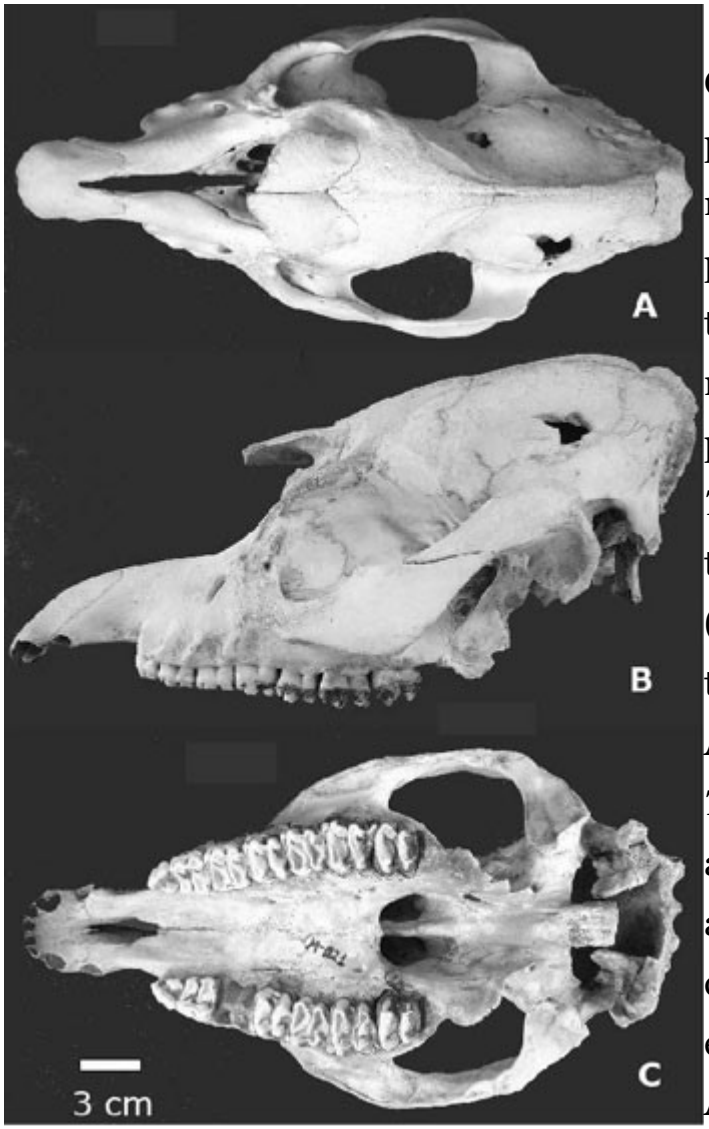
The authors included cranial measurements from living (and several fossil) tapirs in a morphometric analysis. *T. kabomani* is well separated from the others as a distinct cluster – it does *not* overlap with their large *T. terrestris* cluster, nor is it at all close to it (Cozzuol *et al.* 2013).

What makes *T. kabomani* especially interesting is the fact that it has unusually short limbs compared to other living tapirs – in fact, this feature even makes *T. kabomani* different from a number of fossil tapirs as well as from all the living ones (Cozzuol *et al.* 2013). So, is it a recently evolved, short-legged form (perhaps a dwarf, specialised forest tapir), or a primitive form that retains primitive proportions?

## Where within the tapir radiation?




Highly simplified version of tapir cladogram from Cozzuol et al. (2013), with fossil taxa removed. Malayan tapir image by Sasha Kopf, licensed under Creative Commons Attribution-Share Alike 3.0 Unported license; Baird's tapir image by Eric Kilby and Mountain tapir image by Just chaos, both licensed under the Creative Commons Attribution 2.0 Generic license; Brazilian tapir image in public domain. T. kabomani image by G. Braga, from Cozzuol et al. (2013).




Skull of T. kabomani holotype, image courtesy of M. Cozzuol.

Cozzuol *et al.* (2013) produced a new morphology-based phylogeny of tapirs. As the authors note, the results are surprising in placing the Baird's tapir *T. bairdii* and Malayan tapir *T. indicus* together (in a clade that contains the North and Central American fossil species *T. polkensis*, *T. haysii* and *T. veroensis*), and as the sister-group to a clade that contains endemic South American species. Within the latter clade, *T. kabomani* is recovered as outside a clade that contains the Mountain tapir *T. pinchaque*, *T. terrestris* and the extinct Pleistocene and Holocene Brazilian species *T. cristatellus*. *T. kabomani* groups specifically with the Pleistocene Brazilian tapir *T. rondoniensis*.

Some of these results might be set to change, especially the position of the Malayan tapir: there are indications from elsewhere that this species is highly distinct relative to *Tapirus* tapirs, normally being

recovered as their sister-taxon (Ashley *et al.* 1996, Norman & Ashley 2000). In fact, it is so distinct relative to the others that use of the 'old' generic name *Acrocodia* is favoured by some. However, another recent morphological analysis also found the Malayan tapir to be nested well within the clade that includes extant Central and South American tapirs, and closer to Baird's tapir than to any other living tapir (Holanda & Ferrero 2012).

Molecular data seemingly shows that *T. kabomani* is unique and diagnostic too, and in fact it lacks molecular characters that group *T. pinchaque* and *T. terrestris* together. So, overall, we have a population of small, dark tapirs that can be distinguished osteologically, look obviously different in integumentary characters and body size from other living tapirs, and which exhibit unique molecular characters. All in all, the case here looks strong. I happen to know that the authors tried for some time to get this most significant publication into a higher-hitting technical publication, but – as so often happens – they failed due to reviewer scepticism. Nevertheless, let's hope that this discovery gets the publicity and attention that it deserves.





One of several T. kabomani images captures by remote cameras: from Cozzuol et al. (2013).

On that note, very little is known of this tapir in the wild. Aided by local indigenous hunters, the authors were able to identify live specimens photographed by remote cameras. Observations indicate that *T. kabomani* is not rare in some parts of the southwestern Brazilian Amazon, but this area – recognised as a biodiversity hotspot – is under threat due to rapid deforestation, an increasing human population and planned hydroelectric schemes (Cozzuol *et al.* 2013). The species may actually be widespread, since it also seems to be present in the far eastern Amazon and in Colombia too (Cozzuol *et al.* 2013).

**More hot new tapir news to come?**



Some of you might be wondering what the deal is with another recently named claimed tapir species: Marcus van Roosmalen's *Tapirus pygmaeus*, also from the Brazilian Amazon. While the *T. kabomani* type



A friendly Tapirus terrestris I once knew. Photo by Darren Naish, CC BY.

specimen can be shown to be osteologically mature due to its erupted first molar teeth, the same cannot be said of *T. pygmaeus*: it seems that the type specimen (named, obviously, for its supposedly novel small size) is a juvenile, and a juvenile of *T. terrestris*. Cozzuol *et al.* (2013) don't even mention *T. pygmaeus*, I assume because it was never officially published.

However, it may be that other surprises from the world of tapirs are set to be announced at some point. *T. terrestris* was not monophyletic in Cozzuol *et al.*'s (2013) molecular analysis, instead forming two clusters separated by *T. pinchaque*: an intriguing result which *might* mean that one of those clusters deserves separate recognition.

New, large terrestrial mammals are not reported often, but they are reported on occasion. Since the 1990s, the Saola or Vu Quang ox *Pseudoryx nghetinhensis* (Van Dung *et al.* 1993), Dingiso *Dendrolagus mbaiso* (Flannery *et al.* 1995), Giant or Large-antlered muntjac *Muntiacus vuquangensis* (Do Tuoc *et al.* 1994), Small red brocket *Mazama bororo* (Duarte & Jorge 1996), Kipunji *Rungwecebus kipunji* (Beckman 2005, Jones *et al.* 2005), Giant peccary *Pecari maximus* (van Roosmalen et al. 2007, though see Gongora *et al.* 2007) and Burmese snub-nosed monkey *Rhinopithecus strykeri* (Geissmann *et al.* 2010) have all been named – an encouraging indication that there might be a small

number of cryptic large mammals still out there. However, let's not get ahead of ourselves...

Anyway: a new living tapir – wow!!

For previous Tet Zoo articles on tapirs and other perissodactyls, see...

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A new species of modern-day rhinoceros
A day at London's Grant Museum of Zoology (includes discussion of Quagga and other zebras)
Mysteries of the diceratheriine rhinos
Tapir attacks past, present, but hopefully not future

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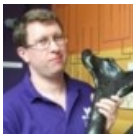
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