

ISSUES

The naming of *Homo bodoensis* by Roksandic and colleagues does not resolve issues surrounding Middle Pleistocene human evolution

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Abstract

Roksandic et al. (2022) proposed the new species name *Homo bodoensis* as a replacement name for *Homo rhodesiensis* Woodward, 1921, because they felt it was poorly and variably defined and was linked to sociopolitical baggage. However, the International Code of Zoological Nomenclature includes regulations on how and when such name changes are allowed, and Roksandic et al.'s arguments meet none of these requirements. It is not permitted to change a name solely because of variable (or erroneous) later use once it has been originally defined correctly, nor can a name be modified because it is offensive to one or more authors or to be politically expedient. We discuss past usage of *H. rhodesiensis* and the relevant nomenclatural procedures, the proposed evolutionary position of *H. bodoensis*, and issues raised about decolonizing paleoanthropology. We reject *H. bodoensis* as a junior synonym, with no value from its inception.

KEYWORDS

hominin taxonomy, *Homo bodoensis*, *Homo heidelbergensis*, *Homo rhodesiensis*, zoological nomenclature

Roksandic et al.¹ surveyed Middle Pleistocene *Homo* (especially in Africa) and came to three questionable conclusions:

- 1) they argued against the current wide usage of the species nomen *heidelbergensis* (type specimen the Mauer mandible);
- 2) they argued against the species nomen *rhodesiensis* (type specimen the Kabwe 1 or Broken Hill cranium) and suggested the new name *Homo bodoensis* (type specimen the Bodo 1 cranium) for the same population;
- 3) they suggested that the latter population/sample/species was the likely direct ancestor of *Homo sapiens*.

As discussed in Roksandic et al.,¹ the International Code of Zoological Nomenclature² is a set of legalistic (rather than biological) rules for naming and modifying names of animal taxa. One of the primary underlying regulations is priority, that is, the name first applied to a taxon holds sway except in the case of an argument that

another name for the same taxon has become entrenched in common usage and application of priority would result in loss of nomenclatural stability. Any such modification (save in the case that the prior name has not been used since 1899 and the newer name has been used at least a defined number of times) must be referred to the International Commission on Zoological Nomenclature, which can adjudicate the request. A name cannot be ignored or suppressed solely because an author or group of authors does not approve of it.

Roksandic et al.¹ (p. 20) proposed the suppression of “the poorly defined and variably understood hominin taxa *Homo heidelbergensis* ... and *Homo rhodesiensis*...as they fail to reflect the full range of hominin variability in the Middle Pleistocene.” Instead, they proposed the “introduction of a new taxon, *H. bodoensis* sp. nov, as an early Middle Pleistocene ancestor of the *H. sapiens* lineage, with a pan-African distribution that extends into the eastern Mediterranean (Southeast Europe and the Levant).” They further suggested¹ (p. 22) that “The taxon *H. heidelbergensis* sensu stricto should be suppressed

altogether and those fossils reassigned to *H. neanderthalensis* in light of recent genetic and/or morphological data.” They then^{1(p. 23)} headed a section “The taxon *H. rhodesiensis* should be suppressed” [they meant the taxon name], citing sociopolitical reasons as well as a lack of clarity about its definition and usage.

Here Roksandic et al.¹ have conflated four rather different if overlapping concepts: (1) the formal synonymizing (not suppression) of *H. heidelbergensis* with *Homo neanderthalensis*, which has often been suggested previously (e.g., 3–5) if not so broadly; (2) the “suppression” of *H. rhodesiensis* and its direct replacement by the objective synonym *H. bodoensis* (i.e., the holotype of the former is included in the hypodigm of the latter); (3) the hypothesis that the latter species (whatever its name) was the lineal forerunner of *H. sapiens*; and (4) the question of decolonialization. We agree that *H. heidelbergensis* has at times been utilized for too broad a constellation of specimens/populations, but that is not a valid reason to suppress it, and further discussion of this particular issue is beyond the scope of our comment; instead, we focus on the latter three ideas, in order and directly quoting the assertions of Roksandic and colleagues as necessary.

Roksandic et al.^{1(p. 23)} wrote: “*H. rhodesiensis* Woodward, 1921³ never gained a wide usage in palaeoanthropology. Indeed, a quick search on the Web of Science provides 274 direct mentions of *H. heidelbergensis* while only 17 hits for *H. rhodesiensis*. In our opinion, there are two primary reasons for this: (1) the taxon is poorly defined and variably understood and used; and (2) the taxon name is associated with sociopolitical baggage that our scientific community is trying to dissociate itself from.

“It may be argued that if this taxon was considered as a Middle Pleistocene ancestor to the *H. sapiens* lineage exclusively, then we only need to redefine its hypodigm according to our current understanding. However, because this taxon has been defined in multiple ways it is impossible to dissociate it from these various definitions; thus, continuing to use *H. rhodesiensis* creates unnecessary confusion. It may be argued that Arthur Smith Woodward’s morphological description of *H. rhodesiensis*, which centered on its differences from Neanderthals, complied with the nomenclature practice for pre-1931 taxonomic names. However, the later resurrection of the taxon was based on similarities of the holotype Kabwe 1 with Petralona, first noted by Stringer⁴ and more recently by Friess.”⁵

Paleontological hypodigms often change as additional research reveals features which link or dissociate groups of specimens, and as a result the meaning of taxon names change as well. But such modifications must follow the Code² in force at the time. There is no justification for the argument of Roksandic et al.¹ to suppress the valid nomen *H. rhodesiensis* in favor of the newly coined *H. bodoensis*, especially while including the Kabwe 1 holotype of the former in the hypodigm of the latter. If for some reason an author wished to recognize a separate taxon for the earlier Middle Pleistocene Africans, *Homo saldanensis* Drennan, 1955,⁶ would be available.

In turn, we suggest that Roksandic et al.¹ found so few occurrences of *H. rhodesiensis* in the literature because the relevant

fossils were often included in a broadly defined *H. heidelbergensis*, *H. neanderthalensis*, or *H. sapiens*. The name *H. rhodesiensis* was rarely used in the 1930s–1950s, as it was often considered an African “representative” of the Neanderthals (e.g., 10). After Mayr⁷ opined that all hominins (for him, hominids) could be included in three species of *Homo*, Campbell^{8,9} divided these species into regional or temporal subspecies, including *H. sapiens rhodesiensis* (with Broken Hill and Saldanha). Santa Luca¹⁰ reviewed numerous Middle to Late Pleistocene human fossils and demonstrated that Broken Hill (among other supposed Neanderthal-like fossils) was actually quite unlike Neanderthals morphologically. He did not suggest a taxon to which any of those fossils should be allocated. Stringer et al.¹¹ proposed a set of three stages within *H. sapiens*, including Petralona (and Broken Hill) in Stage 1. Szalay and Delson¹² listed and briefly discussed *H. sapiens rhodesiensis* as one of several varieties of a broadly defined *H. sapiens*, including Bodo and Saldanha (among others) in the list of specimens. About the same time, many researchers took up the idea of “archaic *H. sapiens*” as a “taxon” for almost all post-*erectus* specimens without clear subdivision, so that (sub)specific nomina such as *rhodesiensis* were rarely mentioned in the 1980s and 1990s, whereas Stringer¹³ and Rightmire¹⁴ included *H. rhodesiensis* in their conception of *H. heidelbergensis*. During the 2000s, the “archaic *H. sapiens*” concept was rejected in favor of recognizing several species or subspecies of *Homo* younger than 1 Ma. Some authors (e.g., Delson & Baab,^{15,16} Rightmire,¹⁷ Hublin¹⁸ [the latter two offered several alternatives as well]) considered *H. heidelbergensis* as an early stage of *H. neanderthalensis* while recognizing *H. rhodesiensis* as a possible predecessor of *H. sapiens*, essentially the same picture as put forward by Roksandic et al.¹ with a different name.

The biological verso of the Roksandic et al.¹ formulation is that earlier Middle Pleistocene Africans represent a population broadly ancestral to *H. sapiens*. Their description of the morphology of the Bodo cranium provides little basis for diagnosing a species distinct from *H. rhodesiensis*, nor a justification for subsuming such diverse fossils as Kabwe, Ndutu, Saldanha, and Salé into its hypodigm. Moreover, as Stringer¹⁹ and Lacruz et al.,²⁰ among others, have argued, the facial shape of Bodo is derived by comparison to that of the inferred ancestor of *H. sapiens*, which was probably more like that of *H. antecessor*. In turn, Roksandic et al.^{1(p. 20)} also proposed “that the Middle Pleistocene Asian fossils, particularly from China, likely represent a different lineage altogether.” This matches closely with recent analyses of the Harbin cranium (“Dragon Man”²¹). However, Wu et al.²² (whose lead author is a coauthor of Roksandic et al.¹) have suggested that the Hualongdong fossil from China is also a Middle Pleistocene ancestor for *H. sapiens*, which may well add further to the muddle.

Finally, we raise issue with attempts to situate Bodo within a framework of decolonization of paleoanthropology. Roksandic et al.^{1(p. 23)} suggest “At least part of the reason why *H. rhodesiensis* never became widely used by palaeoanthropologists stems from its pernicious political baggage. The name is associated with Cecil Rhodes and English mining colonialism and its abhorrent practices used by this self-proclaimed owner of ‘Rhodesia’ on local indigenous

populations.²³ While these considerations are not at the root of our rejection of the name, they are not minor and should not be ignored. Discussions of hominin taxonomy cannot operate in a social void.²⁴ It requires a judicious evaluation of the social message that names are sending, as they have implications for our understanding of the process in the evolution of our own species. Decolonizing palaeoanthropology is an important task²⁵ that needs to take precedence over rigid taxonomic rules.”

On purely procedural grounds, nomenclatural (which are not really taxonomic) regulations have been codified and followed for over 100 years to *explicitly* avoid individualistic modifications in reaction to nonbiological issues such as decolonization, no matter how important they are thought to be. This means that the rules cannot simply be changed to suit political expediency. One hundred years ago, when Woodward³ described the Broken Hill cranium, Rhodesia was the name of the nation/colony which yielded the specimen, and he wrote^{6(p. 372)} “We therefore recognise in the Rhodesian cave man a new form which may be regarded as specifically distinct from *H. neanderthalensis*, and may be appropriately named *H. rhodesiensis*.” There is no direct reference by Woodward³ to Cecil Rhodes, and this nomen is correctly and validly attached to what we now term the Kabwe or Broken Hill 1 fossil, under current ICZN² regulations. One can no more remove *H. rhodesiensis* from the history of the Kabwe/Broken Hill fossil than one can remove the name Rhodesia from the history of the countries of Zambia and Zimbabwe; were the name *rhodesiensis* in fact an explicit tribute to Cecil Rhodes, this might be a different case. Should all geographically based nomina be rejected where the underlying names were given by non-African colonial powers whose explorers “found” the new lands, starting with the names of many countries in Africa, as well as the continent as a whole? As one of many such possible examples, a similar case for suppression might be made (again wrongly, under ICZN rules) with regard to *Homo rudolfensis*, which name was derived from Lake Rudolf (now Turkana), in turn named in 1888 after Crown Prince Rudolf of Austria.

Roksandic et al.¹ assert that “decolonizing palaeoanthropology is an important task²⁵ that needs to take precedence over rigid taxonomic rules.” But Schroeder^{25(p. 315)} in fact does not advocate such precedence, instead suggesting that the “practice of decolonization...is not about completely removing or combatting current epistemological conventions and methodologies. It is rather about recognizing the value of diversity in knowledge production and being cognizant of how, as anthropologists, we can use this effort to re-envision the way we do research and work with communities”. As such, there is no implicit intent for decolonization to take precedence over the established process of taxonomic nomenclature.

Therefore, we conclude that the case for *H. bodoensis* fails on both procedural and sociopolitical grounds.

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CONFLICT OF INTEREST

The authors declare no conflict of interest

DATA AVAILABILITY STATEMENT

Data sharing is not applicable as no new data were generated.

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