

Title	A Revision of the Hypodigm of <i>Nyanzapithecus vancouveringi</i>
Author(s)	KUNIMATSU, Yutaka
Citation	African Study Monographs (1992), 13(4): 231-235
Issue Date	1992-12
URL	<a href="https://doi.org/10.14989/68095">https://doi.org/10.14989/68095</a>
Right	
Type	Departmental Bulletin Paper
Textversion	publisher

## A REVISION OF THE HYPODIGM OF *Nyanzapithecus vancouveringi*

Yutaka KUNIMATSU

*Primate Research Institute, Kyoto University*

**ABSTRACT** A small East African oreopithecoid, *Nyanzapithecus vancouveringi*, is poorly known from several damaged and/or weathered specimens. Thus, the hypodigm of this species is incomplete and problematic. Although the hypodigm was previously revised by Harrison (1986), further revision has been necessitated during comparison with new *Nyanzapithecus* material from Nachola and other Miocene anthropoids. One specimen from Songhor, which was retained in Harrison's hypodigm, is removed, and one specimen from Mfwangano is reassigned from *Rangwapithecus gordonii* to *N. vancouveringi*.

**Key Words:** *Nyanzapithecus*; Rusinga; Mfwangano; Songhor.

### INTRODUCTION

Andrews (1974) first described two new species of East African Miocene anthropoids, based on the material from Songhor, Rusinga, and Mfwangano. He considered that these two species belonged to a new subgenus of *Dryopithecus* (sensu Simons & Pilbeam 1965), hence the larger and smaller species were named *Dryopithecus (Rangwapithecus) gordonii* and *D. (R.) vancouveringi*, respectively. The latter species, however, was quite poorly known from only seven specimens from Rusinga, Mfwangano and Songhor. Andrews also provisionally referred three specimens from Maboko to this species.

In his monograph on the East African Miocene "apes," Andrews (1978) gave a generic status to *Proconsul*, which had been regarded as a subgenus of *Dryopithecus*. He included a subgenus *Rangwapithecus* in the same genus, so that the above two species were then called *Proconsul (Rangwapithecus) gordonii* and *P. (R.) vancouveringi*. However, *Rangwapithecus* is usually treated as a separate genus recently (e. g. Kelly & Pilbeam, 1986).

When Harrison (1986) described a new species of small anthropoid primates from Maboko Island, he created a new genus, *Nyanzapithecus*. He named the species as *N. pickfordi*. He also reassigned the smaller species of *Rangwapithecus* to the new genus as *Nyanzapithecus vancouveringi* with a revision of the hypodigm given by Andrews (1974; 1978).

Through the field surveys by the Joint Japan-Kenya Expedition directed by Dr. H. Ishida, some specimens of a small oreopithecoid have been collected. It resembles *N. vancouveringi*, and is tentatively assigned to *Nyanzapithecus* sp. The hypodigm of *N. vancouveringi* is incomplete and problematic. My recent research at the National Museums of Kenya necessitated a further revision of the hypodigm of *N. vancouveringi* proposed by Harrison (1986).

REVISION OF THE HYPODIGM OF *N. vancouveringi*

## I. Harrison's Revision

Of the two previously known species of *Nyanzapithecus*, *N. pickfordi* is rather better represented by a number of isolated teeth and a premaxilla from Maboko Island (Harrison, 1986). Only several incomplete specimens from Rusinga, Mfwangano and Songhor, however, have been assigned to *N. vancouveringi*. When he revised the hypodigm of "*Rangwapithecus*" *vancouveringi* given in Andrews (1974, 1978), Harrison (1986) removed the specimens from Maboko Island that Andrews had provisionally referred to "*R.*" *vancouveringi*. An isolated tooth from Songhor (SO944), previously attributed to an upper M1 of "*R.*" *vancouveringi* by Andrews, was reconsidered as an upper dP4 of *Proconsul major* by Harrison. Instead, he added an upper P3 (RU1894) and a well-preserved mandible (RU1855) from Rusinga Island to the hypodigm of *N. vancouveringi*. One specimen from Songhor (SO1134) was not found in the collection of the National Museums of Kenya.

## II. Specimen Removed

An isolated upper molar (SO942) from Songhor was still retained in Harrison's hypodigm. The crown is heavily worn, so that the occlusal surface is nearly flat. A chip of enamel is lost from the buccal aspect of the paracone. A relatively large area of dentine exposure is present on the protocone. The enamel is as thin as in *Rangwapithecus gordonii*. The lingual cingulum is well-developed on both mesial and lingual aspects of the protocone. The cusps are less inflated than expected for *Nyanzapithecus*. The previous assignment to *N. vancouveringi* might be based on the small size of this specimen, but it is almost the same in size to the smallest upper M1 (SO932) of *R. gordonii*. SO942 is possibly an upper worn M1 of *R. gordonii*. Therefore, it is tentatively excluded from the hypodigm. Consequently, no specimen from Songhor is now attributed to *N. vancouveringi*.

## III. Additional Specimen

A small maxillary fragment with M1-M2 (MW52) from Mfwangano Island is here included in the hypodigm of *N. vancouveringi* (Fig. 1). It was considered to belong to *R. gordonii* by Andrews (1974; 1978), probably based on its large size. However, the size difference between this specimen and the type of *N. vancouveringi* (RU2058) does not exceed the possible range of size variation seen in extant primates (Table 1). Unfortunately, the original specimen is lost, but a plaster cast is preserved at the National Museums of Kenya (Andrews, 1978). This cast shows that MW52 is similar in morphology to *Nyanzapithecus*, and that it differs from *Rangwapithecus* in the following points: (1) the cusps are more rounded and voluminous; (2) consequently, the trigon basin, and the mesial and distal foveae are more restricted; (3) the lingual cingulum is well-developed mesially, but is very weak on the lingual aspect of the protocone; (4) the enamel surface is smooth in

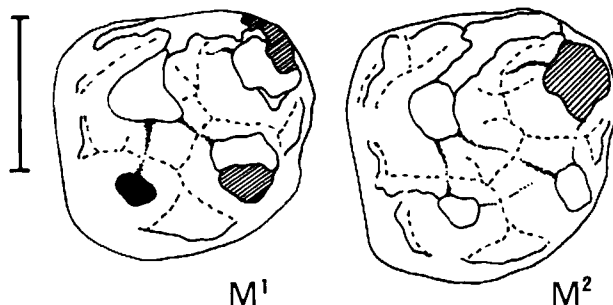


Fig. 1. Occlusal views of M1 & M2 of MW52 (drawn from a cast in the National Museums of Kenya). Scale is 5 mm.

Table 1. Ratios of molar crown area (MD\*BL) between MW52 and RU2058 (Type specimen of *N. vancouveringi*), compared to maximum/minimum ratios in living apes. Specimen numbers are indicated in parentheses.

	M1	M2
MW52/RU2058	1.57	1.47
<i>Gorilla gorilla</i>	1.64 (16)	1.64 (16)
<i>Pan troglodytes</i>	1.29 (15)	1.30 (11)
<i>Pongo pygmaeus</i>	1.63 (17)	1.69 (11)
<i>Hylobates hoolock</i>	1.43 (12)	1.45 (18)
<i>Symphalangus syndactylus</i>	1.20 (26)	1.43 (21)

contrast to the wrinkled enamel of *R. gordonii*. Moreover, Mwangano Island is located, in Lake Victoria, very close to Rusinga Island where the type of *N. vancouveringi* came from, whereas most of the specimens assigned to *R. gordonii* come from Songhor, and only a few exceptional specimens reported to come from Rusinga Island. The morphology and distribution of these species strongly suggest that MW52 belongs to *N. vancouveringi*, rather than to *R. gordonii*.

#### IV. Revised Hypodigm

The material considered here to belong to *N. vancouveringi* consists of seven specimens including three maxillae (RU2058, RU1778, MW52), a mandible (RU1855) and three isolated teeth (RU1801, RU1894, MW48). Since all the specimens from Songhor, previously assigned to this species, has been removed from the hypodigm, the distribution of the species is limited to the early Miocene of Rusinga and Mwangano Island in Kenya.

#### SUMMARY AND CONCLUSION

The hypodigm of *N. vancouveringi* proposed by Harrison (1986) has been revised. One specimen (SO942) has been removed from the hypodigm, and one specimen (MW52) has been reassigned from *R. gordonii* to *N. vancouveringi*. The

Table 2. Revised hypodigm and dental measurements of *N. vancouveringi*.

Acc.No.		MD	BL
Upper			
KNM-RU1778	P3	5.2	6.6
	P4	5.6	6.6
	dP4	6.2	5.5
	M1	7.0	6.8
KNM-RU1801	M1	6.5	6.7
KNM-RU1894	P3	5.6	7.3
KNM-RU2058	P4	4.5	6.3
	M1	6.6	6.5
	M2	7.6	7.4
	M3	7.9	7.6
KNM-MW48	M2	7.2	7.3
KNM-MW52	M1	8.0	8.4
	M2	9.4	8.8
Lower			
KNM-RU1855	P4	5.6	5.0
	M1	7.3	5.6
	M2	9.4	6.3
	M3	10.0	7.4

molar morphology of MW52 generally corresponds to the diagnosis of the species given by Harrison (1986). Although the lingual cingulum is moderately reduced on the lingual aspect of the protocone and the mesial part of the cingulum is well-developed compared to other *N. vancouveringi* molars, this may merely represent intraspecific variation.

It is noteworthy that no specimen from Songhor is included in the revised hypodigm of *N. vancouveringi* (Table 2). Several specimens of *R. gordonii* were reported to come from Rusinga, but the localities of specimens of Miocene fossils collected in early days from western Kenya are somewhat problematical. It is quite likely that the geographic distributions of the above two species may have been distinct, with *N. vancouveringi* being limited to Rusinga and Mfangano islands, and *R. gordonii* to Songhor.

**ACKNOWLEDGMENTS** I am grateful to the National Museums of Kenya for allowing me to examine the material discussed in this study. I thank Mrs. Emma Mbuja of NMK for much help during my research in Nairobi. Dr. H. Ishida and M. Rose kindly read my manuscript and gave me some useful suggestions. The present study was financially supported by Monbusho (the Ministry of Education, Science and Culture of Japan) with Grant-in-Aid for Scientific Research [Overseas Scientific Survey: No. 03041045 (Research Representative: Hidemi Ishida)].

## REFERENCES

- Andrews, P. 1974. New species of *Dryopithecus* from Kenya. *Nature*. 249: 188-190.  
 ——— 1978. A Revision of the Miocene Hominoidea of East Africa. *Bulletin of the*

*British Museum (Natural History) Geology Series*, 30: 85–224.

Harrison, T. 1986. New fossil anthropoids from the middle Miocene of East Africa and their bearing on the origin of the Oreopithecidae. *American Journal of Physical Anthropology*, 71: 265–284.

Kelly, J. & D. Pilbeam 1986. The dryopithecines: taxonomy, comparative anatomy, and phylogeny of Miocene large hominoids. In (D. R. Swindler & J. Erwin, eds.) *Comparative Primate Biology*, pp. 361–411, Alan R. Liss Inc., New York.

Simons, E. L. & D. Pilbeam 1965. Preliminary revision of the Dryopithecinae (Pongidae, Anthropoidea). *Folia Primatologica*, 3: 81–152.

——— Received *December 24, 1991*.

Author's Name and Address: Yutaka KUNIMATSU, *Primate Research Institute, Kyoto University, Kanrin, Inuyama, Aichi 484, Japan.*