

Online Appendix 1 - Character matrix used in the present study. Autapomorphies are in red, hemiplasies in pink, homoplasies in green, synapomorphies in blue, and ambiguous characters in grey.

[illegible][illegible]

[illegible]

	unicent (1:20)	unicent (4:14)	unicent (2:5)	unicent (1:5)	unicent (8:17)	unicent (1:23)	unicent (6:18)	unicent (3:19)	unicent (2:6)	unicent (7:21)	unicent (1:19)	unicent (10:20)	unicent (1:825)	unicent (2:24)	unicent (22:29)	unicent (26:27)	unicent (1:128)	unicent (2:123)	unicent (7:28)	unicent (5:10)	unicent (9:17)	bi-cent (Y:16)	unicent (9:26)	unicent (1:315)	unicent (2:29)	unicent (4:7)	unicent (1:19)	22-22bi-cento +C (3:22)	unicent (1:3)
	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145
<i>Aepyceros melampus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Antidorcas marsupialis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
<i>Antilope cervicapra</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
<i>Beatragus hunteri</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
<i>Bison bison</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bison bonasus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bos frontalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bos indicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bos javanicus birmanicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bos javanicus javanicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bos taurus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Boselaphus tragocamelus</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bubalus bubalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bubalus depressicornis</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Bubalus mindorensis</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Capra ibex</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cervus nippon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Damaliscus lunatus</i>	0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
<i>Damaliscus pygargus</i>	0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
<i>Eudorcas rufifrons</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
<i>Eudorcas thomsoni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gazella cuvieri</i>	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0
<i>Gazella dorcas</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
<i>Gazella gazella erlangeri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
<i>Gazella leptoceros</i>	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0
<i>Gazella subgutturosa marica</i>	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	1
<i>Kobus ellipsiprymnus</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
<i>Kobus kob</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
<i>Kobus leche</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
<i>Kobus megaceros</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nanger dama ruficollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
<i>Nanger granti</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
<i>Nanger soemmerringii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
<i>Neotragus moschatus</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oreotragus oreotragus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oryx dammah</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oryx gazella</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ovis ammon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Ovis aries</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Ovis nivicola</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Philantomba maxwellii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pseudoryx nghetinhensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Redunca fulvorufa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rupicapra rupicapra</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Syncerus caffer</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Taurotragus derbianus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tragelaphus angasi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tragelaphus eurycerus</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Tragelaphus imberbis</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
<i>Tragelaphus scriptus</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Tragelaphus speki</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0
<i>Tragelaphus strepsiceros</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	unicent (1:10)	unicent (2:25)	unicent (8:14)	unicent -absC (22:2)	unicent (12:16)	sentimetric shift+ tangposition	bi-centro +C (X:1)	unicent (1:29)	bi-centro (X:5)	rep (9:14)
	146	147	148	149	150	151	152	153	154	155
<i>Aepyceros melampus</i>	0	0	0	0	0	0	0	0	0	?
<i>Antidorcas marsupialis</i>	0	0	0	0	0	0	0	0	0	1
<i>Antelope cervicapra</i>	0	1	1	0	1	0	0	1	1	1
<i>Beatragus hunteri</i>	0	0	0	0	0	0	0	0	0	1
<i>Bison bison</i>	0	0	0	0	0	1	0	0	0	0
<i>Bison bonasus</i>	0	0	0	0	0	1	0	0	0	0
<i>Bos frontalis</i>	0	0	0	0	0	1	0	0	0	0
<i>Bos indicus</i>	0	0	0	0	0	1	0	0	0	0
<i>Bos javanicus birmanicus</i>	0	0	0	0	0	1	0	1	0	0
<i>Bos javanicus javanicus</i>	0	0	0	0	0	1	0	0	0	0
<i>Bos taurus</i>	0	0	0	0	0	1	0	0	0	0
<i>Boselaphus tragocamelus</i>	0	0	0	0	0	0	0	0	0	0
<i>Bubalus bubalis</i>	0	0	0	0	0	0	0	0	0	0
<i>Bubalus depressicornis</i>	0	0	0	0	0	0	0	0	0	0
<i>Bubalus mindorensis</i>	0	0	0	0	0	0	0	0	0	0
<i>Capra ibex</i>	0	0	0	0	0	0	0	0	0	1
<i>Cervus nippon</i>	0	0	0	0	0	0	0	0	0	0
<i>Damaliscus lunatus</i>	1	0	0	0	1	0	0	0	0	1
<i>Damaliscus pygmaeus</i>	0	0	0	0	1	0	0	0	0	1
<i>Eudorcas rufifrons</i>	0	0	0	0	0	0	0	0	1	0
<i>Eudorcas thomsoni</i>	0	0	0	0	0	0	0	0	1	0
<i>Gazella cuvieri</i>	0	0	1	0	1	0	0	0	1	0
<i>Gazella dorcas</i>	1	0	1	0	0	0	0	0	0	0
<i>Gazella gazella elatrigeni</i>	1	1	1	0	0	0	0	0	0	0
<i>Gazella leptoceros</i>	0	0	1	0	1	0	0	0	1	0
<i>Gazella subgutturosa marica</i>	0	0	1	0	1	0	0	0	1	0
<i>Kobus ellipsipsum</i>	0	1	0	0	0	0	0	0	0	1
<i>Kobus kob</i>	0	1	0	0	0	0	0	0	0	1
<i>Kobus leche</i>	0	1	0	0	0	0	0	0	0	1
<i>Kobus megaceros</i>	0	1	0	0	0	0	0	0	0	1
<i>Nanger dama ruficollis</i>	0	0	0	0	0	0	0	0	1	0
<i>Nanger granti</i>	0	0	0	0	0	0	0	0	1	0
<i>Nanger sommermergii</i>	0	0	0	0	0	0	0	0	1	0
<i>Neotragus moschatus</i>	0	0	0	0	0	0	0	0	0	1
<i>Oreotragus oreotragus</i>	0	0	0	0	0	0	0	0	0	?
<i>Oryx dammah</i>	0	0	0	0	0	0	0	1	0	1
<i>Oryx gazelle</i>	0	0	0	0	0	0	0	1	1	0
<i>Ovis ammon</i>	0	0	0	0	0	0	0	0	0	1
<i>Ovis aries</i>	0	0	0	0	0	0	0	0	0	1
<i>Ovis nivicola</i>	0	0	0	0	0	0	0	0	0	1
<i>Philantomba maxwellii</i>	0	0	0	0	0	0	0	0	0	?
<i>Pseudoryx nghienbensis</i>	0	0	0	0	0	0	0	0	0	0
<i>Redunca fulvorufa</i>	0	1	0	0	0	0	0	0	0	1
<i>Rupicapra rupicapra</i>	0	0	0	0	0	0	0	0	0	1
<i>Syncerus caffer</i>	0	0	0	0	0	0	0	0	0	0
<i>Taurotragus derbianus</i>	0	0	0	0	1	0	0	0	0	0
<i>Tragelaphus angus</i>	0	0	0	0	0	0	0	0	0	0
<i>Tragelaphus eurycerus</i>	0	0	0	1	0	0	1	1	0	0
<i>Tragelaphus imberbis</i>	0	0	0	0	0	0	1	0	0	0
<i>Tragelaphus scriptus</i>	0	0	0	1	0	0	1	1	0	0
<i>Tragelaphus sylvaticus</i>	0	0	0	1	0	0	1	1	0	0
<i>Tragelaphus strepsiceros</i>	0	0	0	1	1	0	1	1	0	0