

**Table S1 – Dates of the Cretaceous geological stages and Cenozoic North American Land Mammal Ages as used for dating the topologies and determining taxon occurrences.**

STAGE	START TIME	END TIME	STAGE	START TIME	END TIME
BERRIASIAN	145	139.8	TIFFANIAN	60.2	56.8
VALANGINIAN	139.8	132.9	CLARKFORKIAN	56.8	55.8
HAUTERIVIAN	132.9	129.4	WASATCHIAN	55.8	50.3
BARREMIAN	129.4	125	BRIDGERIAN	50.3	46.2
APTIAN	125	113	UINTAN	46.2	42
ALBIAN	113	100.5	DUCHESNEAN	42	38
CENOMANIAN	100.5	93.9	CHADRONIAN	38	33.9
TURONIAN	93.9	89.8	ORELLAN	33.9	30.8
CONIACIAN	89.8	86.3	ARIKAREEAN	30.8	20.6
SANTONIAN	86.3	83.6	HEMINGFORDIAN	20.6	16.3
CAMPANIAN	83.6	72.1	BARSTOVIAN	16.3	13.6
MAASTRICHTIAN	72.1	66	CLARENDONIAN	13.6	10.3
PUERCAN	66	63.3	HEMPHILLIAN	10.3	4.9
TORREJONIAN	63.3	60.2	BLANCAN TO RECENT	4.9	0