

The femoral ontogeny and long bone histology of the Middle Triassic (?late Anisian)
dinosauriform *Asilisaurus kongwe* and implications for the growth of early dinosaurs

C.T. GRIFFIN* and STERLING J. NESBITT

Department of Geosciences, Virginia Polytechnic and State University, 4044 Derring Hall, 1405

Perry Street, Blacksburg, Virginia 24061, USA, ctgriff@vt.edu, sjn2104@vt.edu.

Journal of Vertebrate Paleontology

*Corresponding author

TABLE S1. Measured widths of femoral heads compared with measured and estimated femoral lengths of each specimen. 95% confidence interval values given for estimated length as lower and upper ranges. Thin-sectioned specimens indicated by asterisk (*).

Specimen	Maximum width of femoral head (mm)	Measured length (mm)	Estimated length (mm)	Lower range of confidence interval (mm)	Upper range of confidence interval (mm)
NMT RB169	14.56	73.82	---	---	---
NMT RB221	15.66	---	82.69	68.91	96.49
NMT RB220	18.51	---	96.08	85.15	107.0
NMT RB172	17.66	96.37	---	---	---
NMT RB185	18.73	---	97.11	86.38	107.8
NMT RB109	19.32	---	99.88	89.63	110.1
NMT RB19	19.38	---	100.2	89.96	110.4
NMT RB229	19.42	---	100.4	90.18	110.5
NMT RB223	19.48	---	100.6	90.51	110.8
NMT RB219	20.25	---	104.3	94.67	113.8
NMT RB228	20.98	---	107.7	98.52	116.8
NMT RB211*	21.19	---	108.7	99.61	117.7
NMT RB218	21.41	---	109.7	100.7	118.6
NMT RB112	21.92	---	112.1	103.3	120.8
NMT RB212*	22.28	---	113.8	105.1	122.4
NMT RB222	22.65	---	115.5	107.0	124.1
NMT RB102	23.34	---	118.8	110.3	127.2
NMT RB217	23.73	---	120.6	112.1	129.1
NMT RB215	23.74	---	120.6	112.1	129.1
NMT RB216	23.76	---	120.7	112.1	129.1
NMT RB213*	23.98	---	121.8	113.2	130.3
NMT RB179	26.01	---	131.3	122.1	140.5
NMT RB171	28.78	137.15	---	---	---
NMT RB159 [R]	27.81	144.01	---	---	---
NMT RB159 [L]	28.31	144.38	---	---	---
NMT RB226*	31.41	---	156.6	142.6	170.7
SAM-PK-10598	35.79	---	177.2	158.0	196.5

TABLE S2. The order of character development in each sequence predicted by ontogenetic sequence analysis (OSA) in *Asilisaurus kongwe*, and the specimen frequency weight of each sequence. Sequence 1 is the modal sequence. Character numbers follow Table 1.

Sequence	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Total Frequency Weight
1	7	9	10	3	5,6	4	2	1	8	11	---	11.67
2	7	9	10	3	5,6	4	2	1	11	8	---	11.33
3	7	9	10	3	5,6	2	4	1	8	11	---	10.67
4	7	9	10	3	5,6	2	4	1	11	8	---	10.33
5	7	9	10	3	5,6	2	11	1	4	8	---	10.53
6	7	9	10	3	5,6	2	11	1	8	4	---	8.73
7	7	9	10	3	5,6	2	11	8	1	4	---	6.53
8	7	9	5,6	3,10	4	2	1	8	11	---	---	10.00
9	7	9	5,6	3,10	4	2	1	11	8	---	---	9.67
10	7	9	5,6	3,10	2	4	1	8	11	---	---	9.00
11	7	9	5,6	3,10	2	4	1	11	8	---	---	8.67
12	7	9	5,6	3,10	2	11	1	4	8	---	---	8.87
13	7	9	5,6	3,10	2	11	1	8	4	---	---	7.67
14	7	9	5,6	3,10	2	11	8	1	4	---	---	6.67
15	7	9	5,6	1	4	2	3	10	8	11	---	10.20
16	7	9	5,6	1	2	4	3	10	8	11	---	10.53
17	7	9	5,6	1	4	2	3	8	10	11	---	9.90
18	7	9	5,6	1	2	4	3	8	10	11	---	10.23
19	7	2,6	1,5	9	4	3	10	8	11	---	---	9.57
20	7	2,6	1,5	9	4	3	8	10	11	---	---	9.90
21	7	2,6	8	3,4,10,11	5,9	1	4	---	---	---	---	4.53
22	7	6	5,9	3,10	4	2	1	8	11	---	---	9.67
23	7	6	5,9	3,10	4	2	1	11	8	---	---	9.33
24	7	6	5,9	3,10	2	4	1	8	11	---	---	8.67
25	7	6	5,9	3,10	2	4	1	11	8	---	---	8.33

26	7	6	5,9	3,10	2	11	1	4	8	---	---	8.53
27	7	6	5,9	3,10	2	11	1	8	4	---	---	6.73
28	7	6	5,9	3,10	2	11	8	1	4	---	---	4.53
29	7	6	5,9	1	4	2	3	10	8	11	---	9.87
30	7	6	5,9	1	4	2	3	8	10	11	---	10.20
31	7	6	5,9	1	2	4	3	10	8	11	---	9.57
32	7	6	5,9	1	2	4	3	8	10	11	---	9.90
33	7	6	8,2	3,4,10,11	5,9	1	4	---	---	---	---	4.53

TABLE S3 The developmental sequence position of each character for each sequence predicted by ontogenetic sequence analysis (OSA), with mean sequence position and event standard deviation for each character. Character abbreviations follow Figs. 2, 3.

Sequen ce	dltp (1)	cfb (2)	dlp (3)	als (4)	dlta (5)	ts (6)	at (7)	ts+at (8)	lia (9)	lip (10)	4th (11)
1	8	7	4	6	5	5	1	9	2	3	10
2	8	7	4	6	5	5	1	10	2	3	9
3	8	6	4	7	5	5	1	9	2	3	10
4	8	6	4	7	5	5	1	10	2	3	9
5	8	6	4	9	5	5	1	10	2	3	7
6	8	6	4	10	5	5	1	9	2	3	7
7	9	6	4	10	5	5	1	8	2	3	7
8	7	6	4	5	3	3	1	8	2	4	9
9	7	6	4	5	3	3	1	9	2	4	8
10	7	5	4	6	3	3	1	8	2	4	9
11	7	5	4	6	3	3	1	9	2	4	8
12	7	5	4	8	3	3	1	9	2	4	6
13	7	5	4	9	3	3	1	8	2	4	6
14	8	5	4	9	3	3	1	7	2	4	6
15	4	6	7	5	3	3	1	9	2	7	10
16	4	5	7	6	3	3	1	9	2	7	10
17	4	6	7	5	3	3	1	8	2	7	10
18	4	5	7	6	3	3	1	8	2	7	10
19	3	2	6	5	3	2	1	8	4	6	9
20	3	2	6	5	3	2	1	7	4	6	9
21	6	2	4	4	5	2	1	3	5	4	4
22	7	6	4	5	3	2	1	8	3	4	9
23	7	6	4	5	3	2	1	9	3	4	8
24	7	5	4	6	3	2	1	8	3	4	9
25	7	5	4	6	3	2	1	9	3	4	8
26	7	5	4	8	3	2	1	9	3	4	6
27	7	5	4	9	3	2	1	8	3	4	6
28	8	5	4	9	3	2	1	7	3	4	6
29	4	6	7	5	3	2	1	9	3	7	10
30	4	6	7	5	3	2	1	8	3	7	10
31	4	5	7	6	3	2	1	9	3	7	10
32	4	5	7	6	3	2	1	8	3	7	10
33	6	3	4	7	5	2	1	3	5	4	4
Mean	6.3	5.2	4.9	6.5	3.5	3.0	1	8.2	2.6	4.6	8.2
SD	1.8	1.3	1.3	1.7	0.9	1.2	0	1.6	0.9	1.5	1.8