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SUPPLEMENTARY DATA

Vertebrate paleontology of the Cloverly Formation (Lower Cretaceous), II: paleoecology

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TABLE S1. Estimated biomasses for Cloverly Formation vertebrate OSUs. **Abbreviations:** **BM**, biomass; **NS**, number of specimens; **NS***, modified number of specimens.

	NS	NS*	BM (kg)	Size Analog	BM Reference
<i>Egertonodus</i> sp.	32	0.25	6	1-1.5' dogfish shark	Gilbert et al., 1967
<i>Hybodus parvidens</i>	17	0.13	6	1-1.5' dogfish shark	Gilbert et al., 1967
<i>Parvodus</i> sp.	1	0.01	4	8-10" dogfish shark	Gilbert et al., 1967
<i>Lonchidion</i> sp.	31	0.24	4	8-10" dogfish shark	Gilbert et al., 1967
aff. Pycnodontidae indet.	5	5.00	3	reef fish	estimate
aff. <i>Lepidotes</i> sp.	8	0.08	6	<i>Lepidotes</i>	estimate
Vidalamiinae indet.	17	0.20	6	<i>Amia calva</i>	estimate
Amiiformes indet. A	94	1.11	6	<i>Amia calva</i>	estimate
<i>Ceratodus frazeri</i>	3	1.00	15	0.67 x <i>Neoceratodus</i>	Pusey et al., 2004
<i>Ceratodus</i> cf. <i>C. guentheri</i>	7	2.00	12	0.5 x <i>Neoceratodus</i>	Pusey et al., 2004
<i>Albanerpeton</i> sp.	173	173.00	0.005	small salamander	Gibbons et al., 2006
cf. Scapherpetontidae indet.	15	15.00	0.01	small salamander	estimate
Batrachosauroididae indet.	5	5.00	0.005	small salamander	Gibbons et al., 2006
cf. <i>Scotiophryne</i> sp.	6	6.00	0.003	medium frog	Gibbons et al., 2006
Anura indet. A	71	71.00	0.003	medium frog	Gibbons et al., 2006
<i>Naomichelys speciosa</i>	330	350.00	2.5	20 cm carapace turtle	Iverson, 1982
" <i>Glyptops</i> " <i>pervicax</i>	98	181.00	4	30 cm carapace turtle	Iverson, 1982
Testudinata indet. A	93	112.00	2	20 cm carapace turtle	Iverson, 1982
<i>Paramacellodus keebleri</i>	1	1.00	0.01	day gecko	Bennett and Gorman, 1979
Paramacellodidae indet. A	2	2.00	0.008	day gecko	Bennett and Gorman, 1979
<i>Ptilotodon wilsoni</i>	4	4.00	0.008	banded gecko	Bennett and Gorman, 1979
Teiidae indet. A	3	3.00	0.006	skink	Bennett and Gorman, 1979
cf. Bernissartidae indet.	114	1.43	1	~0.7 m crocodilian	Platt et al., 2009
cf. Atoposauridae indet.	1008	12.60	1	~0.7 m crocodilian	Platt et al., 2009
cf. Goniopholididae indet.	39	0.49	5	~1.2 m crocodilian	Platt et al., 2009

TABLE S1. (Continued).

cf. Pholidosauridae indet.	488	6.30	80	~3 m crocodilian	Platt et al., 2009
Tetanurae indet.	8	0.13	1500	<i>Allosaurus</i>	estimate
<i>Deinonychus antirrhopus</i>	127	5.84	85	<i>Deinonychus</i>	Roach and Brinkman, 2007
<i>Microvenator celer</i>	0	1.00	50	<i>Microvenator</i>	estimate
Theropoda indet. A	38	0.54	50	0.67 x <i>Deinonychus</i>	Roach and Brinkman, 2007
Theropoda indet. B	6	0.09	30	<i>Troodon</i>	estimate
Titanosauriformes indet.	269	5.67	6000	sauropod	Matsukawa et al., 2006
cf. <i>Zephyrosaurus</i> sp.	12	0.21	40	<i>Zephyrosaurus</i>	estimate
<i>Tenontosaurus tilletti</i>	17	12.34	1000	<i>Tenontosaurus</i>	Roach and Brinkman, 2007
<i>Sauropelta edwardsi</i>	12	0.15	3000	<i>Sauropelta</i>	Farlow, 1976
?Aves indet.	6	3.25	0.6	pigeon	Brockie and Moeed, 1986
Alticonodontinae indet.	13	13.00	1	opossum	Brockie and Moeed, 1986
<i>Gobiconodon ostromi</i>	2	2.00	2	0.5 x badger	Brockie and Moeed, 1986
? <i>Paracimexomys</i> sp.	7	7.00	0.015	mouse	Brockie and Moeed, 1986
<i>Bryceomys</i> sp.	2	2.00	0.015	mouse	Brockie and Moeed, 1986
<i>Janumys</i> sp.	1	1.00	0.015	mouse	Brockie and Moeed, 1986
Spalacotheriidae indet.	1	1.00	0.2	2.0 x squirrel	Brockie and Moeed, 1986
cf. <i>Atokatheridium</i> sp.	1	1.00	0.5	0.25 x opossum	Brockie and Moeed, 1986
cf. <i>Oklatheriidium</i> sp.	4	4.00	0.5	0.25 x opossum	Brockie and Moeed, 1986
<i>Montanalestes keeblerorum</i>	0	0.07	0.3	0.15 x opossum	Brockie and Moeed, 1986

TABLE S2. Inferred trophic guild assignments for Cloverly Formation OSUs.
Abbreviations: NS, number of specimens; NS*, modified number of specimens.

Habitat	Guild	Taxon	NS	NS*	trophic level
Terrestrial	Small Herbivore	<i>Paracimexomys</i> sp.	7	7.00	1
		<i>Bryceomys</i> sp.	2	2.00	1
		<i>Janumys</i> sp.	1	1.00	1
	Large Herbivore	cf. <i>Zephrosaurus</i> sp.	12	0.21	1
		Ornithomimidae indet.	0	0.00	1
		<i>Aquilops americanus</i>	0	0.00	1
		<i>Tenontosaurus tilletti</i>	29	12.34	1
		<i>Tatankacephalus cooneyorum</i>	0	0.00	1
		<i>Sauropelta edwardsi</i>	13	0.15	1
		Titanosauriformes indet.	281	5.67	1
	Omnivore	Cryptodira indet.	0	0.00	3
		<i>Microvenator celer</i>	1	1.00	3
	Small Carnivore	Teiidae indet. A	3	3.00	2
		Paramacellodidae indet. A	2	2.00	2
		<i>Ptilotodon wilsoni</i>	4	4.00	2
		<i>Paramacellodus keebleri</i>	1	1.00	2
		Spalacotheriidae indet.	1	1.00	2
		<i>Montanalestes keeblerorum</i>	3	3.00	2
		cf. <i>Atokatheridium</i> sp.	1	1.00	2
		cf. <i>Oklatheriidium</i> sp.	4	4.00	2
		<i>Corviconodon montanensis</i>	13	13.00	2
		?Aves indet.	6	3.25	3
		<i>Gobiconodon ostromi</i>	2	2.00	3
	Large Carnivore	<i>Acrocanthosaurus atokensis</i>	9	0.13	5
		<i>Deinonychus antirrhopus</i>	133	5.84	4
		Theropoda indet. A	38	0.54	4
		Theropoda indet. B	6	0.09	4
Amphibious	Small Herbivore	(none)	N/A	N/A	1
	Large Herbivore	(none)	N/A	N/A	1
	Omnivore	Testudinata indet. A	112	112.00	3
		<i>Naomichelys speciosa</i>	350	350.00	3
		" <i>Glyptops</i> " <i>pervicax</i>	181	181.00	3
	Small Carnivore	cf. <i>Scotiophryne</i> sp.	6	6.00	2
		Anura indet. A	71	71.00	2
		<i>Albanerpeton</i> sp.	173	173.00	2
		Batrachosauroididae indet.	5	5.00	2
		cf. Scapherpetontidae indet.	15	15.00	2
	Large Carnivore	cf. Bernissartidae indet.	114	1.43	4
		cf. Atoposauridae indet.	1008	12.60	4

TABLE S2. (Continued).

		cf. Goniopholididae indet.	39	0.49	5
		cf. Pholidosauridae indet.	504	6.30	5
Aquatic	Detritivore	Bivalvia indet. A	71	71.00	1
		Bivalvia indet. B	1	1.00	1
		Bivalvia indet. C	22	22.00	1
		Decapoda indet.	100	100.00	1
	Omnivore	<i>Ceratodus frazeri</i>	4	1.00	2
		<i>Ceratodus</i> cf. <i>C. guentheri</i>	8	2.00	2
	Durophage	Gastropoda indet.	20	20.00	2
		aff. Pycnodontidae indet.	5	5.00	3
		<i>Pseudohypolophus</i> sp.	0	0.00	3
		aff. <i>Lepidotes</i> sp.	8	0.08	4
	Med. Carnivore	Amiiformes indet. A	94	1.11	4
		Vidalamiinae indet.	17	0.20	4
		<i>Parvodus</i> sp.	1	0.01	4
	Large Carnivore	<i>Lonchidion</i> sp.	31	0.24	4
		<i>Hybodus parvidens</i>	17	0.13	5
		<i>Egertonodus</i> sp.	32	0.25	5

TABLE S3. Biomass vs. rank abundance for vertebrate OSUs in the Cloverly Formation.
Abbreviation: NS, number of specimens.

	Rank A (NS)	Biomass (kg)	NS	NS x biomass
cf. Atoposauridae indet.	1	1	1008	1008
cf. Pholidosauridae indet.	2	80	504	40320
<i>Naomichelys speciosa</i>	3	2.5	350	875
Titanosauriformes indet.	4	6000	281	1686000
“ <i>Glyptops</i> ” <i>pervicax</i>	5	4	181	724
<i>Albanerpeton</i> sp.	6	0.005	173	0.865
<i>Deinonychus antirrhopus</i>	7	85	133	11305
cf. Bernissartidae indet.	8	1	114	114
Testudinata indet. A	9	2	112	224
Amiiformes indet. A	1	6	94	564
Anura indet. A	2	0.003	71	0.213
cf. Goniopholididae indet.	12	5	39	195
Theropoda indet. A	13	50	38	1900
<i>Egertonodus</i> sp.	14	6	32	192
<i>Lonchidion</i> sp.	15	4	31	124
<i>Tenontosaurus tilletti</i>	16	1000	29	29000
<i>Hybodus parvidens</i>	17	6	17	102
Vidalamiinae indet.	18	6	17	102
cf. Scapherpetontidae indet.	19	0.01	15	0.15
<i>Sauropelta edwardsi</i>	20	3000	13	39000
Alticonodontinae indet.	21	1	13	13
cf. <i>Zephrosaurus</i> sp.	22	40	12	480
Tetanurae indet.	23	1500	9	13500
aff. <i>Lepidotes</i> sp.	24	6	8	48
<i>Ceratodus</i> cf. <i>C. guentheri</i>	25	12	8	96
<i>Paracimexomys</i> sp.	26	0.015	7	0.105
cf. <i>Scotiophryne</i> sp.	27	0.003	6	0.018
Theropoda indet. B	28	30	6	180
?Aves indet.	29	0.6	6	3.6
aff. Pycnodontidae indet.	30	3	5	15
Batrachosauroiidae indet.	31	0.005	5	0.025
<i>Ceratodus frazeri</i>	32	15	4	60
<i>Ptilotodon wilsoni</i>	33	0.008	4	0.032
cf. <i>Oklatheriidium</i> sp.	34	0.5	4	2
Teiidae indet. A	35	0.006	3	0.018
<i>Montanalestes keeblerorum</i>	36	0.3	3	0.9
Paramacellodidae indet. A	37	0.008	2	0.016
<i>Gobiconodon ostromi</i>	38	2	2	4
<i>Bryceomys</i> sp.	39	0.015	2	0.03

TABLE S3. (Continued).

<i>Parvodus</i> sp.	40	4	1	4
<i>Paramacellodus keebleri</i>	41	0.01	1	0.01
<i>Microvenator celer</i>	42	50	1	50
<i>Janumys</i> sp.	43	0.015	1	0.015
Spalacotheriidae indet.	44	0.2	1	0.2
cf. <i>Atokatheridium</i> sp.	45	0.5	1	0.5

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