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SUPPLEMENTARY DATA 1

Vegasaurus molyi gen. et sp. nov. (Plesiosauria, Elasmosauridae) from the Cape
Lamb Member (lower Maastrichtian) of the Snow Hill Island Formation, Vega Island,
Antarctica, and remarks on Wedellian Elasmosauridae

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TABLE S1. Vertebral measures L (length), H (height) and B (breadth) and HI (100*H/L), BI (100*B/L), BHI,(100*B/H) and VLI (100*L/(0.5*(H+L))) index of the *Vegasaurus molyi* gen. et sp. nov. holotype (MLP 93-1-5-1). Bold numbers represent articulated vertebrae. **C**, cervical; **P**, pectoral, **D**, dorsal, **S**, sacral, **Ca**, caudal.

Vert.	L	H	B	HI	BI	BHI	VLI
1 C							
2		23	29			126	
3	26	23	32	88	123	139	94.55
4	26	24	33	92	127	138	91.23
5	27	23	32	85	119	139	98.18
6	30	28	34	93	113	121	96.77
7	30	28	31	93	103	111	101.7
8	34	29	39	85	115	134	100.0
9	35	—	—	—	—	—	—
10	32	27	38	84	119	141	98.46
11	36	30	44	83	122	147	97.30
12	39	33	47	85	121	142	97.50
13	32	29	39	91	122	134	94.12
14	40	33	48	83	120	145	98.77
15	43	—	49	—	114	—	—
16	44	37	52	—	—	—	—
17	44	39	52	89	118	133	96.70
18	45	39	54	—	—	—	—
19	46	39	55	85	120	141	97.87
20	51	39	55	76	108	141	108.5
21	—	—	—	—	—	—	—
22	50	40	58	—	—	—	—
23	52	—	—	—	—	—	—
24	52	43	62	83	119	144	99.05
25	57	49	66	86	116	135	99.13
26	59	48	66	81	112	138	103.5
27	—	—	—	—	—	—	—
28	58	50	70	86	121	140	96.67
29	59	51	71	86	120	139	96.72
30	55	53	72	96	131	136	88.00
31	62	54	76	87	123	141	95.38
32	58	55	76	95	131	138	88.55
33	63	54	78	86	124	144	95.45
34	63	55	79	87	125	144	94
35	65	55	78	85	120	142	97.74
36	60	60	80	80	100	133	85.7
37	66	57	81	86	123	142	95.65
38	67	56	84	84	122	146	0.97
39	65	—	—	—	—	—	—
40	67	57	78	85	116	137	99.26
41	—	—	—	—	—	—	—
42	65	64	94	98	145	147	82.28
43	—	—	—	—	—	—	—
44	65	66	87	102	134	132	84.97

45	64	66	91	103	142	138	81.53
46	62	—	—	—	—	—	—
47	63	67	92	106	146	137	79.2
48	62	67	—	—	—	—	—
49	63	64	95	102	151	148	79.25
50	62	68	95	110	153	140	76.07
51	63	—	99	—	157	—	—
52	58	—	—	—	—	—	—
53	—	—	100	—	—	—	—
54	60	67	95	112	158	142	74.07
55P	61	—	80	—	131	—	—
56	61	69	95	113	156	138	74.39
57	58	60	83	103	143	138	81.12
58D	—	—	—	—	—	—	—
59	63	—	82	—	130	—	—
60	—	—	—	—	—	—	—
61	—	—	—	—	—	—	—
62	63	75	91	119	144	121	75.90
63	65	75	89	115	137	119	79.27
64	65	—	88	—	135	—	—
65	—	—	87	—	—	—	—
66	62	71	86	115	139	121	78.98
67	65	74	85	114	131	115	81.76
68	67	70	84	104	125	120	87.01
69	61	77	82	126	134	106	76.73
70	53	62	79	117	149	127	75.18
71	—	—	—	—	—	—	—
72	—	—	—	—	—	—	—
73	—	—	—	—	—	—	—
74	—	—	—	—	—	—	—
75S	60	—	—	—	—	—	—
76	—	—	—	—	—	—	—
77	54	—	85	—	157	—	—
78Ca	47	—	91	—	194	—	—
79	49	—	90	—	184	—	—
80	48	63	—	131	—	—	—
81	49	—	84	—	171	—	—
82	45	—	—	—	—	—	—
83	45	68	81	151	180	119	60.40
84	48	65	78	135	163	120	67.13
85	45	60	80	133	178	133	64.29
86	45	62	79	138	176	127	63.83
87	44	62	82	141	186	132	61.11
88	42	60	71	143	169	118	64.12
89	46	61	73	133	159	120	68.66
90	44	61	78	139	177	128	63.31
91	41	61	82	149	200	134	57.34
92	44	58	80	132	182	138	63.77
93	41	—	86	—	210	—	—
94	43	57	75	133	174	132	65.15
95	40	58	71	145	178	122	62.02
96	35	56	66	160	189	118	57.38
97	35	—	—	—	—	—	—
98	—	—	—	—	—	—	—

99	—	—	—	—	—	—	—
100	—	—	—	—	—	—	—
101	—	—	—	—	—	—	—
102	35	—	—	—	—	—	—
103	34	—	—	—	—	—	—
104	—	—	—	—	—	—	—
105	32	—	—	—	—	—	—

CHARACTERS AND SCORING

Citation and lists for previous uses of modified characters are given by Kubo et al. (2012) modified from Sato (2002).

Institutional Abbreviations—**CM**, Canterbury Museum, Christchurch, New Zealand; **DM**, Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand; **MLP**, Museo de la Plata, Buenos Aires Province, Argentina; **NGS**, Nuclear and Geological Science, Lower Hut, New Zealand; **OU**, Otago Museum, Dunedin, New Zealand.

Characters Considered Additive (following Sato, 2002)

Characters considered additives are 1, 2, 4, 5, 39, 84, 86, 87, 110, 111, 115, 118, 119, 160, 162, 175, 176, 179, 182, 183, 184, 185, 206, 207, and 214.

List of Characters and Scoring Modifications from the Data Set of Kubo et al. (2012)

Ch. 120: Shape of the anterior cervical centra [multistate] (Welles, 1943-3; Brown, 1981-15; O'Keefe, 2001-112) Anterior cervical centrum is about as long as high (0), mostly longer than high (1), mostly higher than long (2), much longer than high (3) (nov. state). This last state is recorded in the species of the elongated group of O'Keefe and Hiller (2006).

Ch. 178: Diamond-shaped vacuity in pelvis (binary): absent (0) or present (1) is not considered in this analysis. All of the information related to the pelvic bar was condensed in Ch. 177: Pelvic midline bar (multistate) (Welles, 1943-15; Brown, 1981-30; Carpenter, 1999-20; O'Keefe, 2001-146). Present with or without diamond shape vacuity (modified state) (0), reduced or absent with truncated end (1), reduced or absent without truncated end (2).

Scorings

Presence of the Ventral Notch—In taxa where only the first cervical vertebrae are known (*Tuaraingisaurus keyesi*; *Eromangasaurus australis*) Ch. 121 (shape of articular faces of cervical centra) is scored as ? because the first cervical vertebrae usually do not have the ventral notch in the articular faces of the cervical centra, even in specimens that have the ventral notch in middle cervical vertebrae.

Scorings Modified from Literature—Some scorings were modified based on the literature in order to maintain internal consistency in the data set.

Callawayasaurus colombiensis: Ch. 123(1); 124 (1&2) (Welles, 1962).

Elasmosasurus platyurus Ch. 121 (1) (Welles, 1943, 1952, 1962).

Eromangasaurus australis Ch. 92 (?) (Kear, 2007).

Futabasaurus suzukii Ch. 102 (1) and 110 (?) (Sato et al., 2006).

Morenosaurus stocki Ch. 124 (1) (Welles, 1943).

Thalassomedon haningtoni Ch. 124 (1&2) (Welles, 1943).

Some scorings were completely revised based on personal observation (Table S2).

Taxa Scored Based on Personal Observation—Taxon scoring based on personal observations are indicated in Table S2.

TABLE S2. Taxon scoring based on personal observation.

Taxa	Source
<i>Aristonectes parvidens</i>	Holotype MLP 40-XI-14-6
<i>Kaiwhekea katiki</i>	Holotype (OU 12649)
<i>Vegasarus molyi</i>	Holotype (MLP 93-I-5-1)
<i>Tuarangisaurus keyesi</i>	Holotype (NZGS CD425) and NZGS CD426
<i>Mauisaurus haasti</i>	Holotype (DM R 1529) and referred (CM Zfr 115)

The scoring modifications are included in the SUPPLEMENTARY DATA 2
Vegasaurus Data Set. Nex.

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