

ONLINE APPENDIX 1

Morphological phylogenetic characters scored in this paper. See Poe (2004) for detailed character descriptions, citations, and justifications for states. Note that codes are changed from a range of *a* to *z* in that paper to a range of 0 to 5 here (for compatibility with a greater number of phylogenetic computer programs).

1. Maximum male snout-to-vent length 38 mm (0); 188 mm (5).
2. Ratio of maximum female snout-to-vent length to maximum male snout to vent length 1.06 (0); 0.57 (5).
3. Length of thigh short (0); long (5).
4. Length of head short (0); long (5).
5. Width of head narrow (0); broad (5).
6. Height of ear small (0); large (5).
7. Interparietal scale large (0); about equal to surrounding scales (5).
8. Length of tail about equal to SVL (0); about 1.5 times SVL (2); about two times SVL (3); about 2.5 times SVL (4); more than 2.8 times SVL (5).
9. Toepads overlapping first phalanx (0); not distinct from first phalanx (1); absent (2).
10. Enlarged postcloacal scales present in males (0); absent in males (5).
11. Row of large spinose middorsal caudal scales separated by smaller smooth scales absent (0); present (5).
12. Tail crest absent (0); present in largest adult males (5).
13. Number of rows of enlarged middorsal scales 0–4 (0); 5 or more (5).
14. Each ventral scale is bordered posteriorly by two scales (0); by three scales (5).
15. Base of tail laterally compressed (0); round (5).
16. Male dewlap extends posterior past arms (0); to arms or shorter (1); absent (2).
17. Female dewlap extends posterior past arms (0); to arms or shorter (1); absent (2).
18. Tail uniformly patterned (0); base of tail purple, posterior part green or brown (5).
19. Mean

number of dorsal scales in 5% of SVL 2.5 (0); 17 (5). 20. Mean number of ventral scales in 5% of SVL 2.75 (0); 14.3 (5). 21. Scales on dewlap in rows of single scales (0); with at least one double row (5). 22. Middorsal caudal scale rows single (0); double (5). 23. Axillary pocket absent (0); deep, tubelike (5). 24. Scales of midnuchal area similar to middorsal scales (0); in continuous row of bulbous scales distinct from dorsal scales (5). 25. Transparent scales in lower eyelid absent (0); present (5). 26. Mental scale partially divided (0); completely divided (5). 27. Mental scale broader than rostral scale (0); rostral broader than mental (5). 28. Subocular scales and supralabial scales in contact (0); separated by one or more rows of scales (5). 29. Mean number of scales across the snout 2.5 (0); 19 (5). 30. Mean number of postmental scales 3.25 (0); 9.75 (5). 31. Posterior border of mental scale straight or convex (0); concave (5). 32. Supraorbital semicircles separated by one or more rows of scales (0); in contact (5). 33. Preoccipital scale absent (0); present (5). 34. Middorsal scales of the snout not in regular pattern (0); arranged in two parallel rows that extend from the level of the second canthals to the nares (5). 35. Posterodorsal edge of rostral smooth (0); cleft (5). 36. Antermost aspect of rostral scale is even with lower jaw (0); overlaps lower jaw (5). 37. Color of iris dark brown (0); yellow (1); blue or grey (2); green (3); red (4). 38. Modal number of supraciliary scales zero (0); one (1); two (2); three (3). 39. Modal nasal scale type: anterior nasal in contact with rostral (0); divided anterior nasal in contact with rostral (1); circumnasal separated from rostral by one scale, not in contact with supralabial (2); external

naris separated from rostral by two scales, not in contact with supralabial (3); external naris separated from rostral by three or more scales, not in contact with supralabial (4); circumnasal in contact with rostral (5); circumnasal in contact with supralabial, separated from rostral by one scale (5); circumnasal in contact with supralabial, separated from rostral by two or more scales (7). 40. Keeling of dorsals, ventrals, supradigitals, and head scales. The following states are listed in order of whether keels (k) or smooth scales (s) are observed on head scales, ventrals, dorsals, and supradigitals, respectively. For example, "sssk" means that all surfaces except supradigitals are smooth. (0) kkkk; (1) ssss; (2) kskk; (3) kksk; (4) kkks; (5) kkss; (5) ksks; (7) kssk; (8) ksss; (9) skkk; (a) skks; (b) sksk; (c) sskk; (d) sssk; (e) ssks; (f) skss. 41. Scales in supraocular disc vary continuously in size and are bordered medially by an unbroken row of small scales (0); vary continuously in size and are bordered medially by an incomplete row of small scales (1); with one to three abruptly enlarged scales and bordered medially by an unbroken row of small scales (2); with one to three abruptly enlarged scales and bordered medially by an incomplete row of small scales (3); about equal in size (4). 42. Lining of throat light (0); black (5). 43. Fold of skin extending over dorsal rim of ear opening absent (0); present (5). 44. Modal number of enlarged sublabial scales zero (0); one (1); two or more (2). 45. Frontal depression present (0); absent, top of snout is flat (5). 46. Interparietal scale separated from supraorbital semicircles by one or more rows of scales (0); in contact with supraorbital semicircles (5). 47. Modal postxiphisternal inscriptional rib formula

4: 3 (0); 5: 1 (1); 4: 2 (2); 5: 0 (3); 4: 1 (4); 3: 2 (5); 4: 0 (5); 3: 1 (7); 2: 2 (8); 1: 3 (9); 2: 1 (a); 5: 2 (b). 48. Modal number of sternal ribs two (0); three (1); four (2). 49. Caudal vertebrae are Alpha type (0); Beta type (1); *Chamaelinorops* type (2); *Basiliscus* type (3); *Sceloporus* type (4). 50. Interclavicle arrow-shaped (0); T-shaped (5). 51. Modal number of presacral vertebrae 24 (0); 23 (1); 22 (2). 52. Modal number of lumbar vertebrae three (0); four (1); five (2); six (3). 53. Modal number of caudal vertebrae anterior to first autotomic vertebrae eleven (0), ten (1), nine (2), eight (3), seven (4), six (5), five (5). 54. Caudal autotomy septa present (0); absent (5). 55. Supraoccipital cresting continuous across supraoccipital (0); lateral processes distinct from supraoccipital crest (1); single narrow central process (2). 56. Dorsal surface of skull smooth (0); rugose with bony tubercles (5). 57. Parietal crests form a trapezoid (0); V (1); Y (2); Y with parietal spur (3). 58. Anterolateral corners of parietal crests reach posterolateral corners of frontal (0); reach medial to posterolateral corners of frontal (5). 59. Parietal casque absent (0); present (5). 60. Pineal foramen at parietal/frontal suture (0); in parietal (5). 61. Supratemporal processes leave supraoccipital exposed above (0); extend over supraoccipital (5). 62. Postfrontal present (0); absent (5). 63. Prefrontal contacts nasal (0); is separated from nasal by frontal and maxilla (5). 64. Frontal sutures only with nasals anteriorly (0); is separated from nasals by open gap (1); contacts premaxilla and nasals anteriorly (2). 65. Parallel crests extending longitudinally down nasals from frontal to nares absent (0); present (5). 66. Anterior edge of nasal forms posterior border of naris (0);

does not reach naris (5). 67. Dorsal process of jugal terminates on lateral aspect of postorbital (0); on posterior or medial aspect of postorbital (5). 68. Contact between jugal and squamosal absent (0); present (5). 69. Posteroventral corner of jugal is anterior to posterior edge of jugal (0); posterior to posterior edge of jugal (5). 70. Epipterygoid long, contacts parietal (0); short, does not reach parietal (5). 71. Pterygoid teeth present (0); absent (5). 72. Lateral edges of vomer smooth (0); with posteriorly directed lateral processes (5). 73. Maxilla extends posteriorly to ectopterygoid (0); beyond ectopterygoid (5). 74. Basipterygoid crest absent (0); present (5). 75. Quadrate lateral shelf absent (0); present (5). 76. Black pigment on skull absent (0); present over most bones on the dorsal surface of the skull (5). 77. Premaxilla overlaps nasals laterally or is flush with them (0); nasal overlaps lateral edge of premaxilla (5). 78. Posterior of skull slopes superiorly or is flat (0); slopes inferiorly (5). 79. Crenulation along lateral edges of parietal absent (0); present (5). 80. Parietal roof flat (0); convex (5). 81. Posteriormost tooth is at least partially posterior to anterior mylohyoid foramen (0); posteriormost tooth is at least partially anterior to anterior mylohyoid foramen (3); posteriormost tooth is completely anterior to anterior mylohyoid foramen (5). 82. Angular process of articular present, large (0); reduced or absent (5). 83. Posterior suture of dentary pronged (0); blunt (5). 84. Anteriormost aspect of posterior border of dentary is anterior to mandibular fossa (0); within mandibular fossa (5). 85. Splenial present, large (0); absent (1); present as anteromedial sliver (2). 86. Anteromedial process of coronoid extends

anteriorly (0); ventral aspect of anteromedial process projects posteriorly (5). 87. Surangular foramen completely in surangular (0); bordered laterally by dentary (5). 88. Coronoid labial process absent (0); present (5). 89. Posterolateral aspect of coronoid terminates anterior to supra-angular foramen (0); extends into or beyond supra-angular foramen (5). 90. Jaw sculpturing in large adult males absent (0); *Chamaeleolis* type (1); *krugi* type (2); *crisatellus* type (3); *cybotes* type (4); wrinkled (5). 91. Angular bone present (0); absent (5).

Online Table 1. Character states for new species. Characters from Poe (2004) are listed in Online Appendix 1.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>anchicayae</i>	1	3	3	2	2	3	1	3	0	0	0	0	2	1	5	0	2	0
<i>lyra</i>	1	3	3	2	2	3	3	4	0	5	0	0	0	5	5	1	1	0
<i>anchicayae</i>	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
<i>lyra</i>	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
<i>anchicayae</i>	3	2	5	5	0	0	0	0	0	0	2	3	5	0	0	0	0	?
<i>lyra</i>	2	1	0	0	0	0	0	0	0	3	2	4	0	0	0	0	0	?
<i>anchicayae</i>	3	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5
<i>lyra</i>	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4
<i>anchicayae</i>	2	1	0	2	0	?	0	2	0	0	6	?	0	?	?	?	?	?
<i>lyra</i>	04	2	13	0	01	?	0	0	0	0	?	?	1	?	?	?	?	?
<i>anchicayae</i>	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7
<i>lyra</i>	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2
<i>anchicayae</i>	1	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	5	0
<i>lyra</i>	?	0	2	0	0	0	?	0	2	0	0	0	0	?	0	0	5	0
<i>anchicayae</i>	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9
<i>lyra</i>	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0
<i>anchicayae</i>	3	0	0	0	0	0	0	0	2	0	0	5	0	4	4	5	0	0
<i>lyra</i>	5	0	0	3	5	?	0	0	0	0	5	5	1	5	2	5	0	0