**Table S1.** List of specimens examined in the present study through morphological analyses. Abbreviations: CNP, Colección de Mamíferos del Centro Nacional Patagónico; MN, Museu Nacional, Universidade Federal do Rio de Janeiro; MZUSP, Museu de Zoologia da Universidade de São Paulo; UFMG, Universidade Federal de Minas Gerais; UMMZ, University of Michigan Museum of Zoology; USNM, National Museum of Natural History; FMNH, Field Museum of Natural History

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| *Akodon* sp. (n = 29): BRAZIL: Mato Grosso do Sul state: Serra da Bodoquena, Nossa Senhora Aparecida cave: MN 58086, 57636, 57650, 57651, 57652, 57654, 58116, 57635, 57653, 57774, 57632, 57633, 57637, 57642, 57643, 57646, 57647, 57648, 57938, 58005, 57631, 57634, 57640, 57641, 57644, 57645, 57649, 58026, 58035. |
| *Akodon kadiweu* (n = 4): BRAZIL: Mato Grosso do Sul state: Bodoquena, Fazenda Califórnia, Parque Nacional da Serra da Bodoquena: MZUSP 35765, 35766, 35767, 35994. |
| *Akodon montensis* (n = 28): BRAZIL: Mato Grosso do Sul state: Fazenda Maringá, 54 km W Dourados: UFMG 2682, 2683, 2685, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2701, 2702, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714. Maracaju: MN 4325, 4368, 5177, 5178, 5180. |
| *Akodon philipmyersi* (n = 11): ARGENTINA: Misiones Province: Ruta No. 105 km 10, Estancia Santa Inés, Department of Posadas: CNP 741, 742, 744, 745, 746, 748, 3019, 3020, 3029, 4670; UMMZ 176194. |
| *Akodon toba* (n = 8): BRAZIL: Mato Grosso do Sul state: Corumbá, São Marcus road, 7 km WSW of Urucum: USNM 390160, 390162, 390161, 390251, 390252. Presidente Hayes: Trans-Chaco Hwy, km 412; Experimental Farm, 2 km W Cruze Pioneros-Pioneros: FMNH 164168. Boqueron: Filadelfia, 35 km W; Estancia Toledo-Toledo: FMNH 164136, Boqueron: Corrales, 5km N: FMNH 164129. |
| *Akodon lingberghi* (n = 9): BRAZIL: Minas Gerais state: Simão Pereira: MN 36684, 33685, 33686, 33703, 33683, 48026, 3368, 33682. Distrito Federal state: 20 km NW Brasília: MN 33501 (holotype). |
| *Akodon azarae* (n = 7): ARGENTINA: Buenos Aires: Arroyo de las Brusquitas: CNP 3090. Buenos Aires: Hilario Ascasubi: CNP 3154. IPAF NEA, Laguna Blanca, Formosa: CNP 5639. Buenos Aires: Gonzalez Catán: MZUSP 10090. URUGUAY: Rio Negro: Ayo Don Esteban, 18 km SE Young: MZUSP 28965. Carrasco Moleu: Ayo: MZUSP 28966. PARAGUAY: Colonia, Rio de la Plata, 3 km E de Martin Chico: MZUSP 28961. |
| *Akodon clivigenis* (n = 1): ZMK-1-1845-13243. |