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Noctilionidae) by Great Rufous Woodcreeper (*Xiphocolaptes
major* Dendrocolaptidae)**

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Predation on Lesser Bulldog Bat (*Noctilio albiventris* Noctilionidae) by Great Rufous Woodcreeper (*Xiphocolaptes major* Dendrocolaptidae)

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ABSTRACT.—The Great Rufous Woodcreeper (*Xiphocolaptes major*) feeds mostly on arthropods, but includes small vertebrates such as amphibians and reptiles in its diet, as well as eggs and nestlings of other songbirds. There are a few records of bats in the diet of the Great Rufous Woodcreeper, but it is not known how commonly they consume bats. During fieldwork in the Brazilian

Pantanal, we recorded a Great Rufous Woodcreeper preying on a lesser bulldog bat (*Noctilio albiventris*). After striking the bat, the woodcreeper ingested thin strips of the prey’s flesh. The use of tree cavities by the bats and Great Rufous Woodcreeper in the Pantanal may increase the chance of encounters between woodcreepers and bats, and suggests that this kind of predation event involving these two groups may be more common than reported. *Received 1 December 2015. Accepted 27 February 2016.*

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Key words: Brazilian Pantanal, cavities, diet, feeding behavior, *Noctilio*, opportunistic predation, vertebrate predation.

The Great Rufous Woodcreeper, *Xiphocolaptes major* (Dendrocolaptidae) is one of the largest woodcreepers (27–34 cm, 120–162 g), and occurs



FIG. 1. The Great Rufous Woodcreeper (*Xiphocolaptes major*) preying on a lesser bulldog bat (*Noctilio albiventris*) in the Brazilian Pantanal in 2013. The woodcreeper struck the bat (A) until it fainted (B). After the attack on the ground (C), the bird picked the prey up and took it to a tree where it first removed small pieces from it and then tried to swallow the bat wholly (D).

in deciduous or semi-deciduous forests of Bolivia, Paraguay, Argentina, and in the Brazilian Pantanal (Sick 2001, Marantz et al. 2003). Available data indicate that Great Rufous Woodcreeper feeds mostly on arthropods like all representatives of the family, but similar to the diet of some woodcreepers (e.g., *Dendrocincla*, *Dendrocolaptes*, *Xiphocolaptes*, *Campylorhamphus*, *Xiphorhynchus* and *Lepidocolaptes*), its diet also includes small vertebrates such as amphibians and reptiles, as well as eggs and nestlings of other songbirds (Hayes and Argaña 1990, Carrizo 1991, Haene 1996, Sick 2001, Bodrati 2003, Lopes et al. 2005, de Lima and Rodrigues 2008, Kupriyanov et al. 2012, Cockle and Bodrati 2013, Salvador and Bodrati 2013). Predation on Mexican free-tailed bat (*Tadarida brasiliensis*) by Great Rufous Woodcreeper was documented once in Argentina along with two more instances of predation on unknown bat species (Bodrati 2003). Therefore, bats may be part of the diet of Great Rufous Woodcreepers, but it is unknown if they are common prey items for the woodcreepers. Here, we

report for the first time the predation by Great Rufous Woodcreeper on lesser bulldog bat, *Noctilio albiventris* in the Brazilian Pantanal.

The predation was recorded by film (Supplementary Material) and photographed (Fig. 1) at 0830 Brazil Time (BRT) on September 2013 in Passo do Lontra, Corumbá, Mato Grosso do Sul state, Brazil (19° 34' S, 57° 00' W). We found the bird on the ground near the bat, where it was hammering the prey's head with its beak. The woodcreeper continued to strike the prey for ~2 mins, while the bat closed its wings in an attempt to protect itself. Once the bat stopped moving, the bird carried the prey in its beak to a tree trunk and began to pull thin strips of the prey's flesh, similar to the observations of Bodrati (2003). After 8 mins, the bird tried to swallow the bat whole but without success. We then got closer and the bird flew away with the prey in its beak. We were unable to follow the woodcreeper after that. The bat was identified as lesser bulldog bat (*Noctilio albiventris*, Noctilionidae) based on its very distinctive morphology.

Great Rufous Woodcreepers usually catch prey in tree holes and crevices (Sick 2001), and lesser bulldog bats use tree hollows as day roosts (Fenton et al. 1993). Even though we are uncertain of how the bat was captured, considering the hour the predation event occurred, it is likely that the woodcreeper snatched the bat from its roost as observed by Bodrati (2003), and caused it to fall to the ground. Lesser bulldog bats form numerous colonies in narrow cavities with entrances, on average 2.62 m above the ground and preferably in thick trees (Fenton et al. 1993, Aguirre et al. 2003). Great Rufous Woodcreepers nest and forage in cavities with similar characteristics to those chosen by lesser bulldog bats for roosting (Carrizo 1991, Bodrati 2003, Di Giacomo 2005). Given the spatial and temporal overlap between these two species, one might expect occasional encounters may lead to opportunistic predation events. Indeed, most predation on bats is thought to be opportunistic in nature (Lima and O'Keefe 2013), mainly in events involving non-raptors (Mikula et al. 2016). On another occasion, also in the Pantanal, a Great Rufous Woodcreeper was observed invading the tree cavity which sheltered a flat-faced fruit-eating bat *Artibeus planirostris* (Phyllostomidae), preventing its return to the location (C. F. Santos, pers. comm.).

Although bat predation by birds is relatively uncommon in the Neotropics (Chacón-Madrigal and Barrantes 2004, Mikula et al. 2016), several bird species have been reported to prey upon bats, such as hawks, falcons, owls, motmots, tyrant flycatchers, and jays (Lee and Kuo 2001, Chacón-Madrigal and Barrantes 2004, Carvalho et al. 2011, Farina et al. 2011). Lesser bulldog bats are considered a common prey of Barn Owls (*Tyto alba*; Escarlate-Tavares and Pessôa 2005). The prey mass relative to predator body mass was high in the case of the woodcreeper. A lesser bulldog bat represents 11–37% of a Great Rufous Woodcreeper's body mass, which may make capture and ingestion of the prey long and difficult. The bat preyed upon by Great Rufous Woodcreeper and recorded by Bodrati (2003) was a Mexican free-tailed bat (8–13 g), smaller than a lesser bulldog bat (18–44 g). We conducted an extensive literature search in order to find bird predation records on bats in the Neotropics. We obtained records of 54 bird species preying on at least 46 species of bats (Appendix) and body mass of birds and bats, which

allowed us to calculate the proportion of predator body mass. Few species of birds feed on a bat so large relative to bird weight as recorded for the Great Rufous Woodcreeper. On average, bats represented between $5.1 \pm 0.6\%$ (mean \pm SE) and $15.6 \pm 2.0\%$ of the body mass of the predatory birds (but see records for *Falco* spp. and Rufous-browed Peppershrike [*Cyclarhis gujanensis*] in Appendix). Falconids are very successful bat predators (Mikula et al. 2016), as well as Rufous-browed Peppershrike, which have a favorable beak morphology for predation of this kind of food item (Gomes et al. 2011).

The use of shallow tree cavities as roosting sites by the bats in the Pantanal and the foraging behavior of Great Rufous Woodcreeper may increase the chance of encounters between woodcreepers and bats. We believe that this kind of predation event may be more common than recognized so far. More quantitative data on diet of woodcreepers obtained, for example by analysis of stomach contents and watching nests, can help clarify this issue.

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APPENDIX. Birds reported as predators of bats in the Neotropics and prey species identification

Common name	Species	Mass (g)	Bat prey species	Bat mass (g)	Proportion of predator body mass (%)	Reference
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	278–1,100 ^a	unidentified bat	-	-	Mikula et al. (2016)
Osprey	<i>Pandion haliaetus</i>	990–2,050 ^a	<i>Myotis vivesi</i>	25 ^q	1.2–2.5	Mikula et al. (2016)
Hook-billed Kite	<i>Chondrohierax uncinatus</i>	215–360 ^a	unidentified bat	-	-	Mikula et al. (2016)
Black Hawk-Eagle	<i>Spizaetus tyrannus</i>	875–1,150 ^a	<i>Aritebeus jamaicensis</i>	50–65 ^f	4.3–7.4	Schubart et al. (1965)
			<i>Aritebeus lituratus</i>	53–73 ^f	4.6–8.3	Mikula et al. (2016)
Ornate Hawk-Eagle	<i>Spizaetus ornatus</i>	906–1,632 ^a	Phyllostomidae	5–140 ^f	0.3–15.0	Mikula et al. (2016)
Double-toothed Kite	<i>Harpagus bidentatus</i>	161–229 ^a	<i>Dermanura waasoni</i>	9–15 ^s	3.9–9.3	Mikula et al. (2016)
			<i>Uroderma bilobatum</i>	13–20 ^f	5.7–12.4	Mikula et al. (2016)
Plumbeous Kite	<i>Ictinia plumbea</i>	190–280 ^a	unidentified bat	<15	5.4–7.9	Seavy et al. (1997)
Bicolored Hawk	<i>Accipiter bicolor</i>	190–584 ^a	unidentified bat	-	-	Mikula et al. (2016)
Crane Hawk	<i>Geranoospiza caerulescens</i>	225–430 ^a	<i>Aritebeus jamaicensis</i>	50–65 ^f	11.6–28.9	Mikula et al. (2016)
			<i>Dermanura</i> sp.	9–15 ^s	2.1–6.7	Mikula et al. (2016)
			<i>Eptesicus brasiliensis</i>	8–10 ^f	1.9–4.4	Mikula et al. (2016)
			<i>melanopterus</i>	-	-	
Great Black Hawk	<i>Buteogallus urubitinga</i>	625–1,400 ^a	<i>Aritebeus jamaicensis</i>	50–65 ^f	3.6–10.4	Mikula et al. (2016)
Roadside Hawk	<i>Rapornis magnirostris</i>	206–350 ^a	<i>Aritebeus jamaicensis</i>	50–65 ^f	14.3–31.6	Mikula et al. (2016)
			<i>Rhynchonycteris naso</i>	4–7 ^f	1.1–3.4	Mikula et al. (2016)
Harris's Hawk	<i>Parabuteo unicinctus</i>	725–1,047 ^a	<i>Tadarida brasiliensis</i>	8–13 ^s	0.8–1.8	Mikula et al. (2016)
White-tailed Hawk	<i>Geranoaetus albicaudatus</i>	865–1,235 ^a	unidentified bat	-	-	Granzinoli and Motta-Junior (2007)
White Hawk	<i>Pseudastur albicollis</i>	592–855 ^a	<i>Aritebeus</i> sp.	9–85 ^{s,s}	1.1–14.4	Mikula et al. (2016)
Semiplumbeous Hawk	<i>Leucopternis semiplumbeus</i>	250–325 ^b	unidentified bat	-	-	Bierregaard et al. (2016)
Gray Hawk	<i>Buteo plagiatus</i>	391–688 ^a	unidentified bat	-	-	Mikula et al. (2016)
Gray-lined Hawk	<i>Buteo nitidus</i>	320–592 ^a	unidentified bat	-	-	Mikula et al. (2016)
Ridgway's Hawk	<i>Buteo ridgwayi</i>	286–450 ^c	<i>Aritebeus jamaicensis</i>	50–65 ^f	11.1–22.7	Mikula et al. (2016)
Short-tailed Hawk	<i>Buteo brachyurus</i>	425–530 ^a	unidentified bat	-	-	Mikula et al. (2016)
Zone-tailed Hawk	<i>Buteo albonotatus</i>	607–937 ^a	<i>Tadarida brasiliensis</i>	8–13 ^s	0.9–2.1	Mikula et al. (2016)
Red-tailed Hawk	<i>Buteo jamaicensis</i>	690–1,460 ^a	<i>Eptesicus fuscus</i>	10–17 ^s	0.7–2.5	Mikula et al. (2016)
			<i>Eudermma maculatum</i>	16–20 ^t	1.1–2.9	Mikula et al. (2016)
			<i>Eumops perotis</i>	60–76 ^c	4.1–11.0	Mikula et al. (2016)
			<i>Lasius blossevillii</i>	8.7–11.4 ^u	0.6–1.7	Mikula et al. (2016)
			<i>Myotis lucifugus</i>	7.1 ^q	0.5–1.0	Mikula et al. (2016)
			<i>Pteronotus quadridens</i>	3–6 ^v	0.2–0.9	Mikula et al. (2016)
			<i>Tadarida brasiliensis</i>	8–13 ^s	0.5–1.9	Mikula et al. (2016)
Ring-billed Gull	<i>Larus delawarensis</i>	400–590 ^a	<i>Myotis vivesi</i>	25 ^q	4.2–6.3	Lee and Kuo (2001)

APPENDIX. Continued.

Common name	Species	Mass (g)	Bat prey species	Bat mass (g)	Proportion of predator body mass (%)	Reference
Lesser Roadrunner	<i>Geococcyx velox</i>	163–208 ^a	<i>Leptonycteris yerbabuena</i>	20–27 ^s	9.6–16.6	Mikula et al. (2016)
Barn Owl	<i>Tyto alba</i>	360–480 ^d	<i>Carollia perspicillata</i> <i>Noctilio albiventris</i> <i>Phyllostomus discolor</i> <i>Lophostoma brasiliense</i> <i>Myotis nigricans</i> <i>Eumops perotis</i> <i>Molossus</i> sp. <i>Nyctinomops laticaudatus</i> <i>Molossus rufus</i> <i>Anoura caudifer</i> ** <i>Pteropteryx macrotis</i> unidentified bat <i>Carollia perspicillata</i>	18.5 ^f 18–44 ^w 30–45 ^f 7–13 ^s 4–8 ^f 60–76 ^f 4–43 ^f 8.5–13.8 ^u 21–43 ^f 10–13 ^f 4–8 ^f - 18.5 ^f	3.9–5.1 3.8–12.2 6.25–12.5 1.5–3.6 0.8–2.2 12.5–21.1 0.8–11.9 1.8–3.8 4.4–11.9 2.1–3.6 0.8–2.2 -	Fleming (1988) Escarlate-Tavares and Pessoa (2005)
Tropical Screech-Owl Crested Owl	<i>Megascops choliba</i> <i>Lophotrix cristata</i>	97–160 ^e 400–620 ^f		- 18.5 ^f	- 3.0–4.6	Sick (2001) Holt et al. (2016b) Rocha and López-Baucells (2014)
Spectacled Owl	<i>Pulsatrix perspicillata</i>	500–1,250 ^g	<i>Nyctinomops laticaudatus</i> <i>Carollia perspicillata</i>	8.5–13.8 ^u 18.5 ^f	0.7–2.8 1.5–3.7	Carvalho et al. (2011) Fleming (1988)
Great Horned Owl Mottled Owl	<i>Bubo virginianus</i> <i>Ciccaba virgata</i>	680–2,500 ^h 220–366 ⁱ	<i>Eumops perotis</i> <i>Carollia perspicillata</i>	60–76 ^f 18.5 ^f	2.4–11.8 5.1–8.4	Di Giacomo (2005) Fleming (1988)
Black-and-white Owl	<i>Ciccaba nigrolineata</i>	435–536 ⁱ	<i>Artibeus jamaicensis</i> <i>Myotis nigricans</i> <i>Molossus rufus</i> *** <i>Centurio senex</i>	50–65 ^f 4–8 ^f 21–43 ^f 13–26 ^s	9.3–14.9 0.7–1.8 3.9–9.9 2.4–6.0	Gerhardt et al. (1994)
Black-banded Owl	<i>Ciccaba huhula</i>	335 ^j	<i>Uroderma bilobatum</i> unidentified bat	13–20 ^f -	2.4–4.6 -	Bornschein and Reinert (2000)
Burrowing Owl	<i>Athene cunicularia</i>	146–201 ^k	<i>Desmodus rotundus</i>	25–50 ^f	12.4–34.2	Cruz-Jofré and Vilina (2014)
Unspotted Saw-whet Owl Striped Owl	<i>Aegolius ridgwayi</i> <i>Asio clamator</i>	80 ^l 347–546 ^d	unidentified bat <i>Artibeus lituratus</i> <i>Eumops glaucinus</i> <i>Lasiurus</i> sp. <i>Molossus</i> sp. <i>Nyctinomops laticaudatus</i>	- 53–73 ^f 28.6–38.6 ^u 8.7–23.5 ^u 4–43 ^f 8.5–13.8 ^u	- 9.7–21.0 5.2–11.1 1.6–6.8 0.7–12.4 1.6–4.0	Holt et al. (2016e) Motta-Junior et al. (2004)

APPENDIX. Continued.

Common name	Species	Mass (g)	Bat prey species	Bat mass (g)	Proportion of predator body mass (%)	Reference
Stygian Owl	<i>Asio stygius</i>	633–675 ^d	<i>Eumops glaucinus</i>	28.6–38.6 ^u	4.2–6.1	Motta Junior and Taddei (1992)
			<i>Nyctinomops laticaudatus</i>	8.5–13.8 ^u	1.3–2.2	
			<i>Nyctinomops macrotis</i>	26.0 ^u	3.9–4.1	
			<i>Eptesicus furinalis</i>	5.0–7.2 ^u	0.7–1.1	
			<i>Histiotus velatus</i>	7.0–10.8 ^u	1.0–1.7	
			<i>Lasiurus blossevillii</i>	8.7–11.4 ^u	1.3–1.8	
			<i>Lasiurus cinereus</i>	14.3–23.5 ^u	2.1–13.7	
			<i>Lasiurus ega</i>	14.3–15.0 ^u	2.1–2.4	
			<i>Glossophaga soricina</i>	8.2–12.0 ^u	1.2–1.9	
			<i>Chiroderma doriae</i>	26.9–33.0 ^u	4.0–5.2	
			<i>Pygoderma bilabiatum</i>	15.4–15.9 ^u	2.3–2.5	
			<i>Eptesicus</i> sp.	5–14 ^f	1.0–7.0	
Short-eared Owl	<i>Asio flammeus</i>	200–500 ^m	unidentified bat	-	-	Olsen et al. (2016)
Grande Potoo	<i>Nyctibius grandis</i>	360–620 ⁿ				Cohn-Haft and Kirwan (2016)
Blue-crowned Motmot*	<i>Momotus lessonii</i>	77–148 ^o	<i>Glossophaga</i> or <i>Hylonycteris underwoodi</i>	6–12 ^s	4.0–15.6	Chacón-Madrugal and Barrantes (2004)
Yellow-throated Toucan	<i>Ramphastos ambigua</i>	599–746 ^a	<i>Artibeus</i> sp. (<i>A. jamaicensis</i> or <i>A. lituratus</i>)	50–73 ^t	6.7–12.2	Mikula et al. (2016)
Channel-billed Toucan	<i>Ramphastos vitellinus</i>	285–455 ^a	<i>Uroderma bilobatum</i>	13–20 ^f	1.7–3.3	Mikula et al. (2016)
Black-legged Seriema	<i>Chunga burmeisteri</i>	1,200 ^a	unidentified bat	-	-	Mikula et al. (2016)
Laughing Falcon	<i>Herpetothes carchinans</i>	408–800 ^a	unidentified bat	-	-	Mikula et al. (2016)
Barred Forest-Falcon	<i>Micrastur ruficollis</i>	144–322 ^a	<i>Desmodus</i> sp.	25–50 ^f	3.1–12.2	Mikula et al. (2016)
Collared Forest-Falcon	<i>Micrastur semitorquatus</i>	479–940 ^a	unidentified bat	-	-	Mikula et al. (2016)
			<i>Artibeus</i> sp.	12–85 ^f	1.3–17.7	Mikula et al. (2016)
			<i>Tadarida brasiliensis</i>	8–13 ^s	0.8–2.7	
			<i>Carollia perspicillata</i>	18.5 ^f	2.0–3.9	Fleming (1988)

APPENDIX. Continued.

Common name	Species	Mass (g)	Bat prey species	Bat mass (g)	Proportion of predator body mass (%)	Reference				
American Kestrel	<i>Falco sparverius</i>	80–165 ^a	<i>Antrozous pallidus</i>	17.3 ^q	10.5–21.6	Mikula et al. (2016)				
			<i>Artibeus jamaicensis</i>	50–65 ^r	30.3–81.2					
			<i>Eptesicus fuscus</i>	10–17 ^s	6.1–21.2					
			<i>Euderma maculatum</i>	16–20 ^t	9.7–25.0					
			<i>Eumops perotis</i>	60–76 ^t	36.4–95.0					
			<i>Lasturus borealis</i>	8–14 ^r	2.4–17.5					
			<i>Lasturus cinereus</i>	14.3–23.5 ^u	8.7–29.4					
			<i>Molossus molossus</i>	12–28 ^u	7.3–35.0					
			<i>Myotis lucifugus</i>	7.1 ^q	4.3–8.9					
			<i>Myotis velifer</i>	8–13 ^s	2.4–16.2					
			<i>Nycticeius humeralis</i>	9.6 ^q	5.8–12.0					
			<i>Parastrellus hesperus</i>	4.4 ^q	2.7–5.5					
			<i>Pteronotus davyi</i>	5–10 ^s	3.0–12.5					
			<i>Pteronotus quadridens</i>	3–6 ^v	1.8–7.5					
			<i>Nyctinomops laticaudatus</i>	8.5–13.8 ^u	5.1–17.2					
			<i>Tadarida brasiliensis</i>	8–13 ^s	4.8–16.2					
			Bat Falcon	<i>Falco rufogularis</i>	108–242 ^a		<i>Anoura caudifer</i>	10–13 ^r	4.1–12.0	Aguilar et al. (2012) Rodríguez-San Pedro and Allendes (2015) Mikula et al. (2016)
<i>Artibeus jamaicensis</i>	50–65 ^r	20.7–60.2								
<i>Carollia perspicillata</i>	18.5 ^r	7.6–17.1								
Desmodontinae	18–50 ^{s,s}	7.4–46.3								
Emballonuridae	4–12 ^r	1.6–11.1								
<i>Macrophyllum macrophyllum</i>	7–10 ^s	2.9–9.3								
<i>Molossus aztecus</i>	10–14 ^s	4.1–13.0								
<i>Molossus molossus</i>	12–28 ^r	5.0–25.9								
<i>Molossus rufus</i>	21–43 ^r	8.7–39.8								
<i>Noctilio</i> sp.	18–90 ^{s,w}	7.4–83.3								
Phyllostomidae	5–140 ^r	2.1–129.6								
<i>Pteronotus parnellii</i>	11–28 ^r	4.5–25.9								
<i>Tadarida brasiliensis</i>	8–13 ^s	3.3–12.0								
<i>Uroderma bilobatum</i>	13–20 ^r	5.4–18.5								
unidentified bat	-	-								
Orange-breasted Falcon	<i>Falco deiroleucus</i>	330–654 ^a							Bierregaard and Kirwan (2016)	
Aplomado Falcon	<i>Falco femoralis</i>	208–305 ^a				<i>Molossus rufus</i> **	21–43 ^r	6.9–20.7	Mikula et al. (2016)	
			unidentified bat	-	-					

APPENDIX. Continued.

Common name	Species	Mass (g)	Bat prey species	Bat mass (g)	Proportion of predator body mass (%)	Reference
Peregrine Falcons	<i>Falco peregrinus</i>	550–1,500 ^a	<i>Tadarida brasiliensis</i>	8–13 ^s	0.5–2.4	Lee and Kuo (2001)
Great Rufous Woodcreeper	<i>Xiphocolaptes major</i>	120–162 ^p	<i>Tadarida brasiliensis</i> <i>Noctilio albigentris</i>	8–13 ^s 18–44 ^w	4.9–10.8 11.1–36.7	Bodrati (2003) This paper
Great Kiskadees	<i>Pitangus sulphuratus</i>	53–68 ^a	<i>Myotis</i> spp.	5–10 ^x	7.3–18.9	Fischer et al. (2010)
Capuchinbird	<i>Perissocephalus tricolor</i>	267–402 ^a	unidentified bat	-	-	Whittaker (1996)
Rufous-browed Peppershrike	<i>Cyclarhis gujanensis</i>	22–35 ^a	<i>Lasius ega</i>	14.3–15.0 ^u	40.9–68.2	Andreau and Fernández (2010)
Plush Crested Jay	<i>Cyanocorax chrysops</i>	127–170 ^a	<i>Platyrrhinus lineatus</i>	23 ^y	13.5–18.1	Farina et al. (2011)

Notes: ^a Until recently was considered conspecific with *M. momota* (del Hoyo et al. 2016). ^b Valid name for *Lonchotassia canifera* (Gardner 2007). ^c Registered with the invalid name of *M. ater* (Barquez et al. 2015). Measurements (range) were taken from ^a Mikula et al. (2016), ^b Bierregaard et al. (2016), ^c Woolaver et al. (2013), ^d Motta-Junior et al. (2004), ^e Holt et al. (2016b), ^f Rocha and Lopez-Baucells (2014), ^g Holt et al. (2016d), ^h Holt et al. (2016a), ⁱ Gerhardt et al. (1994), ^j Borges et al. (2004), ^k Holt et al. (2016c), ^l Holt et al. (2016e), ^m Olsen et al. (2016), ⁿ Cohn-Haft and Kirwan (2016), ^o del Hoyo et al. (2016), ^p Marantz et al. (2003), ^q Norberg and Rayner (1987), ^r Marnho-Filho et al. (2002), ^s Reid (2009), ^t Priddy and Luce (1999), ^u Motta Junior and Taddei (1992), ^v Macias and Mora (2003), ^w Hood and Picochelli (1983), ^x Fischer et al. (2010), and ^y Farina et al. (2011).