

Article

The dung beetles (Coleoptera: Scarabaeinae) registered for the State of Rondônia (Brazil), Southwestern Amazon

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Citation: Silveira, M.A.P.deA.; Sousa, D.C.C.de; Andriolo, A.; Santorelli Junior, S. The dung beetles (Coleoptera: Scarabaeinae) registered for the State of Rondônia (Brazil), Southwestern Amazon. *RBCA* 2023, 13, 3. p.12-39.

Sección Editor: Paulo Vilela Cruz
Received: 07/03/2023
Accepted: 07/06/2023
Published: 30/07/2023

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Abstract: Although biodiversity in the Amazon is high, different aspects of this biodiversity are unknown for several taxa. To fill in the gap in the distribution of dung beetle species (Coleoptera: Scarabaeidae, Scarabaeinae) in southwestern Amazonia and identify the conservation status of the species, we compiled records of scarab beetles for the state of Rondônia (Brazil) available in the literature. Additionally, online databases and biological collections were also used to complement the information on the distribution of these species. The conservation status of dung beetles was based on the IUCN Red List of Threatened Species. We recorded 106 species that are divided into 23 genera and distributed in the diverse types of landscapes. Our results also demonstrate the enormous potential for discovering new species in a region still little explored in studies with Scarabaeinae and which coexist with constant environmental threats.

Keywords: Rondônia, insects, geographic distribution, southwest of the Amazon, southwest of the Brazilian Amazon.

Resumo: Embora a biodiversidade na Amazônia seja elevada, diferentes aspectos desta biodiversidade são desconhecidos para vários táxons. Para preencher a lacuna sobre a distribuição das espécies de besouros rola-bostas (Coleoptera: Scarabaeidae, Scarabaeinae) no sudoeste da Amazônia e identificar o estado de conservação das espécies, compilamos os registros dos besouros escarabeíneos para o estado de Rondônia disponíveis na literatura. Adicionalmente, bancos de dados online e coleções biológicas também foram utilizados para complementar as informações sobre a distribuição dessas espécies. O estado da conservação dos besouros rola-bostas foi baseado na lista vermelha de espécies ameaçadas da IUCN. Registramos 106 espécies que estão divididas em 23 gêneros, e distribuídas nos mais diversos tipos de paisagens. Nossos resultados também demonstram o

enorme potencial para descoberta de novas espécies de uma região ainda pouco explorada nos estudos com Scarabaeinae e que vive com constantes ameaças ambientais.

Palavras-chave: Rondônia, insetos, distribuição geográfica, sudoeste da Amazônia, sudoeste da Amazônia brasileira.

1. Introduction

Scarabaeinae beetles (Coleoptera: Scarabaeidae) are popularly known as dung beetles due to the peculiar habit that most species have; they use animal excrement for food and reproduction (Vaz-de-Mello, 2000; Philips, 2011; Vaz-de-Mello *et al.*, 2017). The species of this subfamily are easily captured by pitfall traps and flight interceptors (FIT) (Spector, 2006; Puker *et al.*, 2020), are easy to identify to the genus level and have a vast specialized taxonomic literature (e.g., Costa, 2000; Vaz-de-Mello, 2000; Vaz-de-Mello *et al.*, 2011). These species are also known for their rapid response to environmental changes (Nichols *et al.*, 2007; Silva *et al.*, 2022).

For example, taxonomic diversity may be reduced in areas without tree cover, such as grasslands (Sarmiento-Garcés and Hernández 2021). Additionally, secondary forests and plantations have communities of dung beetles as fewer species, and with individuals of lower body mass, which probably negatively influences the ecosystem services provided by these organisms (Gardner *et al.*, 2008); like other groups of insects, it maintains an intimate relationship with the natural resources they use (e.g., Brown Jr, 1997). These characteristics make the beetles of this subfamily a possible model organism that could be used as an instrument for decision-making that includes subjects such as conservation planning and biodiversity monitoring (Nichols *et al.*, 2007; Pessôa *et al.*, 2023).

The study of the scarab beetle fauna in the Southwest of the Amazon represents a knowledge gap. Located in this region, the state of Rondônia has few studies carried out so far (Silva *et al.*, 2014; Castro *et al.*, 2015; Castro, 2017; Puker *et al.*, 2020; Puker *et al.*, 2021; Silva *et al.*, 2022), and coexists with the constant environmental mischaracterization (Assis *et al.*, 2019). The state has one of the highest increases in deforestation of the states included in the Amazon biome from 2008 to 2021; and in the best-case scenario for the next 28 years (2050), the remaining forests will decline due to increased landscape fragmentation (Piontekowski *et al.*, 2019). Areas of natural vegetation will only be found in protected and indigenous areas.

Therefore, our goal is to fill the gap in the distribution of dung beetle species in the southwest of the Amazon and identify the conservation status of the species. The information generated and shared could be used as subsidies for public policies and future studies, because dung beetles serve as effective indicators within an ecosystem due to their sensitivity to environmental changes, enabling them to swiftly adjust their assemblage composition in response to such changes (e.g., Salomão *et al.* 2022).

2. Material and Methods

The compilation of records of dung beetle species in the state of Rondônia was carried out in three different ways. The first one was through scientific articles. The keywords used to search in Google Scholar for articles were: dung beetles, Rondônia and

Scarabaeinae, combined as Scarabaeinae AND Rondônia, dung beetles AND Rondônia, in Portuguese and English. Only scientific articles of any type of study were considered, as long as they presented species collected in the State of Rondônia. There was no temporal cut in the searches and the last year analyzed was 2022. The second one was based on the records of the species deposited in the main collections for the subfamily: the Entomological Collection of the Federal University of Rondônia (UFRO-ECOL) and the Zoological Collection of the Federal University of Mato Grosso (CEMT). The third, was considered the information available in the Global Biodiversity Information Facility - GBIF (www.gbif.org), SpeciesLink (<http://www.splink.org.br>, Information system that integrates in real time, primary data of scientific collections), and the Brazilian Biodiversity Information System – SIBBR (www.sibbr.gov.br). Through these three different sources of information, we hope to minimize the effect of sampling on our results.

The conservation status of dung beetle species was based on the IUCN Red List of Threatened Species, available at www.iucnredlist.org. According to the IUCN, the species can be categorized as: “Least Concern”, when the species is abundant and has a wide distribution; “Critically Endangered”, indicating that the species has a high degree of being extinct; “Endangered”, species that have a chance of becoming extinct in the future; “Vulnerable”, species that also have a chance of becoming extinct in the future, but this chance can be reduced if preservation actions are carried out; “Near Threatened”, species that are not yet in any of the categories mentioned above; and “Data Deficient”, species that still do not have enough data to define their conservation status.

3. Results

Through our searches, 13 scientific articles were found that contained records of species collected in the state or that used a specimen collected in systematic and taxonomic studies (Table 1).

Table 1. List of species of dung beetles (Scarabaeidae: Scarabaeinae) in the state of Rondônia, based on literature review and the searches on the records of the species deposited in the Entomological Collection of the Federal University of Rondônia (UFRO-ECOL), Zoological Collection of the Federal University of Mato Grosso (CEMT), Global Biodiversity Information - GBIF, SpeciesLink, and the Brazilian Biodiversity Information System – SIBBR.

Species	Source	Habitat	County	Deposit Collection	Status IUCN
<i>Anomiopus</i> sp. 1	Silva <i>et al.</i> (2022); UFRO-ECOL	Forest	Itapuã do Oeste, Pimenta Bueno	UFRO-ECOL	-
<i>Anomiopus</i> sp. 10	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO-ECOL	-
<i>Ateuchus aeneomicans</i> (Harold, 1868)	UFRO-ECOL	Native Forest, Agroforests,	Itapuã do Oeste, Nova Mamoré, REBIO Jaru, Rolim de Moura	UFRO-ECOL	-

<i>Ateuchus</i> aff. <i>candezei</i>	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru	CZM- CEMT; UFRO- ECOL	-
<i>Ateuchus</i> aff. <i>murrayi</i>	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru	CZM- CEMT; UFRO- ECOL	-
<i>Ateuchus</i> aff. <i>striatulus</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Ateuchus</i> con- nexus (Har- old, 1868)	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Ateuchus</i> <i>frontalis</i> (Bou- comont, 1928)	UFRO-ECOL	Native Forest	REBIO Jaru	UFRO- ECOL	-
<i>Ateuchus</i> <i>murrayi</i> (Har- old, 1868)	UFRO-ECOL	Native Forest	Porto Velho	UFRO- ECOL	Least Concern
<i>Ateuchus</i> <i>py- gidialis</i> (Har- old, 1868)	Silva <i>et al.</i> (2022); UFRO- ECOL	Native Forest, Forest, Secondary Forest, Ag- roforest	Itapuã do Oeste, Nova Ma- moré, Pimenta Bueno, RE- BIO Jaru	CZM- CEMT; UFRO- ECOL	-
<i>Ateuchus</i> sp. 1	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Nova Ma- moré, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Ateuchus</i> sp. 2	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Nova Ma- moré, Porto Velho	CZM- CEMT; UFRO- ECOL	-
<i>Ateuchus</i> sp. 3	UFRO-ECOL	Native Forest, Forest, Ag- roforest	Itapuã do Oeste, Nova Ma- moré, Porto Velho, REBIO Jaru, Rolim de Moura	UFRO- ECOL	-
<i>Ateuchus</i> sp. 4	UFRO-ECOL	Native Forest, Forest, Ag- roforest	Itapuã do Oeste, Nova Ma- moré, REBIO Jaru, Rolim de Moura	UFRO- ECOL	-

<i>Ateuchus</i> sp. 5	UFRO-ECOL	Native Forest, Forest	Pimenta Bueno, REBIO Jaru	UFRO- ECOL	-
<i>Ateuchus</i> sp. 6	UFRO-ECOL	Forest, Ag- roforest	Rolim de Moura	UFRO- ECOL	-
<i>Ateuchus sub- striatus</i> (Har- old, 1868)	Puker <i>et al.</i> (2020); SIBBR (2020); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest, Ag- rofores, Cupuaçu orchard, Pasture	Itapuã do Oeste, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura, Vi- lhena	CZM- CEMT; MPEG- HCO; UFRO- ECOL	-
<i>Besourenga horacioi</i> (Mar- tínez, 1969)	UFRO-ECOL	Native Forest, Forest, Ag- roforest	Nova Mamoré, Pimenta Bu- eno, Rolim de Moura	UFRO- ECOL	Least Concern
<i>Besourenga sp. 1</i>	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthidium aff. ardens</i>	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthidium aff. boker- manni</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthidium aff. cupreum</i>	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest, Pasture	Guajará-Mirim, Nova Ma- moré, Porto Velho	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium aff. dohrni</i>	Puker <i>et al.</i> (2020)	Forest	Porto Velho	UFRO- ECOL	-
<i>Canthidium aff. funebre</i>	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-
<i>Canthidium aff. gerstaeck- eri</i>	Silva <i>et al.</i> (2014)	Forest, Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthidium aff. lentum</i>	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest, Pasture, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, REBIO Jaru, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium aff. melano- cephalum</i>	UFRO-ECOL	Native Forest,	Itapuã do Oeste, Nova Ma- moré, REBIO Jaru, Rolim de Moura	UFRO- ECOL	-

		Forest, Agroforest			
		Native			
<i>Canthidium gerstaeckeri</i>	UFRO-ECOL	Forest, Forest edge, Agroforest	Itapuã do Oeste, Nova Mamoré, REBIO Jaru, Rolim de Moura	UFRO-ECOL	-
Harold, 1867					
<i>Canthidium miscellum</i>	Puker, 2020	Forest, Cupuaçu orchard	Porto Velho	UFRO-ECOL	-
Harold, 1883					
	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022);	Native Forest, Forest, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Canthidium</i> sp. 1	UFRO-ECOL	Cupuaçu orchard			
		Native Forest, Agroforest	Nova Mamoré, Rolim de Moura	UFRO-ECOL	-
<i>Canthidium</i> sp. 11	UFRO-ECOL				
		Agroforest	Rolim de Moura	UFRO-ECOL	-
<i>Canthidium</i> sp. 12	UFRO-ECOL				
		Native Forest, Forest, Agroforest	Nova Mamoré, REBIO Jaru, Rolim de Moura	UFRO-ECOL	-
<i>Canthidium</i> sp. 13	UFRO-ECOL				
		Native Forest, Forest, Agroforest	Itapuã do Oeste, Pimenta Bueno, REBIO Jaru, Rolim de Moura	UFRO-ECOL	-
<i>Canthidium</i> sp. 14	UFRO-ECOL				
		Native Forest, Forest, Agroforest	Itapuã do Oeste, Pimenta Bueno, REBIO Jaru, Rolim de Moura	UFRO-ECOL	-
<i>Canthidium</i> sp. 16	UFRO-ECOL				
		Native Forest	Nova Mamoré, Porto Velho, REBIO Jaru	UFRO-ECOL	-
<i>Canthidium</i> sp. 17	UFRO-ECOL				
		Native Forest	Porto Velho	UFRO-ECOL	-
<i>Canthidium</i> sp. 18	UFRO-ECOL				
		Native Forest, Forest	Pimenta Bueno, REBIO Jaru	UFRO-ECOL	-
<i>Canthidium</i> sp. 19	UFRO-ECOL				

<i>Canthidium</i> sp. 2	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Forest, Cupuaçu orchard	Guajará-Mirim, Nova Ma- moré, Pimenta Bueno, Porto Velho, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium</i> sp. 20	UFRO-ECOL	Forest, Ag- roforest	Itapuã do Oeste, Rolim de Moura	UFRO- ECOL	-
<i>Canthidium</i> sp. 23	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO- ECOL	-
<i>Canthidium</i> sp. 24	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO- ECOL	-
<i>Canthidium</i> sp. 25	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO- ECOL	-
<i>Canthidium</i> sp. 3	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest, Cupuaçu orchard, Pasture	Guajará-Mirim, Nova Ma- moré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium</i> sp. 4	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest, Cupuaçu orchard, Pasture	Guajará-Mirim, Nova Ma- moré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium</i> sp. 5	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, Porto Velho	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium</i> sp. 6	Silva <i>et al.</i> (2014); Silva <i>et al.</i> , (2022); UFRO-ECOL	Native Forest, Forest, Ag- roforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, Rolim Moura	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium</i> sp. 7	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Forest, Ag- roforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, Rolim Moura	CZM- CEMT; UFRO- ECOL	-
<i>Canthidium</i> sp. 8	Silva <i>et al.</i> (2014); Silva <i>et al.</i> , (2022); UFRO-ECOL	Forest	Guajará-Mirim, Nova Ma- moré, Pimenta Bueno, Rolim Moura	CZM- CEMT; UFRO- ECOL	-

<i>Canthidium</i> sp. 9	UFRO-ECOL	Native Forest, Forest, Ag- roforest	REBIO Jaru, Rolim Moura	UFRO- ECOL	-
<i>Canthidium</i> sp.	SIBBR, (2020); UFRO-ECOL	Native Forest	Ouro Preto D'Oeste, Porto Velho	MPEG- HCO; UFRO- ECOL	-
<i>Canthidium</i> <i>stofeli</i> Carva- lho De San- tana, Pacheco & Vaz-De- Mello, 2019	Carvalho de Santana <i>et al.</i> (2019)	Forest	Guajará-Mirim	CZM- CEMT	-
<i>Canthon</i> aff. <i>angustatus</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthon</i> aff. <i>brunneus</i>	UFRO-ECOL	Native Forest, Ag- roforest	Nova Mamoré, Rolim de Moura	UFRO- ECOL	-
<i>Canthon</i> aff. <i>chalybaeus</i>	Silva <i>et al.</i> (2014); Silva <i>et</i> <i>al.</i> (2022)	Pasture	Guajará-Mirim, Nova Ma- moré, Pimenta Bueno	CZM- CEMT	-
<i>Canthon</i> aff. <i>rufoceruleus</i>	UFRO-ECOL	Forest, Ag- roforest	Itapuã do Oeste, Rolim de Moura	UFRO- ECOL	-
<i>Canthon</i> aff. <i>sericatus</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthon</i> aff. <i>simulans</i>	Puker <i>et al.</i> (2020); Silva <i>et</i> <i>al.</i> (2014)	Forest, Cupuaçu orchard, Pasture	Guajará-Mirim, Nova Ma- moré, Porto Velho	CZM- CEMT; UFRO- ECOL	-
<i>Canthon</i> <i>bimaculatus</i> Schmidt, 1922	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	CZM- CEMT	-
<i>Canthon</i> <i>bipunctatus</i> Burmeister, 1873	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Canthon brun- neus</i> (Schmidt, 1922)	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	CZM- CEMT	-

<i>Canthon chalybaeus</i>	Puker <i>et al.</i> (2020)	-	Porto Velho	CZM-CEMT	-
<i>Canthon Blanchard, 1846</i>					
<i>Canthon coloratus</i>	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO-ECOL	Data Deficient
<i>Canthon Schmidt, 1922</i>					
<i>Canthon conformis</i> Harold, 1868	UFRO-ECOL	Forest, Agroforest	Itapuã do Oeste, Rolim de Moura	UFRO-ECOL	-
<i>Canthon deponteii</i> Martínez & Halffter, 1972	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest	Nova Mamoré, Pimenta Bueno, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Canthon fulgidus</i> Redtenbacher, 1867	Puker <i>et al.</i> (2021); UFRO-ECOL	Native Forest, Amazon forest fragments	Porto Velho	UFRO-ECOL; CZM-CEMT; CERPE	-
<i>Canthon histrio</i> (LePeletier e Serville, 1828)	SIBBR, (2020); Silva <i>et al.</i> (2014); UFRO-ECOL	Native Agrofores, Pasture	Guajará-Mirim, Rolim de Moura, Nova Mamoré, Vilhena,	UFRO-ECOL; CZM-CEMT; MPEG-HCO; UFRO-ECOL	-
<i>Canthon lituratus</i> (Germar, 1813)	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014); UFRO-ECOL	Forest, Agrofores, Cupuaçu orchard e Pasture	Guajará-Mirim, Nova Mamoré, Porto Velho, Rolim de Moura	CZM-CEMT; UFRO-ECOL	Least Concern
<i>Canthon luteicollis</i> Erichson, 1847	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-
<i>Canthon multabilis</i> Lucas, 1857	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014)	Forest, Cupuaçu orchard, Pasture	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT	Least Concern
<i>Canthon nitidicollis</i> Lucas, 1857	UFRO-ECOL	Native Forest, Forest	Itapuã do Oeste, Porto Velho	UFRO-ECOL	-

<i>Canthon quadrimaculatus</i> Schmidt, 1922	UFRO-ECOL	Native Forest	Guajará-Mirim, Itapuã do Oeste	UFRO-ECOL	-
<i>Canthon semiopticus</i> Harold, 1868	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Canthon septemmaculatus</i> (Latreille, 1811)	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-
<i>Canthon simulans</i> (Martínez, 1950)	UFRO-ECOL	Forest	Itapuã do Oeste	UFRO-ECOL	Data Deficient
<i>Canthon</i> sp. 1	Puker <i>et al.</i> (2020); UFRO-ECOL	Forest, Agroforest, Cupuaçu orchard, Pasture	Porto Velho, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Canthon</i> sp. 2	Puker <i>et al.</i> (2020); UFRO-ECOL	Forest, Agroforest, Pasture	Porto Velho, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Canthon</i> sp. 3	Puker <i>et al.</i> (2020); UFRO-ECOL	Agroforest, Cupuaçu orchard, Pasture	Porto Velho, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Canthon</i> sp. 4	Puker <i>et al.</i> (2020)	Forest, Cupuaçu orchard, Pasture	Porto Velho	CZM-CEMT	-
<i>Canthon triangularis</i> (Drury, 1770)	UFRO-ECOL	Native Forest, Forest	Itapuã do Oeste, Porto Velho	UFRO-ECOL	Least Concern
<i>Canthon unicolor</i> Blanchard, 1843	SIBBR, (2020)	-	Vilhena	MPEG-HCO	Least Concern
<i>Canthonella</i> sp.	UFRO-ECOL	Agroforest	Rolim de Moura	UFRO-ECOL	-

<i>Canthonella</i> sp. 1	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Coprophan- aeus</i> aff. <i>call- egarii</i>	UFRO-ECOL	Native Forest	Porto Velho	UFRO- ECOL	-
<i>Coprophan- aeus degallieri</i> Arnaud, 1997	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Nova Ma- moré, Pimenta Bueno, Porto Velho	CZM- CEMT; UFRO- ECOL	-
<i>Coprophan- aeus jasius</i> (Olivier, 1789)	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT; UFRO- ECOL	-
<i>Coprophan- aeus lancifer</i> (Linnaeus, 1767)	Puker <i>et al.</i> (2020); Silva <i>et</i> <i>al.</i> (2014); Silva <i>et al.</i> (2022); SpeciesLink, (2020); UFRO- ECOL	Native Forest, Forest, Ag- rofores, Cupuaçu orchard, Pasture, City	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, Porto Velho, REBIO Jaru	CZM- CEMT; MCT-IN- SETOS; UFRO- ECOL	-
<i>Coprophan- aeus telamon</i> (Erichson, 1847)	Cupello and Vaz-de-Mello,, (2013); Puker <i>et</i> <i>al.</i> (2020); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO- ECOL	Native Forest, Forest, Secondary Forest, Ag- rofores, Pasture	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Ouro Preto D'Oeste, Pimenta Bu- eno, Porto Velho, Rolim de Moura	CZM- CEMT; MNRJ; UFRO- ECOL	-
<i>Cryptocanthon</i> <i>peckorum</i> Howden, 1973	Silva, 2014	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Deltochilum</i> aff. <i>granula- tum</i>	Puker <i>et al.</i> (2020)		Porto velho	CZM- CEMT	-
<i>Deltochilum</i> <i>amazonicum</i> Bates, 1887	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Nova Ma- moré, Porto Velho, REBIO Jaru	CZM- CEMT; UFRO- ECOL	-

<i>Deltochilum carinatum</i> (Westwood, 1837)	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest, Secondary Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno	CZM-CEMT; UFRO-ECOL	Least Concern
<i>Deltochilum enceladus</i> Kolbe, 1893	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest	Pimenta Bueno, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Deltochilum orbiculare</i> Van Lansberge, 1874	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Deltochilum orbigny</i> (Blanchard, 1846)	UFRO-ECOL	Native Forest	Nova Mamoré, Porto Velho, REBIO Jaru	UFRO-ECOL	-
<i>Deltochilum schefflerorum</i> Silva, Louzada & Vaz-de-Mello, 2015	UFRO-ECOL	Native Forest	Nova Mamoré, REBIO Jaru	UFRO-ECOL	-
<i>Deltochilum</i> sp.	Puker <i>et al.</i> (2021)	Amazon forest fragments	Porto Velho	CZM-CEMT; CERPE	-
<i>Deltochilum</i> sp. 1	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, Pimenta Bueno, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Deltochilum</i> sp. 2	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru	CZM-CEMT; UFRO-ECOL	-
<i>Deltochilum</i> sp. 3	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT; UFRO-ECOL	-
<i>Deltochilum</i> sp. 4	UFRO-ECOL	Native Forest, Forest	Itapuã do Oeste, Nova Mamoré, Porto Velho	UFRO-ECOL	-

<i>Deltochilum</i> sp. 6	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO- ECOL	-
<i>Deltochilum</i> sp. 7	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO- ECOL	-
<i>Deltochilum</i> sp. 8	UFRO-ECOL	Native Forest	Guajará-Mirim	UFRO- ECOL	-
<i>Deltochilum</i> sp.	SIBBR, (2020) Génier, (2010);		Ouro Preto D'Oeste	MPEG- HCO	-
<i>Deltorhinum</i> <i>batesi</i> Harold, 1867	Montoya-Mo- lina and Vaz- de-Mello, (2019)	Forest	Ji-Paraná, Porto Velho	CZM- CEMT	-
<i>Dendropae-</i> <i>mon an-</i> <i>gustipennis</i> Harold, 1869	Puker <i>et al.</i> (2020); UFRO- ECOL	Native Forest	Itapuã do Oeste, Nova Ma- moré, Porto Velho	CZM- CEMT; UFRO- ECOL	-
<i>Dendropae-</i> <i>mon ater</i> (Laporte, 1832)	Puker <i>et al.</i> (2020)	Forest, Cupuaçu orchard, Pasture	Porto Velho	CZM- CEMT	-
<i>Dendropae-</i> <i>mon attalus</i> Génier & Ar- naud, 2016	Génier and ARNAUD, (2016)	Forest	Candeias do Jamari, Gua- jará-Mirim	CZM- CEMT	-
<i>Dendropae-</i> <i>mon larseni</i> Génier & Ar- naud, 2016	UFRO-ECOL	Native Forest	REBIO Jaru	UFRO- ECOL	-
<i>Dendropae-</i> <i>mon lydiae</i> Génier & Ar- naud, 2016	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	CZM- CEMT	-
<i>Dendropae-</i> <i>mon renatii</i> Olsoufieff, 1924	Génier and ARNAUD, (2016)	Forest	Vilhena	CZM- CEMT	-
<i>Dendropae-</i> <i>mon</i> sp. 1	UFRO-ECOL	Forest	Itapuã do Oeste	UFRO- ECOL	-
<i>Diabroctis mi-</i> <i>mas</i> (Linné, 1758)	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-

<i>Dichotomius</i> <i>aff. batesi</i>	Puker <i>et al.</i> (2021); UFRO- ECOL	Native Forest, Forest, Amazon forest frag- ments	Itapuã do Oeste, Nova Ma- moré, Porto Velho, REBIO Jaru	UFRO- ECOL; CZM- CEMT; CERPE	-
<i>Dichotomius</i> <i>aff. cuprinus</i>	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-
<i>Dichotomius</i> <i>aff. globulus</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Dichotomius</i> <i>aff. lucasi</i>	Silva <i>et al.</i> (2014); Silva <i>et</i> <i>al.</i> (2022); UFRO-ECOL	Native Forest, Forest, Ag- roforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Dichotomius</i> <i>aff. zikani</i>	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-
<i>Dichotomius</i> <i>apicalis</i> (Luederwaldt , 1931)	UFRO-ECOL	Native Forest	Porto Velho	UFRO- ECOL	Least Concern
<i>Dichotomius</i> <i>bos</i> (Blanchard, 1829)	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	CZM- CEMT	-
<i>Dichotomius</i> <i>carinatus</i> (Luederwaldt , 1925)	Puker <i>et al.</i> (2020); Silva <i>et</i> <i>al.</i> (2014); UFRO-ECOL	Native For- est, Forest, Agrofores, Cupuaçu orchard	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Dichotomius</i> <i>cuprinus</i> (Felsche, 1901)	SpeciesLink, (2020)	Pasture	Costa Marques	DZUP- COLEOP- TERA	-
<i>Dichotomius</i> <i>gandinii</i> Ros- sini & Vaz- de-Mello, 2015	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO- ECOL	-
<i>Dichotomius</i> <i>longiceps</i>	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-

(Taschenberg, 1870)						
<i>Dichotomius mamillatus</i> (Felsche, 1901)	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL		-
<i>Dichotomius melzeri</i> (Luederwaldt, 1922)	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL		-
<i>Dichotomius nimuendaju</i> Luederwaldt, 1925	UFRO-ECOL	Native Forest, Forest	Itapuã do Oeste, Porto Velho, Rolim de Moura	UFRO-ECOL		Least Concern
<i>Dichotomius nisis</i> (Olivier, 1789)	Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2022)	Native forest, Forest, Savannah, Monoculture, Pasture, Open area	Pimenta Bueno, Porto Velho	CZM-CEMT		-
<i>Dichotomius ohausi</i> (Luederwaldt, 1923)	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT; UFRO-ECOL		-
<i>Dichotomius podalirius</i> (Felsche, 1901)	UFRO-ECOL	Native Forest	Porto Velho	UFRO-ECOL		Least Concern
<i>Dichotomius prietoi</i> Martínez & Martínez, 1982	Puker <i>et al.</i> (2021)	Amazon forest fragments	Porto Velho	CZM-CEMT; CERPE		
<i>Dichotomius pseudocuprinus</i> Gandini & Aguiar, 2009	UFRO-ECOL	Forest, Agroforest	Rolim de Moura	UFRO-ECOL		-
<i>Dichotomius robustus</i>	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest,	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré,	CZM-CEMT;		-

(Luederwaldt, 1935)		Forest, Agroforest	Pimenta Bueno, Rolim de Moura	UFRO-ECOL	
<i>Dichotomius</i> sp. 1	UFRO-ECOL	Forest	Rolim de Moura	UFRO-ECOL	-
<i>Dichotomius</i> sp. 2	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO-ECOL CZM-CEMT; DZUP-CO-LEOP-TERA; UFRO-ECOL	-
<i>Dichotomius</i> sp.	Puker <i>et al.</i> (2020); Species-Link, (2020); UFRO-ECOL	Native Forest, Forest, Pasture	Costa Marques, Porto Velho, Rolim de Moura	UFRO-ECOL	-
<i>Dichotomius worontzowi</i> (Pereira, 1942)	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest, Pasture	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	Least Concern
<i>Digitonthophagus gazella</i> (Fabricius, 1787)	Génier and Moretto, (2017); Puker <i>et al.</i> (2020); Silva <i>et al.</i> (2014)	Forest, Cupuaçu orchard, Pasture	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT	-
<i>Eurysternus arnaudi</i> Génier, 2009	Puker <i>et al.</i> (2020); Silva, 2014; UFRO-ECOL	Native Forest, Agroforest, Cupuaçu orchard	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Eurysternus atrosericus</i> Génier, 2009	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Eurysternus caribaeus</i> (Herbst, 1789)	Puker <i>et al.</i> (2020); Silva, 2014;; Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Secondary Forest, Agroforest, Monoculture, Cupuaçu	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-

			orchard, Pasture			
<i>Eurysternus cayennensis</i> Castelnau, 1840	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest	Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru	CZM-CEMT; UFRO-ECOL	-	
<i>Eurysternus foedus</i> Guérin-Méneville, 1844	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest, Secondary Forest, Monoculture	Nova Mamoré, Pimenta Bueno, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-	
<i>Eurysternus gracilis</i> Génier, 2009	UFRO-ECOL	Native Forest	REBIO Jaru	UFRO-ECOL	-	
<i>Eurysternus hamaticollis</i> Balthasar, 1939	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Secondary Forest, Agroforest, Pasture	Guajará-Mirim, Nova Mamoré, Pimenta Bueno, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-	
<i>Eurysternus harlequin</i> Génier, 2009	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest	Pimenta Bueno, REBIO Jaru	CZM-CEMT; UFRO-ECOL	-	
<i>Eurysternus howdeni</i> Génier, 2009	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Secondary Forest, Agroforest, Monoculture	Itapuã do Oeste, Pimenta Bueno, Porto Velho, REBIO Jaru	CZM-CEMT; UFRO-ECOL	-	
<i>Eurysternus hypocrita</i> Balthasar, 1939	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT; UFRO-ECOL	-	
<i>Eurysternus strigilatus</i> Génier, 2009	Puker <i>et al.</i> (2020); Silva, 2014	Forest, Cupuaçu orchard	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT	-	

<i>Eurysternus uniformis</i> Génier, 2009	UFRO-ECOL	Native Forest, Agroforest	Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Rolim de Moura	UFRO-ECOL	-
<i>Eurysternus vastiorum</i> Martínez, 1988	UFRO-ECOL	Native Forest	Itapuã do Oeste, Porto Velho	UFRO-ECOL	-
<i>Eurysternus ventricosus</i> Gill, 1990	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	CZM-CEMT	-
<i>Eurysternus wittmerorum</i> Martínez, 1988	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Secondary Forest, Agroforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Eutrichillum</i> sp. 1	Silva <i>et al.</i> (2014)	Native Forest	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-
<i>Gromphas aeruginosa</i> (Perty, 1830)	Cupello and Vaz-de-Mello,, (2015); Puker <i>et al.</i> (2020)	Pasture	Guajará-Mirim, Porto Velho	BMNH; CZM-CEMT	Least Concern
<i>Hansreia peugeoti</i> Valois, Vaz-De-Mello & Silva, 2015	Silva <i>et al.</i> (2022); UFRO-ECOL; Valois <i>et al.</i> (2015)	Native Forest, Agroforest, River bank, Pasture, Undergrowth	Alto Paraíso, Ariquemes, Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Hansreia</i> sp.	Silva <i>et al.</i> (2014)	Native Forest	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-
<i>Isocopris imitator</i> (Felsche, 1901)	Rossini and Vaz-de-Mello, (2017); Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest	Guajará-Mirim, Nova Mamoré, Pimenta Bueno, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Ontherus appendiculatus</i>	Silva <i>et al.</i> (2022)	Native Forest, Savannah	Pimenta Bueno	CZM-CEMT	-

(Manner-heim, 1829)						
<i>Ontherus azteca</i> Harold, 1869	Silva <i>et al.</i> (2014); UFRO-ECOL	Forest	Guajará-Mirim, Nova Mamoré, Rolim de Moura	CZM-CEMT; UFRO-ECOL	Least Concern	
<i>Ontherus pubens</i> Génier, 1996	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Forest, Secondary Forest, Agroforest, Monoculture, Pasture	Pimenta Bueno, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-	
<i>Ontherus</i> sp. 1	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-	
<i>Onthophagus aff. bidentatus</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-	
<i>Onthophagus aff. buculus</i>	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-	
<i>Onthophagus aff. clypeatus</i>	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest, Pasture	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré	CZM-CEMT; UFRO-ECOL	-	
<i>Onthophagus aff. digitifer</i>	Silva <i>et al.</i> (2014)	Forest, Pasture	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-	
<i>Onthophagus aff. haemathopus</i>	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-	
<i>Onthophagus aff. hirculus</i>	Silva <i>et al.</i> (2014)	Forest, Pasture	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-	
<i>Onthophagus aff. onorei</i>	Silva <i>et al.</i> (2014); Silva <i>et al.</i> (2022); UFRO-ECOL	Forest, Pasture	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-	
<i>Onthophagus aff. osculatii</i>	Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Forest, Pasture	Guajará-Mirim, Nova Mamoré, Porto Velho	CZM-CEMT; UFRO-ECOL	-	

<i>Onthophagus aff. rubrescens</i>	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Ag-roforest	Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, REBIO Jaru, Rolim de Moura	UFRO-ECOL	-
<i>Onthophagus haematopus</i> Harold, 1875	UFRO-ECOL	Native Forest	Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru	UFRO-ECOL	-
<i>Onthophagus onthochromus</i> Arrow, 1913	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest	Itapuã do Oeste, Pimenta Bueno, REBIO Jaru	CZM-CEMT; UFRO-ECOL	-
<i>Onthophagus osculatii</i> Guérin-Méneville, 1855	Rossini <i>et al.</i> (2018); UFRO-ECOL	Native Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho	CZM-CEMT; UFRO-ECOL	-
<i>Onthophagus ptox</i> Erichson, 1847	Puker <i>et al.</i> (2020); UFRO-ECOL	Forest, Cupuaçu orchard, Pasture	Itapuã do Oeste, Porto Velho	CZM-CEMT; UFRO-ECOL	-
<i>Onthophagus</i> sp. 1	UFRO-ECOL	Native Forest	Porto Velho	UFRO-ECOL	-
<i>Onthophagus</i> sp. 2	UFRO-ECOL	Native Forest	Itapuã do Oeste, Porto Velho, REBIO Jaru	UFRO-ECOL	-
<i>Onthophagus</i> sp. 3	UFRO-ECOL	Native Forest	Porto Velho	UFRO-ECOL	-
<i>Onthophagus</i> sp.	UFRO-ECOL	Native Forest	Itapuã do Oeste, Nova Mamoré, Rolim de Moura	UFRO-ECOL	-
<i>Oxysternon conpicillatum</i> (Weber, 1801)	Puker <i>et al.</i> (2020); SIBBR, (2020); Silva <i>et al.</i> (2014); UFRO-ECOL	Native Forest, Ag-roforest, Cupuaçu orchard	Ariquemes, Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho, REBIO Jaru, Rolim de Moura	CZM-CEMT; UFRO-ECOL	-
<i>Oxysternon lautum</i> MacLeay, 1819	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Mamoré	CZM-CEMT	-
<i>Oxysternon macleayi</i>	Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest	Pimenta Bueno, REBIO Jaru	CZM-CEMT;	Least Concern

Nevinson, 1892				UFRO- ECOL	
<i>Oxysternon si- lenus</i>	Puker <i>et al.</i> (2020)	Cupuaçu orchard	Porto Velho	CZM- CEMT	-
Castelnau, 1840					
<i>Oxysternon si- lenus zikani</i>	UFRO-ECOL	Native Forest	Porto Velho	UFRO- ECOL	-
Pereira, 1943					
<i>Oxysternon</i> sp.	SIBBR, (2020); SpeciesLink, (2020)	City	Porto Velho, Vilhena	MPEG- HCO; MCT- INSETOS	-
Castelnau, 1840					
<i>Oxysternon</i> <i>spiniferum</i>	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	CZM- CEMT	-
Laporte, 1840					
<i>Oxysternon</i> sp. 1	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-
<i>Phanaeus al- varengai</i> Ar- naud, 1984	Silva <i>et al.</i> (2014)	Forest	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-
<i>Phanaeus</i> <i>bispinus</i>	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Porto Velho	CZM- CEMT; UFRO- ECOL	Least Concern
Bates, 1868					
<i>Phanaeus</i> <i>cambeforti</i> Ar- naud, 1982	Silva <i>et al.</i> (2014); UFRO- ECOL	Native Forest, Forest	Guajará-Mirim, Nova Ma- moré, Porto Velho, REBIO Jaru	CZM- CEMT; UFRO- ECOL	-
<i>Phanaeus</i> <i>chalconelas</i> (Perty, 1830)	Silva <i>et al.</i> (2014); Silva <i>et</i> <i>al.</i> (2022); UFRO-ECOL	Native Forest, Secondary Forest, Ag- roforest	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pi- menta Bueno, REBIO Jaru, Rolim de Moura	CZM- CEMT; UFRO- ECOL	-
<i>Phanaeus so- roribispinus</i>	UFRO-ECOL	Native Forest, Forest	Itapuã do Oeste, Nova Ma- moré	UFRO- ECOL	Least Concern
Edmonds & Zidek, 2012					
<i>Pseudocan- thon</i> aff. <i>xan- thurus</i>	Silva <i>et al.</i> (2014)	Pasture	Guajará-Mirim, Nova Ma- moré	CZM- CEMT	-

<i>Pseudocanthon</i> sp. 1	UFRO-ECOL	Native Forest	Nova Mamoré	UFRO-ECOL	-
<i>Pseudocanthon</i> sp.	UFRO-ECOL	Forest	Rolim de Moura	UFRO-ECOL	-
<i>Scybalocanthon</i> sp. 1	UFRO-ECOL	Forest	Itapuã do Oeste, Pimenta Bueno	UFRO-ECOL	-
<i>Scybalocanthon uniplagiatus</i> (Schmidt, 1922)	Silva <i>et al.</i> (2022)	Native Forest	Pimenta Bueno	-	-
<i>Sulcophanaeus faunus</i> (Fabricius, 1775)	Puker, 2020; Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Agroforest, Pasture	Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru	CZM-CEMT; UFRO-ECOL	-
<i>Sylvicanthon attenboroughi</i> Cupello & Vaz-de-Mello, 2018	Puker <i>et al.</i> (2020)	Forest, Cupuaçu orchard	Porto Velho	CZM-CEMT	-
<i>Sylvicanthon</i> aff. <i>bridarollii</i>	Silva <i>et al.</i> (2022)	-	Pimenta Bueno	-	-
<i>Sylvicanthon proseni</i> (Martínez, 1949)	Silva <i>et al.</i> (2014); Puker <i>et al.</i> (2020); Puker <i>et al.</i> (2021); Silva <i>et al.</i> (2022); UFRO-ECOL	Native Forest, Secondary Forest, Agroforest; Amazon forest fragments	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, Pimenta Bueno, Porto Velho, REBIO Jaru	CZM-CEMT; CERPE; UFRO-ECOL	-
<i>Sylvicanthon</i> sp. 1	Silva <i>et al.</i> (2014); Puker <i>et al.</i> (2021); UFRO-ECOL	Native Forest, Agroforest, Amazon forest fragments	Guajará-Mirim, Itapuã do Oeste, Nova Mamoré, REBIO Jaru, Rolim de Moura	CZM-CEMT; CERPE; UFRO-ECOL	-
<i>Sylvicanthon</i> sp. 2	Puker <i>et al.</i> (2021); UFRO-ECOL	Native Forest, Agroforest,	Itapuã do Oeste, Nova Mamoré, Rolim de Moura	CZM-CEMT; CERPE;	-

		Amazon		UFRO-	
		forest frag-		ECOL	
		ments			
<i>Trichillum ex-</i>	Silva <i>et al.</i>	Native	Guajará-Mirim, Nova Ma-	CZM-	
<i>ternepuncta-</i>	(2014); Silva <i>et</i>	Forest, Ag-	moré, Pimenta Bueno, Rolim	CEMT;	-
<i>tum</i> Preudho-	<i>al.</i> (2022);	roforest,	de Moura	UFRO-	
mme de	UFRO-ECOL	Pasture		ECOL	
Borre, 1880					
<i>Trichillum</i> sp.	UFRO-ECOL	Forest, Ag-	Pimenta Bueno, Rolim de	UFRO-	-
		roforest	Moura	ECOL	
	Silva <i>et al.</i>	Forest, Ag-	Guajará-Mirim, Nova Ma-	CZM-	
<i>Uroxys</i> sp. 1	(2014); Silva <i>et</i>	roforest,	moré, Pimneta Bueno, Rolim	CEMT;	-
	<i>al.</i> (2022);	Pasture	de Moura	UFRO-	
	UFRO-ECOL			ECOL	
	Silva <i>et al.</i>	Native		CZM-	
<i>Uroxys</i> sp. 2	(2014); UFRO-	Forest,	Guajará-Mirim, Itapuã do	CEMT;	-
	ECOL	Forest,	Oeste, Nova Mamoré	UFRO-	
		Pasture		ECOL	
	SIBBR, (2020);	Forest, Ag-	Ariquemes, Rolim de Moura	CZM-	
<i>Uroxys</i> sp.	UFRO-ECOL	roforest		CEMT;	-
				UFRO-	
				ECOL	

The spatial coverage of Scarabaeinae species records is summarized by sample sites in Figure 1. In the present review, the presence of 106 species was recorded for the Southwest Amazon, divided into 23 genera, and distributed in the most diverse types of landscapes (Table 1). Of the records, 35 have identification only by affinity (i.e., aff.) with the mentioned epithet. It is important to mention the registration of 58 morphotypes (i.e., spp.) distributed in the genera *Anomiopus*, *Ateuchus*, *Canthidium*, *Canthon*, *Canthonella*, *Deltochilum*, *Dendropaemon*, *Dichotomius*, *Onthophagus*, *Pseudocanthon*, *Scybalocanthon*, *Sylvicanthon*, *Trichillum* and *Uroxys* that are deposited in the collection of the Federal Foundation University of Rondônia. On the IUCN Red List of Threatened Species (2022), only 16 are registered and all are considered “Least Concern” according to IUCN criteria. Two species are considered “Data Deficient”. More details on the spatial coverage of the Scarabaeinae species records can be found in Figure S1 and Table S1.

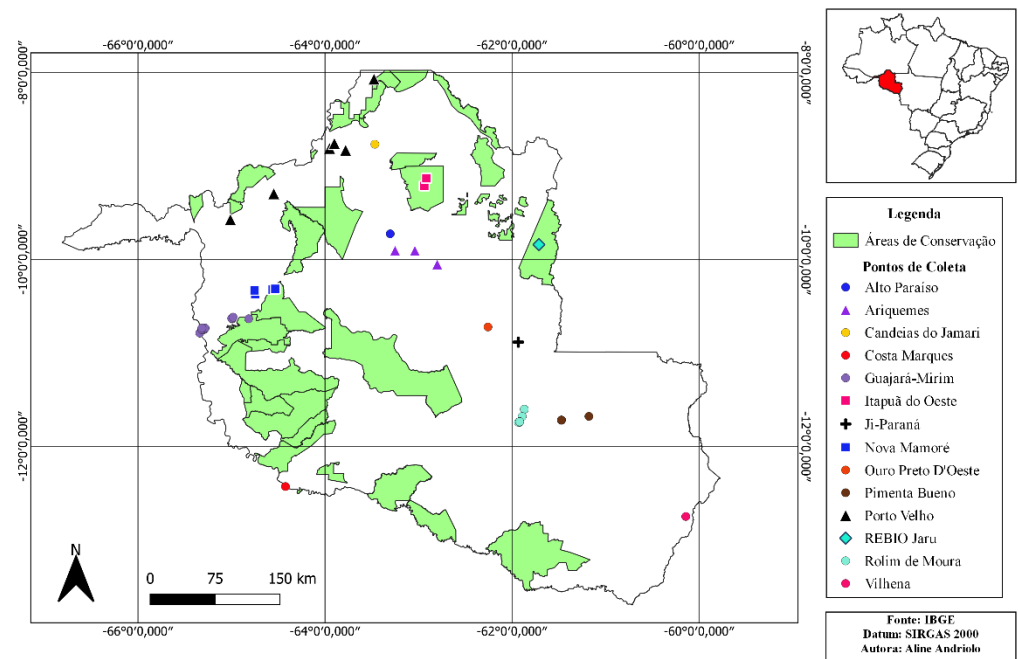


Figura 1. Location map and collection points of Scarabaeinae species records.

4. Discussion

Our results highlight the urgency of cataloging Scarabaeinae biodiversity in a region that lives with constant environmental threats. There are 49% of species (102 spp.) with identification only to the genus level, or that having affinity (i.e., aff.) with the mentioned epithet.

The most recorded species was *Onthophagus* aff. *rubrescens* (Blanchard, 1846); *Canthon* aff. *simulans* (Martínez, 1950); *Ateuchus* aff. *candezei* (Harold, 1868) and *Dichotomius* aff. *lucasi* (Harold, 1869). These species were mainly recorded in forested areas, except *Canthon* aff. *simulans*, which is found in grassland areas. *Onthophagus* aff. *rubrescens* is the most abundant species in most forests in southwestern Amazonia, in primary and *Várzea* (floodplain) forests; it is also common in secondary and bamboo forests, dry forests and in small clearings (Larsen, 2015). According to Silva *et al.* (2014), these species may not withstand climate variation, such as changes in luminosity, humidity and type of available food resource, becoming more restricted to a type of habitat.

The species *Ateuchus murrayi* (Harold, 1868), *Besourenge horacioi* (Martínez, 1969), *Canthon lituratus* (Germar, 1813), *Canthon mutabilis* Lucas, 1857, *Canthon triangularis* (Drury, 1770), *Canthon unicolor* Blanchard, 1843, *Deltochilum carinatum* (Westwood, 1837), *Dichotomius apicalis* (Luederwaldt, 1931), *Dichotomius nimuendaju* Luederwaldt, 1925, *Dichotomius worontzowi* (Pereira, 1942), *Dichotomius podalirius* (Felsche, 1901), *Gromphas aeruginosa* (Perty, 1830), *Ontherus azteca* Harold, 1869, *Oxysternon macleaynon* Nevinson, 1892, *Phanaeus bispinus* Bates, 1868, *Phanaeus sororibispinus* Edmonds & Zidek, 2012, listed on the IUCN Red List of Threatened Species (2022), are considered "Least Concern" according to IUCN criteria. The species *Canthon coloratus* Schmidt, 1922, and *Canthon simulans* (Martínez, 1950) are considered "Insufficient data.; information that our study intends to fill in.

The others species presented in this study do not have any mentions in the IUCN red list, suggesting that the conclusions and studies about the risks of extinction of the majority of the species of dung beetles in the southwest of the Amazon are still incipient.

5. Conclusion

In conclusion, our results registered 106 species in the state of Rondônia. Of the few studies carried out in this region that measured the number of species (Silva *et al.*, 2014, 82 spp.; Puker *et al.*, 2020, 35 spp.; Puker *et al.*, 2021, 7 spp.; Silva *et al.*, 2022, 58 spp.), the current study represents a complement relevant to understanding the distribution of dung beetles in the Southwest Amazon. Future studies should incorporate diverse methodologies, sources of information, and consider various environmental factors. This is important because the Amazon is characterized by a heterogeneous landscape, and organisms such as dung beetles exhibit specific environmental affinities that influence their distribution and occurrence (Salomão *et al.*, 2022). By expanding our understanding in this regard, we can gain insights into the presence of dung beetles in specific areas. Additionally, the potential for discovering new species could enhance our understanding of biodiversity, guide conservation efforts, and work towards preserving and sustainably managing ecosystems for future generations.

6. Acknowledgements

To Dr. Fernando Zagury Vaz-de-Mello for identifying the dung beetle species collected by the Insect Biology and Diversity Laboratory. Sergio Santorelli Junior is supported by the Program for the Settlement of Human Resources in the Interior of the State from Fundação de Amparo à Pesquisa do Estado do Amazonas (FAPEAM/PROFIX-RH/Edital 009/2021, proc. 01.02.016301.00407/2022-94).

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