

Diversity of leaf chafer beetles (Rutelinae: Scarabaeidae: Coleoptera) of Jaldapara Wildlife Sanctuary, Alipurduar, West Bengal, India

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Abstract

In this communication we have collated an aggregate of 10 species belonging to 4 genera distributed over 2 tribes so far from Jaldapara Wildlife Sanctuary during survey from 2001 to 2003. Tribe Anomalini is the most dominant. *Adoretosoma galerucina* (Arrow) and *Anomala lignius* Arrow, are listed first time from West Bengal. Also, 40% of the recorded taxa are endemic to India. *Anomala bilunata* Fairmaire is the only palaeartic element. More species occurrence was during premonsoon (60%), followed by monsoon & postmonsoon seasons (30% each). More expeditious explorations need to be undertaken in order to confront the challenges associated with its functional significance.

Keywords: Diversity, leaf chafer beetles, jaldapara wildlife sanctuary, Alipurduar, West Bengal, India

Introduction

Scarabaeidae (Superfamily Scarabaeoidea) is one of the most prominent coleopteran families of the insects world, commonly known as scarab beetles. The family includes approximately 33,504 species worldwide (Jameson and Ratcliffe 2001) [1], out of which 2,211 species reported from India (Gupta *et al.*, 2018; Chandra *et al.*, 2018; Schoolmeesters, 2020) [2, 3, 4]. Shining leaf chafers (Subfamily Rutelinae) include some of the most beautifully coloured and most destructive pests, life stages mostly depend on leaves, flowers, fruits, roots and other parts of the plants (Chandra, 2000, Chandra *et al.*, 2012; Chandra & Gupta, 2013) [5, 6, 7]. Species are mostly tropical or subtropical. Rutelinae consists of approximately 200 genera and 4,100 species that are distributed worldwide (Machatschke 1972) [8], 38 genera have been recorded from Southeast Asia (Krajčič, 2007; Machatschke, 1972; Ratcliffe *et al.*, 2018, Hongsuwong *et al.*, 2020) [9, 8, 10, 11], although many taxa remain to be described. Anomalini and

Adoretini include most of Indian ruteline species. Globally *Anomala* Samouelle 1819 and *Adoretus* Dejean, 1833 house maximum number of species. *Anomala*, the economically important genus is comprised of 800 species in the Old World (Jameson *et al.*, 2003) [12]. Of the 398 species, *Anomala* and *Adoretus* included 261 species (Arrow, 1917) [13]. Information on the Indian members is largely based on the regional works of Biswas (1978a,b), Chatterjee & Biswas (1995), Mittal (1999), Chandra & Singh (2004), Chatterjee (2004), Chandra & Ahirwar (2005), Chandra & Uniyal (2007), Chandra (2009a,b), Chandra & Gupta (2012), Gupta & Chandra (2014), Gajendra & Prasad (2016), Sarkar *et al.* (2016a,b; 2017, 2019), Ghosh *et al.* (2020a,b) [14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32]. At this point, the present study is undertaken to assess the faunal range, distribution, abundance, occurrence of the ruteline scarabs of Jaldapara Wildlife Sanctuary.

Study area (Fig. 1)

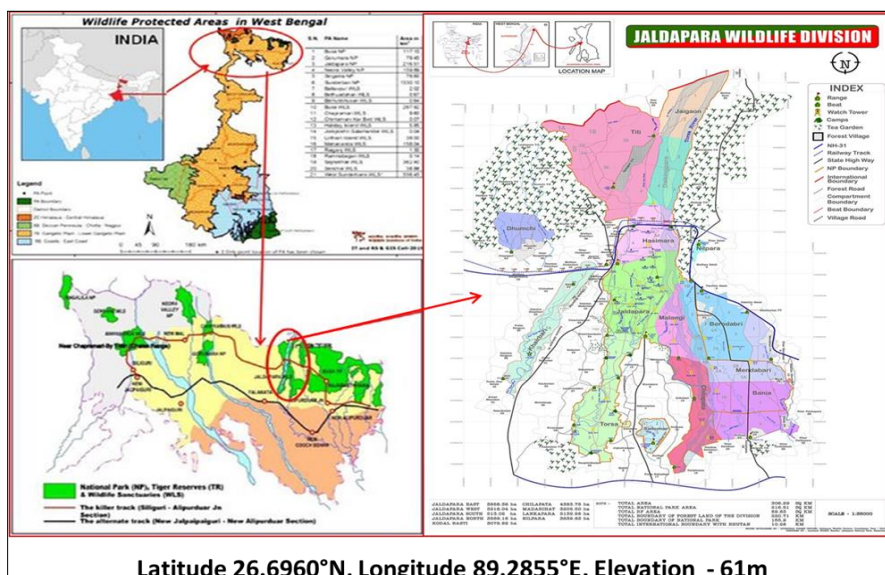


Fig 1: Study area

Materials & methods

The specimens were captured from different areas of Jaldapara Wildlife Sanctuary, during 2001 to 2003 every year (Figs.1&2) mostly by bush beating, visual search, aerial net, hand picking methods and using light trap also. Jonathan & Kulkarni (1986) [33] and Raychaudhuri & Saha (2014) [34] were followed for killing, preservation and

storing of the samples and recording of field data. Specimens are identified following Arrow (1917) [13], Sarkar *et al.* (2016a,b; 2017) [27, 28, 29] using Stereo Zoom Binocular Microscope, model Olympus SZX-16.

All specimens are in the deposition of Entomology Laboratory, Ramakrishna Mission Vidyamandira, Belur Math, Howrah, West Bengal, India.

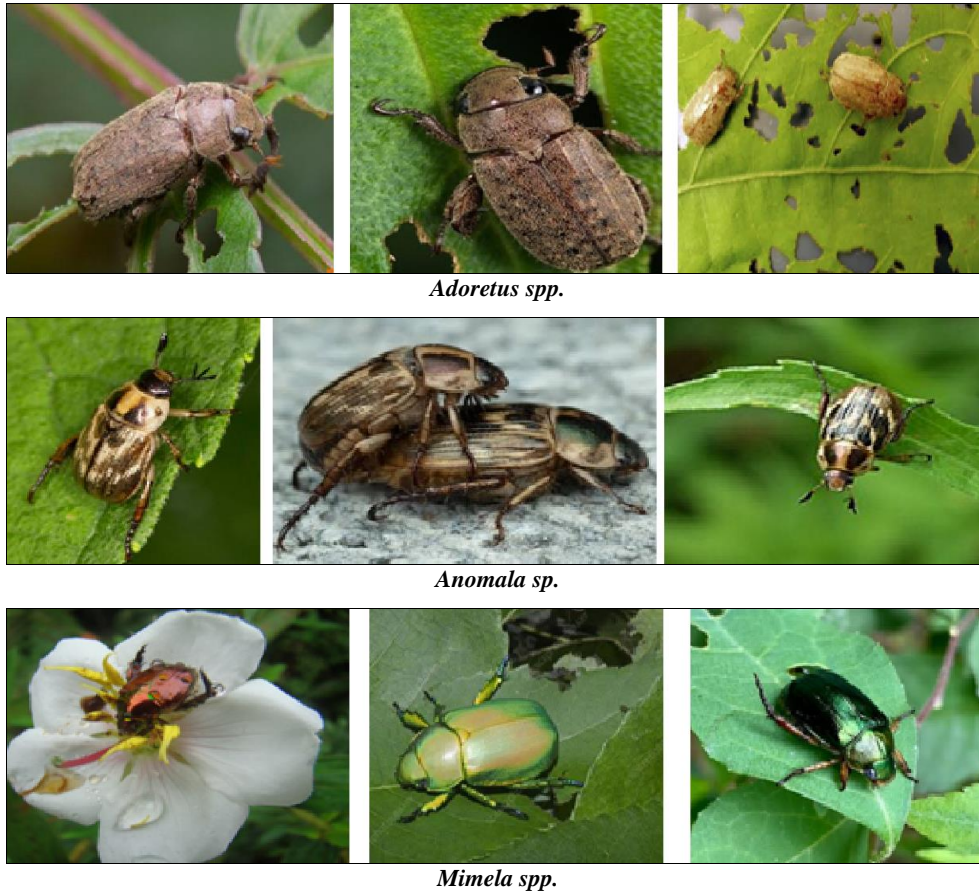
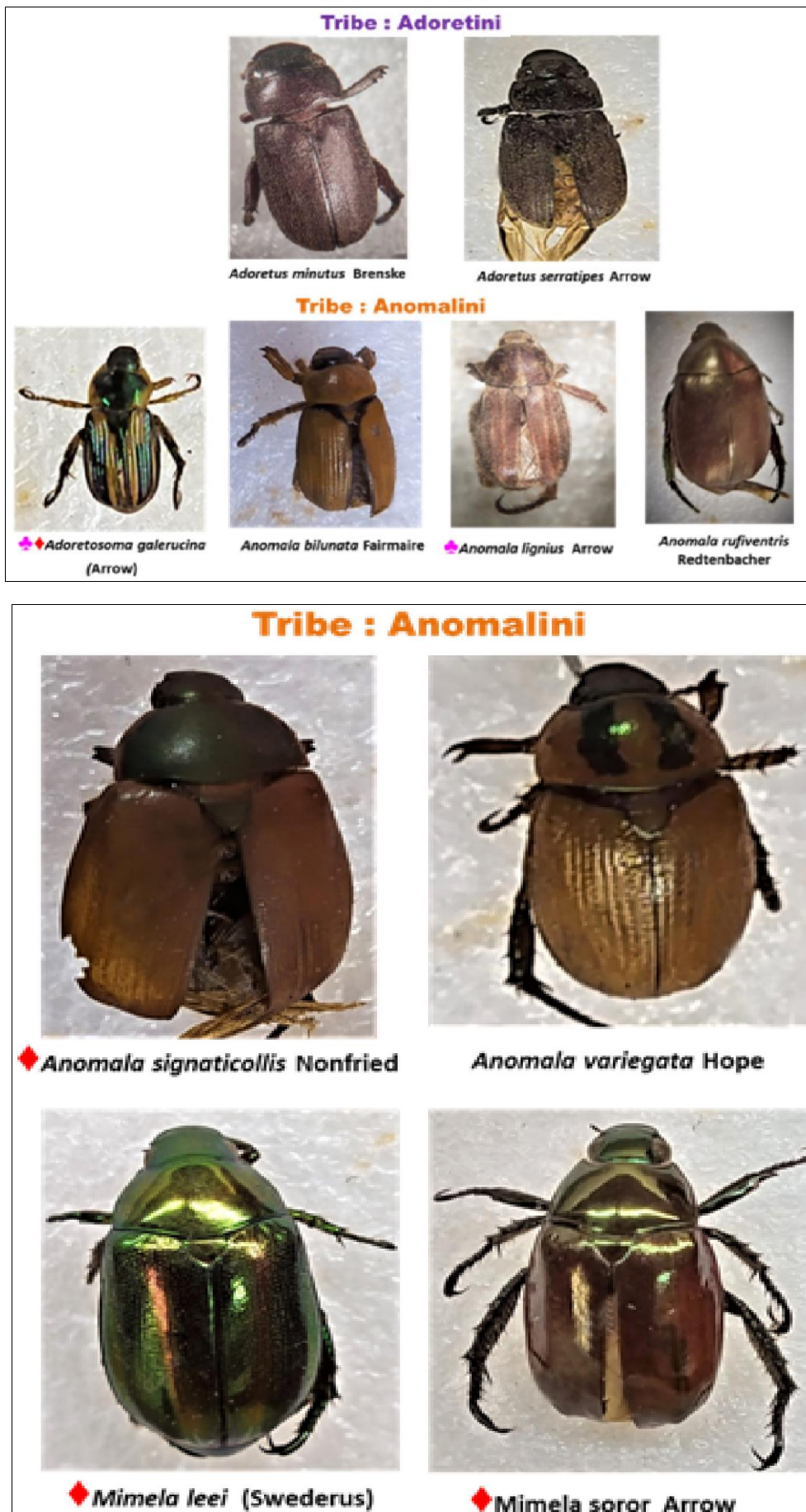


Fig 2: Leaf chafers encountered in the field during survey

Table 1: Distribution, abundance & occurrence of the Ruteline Scarabs encountered from Jaldapara Wildlife Sanctuary

Sl. No.	Species Name	No. of Individual/s collected	Distribution			
			India	World	Zoogeographical	Seasonal
1.	Tribe: Adoretini	5	West Bengal (Alipurduar)	India, Vietnam	OR	PrM
	<i>Adoretus minutus</i> Brenske					
2.	<i>Adoretus serratipes</i> Arrow	1	Assam, West Bengal (Alipurduar)	India, Myanmar	OR	PsM
3.	Tribe: Anomalini	5	Sikkim, West Bengal (Alipurduar)	India	OR	PsM
	♣♣ <i>Adoretosoma galerucina</i> (Arrow)					
4.	<i>Anomala bilunata</i> Fairmaire	2	Assam, Manipur, Sikkim and West Bengal (Alipurduar)	Bhutan, China, India	OR, PL	PrM
5.	♣ <i>Anomala lignius</i> Arrow	2	West Bengal (Alipurduar)	India, Myanmar	OR	PrM
6.	<i>Anomala rufiventris</i> Redtenbacher	5	Assam, Manipur, Uttarakhand, West Bengal (Alipurduar)	India, Bhutan	OR	PrM, M
7.	♦ <i>Anomala signaticollis</i> Nonfried	1	Assam, Manipur, Meghalaya, West Bengal (Alipurduar)	India	OR	PrM
8.	<i>Anomala variegata</i> Hope	12	Sikkim, West Bengal (Darjeeling, Alipurduar)	India, Nepal	OR	PrM, PsM,
9.	♦ <i>Mimela leei</i> (Swederus)	1	Assam, West Bengal (Alipurduar)	India	OR	M
10.	♦ <i>Mimela soror</i> Arrow	1	Assam, Manipur, West Bengal (Alipurduar)	India	OR	M

Legend: ♣ = New record from state; ♦ = Endemic to India; OR = Oriental; PL = Palaearctic; PrM = Pre Monsoon; M = Monsoon; PsM = Post Monsoon



[Legend: ♣ = New record from state; ◆ = Endemic to India]

Fig 3: Ruteline leaf chafer beetles collected during field survey

Results & discussion

So far, 10 species under 4 genera distributed over 2 tribes are recorded from the study area (Table 1, Fig.3). Tribe Anomalini is the most dominant. *Adoretosoma galerucina* (Arrow) and *Anomala lignius* Arrow are reported first time from West Bengal. Also 40% of the recorded species are endemic to India. Fauna includes single palaeartic element, *Anomala bilunata* Fairmaire. More species occurrence was during premonsoon (60%), followed by monsoon & postmonsoon seasons (30% each).

Conclusion

For scarab diversity, more expeditious explorations need to be undertaken in order to confront the challenges associated with its functional importance. Documentation of the species diversity serves as the foundational base for any subsequent scientific studies that supports database formation.

Acknowledgements

The authors wish to thank to The Hon'ble Principal and The Head, Department of Zoology, Ramakrishna Mission Vidyamandira and The Hon'ble Principal, Barasat Government College for necessary logistic support. Also, authors are grateful to MOEF, GOI (Sanction no.–14/43/2000-ERS/RE, dt. 17/10/01); UGC [Sanction no. F3:136/2001 (SR II) dt. 28.3.2001 & 20.4.2001] and NTRF [Sanction no. 17(177)/2008 dt 27.3.2008] for financing the research work.

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