

# Bugs & All

Invertebrate Conservation & Information Network of South-Asia (ICINSA)

Newsletter of the  
Invertebrate Conservation & Information Network of South-Asia (ICINSA)

## BLISTER BEETLE

Beetle fauna and congregation of *Mylabris oculata*  
at the Prince Saud al-Faisal Wildlife Research Center  
Taif, Saudi Arabia



IUCN Red List:  
Not Assessed

Blister Beetle congregation on *Acacia* tree at the PSFWRC, Taif in early July 2017 (Photo credit: M. Zafar-ul Islam)

### Insecta

[Class of Beetles]

### Coleoptera

[Order of Beetles and Weevils]

### Meloidae

[Family of Blister Beetles]

### *Mylabris oculata*

[Cape Mountain Rifles Blister Beetle]

Species described by  
Thunberg in 1791

Beetles form the order Coleoptera, in the superorder Endopterygota are diverse insect group and important element that plays significant role in ecological phenomena (Stack 2015). Their first pair of wings are hardened into wings, elytra, a characteristic feature of Coleopterans. There are about 400,000 species of beetles (Hammond 1992), 40% of described insects and 25% of all known animal life forms (Rosenzweig 1995; Hunt et al. 2007; Bouchard et al. 2011).

Beetles have been recorded almost everywhere, including freshwater and coastal habitats, wherever vegetative

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greenery is found, from trees and their bark to flowers, leaves, and underground near roots, even inside plants, in every plant tissue, including dead or decaying ones (Gullan & Cranston 2014). Beetles play important roles in pollination, herbivory, granivory, predator-prey interactions, decomposition and nutrient cycling, and soil disturbances (Huffaker & Gutierrez 1999).

In Saudi Arabia, a total of 1,343 beetle species has been recorded (Al-Ahmadi & Salem 1999), of which details are catalogued in (Löbl et al. 2008). Blister beetles are members of a family of plant-feeding insects Meloidae that contains 2,500 species in the world, divided among 120 genera and four subfamilies (Bologna & Pinto 2001).

Southwestern Highland of Saudi Arabia is one of the biological hotspots of the world and the Prince Saud al Faisal Wildlife Research Center (PSFWRC) on the edge of these highlands (40km from mountains). It is a desert flat land with a few outcrops and plant growth mostly confined to depressions or wadis, though some plants with deep rooting-systems grow elsewhere. By early summer, *Acacia* trees start flowering and those attract beetles and other insects to the center.

The study site called Prince Saud al Faisal Wildlife Research Center (PSFWRC) is declared as Important Bird and Biodiversity Areas IBA identified by the BirdLife International (BirdLife International 2004), which is fairly flat, sandy/gravelly desert fringe at 1,450m on the edge of the north-east Asir foothills (South-west Highlands), c.40km south-east of Taif City in Makkah Province of Saudi Arabia (21°15'0"N & 40°42'0"E with an area of 3,000ha). There are a few gneiss inselbergs and dry wadis. The site is fenced where captive breeding of Asian Houbara, Arabian Oryx, Arabian Leopard, Red-necked Ostrich program is running since 1986. The site is previously overgrazed vegetation is rapidly recovered to grassland and scrub bush land. *Wadis* have many *Acacia iraqensis* trees and flowering in early summer and one has been dammed with some water usually present. Flora contains 269 species of plants belong to 54 families (Collenette 1998). The list contains grasses, shrubs and trees. Some of the Leguminosae species are *Acacia asak*, *A. ehrenbergiana*, *A. gerrardii*, *A. tortilis* and they flower by summer, especially after the rain in April.

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## Methods

Species of beetles were recorded opportunistically, whenever they are sighted and some are photographed since last seven years. They are visible and some are easily located on flowering *Acacia* trees in the PSF Wildlife Center.

During summer months (March to September), most of the beetle species appears and some of the species congregates in large number within the Center premises, as flowering *Acacia* plants provide food and the site is not disturbed. During this time, we record the species and their congregations.

We took walking transects along the well-established trails in the Center and congregation could be seen on flowering *Acacia*.

Species such as Darkling Beetle, and the mealworms of it, and the larval form of the Mealworm Beetle *Tenebrio molitor* were recorded throughout the year. Like all holometabolic insects, they go through four life stages: egg, larva, pupa, and adult. These mealworms were fed to rear Houbara (Islam 2015).

## Results

Based on opportunistic field search, the fauna of the beetles consists of the following at the PSF Wildlife Research Center:

1. Domino Beetle *Anthia duodecimguttata* (Carabidae family), a black beetle, with a characteristic pattern of ten white spots along the back, looking much like the dots on a domino piece and hence this remarkable little beetle carry this common name. They were observed mainly at night hunting other insects near the hard rocks,

sands, especially near the street lamps. The mating season is June.

2. Rufous Bombardier Beetles *Brachinus nobilis* from the family Carabidae, which are famous for the defense mechanism that gives them their name and when it is disturbed, ejects a hot noxious chemical spray from the tip of their abdomen with a



Congregation of beetles are photographed by first author

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popping sound. They could be seen near the water treatment area of the Center.

3. Beaded Runner *Calosoma imbricatum* Klug could be seen in the night near the focused lamp light in early summer each year mainly near the acacia and other vegetated areas.

4. Miniature Diving Beetle *Gulgnotus major* Sharp would be seen near the stagnant water treatment plant at the site in summer.

5. Mottled Diving Beetle *Laccophilus pictipennis* Sharp would be seen near the stagnant water treatment plant at the site much longer than summer.

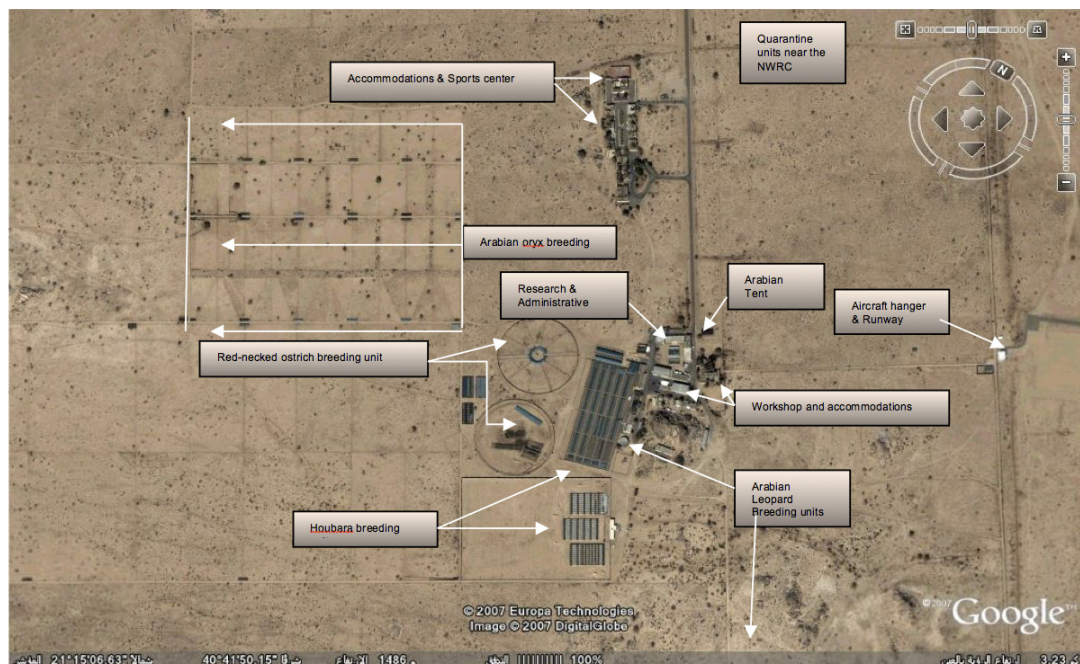
6. Diving Pill *Hyphydrus pictus* Klug was recorded in stagnant water in the swimming pool at the site in summer.

7. Short-legged Diving Beetle *Cybister tripunctatus* Olivier could be seen in summer near the water treatment plant at the site.

8. Fawn Diving Beetle *Eretes sticticus* Linnaeus could be seen near the water treatment plant at the site in early summer.

9. Eleven-spot Ladybird *Coccinella undecimpunctata* Linnaeus occurs in grasslands, with low-growing vegetation where it feeds on a variety of insects. Its bright colour warns predators of their bitter taste of pungent blood. Recorded in early summer months.

10. Seven-spot Ladybird *Coccinella septempunctata* Linnaeus is one of the common beetle and seen in April after the rain.



Prince Saud al Faisal Wildlife Research Center in Taif, Saudi Arabia



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11. Grain Weevil *Sitophilus granarius* Linnaeus is found in alfalfa field of the center, and seen near stock of the food pallet sacks.

12. Orange-legged Skip Jack *Aeloides griseescens* Germar (Elateridae) is seen in winters and early summer. One picture was taken in early July 2017 at the site near residential area. It flicks in the air and land on its feet. It feeds on flower nectar of acacia and pollen of grass.

13. Gaudy Carpet Beetle *Antheranus flavipes* Leconte (Dermestidae) could be seen near the human residential area in early winter or late summer.

14. Larder Beetle *Dermestes lardarius* Linnaeus (Dermestidae) could be seen near the animals food store in early summer or late winter.

15. Carcass Beetle *Dermestes frischii* Kugelann (Dermestidae) could be seen just outside the National Wildlife Research Center near the carcass of sheep in early summer.

16. Merchant Grain Beetle *Oryzaephilus mercator* Fauvel (Silvanidae) could be seen near the animal food store of the Center in early summer.

17. Fake Flour Beetle *Opetroides punctulatus* Brulle (Tenebrionidae) could be seen mainly in early winter near the residential area or near the animal's food

stock room.

18. Arabian Darkling Beetle *Pimelia arabica* Klug (Tenebrionidae) is commonly seen in the center throughout the year.

19. Flour Beetle *Tenebrio molitor* (Tenebrionidae) is seen near the mealworm section of the Center, where they are grown for houbara to feed.

20. Rust Red Flour Beetle *Tribolium castaneum* Herbst (Tenebrionidae) is recorded near the mealworm breeding area of the Center.

21. Scarce Stalker *Ocnerna hispida* Forskal (Tenebrionidae) could be seen near the pile of oryx dropping and sometime, ostrich breeding pen in early summer.

22. Short-legged Stalker *Thriptera crinita* Klug (Tenebrionidae) could be seen near the vegetated rocky area in early summer.

23. Churchyard Beetle *Blaps kollari* Seldlitz (Tenebrionidae) could be seen in the Center in the beginning of summer or in early winter near the vegetated rocky areas.

24. Pitted Beetle *Adesmia cancellata* Klug (Tenebrionidae) could be seen in the center, especially near the Oryx dropping piles and vegetated areas in late winter and early summer.

25. Opossum Beetle *Mesostena puncticollis* Solier (Tenebrionidae) could be commonly seen in the Center near the vegetated rocks and lamppost in the night.

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## Congregation of Blister beetles

Since last seven years, *Mylabris oculata* has been observed in large congregation appears by end of June and stays throughout July. During this time *Acacia* flowers, where they congregate especially by evening and get active by sunrise. During the night they are also get attracted in the night near the lampposts within the Center.

Female blister beetles lay clusters of eggs in the soil in late summer. The small, active larvae that hatch from these eggs crawl over the soil surface entering cracks in search for grasshopper egg pods which are deposited in the soil. After finding an egg mass, blister beetle larvae become immobile and spend the rest of their developmental time as legless grubs. They pupate during the following summer and emerge as adults. Blister beetle numbers increase dramatically following a dry summer with high grasshopper populations (Townsend 2011).

Blister beetles receive their common name from the ability of their hemolymph to produce blistering on contact with human skin. Hemolymph is often exuded copiously by reflexive bleeding when an adult beetle is pressed or rubbed. Blisters commonly occur on the neck and arms, as the result of exposure to adult beetles attracted to outdoor lights at night. General handling of adults seldom results in blistering unless the hemolymph contacts the relatively thin skin between the fingers. Unless extensive, medical treatment beyond first aid for blistering on humans is probably not necessary (Townsend 2011).

## Conservation of Beetles

Beetle's conservation is important in modern world as they are indicators of biodiversity richness of the area and they are large of the biodiversity in general. The key threats to beetles are loss of habitat and pesticide. Some of the species like ladybirds are liked by humans but beetles as a whole have a less positive image than other insect groups like the butterflies, while it is also thought most of the beetles as considered as pests.

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