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Research Paper

Invasive alien species (IAS) *Perillus bioculatus* (Fabricius, 1765) Insecta: heteroptera: pentatomidae) with one colour morph first time reported from India

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Abstract: During the several faunastic surveys of Madhya Pradesh by the Zoological Survey of India, Two spotted stink bug, *Perillus bioculatus* (Fabricius, 1775) a native of North America an invasive alien species were collected. The collection revealed the presence of four morphs showing the phenomenon of colour polymorphism. The new records were new to Madhya Pradesh and one morph is New to India.
Keywords: *Perillus bioculatus* (Fabricius, 1775), Polymorphism, Invasive alien species**,** Madhya Pradesh, India.

INTRODUCTION:

In the most of the insect taxa, polymorphism may affect fitness of individuals in a species. Some of the color variety, for instance may be more cryptic than others so harder for predators to locate their presence in niche (Hoekstra and Nachman 2003; Petranka et al. 1998). Alien species are those individual which are non-native and sometime exotic individuals that occur outside of natural habitats and able to adapted their ranges and potential dispersal.

It is believed that the origin of *P. bioculatus* from the Rocky Mountains southern region, however range of this species now expanded by the disbursal of its primary prey viz. Colorado potato beetle, *Leptinotarsa decemlineata*. *P. bioculatus* has very frequently has been introduced into the several European countries like Belgium, France, Germany, Italy, Russia, Slovakia Ukraine and former Yugoslavia to control *L. decemlineata* (Clercq 2000) since 1966.

MATERIAL AND METHOD:

During the several faunastic surveys by Zoological survey of India, Jabalpur has

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collected few specimens of *Perillus bioculatus* (Fabricius, 1765) by hand picking, net trap and light tarp methods, collected from various localities of Jabalpur, district of Madhya Pradesh. Specimens were shorted out and different specimens of *Perillus bioculatus* (Fabricius, 1765) were pinned drayed and were identified with the help of literature available in ZSI library and Fauna of British India. Three basic colour morphs were identified and shorted out form collected specimens. Morphology of bugs were studied by Leica microscope M205-A. Photography of various morphs was done by Sony DSC-H10 camera. This bug was collected from the Mandla road (Near Dumna Nature Park) Jabalpur Madhya Pradesh; soil of this area was different from rest of Jabalpur, it was mixed red and black so that the ecosystem was quite different which lead to introduction of such type of fauna in the community. Colour morphs have recently been reported from Meerut (Prasad and Pal, 2015). The author stated that the specimens have been collected "*from various ecosystems covering almost all districts of Meerut. Besides this,* specimens were procured on loan from various agricultural institutions". However there is no indication of locality and other data for specimen of each colour morph and no information has been provided about the depositions of these specimens in any designated national repository, so our study will be available for other to study. Asopinae are known exclusively predators from them, *Apateticus cynicus* & *Picromerus bidens* shows the obligate embryonic winter diapause, which is very rare among Heteroptera, by having the alike habitats and feeding behavior most of the Asopinae species having the different types of diapause and regulated by the different outside climatic factors such as Temperature and humidity (Saulich and Musolin, 2012), according to this paper author did not include *Perillus bioculatus* (Fabricius, 1765) in the phenomenon of seasonal diapause, so it was confirmed that this species shows polymorphism.

Remark: There are about 3 colour morphs (Red, Deep yellow, black & white form) present in all over the world and all three forms are reported from India, two of them yellow and black and white form were mentioned here. One morph of this species reported first time from the India.

RESULTS AND DISCUSSION:

Systematic account

Order: Hemiptera
Suborder: Heteropterodea
Family: Asopinae

GENUS *Perillus* Stål

Perillus, Stål (1862) *Stettin. ent. Ztg.*, 23(1): p. 88.
Mineus, Stal (1867) *Öfv. Vet.-Ak. Förh.*, p. 498.
Gordonerius, Distant (1887) *Tr. E. S.*, p. 343.
Perilloides, Schouteden (1907b) *Genera Insectorum Fasc.*, **52**: p. 37.
Perillus, Knight (1952) *Ann. Entomol. Soc. Am.*, **45**: p. 229.

Type species: *Asopus confluens* Herrich-Schaeffer
Remarks: Genus *Perillus* having 6 predatory species worldwide viz., *Perillus exaptus*, *Perillus circumcinctus*, *Perillus confluens*, *Perillus lunatus*, *Perillus bioculatus* and *Perillus splendidus*.

Perillus bioculatus (Fabricius, 1765)

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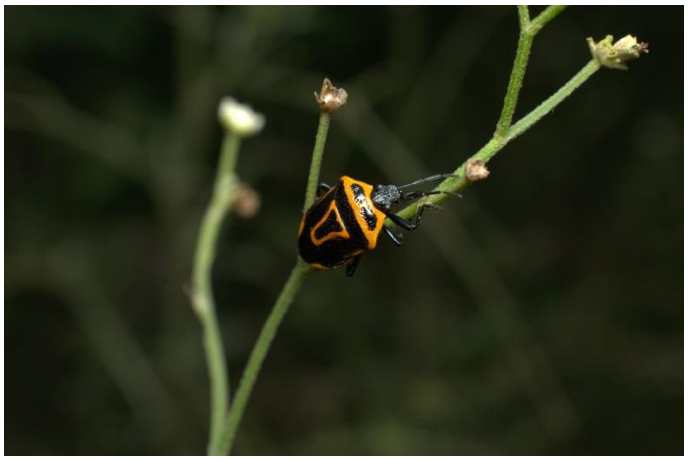
Cimex bioculatus, Fabricius (1775) *Syst. Ent.*, p. 715.
Pentatoma clanda, Say (1825) *J. Acad. Nat. Sci. Phila.,* **4**: p. 312.
Perillus claudus, Uhler (1876) *Bull. Geol. & Geogr. Surv. Terr.*, **1**: p. 281.
Oplomus virgatus, Stål (1862) *Stett. Entomol. Zeit.*, **23**: p. 89.
Perillus bioculatus, Stal (1872) *Kongl. Svensk. Veten.-Akad. Handl.*, **10**: p. 129.
Mineus bioculatus, Uhler (1886) *Brooklyn Entomol. Soc.* New York: p. 4.
Perriloides bioculatus, Schouteden (1907b) *Genera Insectorum Fasc.*, **52**: p. 37.
Perillus bioculatus var. *claudus,* Caesar (1912) *Annu. Rpt. Entomol. Soc. Ontario.*, **42**: p. 33.
Perillus bioculatus: Knight (1952) *Ann. Entomol. Soc. Am.*, **45**: p. 229.
Material examined*:* Dumna Nature Park, District: Jabalpur, Khamariya Dam, 30.III.2016, (1ex.), Coll. S. Kushwaha. Obtain from Parthenium grass; Vijay Nagar, District: Jabalpur, 14.IV.2016, (1ex.), Coll. S. Kushwaha.

Diagnosis: Body have two colour black and light yellow, Head black with central facia ochracious, Eyes black, Frontal lobe of pronotum yellow with two black spots, Lateral and anterior margin yellow, Posterior lobe black, Scutellum yellow with central **Y** shaped black spot, Corium yellow with longitudinal black spot, Connexivum black, Membrane hyaline, Clavus black, Anterior femora spied picious, tibia black with yellow facia, Abdomen pale yellow with double lined black spots; Rostrum dark reddish black.

Distribution: INDIA: Jabalpur (Madhya Pradesh); Punjab, Himachal Pradesh and Uttar Pradesh.

Elsewhere: North America including Mexico and Europe.



***Perillus bioculatus* (Fabricius, 1765)**
Dark yellow and black morph

***Perillus bioculatus* (Fabricius,1765)**
White and black morph

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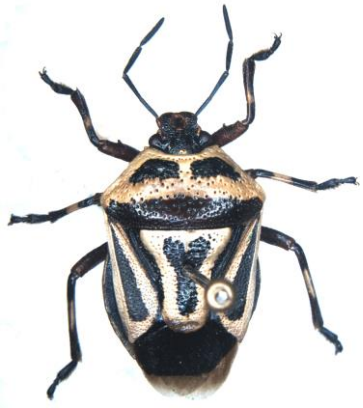

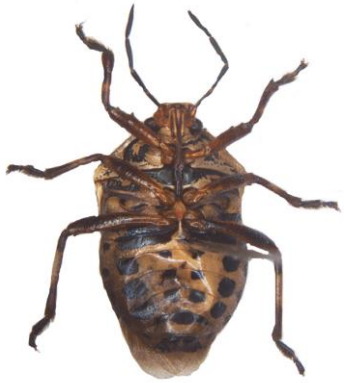

***Perillus bioculatus* (Fabricius, 1765)**

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