

# A RECORD OF WEEVIL (COLEOPTERA: CURCULIONOIDEA) DIVERSITY FROM DISTRICT SAMBA (J & K)

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## ABSTRACT

The present study was undertaken to record the weevil diversity of District Samba of Jammu and Kashmir State. Extensive survey of the region was conducted during the year 2008-09 to record the diversity of weevils. A total of nine species of weevils (superfamily Curculionoidea) viz. *Cylas formicarius*, *Alcidodes signatus*, *Alcidodes collaris*, *Xanthochelus faunus*, *Apion* sp., *Odoiporous longicollis*, *Lixus truncatulus*, *Myllocerus discolor*, *Phytoscapus* sp. were collected, preserved and identified from IARI, New Delhi. Further studies with regard to their diagnostic features are also incorporated in this communication

## INTRODUCTION

Weevils belonging to superfamily Curculionoidea contains a significant proportion of all known species of order Coleoptera and includes the largest family of animals, the Curculionidae (Zaragoza and Lyal, 1999). It has more than 85000 species so far known from the world (O'Brien and Wibmer, 1978). The superfamily Curculionoidea has 21 families of which Curculionidae is the largest with 4144 genera known so far. These beetles are characterised by possession of long snout bearing mandibulate mouth parts at the tip and geniculate antenna. They use the snout to feed internally on plant tissues and for preparing egg laying sites. Nearly all species are phytophagous and found feeding on every part of plant from root to seed. In Jammu and Kashmir, agriculture and forest form backbone of economy, so research on agriculture and forest entomology assumes special significance. Some reports about the diversity of weevils are from the area are available (Marshall, 1916; Aslam, 1961; Bhatia, 1987; Khajuria, 1991; Sharma and Bhatia, 1993; Gupta, 2000; Azam, 2007).

District Samba is situated on range of Shivalik hills alongside the National Highway 1-A on the bank of river Basantar at a distance of forty km from Jammu city. District Samba is bounded by District Udhampur in the North, District Kathua in the East, tehsils Jammu and Bishnah of District Jammu in the west, while on the southern side it has international border with Pakistan. About two third of the area of District Samba is Kandi and Rain fed. The area on southern side downside the national highway is irrigated through Ravi Tawi Irrigation canal network. The climate of the District being sub-tropical zone is hot and dry in summer and cold in winter. Being in the foothills of the

mountains, nights are bit cooler than that of neighboring areas of Punjab. The temperature ranges from 6°C and 47°C. This scarcity of work done and the enormous damage that these weevils cause to agriculture has prompted the present author to record their diversity and pin point their host plants.

## MATERIALS AND METHODS

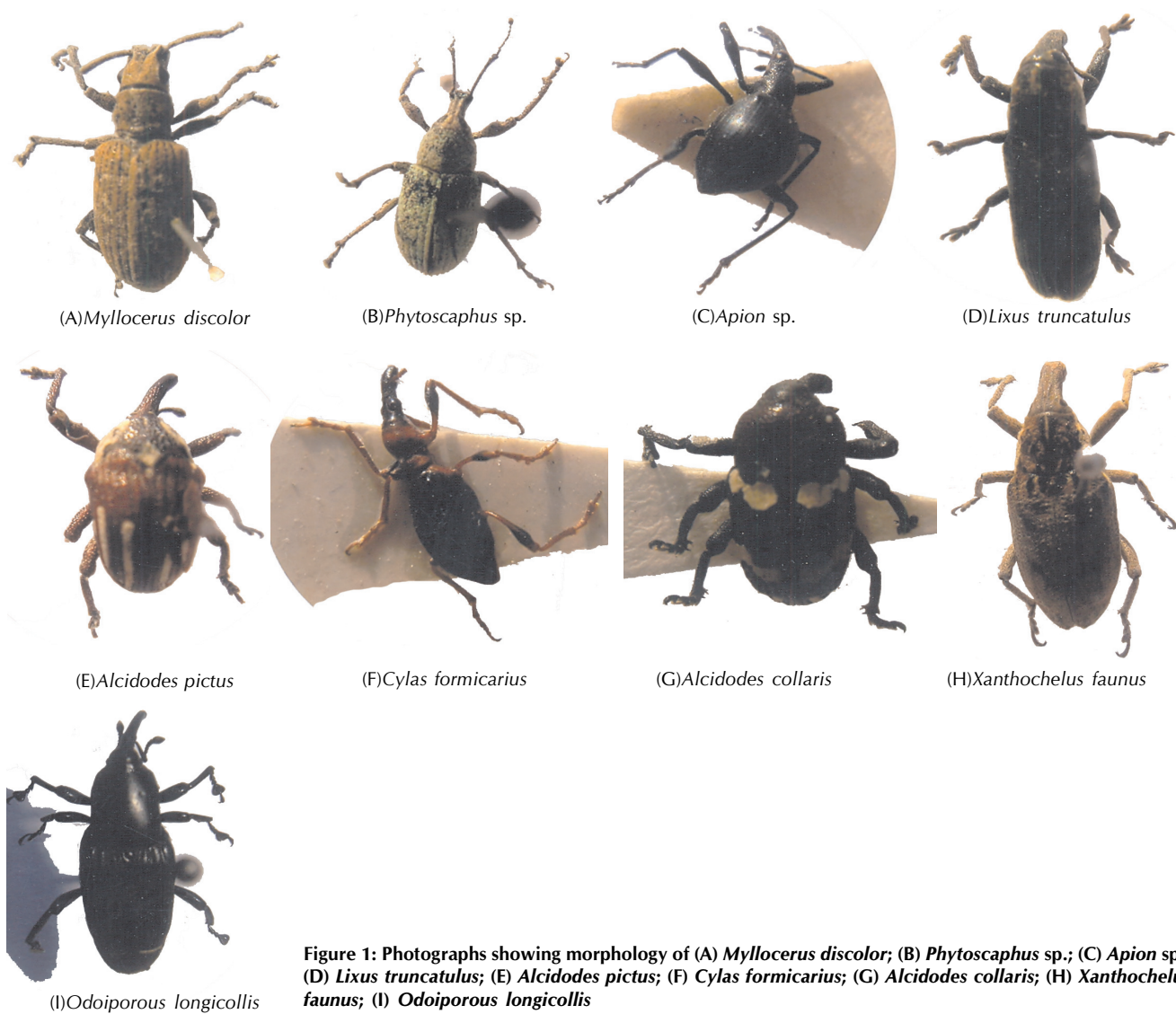
The region was surveyed fortnightly to record the diversity of weevils along with their host plants. The adult weevils were collected by traditional methods viz., hand nets, hand picking, stem beating etc. The collected insects were killed by using ethyl acetate in killing bottles. The killed specimens were then pinned, stretched and labelled. Finally the specimen were oven dried for about an hr at 35-40°C to avoid fungal infection. The specimen were then stored in fumigated boxes containing naphthalene balls / paradichlorobenzene for subsequent identification and morphological studies.

## RESULTS AND DISCUSSION

### *Cylas formicarius*:

**Distribution:** Punjab (Trehan, 1957), South India (Fletcher, 1914), Samba: Naran, Rajpura, Sagal, Kutah.

**Adult description:** Adult slender, 5-6mm in length with a conspicuous snout and prominent eyes. Antennae geniculate, ten segmented and last segment forms an elongated club which is longer than all the segments put together. Club is longer in males which makes antenna longer in males than females. One third of the body (rostrum, elytra and abdomen) is dark blue or bluish black. Head, thorax and legs are reddish brown. Prothorax is glabrous and constricted from behind,



**Figure 1: Photographs showing morphology of (A) *Myllocerus discolor*; (B) *Phytoscaphus* sp.; (C) *Apion* sp.; (D) *Lixus truncatulus*; (E) *Alcidodes pictus*; (F) *Cylas formicarius*; (G) *Alcidodes collaris*; (H) *Xanthochelus faunus*; (I) *Odoiporus longicollis***

scutellum absent, body flattened laterally, femora clavate, rostrum and elytra finally punctuate. Legs are similar in size and structure.

**Host plant:** Sweet potato, green chillies, Okra leaves.

***Alcidodes pictus*:** Curculionidae, Alcidinae, Alcidodini.

**Distribution:** South India (Ayyar and Ramakrishna, 1922) New Delhi (Butani, 1980); J & K: Poonch and Rajouri (Azam, 2007); Samba: Khowara, Naran, Sagal, Rajpura.

**Adult description:** Adult body medium sized 7.5-8mm, reddish brown with black snout. At the posterior margin of snout is present a white spot just anterior to scutellum. Two pairs of longitudinal white strips are present on posterior half of elytra. Anterior lateral margin of elytra has one white longitudinal incomplete stripe. Head small prolonged anteriorly into cylindrical snout. Geniculate antennae arise laterally from the middle of snout laterally. Scape elongate narrow at the base and broad at the apex. Six segments of funicle prominent covered with white hairs. Eyes black, prominent present at the base of rostrum. Pronotum black,

elytra with longitudinal grooves and pits. Legs similar in structure and size. Femur with prominent ventral tooth. Tarsi four segmented with two curved claws.

**Host plant:** *Vigna* sp.

***Alcidodes collaris*:** Curculionidae, Alcidinae, Alcidodini.

**Distribution:** New Delhi (Lefroy, 1909); Karnataka (Butani, 1980); South India (Fletcher, 1914); Jammu and Kashmir: Poonch and Rajouri (Azam, 2007); Samba: Sagal, Khowara, Naran, Trelia.

**Adult description:** Body medium sized, 9mm in length, Pronotum brown, head, snout, antenna, legs and elytra black. Antenna geniculate, narrow at the base. Head small produced into a cylindrical rostrum narrow at base and broader at the tip. Eyes black, depressed present at the base of rostrum. Elytra prominent, legs black, femur large, stout with femoral spine on the ventral side. Tibia elongated, cylindrical with two curved tibial spines. Tarsi four segmented and last segment with curved claw.

**Host plant:** Green chilly leaves and lady finger leaves.

**Xanthochelus faunus:** Curculionidae, Ixinae, Cleoninae.

**Distribution:** North East Himalaya (Lefroy, 1909); Uttar Pradesh (Gupta, 1980); Jammu and Kashmir: Poonch (Azam, 2007); Rajouri (Iqbal, 2010); Samba: Kootah, Sagal, Khandwal, Rajpura.

**Adult description:** Adult large sized 9-18mm in length. Female slightly larger than male and has broader abdomen and dark brown snout. Head prominent, bearing mandibulate type of mouth parts at the tip. Black eyes placed at the base of snout on either side. Thorax longer than broad, narrow anteriorly and broader posteriorly bearing three rows of pale yellow hairs. Elytra well developed covering entire abdomen and having fine light yellow hairs. Legs similar in size and structure. Coxa large, globular, trochanter very small, femur long, broader in the middle, tibia short, thin, slender, tarsi four segmented with grayish-yellow hair present throughout. Abdomen five segmented. Adults respond quickly to even a slight disturbance and fall on the ground with ventral side upwards which camouflages exactly with the dry leaves or ground.

**Host plant:** Ber (*Zizyphus mauritiana*) and *Saussurea heteromala*

**Apion** sp.: Apionidae: Apioninae: Apionini

**Distribution:** Jammu and Kashmir, Poonch and Rajouri (Azam, 2007); Samba: Sagal, Naran, Khowara, Rajpura, India: Coimbatore and South Coast (Ayyar and Ramakrishna, 1922); Godavari, South Bellary (Fletcher, 1914).

**Adult description:** Oval and dark black body, tapering anteriorly, broad rounded, posteriorly. Head small produced anteriorly into snout. Mandibulate mouth parts present at the tip of snout. Eyes black, prominent bulged present at the base of snout. Antennae clubbed with minute hair. Thorax longer than broad and narrow anteriorly. Elytra oval, closely applied and covers the entire abdomen. Abdomen black, oval and dorsally bulged. Legs almost similar clothed with shining white hairs. Femur strong narrow at the base broader at centre. Tarsi four segmented, with two prominent claws in each leg.

**Host plant:** *Tridax procumbens*, *Vigna radiata*, *Sesamum* sp., *Quercus leucotrichophora*, Oak.

**Odoiporus longicollis:** Rhynchophoridae: Rhynchophorinae: Rhynchophorini

**Distribution:** Jammu and Kashmir: Poonch and Rajouri (Azam, 2007); Samba: Rajpura, Khowara. India: Tamil Nadu (Padmanaban *et al.*, 2001) Kerala (Vaisalakshi *et al.*, 1989); Manipur (Prasad and Singh, 1989; Mathew *et al.*, 1997).

**Adult description.** Adult robust, both reddish brown and black coloured, measuring 18-18.5mm in length and 6-6.5mm in breadth. Head produced in front into a very long and pronounced rostrum bearing mandibulated mouth parts at the tip. Genuiculate antennae originate from the base of snout. Eyes prominent and faceted. Elytra prominent firmly applied with abdomen leaving last segment uncovered which is naked. Legs similar in size, covered with hair and ending into claws.

**Host plant:** Both larvae and adults feed on banana plants (*Musa* sp.) causing severe damage to the pseudostem forming galleries of various shapes. The plant turns yellow and finally dies of severe damage

**Lixus truncatulus:** Curculionidae: Lixinae: Lixini

**Distribution:** Jammu and Kashmir: Poonch and Rajouri (Azam, 2007); Samba; Naran, Rajpura, Khowara. India: Dehradun and Kolkata (Ahmad, 1939); New Delhi (Phogat *et al.*, 1994).

**Adult description:** Adults are dark brown with white hairs and 11 mm in size. Head prognathous, greatly extended into rostrum bearing mandibulate type of mouth parts at the tip. Located at the base of rostrum on either side is pair of black eyes. Antenna genuiculate and 14 segmented. Elytra prominent, covering the abdomen completely. Pits on pronotum and elytra are arranged into longitudinal rows. Grooves on lateral sides arranged longitudinally covered with dense white hairs. Legs of similar size, tarsi four, first three bearing hairy pads and fourth elongated bearing two ventrally curved pointed claws. On being disturbed, it falls on the ground with ventral side upwards, which being dirty white matches exactly with ground colour.

**Host plant:** Polyphagous pest and its grubs form galls in the stem of *Amaranthus* sp. While the adults have been recorded to feed on various species of *Amaranthus* besides, on large variety of other host plants.

**Myllocerus discolor:** Bohemann: Curculionidae: Entiminae: Myllocerina

**Distribution:** Punjab, Bengal, Orissa and Hazrapur (Marshall, 1916); Assam, Himachal Pradesh, Jammu and Kashmir, Karnataka, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, Myannar and Srilanka (Ramamurthy and Ghai, 1988), Poonch and Rajouri (Azam, 2007), Samba: Samba, Sagal, Muthi, Naran, Khowara, Rajpura.

**Adult description:** Body brown/black colored head produced into rectangular snout bearing 12 segmented, genuiculate antenna laterally. Antenna 12 segmented, the first being the longest. Eyes black, prominent, present laterally at the base of rostrum. Elytra prominent covering the abdomen completely and covered by green scales completely. Legs are similar in size, bear white hairs and a pair of claws at the tip. Legs are covered by brownish hairs and scales. Mesothorax rectangular and hairy.

**Host plant:** Ber (*Zizyphus mauritiana*), *Tridax procumbens*.

**Phytoscaphus** sp. Curculionidae: Entiminae: Cephicerini.

**Distribution:** Jammu and Kashmir: Poonch (Azam, 2007); Samba: Khowara, Rajpura.

**Adult description:** Adult weevil 7.5-8mm in size. Head produced anteriorly into a snout, broader at the tip, bearing genuiculate antennae laterally. Antennae 12 segmented, first segment being the longest. Eyes black, prominent present laterally at the base of rostrum. Elytra prominent covering the abdomen completely and covered by green scales completely. Legs are similar in size and structure, tarsi four segmented bearing two claws at the tip. Legs are covered by brownish hairs and scales.

**Host plant:** *Trifolium* sp.

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