

**STAPHYLINIDAE, SCARABAEIDAE, DERMESTIDAE AND
CURCULIONIDAE (INSECTA: COLEOPTERA) FIRST RECORD,
FROM KARGIL (LADAKH), J&K-INDIA**

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ABSTRACT: Kargil is one of the two districts of Ladakh region known as Cold desert of the country (India) and falls in the Transhimalayan Mountain system. This study is the very first attempt to study Staphylinidae (Rove beetles), Scarabaeidae (dung beetles), Dermestidae (carpet beetles) and curculionidae (weevils) from Kargil district. A total of 6 Taxa belonging to 4 different families were recorded and described for the first time from the area under study.

KEY WORDS: Coleoptera, High Altitude, first record, Kargil.

Insects especially the beetles (Order: Coleoptera) was studied throughout the world on large basis as it is the largest order among the insects comprising 3,50,000 species world wide and comprises the major component of the world's biodiversity. Over one and a half million living and about 12,000 species of fossil insects have been identified and described all over the world (Uniyal, 2001). About 1,5088 species of beetles are known from Indian region (Kazmi & Ramamurthy, 2004). Nearly one tenth of the insect species are still unidentified. Several species are believed to become extinct without even being identified. The adaptability of the coleopterans to a wide variety of dietary habits coupled with their generally hidden nature has also led to the invasion of many specialized habitats such as fungus and decaying vegetation, carrion and dung. The fact that helps the coleopterans to exploit these with perhaps greater efficiency than even the flies is that both larval and adult beetles tend to live and feed in the same place. Economically, beetles are pests of many agricultural, forestry, and household insect. *Altica* species was found to be a serious pest of *Salix* species (Pandey et al., 2007) in cold arid region of ladakh. Cerambycids e.g., *Batocera rufomaculata* (Tara, 1983), *Aeolesthes holosericea* (Gupta, 2007) are the other major group of pests attacking Mulberry and Apple plants in Jammu region, *Scolytus nitidus* Schedl (Scolytidae) (Buhroo & Lakatos 2007) a pest attacking apple trees in Kashmir. Weevils cause a considerable damage to wild as well as cultivated plants by feeding on them (Tara et al., 2009; Azam et al., 2010). Not all beetles are pests, some groups of beetles are beneficial such as larvae and adults of some ladybird (Family Coccinellidae) feed on scale insects, mealy bugs and aphids. In case of scarcity of food they may feed on small caterpillars, young plant bugs, honeydew and nectar. Ground beetles (Family Carabidae) are common predators of many insects and other arthropods, including fly eggs, caterpillars, wireworms and others. Beetles of the Dermestidae family are often used in

taxidermy to clean bones of remaining flesh. Very few workers have worked on the high altitude entomology such as Von Hugel, Kollar & Redtenbacher (1848), Colonel Stoliczka, Singh (1983), M. S. Mani (1954), Mani & Singh (1955), Mani (1962), Khan & Sahni (1978), Kulshrestha (1978), Uniyal & Mathur (1998, 2000), Uniyal (1999), Uniyal et al. (2001), Maheshwari (1989), Pandey et al. (2007), Tara & Feroz (2009) and Feroz & Tara (2010).

Thus, keeping in view the importance of beetles as well as the lack of literary evidence of the particular group in the area under study, the present work was initiated in district Kargil.

MATERIALS AND METHODS

Area of Study: The study area located in Ladakh region of the J&K State at an altitudinal range of 2,636 meters above sea level lying in between 34°36' North Latitude and 76°06' East Longitude. Topography variable, ranging from 2,636 meters up to 7,135 meters, comprises of a maze of valleys. Most of the area is barren with high slopes ranging from 60-80%. Only areas with water sources and human habitation are seen with good amount of vegetation. Average rain fall is very low and mostly in the form of snow during winter months. The study area experienced both arctic and desert climate and commonly known as "Cold Desert" of the country. The vegetation cover of the area under study comprises of Agricultural Land, Forest Trees (Poplar sp. and Salix Sp.), Herbs, Shrubs and Grasses.

Collection and Identification: In order to ensure maximum catch of Beetles from various habitats, wide variety of collecting and trapping methods were used such as hand collection, butterfly nets were used for flying beetles, Light traps, visual observation and collection using forcep etc. After collection the insects were killed by using ethyl acetate either in the killing bottle or by introducing cotton balls dipped and subsequently squeezed in ethyl acetate in closed polythene bags. After killing the beetles were pinned/cardened, stretched and dried in oven. The killed specimen were sent to Entomological section IARI, New Delhi for identification. The insects were photographed using Sony Cyber Shot T-30 Digital Camera with Macro option and 8MP picture quality.

Sampling: Random sampling of the area was done from Agricultural land, herbs, Shurbs, Forest Trees (Salix sp. & Poplar sp.) & River banks, Area predominant with Alfalfa fields and wheat fields.

RESULT

During the study a total of 6 taxa under 4 families, 5 subfamilies and 6 tribes were recorded and their characteristic features were described in details. They are listed below.

FAMILY STAPHYLINIDAE (ROVE BEETLES)

***Creophilus maxilosus* Linnaeus 1758 (Figs. 1a-d)**

Material examined: 4 ex. 04.iv.2007, 10.iv.2008, 03.v.2007.

Host: Found on decaying carcasses all over the Hawaiian Islands (Blackburn & Sharp (1885); Nishida (1994) (c.f. Newton, 1997). In the study area found running on ground covered with alfalfa plant.

Distribution: Northern Iceland (Gudleifsson & Bjarnadottir, 2002), Louisiana (Watson, 2004), New Zealand (Leschen et al., 2003), Hawaii (Newton, 1997). In

the area of study recorded from Poyen and Kurbathang area at altitudinal range of 2,626 m to 2,878.78 m.

Size: Length 17.0 mm and breadth 5.0 mm. **Shape:** Elongated and parallel sided. **General Body Colour:** Black with white patch of hairs. **Head:** Prognathus, large, slightly convex dorsally, flattened ventrally, finely punctate, pubescent marginally, glabrous centrally, two supra orbital setae one on each side, at base slightly constricted forming a small neck, clypeus small and yellowish. **Eyes:** Black, large, flat, oval, dorsal, slightly towards anterior end. **Antennae:** Clubbed (clavate), pubescent; 11 segmented, segments variable, scape large with constricted base and broad apex, pedicel and 1st flagellar segments similar to scape but small, 2nd to 4th flagellar segments spherical, 5th to 8th slightly disc shaped and large, last segment small and pointed; antennae inserted under clypeal ridge in front of eyes. **Mouth parts:** Labrum small with apical fringe of hairs; mandibles large, sickle shaped, produced in front and placed across each other; maxilla with three segmented maxillary palp; labium small with three segmented labial palp. **Thorax:** Pronotum punctate, punctures prominent, hairs marginally with glabrous centre, broader anteriorly, slightly narrow posteriorly with round ends, anterior end slightly sinuate, antero lateral margins obtuse and proclinate. Scutellum large, pubescent, black, triangular with pointed tip. Ventrally prosternum small, transverse, punctate, pubescent, slightly raised in the middle, anterior margin straight; mesosternum punctate, pubescent, posteriorly rounded; metasternum large, densely pubescent, raised, sinuate posteriorly. **Legs: Pro-thoracic legs:** Coxa large, stout, conical, punctate and pubescent; trochanter small, pubescent, punctate, attached completely to base of femur; femur long, punctate, pubescent, stout, broad at base, narrow apically with groove; tibia large, broad apically, basally constricted, pubescent, punctate, fringe of spines present apically as well as marginally, tibial spurs large and apical; tarsi broad, 5 segmented, 1st to 4th segment decrease in size gradually, lobed, pubescent, ventrally tuft of pale hairs, laterally setate, last segment enlarged, pubescent, claws apical. **Meso-thoracic leg:** Coxa comparatively small, dorso ventrally flattened, pubescent and grooved; trochanter small, slightly triangular, pubescent, attached to base of femur obliquely; femur large, stout, pubescent, broad at base, narrow apex, slightly curved dorsally; tibia long, cylindrical, pubescent, spinose, two prominent tibial spurs; tarsi 5 segmented, pubescent, 1st segment large, intervening segments decrease gradually in size, claws apical. **Meta-thoracic leg:** Coxa small, globular, pubescent; trochanter small, slightly triangular, pubescent, attached obliquely to femur; femur long, cylindrical, almost parallel, basal end oblique, tibial groove present; tibia long, constricted at base, broad apex, pubescent, spinose, tibial spur prominent and ventral; tarsi 5 segmented, pubescent, 1st and last segment large, intervening segments gradually decrease in size, setose ventrally, claws apical. **Elytra:** Very short, truncate, exposing six abdominal terga, pubescent (patch of pale hairs present slightly towards posteriorly), punctate, humeral angles obtuse, hind wing present and completely folded under elytra. **Abdomen:** Exposed dorsally, 6 segmented, pubescent (hairs black and pale coloured), slightly broad in the middle; 6th segment small, rounded, two apical bunch of hairs forming bifurcated tail; pleura slightly raised than terga thus forming a depression on the sides; ventrally 6 abdominal sterna visible, 1st to 4th covered by pale hairs, 5th and 6th by black hairs, last segment small.

FAMILY: SCARABAEIDAE (DUNG BEETLES)***Melolontha furcicauda* (Ancy) (Figs. 2a-d)**

Material examined: 2 ex. 05.vii.2007, 21.vii.2008.

Distribution: Outside India reported from China (Chandra & Uniyal, 2007). In India reported from Himachal Pradesh and Kashmir (Chandra & Uniyal, 2007). During the present study recorded from Poyen and Kurbathang area of Kargil district at an altitudinal range of 2,636.36 m to 2,878.78 m. Uniyal (2001) collected *Melolontha bifurcicaudata* from Diskit at 3,000-3,200 m.

Size: Length 34.0 mm and breadth 16.0 mm. However Chandra & Uniyal (2007) recorded 32.0 mm in length and 15.0 mm in breadth of *Melolontha bifurcicaudata*.

Shape: Elongate and convex. **General Body Colour:** Reddish brown, covered all over with pale white scales; pronotum and head dark brown.

Head: Closely setose, densely and unevenly punctate, broad at the base with a rectangular apex; clypeus rectangular, anterior margin extending upward and backward in the middle with slightly raised lateral margins. **Eyes:** Large, prominent, spotted, latero ventrally towards the base of the head capsule.

Antenna: 10 segmented, flabellate, brown, club seven segmented, long and sheet like, arising in front of the eyes beneath the frons; scape dark brown, narrow at base with a bunch of setae on the posterior margin; pedicel small with few setae, 1st segment of flagellum with narrow base and broader apex, setae on anterior margin. **Mouth parts:** Labrum large, indented and setose; mandibles dark brown; maxilla setose, four segmented maxillary palps with last segment large and pointed at the tip; labium setose with three segmented short labial palps.

Thorax: Pronotum large, dark brown, broad at base and slightly narrow anteriorly, finely punctate, scales present densely on sides and sparsely in the middle, antero lateral angles pointed, lateral margins greatly rounded and notched at intervals with setae in each notch, postero lateral angle also pointed, anterior margins slightly sinuate but the posterior angle strongly sinuate. Scutellum small, dark brown and triangular. Ventrally pro, meso, and metasternum completely covered by long golden silky hairs which are more on sides of metasternum than in the middle, metasternum unevenly punctate. **Legs:** Legs different in size and shape provided with pale scales. **Pro-thoracic leg:** Coxa, trochanter and femur punctate and covered by fine and long hairs; tibia long, tridentate, teeth becoming progressively longer towards apex, tibial spur apical; tarsi 5 segmented with toothed apical claws. **Meso-thoracic leg:** Coxa and trochanter covered by dense fine and long hairs; femur long, cylindrical covered by dense, long and fine hairs; tibia almost parallel, cylindrical with transverse ridges provided with spines, single row of fine hairs on the posterior margin, two apical tibial spurs present, apex with fringe of spines unequal in length; tarsi 5 segmented with toothed apical claws. **Meta-thoracic leg:** Coxa produced horizontally, narrow and extends posteriorly, provided with dense hairs; trochanter small, roughly triangular, setose; femur long, stout, broad and convex anteriorly, slightly concave posteriorly, covered by fine and long hairs; tibia long, slightly narrow basally, punctate with two apical tibial spurs; tarsi 5 segmented with toothed apical claws. **Elytra:** Hard, brown, flat and densely covered by scaly intervals which are raised and narrow, antero lateral angles obtuse, lateral margins parallel, does not cover whole of the abdomen.

Abdomen: Broad at base, constricted posteriorly, ventrally dark, covered with pale scales, 6 abdominal sternum visible, 1st four segments long, narrow, 5th segment slightly small and broad, last segment roughly triangular, pygidium long and projected behind into a bifurcated tail.

Aphodius Illiger, 1798 (Figs. 3a-d)

Material examined: 10 ex. 18.iv.2007, 04.ix.2008.

Distribution: Outside India from Brazos county, Texas (Blume & Aga, 1979), Central Uruguay, South America (Moreli & Gonzalez-vainer, 1997), Western Rhodopes, South-Central Bulgaria (Lobo et al., 2007), New Zealand (Leschen et al., 2003), Nebraska, Lincoln (Ratcliffe, 1988; Paulsen, 2006), Italy, Alps and the Apennines, Central Europe, Northern Spain to Caucasus, Northern Europe, Siberia upto Vladivostok, Southern Europe, North America, Australia, Lesser Asia, North Africa, Central Asia and Sardina (Borghesio et al., 2001), Kamenyuki, Brest province, Belarus, Minsk suburbs, Domzheritr, Vitebsk province, Usha-Aral, South Kazakhstan, Korfovskiyui, Khabarovsk territory, Russia, Kolochava, Carpathian Mountains, Ukarine (Frolov & Akhmetova, 2006), Ceylon, Transvaal, East Africa and Madagascar (Bose, 1953). Bose (1953) also reported it from India. During the present study reported from Poyen area of Kargil district at an altitudinal range of 2,636.36 m to 2,727.27 m where as, Borghesio et al. (2001) collected from altitude ranging from 900 m to 2,800 m.

Size: Length varies from 6.0 to 6.5 mm and breadth from 2.0 to 3.0 mm. However Medvedev, 1964 and Dellacasa, 1983 (c.f. Frolov and Akhmetova, 2005) recorded average length of Palearctic *Aphodius* species from 2.5 mm to 20.0 mm, Borghesio *et al.* (2001) studied 19 different *Aphodius* species and recorded size from 3.5 to 13 mm in length, Ratcliffe (1980) measure length 4.7 mm of a new *Aphodius* species. **Shape:** Elongate, widest in the middle and slightly convex.

General Body Colour: Head, pronotum and elytra dark brown ventrally; pronotal margins, elytral suture, legs, abdomen and antennae light brown. **Head:** Clypeus angulate, narrow on sides, median emargination, angulations pointed, margins indent, surface tuberculate; fronto clypeal suture obsolete, frons punctate with three weakly developed ridges. **Eyes:** Small, black, situated laterally towards the base of head capsule, dorsally covered by pronotum and can be seen ventrally.

Antenna: Small, segmented, lamellate (3 segmented); lamella pubescent.

Mouth parts: Labrum, mandibles not visible, maxillary palps large; labium large, punctate, long hairs present; labial palps small, 3 segmented not extending beyond clypeus anteriorly. **Thorax:** Pronotum sub-rectangular, lateral margins slightly convex, postero lateral margin obtuse, surface densely punctate, punctures everywhere, mixed fine and large, weakly explanate. Scutellum small, triangular and punctate. Ventrally prosternum narrow, prosternal lobe weakly developed, anterior and posterior margins provided with fine, long hairs; mesosternum roughly triangular, punctate; metasternum large, punctate, pubescent anteriorly, slightly directed outward. **Legs: Pro-thoracic leg:** Coxa large, broad, almost equal to femur in length, punctate, punctures fine, hairs present; trochanter small, with few punctures; femur stout, punctate, flat anteriorly and broad with converging apex, pubescent anteriorly; tibia impunctate, tridentate; protibial spur long, robust, bent externally at apex, postero lateral rows of setae present; tarsi narrow, cylindrical, 1st segment small, last segment large, claws apical, each tarsus with apical setae. **Mesothoracic leg:** Coxa large, flat, broad in the middle, ends converging comprised a patch of hairs latero ventrally; trochanter small; femur broad basally, narrow apex, slightly flattened dorso ventrally, finely punctate; tibia short, broad, distinct transverse apical ridges present provided with fringe of spines unequal in length, apical fringe of spines, short apical spur; tarsi narrow, 1st segment large, intervening segments gradually becomes small, last segment enlarged, claws apical. **Metathoracic leg:** Coxa large, rectangular, punctate and finely pubescent; trochanter small, broad at base; femur broad, stout, dorso ventrally flattened, provided with few setae; tibia large, narrow basally, distinct

transverse ridges, two apical spurs, apical fringe of unequal spines also present; tarsi 5 segmented, 1st segment large, 2nd to 4th gradually becomes small, last segment enlarges, claws apical. **Elytra:** Shining, alutaceous, intervals regularly punctate, punctures fine, shallow, striae moderately impressed, moderately punctate, punctures as wide as striae, sides parallel in basal third, converging posteriorly, ends rounded, suture complete. **Abdomen:** Small, broad basally, tapering end, 6 visible abdominal sterna, finely punctate, finely pubescent on both sides, 1st segment covered by coxa, last sternum small, slightly triangular.

FAMILY : DERMESTIDAE (CARPET BEETLES)

***Anthrenus* Muller, 1764 (Figs. 4a-d)**

Material examined: 5 ex. 25.vi.2007, 15. Vi.2008.

Host: *Cherophyllum reflexum* in the area of study. However found feeding on pollen and nectar of flowers in nature (Ayappa et al., 1958; Blake (1959); Woodroffe & Southgate 1955), it also feeds on hairs, feathers, bristles, fur, horn and tortoise shell (Hinton, 1945) (c.f. Hassan et al., 2007). **Distribution:** Recorded throughout the world (Anon, 2003), United States, Algeria, Spain, Greece, Southern Russia, Mesopotamia and the East Indies (Back, 1931), Sudan (Annon, 1918) c.f. Hasan et al. (2007), from South Carolina to Eastern Texas, Pennsylvania ad Southern Illinois, Foo Chow, China, England, Canada, Alabama, Colorado, Utah and Oregon (Beal, Jr., 1983), Bangladesh (Hasan et al., 2007), New Zealand (Leschen et al., 2003), South Africa, Namibia, Zimbabwe (Kadej & Hava, 2006). India (Cotes, 1980) c.f. Hasan et al. (2007). In the area of present study reported from Poyen area at an altitude ranging from 2,636.36 m to 2,727.27 m.

Size: Length varies from 3.0 to 4.0 mm and breadth 2.0 to 2.5 mm. However **Hasan et al. (2007)** recorded 3.00 to 3.50 mm (3.22±1.02 mm) in length and 2.00 to 2.50 mm (2.20±0.69 mm) in breadth. **Shape:** Elongate, oval. **General Body Colour:** Brownish black covered with scales forming patterns of white, yellow and brown. **Head:** Hypognathus, small, retracted into prothorax, triangular, covered with scales in between eyes. **Eyes:** Large, prominent, entire, present on either side of head towards the base of head capsule. **Antenna:** 10 segmented, short, brown, capitate, fitting into sharply defined cavity on hypomeron. **Mouth parts:** Labrum small, black, pubescent, punctate, without scales; mandibles small, black; maxilla small with short maxillary palp; labium small with short labial palp. **Thorax:** Pronotum transverse, covered with yellow, dark brown and white scales, broad posteriorly, antero lateral margin deflexed; posterior margin produced into a median lobe almost covering scutellum. Scutellum very small, black, triangular covered by pronotum and only a small portion is visible. Ventrally prosternum transverse, narrow, covered by white scales, posteriorly prosternal lobe extends behind between the fore coxa, mesosternum small, emarginated and covered by scales; metasternum large, finely punctate, shield like, raised in the middle with longitudinal groove and covered by white scales. **Legs: Pro-thoracic leg:** Coxa large, oval, slightly curved backward, covered with white scales; trochanter small, covered with white scales; femur large, cylindrical, grooved, dark brown, covered with both dark brown and white scales; tibia long, narrow, spinose, brown, without scales; tarsi 5 segmented, small, last segment long, claws apical. **Meso-thoracic leg:** Coxa small, completely covered with scales; trochanter small, also covered with scales; femur large, broad at base, narrow apically, grooved, covered with scales; tibia long, constricted at base, spinose (small spines), brown; tarsi 5 segmented, claws apical. **Meta-thoracic leg:** Coxa large, transverse, covered with white scales;

trochanter small, covered with white scales; femur large, long, broad at base, slightly narrows apically; tibia long, narrow, spinose; tarsi 5 segmented, claws apical. **Elytra:** Short, not covering whole of the abdomen, covered completely with dark brown, yellow and white scales, patches of yellow scales present anteriorly and posteriorly, a patch of white scales present almost mid dorsally surrounded from both sides (anterior and posterior) by dark brown scales, suture complete, antero lateral angles obtuse, sides parallel in the anterior 1/3rd and slightly constricted posteriorly. **Abdomen:** Pygidium pointed and pubescent, without scales, ventrally five sternum visible, basal sternite broad with postcoxal line, covered with scales, apical sternite small with round end, a patch of dark brown scale at middle of posterior margin of apical sternite, all the sternites covered with white scales.

***Dermestes* Linnaeus, 1758 (Figs. 5a-d)**

Material examined: 2 ex. 11.vi.2007, 06.v.2008.

Host: In normal conditions found feeding on pollen and nectar of flowers in nature (Ayappa et al., 1958; Blake, 1959; Woodroffe & Southgate, 1955). Also feeding on hairs, feathers, bristles, fur, horn and tortoise shell (Hinton, 1945) c.f. Hassan et al. (2007). Distribution: Recorded from New Zealand (Leschen et al., 2003). During the study reported from Kurbathang area at an altitudinal range of 2,757.57 m to 2,878.78 m.

Size: Varies from 7.0 to 8.0 mm in length and 3.0 mm in breadth. **Shape:** Elongate, elliptical and hairy. **General Body Colour:** Dark brown with golden yellow, black and white hairs. **Head:** Hypognathus, small, roughly triangular, punctuate, pubescent (golden yellow), clypeus with apical fringe of hairs. **Eyes:** Large, globular, black, lateral, towards the base of the head capsule. **Antenna:** 10 segmented, brown, capitate, club, 3 segmented, large, pubescent; scape large, punctate, intervening segments small with very few hairs, apical segment pointed. **Mouth parts:** Labrum small, punctate, pubescent; mandibles black, pubescent, with pointed black tip; maxilla brown, small, with 3 segmented small maxillary palp; labium small, pubescent, with very short labial palp. **Thorax:** Pronotum broad punctate, pubescent (golden yellow and black), anterior end deflexed gradually from centre towards sides, antero lateral margin greatly deflexed, posterior margin sinuate. Scutellum small, pubescent (white hairs). Ventrally prosternum punctate, pubescent (black hairs), centrally narrow with broad sides, prosternal lobe extends between fore coxae; mesosternum small, with lobe extending behind between mid coxae, pubescent (dense white hairs); metasternum large, shield like, covered by dense white hairs, anterior margin sinuate with a lobe extending upward between mid coxae, posterior margin slightly straight. **Legs:** **Pro-thoracic leg:** Coxa conical, pubescent, black, large with apical fringe of hairs; trochanter small, pubescent; femur large, broad at base, narrow apex, grooved, pubescent; tibia long, narrow, setose, tibial spurs small, apical and black; tarsi 5 segmented, last segment large, claws apical and together. **Meso-thoracic leg:** Coxa globular, pubescent (white apical, black basal); trochanter small, triangular, pubescent (patch of white hairs apically); femur long, broad at base, narrow apex, pubescent (white patch of hairs, transverse and middle), grooved; tibia long, narrow basally, apex broad, setose, apical fringe of setae, spur apical; tarsi 5 segmented, pubescent, last segment large, claws apical. **Meta-thoracic leg:** Coxa large, flat ventrally, slightly triangular, pubescent (white hairs); trochanter small, slightly triangular, densely covered with white pubescence; femur large, broad at base, narrow apex, stout, a patch of white transverse hairs in the middle; tarsi long, pubescent, setose bears

apical fringe of setae, spur apical; tarsi 5 segmented, last segment large with apical claws. **Elytra:** Long, covering whole of the abdomen dorsally, pubescent (basal small portion golden brown, rest with white and black hairs), suture complete, lateral sides parallel, slightly constricted apically with round apex and slightly separated. **Abdomen:** Long, broad basally, narrow apex, 5 visible abdominal sternites, basal segment large with median patch of white hairs along with black marginal hair, 2nd, 3rd and 4th segment with small patch of black hairs marginally with median white hairs, 5th segment slightly triangular and completely covered by black hairs.

FAMILY: CURCULIONIDAE (WEEVILS/ SNOUT BEETLES)

***Hypera postica* (Gyllenhal) 1813 (Figs. 6a-d)**

Material examined: 10 ex. 18.iv.2007, 21.vi.2008.

Host: Alfalfa (*Medicago sativa*) however, Weiss & Gillot (1993) found *Hypera* species on red clover, *Trifolium pretense* L., in North eastern Saskatchewan, the weevil mainly infests legumes (Essig & Michelbacher, 1933), it is rarely of economic importance in its original range (Clausen, 1977; Essig & Michelbacher, 1933, c.f. Shoubu et al., 2005), Chinese milk vetch, *Astragalus sinicus* L. (Shoubu et al., 2005). In addition to alfalfa, host plants include white clover, red clover, bur clover, yellow sweet clover, white sweet clover, and a few other clovers. However alfalfa is the preferred host and economic damage to other crops is very rare.

Distribution: The genus *Hypera* reported from Saskatchewan, Canada (Weiss & Gillot, 1993), world wide (Blatchley & Leng, 1916; Rockwood, 1920; Markula & Timila, 1956; c.f. Weiss & Gillot, 1993), Kansas, Asia (Clausen, 1977). In the US, this weevil was first discovered in Utah in 1904 (Titus, 1910); c.f. Shoubu et al. (2005), United States (Alfalfa production handbook, 1998). In the area of study found from Poyen and Kurbathang area of Kargil district at an altitudinal range of 2,636.36 m to 2,878.78 m.

Size: Varies from 4.0 mm to 6.0 mm in length and 2.0 mm to 3.0 mm in breadth. However, 5.0 to 6.0 mm has also been recorded from other parts of the world.

(http://ipm.ncsu.edu/ag271/forages/alfalfa_weevil.html). **Shape:** Oblong, convex and heavily pubescent. **General Body Colour:** Brown to blackish with three clear bands formed of bifid scales. Newly emerged weevil is light brown with a distinct, dark line down the center of its back. After few days, it becomes entirely dark brown or black, (http://ipm.ncsu.edu/ag271/forages/alfalfa_weevil.html).

Head: Prognathus, punctate, densely pubescent, longer than pronotum; elongate in front into a long, slender, almost straight brown snout, rostrum at the junction of eyes slightly narrow, basally head globular, lateral scrobe on rostrum. **Eyes:** Large, laterally at the base of rostrum. **Antenna:** Brown, 11 segmented; geniculate with compact three segmented, densely pubescent club; scape large, sub apical reaching to the middle of eyes. **Mouthparts:** Labrum indistinguishable, mandibles not usually toothed on outer edge; maxilla with lacinia and galea fused to form mala, 2-3 segmented very short and rigid palpi, often entirely concealed. **Thorax:** Pronotum broad near the middle, lacks lateral carina, post ocular lobe absent, emarginated anteriorly, smoothly deflexed laterally, provided with three long stripes of bifid golden scales (two lateral and broad, one median narrow) along with two brown stripes one on either side of median stripe. Scutellum very small and completely covered over by scales. Ventrally prosternum small, transverse, deeply emarginate anteriorly, pubescent, bifid golden scales, prosternal lobe small; mesosternum large, punctate, pubescent, mesosternal lobe densely pubescent, extends backward between mid

coxae; metasternum large, shield like, raised in the middle, grooved behind anterior coxal margin, densely covered with bifid scales. **Legs: Pro-thoracic leg:** Coxa slightly conical, covered by bifid scales, brown; trochanter small, triangular with bifid scales; femur short, stout, broadest in middle, dilated in apical half, narrow at base, excavate, densely pubescent; tibia long, sub cylindrical, pubescent, uncinata; tarsi pseudotetramerous, pubescent, 3rd segment strongly bilobed, claws connate basally and diverged apically. **Meso-thoracic leg:** Coxa globular, small, pubescent and brown; trochanter small, triangular, pubescent; femur long, broad in middle, narrow at base, stout, excavate, pubescent; tibia long, pubescent, sub cylindrical, uncinata; tarsi similar to fore tarsi. **Meta- thoracic leg:** Coxa roughly oval, pubescent, brown; trochanter small, triangular, pubescent; femur longer than pro-thoracic leg, brown, pubescent, narrow basally, dilated apically, excavate; tibia long, narrow, pubescent, brown, uncinata; tarsi similar to fore tarsi. **Elytra:** Elongate, striate (striae 10 usually punctate with long hairs), anterior margin slightly concave, antero laterally round, deflexed laterally and firmly holds abdomen latero ventrally, sides parallel and constricted basally, rounded apex, each elytron separated by suture; three distinct longitudinal stripes of scales, two marginal golden yellow, one brown and central; broad at base, constricted towards apex. **Abdomen:** Large, convex, broad at base, narrow apex, covered with bifid golden scales; basal segment large, connate; apical segment triangular.

CONCLUSION

This study showed that the beetle fauna exist in this cold desert region of India and need more comprehensive works to record other families as well. Moreover, the economic importance and roles played by the recorded species occurring in different ecosystems of Kargil is unclear. So in addition to further faunistic surveys, detailed biological and ecological studies are waiting to be carried out.

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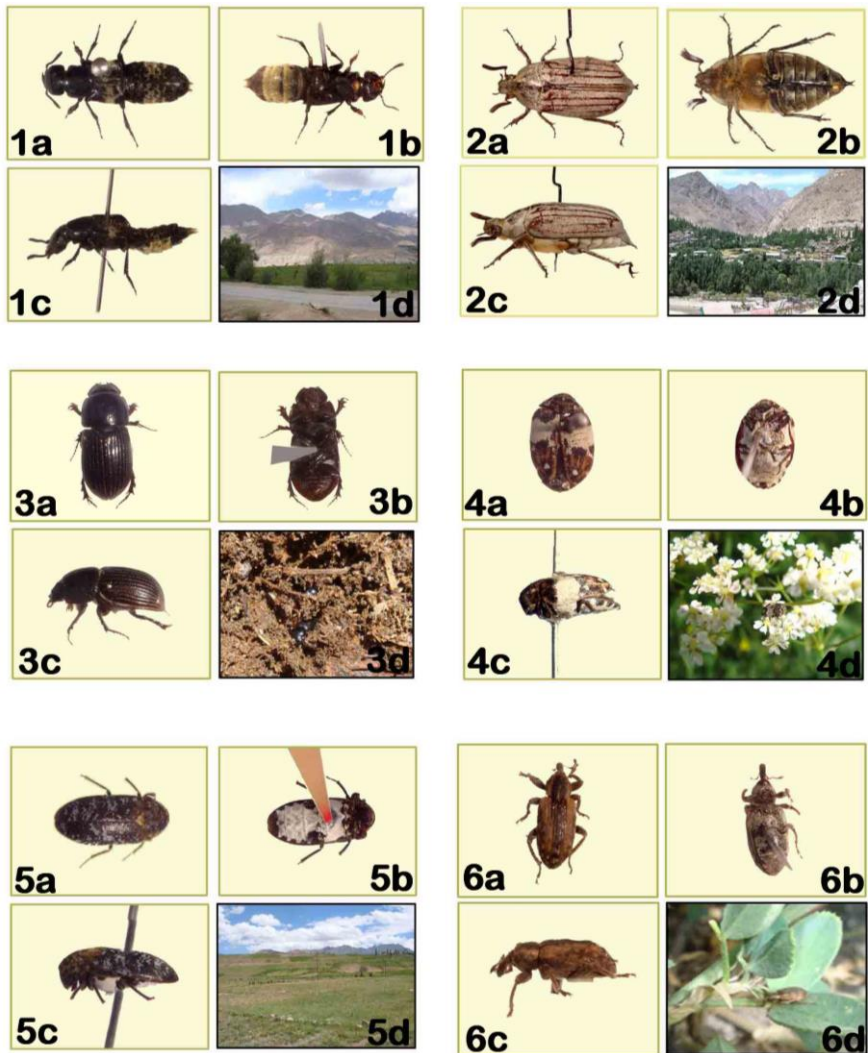
LITERATURE CITED

- Azam, M., Tara, J. S., Ayri, S., Feroz, M & Ramamurthy, V. V. 2010. Bionomics of *Odoiporus longicollis* Olivier (Coleoptera: Rhynchophoridae) on Banana plant (*Musa paradisiaca*). Munis Entomology & Zoology, 5 (2): 627-635.
- Beal, Jr. R. S. 1983. *Anthrenus thoracicus* (Coleoptera: Dermestidae), A distinct species. The Coleopterist Bulletin, 37 (4): 314-316.
- Blume, R. R. & Aga, A. 1979. Additional records of *Aphodius* from pocket Gopher burrows in Texas (Coleoptera: Scarabaeidae). The Coleopterist Bulletin, 33 (1): 131-132.
- Borghesio, L., Palestini, C. & Passerin d' Entreves, P. 2001. The dung beetles of the Gran Paradiso National Park: A preliminary analysis (Insecta: Coleoptera: Scarabaeoidea). Journal of Mountain Ecology, 6: 41-48.
- Bose, M. 1953. Notes on life-histories of some common beetles. Agra University Journal of Research, 2: 309-317.
- Buhiroo, A. A. & Lakatos, F. 2007. On the biology of the bark beetle *Scolytus nitidus* Schedl (Coleoptera: Scolytidae) attacking apple orchards. Acta Silvatica et Lignaria Hungarica, 3: 65-74.
- Chander, K. & Uniyal, V. P. 2007. On a collection of pleurostict Scarabaeidae (Coleoptera) from the Great Himalayas National Park, Himachal Pradesh, India. Zoo Print Journal, 22 (9): 2821-2823.
- Feroz, M. 2008. Coleopteran (Insecta) diversity from three altitudinal ranges in District Kargil of JandK State. M. phil. Dissertation, University of Jammu, Jammu.

- Feroz, M. & Tara, J. S.** 2010. Ground and darkling beetles (coleoptera: carabidae, Tenebrionidae) from kargil, j and k. The Bioscan, 5 (4): 573-577.
- Frolov, A. & Akhmetova, L.** 2005. Size correlation between larvae and adults in *Aphodius* (Coleoptera: Scarabidae). Entomologie, 75: 321-324.
- Gudleifsson, B. E. & Bjarnadóttir, B.** 2002. List of invertebrates collected in pitfall traps in hayfields and pastures in Northern-Iceland 1996-1997. ICEL Agriculture Science, 15: 27-36.
- Gupta, R.** 2007. Diversity, damage and biology of insect pest of apple trees (*Malus domestica* Borkh.) in district Doda (J&K). M. Phil dissertation, University of Jammu, Jammu.
- Hassan, A. M. A., Hossain, M. D., Hasan, M. M. & Rahman, M. S.** 2007. A pest of stuffed museum specimen *Anthrenus scrophulariae* (L.) (Coleoptera: Dermestidae). University Journal Zoology Rajshahi University, 26: 99-102.
- Kadej, M. & Hava, J.** 2006. Description of two new species of *Anthrenus o. f.* Muller, 1764 from southern Africa (Coleoptera: Dermestidae: Megatominae: Anthreniini). Genus, 17 (1): 95-105.
- Kazmi, S. I. & Ramamurthy, V. V.** 2004. Coleoptera (Insecta) fauna from the Indian Thar Desert, Rajasthan. Zoos' print journal, 19 (4): 1447-1448.
- Khan, R. A. & Sahni, N. K.** 1978. Preliminary report on the survey of aquatic ecosystem of river Beas with special reference to insects. Mem. Sch. Ent., 6: 107-114.
- Kulshrestha, A. K.** 1978. Chironomidae (Diptera) of river Beas ecosystem. Mem. Sch. Ent., 6: 113-114.
- Leschen, R. A. B., Lawrence, J. F., Kuschel, G., Thorpe, S. & Wang, Q.** 2003. Coleoptera genera of New Zealand. New Zealand Entomologist, 26: 15-28.
- Lobo, J. M., Chehlarov, E. & Gueorguiev, B.** 2007. Variation in dung beetle (Coleoptera: Scarabidae) assemblage with altitude in the Bulgarian Rhodopes Mountains: A comparison. European Journal of Entomology, 104: 489-495.
- Maheshwari, G.** 1989. Distributional pattern of high altitude Chironomidae (Diptera). St. John's College. Sci. Spectra, 1 (1): 131-137.
- Mani, M. S.** 1954. Entomological Survey of the Himalaya. Part I. Introduction and Description of Gall-midges and plant galls from Western Himalaya. Agra University J. Res. (Sci.), 3 (1): 13-42.
- Mani, M. S.** 1956. The second Entomological Expedition to the Himalayas. Nature. 177: 124-125.
- Mani, M. S.** 1962. Introduction to High Altitude Entomology. London Methuen and Co. p. 305.
- Mani, M. S. & Singh, S.** 1955. Entomological survey of Himalay. Part xiii. Second Entomological expedition to the northwest (Punjab) Himalaya. Agra University J. Res. (Sci.), 4 (Supp): 717-740.
- Morelli, E. & Gonzalez-Vainer, P.** 1997. Dung beetles (Coleoptera: Scarabidae) inhabiting bovine and ovine droppings in Urughayan prairies. The Coleopterist Bulletin, 51 (2): 197.
- Newton, A. F.** 1997. First Record of the Genus *Platydracus* (= *Staphylinus* in Part) from Hawaii with Notes on Hawaiian *Creophilus* (Coleoptera: Staphylinidae: Staphylininae: Staphylinini). Records of the Hawaii biological survey for 1996, Part 2: notes1. Museum Occasional Papers, 49: 71.
- Pandey, A. K., Namgayal, D., Mir, M. S. & Ahmed, S. B.** 2007. Major insect pest associated with forest plantations in cold arid region, Ladakh of Jammu and Kashmir. Journal of Entomological Research, 31 (2): 155-162.
- Ratcliffe, B. C.** 1981. *Barutus hartmanni*, new genus and species from Panama with a key to the Genera of new world Pentodontini (Coleoptera: Scarabaeidae: Dynastinae). The Coleopterists Bulletin, 35 (4): 463-472.
- Shoubu, M., Okumura, M., Shiraiishi, A., Kimura, H. & Takagi, M. U.** 2005. Establishment of *Bathyplectes anurus* (Hymenoptera: Ichneumonidae), a larval parasitoid of the alfalfa weevil, *Hypera postica* (Coleoptera: Curculionidae) in Japan. Biological Control, 34: 144-151.
- Singh, S.** 1983. High Altitude Entomology and its Scope. Proceedings of Workshop on High Altitude Entomology and Wildlife Ecology. Zoological Survey of India, pp. 87-101.
- Singh, S., Bajjal, H. N. & Mathew, K.** 1956. Entomological survey of the Himalaya, part XVIII- Notes on some insects collected by the second entomological expedition to North West Himalaya, with description of three new species of Collembola. Agra University J. Res., 5: 369-376.
- Tara, J. S., Azam, M., Ayri, S., Feroz, M. & Ramamurthy, V. V.** 2009. Bionomics of *Hypophxus truncatulus* (F.) (Coleoptera: Curculionidae: Lixinae: Lixini), a major pest of *Amaranthus caudatus* L. Munis Entomology & Zoology, 4 (2): 510-518.
- Tara, J. S. & Feroz, M.** 2009. Lady bird beetles (Coleoptera: Coccinellidae) from Kargil J&K. The Bioscan, 4 (4) : 683-688.
- Tara, J. S.** 1983. Investigations on the insect pests of Mulberry (*Morus* spp.) in Jammu Region of J&K State, Ph.D. Thesis, University of Jammu, Jammu.
- Uniyal, V. P.** 2001. Conserving biodiversity in the Indian Trans- Himalaya: New initiatives of field conservation in Ladakh. Annual technical report submitted to wildlife institute of India-Dehradun.
- Uniyal, V. P. & Mathur, P. K.** 2000. Altitudinal distribution of tiger beetles (Cicindellidae: Coleoptera) in great Himalayan national park conservation area, Western Himalaya. Indian Forester, 162: 1141-1143.
- Uniyal, V. P. & Mathur, P. K.** 1998. Diversity of butterflies in the Great Himalayan National Park, Western Himalaya. Indian Journal of Forestry, 21 (2): 150-155.
- Uniyal, V. P., Mukherjee, S. K., Goyal, G. P. & Mathur, P. K.** 2001. Defoliation of *Parthenium* by Mexican beetle (*Zygogramma bicolorata*) in Rajaji National Park. Annals of Forestry, 9 (2): 327-330.
- Watson, E. J. G.** 2004. Faunal succession of Necrophilous insects associated with high-profile wildlife carcasses in Louisiana. Ph.D, dissertation submitted to Louisiana State University.
- Weiss, R. M. & Gillott, C.** 1993. The biology of the lesser clover leaf weevil, *Hypera nigrirostris* (Fabr.) (Coleoptera: Curculionidae), on red clover, *Trifolium pratense* L., in Saskatchewan. The Canadian Entomologist, 125: 831-837.

Table 1. Showing the Taxonomic status of the beetles recorded from Kargil.

Superfamily	Family	Subfamily	Tribe	Taxa
Staphylinoidea	Staphylinidae	Staphylininae	Staphylinini	<i>Creophilus maxilosus</i>
Scarabaeoidea	Scarabaeidae	Melolonthinae	Melolonthini	<i>Melolontha furcicauda</i>
		Aphodiinae	Aphodiini	<i>Aphodius</i>
Dermestoidea	Dermestidae	Dermestinae	Dermestini	<i>Dermestus</i>
			Anthrenini	<i>Anthrenus</i>
Curculionoidea	Curculionidae	Hyperinae	Hyperini	<i>Hypera</i>



Figures. 1a-1d. *Creophilus maxilosus*, 2a-2d. *Melolontha furcicauda*, 3a-3d. *Aphodius* sp., 4a-4d. *Dermestes* sp., 5a-5d. *Anthrenus* sp., 6a-6d. *Hypera postica* (a, dorsal; b, ventral; c, lateral view and d, site of collection).