NEW FAUNASTIC RECORDS OF DERMESTIDAE (COLEOPTERA) FROM KARGIL, INDIA

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ABSTRACT: The present study determined new faunastic records of Family dermestidae from Kargil. 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. A total of 3 species belonging to 3 subfamilies viz., Dermestinae, Attageninae and Megatominae were recorded and described for the first time from the area under study. Notes on the bionomy of all the three species is presented. Two species *Anthrenus indicus* and *Attagenus gobicola* are new records for the area.

KEY WORDS: Coleoptera, new record, high altitude, Kargil, Dermestidae, cold desert, diversity.

Dermestids are usually found on flowers, dried animal carcasses, bird and mammal nests where they feed on pollen, feathers, hair, fur or remains of insects. Most dermestids are household and museum pests; they cause damage to a wide variety of products such as carpets, silk, fur, feathers, wool, leather, seeds, grain, cereal products as well as dried insects collections. Some dermestid species are well-known throughout the world as pests of stored woollen fabrics and garments, and are often the cause of major losses in wool stores. However, there was no information available regarding the dermestid fauna of Kargil until Feroz et al. (2015), in which two dermestids, *viz., Dermestes undulates* and *Anthrenus* sp. indetermined, were reported from Kargil. In a more recent survey of the area under study carried out by the authors two species *Anthrenus indicus* and *Attagenus gobicola* were recorded in addition to *Dermestes undulatus*. *Attagenus gobicola* was earlier recorded by Veer & Rao (1995) from Leh India as a new record. This recent discovery thus brings the total number of known dermestidae fauna of the area to 3. The authors got the opportunity to study and incorporate the bionomy of the species recorded from Kargil (A cold desert of India-region) an almost untouched area for insect biodiversity.

MATERIALS AND METHODS

Study area

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 upto 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, Shurbs 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.

Beetle 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 wheat fields and human habitation.

RESULTS

During the study three species of which two species are new records to the area were recorded and described in details.

Family Dermestidae (carpet beetles)

Anthrenus indicus Kadej, Háva & Kalik, 2007

(Figs. 1 & 4)

Material examined. 3 exs. 25.vi.2007 Poyen Kargil; 2 exs. 15.vi.2008 Sankoo Kargil.

Host. *Achillea millefolium* in the area of study.

Distribution. Species known from India: Himachal Pradesh (Háva, 2015).

Present study. Recorded from Poyen, Sankoo and Pashkum.

Diagnostic Features. Length varies from 3.0 to 4.30 mm and breadth 2.0 to 2.88 mm. However (Kadej et al., 2007) recorded 3.00 to 3.01 mm in length. Elongate, oval. General 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. Antenn 11 segmented, short, brown, capitate, fitting into sharply defined cavity on hypomeron. 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 **s**hort, 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. 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.

Attagenus gobicola Frivaldszky, 1982

(Figs. 2 & 6)

Material examined. 2 exs. 11.iv.2007 & 13.iv.2009 Kurbathang Kargil; 1 ex. 3.v.2009 Baroo Kargil and 1 ex. 04.vi.2009 Sankoo Kargil.

Host. Woollen products Veer & Rao, (1995), Carpet in the area of study.

Distribution. Russia (Trans-Baikal Region), Mongolia, North and West China, East Kazakhstan, Kyrgyzstan, Tajikistan and Afghanistan, Turkmenistan, India: Sikkim, Kashmir and from Leh (J&K) (Veer & Rao, 1995; Háva, 2015).

Present study. Recorded from Kurbathang and Pashkum.

Description. Adult. Length 4.5-6.25 mm; width 2.08-2.30. Body oblong ovate, bicoloured with head and pronotum black and elytra reddish brown. Legs dark brown except black coxae and femora. Ventral integument black. Pubescence on head golden brown, on pronotum golden brown with a small patch of brown setae submedially at base; elytra predominently with golden brown setae, a few brown setae scattered among them. Pubescence on ventral surface of body golden brown. Antennae 1 l-segmented, club segments 9-11 black, segments 3-8 light brown, 1 and 2 dark brown. Club sexually dimorphic, apical segment in male elongate and 6-7 times as long as combined length of preceding two segments; apical segment in female about 1.5 times as long as combined length of preceding two segments. Pronotum with base moderately produced and truncate medially, lateral margin declivous in male. Prosternum broad laterally, slightly raised in front of procoxae, anterior margin with weak carina, median process narrow with a thread like carina at middle and with long setae. Mesosternal process channelled in apical half. Epipleuron reaching metepimeron. Fore tibia not carinate on dorsal surface but with numerous stout spines. Hind tarsi with 2nd segment about 3.3 times as long as the 1st and subequal to the 5th. Hind coxa extending to metepimeron, hind trochanter produced into a spine on inner side.

Dermestes undulatus Brahm, 1790

(Figs. 3 & 5)

Material examined. 2 exs. 11.vi.2007 Kurbathang Kargil, 06.v.2008 Baroo Kargil.

Host. In normal conditions *Dermestes* spp. 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 as observed by Hassan et al. (2007). In the area of study found under stones.

Distribution. Holarctic species (Háva, 2015). Recorded from New Zealand (Leschen et al., 2003).
Present study. Recorded from Kurbathang and Baroo.
Diagnostic Features. 7.0 to 8.0 mm in length and 3.0 to 3.34 mm in breadth. Elongate, elliptical and hairy. Genral dark brown with golden yellow, black and white hairs. Head hypognathus, small, roughly triangular, punctuate, pubescent (golden yellow), clypeus with apical fringe of hairs. Eye large, globular, black, lateral, towards the base of the head capsule. Antenna 11 segmented, brown, capitate, (club, 3 segmented) pubescent, scape large, punctate, intervening segments small with very few hairs, apical segment pointed. 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. 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. Male having a small papilla of brown hairs on the 3rd and 4th abdominal sternite whereas female do not posses it.

CONCLUSSION

It is concluded that the area has a vast potential for the discovery of the new species or new records. So, in addition to further faunastic surveys, detailed biological and ecological studies are needed to be carried out in the area of study so as to record other species and families.

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LITERATURE CITED

Beal, Jr. R. S. 1983. Anthrenus thoracicus (Coleoptera:Dermestidae), A distinct species. The Coleopterist Bulletin, 37 (4): 314-316.

Feroz, M. 2008. Coleopteran (Insecta) diversity from three altitudinal ranges in District Kargil of JandK State. 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: Dermistidae). University Journal Zoology Rajshahi University, 26: 99-102.

Háva, J. 2015. World Catalogue of Insects. Dermestidae (Coleoptera). Leiden/Boston: Brill, 13: xxvi + 419 pp.

Kadej, M. & Hava, J. 2006. Description of two new species of Anthrenus o. f. Muller, 1764 from southern Africa (Coleoptera: Dermestidae: Megatominae: Anthreninii). Genus, 17 (1): 95-105.

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.

Veer, V. & Rao, K. M. 1995. Taxonomic and biological notes on three Attagenus spp. (Coleoptera: Dermestidae) not previously recorded as pests of stored woollen Fabrics in India. Journal of stored products research, 31 (3): 211-219.

Veer, V., Prasad, R. & Rao, K. M. 1991. Taxonomic and biological notes on **Amgenus** and Anthrenus spp (Coleoptera: Dermestidae) found damaging stored woollen fabrics in India. Journal of Srored Products Research, 27**:** 185-198.

Figures 1-6. 1. Dorsal habitus of *Anthrenus indicus*, 2. Dorsal habitus of *Attagenus gobicola*, 3. Dorsal habitus of *Dermestes undulatus*, 4. Collection site *Anthrenus* sp., 5. Collection site *Dermestes* sp., 6. Collection site *Attagenus* sp..