



Life forms study of Acrididae (Orthoptera) in Hyderabad Sindh, Pakistan

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Abstract: During present work seven species and subspecies of the tribe Acrotylini and Locustini were found and further observed for life forms. It was noticed that Acrotylushumbertianus A.longipessubfasciatus A.longipessubfasciatus were Terri-arenicole, A.insubricusinsubricus, A. patruelisare Terri-deserticole. Herrich-Schaffer and species of tribe Locustini namely, Locustamigratoria are Graminicole, Gastrimargusafricanussulphureus were Graminicole, Therefore life –form study of was taken from Acrididae of Hyderabad that collected from Agricultural field and semi deserted areas and preliminary result are presented here. The occurrence of various life forms of grasshoppers indicated their favorable environmental conditions. Beside this, the insect distribution were also observed.

Keywords: Acrididae, Taxonomy, Life-forms, Terri-arenicole , Terri-deserticole

1. INTRODUCTION

Acridoidea is one of the significant group of Orthopteroid insects after sub-families of the order Orthoptera; this order is considered as the largest group of insects and comprised of many groups.No work on the life-forms of Acridoidea from this area has been done. Since older days to present time Locustamigratoria is predominantly the notorious among all insect pests. They are eventually dangers in summer season and when abruptly huge Population. Unavailability of food force them to display gregarious migration behavior Which results complete destruction of crop which come in their way. Hence, they are main pests in bordering countries deserts for example, South Africa; where swarms of locusts have resulted in famine like position at many times. Instead of this G.africanussulphureus, Bei-Bienko; feeds upon the vegetation, herbs shrubs and top part of the plants (Cotes 1893; Uvarov 1942 Agarwala (1952) Vickery and Kevan 1983 and Tandon 1976. Further more present studies will be helpful to provide the knowledge about these species that were considered as important life-from.

2. MATERIALS AND METHODS

Insect specimens werecollected by author during 2009 from Hyderabad and their adjoining areas. After that it was preserved in standard entomological boxes.In laboratory study various morphological characters were carried out under stereoscopeby dissecting binocular microscope as well as by naked eye. The method described by Kevan, (1982), was followed.

3. RESULTS

The life formes of Acridoidea of Hyderabad may be presented as under.

Table.1. Life forms and zoogeographiocal affinities of collected species.

Table with 3 columns: Species, Life forms, Zoogeographiocal affinities. Rows include Acrotylus humbertians, A.insubricus insubricus, A.patruelis, A.longipes longipes, A.longipes subfasciatus, L.migratoria, G.africanus sulphureus.

i) Acrotylushumbertianus(Saussure)

Diagnostic of T.a. life-form.Male medium in size, Antennae filiform together with 19 segments. Head shorter and globular. Fastigialfoveolae developed, frons seen. Pronotum small and saddle type, lateralcarinae irregular and tuberculate. Coloration. paler brown in color. Tegmina and wings with obvious wingviens. Wings colored at base, may with the band. Hind femur thick with knee rounded. Tibia stout cylindrical, with pointed spines. Arolia visible and smaller.

Species remarks. The present insect resemble to A.patruelis (H. Schaf ) by large forewings and arolia but could be divide from this species in wings color at end, hadun complete band mark and some more features.

Terri-arenicole: Species of this group are characterised by strongly depressed body and the absence or the presence of very short arolia. Those species which live mostly on open grounds and feed on plants of broad leaveswithout climbing them. The terricoles are also called geophillus While Bei-Bienko (1951) named geobionts.

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**ii) *A. insubricus insubricus* (Scopoli)**

**Diagnostic of T, d life-form.** Male insect medium in size. Body compressed and cylindrical in shape. Antennae are segmented and whitish at base. Lateral carinulae well developed, slightly with blackish spots. Tegmina with well developed wing veins. Semit; basal half brown with one mark at the side, speckles are absent. Femora stout and stronger and adopted for jumping. Hind tibia with outer and inner spines. Visible arolia present.

**Terri-deserticoles.** Those species which live mostly in desert and feed on smaller plants without climbing them.

**Species remarks.** The specimen is related to *A. humbertians*. due to long and slender middle legs. but we can separate them through wings hyaline rosy at basal part and darkish markings lunar type spot.

**iii) *A. patruelis* (Herrich-Schaffer)**

**Diagnostic of T, d life-form.** This insect is medium in size. Body cylindrical and stout. Antennae dark brownish and segmented. Tegmina semitransparent and used for flight; apex part with colored speckles. Hind tibia possess with outer and inner spines. Arolium well developed.

**Terri-deserticoles.** Those species which live mostly in desert and feed on smaller plants without climbing them.

**Species remarks.** The holotype give affinity as *A. insubricus* (Scopoli) and able to separate by morphological position.

**iv) *A. longipes longipes* (Charpentier)**

**Diagnostic of T, a life-form.** Medium in size. Antennae fili form with 22-24 segments. Head shorter and globular. Fastigialfoveolae present; triangular in shape, frons vertical. Pronotum short and convex. Tegmina and wings well developed hind legs used for jumping. anterior and front legs small than posterior legs. Femur cylindrical. Hind tibia with 11-12 both sides spines present. Arolium raised and smaller.

**Terri-arenicole:** This species characterised by strongly depressed body and the absence or the presence of very short arolia. Those species which live mostly on open grounds and feed on plants of broad leaves without climbing them.

**Species remarks.** The insect well relate as *A. insubricus* (Scopoli), we take separate by external characters.

**v) *A. longipes subfasciatus* (Bei-Bienko)**

**Diagnostic of T, a life form.** Of smaller body insect. Antennae fili form dark brownish. Pronotum with white brownish speckles. Tegmina semitransparent, with a

light blackish spot at margin, Hind femur has stripes and slightly dark from inner side. Hind tibia elongated and with outer and inner sharp pointed spines. Arolium remarkable.

**Terri-arenicole:** This species characterised by strongly depressed body and the absence or the presence of very short arolia. Those species which live mostly on open grounds and feed on plants of broad leaves without climbing them.

**Species remarks.** The above specimen resemble to *A. longipes longipes* Charpentier in having larger legs and due to color of tibia, but it may separate by with a short lunar shaped dark band.

**Vi) *Locusta migratoria* Linnaeus**

**Diagnostic of T, g life-form.** Body large in size. Head and pronotum with yellow in color. Tegmina well developed semitransparent, having light or dark brown spots. Wings with broad posterior margin, few paler at base. Hind femur cylindrical larger and with visible stripes, dark band present, to inner outer surface. Hind tibia with black tipped sharp spines. Arolia raised and well markable.

**Species remarks.** This member of insect is closely resemble to *L. danica* Uvaroval most through external appearance but can separated from this insect in long hind femur and slender and due to the other characters visible features.

**Graminicoles:** This group was called Chortobiont by Bei-Bienko (1957). The species of this group are characterised by elongated and laterally compressed body, with narrow and relatively long femora and large tarsal arolia. They predominantly live on grasses. The grasshoppers of this group living on short grass generally resemble with terricoles.

**Vii) *Gastrimargusa fricanus sulphureus* Bei. Bienko**

**Diagnostic of T, g life-form.** Generally medium to large in size. Pronotum well developed. Tegmina slightly transparent with or without brown bands. Wings posing assulphur yellowish at basal part. Hind femora stronger well developed towards jumping from inner side blue tinged like is present. Hind tibia stout with 10-11 pointed dark tipped spines. Arolium well remarkable and helping for adhesive position.

**Graminicoles:** With narrow and relatively long femora and large tarsal arolia. They usually live on grasses. The grasshoppers of this group living on short grass generally resemble with terricoles.

**Species remarks.** The species is related to *G. africanus africanus* because of outer shape but could

easily be separated on basis of yellowish color pattern of hind wings or by the other components.

#### 4. DISCUSSION

The grasshoppers of *Acrotylus* are known as insect pest, Due to exposing threat and damage to cereal crops, vegetables and Pastures lands; So they cause considerable economic loss for the farmers. The insect's of this group pertaining to the subfamily Oedipodinae. They are distributed throughout various habitats. Mostly they are known as Terri-arenicoles (living in open grounds) and Phytophyles (found at vegetation, grasses, herbs & shrubs), Terri-deserticoles. Earlier work were carried out on genus *Acrotylus* by various scientist's as well as Kirby 1914, Mishchenko 1936, and Bei-Bienko, Mishchenko 1951, Uvarov 1966, Dirsh 1975, Ahmed 1980, Ritchie 1981-82. Currently contains 23 species and eight subspecies, widely distributed in the tropical grassland of Africa, Asia, and Australasia.

Ritchie published the most comprehensive revision account for such species.

*Gastrimargus* prefer mostly humid habitats. This species showed typical bands on their wings. Adult insects are excellent due to group mating and oviposition phenomena. Locusts usually migrate by leaving one place to settle down in another area. They consume fresh portion of green foliage during their nymphal development, and also when they reach to adult stage. When they are especially enormous they could frequently damage economically crops. The present preliminary studies based to know the life forms of grasshoppers and habitat showed that genus *Acrotylus* and two species of tribe Locustinae of Acrididae are exclusively Terriarenicoles, Terrideserticoles and graminicoles. In sub-family Oedipodinae of Acrididae some are terricoles e.g. *Sphingonotus* some are e.g. *Acrotylus* are Terri-arenicoles life form.



*Acrotylushumbertians* Saussure Male



*Acrotyluslongipeslongipes* Charpentier Male



*Acrotylusinsubricusinsubricus* Scopoli Male



*Acrotyluslongipessubfasciatus* Bei-Bienko Male



*Acrotyluspatruelis* (Herrich-Schaffer) Female



*Locustamigratoria* Linnaeus Male



*Gastrimargusafricanussulphureus* Bei-Bienko Male.

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