

DISTRIBUTIONAL PATTERN OF GRASSHOPPERS OF INDIA :  
THE DISTRIBUTION OF OXYNAE (ORTHOPTERA :  
ACRIDOIDEA : ACRIDIDAE) IN INDIAN REGION

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INTRODUCTION

The Oxyinae is a subfamily of Acrididae that now includes an array of 21 genera and is Old World in distribution. Majority of the species of Oxyinae are widely known to be pests of rice, sugarcane and other crops in India, Pakistan, Bangladesh, Nepal, and throughout the Indo-Malayan region, China, South east U. S. S. R. and the Australian region (Fig. 1). The members of this subfamily are typically phytophilie and are usually found in grasses and dense vegetation specially near moist and shady areas. The hind tibia and tarsus of these insects are expanded and oar-like enabling the insects to swim. They are thus ecologically adapted to the moist environment. In Indian region this subfamily is represented by nine genera. The genera are *Caryanda* Stål, *Cercina* Stål, *Chitaura* I. Bolivar, *Gesonula* Uvarov, *Hygracris* Uvarov, *Ochlandriphaga* Henry, *Oxya* Serville, *Oxyina* Hollis and *Oxytauchira* Ramme.

According to Uvarov (1966) the nongregarious grasshoppers in many countries are more serious enemies of agriculture than locusts and their number is continually increasing particularly in newly developed countties. In India we have very little information about the distribution of nongregagious grasshoppers while their ecology and habits are very poorly known. The present contribution will throw light on the distribution of this economically important subfamily in the Indian region with notes on the habitat of some of the species.

DISTRIBUTION

1. Genus *Caryanda* Stål

(Fig. 2)

The genus *Caryanda* is represented by fifteen species from the world of which four are represented from Indian region, where they occur in the north-eastern region with the exception of *C. diminuta* which also occurs in Andaman and Nicobar Islands. The genus has

so far been known from Central Africa ; India ; Bhutan ; Burma ; China ; Vietnam and West Indonesia (Hollis, 1975), *C. diminuta* (Walker) is reported from India (Assam) ; and Burma (Willemse, 1925, 1953 ; Hollis, 1971), *C. cachara* Kirby occurs in Assam (Cachar) Kirby, 1914), *C. paravicina* (Willemse) is confined to north-eastern India (Willemse, 1925) and *C. sanguineoannulata*, Brunner von Wattenwyl

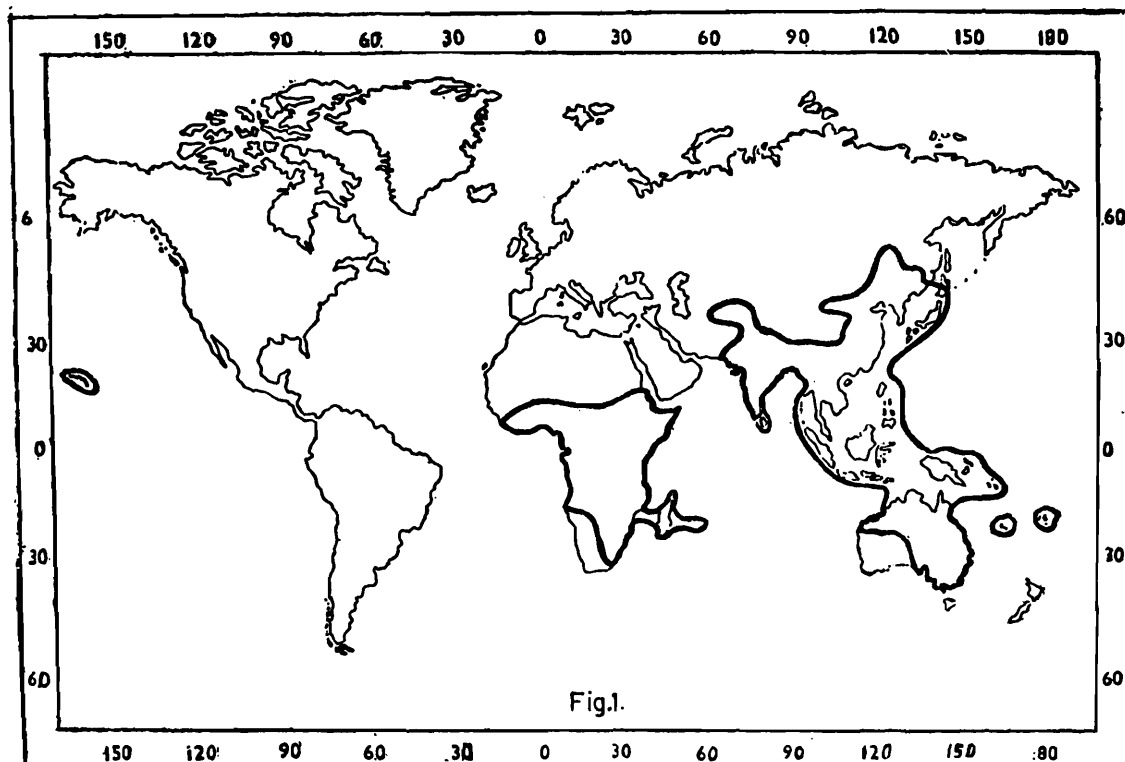


Fig. 1. Range of subfamily *Oxyinae* (After Mischenko, 1952).

from Bhutan and Burma, (Willemse, 1955). In north-eastern region the genus is usually found in thick and short grasses adjoining cultivated fields or under large trees.

## 2. Genus *Cercina* Stål

(Fig. 2)

*Cercina* is endemic to the Indian region and is confined to Sri Lanka. The genus is known by two species (Sandrasagara, 1950 ; Tandon, 1976a). *C. obtusa* extends from Ohiyo, Harkgula Horton plains to Eliya in Central provinces (Sandrasagara, 1950) and *C. phillipsi* Henry is known from Gammaduwa in Central and Pandoloya in Uva Province (Henry, 1933).

## 3. Genus *Chitaura* I. Bolivar

(Fig. 2)

*Chitaura* is wholly Oriental and is so-far known only from southern India, West Indonesia, Sulawesi and Maluku (Hollis, 1975). The

genus is poorly represented in India. Of the sixteen species known so far only one occurs in Indian region. *C. indica* Uvarov, occurs in the Deccan plateau (Uvarov, 1929). Recently I have come across a few specimens of this species from Kerala (Kottayam), which extends the distribution of this species further south.

#### 4. Genus *Gesonula* Uvarov

(Fig. 2)

*Gesonula* occurs in Indian region, eastwards to North Australia and Soloman Islands (Hollis, 1975). Of the three species known so far

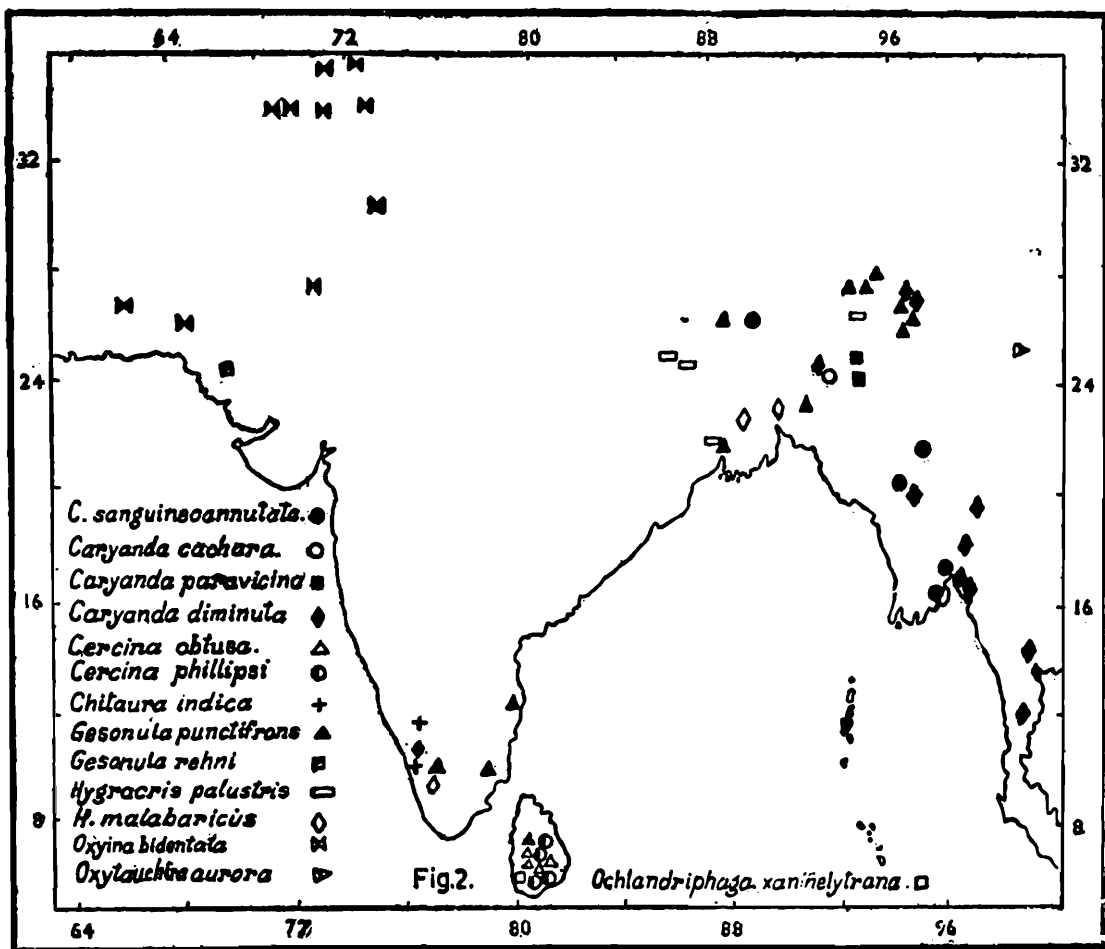


Fig. 2. Distribution of species of *Caryanda*, *Cercina*, *Chitaura*, *Gesonula*, *Hygracris*, *Oxyina*, *Oxytauchira*, *Ochlandriphaga*.

only two occur in the Indian region (Tandon, 1976a). *G. punctifrons* occurs in Indian region in, north eastern India, southern India and Sri Lanka. It extends from Indo-Malayan region to China and Japan (Willemsse, 1955). In north eastern India this species is always associated with moist localities and usually found along pools or streams in low vegetation adjoining forest paths and cultivated fields (Tandon and Khera, 1978). *G. rehni* has so far been known only from Pakistan (Akbar and Balock, 1970).

5. Genus *Hygracris* Uvarov

(Fig. 2)

*Hygracris* is endemic to Indian region and is represented by two species in India (Tandon, 1976a). *H. palustris* occurs in Bihar, Bengal and Assam (Uvarov, 1921). *H. malabaricus* from Malabar, Kerala (Willemse, 1962). The present day discontinuity in distribution of this genus is probably a relict of former continuous distribution. The genus is an inhabitant of moist localities along road-sides in tropical forest in north-eastern India (Tandon and Khera, 1978).

6. Genus *Ochlandriphaga* Henry

(Fig. 2)

The genus *Ochlandriphaga* is endemic to Sri Lanka and is monotypic (Henry, 1933). Records of *O. xanthelytrana* from Sri Lanka are limited to type species from Labugama Western Province.

7. Genus *Oxya* Serville

(Fig. 3)

The genera *Oxya* occurs in Ethiopian, S. E. Palaearctic, Oriental, Austro-Oriental and Australian regions (Hollis, 1975). *Oxya* represents the most dominant genus of Oxyinae of Indian region and includes seven species and sub-species, the distribution of which is summarized under. In Indian region the genus is associated with paddy, sugarcane and other crops. *O. chinensis* was recorded from Himalaya by Kirby (1914) without specifying any locality. There is no record of its occurrence after Kirby's work. This species is widely distributed in China, Taiwan, Korea, Japan, Vietnam and U. S. S. R. (Maritime Province) (Willemse, 1955 ; Hollis 1971). *O. fuscovittata* occurs in Indian regions in Pakistan, Kashmir, sub-himalayan tract of Uttar Pradesh, Assam region, and in southern India. This species is also known from (south western) U. S. S. R. and Afghanistan (Hollis, 1971 ; Willemse, 1955). Recently the species has been recorded from Jodhpur (Rajasthan), Garhwal (Uttar Pradesh), Udhampur (Jammu and Kashmir), Chotanagpur (Tandon and Shishodia 1976 b-d). *O. hyla hyla* is the most widely distributed species in India, Sri Lanka, Bangladesh, eastern Himalaya, Gangetic Plains, Chotanagpur, southern India, Malabar mountains, and in north up to Kashmir. The distribution is scanty in desert regions and central India. This species is widely distributed in Africa and Madagascar. Tandon and Khera, 1978 found this species confined to moist localities adjoining tropical, subtropical forest belts,

and cultivated fields in Arunachal Pradesh. *O. hyla intricata* in Indian region is confined only to Burma (Hollis, 1971). *O. japonica japonica* occurs on the west coast of India, north-eastern India, Andaman and Nicobar Islands, Burma, Bangladesh and Sri Lanka (Hollis, 1971). This species is widely distributed in Indo-Malayan region and Japan. *Oxya*

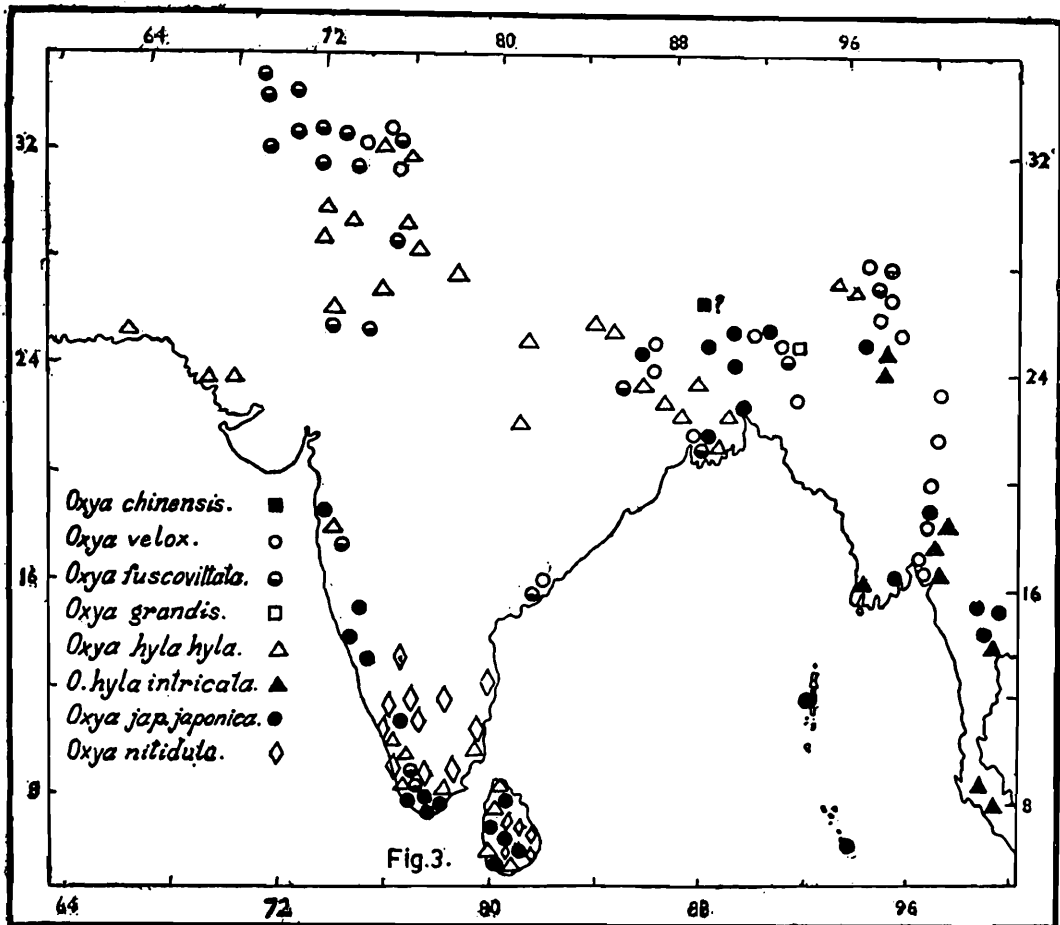


Fig. 3. Distribution of species of genus *Oxya*.

*nitidula* is confined to southern Indian and Sri Lanka. *Oxya velox* is also the northern most representative of the genus, but it has been more successful in invading the north-eastern India, Bangladesh, Burma, and then on to Indo-Malayan region. Record from south is limited at present on to eastern coast in Andhra Pradesh. *O. grandis* is known from north eastern India and record of its distribution is limited only to type series.

## 8. Genus *Oxyina* Hollis

(Fig. 2)

*Oxyina* is very close to *Oxya* and is at present known from Iran, Afghanistan and Pakistan (Hollis, 1975). It now includes three species formerly included in the genus *Oxya* of which *O. bidentata* (Willernse) occurs in Indian region and is confined only to north-western region.

9. Genus *Oxytauchira* Ramme

(Fig. 2)

The genus is known by two species in Oriental region (Hollis, 1975) of which one is represented from Indian region *O. aurora* is confined to northern Burma.

## DISTRIBUTIONAL PATTERN

Analysis of the distributional pattern of various genera of Oxyinae so far known from Indian region reveals that *Cercina*, *Hygracris* and *Ochlandriphaga* are endemic to the Oriental of India. *Oxytauchira* and *Chitaura* are purely Oriental; *Oxya* is too common to Oriental, Palearctic, Ethiopian and Australian regions, whereas *Oxyina* is common to south east Palearctic and Oriental. *Caryanda* is common to Oriental, Ethiopian and *Gesonula* extends from Palearctic to Oriental and Australian region. The Oxyinae is thus predominantly Oriental in composition and is a complex of Indo-Chinese and Malayan faunal derivatives. The discontinuity in distribution of *Gesonula* and *Hygracris* is probably a relict of former continuous distribution. Mani (1974; see chapters XXIV) has very lucidly explained the origin of the discontinuous distribution that characterises diverse group in India.

TABLE 1. List of the species of subfamily Oxyinae occurring in Indian region and their distribution.

Sl. No.	Species	Distribution
Genus <i>Caryanda</i> Stal, 1878		
1.	<i>C. diminuta</i> (Walker, 1871)	India : Assam, Andaman Islands ; Burma ; Vietnam ; Cambodia ; Thailand ; Malay Peninsula ; Sumatra Isl. Nias ; Singapore ; Laos.
2.	<i>C. cachara</i> Kirby, 1914	India : Assam, Cachar ; China.
3.	<i>C. paravicina</i> (Walker, 1925)	India : (North-East Assam, Manipur).
4.	<i>C. sanguineoannulata</i> Brunner von Wattenwyl	Burma : Mandalay, Lamaing, Mt. Popa, Hamaubi, Rangoon, Pegu, Palon ; Bhutan.
Genus <i>Cercina</i> Stal, 1878		
5.	<i>C. obtusa</i> Stal, 1876	Sri Lanka : Ohiya, Hakgala, Horton, Plains ; Nuwara, Eliya (Central Provinces).
6.	<i>C. philippsi</i> Henry, 1933	Sri Lanka : Mavusakanda, Gammaduwa ;
	Genus <i>Chitaura</i> I. Bolivar, 1918	Patnagala (Central Province), Punduloga (Uva Province).

TABLE 1. (*Continued*)

Sl. No.	Species	Distribution
7.	<i>C. indica</i> Uvarov, 1929 Genus <i>Gesonula</i> Uvarov, 1940	India : Mysore, Coorg (Karnataka), Kottayam (Kerala).
8.	<i>G. punctifrons</i> (Stal, 1861)	India : Assam (near Ledo), Arunachal Pradesh, Manipur, Tripura, Calcutta, (West Bengal), Tamil Nadu, Madras, Coimbatore, Tanjore ; Burma ; Sri Lanka ; Japan ; China : Vietnam ; Thailand ; Singapore ; Philippines ; Borneo and Java.
9.	<i>G. rehni</i> Akbar and Balock, 1970 Genus <i>Hygracris</i> Uvarov, 1921	Pakistan : Sind, Janshoro.
10.	<i>Hygracris palustris</i> Uvarov, 1921	India : Bihar (Pusa, Darbhanga), Assam (North-Lakhimpur), Arunachal Pradesh (Lekhabali).
11.	<i>H. malabaricus</i> Willemse, 1962 Genus <i>Ochlandriphaga</i> Henry, 1933	India : Kerala, Malabar.
12.	<i>O. xanthelytrana</i> Henry, 1933 Genus <i>Gxya</i> Serville, 1831	Sri Lanka : Labugama (Western Province).
13.	<i>O. chinensis</i> (Thunberg, 1815)	India : Himalaya ; USSR (Maritime Province) ; China ; Taiwan ; Korea ; Japan and Vietnam.
14.	<i>O. fuscovittata</i> (Marschal, 1836)	India : Assam, Meghalaya, Manipur, Tripura, Arunachal Pradesh, W. Bengal, Andhra Pradesh, Tamil Nadu, Kerala, Maharashtra, Kashmir, Rajasthan, Uttar Pradesh, Chotanagpur ; Pakistan and Bangladesh, USSR (South West) ; Afghanistan.
15.	<i>O. grandis</i> Willemse, 1925	India : Assam, Gauhati, (Brahmaputra river valley).
16.	<i>Oxya hyla hyla</i> Serville, 1831	India : Kashmir, Rajasthan, Gujarat, Maharashtra, Kerala, Tamil Nadu, Orissa, Uttar Pradesh, Bihar, Bengal, Assam, Arunachal Pradesh, Manipur, Tripura ; Sri Lanka (common throught) ; Nepal ; Africa : Mali ; Senegal ; Gambia ; Guinea ; Sierra Leone ; Ivory Coast ; Ghana ; Dahomey ; Niger ; Nigeria ; Niger ; Cameroun ; Fernando ; Principe ; Sao Thome ; Central-African Republic ; Gabon ; Congo ; Sudan ; Ethiopia ; Kenya ; Uganda ; Tanzania ; Angola ; Mozambique ; Rhodesia ; Malawi and Zambia ; Iran ; Afghanistan.

TABLE 1. (Concluded)

Sl. No.	Species	Distribution
17.	<i>Oxya hyla intricata</i> (Stal, 1861)	Burma ; Taiwan ; Thailand ; Vietnam ; West Malaysia ; Singapore ; Sumatra ; Java ; Krakatau ; Philippines ; Palaus Island.
18.	<i>Oxya japonica japonica</i> (Thunberg, 1824)	India : Western Coast (Maharashtra, Karnataka, Kerala), Bihar, Bengal, Assam, Manipur, Tripura and Arunachal Pradesh, Andamans. Sri Lanka ; Burma, Bangladesh ; China ; Taiwan ; Japan ; Thailand ; Vietnam ; West Malaysia ; Singapore ; Sumatra ; Java ; Lombok ; Timor ; Philippines ; Palaus Is.) ; Borneo ; Celebes ; Sula Is. Halmahera Island ; Hawai Island.
19.	<i>Oxya nitidula</i> (Walker, 1870)	India : Karnataka, Tamil Nadu, Andhra Pradesh. Sri Lanka (common throughout).
20.	<i>Oxya velox</i> (Fabricius, 1787)	India : Kashmir, Uttar Pradesh, Bihar, Pradesh, Bihar, Bengal, Assam. Burma ; Bangladesh ; China ; Thailand.
	Genus <i>Oxyina</i> Hollis, 1975	
21.	<i>Oxyina bidentata</i> (Willemse, 1925)	Pakistan ; Afghanistan ; Iran.
	Genus <i>Oxytauchira</i> Ramme, 1941	
22.	<i>Oxytauchira auroro</i> (Bruner von Wattenwyl, 1893)	Burma (Teinzo)

## SUMMARY

The subfamily Oxyinae is represented in the Indian region by 9 genera and 22 species. The distribution of the species of various genera is discussed in some detail. Three genera of Oxyinae are endemic to the region. A list of the species of Oxyinae of Indian region and their distribution is given in table 1. The Oxyinae is predominantly Oriental in composition and is a complex of Indo-Chinese and Malayan faunal derivatives.

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