

## Three new Euxoa Hübner, 1821 (Lepidoptera:Noctuidae) species from Turkey

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### Summary

Treating Noctuidae specimens, in Naturalhistory Museum Vienna, collected in Turkey during the years of 1977-1988, three interesting Euxoa Hübner, 1821 species were found. These specimens in coloration and pattern are similar to Euxoa rubrior Pinker, 1980. The comparative study on the specimens from Turkey and the holotypes of E. rubrior Pinker, 1980, E. zernyi Boursin, 1944 and determined species of E. anatolica Draudt, 1936, E. waltharii (Staudinger, 1895), E. heringi (Christoph, 1877), E. robiginosa (Staudinger, 1895) showed that they belong to three different species with a good selection characteristic differences and are described as the following new taxa: Euxoa kansui sp. n., Euxoa oezeri sp. n., and Euxoa loedlii sp. n.. Illustrations of adults and male and female genitalia, are given for each species. Female genitalia of E. rubrior is illustrated for the first time.

### Introduction

Because of the geographical situation, Turkey has a rich Noctuidae fauna, that contains approximately 900 species (Hacker, 1986 a, b, c). After doing detailed study of Turkish Noctuidae samples which are collected mainly South and Southeast of Turkey, during the years of 1977-1988 and compared with the determined material in Naturalhistory Museum Vienna and Pinker's collection, I found a group of reddish-brown coloured specimens very similar to Euxoa rubrior P. but with some differences both external and in genitalia structure. Having done comparative study with holotypes E. rubrior P., E. zernyi Brsn., and determined species of E. robiginosa Stgr., E. anatolica Drdt., E. waltharii Stgr., E. carthalina Chrt., and E. heringi Chrt. the result was that these are new species for science and are described under the name of Euxoa kansui sp. n., Euxoa oezeri sp. n., and Euxoa loedlii sp. n..

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Alınış (Received) : 20.5. 1989

Euxoa kansui spec. nov.

Holotype : ♂, Turkey, Diyarbakır, 9.10.1985, leg. N. Yaşarakıncı. Genitalia slide no. 555, S. Kornoşor.

Allotype : Turkey, Diyarbakır, 9.10.1985, leg. N. Yaşarakıncı. Genitalia slide no. 511, S. Kornoşor.

Paratype : 2 ♂, Turkey, Diyarbakır, 10.10.1985, leg. N. Yaşarakıncı. Genitalia slides no. 556, 557, S. Kornoşor.

Description : External characters of male (Fig.3). Forewing length 13 mm, expanse 31 mm. Antenna bipectinate. Head and thorax with reddish-brown hairlike scales; ground colour of forewing reddish-brown; basal antimedial, postmedian lines brown wavy; terminal line brown with a row of arrow head shape marking; orbicular spot oval, bordered brown, with a few brown scales inside; reniform spot paler than ground colour of wing, somewhat bordered with brown; fringe reddish-brown with a paler line at the base; hindwing white; discal spot absent; terminal line brown; fringe white.

Female (Fig.4) : Forewing length 15 mm, expanse 35 mm. Antenna filiform. General colour and wing pattern the same as male but lines somewhat darker. Hindwing smoky brown; veins slightly covered with brown; discal spot absent.

Male genitalia (Fig.10): Uncus cylindrical, without a hook on the apex; tegumen normal; vinculum broad V shaped; juxta tulip shaped; valve the same width on its length, margins parallel each other, corona 2/3 present; process of sacculus asymmetric, dorsal process longer than ventral one, left ventral process somewhat shorter than right one; aedeagus slightly curved (Fig. 10); vesica with a large and a small semi-round diverticula at the base; surface of small one spinulosa; a finger like diverticulum at the median part; distal half of the vesica spiny.

Female genitalia (Fig.14): Ovipositor normal, apophyses posterior two times longer than apophyses anterior, distal end of apophyses somewhat enlarged; dorsal anterior half of ductus bursae somewhat, ventral anterior half slightly sclerotized; bursae copulatrix sac like with a small cervix bursae on the left; 2/3 basal part of cervix bursae with conic shape spinula; surface of bursae copulatrix spiny; without signum.

Adults of E. kansui sp. n. (Fig.3) can be recognized by the brown prominent terminal lines on both wings; in E. rubrior (Fig.1) this line indistinct. In male genitalia, margins of valve parallel each others in E. kansui (Fig.10); process of sacculus asymmetric and not the same length. In E. rubrior (Fig.9) base of valve strongly excurved, apex slightly diluated, margins not parallel each other; process of sacculus nearly the same length on both side. In female genitalia of E. kansui (Fig.14) ovipositor; ductus bursae; bursae copulatrix longer than E. rubrior (Fig.13). In E. rubrior distal part of apophyses somewhat enlarged; both species have a different shape of spermatophore.

Dedication : The new species is respectfully dedicated to author's teacher and the famous Turkish Ecolog, Lepidopterologist Prof. Dr. İ. Akif Kansu.

Euxoa oezeri spec. nov.

Holotype: ♂ Turkey, Adana, 2.9.1985, leg. S. Kornoşor. Genitalia slide no.563, S. Kornoşor.

Allotype: Turkey, Adana, 2.9.1985, leg. S. Kornoşor. Genitalia slide no.816, S. Kornoşor.

Description : External characters of male (Fig. 5). Length of forewing 14 mm, expanse 32 mm. Antenna bipectinate. Head and thorax with reddish-brown hair like scales; collar with a brown line on the middle; thorax with brown line on both sides, these look like brown  $\pi$  shaped figure on the dorsal part of thorax; ground colour of forewing reddish-brown; basal, antimedial, postmedian and subterminal lines brown, sunizoid; terminal line brown with triangular shape dots; orbicular spot circular, bordered with brown, inside paler than ground colour; reniform spot slightly bordered with brown; hindwing completely white; without discal spot.

Female (Fig.6): Length of forewing 15 mm, expanse 35 mm. Antenna filiform. General colour and wing pattern the same as male, hindwing smoky brown, discal spot absent.

Male genitalia (Fig.11): Uncus cylindrical without hook; tegumen normal; vinculum broad V shaped with a semicircle apex; valve elongate, basal part excurved, apex narrower than basal part and not diluated, corona weak and incomplete; sacculus well developed, ventral process nearly half length of dorsal one, on both side; aedeagus slightly curved; vesica everted right with a large and a small diverticulum on the base, without cornutus; middle part of vesica with a finger like diverticulum; proximal surface of vesica smooth, distal part spinulose.

Female genitalia (Fig.15): Ovipositor somewhat shorter and ostium bursae larger than in the previous taxon; apex of apophyses enlarged; dorsal anterior of ductus bursae with goblet shape and ventral anterior slightly sclerotized; bursae copulatrix, cervix bursae larger and spermatophore shape completely different than previous taxon and E. rubrior (Fig. 13).

E. oezeri sp.n. adults can be distinguished by  $\pi$  shaped brown figure on the thorax. In male genitalia (Fig.11) valve elongate and basal part of dorsal margin excurved but not as curved as E. rubrior ; ventral saccular process nearly half length of dorsal process on both side; in female genitalia (Fig.15) apex of apophyses enlarged; spermatophore shape completely different than E.kansui sp.n. and E.rubrior .

Dedication: The new species is respectfully dedicated to author's teacher and famous Turkish Entomolog Prof. Dr. Mustafa Özer.

Euxoa loedlii spec. nov.

Holotype: ♂, Turkey, Diyarbakır, 15.10.1985, leg. N. Yaşarakıncı. Genitalia slide no. 814, S. Kornoşor.

Allotype : Turkey, Diyarbakır, 30.9.1985, leg. N. Yaşarakıncı. Genitalia slide no. 558, S. Kornoşor.

Description: External characters of male (Fig.7). Forewing length 14 mm, expanse 33 mm. Antenna bipectinate. Head and thorax light reddish-brown with sparse brown spots; ground colour of forewing reddish-brown; antimedial, postmedian and subterminal lines brown; terminal line with small brown dots between veins; orbicular and reniform spots bordered with brown, inside the same as the ground colour; hindwing white, discal spot absent.

Female (Fig.8): General looking similar to male. Antenna filiform. Transverse lines on the forewing distinct. Hindwing brown fuscuous; discal spot absent.

Male genitalia (Fig.12): Uncus cylindrical; tegumen normal; vinculum broad V shaped; dorsal margin of valve slightly excurved on the base, apex narrow with incomplete sparse corona; saccular process not the same length, ventral one shorter and incurved strongly at the base; aedeagus slightly curved; vesica everted to the right; one large and one small diverticulum at the base; surface of small one spiny, large one with a conic shaped conutus; one finger like diverticulum on the middle part of vesica.

Female genitalia (Fig.16): Ovipositor somewhat longer than previous taxa; apex of apophyses not enlarged; ductus bursae long and dorsal anterior half sclerotized; spermatophore shape different than previous taxa.

E. loedlii sp. n. adults can be distinguished by brown dots on the light reddish-brown thorax. In male genitalia (Fig.12) dorsal margins of valve not as strongly excurved as in E. rubrior and margins not parallel each other as in E. kansui sp. n.; saccular process completely different than previous taxa, ventral process shorter than dorsal one, strong, thick, and incurved at the base. In female genitalia (Fig.16) ductus bursae longer than previous taxa and spermatophore shape different.

Dedication: The new species is dedicated to the author's good friend and the keeper of the Lepidoptera Department of Naturalhistory Museum Vienna.

The type-specimens are deposited in the Plant Protection Department of the Agricultural Faculty, Çukurova University, Adana, Turkey.

## Özet

### Türkiye'den üç yeni Euxoa Hübner, 1821 (Lepidoptera : Noctuidae) türü

Bu çalışmada Türkiye'den Euxoa Hübner, 1821 cinsine bağlı üç yeni tür tanımlanmıştır. Bu türler ergin morfolojileri ve genital organ yapıları bakımından Euxoa rubrior P.'a benzer özellik göstermekte fakat belirli yapısal karakterler ile bu türden ve birbirlerinden ayrılmaktadırlar. Bilim dünyası için yeni olan Euxoa kansui sp. n., Euxoa oezeri sp. n. ve Euxoa loedlii sp. n.'nin genel morfolojik özellikleri, erkek ve dişi genital organ yapıları açıklanmış, Euxoa rubrior 'dan farklılıkları tartışılmış ve fotoğraflar ile destelenmiştir. Euxoa rubrior'un dişi genital organ yapısı ilk defa bu çalışmada incelenmiştir.

### Acknowledgements

The author is indepted to the Austrian Government which had awarded her eight months scholarship to do the research in Naturalhistory Museum Vienna. Further gratitude is expressed to Univ. Dozent Dr. M. Fischer and Dr. M. Lödl who kindly permitted to work and to check Turkish Noctuidae specimens with a large Noctuidae collection of Naturalhistory Museum Vienna and their great help.

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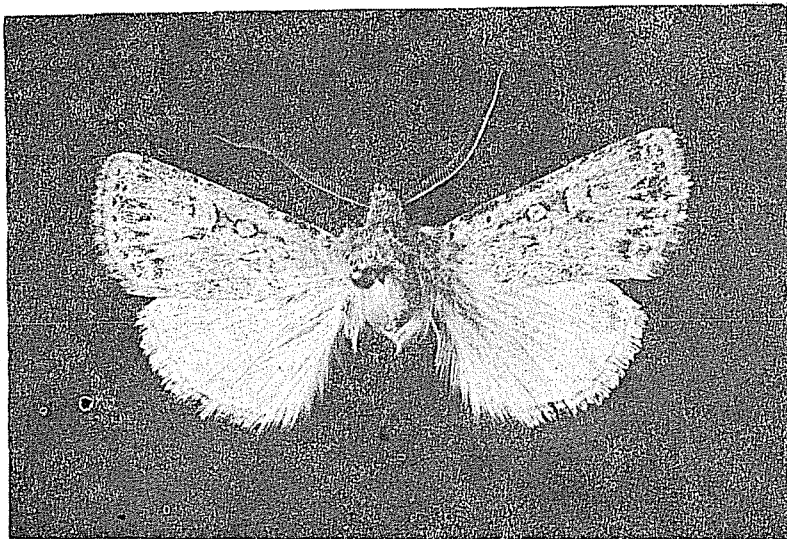


Fig. 1. Euxoa rubrior Pinker, 1980, ♂ holotype, Sivas, Gürün

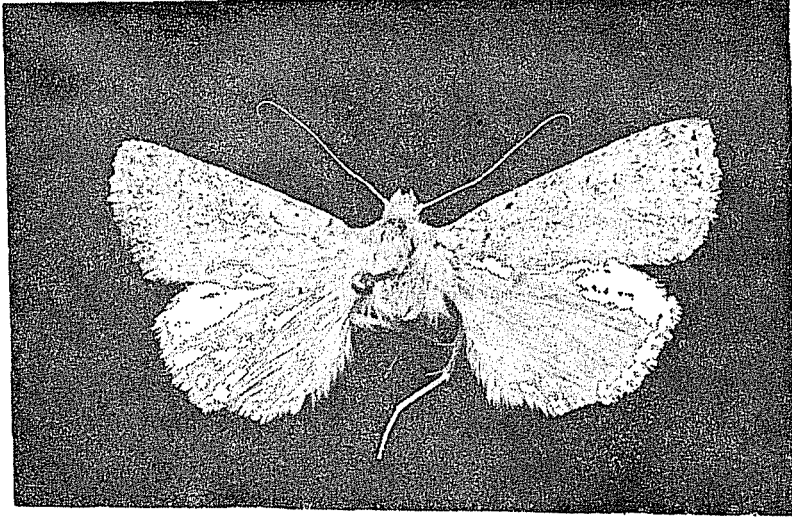


Fig. 2. *Euxoa rubrior* Pinker, 1980, ♀, Sivas, Gürün

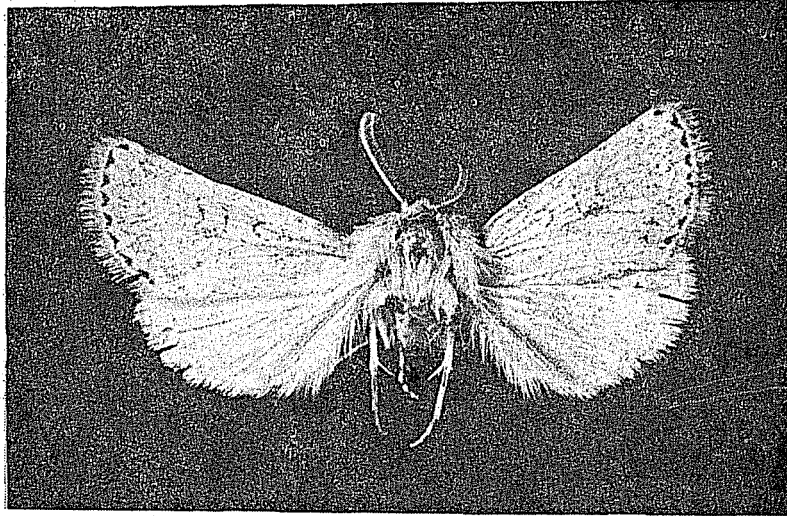


Fig. 3. *Euxoa kansui* sp. n. ♂, holotype, Diyarbakır

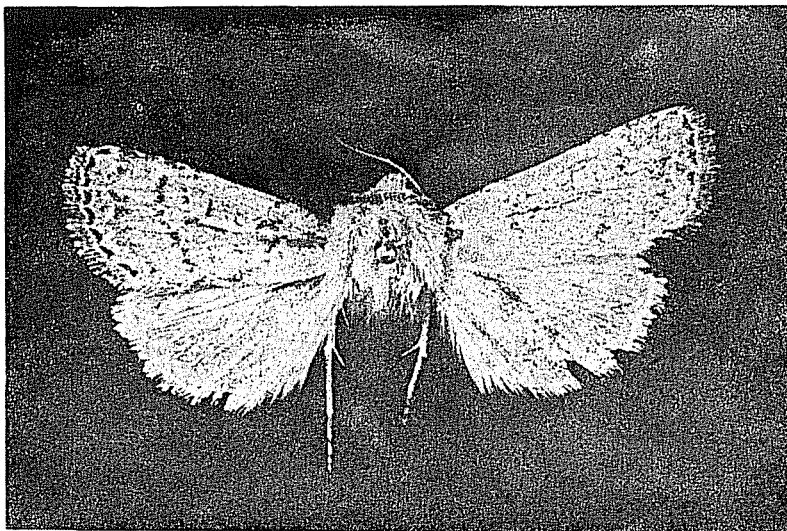


Fig. 4. *Euxoa kansui* sp. n. allotype, Diyarbakır

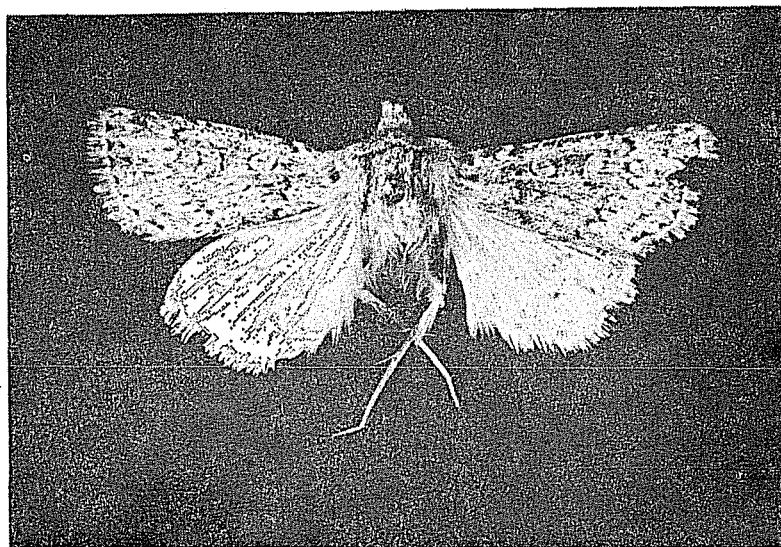


Fig. 5. *Euxoa oezeri* sp. n. ♂, holotype, Adana, Balçalı

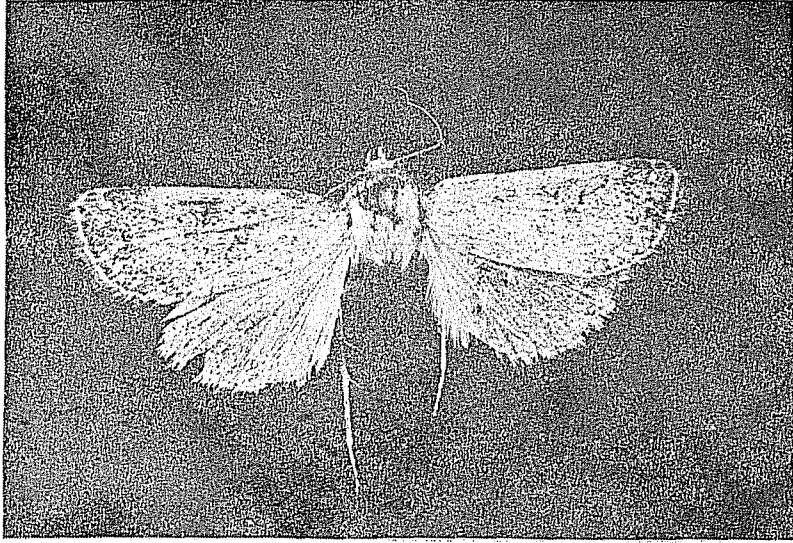


Fig. 6. *Euxoa oezeri* sp. n., allotype, Adana, Balcalı

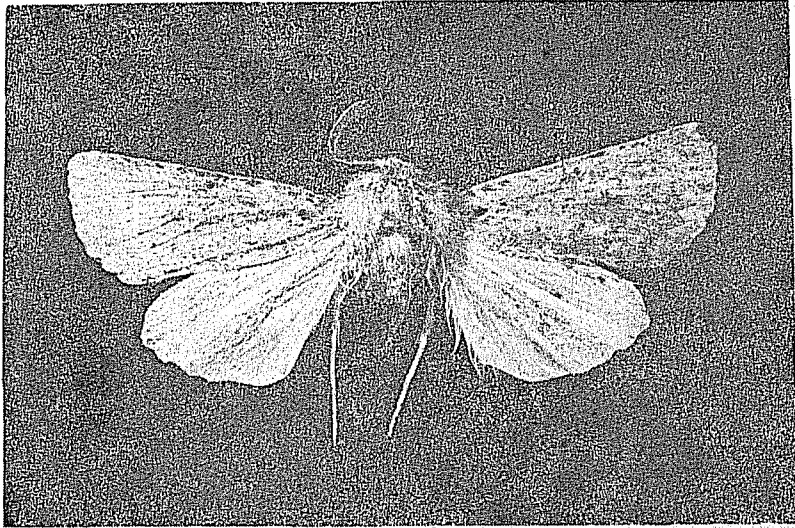


Fig. 7. *Euxoa loedlii* sp. n., ♂, holotype, Diyarbakır



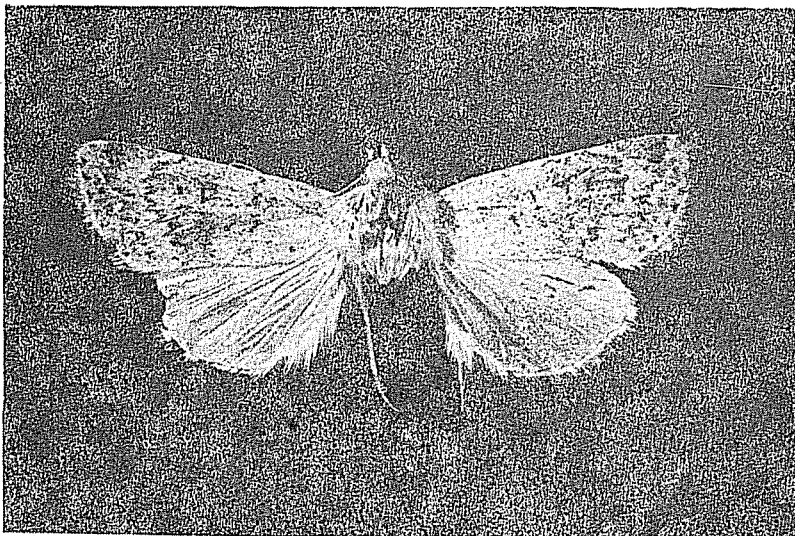


Fig. 8. *Euxoa loedlii* sp. n., allotype, Diyarbakır

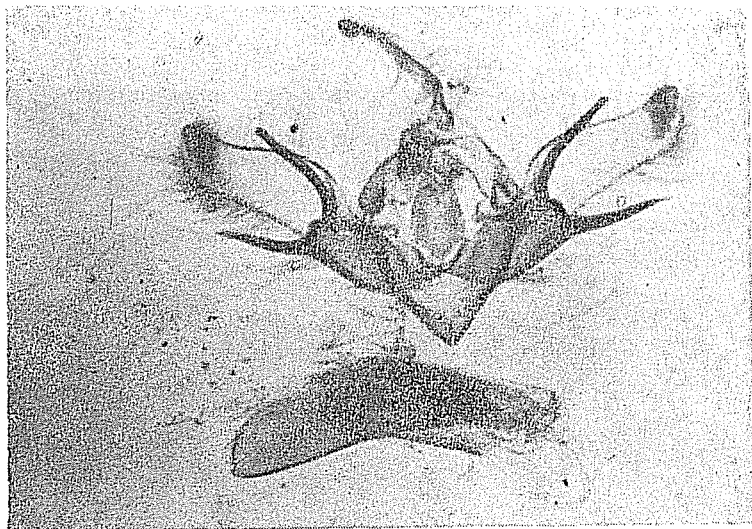


Fig. 9. Male genitalia of *Euxoa rubrior* Pinker, 1980 holotype

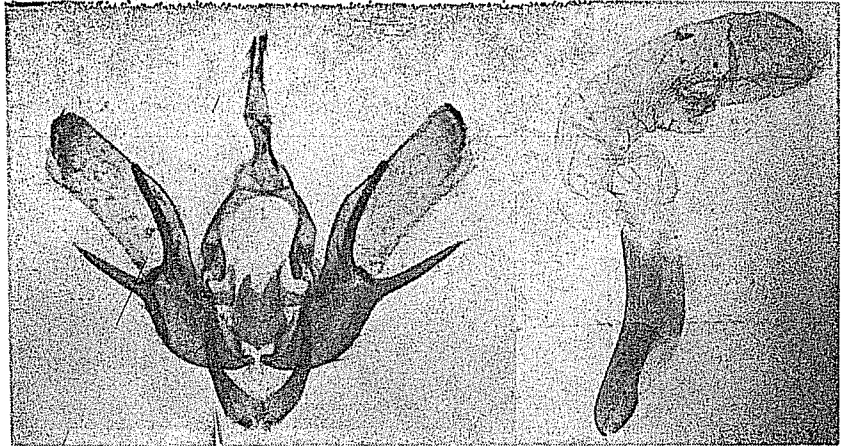


Fig. 10. Male genitalia of *Euxoa kansui* sp. n., holotype  
(Aedeagus removed and shown with vesica everted)

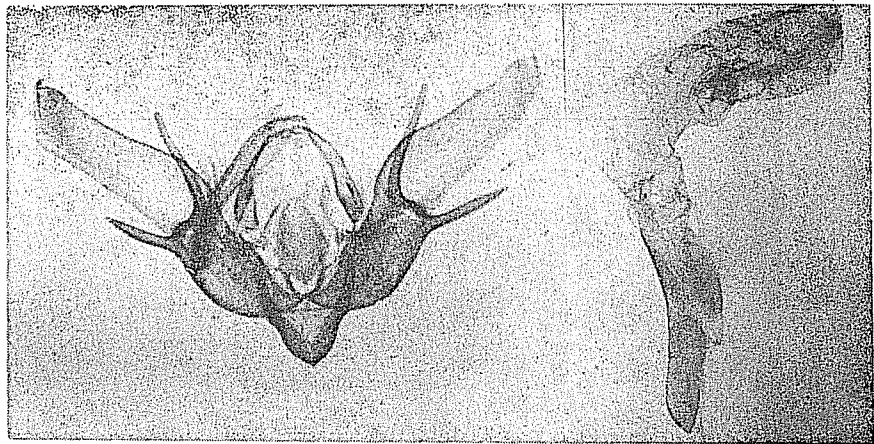


Fig. 11. Male genitalia of *Euxoa oezeri* sp. n., holotype  
(Aedeagus removed and shown with vesica everted)

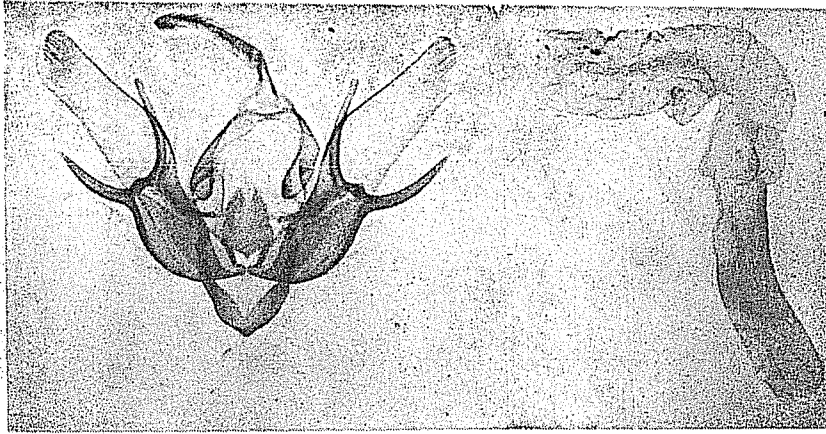
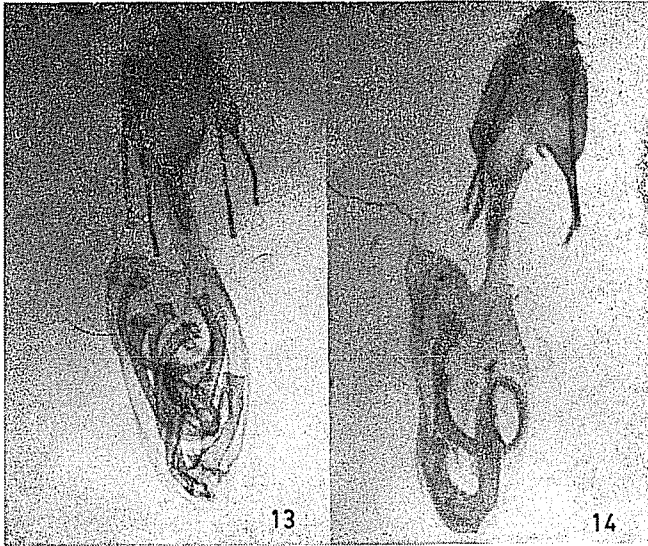
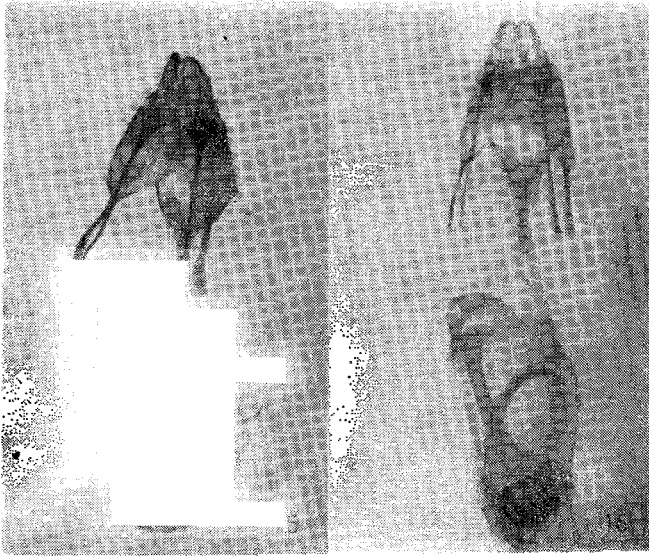


Fig. 12. Male genitalia of *Euxoa loedlii* sp. n., holotype  
(Aedeagus removed and shown with vesica everted)



Figs.13-14. Female genitalia of *Euxoa* spp. 13. *E.rubrior* P.,  
14. *E.kansui* sp. n.



Figs. 15-16. Female genitalia of Euxoa spp., 15. E. oezeri sp. n.,  
16. E. loedlii sp. n.