

ON THE CONSORTIAL ASSOCIATIONS OF *ASTERACEAE* IN WESTERN TIEN-SHANG

Asteraceae, biocoenology, consortial guilds, Insecta, Western Tien-Shang

Members of the plant family *Asteraceae* are known to have a rather rich insect fauna associated with them. Several Old World species of *Asteraceae* have become noxious weeds in North America and Australia, and this attracts an attention of entomologists to search new agents for biocontrol of some thistles, knapweeds and other genera.

The most valuable contribution to knowledge of consortii associated with *Asteraceae* at the recent time was done by H. Zwölfer and his collaborators [7 — 18], who have investigated different aspects of the fauna, space and trophic competition, host plant selection and influence of primary and secondary parasitoids on survival success of phytophagous insects on *Asteraceae* in Western Europe. The most comprehensive taxonomic revisions within main groups of plant-feeding insects often have been based upon these materials.

Taxonomic composition of consortial guilds associated with *Asteraceae* is rather stable for Palaearctic and comprises numerous species of several families of *Homoptera* (the most valuable is *Aphidiidae*), *Coleoptera* (the most numerous are *Curculionidae*, or weevils), *Lepidoptera* (mainly *Tortricidae*) and *Diptera* (mostly *Cecidomyiidae*, or gall-midges, and *Tephritidae*). *Hymenoptera* are performed mainly with numerous parasitoid species of superfamilies *Ichneumonoidea* and *Chalcidoidea*, and also with phytophagous species of *Cynipidae*.

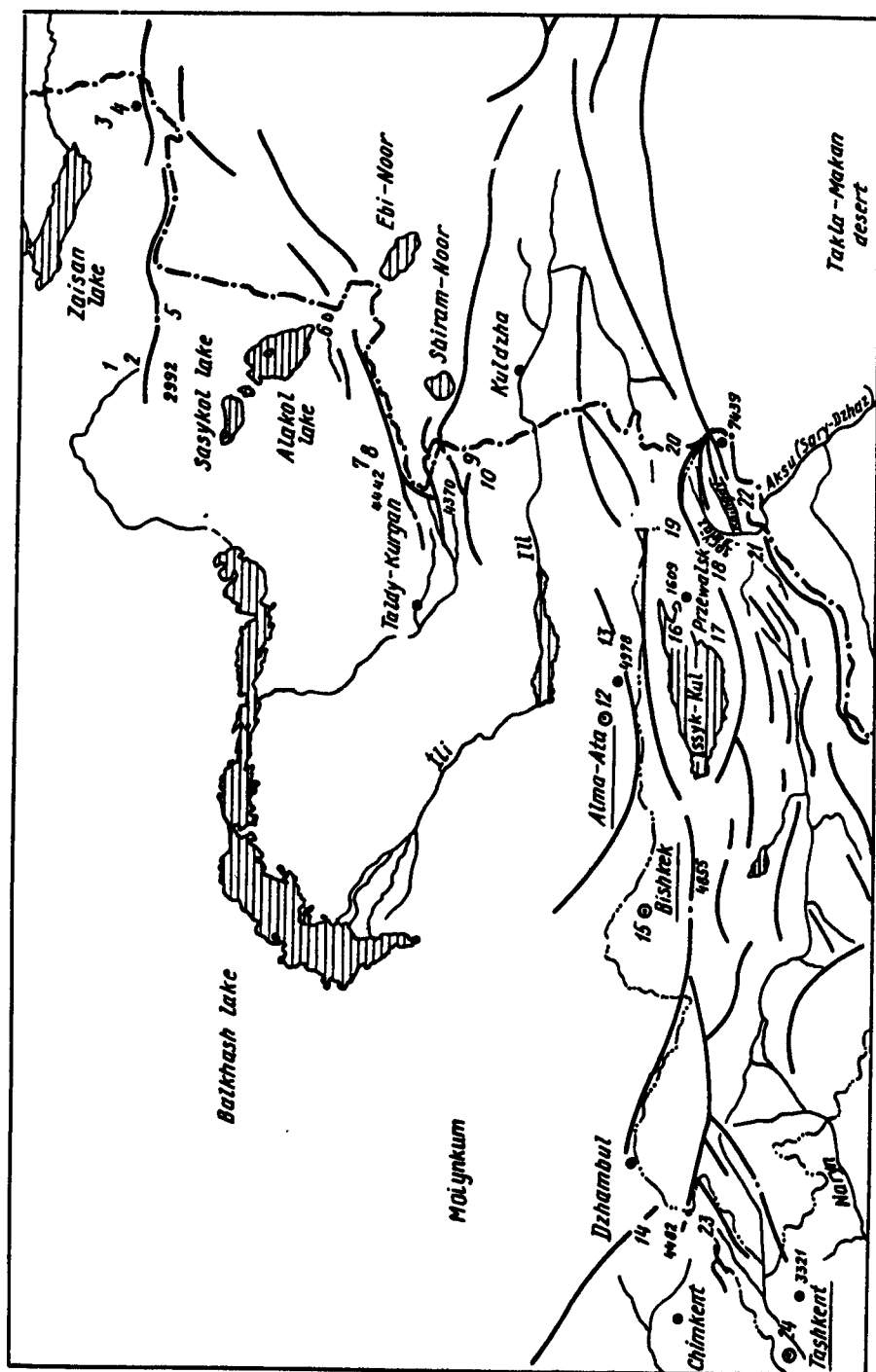
At the same time, the insect guilds on a level of species have very specific composition for every plant genus and even for subgeneric level of plant taxa. Many supraspecific taxa and also the associations of plants studied already are found to have insect consorts with different ranges of trophic specialization. It suggests, that the specific composition of consortial guilds may be useful as new characters for botanical taxonomy, syntaxonomy, and even for solution of some phylogenetic problems.

Unfortunately, a lot of rather common entomological objects are poorly treated taxonomically even in Europe. First of all, these are numerous hymenopteran parasitoids (*Eulophidae*, *Eupelmidae*, *Euritomidae* and *Pteromalidae*), as well as some phytophages (*Curculionidae*, *Tephritidae*). In many cases there are no morphological evidences for separation of populations from different plants, but some of them are often well determined by biochemical, genetical and behavioural features to be recognized as cryptic species. Also, there are many undescribed new between the studied species (e.g., species of the genus *Tephritis* L. a t r.). Nevertheless, even a preliminary data on consorts of Tien-Shang *Asteraceae* would be of some use both for botanists and for entomologists.

Data on several insect species discussed below were already published by the authors [1, 2] in their taxonomical papers, though a lot of species of *Tephritidae* (*Diptera*), several *Hymenoptera* and some other groups have never been treated taxonomically in this area, and therefore might be determined only to genus or even to family.

For the references on gall-midges (*Diptera: Cecidomyiidae*) and their parasitoids see the article by Fedotova [4].

The list below is based mainly on materials collected by the authors during two trips to Kyrgyzstan (1986 and 1992 to Karakol (formerly Przhewalsk) and Sary-Dzhaz basin) and to Kazakhstan (1986, to vicinities of Alma-Ata). Numerous specimens were kindly offered by Dr. Zoya A. Fedotova (Alma-Ata, Institute of



Orographic map of Western Tien-Shang with the localities of material collecting (further explanations see in the text)

- 1 — Tarbagatai; 2 — Aiaguz; 3 — Zaisan; 4 — Saur; 5 — Zhalauly; 6 — Espenbet and Yirgaity; 7 — Konyrtai; 8 — Lepsy; 9 — Sarybel and Khorgos; 10 — Koktal; 11 — Ketmen; 12 — Alma-Ata and Medeo; 13 — Talgar; 14 — Karatau; 15 — Bishkek; 16 — Pristan-Przewalski; 17 — Dzhety-Oguz; 18 — Karakol (= Przewalski), plain and Karakol river ravin; 19 — Shybyndysai; 20 — Bayankol; 21 — Kaiyngdy; 22 — Tashkoro; 23 — Aksu-Dzhabagly; 24 — Chatkal

Zoology) and Dr. Lyudmila B. Volkova (Moscow, Institute of Evolutionary Morphology and Ecology).

The plants were determined by the authors and by Dr. Georgy A. Laz'kov (Bishkek, Institute of Biology).

All the plant names are given after «The Flora of the USSR» [5] with additions and corrections by S.K. Cherepanov [6]. The order of plant taxa in the list follows «The Flora of the USSR» system.

The plant names marked with (?) mean that the insects were swept and only probably are feeding within or on these plants.

The following abbreviations are used for the orders of *Insecta*: *Col.* = *Coleoptera*; *Dip.* = *Diptera*; *Hem.* = *Hemiptera*; *Hym.* = *Hymenoptera*; *Lep.* = *Lepidoptera*. Name of order is omitted for all the hymenopteran parasitoid species.

All the locations are abbreviated in the list below as follows (arranged alphabetically):

Aiaguz — 70 km E Aiaguz: Tarbagatai ridge (2) (coll. Z. Fedotova),
Aksu-Dzhabagly — Aksu-Dzhabagly Natural Reserve (23) (coll. A. Ivannikov);

Alma-Ata — plain in vicinities of Alma-ata (12) (coll. A. Ivannikov, E. Kameneva, V. Korneyev);

Bayankol — Bayankol river ravin, 28 km SW Narynkol: Terskei Alatau, 2.400 — 2.900 m (20) (coll. Z. Fedotova);

Bishkek — plain in vicinities of Bishkek (= Frunze) (15) (coll. E. Kameneva, V. Korneyev);

Chatkal — Chatkal Natural Reserve (24) (coll. L. Volkova);

Dzhety-Oguz — Dzhety-Oguz ravin SW Karakol (= Przewalsk): Terskei Alatau, 1.800 m (17) (coll. E. Kameneva, V. Korneyev);

Espenbet — Espenbet river 30 km SE Uch-Aral, 550 m (60) (coll. Z. Fedotova);

Kaiyngdy — Kaiyngdy river mouth, 10 km S Enghilchek, Enghilchek Too ridge, 2.300 m (21) (coll. E. Kameneva, V. Korneyev);

Karakol — Karakol (= Przewalsk), plain (1.000 m) (16) and Karakol river ravin: Terskei Alatau, 2.000 — 2.200 m (18) (coll. E. Kameneva, V. Korneyev);

Karatau — Karatau mountain ridge, 30 km W Dzhambul (14) (coll. A. Ivannikov);

Ketmen — Ketmen ridge: vicinities of Chundzha (11) (coll. M. Nesterov);

Khorgos — see Sarybel, 2.800 m (9);

Koktal — vicinities of Koktal: Koyandytau mountains, Karagaily ridge, 2.200 m (10) (coll. V. Ermolenko);

Konyrtau — Konyrtau ridge, 10 km SW Sarybien, plain steppe in vicinities of Dzhungar Alatau (7) (coll. Z. Fedotova);

Lepsy — Lepsy river 13 km S from Cherkasskoe: Dzhungar alatau, 1.050 — 1.150 m (8) (coll. Z. Fedotova);

Medeo — see Alma-Ata, Zailiiski (Trans-Ili) Alatau, 1.100 m (12) (coll. E. Kameneva, V. Korneyev);

Sarybel — 33 km NE from Panfilov: Tyshkan (= Boro-Khoro) ridge, 1.750 m (9) (coll. V. Ermolenko);

Saur — Saur ridge, 20 km S Zaisan town, 1500 m (4) (coll. Z. Fedotova);

Shybyndysai — 7 km S from Dzhergalan: Terskei Alatau, 2.800 m (19) (coll. Z. Fedotova);

Talgar — plain in vicinities of Talgar town and Alma-Ata Natural Reserve, 1.500 — 2.800 m (13) (coll. E. Kameneva, V. Korneyev);

Tarbagatai — 30 km E from Tarbagatai town: Tarbagatai ridge (1) (coll. Z. Fedotova);

Tashkoroo — 3-5 km SE Enghilchek, vicinities of Tashkoroo, Enghilchek Too and Kaiyngdy Kattah mountain ridges, 2.500 — 4.000 m (22) (coll. E. Kameneva, V. Korneyev);

Yirgaity — see Espenbet (6);

Zaisan — Zaisan town — 13 km SWW, plain in vicinities of Saur ridge (3) (coll. Z. Fedotova);

Zhalauly — Tarbagatai ridge, NE Makancha (5) (coll. Z. Fedotova).

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List of asteraceous plants and consorts associated with them in Western Tien-Shang

Plants	Phytophages	Parasitoids	Locality
Subfamily <i>Carduoideae</i>			
Tribe <i>Astreae</i>			
<i>Solidago</i> L			
<i>S. virgaurea</i> L. aggr	<i>Campiglossa grandinata</i> Rond (Dip Tephritidae)	<i>Pteromalidae</i> gen sp	Talgar
the same	<i>Whiteina loewiana</i> H e n d e l (Dip Tephritidae)	<i>Habrocytus</i> sp (<i>Pteromalidae</i>)	Talgar, Medeo
" "	<i>Pterophoridae</i> gen sp (Lep)		Talgar
" "	<i>Lepidoptera</i> fam gen sp	<i>Apanteles</i> sp (<i>Braconidae</i>)	Talgar
" "	<i>Phanacis</i> sp (Hym Cynipidae)		Medeo
<i>Heteropappus</i> L e s s			
<i>H. canescens</i> (Nees) Novopokr	<i>Tephritis</i> sp 1 aff <i>corolla</i> (Dip Tephritidae)	<i>Habrocytus</i> sp (<i>Pteromalidae</i>)	Tashkoroo (2 500)
the same	<i>Tephritis</i> sp 2 aff <i>neesii</i> (Dip Tephritidae)	the same	Tashkoroo (2 500)
<i>Aster</i> L			
<i>A. alpinus</i> L affr	<i>Tephritis</i> sp 2 aff <i>neesii</i> (Dip Tephritidae)	-	Shybyndysai
the same	<i>Phytomyza</i> sp (Dip Agromyzidae)	-	the same
<i>A. tolmatshchevii</i> Tamamsch (A <i>alpinus</i> aggr)	<i>Tephritis</i> sp 1 aff <i>corolla</i> (Dip Tephritidae)	<i>Habrocytus</i> sp (<i>Pteromalidae</i>)	Tashkoroo (2 500)
<i>A. vvedenskii</i> Bondar	<i>Campiglossa montana</i> Kornejev	<i>Habrocytus</i> sp (<i>Pteromalidae</i>)	Tashkoroo (2 500)
the same	<i>Tephritis</i> sp 1 aff <i>corolla</i> (Dip Tephritidae)	the same	the same
<i>Krylovia</i> Schischk			
<i>K. limonifolia</i> (Less) Schischk	<i>Campiglossa montana</i> Kornejev (Dip Tephritidae)	<i>Habrocytus</i> sp (<i>Pteromalidae</i>)	Espenbet, Tashkoroo (2 500)
the same	<i>Tephritis</i> sp 2 aff <i>neesii</i> (Dip Tephritidae)	the same	Bayankol, Tashkoroo
" "	<i>Phytomyza</i> sp (Dip Agromyzidae)		the same
<i>Asterothamnus</i> Novopokr			
<i>A. schischkini</i> Tamamsch	<i>Campiglossa pseudodiluta</i> Kornejev (Dip Tephritidae)	<i>Habrocytus</i> sp (<i>Pteromalidae</i>)	Kaiyngdy, Tashkoroo (2 500)

Plants	Phytophages	Parasitoids	Locality
<i>Erigeron</i> L.			
<i>E. aurantiacus</i> Regel	(? <i>Lepidoptera</i> fam. gen. sp.)	<i>Tachinidae</i> gen. sp. (Dip.)	Talgar
<i>E. aurantiacus</i>	<i>Lepidoptera</i> fam. gen. sp. 1	-	Talgar
the same	<i>Psychidae</i> gen. sp. (Lep.)	-	the same
" "	<i>Tephritis</i> sp. 1 aff. <i>corolla</i> (Dip.: <i>Tephritidae</i>)	<i>Bracon</i> sp. (<i>Braconidae</i>)	" "
" "	the same	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	" "
" "	<i>Campiglossa</i> sp. n. aff. <i>montana</i>	-	Aksu-Dzhabagly
<i>E. acris</i> L. aggr.	<i>Whiteina</i> sp. aff. <i>punctella</i>	-	Azu-Tau
(?) the same	the same	-	Karakol
<i>E. sp.</i>	<i>Psychidae</i> gen. sp. (Lep.)	<i>Bracon</i> sp. (<i>Braconidae</i>)	Talgar
the same	<i>Tephritis</i> sp. 1 aff. <i>corolla</i> (Dip.: <i>Tephritidae</i>)	-	the same
" "	<i>Phytomyza</i> sp. (Dip.: <i>Agromyzidae</i>)	-	
Tribe <i>Inuleae</i>			
<i>Cymbolaena</i> Smoljan.			
<i>C. griffithii</i> (A. Gray) Wagenitz (= <i>C. longifolia</i> (Boiss. et Reut.) Smoljan.)	<i>Trupanea stellata</i> Fuessly (Dip.: <i>Tephritidae</i>)	-	Yirgaity
<i>Leontopodium</i> R. Br. ex Cass.			
<i>L. fedtschenkoanum</i> Beauvi	<i>Tephritis</i> sp. 3 aff. <i>corolla</i> (Dip.: <i>Tephritidae</i>)	<i>Tetrastichinae</i> gen. sp. 1 (<i>Eulophidae</i>)	Bayankol, Tashkoroov (2.500 — 3.300 m)
the same	the same	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	Tashkoroov
" "	<i>Trupanea stellata</i> Fuessly (Dip.: <i>Tephritidae</i>)	<i>Tetrastichinae</i> gen. sp. 2 (<i>Eulophidae</i>)	Bayankol
<i>L. sp.</i> (?)	<i>Homeotricha</i> sp. n. aff. <i>brevicornis</i> (Dip.: <i>Tephritidae</i>)	-	Khorgos, Karakol, Tashkoroov
<i>Inula</i> L.			
<i>I. macrophylla</i> Kar. et Kir. (= <i>I. grandis</i> Schrenk)	<i>Tephritis kogardtauica</i> Hering (Dip.: <i>Tephritidae</i>)	-	Alma-Ata, Chatkal
the same	<i>Tephritis</i> sp. 4 aff. <i>corolla</i> (Dip.: <i>Tephritidae</i>)	-	Chatkal
(?) the same	<i>Goniurellia tridens</i> Hendel	-	Chatkal
<i>I. salicina</i> L.	<i>Tephritis</i> sp. 5 aff. <i>corolla</i> (Dip.: <i>Tephritidae</i>)	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	Lepsy
(?) <i>I. sp.</i>	<i>Myopites tenella</i> Frlid. (Dip.: <i>Tephritidae</i>)	-	Karatau
Tribe <i>Anthemideae</i>			
<i>Achillea</i> L.			
<i>A. millefolium</i> L.	<i>Tephritis nigricauda</i> Lw. (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	Tarbagatai
(?) <i>A. sp.</i>	<i>Eurasimona stigma</i> Lw. (Dip.: <i>Tephritidae</i>)	-	Pristan'-Przewalsk

Plants	Phytophages	Parasitoids	Locality
<i>Tanacetum</i> L.			
<i>T. crassipes</i> (S t s c h e g l.) T z v e l.	<i>Tephritis</i> sp. 6 aff. <i>nebulosa</i> (Dip.: <i>Tephritidae</i>)	-	Lepsey
the same	<i>Aption</i> sp. (Col.: <i>Apionidae</i>)	-	the same
<i>T. karelini</i> T z v e l.	<i>Tephritis</i> sp. 6 aff. <i>nebulosa</i> (Dip.: <i>Tephritidae</i>)	-	Saur
<i>T. turlanicum</i> (P a v l.) T z v e l.	<i>Eurasimona fedotovae</i> K o r n e y e v et W h i t e	-	Karatau
<i>T.</i> sp.	<i>Tephritis</i> sp. 7 aff. <i>neesii</i> (Dip.: <i>Tephritidae</i>)	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	Medeo
<i>T.</i> sp.	<i>Cecidomyiidae</i> gen. sp. (Dip.)	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	the same
<i>Artemisia</i> L.			
<i>A. vulgaris</i> L.	<i>Tephritis</i> sp. 8 aff. <i>nebulosa</i> (Dip.: <i>Tephritidae</i>)	<i>Pteromalidae</i> gen. sp.	Talgar
the same	<i>Campiglossa misella</i> L w. (Dip.: <i>Tephritidae</i>)	<i>Pteromalidae</i> gen. sp.	the same
" "	<i>Cecidomyiidae</i> gen. sp. (Dip.)	<i>Pteromalidae</i> gen. sp.	" "
" "	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	" "
<i>A. rutifolia</i> S t e p h. ex S p r e n g.	<i>Tephritis brachyura</i> L w. (Dip.: <i>Tephritidae</i>)	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	Ketmen
(?) the same	<i>Tephritis variata</i> B e c k.	(Dip.: <i>Tephritidae</i>)	Tashkoroo (2.500 m)
(?) the same	<i>Oxyparna melanostigmata</i> K o r n e y e v	-	Tashkoroo (2.500 m)
<i>A. absinthii</i> L.	<i>Tephritis dioscurea</i> L w. (Dip.: <i>Tephritidae</i>)	-	Azu-Tau
the same	<i>Cecidomyiidae</i> gen. sp. (Dip.)	-	the same
<i>A. sieversiana</i> W i l l d.	<i>Tephritis</i> sp. 9 aff. <i>dioscurea</i> (Dip.: <i>Tephritidae</i>)	-	Talgar
the same	<i>Whiteina</i> sp.	-	the same
" "	<i>Tephritidae</i> gen. sp. (Dip.)	<i>Pteromalidae</i> gen. sp.	" "
" "	<i>Cecidomyiidae</i> gen. sp. (Dip.)	<i>Pteromalidae</i> gen. sp.	" "
" "	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	" "
<i>A. santolinifolia</i> (P a m p.) T u r c z. ex B e s s.	<i>Hendrella sordida</i> K o r n e y e v	<i>Pteromalidae</i> gen. sp.	Tashkoroo (2.500 m)
the same	<i>Campiglossa misella</i> L w.	<i>Pteromalidae</i> gen. sp.	Talgar
" "	<i>Whiteina</i> sp.	<i>Pteromalidae</i> gen. sp.	the same
(?) the same	<i>Oxyparna diluta</i> B e c k e r (Dip.: <i>Tephritidae</i>)	-	Tashkoroo (2.500 m)
<i>A. dracunculus</i> L.	<i>Campiglossa misella</i> (Dip.: <i>Tephritidae</i>)	-	Talgar
the same	<i>Cecidomyiidae</i> gen. sp. (Dip.)	-	the same
" "	Dip. (? <i>Cecidomyiidae</i> , ? <i>Tephritidae</i>)	<i>Pteromalidae</i> gen. sp.	" "
" "	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	" "

Plants	Phytophages	Parasitoids	Locality
<i>Artemisia dracunculus</i>	<i>Tephritidae</i> (?) gen. sp. (stem galls)	<i>Pteromalidae</i> gen. sp.	Talgar
the same	<i>Tephritis variata</i> Becker (Dip.: <i>Tephritidae</i>)	-	Airtas
<i>A. sp.</i>	<i>Whiteina</i> sp. aff. <i>absinthii</i>	<i>Pteromalidae</i> gen. sp.	Talgar
<i>A. sp.</i>	<i>Tephritis brachyura</i> Lw. (Dip.: <i>Tephritidae</i>)	<i>Torymidae</i> gen. sp.	the same
the same	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	the same
(?) <i>A. sp.</i>	<i>Hendrella winnertzi</i> Frfld.	-	Koktal
(?) <i>A. sp.</i>	<i>Oxyna tarbagatajensis</i> Korneyev	-	Zhalauly
(?) <i>A. sp.</i>	<i>Oxyna tianshanica</i> Korneyev	-	Karakol (Pokrovka)
(?) <i>A. sp.</i>	<i>Oxyna guttatofasciata</i> Lw. (Dip.: <i>Tephritidae</i>)	-	Talgar, Ketmen, Karakol, Tashkoroo (2.500 m)
Tribe <i>Senecioneae</i>			
<i>Ligularia</i> Cass.			
<i>L. narynensis</i> (C. Winkl.) O. et B. Fedtsch.	<i>Tephritis</i> sp. 10 aff. <i>brachyura</i> (Dip.: <i>Tephritidae</i>)	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	Sarybel
<i>L. thyrsoides</i> (Ledeb.) DC.	<i>Campiglossa</i> sp. n.	<i>Eurytoma</i> sp. (<i>Eurytomidae</i>)	Lepsoy
the same	the same	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	the same
" "	<i>Trupanea stellata</i> Fuessly (Dip.: <i>Tephritidae</i>)	<i>Torymidae</i> gen. sp.	" "
<i>L. heterophylla</i> Rupr.	<i>Tephritis</i> sp. 11 aff. <i>vespertina</i> (Dip.: <i>Tephritidae</i>)	-	Chatkal
<i>L. alpigena</i> Pojark.	(?) <i>Vidalia cornuta</i> Scop. (Larvae) (Dip.: <i>Tephritidae</i>)	-	Dzhety-Oguz
Tribe <i>Cardueae</i>			
<i>Echinops</i> L.			
(?) <i>E. sp.</i>	<i>Urophora pontica</i> Hering (Dip.: <i>Tephritidae</i>)	-	Alma-Ata
<i>Cousinia</i> Cass.			
<i>C. tianshanica</i> Kult.	<i>Urophora repeteki</i> Munro	<i>Eurytoma</i> sp. (<i>Eurytomidae</i>)	Chatkal
the same	<i>Tephritis</i> sp. 12 aff. <i>admissa</i> (Dip.: <i>Tephritidae</i>)	-	the same
<i>Saussurea</i> DC.			
<i>S. glacialis</i> Herd.	<i>Tephritis</i> sp. 13 aff. <i>mongolica</i> (Dip.: <i>Tephritidae</i>)	-	Tashkoroo (4.000 m)
<i>S. leucophylla</i> Schrenk	<i>Terellia</i> sp. 1 aff. <i>serratulae</i>	-	Tashkoroo (2.800 — 3.000 m)
the same	<i>Terellia</i> sp. 2 aff. <i>maculicauda</i>	-	the same
" "	<i>Tephritis</i> sp. 14 aff. <i>frauenfeldi</i> (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	" "
<i>S. sordida</i> Kar. et Kir.	<i>Terellia</i> sp. 1 aff. <i>serratulae</i>	-	Tashkoroo (2.800-3.000 m)

Plants	Phytophages	Parasitoids	Locality
<i>Saussurea sordida</i>	<i>Terellia</i> sp. 2 aff. <i>maculicauda</i>	-	Tashkoro (2.800-3.000 m)
<i>S. sordida</i>	<i>Tephritis</i> sp. 14 aff. <i>frauenfeldi</i> (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	the same
the same	the same	the same	Talgar (2.800 m)
<i>S. larionovii</i> Winkl.	<i>Eriophyidae</i> gen. sp. (<i>Acariformes</i>)	-	Tashkoro (2.500 m)
the same	<i>Tephritis</i> sp. 15 aff. <i>frauenfeldi</i> (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	the same
<i>S. kuschakewiszii</i> Winkl.	<i>Tephritis</i> sp. 15 aff. <i>frauenfeldi</i> (Dip.: <i>Tephritidae</i>)	-	Tashkoro (2.500 — 2.900 m)
<i>S. karaartscha</i> Saposchn.	<i>Tephritis</i> sp. 16 aff. <i>frauenfeldi</i> (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	the same
(?) the same	<i>Urophora tenuis</i> Becker (Dip.: <i>Tephritidae</i>)	-	the same
<i>Carduus</i> L.			
<i>C. crispus</i> L.	<i>Cochylis</i> sp. (Lep.: <i>Tortricidae</i>)	<i>Bracon</i> sp. (<i>Braconidae</i>)	Karakol
the same	?	<i>Tetrastichinae</i> gen sp. (<i>Eulophidae</i>)	the same
" "	<i>Terellia serratulae</i> L.	<i>Eurytoma robusta</i> Mayr	Talgar
" " "	the same	<i>E. tibialis</i> Boh. (<i>Eurytomidae</i>)	the same
" "	"	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	" "
" "	<i>Urophora solstitialis</i> L.	<i>Bracon</i> sp. (<i>Braconidae</i>)	" "
" "	the same	<i>Eurytoma robusta</i> Mayr (<i>Eurytomidae</i>)	" "
" "	"	<i>Habrocytus</i> sp. aff. <i>musaeus</i> (<i>Pteromalidae</i>)	" "
" "	<i>Tephritis heiseri</i> Frfld. (Dip.: <i>Tephritidae</i>)	-	Dzhety-Oguz
<i>C. coloratus</i> Tamamsch.	<i>Terellia serratulae</i> L. (Dip.: <i>Tephritidae</i>)	-	Chatkal
<i>Alfredia</i> Cass.			
<i>A. acantholepis</i> Kar. et Kir.	<i>Terellia serratulae</i> L.	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	Talgar
the same	<i>Chaetostomella onotrophes</i> Lw.	-	the same
" "	<i>Tephritis tatarica</i> Portsch. (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	.
<i>A. nivea</i> Kar. et Kir.	<i>Terellia serratulae</i> L.	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	Talgar
the same	<i>Chaetostomella onotrophes</i> Lw.	-	the same
" "	<i>Tephritis tatarica</i> Portsch. (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	" "
<i>Cirsium</i> Mill.			
<i>C. vulgare</i> (Savi) Ten.	<i>Oxycarenus pallens</i> H.-S. (Hem.: <i>Lygaeidae</i>)	-	Talgar

Plants	Phytophages	Parasitoids	Locality
<i>C. vulgare</i>	<i>Urophora stylata</i> F. (Dip.: Tephritidae)	<i>Habrocytus</i> sp. (Pteromalidae)	Talgar
the same	<i>Phytophaga</i> sp. (Dip.: Agromyzidae)	-	the same
<i>C. semenovii</i> R e g e l	<i>Terellia serratulae</i> L. (Dip.: Tephritidae)	<i>Torymidae</i> gen. sp.	Talgar (2.800 m)
<i>C. albertii</i> R e g e l et S c h m a l.	<i>Tephritis conura</i> L w. (Dip.: Tephritidae)	<i>Eurytoma</i> sp. (Eurytomidae)	Dzhety-Oguz
the same	the same	<i>Habrocytus</i> sp. (Pteromalidae)	the same
" "	"	<i>Tetrastichinae</i> gen. sp. (Eulophidae)	" "
<i>C. polyacanthum</i> K a r. et K i r. (= <i>C. sieversii</i> (F i s c h. et M e y.) P e t r a k.)	<i>Terellia serratulae</i> L.	<i>Habrocytus</i> sp. (Pteromalidae)	" "
the same	the same	<i>Tetrastichinae</i> gen. sp. (Eulophidae)	" "
" "	<i>Tephritis conura</i> L w. (Dip.: Tephritidae)	<i>Habrocytus</i> sp. (Pteromalidae)	" "
<i>C. arvense</i> (L.) S c o p.??	<i>Tephritis conura</i> L w. (Dip.: Tephritidae)	-	Espenbet
<i>C. ochrolepideum</i> J u z.	<i>Cleonis piger</i> L. (Col.: Curculionidae)	-	Tashkoroo (2.500)
the same	<i>Terellia ruficauda</i> F.	-	Karakol
" "	<i>Xyphosia miliaria</i> S c h r e n k (Dip.: Tephritidae)	-	the same
<i>Onopordum</i> L.			
<i>O. sp.</i>	<i>Tephritis postica</i> L w. (Dip.: Tephritidae)	-	Dzhety-Oguz, Bishkek
<i>Serratula</i> L.			
(?) <i>S. wolffii</i> A n d r a e (= <i>S. coronata</i> L. p.p.)	<i>Urophora coronata</i> B a s o v (Dip.: Tephritidae)	-	Koktal
<i>S. kirghisorum</i> I l j i n	<i>Terellia</i> sp. 3 aff. <i>vectensis</i> (a female) (Dip.: Tephritidae)	-	Konyrtau
<i>S. alatavica</i> C.A. M e y	<i>Cochylis</i> sp. (Lep.: Tortricidae)	-	Talgar (1.000 m)
the same	<i>Urophora tenuis</i> B e c k e r	<i>Eurytoma</i> sp. aff. <i>robusta</i> (Eurytomidae)	the same
" "	the same	<i>Habrocytus</i> sp. (Pteromalidae)	" "
" "	"	<i>Habrocytus</i> sp. (Pteromalidae)	" "
<i>S. tianshanica</i> S a p o s c h n. et E. N i k i t.	<i>Cassida</i> sp. (Col.: Chrysomelidae)	-	Tashkoroo (2.800)
the same	<i>Aylax</i> sp. aff. <i>serratulae</i> (Hym.: Cynipidae)	<i>Pteromalidae</i> gen. sp.	the same
" "	<i>Terellia</i> sp. 4 (Larvae)	-	" "
" "	<i>Chaetostomella</i> sp. aff. <i>onotrophes</i> (Dip.: Tephritidae)	-	" "

Plants	Phytophages	Parasitoids	Locality
<i>Serratula</i> sp.	<i>Tephritis</i> sp. 17 aff. <i>frauenfeldi</i> (Dip.: <i>Tephritidae</i>)	<i>Eurytoma</i> sp. aff. <i>robusta</i> (<i>Eurytomidae</i>)	Alma-Ata
the same	the same	<i>Habrocystus</i> sp. (<i>Pteromalidae</i>)	the same
" "	(?) <i>Cynipidae</i> gen. sp. (Hym.)	<i>Ormyrus</i> sp. (<i>Ormyridae</i>)	" "
" "	(?) <i>Cleoninae</i> : <i>Lixini</i> gen. sp. (Col.: <i>Curculionidae</i>)	<i>Exeristes roborator</i> F. (<i>Ichneumonidae</i>)	" "
<i>Acroptilon</i> C a s s.			
<i>A. repens</i> (L.) D C.	<i>Urophora xanthippe</i> M u n r o	<i>Eurytoma acroptilae</i> Z e r o v a	Saur, Alma-Ata
the same	<i>U. kasachstanica</i> V. R i c h t e r	the same	the same
" "	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	" "
" "	<i>Acanthiophilus helianthi</i> R o s s i (Dip.: <i>Tephritidae</i>)	<i>Eurytoma robusta</i> M a y r	" "
" "	the same	<i>E. tibialis</i> B o h e m a n (<i>Eurytomidae</i>)	" "
<i>Centaurea</i> L.			
<i>C. rutenica</i> L a m. (incl. <i>C. ugamica</i>)	<i>Oxycarenus pallens</i> H.-S. (Hem.: <i>Lygaeidae</i>)	-	Alma-Ata
the same	<i>Metzneria montana</i> P i s k. (Lep.: <i>Gelechiidae</i>), <i>Apanteles</i> sp. (<i>Braconidae</i>)	the same	
" "	<i>Terellia colon</i> M g.	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	" "
" "	<i>Urophora volkovae</i> K o r n e y e v (Dip.: <i>Tephritidae</i>)	<i>Eurytoma tibialis</i> B o h.	" "
<i>C. adpressa</i> L e d e b.	<i>Terellia colon</i> M g.	-	Pristan-Przewalsk
the same	<i>Urophora lopholomae</i> W h i t e et K o r n e y e v (Dip.: <i>Tephritidae</i>)	<i>Bracon luteator</i> S p i n. (<i>Braconidae</i>)	the same
" "	(?) <i>Isocolus</i> sp. (Hym.: <i>Cynipidae</i>)	<i>Eudecatoma submutica</i> T h o m s o n (<i>Eurytomidae</i>)	" "
<i>C. squarrosa</i> W i l l d.	<i>Isocolus centaureae</i> D i a k. (<i>I. rogenhofferi</i> s. lat.) (Hym.: <i>Cynipidae</i>)	<i>Eudecatoma strigifrons</i> T h o m s o n (<i>Eurytomidae</i>)	Bishkek
the same	the same	<i>Ormyrus orientalis</i> W a l k e r (<i>Ormyridae</i>)	the same
" "	"	<i>Eupelmus microzonus</i> F o r s t. (<i>Eupelmidae</i>)	" "
" "	<i>Terellia zerovae</i> K o r n e y e v (Dip.: <i>Tephritidae</i>)	<i>Pteromalidae</i> gen. sp.	" "
" "	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	" "

<i>Plants</i>	<i>Phytophages</i>	<i>Parasitoids</i>	<i>Locality</i>
<i>C. iberica</i> T r e v. ex S p r e n g.	<i>Bruchidius seminarius</i> L. (Col.: <i>Bruchidae</i>)	-	Bishkek
<i>C. iberica</i>	<i>Apion</i> sp. (Col.: <i>Apionidae</i>)	-	Bishkek
the same	<i>Chaetorellia conjuncta</i> Becker	<i>Eurytoma robusta</i> M a y r (<i>Eurytomidae</i>)	the same
" "	<i>Terellia zerovae</i> K o r n e y e v	the same	" "
" "	<i>Urophora quadrifasciata sjumorum</i> R o h d.	" "	" "
" "	<i>Urophora pauperata</i> Z a i t z e v	" "	" "
" "	<i>Acanthiophilus helianthi</i> R o s s i (Dip.: <i>Tephritidae</i>)	" "	" "
<i>Carthamus</i> L.			
<i>C. lanatus</i> L.	<i>Terellia</i> sp. 4 aff. <i>serratulae</i>	-	Aksu-Dzhabagly
the same	<i>Terellia luteola</i> W d.	-	Chatkal
" "	<i>Chaetorellia carthami</i> S t a c k.	-	the same
" "	<i>Urophora mauritannica</i> M c q.	-	Karatau
" "	<i>Acanthiophilus helianthi</i> R o s s i (Dip.: <i>Tephritidae</i>)	-	Chatkal
Subfamily <i>Lactuicoidea</i>			
Tribe <i>Lactuceae</i>			
<i>Tragopogon</i> L.			
<i>T. sp.</i>	<i>Orellia falcata</i> S c o p. (Dip.: <i>Tephritidae</i>)	-	Talgar, Tashkoroo (2.500)
<i>T. sp.</i>	<i>Ensina sonchi</i> L. (Dip.: <i>Tephritidae</i>)	<i>Pteromalidae</i> gen. sp.	Tarbagatai
the same	the same	<i>Tetrastichinae</i> gen. sp. (<i>Eulophidae</i>)	the same
<i>Taraxacum</i> L.			
<i>T. sp.</i>	<i>Campiglossa difficilis</i> H e n d. (Dip.: <i>Tephritidae</i>)	<i>Pteromalidae</i> gen. sp.	Tashkoroo (2.500)
<i>Sonchus</i> L.			
<i>S. palustris</i> L.	<i>Tephritis kovalevi</i> K o r n e y e v e t K a m e n e v a (Dip.: <i>Tephritidae</i>)	-	Talgar
<i>Cicerbita</i> W a l l r.			
<i>C. tianshanica</i> R e g e l e t S c h m a l.	<i>Ensina sonchi</i> L. (Dip.: <i>Tephritidae</i>)	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	Medeo
<i>Lactuca</i> L.			
<i>L. tatarica</i> (L.) C. A. M e y.	<i>Tephritis oedipus</i> H e n d e l (Dip.: <i>Tephritidae</i>)	-	Karakol
<i>Crepis</i> L.			
<i>C. sibirica</i> L.	<i>Tephritis crepidis</i> H e n d e l (Dip.: <i>Tephritidae</i>)	<i>Eurytoma</i> sp. n. aff. <i>robusta</i>	Medeo, Karakol
the same	the same	<i>Habrocytus</i> sp. (<i>Pteromalidae</i>)	the same

Plants	Phytophages	Parasitoids	Locality
<i>C. flexuosa</i> (Ledeb.) Clarke	<i>Ensina sonchi</i> L.	<i>Habrocytus</i> sp. (Pteromalidae)	Tashkoroо (2.500)
the same	<i>Campiglossa igori</i> Korneyev	<i>Habrocytus</i> sp. (Pteromalidae)	the same
the same	<i>Tephritis</i> sp. 18 aff. (Dip.: Tephritidae)	<i>Habrocytus</i> sp. (Pteromalidae)	" "
<i>Youngia</i> Cass.			
<i>Y. diversifolia</i> (Ledeb.) Ledeb.	<i>Campiglossa igori</i> Korneyev (Dip.: Tephritidae)	<i>Habrocytus</i> sp. (Pteromalidae)	Tashkoroо (2.500-2.900 m)
<i>Hieracium</i> L.			
<i>H.</i> sp.	<i>Campiglossa achyrophori</i> L w. (Dip.: Tephritidae)	<i>Pteromalidae</i> gen. sp.	Medeo
the same	the same	<i>Tetrastichinae</i> gen. sp. (Eulophidae), the same	
<i>H.</i> sp.	<i>Noceia pupillata</i> Fl. (Dip.: Tephritidae)	<i>Pteromalidae</i> gen. sp.	Talgar
the same	the same	<i>Bracon</i> sp. (Braconidae)	the same
" "	" "	<i>Eupelmus</i> sp. (Eupelmidae)	" "
" "	" "	<i>Torymidae</i> gen. sp.	" "
" "	" "	<i>Tetrastichinae</i> gen. sp. (Eulophidae)	" "
" "	<i>Melanagromyza dettmeri</i> Hering (Dip.: Agromyzidae)	-	" "

LITERATURE CITED

1. Корнеев В.А. Обзор палеарктических видов рода *Hendrella* (Diptera: Tephritidae) // Зоол. журн. — 1989. — 68, вып. 6. — С. 87-92.
2. Корнеев В.А., Каменев Е.П. Новый вид мух-пестрокрылок рода *Tephritis* (Diptera, Tephritidae) из Казахстана // Зоол. журн. — 1990. — 69, вып. 10. — С. 138-140.
3. Корнеев В.А., Уайт И.М. Мухи-пестрокрылки рода *Urophora* R. - D. (Diptera: Tephritidae) Восточной Палеарктики. I. Определительная таблица подродов и обзор видов (кроме подрода *Urophora* s. str.) // Энтомол. обзор. — 1991. — 70, вып. 1. — С. 214-228.
4. Федотова З.А. Галлицы (Diptera, Cecidomyiidae) юго-востока Казахстана. — Алма-Ата, 1985. — 269 с. — Деп. в ВИНТИ 28.11.1985. N 8290-B85.
5. Флора СССР. В 30 тт. — М.-Л.: Изд-во АН СССР. 1934 — 1960.
6. Черепанов С.Л. Свод дополнений и изменений к «Флоре СССР» (т. 1 — XXX). — Л.: Наука, 1985. — 668 с.
7. Angermann H. — J. Okologische Differenzierung der Bohrfliegen *Xyphosia miliaria* und *Orellia ruficauda* (Diptera: Tephritidae) in den Blütenköpfen der Ackerdiestel (*Cirsium arvense*) // Entomol. Gener. — 1986. — 11, N 3/4. — S. 249-261.
8. Capek M., Zwolfer H. Braconids (Hymenoptera, Braconidae) associated with insects inhabiting thistles (Asteraceae, Cynaroideae) // Acta Entomol Bohemosl. — 1990. — 87. — P. 262-277.
9. Petney T.N., Zwolfer H. Phytophagous insects associated with Cynarae hosts (Asteraceae) in Jordan // Israel J. of Entomol. — 1985. — 19. — P. 147-159.
10. Sobhian R., Zwolfer H. Phytophagous insect species associated with flower heads of yellow starthistle (*Centaurea solstitialis* L.) // Ztschr. fur angew. Entomol. — 1985. — 99, H. 3. — S. 301-321.
11. Zwolfer H. Preliminary list of phytophagous insects attacking wild *Cynarae* (Compositae) species in Europe // Commonwealth Inst. of Biological Control. Techn. Bull. — 1965. — July, No 6. — P. 81-154.
12. Zwolfer H. Artbildung und okologische Differenzierung bei phytophagen Insekten // Verh. Dtsch. Zool. Ges. — 1975 (1974). — S. 394-401.
13. Zwolfer H. Strategies and counterstrategies in insect population systems competing for space and food in flower heads and plant galls // Fortschr. Zool. — 1979. — 25, H. 2/3. — P. 331-353.

14. Zwölfer H. Alternative Wettbewerbsstrategien bei koexistieren den Eurytoma-Arten (*Hymenoptera: Eurytomidae*) // Verh. Dtsch. Zool. Ges. — 1979. — S. 256.
15. Zwölfer H. Insects and thistle heads: response utilization and guild structure // Proc. VI Int. Symp. Biol. Contr. Weeds, 19 — 25 August 1984. — Vancouver: Agric. Canada. — 1985. — P. 407-416.
16. Zwölfer H. Insektenkomplexen an Disteln — ein Modell für die Selbstorganisation ökologischer Kleinsysteme // Selbstorganisation: Die Entstehung von Ordnung in naturfund Gesellschaft. — München — Zürich: Piper. 1986. — S. 181-217.
17. Zwölfer H. Disteln und ihren Insektenfauna: Makroevolution in einem Phytophagen-Pflanzen — System // Evolutionprozesse im Tierreich. — Basel: Birkhauser Verl. — 1990. — S. 255-278.
18. Zwölfer H., Brandl R. Niches and size relationships in *Coleoptera* associated with *Cardueae* host plants: adaptations to resource gradients // Oecologia. — 1989. — 78. — P. 60-68.

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КОНСОРТИВНІ ЗВ'ЯЗКИ *ASTERACEAE* ЗАХІДНОГО ТЯНЬ-ШАНЮ

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Суттєво доповнені дані про склад консорцій та зв'язки у трофічних мережах між складноцвітими рослинами, фітофагами та паразитами в районі досліджень. Наведено результати вивчення видового складу і трофічних зв'язків рослиноїдних та паразитичних комах, що пов'язані з *Asteraceae* на Західному Тянь-Шані.

В.А. Корнеев, Е.П. Каменева

КОНСОРТИВНЫЕ СВЯЗИ *ASTERACEAE* ЗАПАДНОГО ТЯНЬ-ШАНЯ

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Существенно дополнены данные о составе консорций и взаимоотношениях в трофических сетях между сложноцветными растениями, фитофагами и паразитами в районе исследований. Представлены результаты изучения видового состава и трофических связей растительноядных насекомых, а также их паразитов, связанных с *Asteraceae* на Западном Тянь-Шане.