

# Butterfly fauna of Dzhumagal-Too mountain ridge in Kyrgyzstan (Lepidoptera: Papilionoidea and Hesperioidea)

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A list of butterflies from Dzhumagal-Too mountain ridge in Kirghizia (Inner Tian-Shan) is presented. It contains 115 species.

**Key words:** butterflies; fauna; species list; Dzhumagal-Too Mts.; Inner Tian-Shan

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## Introduction

The butterfly fauna of Inner Tian-Shan is rich and unique, but huge regions of this mountainous Middle Asiatic area remain almost unexplored lepidopterologically. It is especially visible when we will start looking at the distribution maps in recently published books about butterflies of Kirghizia (Tshikolovets, 2005; Toropov & Zhdanko, 2007, 2009). But (and this is very strange) Inner Tian-Shanian butterflies are actively collected, many specimens preserved in private and state collections; the sad is that these collections mostly originated from only few places more “famous” for entomologists: Dolon Pass (Baidulu Mts.), Alabel Pass (Suusamyr-Too Mts.), Kara-Keche (Moldo-Too Mts.), Naryn environs (both Naryn-Too and Moldo-Too Mts.). Several seasons I collected butterflies in Dzhumagal-Too mountain ridge (some results of this work published in the paper about butterflies of Suusamyr valley, including 3 locations in Dzhumagal-Too Mts. (Korb, 2010)); this paper is a result of my investigations.

## Material and Methods

### Study site

Dzhumagal-Too mountain ridge located in Inner Tian-Shan, a huge mountain land in Kirghizia (Middle Asia) (Fig. 1). Maximal altitude is 3948 m, length is about 110 km. Its composition is quite various and contains many biotopes, but mostly there are different types of meadows and steppes.

The butterflies collected in three localities (distance between them is about 30 km):

1) Sary-Kayky mountain gorge, western spurs of Dzhumagal-Too Mts. in Suusamyr valley, near West Karakol river and Kozhomkul village. Altitudes: 2200–3400 m. Biotopes: different types of meadows, steppes, screes, rocks, small swamps near the river, stony slopes (Fig. 2).

2) Kekemeren river valley, left shore, near ayil Kekemeren; central part of this mountain ridge. Altitudes: 1700–3600 m. Biotopes: dry stony slopes, different types of meadows, steppes, small forests of *Juniperus* sp., screes, rocks, bushes, subnival places (Figs. 3–5).

3) Environs of Chaek, eastern spurs of Dzhumagal-Too Mts. Altitudes: 1500–3500 m. Biotopes: dry stony slopes, different types of meadows, steppes, small forests of *Juniperus* sp., screes, rocks, bushes, subnival places (Figs. 6, 7).

### Data collection

Material for this study have been collected by me in 1999–2014 during several collecting trips to the Inner Tian-Shan. Also material from the collections of Zoological Museum of the Moscow University (Moscow, Russia) and Zoological

Institute of the Russian Academy of Sciences (St.-Petersburg, Russia) used; type specimens, if needed, have been studied in these institutions and also in the Museum für Naturkunde an der Humboldt-Universität zu Berlin (Germany). Totally over 3000 specimens of butterflies from Dzhumagal-Too mountain ridge have been observed, over 200 dissected.

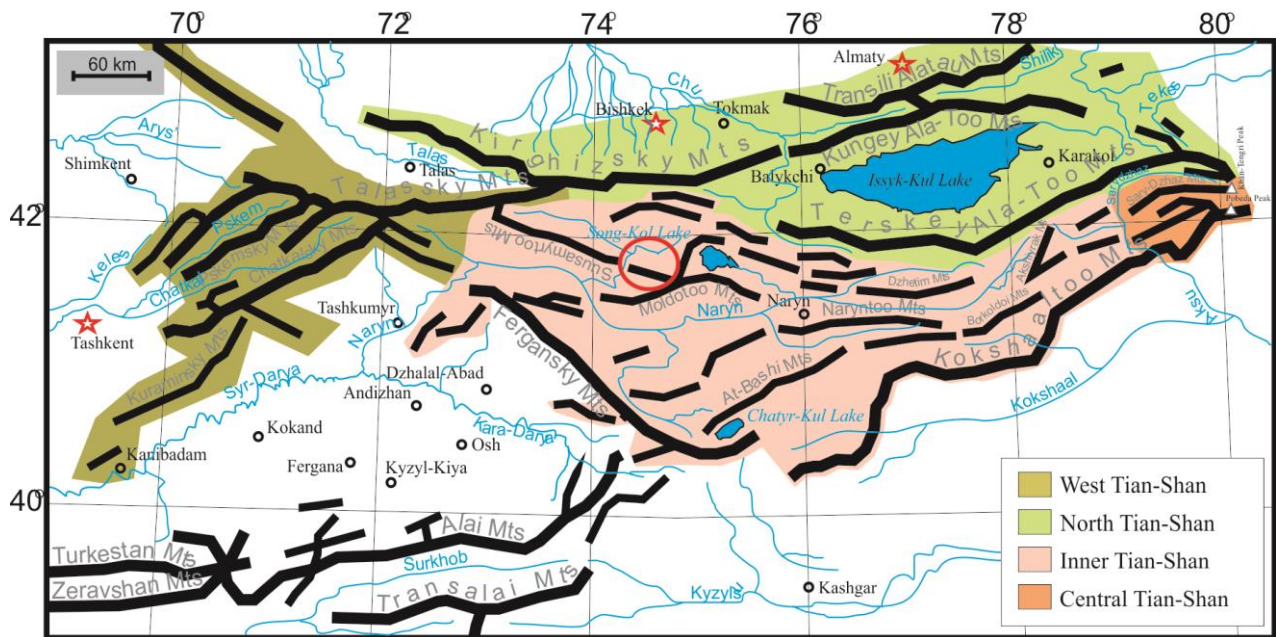


Fig. 1. Location of study site (encircled by red).



Fig. 2. North-western part of Dzhumagaltoo Mts. near Kozhomkul village (Sary-Kayky mountain gorge), about 2000 m. Typical biotope of *Syrichtus antonia*, *Pyrgus sidae*, *Parnassius apollonius*, *Driopa mnemosyne*, *Colias erate*, *Pontia daplidice*, *Disommata nolkeni*, *Chortobius pamphilus*, *Melitaea minerva*, *M. kotschubeji*, *Phengaris cyanecula*, *Afarsia sieversi*.



Fig. 3. Kekemer river 3 km N of Sary-Oi, left side – Dzhumgaltoo Mts., right side – Sususamyr-Too Mts.



Fig. 4. Central part of Dzhumgaltoo Mts. near Sary-Oi, almost all vertical zones are visible.



Fig. 5. Central part of Dzhumgaltoo Mts. near Aral, huge screes are biotopes of *Paralasa kusnezovi* (Avinov, 1910).



Fig. 6. Eastern part of Dzhumgaltoo Mts. near Chaek, dry mountains. Typical biotope of various *Hyponephele* species, *Melitaea sibina* and some Lycaenidae (*Athamanthia dilutior*, *Alpherakya sarta*).



Fig. 7. Eastern spurs of Dzhumgaltoo Mts., Seuk river valley, Seuk village. Typical biotope of various Lycaenids (*Polyommatus icarus*, *P. icadius*, *Rueckbeilia fergana* etc.).

## Results

### List of species

#### Hesperiidae

- Carcharodus alcaeae* (Esper, [1780]). 1, 2. Rare. Steppe slopes and dry stations. 1200–2300 m.  
*Syrichthus antonia* (Speyer, 1879). 1, 2. Rare. Steppe slopes, dry stations, stony places. 1200–2800 m.  
*S. tessellum* (Hübner, [1803]). 1, 2, 3. Rare. Meadows, stony places. 1600–3200 m.  
*S. proteus* (Staudinger, 1886). 1. Very common. Meadows (mostly dry), steppe places. 1200–2200 m.  
*Spialia orbifer* (Hübner, [1823]). 2. Common. Dry places and steppes. 1200–3000 m.  
*Pyrgus sidae* (Esper, [1782]). 1. Common. Dry meadows, steppe slopes, stony places. 1500–2400 m.  
*P. alpinus* (Erschoff, 1874). 1. Common, but local. Meadows and stony slopes, rocky places. 2300–3200 m.  
*Thymelicus lineola* (Ochsenheimer, [1808]). 1. Rare, local. Meadows. 1200–2500 m.  
*T. alaicus* (Filipjev, 1931). 2. Rare, local. Dry meadows, stony places, steppe slopes. 1600–2500 m.  
*Hesperia comma* (Linnaeus, 1758). 1, 3. Rare, local. Meadows. 1200–3600 m.

#### Papilionidae

- Papilio machaon* (Linnaeus, 1758). 1, 2, 3. Common. Almost everywhere. 1200–4000 m.  
*Parnassius apollonius* (Eversmann, 1847). 1, 2, 3. Very common, but local. Dry meadows, steppe slopes. 1200–3000 m.  
*P. actius* (Eversmann, 1843). 1, 2, 3. Common, but local. Alpine meadows, rocky and stony places. 2300–4000 m.  
*P. tianschanicus* (Oberthür, 1879). 1, 2, 3. Common, but local. Alpine and subalpine meadows. 2000–3500 m.  
*Driopa mnemosyne* (Linnaeus, 1758). 1, 3. Common, but local. Alpine and subalpine meadows. 1500–3000 m.  
*Koramius delphius* (Eversmann, 1843). 1, 2, 3. Common, but local. Alpine meadows, stony slopes. 2700–3600 m.

#### Pieridae

- Leptidea juvernica* Williams, 1946. 1. Rare, local. Meadows. 1200–2300 m.  
*Colias cocandica* Erschoff, 1874. 1. Common, local. Meadows. 2500–3600 m.  
*C. erate* (Esper, [1801]). 1, 2, 3. Very common, everywhere. 1200–4000 m.  
*C. romanovi* Grun-Grshimailo, 1885. 1. Common, but very local. Meadows. 2200–2700 m.

- C. staudingeri* Alpheraky, 1881. 1. Rare, local. Dry meadows, steppes. 2200–3000 m.  
*Anthocharis cardamines* (Linnaeus, 1758). 1. Common. Meadows, river valleys. 1200–2400 m.  
*Euchloe daphalis* (Moore, 1865). 2, 3. Rare, local. Stony and dry slopes. 1200–2300 m.  
*Aporia crataegi* (Linnaeus, 1758). 1, 2, 3. Very common. Various open places: steppes, slopes, meadows. 1200–3000 m.  
*Metaporia leucodice* (Eversmann, 1843). 1, 2, 3. Common. River valleys and bushy places. 1200–3000 m.  
*Pieris brassicae* (Linnaeus, 1758). 1. Very local, but common. Meadows. 1200–2000 m.  
*P. napi* (Linnaeus, 1758). 1, 2, 3. Very common. Meadows, dry slopes, steppes. 1200–2500 m.  
*P. rapae* (Linnaeus, 1758). 1. Common. Meadows. 1200–3500 m.  
*P. ochsenheimeri* Staudinger, 1886. 1, 2. Very local. Meadows. 2000–3500 m.  
*P. krueperi* Staudinger, 1860. 2. Very local, very rare. Dry meadows and dry stony slopes. 1200–2200 m.  
*Pontia daplidice* (Linnaeus, 1758). 1, 2, 3. Very common. Everywhere. 1200–4000 m.  
*P. callidice* (Hübner, [1800]). 3. Common, but local. Dry stony slopes, meadows, rocky places. 1200–3800 m.

#### Nymphalidae

- Neptis rivularis* (Scopoli, 1763). 1. Local. Bushy areas. 1200–2500 m.  
*Argynnis pandora* ([Denis & Schiffermüller], 1775). 1, 2, 3. Very common. Everywhere. 1200–3500 m.  
*A. niobe* (Linnaeus, 1758). 1, 2. Common. Meadows and steppes. 1200–2800 m.  
*A. aglaja* (Linnaeus, 1758). 1. Local. Meadows. 1700–2700 m.  
*Issoria lathonia* (Linnaeus, 1758). 1, 2, 3. Very common. Everywhere. 1200–3200 m.  
*Brenthis hecate* ([Denis & Schiffermüller], 1775). 2, 3. Common. Steppes, dry meadows. 1700–2700 m.  
*Boloria erubescens* (Staudinger, 1901). 1, 3. Common, but local. Meadows and steppes. 2500–3500 m.  
*B. generator* (Staudinger, 1886). 1, 2, 3. Very common. Meadows, stony slopes, small mountainous swamps. 2500–4000 m.  
*Nymphalis vau-album* ([Denis & Schiffermüller], 1775). 1, 2. Local. Bushy areas, river valleys. 1500–2500 m.  
*N. xanthomelas* ([Denis & Schiffermüller], 1775). 1. Local. Bushy areas and river valleys. 1200–3000 m.  
*Aglais urticae* (Linnaeus, 1758). 1, 2, 3. Very common. Everywhere. 1200–4000 m.  
*Vanessa cardui* (Linnaeus, 1758). 1, 2, 3. Very common. Everywhere. 1200–4000 m.  
*Melitaea didyma* (Esper, [1779]). 1. Local. Dry meadows and steppes. 1200–2000 m.  
*M. ala* Staudinger, 1881. 1, 2, 3. Common. Meadows and steppes. 1500–2500 m.  
*M. kotshubeji* Sheljuzhko, 1929. 1. Local. Dry meadows and steppes. 1700–2400 m.  
*M. fergana* Staudinger, 1882. 1. Very local. Dry steppes, dry meadows, stony slopes. 1700–2700 m.  
*M. minerva* Staudinger, 1881. 1, 2. Common. Meadows and steppes. 2000–3500 m.  
*M. pallas* Staudinger, 1886. 1, 3. Local. Meadows and steppes. 2300–3700 m.  
*M. palamedes* Grum-Grshimailo, 1890. 1. Very local. Dry meadows. 2000–2700 m.  
*M. sibina* Alpheraky, 1881. 1, 2, 3. Very common. Meadows and steppes. 1200–2500 m.  
*M. cinxia* (Linnaeus, 1758). 1. Local. Meadows. 1700–2500 m.

#### Satyridae

- Marginarge eversmanni* (Eversmann, 1847). 1, 2, 3. Very common. Mostly bushy places. 1200–2500 m.  
*Melanargia parca* Staudinger, 1882. 1, 2, 3. Very common. Steppes, dry meadows. 1200–2500 m.  
*Disommata nolckeni* (Erschoff, 1874). 1, 2. Local. Meadows, steppes. 2000–3000 m.  
*Chortobius sunbecca* (Eversmann, 1843). 1, 2, 3. Common. Various open areas: meadows, steppes, dry slopes. 1500–3000 m.  
*C. pamphilus* (Linnaeus, 1758). 1, 2, 3. Common. Steppes, meadows, open areas. 1200–1800 m.  
*Paralasa kusnezovi* (Avinov, 1910). 2. Very local, rare. Dry stony slopes, rocks. 1500–3000 m.  
*Erebia mopsos* Staudinger, 1886. 1, 2. Common. Meadows. 2500–4000 m.  
*E. sokolovi* Lukhtanov, 1990. 3. Local. Alpine meadows. 2700–3400 m.  
*Karanasa wilkinsi* (Erschoff, 1881). 3. Local and rare. Dry stony areas. 2500–3500 m.  
*K. decolorata* (Staudinger, 1901). 3. Very local. Stony steppes and dry meadows. 2500–3000 m.  
*K. praestans* Avinov & Sweadner, 1951. 1. Very local and rare. Dry stony steppes. 2000–3000 m.  
*K. abramovi* (Erschoff, 1884). 3. Local. Steppes, dry stony meadows. 2000–3000 m.  
*Hipparchia autonoe* (Esper, [1793]). 2. Common, but local. Dry meadows, steppes. 1300–2000 m.  
*Chazara briseis* (Linnaeus, 1764). 2, 3. Common. Dry meadows, steppes. 1200–2500 m.  
*C. enervata* (Staudinger, 1881). 1. Common. Everywhere. 1200–2500 m.  
*C. kauffmanni* (Erschoff, 1874). 2, 3. Local. Dry meadows, steppes. 1200–2200 m.  
*Pseudochazara turkestanica* (Grum-Grshimailo, 1893). 1, 2, 3. Very common. Dry meadows, steppes. 1200–2500 m.  
*Satyrus ferula* (Fabricius, 1793). 2, 3. Local. Steppes. 1500–2700 m.  
*Hyponephele lycaon* (Rottemburg, 1775). 2. Very local. Dry meadows and steppes. 1200–1800 m.  
*H. lupina* (Costa, [1836]). 3. Local. Dry meadows and steppes. 1200–2500 m.

- H. dysdora* (Lederer, [1869]). 2, 3. Very common. Dry meadows and steppes. 1200–2500 m.  
*H. latistigma* (Moore, 1893). 2. Local. Dry meadows. 1600–2000 m.  
*H. hilaris* (Staudinger, 1886). 1, 2, 3. Local. Various open places (meadows, steppes, dry stony slopes etc.). 2000–3300 m.  
*H. glasunovi* (Grum-Grshimailo, 1893). 2, 3. Very local. Steppes. 1500–2500 m.  
*H. haberhaueri* (Staudinger, 1886). 2. Local. Dry meadows and steppes. 1200–2300 m.  
*H. naubidensis* (Erschoff, 1874). 1, 2, 3. Common. Meadows, steppes, other open dry places. 1200–2500 m.

#### Lycaenidae

- Fixsenia acaudata* (Staudinger, 1901). 2, 3. Very local, common. Dry slopes and steppe stations. 1200–2300 m.  
*Neolycaena baidula* Zhdanko, 2000. 2, 3. Very local. Dry stony slopes, steppes. 1500–2500 m.  
*N. suusamyra* Korb, 2010. 1. Very local. Dry stony slopes, steppes. 2000–2700 m.  
*N. sinensis* (Alphéraky, 1881). 1, 2. Very local. Dry stony slopes, steppes. 1200–2200 m.  
*Lycaena phlaeas* (Linnaeus, 1761). 1, 2, 3. Very common. Various meadows and steppes. 1200–3600 m.  
*L. thersamon* (Esper, [1784]). 3. Very local. Dry meadows and steppes. 1200–2300 m.  
*L. solskyi* (Erschoff, 1874). 2, 3. Very local. Dry meadows and steppes, stony slopes. 1200–2500 m.  
*L. splendens* (Staudinger, 1881). 3. Local, common. Dry meadows and steppes. 1500–2700 m.  
*L. margelanica* (Staudinger, 1881). 1, 2, 3. Common. Steppes and dry meadows. 1200–2500 m.  
*Athamanthia dilutior* (Staudinger, 1881). 2. Local, but very common. Dry stony slopes, steppes, dry meadows. 1200–2000 m.  
*Cupido minimus* (Fuessly, 1775). 1. Very local, very common. Meadows and steppes. 1200–2500 m.  
*Celastrina argiolus* (Linnaeus, 1758). 1, 2, 3. Local. Woodlands. 1200–2500 m.  
*Pseudophilotes vicrama* (Moore, 1865). 1, 2, 3. Very common, but sometimes local. Dry meadows, steppes. 1200–3000 m.  
*Glaucopteryx alexis* (Poda, 1761). 2. Local. Grassy biotopes. 1200–2200 m.  
*G. aeruginosa* (Staudinger, 1881). 2. Local. Meadows (mostly dry). 1700–3000 m.  
*Phengaris alcon* ([Denis & Schiffermüller], [1775]). 1. Local, but common. Dry stony slopes, dry meadows and steppes. 1200–2500 m.  
*P. cyanecula* (Eversmann, 1848). 1, 2. Very local. Dry meadows, steppes. 1200–2300 m.  
*Turanana panaegides* (Staudinger, 1886). 3. Very local and rare. Various dry biotopes: steppes, open stony slopes, meadows. 1200–2500 m.  
*Plebeius idas* (Linnaeus, 1761). 1, 2, 3. Common. Meadows, steppes. 1200–2500 m.  
*P. maracandica* (Erschoff, 1874). 3. Very rare and local. Dry open biotopes. 1200–1500 m.  
*Afarsia sieversi* (Christoph, 1873). 1, 2, 3. Common. Dry open places like meadows and steppes. 1200–2500 m.  
*Rueckbeilia fergana* (Staudinger, 1881). 1, 2, 3. Common. Stony open places: meadows, steppes. 1200–2300 m.  
*Agriades pheretiades* (Eversmann, 1843). 3. Local. Meadows. 2500–3500 m.  
*Aricia agestis* ([Denis & Schiffermüller], [1775]). 1, 2, 3. Very common. Meadows, steppes. 1200–3000 m.  
*A. artaxerxes* (Fabricius, 1793). 1. Local. Dry meadows. 1700–2700 m.  
*Alpherakya sartus* (Alphéraky, 1881). 1, 2, 3. Local, but common. Dry meadows and steppes. 1200–2500 m.  
*Eumedonia eumedon* (Esper, [1780]). 1, 2, 3. Common. Meadows, steppes, semideserts. 1200–4000 m.  
*E. persephatta* (Alphéraky, 1881). 1. Very local. Meadows. 2000–3000 m.  
*Polyommatus icarus* (Rottemburg, 1775). 1. Local. Meadows and steppes. 1200–3400 m.  
*P. icadius* (Grum-Grshimailo, 1890). 1, 2, 3. Common. Meadows and steppes. 1200–3000 m.  
*P. ripartii* (Freyer, 1830). 2, 3. Local. Steppes and dry meadows. 1200–2500 m.  
*P. iphigenides* (Staudinger, 1886). 2. Local, rare. Meadows, stony slopes, steppes. 1200–2500 m.  
*P. amandus* (Schneider, 1792). 2, 3. Local. Open places. 1200–2500 m.

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