

A distributive list, biotope preferences and flight periods of butterflies of North Tian Shan

(Lepidoptera, Diurna)

by

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Abstract: The list of butterflies of North Tian-Shan contains 212 species. In this paper for every species are listed: geographic and vertical distribution in North Tian-Shan, biotope preferences, flight period; geographic maps for every species are figured. The genitalic differences between *Colias grieshuberi* KORB, 2004, *C. ionovi* KORB, 2005 and close species are shown.

Резюме: Приводится список булавоусых чешуекрылых Северного Тянь-Шаня (212 видов) с детализированными сведениями о распространении, биотопической приуроченности, сроках лёта и вертикальном профиле для каждого вида и подвида. приводятся карты распространения каждого вида. Указаны генитальные отличия *Colias grieshuberi* KORB, 2004 и *C. ionovi* KORB, 2005 от близких видов.

Introduction: The North Tian Shan is a part of the huge Tian Shanian mountain division, located in China, Kazakhstan, Kyrgyzstan and Uzbekistan. This part of Tian Shan includes five mountain ridges of the latitudinal direction: Kyrgyz Mts., Transili Alatau Mts., Ketmen Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts. (Киргизский, Западный Алатай, Кетмень, Кунгей АлаТоо, Терскей АлаТоо respectively). The Turk word “ala-too” or “alatau” means “high mountains”, ridges which have snowy peaks. All the mountain ridges of North Tian Shan have mountains higher than 4000 m. Two of them (Kyrgyz Mts. and Transili Alatau Mts.) are the northern mountain ridges of Central Asia, located in the border between deserts and mountains.

The North Tian Shanian mountains have the following vertical zones: deserts, semi-deserts, semi-steppes (or stepped deserts), steppes, forests, subalpine meadows, alpine meadows, subnival and nival areas. This phenomenon was called by P. P. SEMENOV-TIAN-SHANSKY (1948) as “vertical zonation”. It is very interesting that the vertical zonation maximally developed in the mountain ridges sited to west, south-west or north. In the internal parts of mountain ridges this zonation transforms: it can have mosaic view; in the high internal plateaus the low-located vertical zones are absent.

Plains bordering the North Tian Shan are occupied by deserts, which transforms in the south to the sagebrush-ephemeral and ephemeral semideserts. On the plains and low foothills the desert replaced by semi-deserts or desert-steppes, mainly the boreal type. Some botanists called semideserts (desert-steppes) of this type with the dominance of ephemeral plants and ephemerooids as the lowgrass semisavannas (GVOZDETSKY & MIKHAILOV, 1970) (figs. 1, 6).

In the area of foothill semi-desert in vegetation dominated sagebrush-bunch-grass community. The upper limit of this vertical area is 900-1200 m. This zone is inhabited by desert and steppe fauna.

The next vertical zone is steppe zone, in its lower area extended dry steppes. In the vegetation of this zone in the ridges Transili Alatau, Kungei Ala-Too, Kyrgyz and Ketmen dominated feather grass and fescue with wormwood (especially on gravelly soils), and in Terskey Ala-Too Mts. dominated large perennials of the ephemerooid type (semisavannas). Steppe belt is actively used for grazing (figs. 2, 3, 5, 8).

From the altitudes of 1200-2000 m (sometimes a little higher) begins the next zone - the forest-meadow. Here are midlands, in places quite steep and narrow erosion gorges. Deciduous forests in the North Tien Shan do not form a full belt, situated by separate massives. In the forest-meadows of North Tian Shan are growing wild apples, apricots, in the forests are growing aspen, hawthorn, apple, willow, honeysuckle, etc. Unfortunately, the area of the forests is constantly and very rapidly declining due to human activity (figs. 4, 7).

In the upper part of forest-meadow zone (1700 m and above) conifer forests of the Tian Shan spruce are growing (fig. 11). First appearance of the forests is mainly in the depth of valleys and slopes of northern exposition. The slopes of southern exposition in the lower part of this belt are covered with steppe vegetation and shrubs (fig. 14). Above, however, spruce is chosen also the southern slopes, and, finally, there are only on the southern slopes, while the northern slopes of spruce forests have replaced subalpine meadows. This picture can be seen in the valleys Shamshy, Chon-Kuurchak (partly replaced by handmade pine massives), Ala-Archa, Alamedin, Kegety in Kirghiz Mts.; Talgar, Almaarasan in Transili Alatau Mts.; Grigorievskoe, Semenovskoe and other valleys in the Kungei Ala-Too Mts.; Dzgety-Oguz, Barskoon and others valleys in the Terskey Ala-Too Mts.; Narynkol river valley in Ketmen Mts.

North Tian Shan has huge lakes and its valleys: Issyk-Kul and Orto-Tokoi (figs. 12, 13). Big importance also have river valleys (figs. 15, 16), where located mesophytic landscapes which gives possibility for atypical migrations of butterflies between vertical zones.

The next vertical zone are high mountainous meadows and steppes with archa (begins at 2600-2800 m). There are three vertical belts: subalpine, alpine and subnival (figs. 9, 10).

The transition from forest meadow zone to subalpine meadows and meadows and steppes is very fuzzy. Subalpine meadows begin in the upper part of spruce forests zone. Spruce forests of the Northern Tian Shan refers primarily to the subalpine zone, but later start to determine forest-meadow zone with spruce forests, which are regarded as the upper floor of the forest-meadow zone (LEBEDEVA, 1984).

Subalpine meadows of the Northern Tian Shan mountains are high grass, and their species composition is rich and varied. In addition to cereals in their weight variegated, beautiful flowering forbs (*Geranium saxatile*, *G. albiflorum*, *Ranunculus grandifolius*, anemones, bloodroots, etc.) (fig. 17). These meadows provide excellent summer pasture - jailoo. Among the grasslands are frequent bush creeping archa (*Juniperus turkestanica*), which comes in the alpine zone. Unfortunately, overgrazing leads to a strong degradation of the alpine and subalpine meadows.

The alpine zone, which also serves as good pastures, starts from 2900-3000 m and climbs to approximately 3400-3800 m. The vegetation is a mosaic (RUBTSOV, 1955). Depending on the humidity the vegetation has differences. In more humid areas is the sedge-grass vegetation mixed with variegated grasses (*Ranunculus alberti*, *Rimula algida*, *Gentiana falcata*, *G. aurea*, anemones, poppies,

etc.); the heathland vegetation covered of kobrezy (*Sobresia capilliformis*, etc.) mixed with variegated alpine forbs; arid places have steppe vegetation of *Festuca kryloviana*, sedges and alpine herbs. In areas of high soil humidity in the springs, mountain streams and rivers are developing wetland meadows (figs. 18-20).

Low-growing alpine vegetation presented up to the eternal snows. The top belt, intermediate between the nival and subnival zones, contains very fragmented vegetation, allocated as subnival (STANYUKOVICH, 1973). There are only a small turf areas or even individual alpine plants, nestled among the rocks and in cracks of rocks. (figs. 21-23)

The top landscape zone - nival (starts from 3600 - 3800 m) with eternal snow, glaciers, rocks and debris on steep slopes (fig. 23). Its lower limit coincides with the snow line. On stones and rocks settled algae and lithophile lichens. Prepared on these processes in the crevices of rocks settled higher alpine plants with the upper limit of distribution in approximately 4000 m.

Materials and methods

List of collecting localities (see map in fig. 24; local names given in English transcription and in Kyllilic symbols respectively)

Kyrgyz Mts.:

- 1. Boomskoye valley: Krasny Kanyon (Боомское ущелье: Красный каньон), 42°35'54.12"N, 75°47' 06.49"E, 1700-2100 m.
- 2. Boomskoe valley: Road Kok-Moynok - Kochkor (Боомское ущелье: дорога между Кок-Мойноком и Кочкором), 42°27'23.24"N, 75°50'45.63"E, 1700-2500 m.
- 3. Jyl-Aryk environs (кишлак Жыл-Арык), 42°44'35.37"N, 75°48'53.24"E, 1240-1500 m.
- 4. Kysyl-Suu valley near Kysyl-Suu settlement (долина реки Кызыл-Суу). 42°40'28.57"N, 75°28'21.42"E, 1300-1800 m.
- 5. Kegeti valley near Kegeti settlement (ущелье Кегети), 42°39'22.58"N, 75° 9'26.97"E, 1360-2500 m.
- 6. Shamshy valley near Kalinovka (ущелье Шамши), 42°35'7.54"N, 75°25'3.08"E, 1600-2600 m.
- 7. Tokmok vicinities (окрестности города Токмок), 42°48'16.48"N, 75°16'36.63"E, 800-900 m.
- 8. Issyk-Ata valley near Toguz-Bulak settlement (ущелье Иссык-Ата), 42°36'23.84"N, 74°54'35.56"E, 1775-3200 m.
- 9. 11 km SE of Bishkek, Besh-Kungey village (кишлак Беш-Кунгей), 42°46'13.23"N, 74°39'11.60"E, 1000-1300 m.
- 10. 14 km S of Bishkek, Baytik village (кишлак Байтик), 42°44'6.87"N, 74°33'6.22"E, 1150-1550 m.
- 11. Ala-Archa Nature Reserve near Bishkek (национальный парк «Ала-Арча»), 42°38'48.88"N, 74°29'34.33"E, 1500-3400 m.
- 12. Kara-Balta valley near Sosnovka (ущелье Кара-Балта), 42°38'11.72"N, 73°52'16.08"E, 1550-1800 m, and Tee-Ashuu Pass on the road Bishkek - Osh [перевал Төө-Ашуу (=Тюз-Ашуу)], 42°19'55.17"N, 73°48'56.17"E, 3200-3800 m.
- 13. Aspara (Аспара), 42°29'57.51"N, 73°27'42.36"E, 2800-3400 m.
- 14. Aral vicinities (окрестности поселка Арал), 42°32'2.60"N, 72°40'7.42"E, 1600-2800 m.
- 15. Talas vicinities (окрестности города Талас), 42°35'47.51"N, 72°19'39.94"E, 1800-3000 m.
- 16. Pokrovka vicinities (деревня Покровка), 42°46'39.03"N, 71°37'24.19"E, 800-1500 m.

Kungey Ala-Too Mts.:

- 17. Chong-Kemin environs (кишлак Чон-Кемин), 42°41'56.79"N, 76° 0'53.00"E, 1400-2000 m.
- 18. Kaindy environs (кишлак Каинды), 42°44'6.75"N, 76° 9'47.92"E, 1800-2500 m.
- 19. Boom valley: Kok-Moynok environs (Боомское ущелье: айыл Кок-Мойнок), 42°28'20.96"N, 75°52'46.71"E, 1550- 2000 m.
- 20. Balykchy environs [окрестности города Балыкчи (=Рыбачье)], 42°28'39.18"N, 76°11'6.99"E, 1700-2100 m.
- 21. Valley N of Toruayaygur (ущелье к северу от поселка Торуайыгур), 42°38'5.54"N, 76°23'55.50"E, 2000-2800 m.
- 22. Kok-Aryk Pass (Ishkebulak Pass) [перевал Кок-Айрык (= Ишкебулак)], 42°46'43.20"N, 76°50'28.87"E, 3500-4100 m.
- 23. Aksu Pass (Ozerny Pass) [перевал Аксу (= Озерный)], 42°50'38.71"N, 77°6'18.29"E, 3500-4250 m.
- 24. Cholpon-Ata environs (окрестности города Чолпон-Ата), 42°39'17.80"N, 77°5'15.46"E, 1640-1900 m.
- 25. Bosteri environs (окрестности поселка Бостери), 42°40'32.84"N, 42°40'32.84"E, 1700-2400 m.
- 26. Prishib location at Bosteri environs (смотровая площадка «Пришиб»), 42°40'7.78"N, 77°13'52.25"E, 1640-1800 m.
- 27. Temirovka environs (окрестности деревни Темировка), 42°42'59.44"N, 77°24'10.49"E, 1800-2800 m.
- 28. Grigorievka valley N of Grigorievka settlement (Григорьевское ущелье), 42°45'23.54"N, 77°28'41.56"E, 1800-3200 m.
- 29. Ak-Bulak environs (окрестности айыла Ак-Булак), 42°47'43.85"N, 78°16'34.88"E, 1700-2500 m.
- 30. Kurmentyu valley (ущелье Кюрментю), 42°47'4.10"N, 78°18'18.33"E, 1685-2150 m.
- 31. Toguzbulak village (кишлак Тогузбулак), 43°0'8.89"N, 78°41'58.85"E, 2100-2800 m.

Ketmen Mts.:

- 32. Kegen environs (поселок Кегень), 43°1'48.56"N, 79°15'37.93"E, 1800-2500 m.
- 33. Komirshi valley (ущелье Комирши), 43°7'13.20"N, 79°41'6.41"E, 2200-3200 m.

Transili Alatau Mts.:

- 34. Almaarasan valley (Bolshaya Almaatinka) [ущелье Алмаарасан (=Большая Алматинка)], 43°6'34.84"N, 76°54'56.31"E, 1400-2500 m.
- 35. Almaty vicinities. Kok-Tobe Mt. (гора Кок-Тобе), 43°13'41.81"N, 76°58'33.41"E, 900-1100 m.
- 36. Bolshoe Almaatinskoe lake environs (Большое Алматинское озеро), 43°3'28.78"N, 76°57'53.19"E, 2700-3600 m.
- 37. Chimbulak valley (ущелье Чимбулак), 43°8'11.01"N, 77°3'37.57"E, 1800-3200 m.
- 38. Koram vicinities (окрестности поселка Корам), 43°26'27.68"N, 78°10'10.81"E, 1200-2300 m.
- 39. Kaskelen valley (ущелье Каскелен), 43°5'30.72"N, 76°36'34.63"E, 1400-2450 m.

Terskey Ala-Too Mts.:

- 40. Orto-Tokoy settlement and reservoir vicinities (Орто-Токой), 42°20'23.25"N, 76°0'20.58"E, 1700-3000 m.
- 41. Akoleng vicinities (айыл Аколенг), 42°20'12.66"N, 76° 9'46.65"E, 1640-2000 m.
- 42. Kok-Say valley (ущелье Кок-Сай), 42° 1'27.46"N, 76°46'1.80"E, 2500-3700 m.
- 43. Turasuu valley (ущелье Турасуу), 41°58'12.54"N, 76°54'55.49"E, 2800-3300 m.
- 44. Kadzhi-Say village vicinities (окрестности айыла Каджи-Сай), 42° 8'0.81"N, 77°10'40.57"E, 1700-2500 m.
- 45. Barskoon valley near Barskoon settlement [начало ущелья Барскоон (=Барскаун)], 42° 7'27.81"N, 77°35'40.63"E, 1900-2400 m.
- 46. Dungereme valley near Barskoon valley (урочище Дүнгереме в ущелье Барскоон), 41°54'27.27"N, 77°35'24.65"E, 3200-3700 m.

- 47. Sary-Moynok pass in Barskoon valley (перевал Сары-Мойнок), 41°54'48.12"N, 77°38'3.36"E, 3100-3800 m.
- 48. Dzhashil-Kel lake near Kumtor (озеро Джашиль-Кель), 41°52'39.55"N, 77°43'22.93"E, 3800-4300 m.
- 49. Kichi-Zhangylchak environs (айыл Кичи-Жаргылчак), 42°12'3.79"N, 77°42'6.20"E, 1700-1900 m.
- 50. Dzhety-Ogyz valley (ущелье Жеты-Огюз), 42°20'30.29"N, 78°13'59.55"E, 2000-3400 m.
- 51. Karakol vicinities (окрестности города Каракол), 42°26'14.82"N, 78°25'2.83"E, 1900-3500 m.
- 52. Teploklyuchenka settlement vicinities (окрестности поселка Теплоключенка), 42°27'59.87"N, 78°31'56.81"E, 1950-3500 m.
- 53. Narynkol river valley (долина реки Нарынкол). 42°40'47.83"N, 79°59'21.60"E. 2200-3500 m.

Collecting trips

- 1993: June - July (Kyrgyz Mts.)
 1995: July - August (Kyrgyz Mts., Kungey Ala-Too Mts.)
 1996: June (Kyrgyz Mts., Kungey Ala-Too Mts., Ketmen Mts.)
 1997: June (Kyrgyz Mts., Terskey Ala-Too Mts.)
 1998: June - July (Kyrgyz Mts., Kungey Ala-Too Mts.)
 1999: May (Kyrgyz Mts.)
 2000: July (Kyrgyz Mts., Kungey Ala-Too Mts., Ketmen Mts.)
 2001: June (Kungey Ala-Too Mts., Terskey Ala-Too Mts.)
 2003: June - August (Kyrgyz Mts., Kungey Ala-Too Mts., Ketmen Mts., Terskey Ala-Too Mts.)
 2004: June, September (Kyrgyz Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts.)
 2006: June - July (Kyrgyz Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts.)
 2007: June - July (Kyrgyz Mts., Terskey Ala-Too Mts.)
 2008: July - August, October (Kyrgyz Mts.)
 2009: June - July (Kyrgyz Mts., Terskey Ala-Too Mts.)
 2010: April, June - July (Kyrgyz Mts., Transili Alatau Mts.)

In 15 field trips totally more than 30.000 specimens were collected. Results of this expeditions are partly published (KORB, 1994, 2000, 2009). Also materials from collections of L.V. KAABAK (Moscow, Russia), Y. B. KOSAREV (Nizhny Novgorod, Russia), D. A. POZHOGIN (Nizhny Novgorod, Russia), A. EVDOKIMOV (Ozersk, Russia), Zoological Museum of the Moscow University are used. In some taxonomical cases, type material was used, preserved in Museum für Naturkunde (Berlin, Germany), Zoological Institute of Russian Academy of Sciences (St.-Petersburg, Russia), Zoological Museum of the Moscow State University (Moscow, Russia) and British Museum (Natural History) (London, UK).

History of studying of North Tian Shanian butterflies

The first information on Lepidoptera of the Central Asian provinces of the former Russian Empire is associated with the name of the famous Russian scientist, professor of Kazan University, EDUARD FRIEDRICH EVERSMANN (11.I.1794 - 14.IV.1860). In 1820-1821 he worked in the diplomatic mission of the Russian Empire in the Emirate of Bukhara. In Bukhara he got as a doctor of diplomatic mission, the way of this mission began in Orenburg, crossed the vast deserts of Kazakhstan and the Kyrgyz steppes and finally arrived in Bukhara in the middle of December 1820 (TUZOV et al., 1997). Unfortunately, during this campaign, EVERSMANN had not been able to collect entomological material. Later, under the mask of the Tatar merchant, EVERSMANN attempted to travel to India but it was unsuccessful and he was forced to return. However during this unfinished journey, EVERSMANN gathered some entomological material sent later to Germany and described by M. LIECHTENSTEIN. After his journey to Bukhara he never got back to Central Asia. More than 30 years he collected zoological material with special view on insects (HEPTNER, 1940): his collection, one of the largest ever collected, eventually contains 50.420 specimens, and was purchased after his death by the Russian Entomological Society (BREMER, 1870).

For many years PAVEL ROMANOV worked as peperator for EVERSMANN, and who often collected insects for EVERSMANN. In 1838 EVERSMANN sent PAVEL ROMANOV to an expedition in the Kyrgyz steppes - Mugodzhary hills and Guryev environs. In 1840-1844. ROMANOV collected butterflies for EVERSMANN in Altai, in the vicinity of Zaysan, on Lake Alakol and Dzhungarian Alatau mountain ridge. In 1848 ROMANOV visited the environs of the Aral Sea and also collected butterflies there. As the results of these expeditions, EVERSMANN described more than 30 new species of Rhopalocera, among them from North Tian Shan: *Muschampia cibrellum* (EVERSMANN, 1841), *Parnassius apollonius* (EVERSMANN, 1847) , *P. actius* (EVERSMANN, 1847), *P. delphius* (EVERSMANN 1847), *Microzebris pyrothoe* (EVERSMANN, 1832), *Metaporia leucodice* (EVERSMANN, 1847), *Marginarge eversmanni* (EVERSMANN, 1847), *Coenonympha sunbecca* (EVERSMANN, 1843) , *Athamanthia athamanthis* (EVERSMANN, 1854), *Agriades pheretiades* (EVERSMANN, 1843), *Polyommatus cyane* (EVERSMANN, 1837), *P. elvira* (EVERSMANN, 1854).

To the middle of the XIX century the most studied entomologically remains the European part of Russia, including Crimea, Caucasus and Urals. Less studied remains the lepidopteran fauna of Siberia and Far East, and huge areas of Central Asia remained completely unexplored, including Kopet Dagh, Tian Shan, Hissar, Alai and Pamir. The political situation in Central Asia changed in the 50-60th years of XIX century; it allowed starting entomological studies in Tian Shan. The first complex expedition organized to study the natural resources of the Central Asian region was held under the leadership of PETER SEMENOV (1827-1914), (later SEMENOV-TIAN-SHANSKY). In 1856-57 he has passed from Semipalatinsk through the area of the lake Balkhash, researched Dzhungarsky Alatau Mts., valley of River Ili and Transili Alatau Mts.; he also twice visited the Issyk-Kul lake. A result of this expedition was the exploring of vertical zoning in the Tian Shan mountains, as well as the huge zoological (including collections of insects, especially beetles) and botanical materials.

The first paper which directly concerns the Rhopalocera fauna of the North Tian Shan was the fundamental work of S. ALPHERAKY (1881). ALPHERAKY (1850-1918) is a famous Russian lepidopterologist. From 1867 to 1869 he learned at the Moscow University, further education (since 1871) held in Dresden under the leadership of O. STAUDINGER learning his techniques of the lepidopterological researches.

In 1873 S. ALPHERAKY returned to Russia, where he became working on the lepidopterological researches. He has published several

papers on butterflies of European Russia and Caucasus. After that, his aspirations are increasingly distributed on the vast expanses of Central Asia. "Meet in 1878 by Colonel N. PRZHEVALSKY, I told him about my plans to visit Central Asia. He suggested to begin the study from Kulja area and kindly made me a route that was part of his route when traveling through Kulja to Lob-Nor" (ALPHERAKY, 1891: 12). January 16th, 1879 ALPHERAKY, accompanied by his friend S. SCARAMANGA, preparator A. MISHCHENKO and hunter N. KURDYUK, started his journey from St. Petersburg to Kulja. At March 4th the expedition left Kulja and headed west on the Ili valley, reaching Korgos. Later ALPHERAKY surveyed the environs of Lake Sairam-Nor and Talkinskoe gorge, and then returned to Kulja, traveled east to the gorge Sharbugchi, to river valleys Tekes and Kunges, in Sharhodzi valley, reaching finally in the last week of August the Julduz plateau. September 5th this expedition returned to Kulja and then to St. Petersburg (TUZOV et al., 1997). During this expedition ALPHERAKY for the first time managed to investigate in detail the fauna of butterflies of the most territory of East Tian Shan, as well as a small part of the North Tian Shan, which is now situated in the Xinjiang Uygur Autonomous Region of China. He totally found 112 species of Rhopalocera which he described as new from North Tian Shan: *Colias erschoffi* ALPHÉRAKY, 1881, *C. staudingeri* ALPHÉRAKY, 1881, *Coenonympha mahometana* ALPHÉRAKY, 1881, *C. mongolica* ALPHÉRAKY, 1881, *Erebia kalmuka* ALPHÉRAKY, 1881, *E. sibo* ALPHÉRAKY, 1881, *Hyponephele kirghisa* (ALPHÉRAKY, 1881), *Karanasa regeli* (ALPHÉRAKY, 1881), *Chazara enervata* (ALPHÉRAKY 1881), *Melitaea sibina* ALPHÉRAKY, 1881, *M. solona* ALPHÉRAKY, 1881 and some others. During the entire expedition about 12.000 butterflies and moths were collected. Materials from this expedition are kept in the collections of the Zoological Institute in St. Petersburg.

G. GRUM-GRSHIMAÏLO (1860 - 1936) was not only an active collector but also possessed the materials of Rhopalocera received by the Zoological Museum of the Russian Academy of Sciences from the expeditions of N. PRZEWALSKI, G. POTANIN, P. SEMENOV-TIAN-SHANSKY and other researchers from Central Asia. GRUM-GRSHIMAÏLO described the huge number of species and subspecies of butterflies from the territory of the North Tian Shan, they are: *Colias cocandica maja* GRUM-GRSHIMAÏLO, 1891, *Colias draco-nis* GRUM-GRSHIMAÏLO, 1891, *Hyponephele glasunovi* (GRUM-GRSHIMAÏLO, 1893), *Pseudochazara turkestanica* (GRUM-GRSHIMAÏLO, 1893), *Melitaea infernalis* GRUM-GRSHIMAÏLO, 1891, *Neolycaena iliensis* (GRUM-GRSHIMAÏLO, 1891), *Plebeius idas calmica* (GRUM-GRSHIMAÏLO, 1891).

Analysis of the species composition of the West Chinese fauna showed that it is "... closest to the faunas of the Altai-Sayan region, Manchuria, and the Tian Shan, the latter circumstance depends on the fact that Tian Shan fauna includes many species from Siberia. Many Siberian species colonized Tian Shan in geologically recent times, because a significant majority of them had not had time yet to isolate themselves to a variety. Apparently the resettlement of Siberian butterflies from the Altai southwards went not primarily to the West through ridges Tarbagatay and [Dzungarian] Ala-Tau, but through East using Aji-bogdo, Eren-Nura, Nomsk Mts., Megin-Ola and Karlik-Tag" (GRUM-GRSHIMAÏLO, 1907: 467). Only newest paleoclimatological researches show us that GRUM-GRSHIMAÏLO was completely right in his decisions: modern fauna of North Tian Shan formed about 12 000 years ago, after global changing of this region's climate from humid to arid (ROMANOVSKY & SHATRANIN, 2009).

OTTO KARL HEINRICH RICHARD STAUDINGER, 1830 - 1900, never collected in Central Asia, described there a huge number of species-group taxa of Lepidoptera. "STAUDINGER was the most authoritative expert in the subject of systematics and faunistics of Lepidoptera in the second half of the XIX century" (NEKRUTENKO, 1990: 25). Butterflies in the North Tian Shan collected for STAUDINGER by the following collectors: JOSEF HABERHAUER (in 1896) and EUGEN GEORG RÜCKBEIL (in 1895).

An important person in the lepidopterological researches in the North Tian Shan was A. AVINOV (1885 - 1949). In 1908-1914 he organized 42 trans-asiatic expeditions. After receiving large treasures from his deceased uncle, he received from agent-collectors of butterflies (students of the University of St. Petersburg) invaluable materials from Caucasus, Armenia, Persia, Hindu Kush, Tian Shan, Bhutan, Sikkim. His expeditions collected more than 80.000 specimens of butterflies. Special attention AVINOV paid, after GRUM-GRSHIMAÏLO, on zoogeography. His important work was a little-known article on the zoogeographical division of mountains of British India, in which he gave a definition of faunistic region: "... zoogeographical region, subregion, or province is not precisely delineated area, strictly closed area, but complex of forms of some faunistic commonness and connected in its faunistic face to the territorial base" (AVINOV, 1914: 526).

The October Revolution in 1917 limited the possibilities for research in the Central Asian region for a long time. The North Tian Shan has not been visited by any lepidopterologist approximately for 15 years. The first who collected insect material in the first half of the twentieth century in North Tian Shan was A. TSVETAYEV.

A. TSVETAYEV (1903-1980) was the chief engineer of the Moscow factory „Nature and School”, producing the visual aids. His first expedition to Central Asia was in 1935, he visited the valley Shakhimardan on the Alai Range. In 1955, 1965, 1967 TSVETAYEV collected around lake Issyk-Kul, Terskey Ala-Too and Kungey Ala-Too Mts. His huge collection of butterflies, including more than 84.000 specimens, is today deposited in the Zoological Museum of Moscow State University and curated by Dr. A. V. SVIRIDOV.

V. GANSON (b. 1924), member of the Russian Entomological Society, member of the Presidium of the Moscow Society of Naturalists, President of the Section of Conservation of butterflies of Russian Entomological Society, the author of several works on Rhopalocera, owner of one of the most complete collections of butterflies of former USSR, collected butterflies in the Kyrgyz Mts., in valley Shamshi in 1983.

Dr. V. MURZIN (b. 1927), Professor of Moscow State University, member of the Russian Entomological Society, also collected butterflies in the North Tian Shan. Parts of his materials are in the collection of Y. KOSAREV, and studied by the author of this paper.

Another prominent expert on butterflies of the former USSR - Dr. L. KAABAK (b. 1934), devoted his leisure to study of *Parnassius*. He opened a lot of hidden information in systematics, distribution and biology of the mysterious butterflies of the Pamir mountains. In the North Tien Shan L. Kaabak collected in a part of Terskey Ala-Too: in valley Dzher-Kochku, in 1986; these materials also have been studied by the author of this paper.

An important point in the study of the butterflies of the North Tian Shan is the work of I. FILIPIEV (1889-1940) about butterflies of Transili Alatau Mts. (FILIPIEV, 1971). This work, which appeared 31 years after the death of its author, is an extract from the report of FILIPIEV in 1937, when he worked as a research associate in the Institute of Zoology of the Kazakh SSR. List of Rhopalocera of Transili Alatau, published by the editorial board of Proceedings of the Zoological Institute of the Kazakh SSR, is the first faunistic work of the North Tian Shan butterflies after reports of ALPHERAKY. FILIPIEV listed from Transili Alatau 130 species of butterflies, representing 79% of its present fauna.

The next article about the butterflies of the North Tian Shan (Transili Alatau Mts.) was published in 1980 and was written by K. SEDYKH (1926-2006). SEDYKH collecting butterflies in this mountain ridge for 4 seasons: in 1958, 1961, 1962 and 1979. During this time he captured fantastic numbers of Lepidoptera: 353.938 specimens (SEDYKH, 1980: 788). The list of SEDYKH includes 141 species, 11 species more than in FILIPIEV's paper. The reason of this fact is as follows: SEDYKH collected butterflies only in the central part of the ridge. Western and eastern parts of Transili Alatau Mts. have slightly different fauna, shown later by other authors. Undoubtedly, one of the leading expert in Rhopalocera fauna of Transili Alatau and North Tian Shan is A. ZHDANKO. Author of numerous faunistic, zoogeographical, ecological and taxonomic works on the butterflies of Central Asia, a great photographer. ZHDANKO is working since 1988 in the Zoological Institute, Academy of Sciences of Kazakhstan in Almaty. He performed more than 60 expeditions to Central Asia, more than half of them - to the North Tian Shan. The closest associate of ZHDANKO is an entomologist, a graduate of Kyrgyz State University, S. TOROPOV (b. 1952). He has devoted decades of study of the preimaginal stages in biology of the butterflies of the Central Asian region, he developed methods in breeding almost all species of Rhopalocera from this area. The main result of their work published in 2006 and 2009 (TOROPOV & ZHDANKO, 2006, 2009).

Another important work on butterflies, in which data about the fauna of the North Tian Shan can be found, is TUZOV et al. (1997, 2000). Published in two volumes, richly illustrated, this books have become a reference for all modern lepidopterologists studying Palaearctic Rhopalocera.

Some of his researches carried out in the North Tian Shan the Russian lepidopterologist V. LUKHTANOV (b. 1958). His major work on the butterflies of North-West Asia (LUKHTANOV & LUKHTANOV, 1994) contains important information about the distribution of Rhopalocera in the North Tian Shan; in addition, V. LUKHTANOV described some new taxa of butterflies distributed in the North Tian Shan. Important information about the butterflies of the Northern Tian Shan also published in the book of Ukrainian entomologist V. TSHIKOLOVETS (b. 1962) on the butterflies of Kyrgyzstan (TSHIKOLOVETS, 2005). Richly illustrated with color photographs of more than 2500 specimens of the butterflies collected in the territory of Kyrgyzstan, the book contains information about all findings of butterflies in the kyrgyzstani part of North Tian Shan; TSHIKOLOVETS collected in the North Tian Shan in 1986, 1990, 1992 and 1994 (TSHIKOLOVETS, 2005: 14-18).

A lot of time S. CHURKIN (b. 1964) spent in the mountains of North Tian Shan Russian collecting butterflies. Unfortunately, CHURKIN did not publish the faunistic results of his work, except for co-authorship in the second volume of fundamental work on the butterflies of Russia and adjacent territories (TUZOV et al., 2000), but he wrote numerous taxonomic works and described more than 40 species-group taxa, some of them from the North Tian Shan.

J. HANUS, a famous French entomologist, visited North Tian Shan and published the results of his expedition (HANUS et al., 1997); he also described some new taxa from this territory. A large number of entomologists in fact visited this area (mostly using S. TOROPOV's services) but normally nobody publish results of expeditions. I know only 3 papers published in the last 20 years containing data about butterflies collected in one's personal expedition (KOROLEV, KIR'YANOV, 1998, LEHMANN, 1998, 2000).

List of species

1. *Erynnis tages* (LINNAEUS, 1758) (fig. 25)

Biotopes: Steppes and dry meadows. Elevation: 1200-1800 m. Flight period: June. Distribution: Confirmed only from Ketmen Mts, other parts of North Tian Shan not inhabited.

2. *Carcharodus alceae* (ESPER, [1780]) (fig. 26)

Biotopes: Steppes and dry meadows, xerophytic mountain gorges. Elevation: 700-2000 m. Flight period: May-July. Distribution: All mountain ridges.

3. *Syrichtus antonia* (SPEYER, 1879) (fig. 27)

Biotopes: Steppes and dry meadows. Elevation: 1200-2500 m. Flight period: Late June-August. Distribution: All mountain ridges.

4. *Syrichtus staudingeri staudingeri* (SPEYER, 1879) (fig. 28)

Biotopes: Dry meadows, stony gorges and xerophytic mountain slopes. Elevation: 700-2500 m. Flight period: Late May-July. Distribution: Only known from Kungey Ala-Too Mts.

5. *Syrichtus tessellum nigricans* (MABILLE, 1909) (fig. 29)

Biotopes: Steppes and dry meadows. Elevation: 1800-2800 m. Flight period: Mid June-August. Distribution: All mountain ridges.

6. *Syrichtus nobilis* (STAUDINGER, 1882) (fig. 30)

Biotopes: Steppes and dry meadows. Elevation: 1500-2500 m. Flight period: Late June-July. Distribution: Only known from southern slope of Kyrgyz Mts. (Tee-Ashuu Pass).

7. *Spilia geron struvei* PÜNGELER, 1914 (fig. 31)

Biotopes: Steppes and dry meadows with rocks and stones. Elevation: 700-2500 m. Flight period: Late June-August. Distribution: Only known from the western part of Kyrgyz Mts.

8. *Spilia orbifer lugens* (STAUDINGER, 1886) (fig. 32)

Biotopes: Steppes and dry meadows, semideserts, anthropogenic landscapes. Elevation: 700-3000 m. Flight period: May-August. Distribution: All mountain ridges.

9. *Pyrgus sidae* (ESPER, [1782]) (fig. 33)

Biotopes: Steppes and dry meadows. Elevation: 1200-2500 m. Flight period: Late June-late July. Distribution: Known only from central and eastern parts of Kyrgyz Mts. and from western part of Kungey Ala-Too Mts.

10. *Pyrgus malvae anubis* KORB, 2000 (fig. 34)

Biotopes: Steppes and meadows. Elevation: 900-700 m. Flight period: June-August. Distribution: All mountain ridges, but in western part of Kyrgyz Mts. not collected.

11. *Pyrgus alpinus alpinus* (ERSCHOFF, 1874) (fig. 35)

Biotopes: Steppes, meadows, other open places. Elevation: 2400-3800 m. Flight period: June-August. Distribution: All mountain ridges.

12. *Thymelicus lineola lineola* (OCHSENHEIMER, [1808]) (fig. 36)

Biotopes: Grassy places. Elevation: 700-2500 m. Flight period: May-August. Distribution: All mountain ridges.

13. *Hesperia comma mixta* ALPHÉRAKY, 1881 (fig. 37)

Biotopes: Open places as steppes, meadows, plateaus. Elevation: 1800-3800 m. Flight period: Late June-August. Distribution: All mountain ridges.

14. *Hesperia sylvanus* (ESPER, [1777]) (fig. 38)

Biotopes: Steppes and meadows. Elevation: 700-2200 m. Flight period: June-August. Distribution: Only known from central and western parts of Kyrgyz Mts.

15. *Papilio machaon ladakensis* MOORE, 1884 (fig. 39)

Biotopes: All biotopes. Elevation: 500-4200 m. Flight period: April-November (polyvoltine). Distribution: All mountain ridges.

16. *Iphiclus podalirius centralasiae* (ROSEN, 1929) (fig. 40)

Biotopes: Forests and its environs, river valleys. Elevation: 1200-2200 m. Flight period: May-August (bivoltine). Distribution: Only known from Ketmen Mts. and central part of Kyrgyz Mts.

17. *Hypermnestra helios helios* (NICKERL, 1846) (fig. 41)

Biotopes: Deserts and semideserts. Elevation: 500-700 m. Flight period: Late April-May. Distribution: Northern slopes of Transili Alatau Mts. and Kungey Ala-Too Mts.

18. *Parnassius apollonius alpinus* STAUDINGER, 1887 (fig. 42)

Biotopes: Steppes and dry meadows, xerophytic mountain slopes. Elevation: 500-3000 m. Flight period: May-August. Distribution: All mountain ridges, - but in central and eastern part of Terskey Ala-Too Mts. not present.

19A. *Parnassius actius dubitabilis* VERITY, [1911] (fig. 43)

Biotopes: Rocky places and scree on southern and eastern slopes with alpine vegetation. Elevation: 3000-4200 m. Flight period: Late June-August. Distribution: Kyrgyz Mts.

19B. *Parnassius actius minutus* VERITY, [1911] (fig. 43)

Biotopes: Rocky places and scree on southern and eastern slopes with alpine vegetation. Elevation: 2800-4200 m. Flight period: June-September. Distribution: Terskey Ala-Too Mts., Kungey Ala-Too Mts., Transili Alatau Mts., Ketmen Mts.

20A. *Parnassius tianschanicus tianschanicus* OBERTHÜR, 1879 (fig. 44)

Biotopes: Rocky places and meadows on southern and south-eastern slopes with alpine and subalpine vegetation. Elevation: 1900-3600 m. Flight period: June-August. Distribution: Transili Alatau Mts., Terskey Ala-Too Mts., Kungey Ala-Too Mts., Ketmen Mts.

20B. *Parnassius tianschanicus alexander* BRYK & EISNER, 1935 (fig. 44)

Biotopes: Rocky places and meadows on southern and south-eastern slopes with alpine and subalpine vegetation. Elevation: 1700-3500 m. Flight period: June-July. Distribution: Kyrgyz Mts.

21. *Parnassius apollo transiliensis* EISNER, 1966 (fig. 45)

Biotopes: Steppes, meadows, rocky places, river valleys. Elevation: 1400-2700 m. Flight period: June-September. Distribution: All mountains.

22. *Driopa mnemosyne orientalis* (ROTHSCHILD, 1918) (fig. 46)

Biotopes: Steppes and meadows. Elevation: 1300-2700 m. Flight period: Late May-July. Distribution: All mountains.

23A. *Kreizbergius boedromius boedromius* (PÜNGELER, 1901) (fig. 47)

Biotopes: Scree on southern slopes. Elevation: 3200-4000 m. Flight period: June-August. Distribution: Only known from eastern part of Terskey Ala-Too Mts.

23B. *Kreizbergius boedromius martinheringi* (BRYK & EISNER, 1930) (fig. 47)

Biotopes: Scree on southern slopes. Elevation: 3100-3800 m. Flight period: June-July. Distribution: Only known from the central parts of Kungey Ala-Too Mts. and Transili Alatau Mts.

23C. *Kreizbergius boedromius hohlbecki* (AVINOV, 1913) (fig. 47)

Biotopes: Scree on southern and south-eastern slopes. Elevation: 3200-4200 m. Flight period: June-July. Distribution: Only known from the central and eastern parts of Kyrgyz Mts.

23D. *Kreizbergius boedromius prasolovi* (KREUZBERG, 1986) (fig. 47)

Biotopes: Scree on southern slopes. Elevation: 3200-4200 m. Flight period: June-August. Distribution: Only known from the central part of Terskey Ala-Too Mts.

24A. *Koramius patricius kardakoffi* (BRYK & EISNER, 1930) (fig. 48)

Biotopes: Scree and rocks on northern and close slopes. Elevation: 3200-4000 m. Flight period: Late June-August. Distribution: Only known from the central parts of Kungey Ala-Too Mts. and Transili Alatau Mts.

24B. *Koramius patricius lukhtanovi* (ROSE, 1992) (fig. 48)

Biotopes: Scree and rocks on northern and western slopes. Elevation: 3300-4200 m. Flight period: June-August. Distribution: Only known from the eastern limit of Terskey Ala-Too Mts.

24C. *Koramius patricius uzyngyrus* (WEISS, 1979) (fig. 48)

Biotopes: Scree on northern and western slopes. Elevation: 3100-3800 m. Flight period: June-August. Distribution: Only known from the central and eastern parts of Kyrgyz Mts.

25. *Koramius priamus* (BRYK, 1914) (fig. 49)

Biotopes: Scree on western and southern slopes. Elevation: 3400-4300 m. Flight period: July-September. Distribution: Only known from the central part of Terskey Ala-Too Mts.

26A. *Koramius delphius albulus* (HONRATH, 1889) (fig. 50)

Biotopes: Screes, alpine meadows, rocks. Elevation: 3000-4200 m. Flight period: June - August. Distribution: Ketmen Mts., Terskey Ala-Too Mts., Kungey Ala-Too Mts., Transili Alatau Mts.

26B. *Koramius delphius namaganus* (STAUDINGER, 1886) (fig. 50)

Biotopes: Screes, alpine meadows, rocks. Elevation: 3000-3800 m. Flight period: June-July. Distribution: Kyrgyz Mts.

27. *Leptidea reali mazeli* BOLSHAKOV, 2006 (fig. 51)

Biotopes: Meadows, river valleys, mesophytic slopes. Elevation: 1700-2500 m. Flight period: May-July. Distribution: Only known from the central part of Terskey Ala-Too Mts.

28. *Leptidea descimoni* MAZEL, 2004 (fig. 52)

Biotopes: Mesophytic meadows and river valleys. Elevation: 1500-2500 m. Flight period: June-July. Distribution: Only known from the type locality (Dzhety-Oguz valley in eastern part of Terskey Ala-Too Mts.).

29. *Leptidea sinapis* (LINNAEUS, 1758) (fig. 53)

Biotopes: Steppes, meadows. Elevation: 1200-2200 m. Flight period: May-July. Distribution: All mountains.

30. *Colias cocandica cocandica* ERSCHOFF, 1874 (fig. 54)

Biotopes: Alpine meadows, high mountain plateaus, mountain gorges. Elevation: 2700-4200 m. Flight period: June-August. Distribution: Known from all mountain ridges.

31. *Colias alta* STAUDINGER, 1886 (fig. 55)

Biotopes: Alpine and subalpine meadows and steppes. Elevation: 2500-3200 m. Flight period: July-August. Distribution: Known only from the central part of Kyrgyz Mts. Remark. Belongs without doubts to the *C. erate*-group but easily differs from it by the ♂ genitalia (figs. 56, 57).

32. *Colias grieshaberi* KORB, 2004 (fig. 58)

Biotopes: Meadows, steppes, anthropogenic landscapes. Elevation: 1000-2500 m. Flight period: April-October (polyvoltine). Distribution: Ketmen Mts., Transili Alatau Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts.

33. *Colias erate* (ESPER, [1801]) (fig. 59)

Biotopes: All biotopes. Elevation: 500-4600 m. Flight period: April-October. Distribution: Known from all mountain ridges.

34. *Colias ionovi* KORB, 2005 (fig. 60)

Biotopes: Alpine and subalpine meadows. Elevation: 2300-2700 m. Flight period: June-July. Distribution: Kyrgyz Mts., Transili Alatau Mts. Remark. Sibling species of *C. chrysototheme* (ESPER, 1781), differs from it easily by the ♂ genital structures (figs. 61, 62).

35. *Colias romanovi* GRUM-GRSHIMAILO, 1885 (fig. 63)

Biotopes: Steppe slopes. Elevation: 1500-2700 m. Flight period: June-August. Distribution: Kyrgyz Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts. (never collected in the central part), Transili Alatau Mts.

36A. *Colias staudingeri staudingeri* ALPHÉRAKY, 1881 (fig. 64)

Biotopes: Alpine and subalpine meadows. Elevation: 2500-3500 m. Flight period: June-August. Distribution: Eastern border of Terskey Ala-Too Mts.

36B. *Colias staudingeri pamira* GRUM-GRSHIMAILO, 1890 (fig. 64)

Biotopes: Alpine and subalpine meadows. Elevation: 2500-4200 m. Flight period: June-August. Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts., western and central parts of Terskey Ala-Too Mts.

37. *Colias thisoa urumtsiensis* VERITY, 1909 (fig. 65)

Biotopes: Alpine and subalpine meadows, steppes. Elevation: 2000-3500 m. Flight period: June-July. Distribution: Only known from Ketmen Mts.

38. *Colias erschoffi* ALPHÉRAKY, 1881 (fig. 66)

Biotopes: Steppes, dry meadows. Elevation: 1800-2700 m. Flight period: June-August. Distribution: Eastern border of Terskey Ala-Too Mts.

39. *Gonepteryx rhamni tianschanica* NEKRUTENKO, 1970 (fig. 67)

Biotopes: River valleys and forests, mesophytic meadows. Elevation: 1000-2500 m. Flight period: March-April, late June-September. Distribution: Kyrgyz Mts. (central and eastern part), Transili Alatau Mts., Kungey Ala-Too Mts., eastern part of Terskey Ala-Too Mts., Ketmen Mts.

40. *Gonepteryx farinosa* ZELLER, 1847 (fig. 68)

Biotopes: Steppes, dry meadows. Elevation: 800-2000 m. Flight period: March-May, July-October. Distribution: Only known from the central part of Kyrgyz Mts.

41. *Anthocharis cardamines alexandra* HEMMING, 1933 (fig. 69)

Biotopes: Steppes, meadows, river valleys, forests. Elevation: 1200-2700 m. Flight period: April-July. Distribution: All mountain ridges.

42. *Euchloe ausonia transiens* VERITY, 1908 (fig. 70)

Biotopes: Steppes, dry meadows. Elevation: 800-2500 m. Flight period: April-August (bivoltine). Distribution: Known from all mountain ridges, but rare and local.

43. *Euchloe daphalis pulverata* (CHRISTOPH, 1884) (fig. 71)

Biotopes: Steppes, dry meadows. Elevation: 1200-2500 m. Flight period: June-August. Distribution: Only known from the central and western parts of Kyrgyz Mts.

44. *Zegris fausti* CHRISTOPH, 1877 (fig. 72)

Biotopes: Deserts and semideserts in foothills. Elevation: 500-900 m. Flight period: April-May. Distribution: Only known from the central and western parts of Transili Alatau Mts. and from western part of Ketmen Mts.

45. *Microzegris pyrothoe* (Eversmann, 1832) (fig. 73)

Biotopes: Deserts and semideserts. Elevation: 500-1000 m. Flight period: April-May. Distribution: Only known from the western part of Transili Alatau Mts.

46. *Aporia crataegi tianschanica* Rühl, [1893] (fig. 74)

Biotopes: Steppes, meadows, dry slopes. Elevation: 1000-2500 m. Flight period: May-July. Distribution: All mountain ridges.

47. *Metaporia leucodice morosevitshae* Sheljuzhko, 1907 (fig. 75)

Biotopes: Forests, river valleys, only with barberries. Elevation: 1200-2700 m. Flight period: June-August. Distribution: All mountain ridges.

48. *Pieris brassicae ottonis* Röber, 1907 (fig. 76)

Biotopes: Steppes, meadows, anthropogenic landscapes. Elevation: 800-2500 m. Flight period: May-September. All mountain ridges.

49. *Pieris napi bryonides* Sheljuzhko, 1910 (fig. 77)

Biotopes: All biotopes except alpine and subnival. Elevation: 600-3000 m. Flight period: April-September. Distribution: All mountain ridges.

50. *Pieris banghaasi kirgizskana* (Korb, 2001) (fig. 78)

Biotopes: Alpine and subalpine meadows, rocky slopes of southern and western expositions. Elevation: 2500-3500 m. Flight period: June-July. Distribution: Only known from the central part of Kyrgyz Mts. and western part of Kungey Ala-Too Mts.

51. *Pieris rapae debilis* Alphéráky, 1889 (fig. 79)

Biotopes: Steppes, meadows, anthropogenic landscapes. Elevation: 800-3000 m. Flight period: April-September. Distribution: All mountain ridges.

52. *Pieris canidia palaearctica* Staudinger, 1886 (fig. 80)

Biotopes: Steppes, meadows, river valleys. Elevation: 1000-2900 m. Flight period: May-August. Distribution: Only known from the central part of Kyrgyz Mts.

53. *Pieris krueperi devta* (de Nicéville, 1883) (fig. 81)

Biotopes: Steppes, rocky places. Elevation: 1200-3500 m. Flight period: May-August. Distribution: Only known from the central and eastern parts of Kyrgyz Mts.

54. *Pieris ochsenheimeri* (Staudinger, 1881) (fig. 82)

Biotopes: River valleys, subalpine and alpine meadows. Elevation: 2200-3500 m. Flight period: June-July. Distribution: Only known from the central part of Kyrgyz Mts.

55. *Pontia chloridice* (Hübner, [1813]) (fig. 83)

Biotopes: Steppes, dry meadows. Elevation: 1600-3800 m. Flight period: April-August (bivoltine). Distribution: All mountain ridges, sporadic.

56. *Pontia daplidice daplidice* (Linnaeus, 1758) (fig. 84)

Biotopes: All biotopes. Elevation: 500-4200 m. Flight period: April-November (polyvoltine). Distribution: All mountain ridges.

57. *Pontia callidice kalora* (Moore, 1865) (fig. 85)

Biotopes: Steppes, meadows on the mountain gorges, xerophytic places. Elevation: 1200-4000 m. Flight period: May-September (bivoltine). Distribution: All mountains.

58. *Libythea celtis platooni* Korb, 2005 (fig. 86)

Biotopes: Forests, river valleys with trees of Celtis. Elevation: 800-1900 m. Flight period: May-September. Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts.

59. *Limenitis helmanni helmanni* Kindermann, 1853 (fig. 87)

Biotopes: Forests, river valleys. Elevation: 800-2000 m. Flight period: June-July. Distribution: Transili Alatau Mts.

60. *Neptis rivularis ludmilla* Herrich-Schäffer, 1856 (fig. 88)

Biotopes: Forests, river valleys. Elevation: 800 - 2500 m. Flight period: June-August. Distribution: All mountain ridges.

61. *Argynnis pandora pasargades* Fruhstorfer, 1908 (fig. 89)

Biotopes: Steppes and meadows, dry slopes. Elevation: 800-2500 m. Flight period: May-September. Distribution: All mountain ridges.

62. *Argynnis paphia paphia* (Linnaeus, 1758) (fig. 90)

Biotopes: Forests, meadows, river valleys. Elevation: 800-2500 m. Flight period: June-August. Distribution: All mountain ridges.

63. *Argynnis niobe orientalis* Alphéráky, 1881 (fig. 91)

Biotopes: Meadows. Elevation: 1500-3000 m. Flight period: June-August. Distribution: All mountain ridges.

64. *Argynnis adippe tianschanica* Alphéráky, 1881 (fig. 92)

Biotopes: Meadows. Elevation: 1600-3200 m. Flight period: June-July. Distribution: All mountain ridges, local.

65. *Argynnis aglaja vitatha* Moore, 1874 (fig. 93)

Biotopes: Meadows, steppes. Elevation: 1200-3600 m. Flight period: June-August. Distribution: All mountain ridges.

66. *Issoria lathonia* (Linnaeus, 1758) (fig. 94)

Biotopes: All biotopes. Elevation: 700-4200 m. Flight period: April-September (polyvoltine). Distribution: All mountain ridges.

67. *Brenthis ino trachalus* (Fruhstorfer, 1916) (fig. 95)

Biotopes: meadows, dry stepped landscapes. Elevation: 1200-2500 m. Flight period: June-August. All mountain ridges, very sporadic.

68. *Brenthis hecate alaica* (Staudinger, 1886) (fig. 96)

Biotopes: Steppes, dry meadows, river valleys. Elevation: 1200-2600 m. Flight period: May-August. Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts.

69. *Clossiana erubescens erubescens* (STAUDINGER, 1901) (fig. 97)
Biotopes: Meadows. Elevation: 2200-3800 m. Flight period: June-August. Distribution: All mountain ridges.
70. *Boloria generator generator* (STAUDINGER, 1886) (fig. 98)
Biotopes: Meadows. Elevation: 2500-4200 m. Flight period: Late June-August. Distribution: All mountain ridges.
71. *Polygona interposita* STAUDINGER, 1881 (fig. 99)
Biotopes: Forests, river valleys, dry stony slopes. Elevation: 1200-2500 m. Flight period: April-Oktober (bivoltine). Distribution: All mountain ridges, very sporadic.
72. *Polygona egea undina* (GRUM-GRSHIMAILO, 1890) (fig. 100)
Biotopes: Forests, river valleys. Elevation: 1200-2500 m. Flight period: April-Oktober (bivoltine). Distribution: All mountain ridges, local.
73. *Nymphaalis vaualbum arbustus* CHURKIN & ZHDANKO, 2002 (fig. 101)
Biotopes: Forests, meadows. Elevation: 1000-2000 m. Flight period: April-September (bivoltine). Distribution: All mountain ridges, but in eastern and central part of Terskey Ala-Too Mts. never collected.
74. *Nymphaalis xanthomelas hazara* WYATT & OMOTO, 1966 (fig. 102)
Biotopes: Forests, river valleys, meadows. Elevation: 1200-2500 m. Flight period: April-October (bivoltine). Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts., Ketmen Mts.
75. *Nymphaalis antiopa antiopa* (LINNAEUS, 1758) (fig. 103)
Biotopes: Forests. Elevation: 1500-2700 m. Flight period: April-September (bivoltine). Distribution: All mountain ridges.
76. *Aglais urticae urticae* (LINNAEUS, 1758) (fig. 104)
Biotopes: All biotopes. Elevation: 800-4200 m. Flight period: April-September (bivoltine). Distribution: All mountain ridges.
77. *Inachis io io* (LINNAEUS, 1758) (fig. 105)
Biotopes: All biotopes. Elevation: 800-3600 m. Flight period: April-September (bivoltine). Distribution: All mountain ridges.
78. *Vanessa atalanta* (LINNAEUS, 1758) (fig. 106)
Biotopes: Steppes, meadows, anthropogenic landscapes. Elevation: 600-1900 m. Flight period: May-September (bivoltine). Distribution: Kyrgyz Mts., Transili Alatau Mts.
79. *Vanessa cardui* (LINNAEUS, 1758) (fig. 107)
Biotopes: All biotopes. Elevation: 500-4600 m. Flight period: April-September (bivoltine). Distribution: All mountain ridges.
80. *Euphydryas asiatica alexandrina* (STAUDINGER, 1887) (fig. 108)
Biotopes: Alpine and subalpine meadows, steppes. Elevation: 1200-3200 m. Flight period: May-July. Distribution: All mountain ridges, sporadic.
81. *Melitaea didyma turkestanica* SHELJUZHKO, 1929 (fig. 109)
Biotopes: Stepped and stony open places. Elevation: 800-2500 m. Flight period: May-September (polyvoltine). Distribution: All mountain ridges.
82. *Melitaea ala ala* STAUDINGER, 1881 (fig. 110)
Biotopes: Steppes, meadows. Elevation: 1500-2800 m. Flight period: June-August. Distribution: All mountain ridges.
83. *Melitaea ninae* SHELJUZHKO, 1935 (fig. 111)
Biotopes: Meadows and river valleys. Elevation: 1500-2500 m. Flight period: June-August. Distribution: Western border of Kyrgyz Mts.
84. *Melitaea lunulata merke* LUKHTANOV, 1999 (fig. 112)
Biotopes: Stony slopes with screes. Elevation: 2000-3300 m. Flight period: June-July. Distribution: Western part of Kyrgyz Mts.
- 85A. *Melitaea fergana ketmeana* LUKHTANOV, 1999 (fig. 113)
Biotopes: Stony slopes with screes. Elevation: 2000-3500 m. Flight period: June-July. Distribution: Ketmen Mts.
- 85B. *Melitaea fergana paradoxa* CHURKIN & TUZOV, 2000 (fig. 113)
Biotopes: Stony slopes of northern and close expositions with screes. Elevation: 2000-3600 m. Flight period: June-July. Distribution: Transili Alatau Mts., Kungey Ala-Too Mts.
- 85C. *Melitaea fergana* ssp.? (fig. 113)
Biotopes: Stony slopes of northern and close expositions with screes. Elevation: 2400-3700 m. Flight period: June-July. Distribution: Central and eastern parts of Kyrgyz Mts.
- 85D. *Melitaea fergana terskeana* LUKHTANOV, 1999 (fig. 113)
Biotopes: Stony slopes with screes. Elevation: 3000-4000 m. Flight period: Late June-July. Distribution: Central and eastern parts of Terskey Ala-Too Mts.
86. *Melitaea athene* STAUDINGER, 1881 (fig. 114)
Biotopes: Steppes and semideserts. Elevation: 500-900 m. Flight period: May-June. Distribution: Ketmen Mts., eastern spurs of Transili Alatau Mts.
87. *Melitaea minerva minerva* STAUDINGER, 1881 (fig. 115)
Biotopes: Meadows. Elevation: 1200-3000 m. Flight period: May-August (bivoltine). Distribution: Central part of Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts., Ketmen Mts.
88. *Melitaea pallas mendax* KOLESNICHENKO & TUZOV, 2000 (fig. 116)
Biotopes: Alpine and subalpine meadows. Elevation: 2800-4500 m. Flight period: June-July. Distribution: central part of Kyrgyz Mts.
89. *Melitaea ludmilla ludmilla* CHURKIN, KOLESNICHENKO & TUZOV, 2000 (fig. 117)
Biotopes: Stony alpine meadows on the southern slopes. Elevation: 3000-3500 m. Flight period: June-July. Distribution: Central and eastern parts of Kyrgyz Mts.

90. *Melitaea palamedes danieli* ACHTELIK, 1999 (fig. 118)

Biotopes: Steppes on southern and close slopes. Elevation: 2000-2600 m. Flight period: June-late July. Distribution: Central part of Transili Alatau Mts.

91. *Melitaea cassandra* KOLESNICHENKO & CHURKIN, 2001 (fig. 119)

Biotopes: Stony steppes. Elevation: 1700-2400 m. Flight period: June-July. Distribution: Kyrgyz Mts.

92. *Melitaea phoebe saturata* STAUDINGER, 1892 (fig. 120)

Biotopes: Semideserts, steppes and dry meadows. Elevation: 500-2000 m. Flight period: May-July. Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts.

93A. *Melitaea sibina sibina* ALPHÉRAKY, 1881 (fig. 121)

Biotopes: Semideserts, steppes, dry meadows. Elevation: 500-2500 m. Flight period: May-July. Distribution: Transili Alatau Mts., Ketmen Mts., eastern part of Terskey Ala-Too Mts.

93B. *Melitaea sibina rama* HIGGINS, 1941 (fig. 121)

Biotopes: Semideserts, steppes, dry meadows. Elevation: 500-2200 m. Flight period: May-July. Distribution: Kyrgyz Mts.

94. *Melitaea arduinna arduinna* (ESPER, [1784]) (fig. 122)

Biotopes: Steppes. Elevation: 1000-2000 m. Flight period: May-July. Distribution: Transili Alatau Mts., Kungey Ala-Too Mts., Kyrgyz Mts.

95. *Lasiommata maera maera* (LINNAEUS, 1758) (fig. 123)

Biotopes: Meadows, steppes, rocky slopes. Elevation: 1000-2000 m. Flight period: May-July. Distribution: Kungey Ala-Too Mts., Ketmen Mts.

96. *Lasiommata menava menava* MOORE, 1865 (fig. 124)

Biotopes: Steppes, dry meadows, rocky slopes. Elevation: 800-2500 m. Flight period: May-September (bivoltine). Distribution: Western part of Kyrgyz Mts.

97. *Marginarge eversmanni eversmanni* (EVERSMANN, 1847) (fig. 125)

Biotopes: Steppes, meadows, river valleys, rocky slopes. Elevation: 1000-2500 m. Flight period: June-July. Distribution: All mountain ridges.

98. *Melanargia russiae russiae* (ESPER, [1786]) (fig. 126)

Biotopes: Steppes and dry meadows. Elevation: 1000-2500 m. Flight period: June-July. Distribution: Kungey Ala-Too Mts., Transili Alatau Mts., Ketmen Mts.

99. *Melanargia parce parce* STAUDINGER, 1882 (fig. 127)

Biotopes: Steppes, dry meadows, rocky slopes. Elevation: 1000-2700 m. Flight period: June-July. Distribution: All mountain ridges.

100. *Triphysa phryne striatula* ELWES, 1899 (fig. 128)

Biotopes: Steppes. Elevation: 1000-2500 m. Flight period: June-July. Distribution: Western borders of Transili Alatau Mts. and Kungey Ala-Too Mts., Kyrgyz Mts.

101. *Lyela myops myops* (STAUDINGER, 1881) (fig. 129)

Biotopes: Steppes, semideserts, rocky foothills. Elevation: 500-1700 m. Flight period: April-May. Distribution: Transili Alatau Mts., Terskey Ala-Too Mts. (eastern limit), Kungey Ala-Too Mts., Kyrgyz Mts., Ketmen Mts.

102. *Coenonympha nolkeni nolkeni* ERSCHOFF, 1874 (fig. 130)

Biotopes: Meadows, stony slopes. Elevation: 1700-3500 m. Flight period: May-July. Distribution: Central and western parts of Kyrgyz Mts.

103. *Coenonympha caeca tshonkurtshakus* KORB, 1999 (fig. 131)

Biotopes: Alpine and subalpine meadows. Elevation: 2300-3600 m. Flight period: June-July. Distribution: Central and western parts of Kyrgyz Mts., western part of Kungey Ala-Too Mts.

104. *Coenonympha mahometana mahometana* ALPHÉRAKY, 1881 (fig. 132)

Biotopes: Steppes and dry meadows, mostly in river valleys. Elevation: 1700-2500 m. Flight period: June-July. Distribution: Transili Alatau Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts., Ketmen Mts., eastern limit of Kyrgyz Mts.

105. *Coenonympha sunbecca alexandra* HEYNE, 1894 (fig. 133)

Biotopes: Steppes, meadows. Elevation: 1500-3600 m. Flight period: June-July. Distribution: All mountain ridges.

106. *Coenonympha pamphilus* (LINNAEUS, 1758) (fig. 134)

Biotopes: Steppes, meadows. Elevation: 800-2400 m. Flight period: May-September (bivoltine). Distribution: All mountain ridges.

107A. *Paralasa bogutena bogutena* LUKHTANOV & LUKHTANOV, 1994 (fig. 135)

Biotopes: Rocky steppe slopes. Elevation: 1700-2600 m. Flight period: May-June. Distribution: Eastern part of Transili Alatau Mts.

107B. *Paralasa bogutena issykului* LUKHTANOV, 1999 (fig. 135)

Biotopes: Rocky dry slopes. Elevation: 1700-2700 m. Flight period: June-July. Distribution: Eastern part of Kyrgyz Mts., western parts of Kungey Ala-Too Mts. and Terskey Ala-Too Mts.

107C. *Paralasa bogutena ekinchi* KORB, 2008 (fig. 135)

Biotopes: Rocky slopes and river valleys in forests. Elevation: 2000-2600 m. Flight period: June-July. Distribution: Eastern part of Terskey Ala-Too Mts.

108. *Paralasa kusnezovi kusnezovi* (AVINOV, 1910) (fig. 136)

Biotopes: Rocky slopes with steppe vegetation. Elevation: 1800-2900 m. Flight period: June-July. Distribution: Western part of Kyrgyz Mts.

109. *Proterebia afra afra* (FABRICIUS, 1787) (fig. 137)

Biotopes: Steppes, semideserts. Elevation: 600-1200 m. Flight period: April-May. Distribution: Kyrgyz Mts., Transili Alatau Mts.

110A. *Erebia turanica jucunda* PÜNGELER, 1903 (fig. 138)

Biotopes: Meadows. Elevation: 1700-3200 m. Flight period: June-July. Distribution: Terskey Ala-Too Mts.

110B. *Erebia turanica laeta* STAUDINGER, 1881 (fig. 138)

Biotopes: Meadows. Elevation: 1500-3600 m. Flight period: June-July. Distribution: Kyrgyz Mts., Kungey Ala-Too Mts., Transili Alatau Mts., Ketmen Mts.

111A. *Erebia mopsos alexandra* STAUDINGER, 1887 (fig. 139)

Biotopes: Alpine and subalpine meadows. Elevation: 2200-3600 m. Flight period: June-July. Distribution: Kyrgyz Mts., Kungey Ala-Too Mts.

111B. *Erebia mopsos manuevi* CHURKIN & ZHDANKO, 2000 (fig. 139)

Biotopes: Alpine and subalpine meadows. Elevation: 2300-3600 m. Flight period: June-July. Distribution: Transili Alatau Mts.

111C. *Erebia mopsos melanops* CHRISTOPH, 1889 (fig. 139)

Biotopes: Alpine meadows. Elevation: 2500-4200 m. Flight period: June-July. Distribution: Terskey Ala-Too Mts.

112. *Erebia mongolica* ERSCHOFF, 1888 (fig. 140)

Biotopes: Alpine meadows. Elevation: 3000-4200 m. Flight period: June-July. Distribution: Kyrgyz Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts.

113A. *Erebia radians rhea* CHURKIN & ZHDANKO, 2001 (fig. 141)

Biotopes: Alpine and subalpine meadows and steppes. Elevation: 2600-3600 m. Flight period: July-August. Distribution: Central part of Transili Alatau Mts.

113B. *Erebia radians uzyngyrus* CHURKIN & TUZOV, 2000 (fig. 141)

Biotopes: Alpine and subalpine meadows. Elevation: 2600-3700 m. Flight period: June-August. Distribution: Kyrgyz Mts. (central and eastern parts).

114A. *Erebia sokolovi sokolovi* LUKHTANOV, 1990 (fig. 142)

Biotopes: Alpine meadows. Elevation: 3000-3800 m. Flight period: July-August. Distribution: Kyrgyz Mts.

114B. *Erebia sokolovi severa* CHURKIN & TUZOV, 2000 (fig. 142)

Biotopes: Alpine meadows. Elevation: 3200-4000 m. Flight period: July-August. Distribution: Eastern part of Terskey Ala-Too Mts.

115. *Erebia kalmuka* ALPHÉRAKY, 1881 (fig. 143)

Biotopes: Alpine meadows. Elevation: 2800-4000 m. Flight period: July-August. Distribution: Terskey Ala-Too Mts.

116. *Karanasa kirgizorum* AVINOFF & SWEADNER, 1951 (fig. 144)

Biotopes: Subalpine and alpine steppes. Elevation: 2800-3600 m. Flight period: July-August. Distribution: Central part of Kyrgyz Mts.

117. *Karanasa latifasciata obscurior* AVINOFF & SWEADNER, 1951 (fig. 144)

Biotopes: Subalpine and alpine steppes. Elevation: 2300-3500 m. Flight period: July-August. Distribution: Central part of Kungey Ala-Too Mts.

118. *Karanasa wilkinsi dublitzkyi* (BANG-HAAS, 1927) (fig. 145)

Biotopes: Subalpine and alpine steppes and dry meadows. Elevation: 2800-4000 m. Flight period: July-August. Distribution: Transili Alatau Mts., central and eastern parts of Kungey Ala-Too Mts.

119. *Karanasa regeli regeli* ALPHÉRAKY, 1881 (fig. 146)

Biotopes: Stepped slopes, dry valleys. Elevation: 1300-2700 m. Flight period: July-August. Distribution: Transili Alatau Mts., Kungey Ala-Too Mts. (eastern parts).

120. *Karanasa abramovi striata* BOGDANOV, 2001 (fig. 146)

Biotopes: Steppes, dry meadows. Elevation: 2200-3400 m. Flight period: July-August. Distribution: Kyrgyz Mts.

121. *Oeneis tarpeia rozhdestvenskyi* KORB & YAKOVLEV, 1997 (fig. 147)

Biotopes: Steppes. Elevation: 1200-2500 m. Flight period: June-July. Distribution: Ketmen Mts., eastern limits of Transili Alatau Mts. and Kungey Ala-Too Mts.

122. *Oeneis hora* GRUM-GRSHIMAILO, 1888 (fig. 148)

Biotopes: Meadows. Elevation: 2700-3800 m. Flight period: June-July. Distribution: All mountain ridges, local.

123. *Hipparchia autonoe autonoe* (ESPER, [1783]) (fig. 149)

Biotopes: Steppes, dry meadows. Elevation: 800-3400 m. Flight period: June-August. Distribution: All mountain ridges.

124. *Arethusana arethusa* ([DENIS & SCHIFFERMÜLLER], [1775]) (fig. 150)

Biotopes: Steppes, dry meadows. Elevation: 800-2500 m. Flight period: July-August. Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts., Ketmen Mts.

125. *Chazara briseis magna* (HEYNE, 1894) (fig. 151)

Biotopes: Steppes, xerophytic meadows. Elevation: 1000-2500 m. Flight period: June-August. Distribution: All mountain ridges.

126. *Chazara enervata* (STAUDINGER, 1881) (fig. 152)

Biotopes: All biotopes. Elevation: 800-4000 m. Flight period: May-August (polyvoltine). Distribution: All mountain ridges.

127. *Chazarakauffmanni obscurior* (STAUDINGER, 1887) (fig. 153)

Biotopes: Steppes, dry meadows, semideserts. Elevation: 900-2500 m. Flight period: July-August. Distribution: All mountain ridges.

128. *Chazara heydenreichi heydenreichi* (LEDERER, 1853) (fig. 154)

Biotopes: Steppes, dry meadows, semideserts. Elevation: 900-2700 m. Flight period: June-August. Distribution: All mountain ridges.

129. *Pseudochazara turkestanica turkestanica* (GRUM-GRSHIMAILO, 1893) (fig. 155)

Biotopes: Steppes, dry meadows. Elevation: 1600-3200 m. Flight period: June-August. Distribution: All mountain ridges.

130. *Pseudochazara esperi mercurius* (STAUDINGER, 1887) (fig. 156)

Biotopes: Steppes. Elevation: 1300-2700 m. Flight period: July-August. Distribution: Kungey Ala-Too Mts., Transili Alatau Mts.,

Ketmen Mts., eastern part of Terskey Ala-Too Mts.

131. *Satyrus ferula cordulina* LANG, 1884 (fig. 157)

Biotopes: Steppes, dry meadows. Elevation: 900-2700 m. Flight period: June-July. Distribution: All mountain ridges.

132. *Minois dryas septentrionalis* (WNUKOWSKY, 1929) (fig. 158)

Biotopes: Steppes, dry meadows. Elevation: 900-1800 m. Flight period: July-August. Distribution: Kungey Ala-Too Mts., Transili Alatau Mts.

133. *Hyponephele przhewalskyi* DUBATOLOV, SERGEEV & Z[H]DANKO, 1994 (fig. 159)

Biotopes: Steppes, dry meadows. Elevation: 900-2200 m. Flight period: July-August. Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts.

134. *Hyponephele lupina intermedia* (STAUDINGER, 1886) (fig. 160)

Biotopes: Steppes, dry meadows, semideserts. Elevation: 600-1700 m. Flight period: May-August. Distribution: All mountain ridges.

135. *Hyponephele interposita interposita* (ERSCHOFF, 1874) (fig. 161)

Biotopes: Semideserts, steppes, dry meadows, stony dry valleys. Elevation: 900-2200 m. Flight period: May-August. Distribution: Kyrgyz Mts., Transili Alatau Mts., eastern part of Kungey Ala-Too Mts., Ketmen Mts.

136. *Hyponephele dysdora dysdora* (LEDERER, 1870) (fig. 162)

Biotopes: Semideserts, steppes, dry meadows, stony dry valleys. Elevation: 900-2700 m. Flight period: May-August. Distribution: All mountain ridges.

137. *Hyponephele rueckbeili* (Staudinger, 1887) (fig. 163)

Biotopes: Mountainous rocky steppes. Elevation: 1600-2700 m. Flight period: July-August. Distribution: Eastern part of Terskey Ala-Too Mts.

138. *Hyponephele issykului* SAMODUROV, 1996 (fig. 163)

Biotopes: Semideserts, steppes. Elevation: 1600-2000 m. Flight period: July-August. Distribution: Western part of Terskey Ala-Too Mts.

139. *Hyponephele germana* (STAUDINGER, 1887) (fig. 163)

Biotopes: Semideserts, steppes. Elevation: 900-2000 m. Flight period: May-July. Distribution: Kyrgyz Mts., western part of Kungey Ala-Too Mts., eastern part of Transili Alatau Mts.

140. *Hyponephele hilaris hilaris* (STAUDINGER, 1886) (fig. 164)

Biotopes: Subalpine and alpine steppes, xerophytic meadows. Elevation: 2300-3800 m. Flight period: June-July. Distribution: Central part of Kyrgyz Mts.

141. *Hyponephele glasunovi magna* SAMODUROV, 1996 (fig. 164)

Biotopes: steppes. Elevation: 1600 - 2300 m. Flight period: July – September. Distribution: western part of Kyrgyz Mts.

142. *Hyponephele jasavi* LUKHTANOV, 1990 (fig. 165)

Biotopes: Steppes, dry stony slopes. Elevation: 1300-2300 m. Flight period: June-August. Distribution: Western part of Kyrgyz Mts.

143. *Hyponephele narcicina* (STAUDINGER, 1870) (fig. 165)

Biotopes: Steppes, semideserts. Elevation: 500-1700 m. Flight period: May-July. Distribution: Western part of Terskey Ala-Too Mts., Kungey Ala-Too Mts., Transili Alatau Mts.

144A. *Hyponephele kirghisa kirghisa* (ALPHÉRAKY, 1881) (fig. 166)

Biotopes: Steppes, semideserts. Elevation: 1000-2500 m. Flight period: June-July. Distribution: Western parts of Transili Alatau Mts., Kungey Ala-Too Mts. and Terskey Ala-Too Mts., Ketmen Mts.

144B. *Hyponephele kirghisa obscurata* SAMODUROV, 1996 (fig. 166)

Biotopes: Steppes, semideserts. Elevation: 900-2300 m. Flight period: June-July. Distribution: Western limit of Kyrgyz Mts.

144C. *Hyponephele kirghisa terskeana* LUKHTANOV & LUKHTANOV, 1994 (fig. 166)

Biotopes: Steppes, semideserts. Elevation: 1600-2200 m. Flight period: June-July. Distribution: Western parts of Terskey Ala-Too Mts., Kyrgyz Mts. and Kungey Ala-Too Mts.

144D. *Hyponephele kirghisa pozhogini* KORB, 2009 (fig. 166)

Biotopes: Steppes, semideserts. Elevation: 1200-1800 m. Flight period: June-July. Distribution: Central part of Kyrgyz Mts.

145. *Hyponephele haberhaueri haberhaueri* (STAUDINGER, 1886) (fig. 167)

Biotopes: Steppes. Elevation: 1200-2800 m. Flight period: May-August. Distribution: central part of Kyrgyz Mts. (southern slope).

146. *Hyponephele naubidensis* (ERSCHOFF, 1874) (fig. 168)

Biotopes: Steppes, dry meadows. Elevation: 1500-3700 m. Flight period: July-August. Distribution: All mountain ridges.

147. *Polycaena tamerlana tamerlana* STAUDINGER, 1886 (fig. 169)

Biotopes: Rocky slopes, rocks, alpine meadows. Elevation: 2500-4200 m. Flight period: June-July. All mountain ridges.

148. *Thecla betulae betulae* (LINNAEUS, 1758) (fig. 170)

Biotopes: River valleys. Elevation: 1600-2000 m. Flight period: July. Distribution: Eastern limits of Transili Alatau Mts. and Kungey Ala-Too Mts.

149. *Superflua acaudata* (STAUDINGER, 1901) (fig. 171)

Biotopes: Steppes, dry meadows, rocky slopes. Elevation: 1200-2500 m. Flight period: May-June. Distribution: All mountain ridges.

150. *Neolycaena eckweileri transiliensis* LUKHTANOV, 1993 (fig. 172)

Biotopes: Steppes, dry meadows. Elevation: 1200-1700 m. Flight period: June-July. Distribution: Central part of Transili Alatau Mts.

151. *Neolycaena submontana submontana* ZHDANKO, 1994 (fig. 173)

Biotopes: Steppes. Elevation: 1000-2500 m. Flight period: June-July. Transili Alatau Mts., Kungey Ala-Too Mts., Kyrgyz Mts.

152. *Neolycaena medea medea* ZHDANKO, 1998 (fig. 174)

Biotopes: Steppes, dry meadows. Elevation: 1600-2700 m. Flight period: May-July. Distribution: Western and central parts of Terskey Ala-Too Mts.

153. *Neolycaena olga* LUKHTANOV, 1999 (fig. 174)

Biotopes: Steppes, dry meadows. Elevation: 1700-2300 m. Flight period: July. Distribution: Central part of Kyrgyz Mts. (southern slope).

154. *Neolycaena sinensis* (ALPHÉRAKY, 1881) (fig. 175)

Biotopes: Steppes, semideserts, river valleys. Elevation: 700-1500 m. Flight period: May-June. Distribution: Western parts of Kungey Ala-Too Mts., Terskey Ala-Too Mts. Ketmen Mts.

155. *Callophrys titanus* ZHDANKO, 1998 (fig. 176)

Biotopes: Forests, meadows, river valleys. Elevation: 1200-2500 m. Flight period: May-June. Distribution: Transili Alatau Mts., Kyrgyz Mts.

156. *Callophrys rubi* (LINNAEUS, 1758) (fig. 177)

Biotopes: Meadows, river valleys, forests. Elevation: 1000-1900 m. Flight period: May-June. Distribution: All mountain ridges.

157. *Tomares fedtschenkoi fedtschenkoi* (ERSCHOFF, 1874) (fig. 178)

Biotopes: Meadows, river valleys. Elevation: 900-2300 m. Flight period: April-May. Distribution: Kyrgyz Mts., western part of Kungey Ala-Too Mts., Transili Alatau Mts.

158. *Tomares callimachus* (EVERSMANN, 1848) (fig. 179)

Biotopes: Semideserts, steppes, dry valleys. Elevation: 500-1500 m. Flight period: April-May. Distribution: Kyrgyz Mts., Transili Alatau Mts.

159. *Lycaena phlaeas oxiana* (GRUM-GRSHIMAÏLO, 1890) (fig. 180)

Biotopes: All biotopes. Elevation: 500-4200 m. Flight period: May-August (bivoltine). Distribution: All mountain ridges.

160. *Lycaena helle phintonis* (FRUHSORFER, 1910) (fig. 181)

Biotopes: Meadows in river valleys. Elevation: 1500-2600 m. Flight period: June-July. Distribution: Ketmen Mts.

161. *Lycaena virgaureae virgaureae* (LINNAEUS, 1758) (fig. 182)

Biotopes: Meadows. Elevation: 1400-2800 m. Flight period: June-July. Distribution: Central part of Kyrgyz Mts., western limits of Kungey Ala-Too Mts. and Terskey Ala-Too Mts.

162. *Lycaena thersamon persica* (BIENERT, 1870) (fig. 183)

Biotopes: All open biotopes. Elevation: 500-2800 m. Flight period: April-October (polyvoltine). Distribution: All mountain ridges.

163. *Lycaena solskyi fulminans* (GRUM-GRSHIMAILO, 1888) (fig. 184)

Biotopes: Dry meadows. Elevation: 1500-3200 m. Flight period: June-August. Distribution: Kyrgyz Mts., Transili Alatau Mts. (western part), Kungey Ala-Too Mts. (western part), Terskey Ala-Too Mts.

164. *Lycaena dispar rutilus* (WERNEBURG, 1864) (fig. 185)

Biotopes: Meadows. Elevation: 1200-2500 m. Flight period: June-August. Distribution: All mountain ridges, in Terskey Ala-Too Mts. known only from the western part.

165. *Lycaena alciphron naryna* (OBERTHÜR, 1910) (fig. 186)

Biotopes: Meadows in river valleys. Elevation: 1500-2200 m. Flight period: June-July. Distribution: Kyrgyz Mts. (central and eastern parts), Kungey Ala-Too Mts., Transili Alatau Mts., Ketmen Mts.

166. *Lycaena splendens* (STAUDINGER, 1881) (fig. 187)

Biotopes: Meadows. Elevation: 1500-3000 m. Flight period: June-July. Distribution: All mountain ridges.

167. *Lycaena margelanica nigra* (ZHDANKO, 2000) (fig. 188)

Biotopes: Steppes, dry meadows, xerophytic slopes. Elevation: 1000-2500 m. Flight period: June-July. Distribution: Kyrgyz Mts., western limit of Kungey Ala-Too Mts., western and central parts of Terskey Ala-Too Mts., Transili Alatau Mts. (only northern slopes of these ridges).

168. *Athamanthia alexandra alexandra* (PÜNGELER, 1901) (fig. 189)

Biotopes: Semideserts, dry slopes and valleys. Elevation: 600-1400 m. Flight period: June-July. Distribution: Eastern limit of Kyrgyz Mts., eastern limit of Transili Alatau Mts.

169. *Athamanthia eitschbergeri* LUKHTANOV, 1993 (fig. 190)

Biotopes: Dry stony slopes in the river valleys, semideserts. Elevation: 1600-2000 m. Flight period: June-July. Distribution: Western borders of Terskey Ala-Too Mts. and Kungey Ala-Too Mts.

170. *Athamanthia turgena* ZHDANKO, 1990 (fig. 190)

Biotopes: Dry stony slopes, steppes. Elevation: 1000-2000 m. Flight period: June-July. Distribution: Central part of Transili Alatau Mts.

171. *Athamanthia dimorpha bogutena* ZHDANKO, 1990 (fig. 191)

Biotopes: Dry stony slopes, semideserts. Elevation: 500-1500 m. Flight period: May-June. Distribution: Eastern part of Transili Alatau Mts.

172. *Lampides boeticus* (LINNAEUS, 1767) (fig. 192)

Biotopes: All open biotopes. Elevation: 800-2200 m. Flight period: May-Oktober (polyvoltine). Distribution: Kyrgyz Mts., central part of Kungey Ala-Too Mts., Transili Alatau Mts.

173. *Cupido prosecusa* (ERSCHOFF, 1874) (fig. 193)

Biotopes: Dry stony slopes, steppes, semideserts, dry valleys. Elevation: 500-2000 m. Flight period: April-July (bivoltine). Distribution: Eastern limit of Kyrgyz Mts., Terskey Ala-Too Mts., Kungey Ala-Too Mts., Transili Alatau Mts.

174. *Cupido buddhista buddhista* (ALPHÉRAKY, 1881) (fig. 194)
 Biotopes: Alpine and subalpine meadows, river valleys, small alpine swamps. Elevation: 2400-3600 m. Flight period: June-August.
 Distribution: All mountain ridges.
175. *Cupido minimus minimus* (FUESSLY, 1775) (fig. 195)
 Biotopes: Meadows. Elevation: 1400-2600 m. Flight period: July. Distribution: Ketmen Mts.
176. *Cupido osiris osiris* (MEIGEN, 1829) (fig. 196)
 Biotopes: Dry slopes, steppes, xerophytic meadows. Elevation: 1400-2600 m. Flight period: June-July. Distribution: Transili Alatau Mts., Kungey Ala-Too Mts., Ketmen Mts.
177. *Everes argiades* (PALLAS, 1771) (fig. 197)
 Biotopes: Meadows. Elevation: 1200-1800 m. Flight period: June-July. Distribution: Central part of Transili Alatau Mts.
178. *Celastrina argiolus* (LINNAEUS, 1758) (fig. 198)
 Biotopes: River valleys. Elevation: 900-2000 m. Flight period: April-September (bivoltine). Distribution: Kyrgyz Mts., Transili Alatau Mts., Kungey Ala-Too Mts., Ketmen Mts.
179. *Glaucopsyche aeruginosa aeruginosa* (STAUDINGER, 1881) (fig. 199)
 Biotopes: Meadows. Elevation: 1000-3000 m. Flight period: May-July. Distribution: All mountain ridges.
180. *Scolitantides orion johanseni* (WNUKOWSKY, 1934) (fig. 200)
 Biotopes: Steppes, dry meadows. Elevation: 1000-2500 m. Flight period: May-August (bivoltine). Distribution: Transili Alatau Mts., western part of Kungey Ala-Too Mts., Ketmen Mts.
181. *Pseudophilotes vicrama cashmirensis* (MOORE, 1874) (fig. 201)
 Biotopes: Dry stony slopes, steppes, xerophytic meadows. Elevation: 1000-2600 m. Flight period: May-August (bivoltine). Distribution: All mountain ridges.
182. *Otnjukovia tatjana* (ZHDANKO, 1984) (fig. 202)
 Biotopes: Dry stony valleys, semideserts. Elevation: 600-1500 m. Flight period: April-May. Distribution: Western border of Transili Alatau Mts., western limit of Kungey Ala-Too Mts., central part of Kyrgyz Mts.
183. *Phengaris alcon imitator* (TUZOV, 2000) (fig. 203)
 Biotopes: Meadows. Elevation: 1500-2600 m. Flight period: June-August. Distribution: All mountain ridges.
184. *Phengaris arion* (LINNAEUS, 1758) (fig. 204)
 Biotopes: Steppes, dry meadows. Elevation: 1400-2600 m. Flight period: June-July. Distribution: Eatsern and central parts of Kyrgyz Mts., eastern and central parts of Terskey Ala-Too Mts., Kungey Ala-Too Mts., Transili Alatau Mts., Ketmen Mts.
185. *Phengaris cyanecula sauron* (KORB, 2003) (fig. 205)
 Biotopes: Steppes, dry meadows, xerophytic slopes. Elevation: 1200-2600 m. Flight period: June-July. Distribution: Kyrgyz Mts., western part of Kungey Ala-Too Mts., Transili Alatau Mts.
186. *Plebeius argus* (LINNAEUS, 1758) (fig. 206)
 Biotopes: Meadows. Elevation: 800-1900 m. Flight period: May-September. Distribution: Eastern part of Kungey Ala-Too Mts.
187. *Plebeius idas naruena* (COURVOISIER, 1913) (fig. 207)
 Biotopes: Dry stony valleys, steppes, dry meadows. Elevation: 1500-3000 m. Flight period: June-August. Distribution: Transili Alatau Mts., eastern part of Kungey Ala-Too Mts., central part of Kyrgyz Mts., eastern part of Terskey Ala-Too Mts.
188. *Plebeius agnata* (STAUDINGER, 1886) (fig. 208)
 Biotopes: Dry stony valleys, semideserts. Elevation: 500-900 m. Flight period: April-May. Distribution: Western border of Transili Alatau Mts.
189. *Plebeius argiva argiva* (Staudinger, 1886) (fig. 209)
 Biotopes: semideserts. Elevation: 500 - 1500 m. Flight period: May-September (polyvoltine). Distribution: Transili Alatau Mts.
190. *Plebeius nushibi* ZHDANKO, 2000 (fig. 210)
 Biotopes: Steppes, dry meadows. Elevation: 1200-2300 m. Flight period: May-July. Distribution: Transili Alatau Mts.
191. *Plebeius bergi* KUSNEZOV, 1908 (fig. 211)
 Biotopes: Semideserts. Elevation: 500-900 m. Flight period: April-May. Distribution: Western border of Transili Alatau Mts.
192. *Plebeius christophi* (STAUDINGER, 1874) (fig. 212)
 Biotopes: Dry stony valleys, semideserts. Elevation: 500-1000 m. Flight period: April-September (polyvoltine). Distribution: Transili Alatau Mts., western border of Kungey Ala-Too Mts.
193. *Plebeius maracandica planorum* (ALPHÉRAKY, 1881) (fig. 213)
 Biotopes: Meadows, river valleys, steppes. Elevation: 500-1800 m. Flight period: April-September (polyvoltine). Distribution: Transili Alatau Mts., Kungey Ala-Too Mts., central and eastern parts of Kyrgyz Mts., Terskey Ala-Too Mts.
194. *Plebeius usbecus* FORSTER, 1939 (fig. 214)
 Biotopes: Semideserts, dry stony slopes, dry valleys. Elevation: 600-2000 m. Flight period: May-August (bivoltine). Distribution: Western border of Kyrgyz Mts.
195. *Vacciniina fergana fergana* (STAUDINGER, 1881) (fig. 215)
 Biotopes: Dry stony valleys, steppes, dry slopes, xerophytic meadows. Elevation: 600-3200 m. Flight period: May-August (bivoltine). Distribution: All mountain ridges.
196. *Vacciniina pheretiades sveta* (CHURKIN & ZHDANKO, 2001) (fig. 216)
 Biotopes: Alpine and subalpine steppes and meadows, rocky slopes. Elevation: 2500-4200 m. Flight period: June-July. Distribution: All mountain ridges.

197. *Vacciniina cyane ella* (BOLLOW, 1931) (fig. 217)
 Biotopes: Dry stony valleys, semideserts, steppes, dry meadows. Elevation: 600-3200 m. Flight period: June-August. Distribution: All mountain ridges, sporadic.
198. *Vacciniina elvira elvira* (EVERSMANN, 1854) (fig. 218)
 Biotopes: Dry stony valleys, semideserts. Elevation: 500-1500 m. Flight period: May-June. Distribution: Western part of Transili Alatau Mts., western limit of Kungey Ala-Too Mts., eastern border of Kyrgyz Mts.
199. *Polyommatus eros napaea* (GRUM-GRSHIMAILO, 1891) (fig. 219)
 Biotopes: Subalpine and alpine meadows. Elevation: 2400-3600 m. Flight period: July-August. Distribution: Transili Alatau Mts., Kungey Ala-Too Mts., Terskey Ala-Too Mts., Ketmen Mts.
200. *Polyommatus icarus turanicus* (HEYNE, [1893]) (fig. 220)
 Biotopes: Steppes, meadows, agricultural landscapes. Elevation: 600-3000 m. Flight period: April-Oktober (polyvoltine). All mountain ridges.
201. *Polyommatus icadius candidus* ZHDANKO, 2000 (fig. 221)
 Biotopes: Dry stony valleys, steppes, dry meadows, dry rocky places. Elevation: 900-3000 m. Flight period: May-August (bivoltine). Distribution: All mountain ridges (local).
202. *Polyommatus thersites orientis* (Sheljuzhko, 1928) (fig. 222)
 Biotopes: Meadows. Elevation: 1200-2500 m. Flight period: May-August (bivoltine). Distribution: All mountain ridges.
203. *Polyommatus amanda amata* (GRUM-GRSHIMAILO, 1890) (fig. 223)
 Biotopes: Meadows. Elevation: 1000-2800 m. Flight period: June - August. Distribution: All mountain ridges.
204. *Polyommatus damon merzbacheri* (COURVOISIER, 1913) (fig. 224)
 Biotopes: Dry meadows, steppes. Elevation: 800-2500 m. Flight period: July-August. Distribution: All mountain ridges, very local.
- 205A. *Polyommatus juldusus juldusus* (STAUDINGER, 1886) (fig. 225)
 Biotopes: Steppes. Elevation: 600-1500 m. Flight period: May-July. Distribution: Western border of Transili Alatau Mts.
- 205B. *Polyommatus juldusus rueckbeili* (FORSTER, 1960) (fig. 226)
 Biotopes: Steppes, dry meadows, xerophytic slopes. Elevation: 1600-2500 m. Flight period: June-August. Distribution: Eastern part of Terskey Ala-Too Mts.
- 206A. *Polyommatus kirgisorum kirgisorum* LUKHTANOV & DANTCHENKO, 1995 (fig. 226)
 Biotopes: Steppes, dry meadows. Elevation: 900-1800 m. Flight period: June-July. Distribution: Eastern part of Kyrgyz Mts., Kungey Ala-Too Mts., Transili Alatau Mts.
- 206B. *Polyommatus kirgisorum gorthaur* KORB, 2009 (fig. 226)
 Biotopes: Steppes, meadows. Elevation: 1600-2500 m. Flight period: June-July. Distribution: Western and central parts of Terskey Ala-Too Mts.
207. *Polyommatus actinides weidenhofferi* ECKWEILER, 1997 (fig. 227)
 Biotopes: Steppes. Elevation: 1500-2800 m. Flight period: June-August. Distribution: Central and eastern parts of Kyrgyz Mts.
208. *Polyommatus ripartii ripartii* (FREYER, 1830) (fig. 228)
 Biotopes: Steppes, dry meadows. Elevation: 600-2500 m. Flight period: June-July. Distribution: All mountain ridges.
209. *Alpheraky sartus sartus* (ALPHÉRAKY, 1881) (fig. 229)
 Biotopes: Steppes, dry meadows. Elevation: 600-2100 m. Flight period: May-September (bivoltine). Distribution: All mountain ridges.
210. *Eumedonia eumedon eumedon* (ESPER, [1780]) (fig. 230)
 Biotopes: Meadows. Elevation: 1400-3500 m. Flight period: May-August (bivoltine). Distribution: All mountain ridges.
211. *Aricia agestis maakherai* KORB, 2005 (fig. 231)
 Biotopes: Steppes, meadows. Elevation: 1200-2500 m. Flight period: May-September (bivoltine). Distribution: All mountain ridges.
212. *Rimisia miris miris* (STAUDINGER, 1881) (fig. 232)
 Biotopes: Steppes, semideserts, dry valleys. Elevation: 800-2500 m. Flight period: May-July. Distribution: Western border of Transili Alatau Mts., western border of Kyrgyz Mts.

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Fig. 1: Foothill semi-desert. Vicinities of Bushkek (800 m). Typical biotope of *Papilio machaon* LINNAEUS, 1758, *Colias erate* (ESPER, [1801]), *Pontia daplidice* (LINNAEUS, 1758), *Lycaena phlaeas* (LINNAEUS, 1761). Fig. 2: Mountainous semi-steppe. The west border of Terskey Ala-Too Mts. near Kok-Moynok (1709 m). Typical biotope of *Hyponephele kyrgensis* (ALPHÉRAKY, 1881), *Melitaea didyma turkestanica* SHELUZHKO, 1929, *Athamanthia issykuli* ZHDANKO, 1994. Fig. 3: Valley of small stream in the mountainous semi-steppe. The west border of Terskey Ala-Too Mts. near Kok-Moynok (1709 m). Typical biotope of *Metaporia leucodice* (EVERSMANN, 1843), *Melitaea didyma turkestanica* SHELUZHKO, 1929, *Neolycaena submontana* ZHDANKO, 1994. Fig. 4: Anthropogenic landscapes near big cities have not only various destructions of vegetation and lots of different garbage, as far as homes, fields, roads etc. Environs of Almaty (capital of Kazakhstan), Malaya Almaatinka valley (1200 m). Typical biotope of *Pteris napi* (LINNAEUS, 1758), *Colias erate* (ESPER, [1801]), *Hyponephele przhewalskii* DUBATOLOV, SERGEEV & ZHDANKO, 1994, *Nepitis rivularis* (SCOPOLI, 1763), *Plebejus nushibi* ZHDANKO, 2000. Fig. 5: Mountainous steppes. Environs of Bishkek near Strelnikovo settlement (1300 m). Typical biotope of *Chazara enervata* (STAUDINGER, 1881), *Argynnis pandora* (DENIS & SCHIFFERMÜLLER, 1775), *Lycaena mangelanica* (STAUDINGER, 1881). Fig. 6: Rocky desert hills near Ili river. Environs of Kapchagay (500 m). Typical biotope of *Hypermnestra helios* (NICKERL, 186), *Parnassius apollo* (EVERSMANN, 1847), *Microzegris pyrothoe* (EVERSMANN, 1832), *Otnjukovia tatiana* (ZHDANKO, 1984). Fig. 7: "Grass jungles" at middle altitudes (1200-1600 m) are difficult to go in, even for sheep, due to this reason they are mostly untouched. Vicinities of Taty village near Bishkek (1340 m). Typical biotope of *Pontia daplidice* (LINNAEUS, 1758), *Chazara enervata* (STAUDINGER, 1881), *Inachis io* (LINNAEUS, 1758), *Polyommatus icarus* (ROTTEMBURG, 1775). Fig. 8: Middle altitudinal wide valleys mostly have plain biotopes such as steppes and dry meadows. Upper Taty village vicinities in Chon-Kuurchak valley (1800 m). Typical biotope of *Pteris napi* (LINNAEUS, 1758), *Melitaea sibina* (ALPHÉRAKY, 1881), *Polyommatus icadius* (GRUM-GRSHIMAILO, 1890), *Eumedonia eumedon* (ESPER, [1780]).



Fig. 9: Middle altitudinal archa (*Juniperus* sp.) forests contains also shrubs of Rosaceae and Sea buckthorn. Issyk-Ata valley in Kyrgyz Mts. (1800 m). Typical biotope of *Colias romanovi* GRUM-GRSHIMAILO, 1885, *Erebia turanica* ERSCHOFF, 1877, *Nymphaea xanthomelas* ([DENIS & SCHIFFERMÜLLER], 1775), *Aricia agestis* ([DENIS & SCHIFFERMÜLLER], 1775). Fig. 10: At the altitudes about 2500-2700 m depending on mountain ridge and slopes exposition, the tree-formish archa transforms to cushion type. It is intermediate biotope between zone of forests and subalpine meadows. Issyk-Ata valley in Kyrgyz Mts. (2500 m). Typical biotope of *Driopa mnemosyne* (LINNAEUS, 1758), *Parnassius tianschanicus* OBERTHÜR, 1879, *Melitaea minerva* STAUDINGER, 1881. Fig. 11: Zone of spruce forests. These forests are concentrated only in the North Tian Shanian mountains and located in the altitudes between 1400 and 2300 m. Malaya Almaatinka valley in Transili Alatau Mts. (1800 m). Typical biotope of *Parnassius apollo* (LINNAEUS, 1758), *Colias grieshaberi* KORB, 2004, *Melitaea sibina* (ALPHÉRAKY, 1881), *Lycena dispar* (HAWORTH, 1802). Fig. 12: Orto-Tokoi water reservoir, the view from the Kyvak pass (western part of Terskey Ala-Too Mts., southern slope). Typical biotope of *Parnassius apollonius* (EVERSMANN, 1847), *Hyponomephe issykkuli* SAMODUROV, 1996, Athamanthia issykkuli ZHDANKO, 1990, *Polyommatus kirgizorum* LUKHTANOV & DANTCHENKO, 1995. Fig. 13: Issyk-Kul lake near Kichi-Dzhargylchak village (northern slopes of Terskey Ala-Too Mts.) (1720 m). Typical biotope of *Pontia daplidice* (LINNAEUS, 1758), *Chazara kaufmanni* (ERSCHOFF, 1874), *Satyrus ferula* (FABRICIUS, 1793), *Plebejus idas* (LINNAEUS, 1761). Fig. 14: Shrubs at the middle altitudes are typical biotopes of *Metaporia leucodice* (EVERSMANN, 1843), *Marginaria eversmanni* (EVERSMANN, 1847), *Nymphaea xanthomelas* ([DENIS & SCHIFFERMÜLLER], 1775). Dzheti-Oguz valley in Terskey Ala-Too Mts. (1900 m).



Barskoon valley in Terskey Ala-Too Mts. (3600 m). Typical biotopes of *Melitaea fergana* STAUDINGER, 1882, *Erebia mopsos* STAUDINGER, 1886, *E. kalmuka* ALPHÉRAKY, 1881, *Polycaena tamerlana* STAUDINGER, 1886 (*Astragalus* sp. curtains and nearby located places).

Fig. 19: Typical alpine meadows located in the elevations 2800-3300 m. Bolshaya Almaatinka valley in Transili Alatau Mts. (2800 m). Typical biotope of *Colias cocandica* ERSCHOFF, 1874, *Erebia mopsos* STAUDINGER, 1882, *E. turanica* ERSCHOFF, 1877, *Melitaea solona* ALPHÉRAKY, 1881.

Fig. 20: Very often the sunlight in alpine meadows changes to rain or snow in minutes. Sometimes it is possible to have such weather changes up to ten times per day. High elevation vegetation adopted to these conditions and survive. Tee-Ashuu pass in Kyrgyz Mts., southern slope (3500 m). Typical biotope of *Koranius delphinius* (EVERSMANN, 1843), *P. actius* (EVERSMANN, 1843), *Coenonympha caeca* STAUDINGER, 1886, *Polyommatus venus* (STAUDINGER, 1886).

Fig. 21: Chimbulak valley is very good for people who likes to explore high altitudinal mountain places but do not like to reach these places only by tracking. It is comfortable to bus to the Chimbulak hotels zone (at the altitude about 2500 m), then cableway to the altitude about 3000 m. In this area weather is surprisingly fast in change: on this picture shown hard rain, which changes completely clear sky in 10 minutes.

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Fig. 22: At the border between alpine meadows and subnival zone. Barskoon pass in Terskey Ala-Too Mts. (3800 m). Typical biotope of *Parnassius actius* (Eversmann, 1843), *Pontia callidice* (Hübner, [1800]), *Colias staudingeri* Alphéräky, 1881, *Erebia mopsos* Staudinger, 1886.

Fig. 23: Subnival zone located lower than glaciers and snows. Barskoon valley in Terskey Ala-Too Mts. (4200 m). Typical biotope of *Parnassius patricius* Niepelt, 1911, *Kreizbergius boedromius* (Püngeler, 1901).

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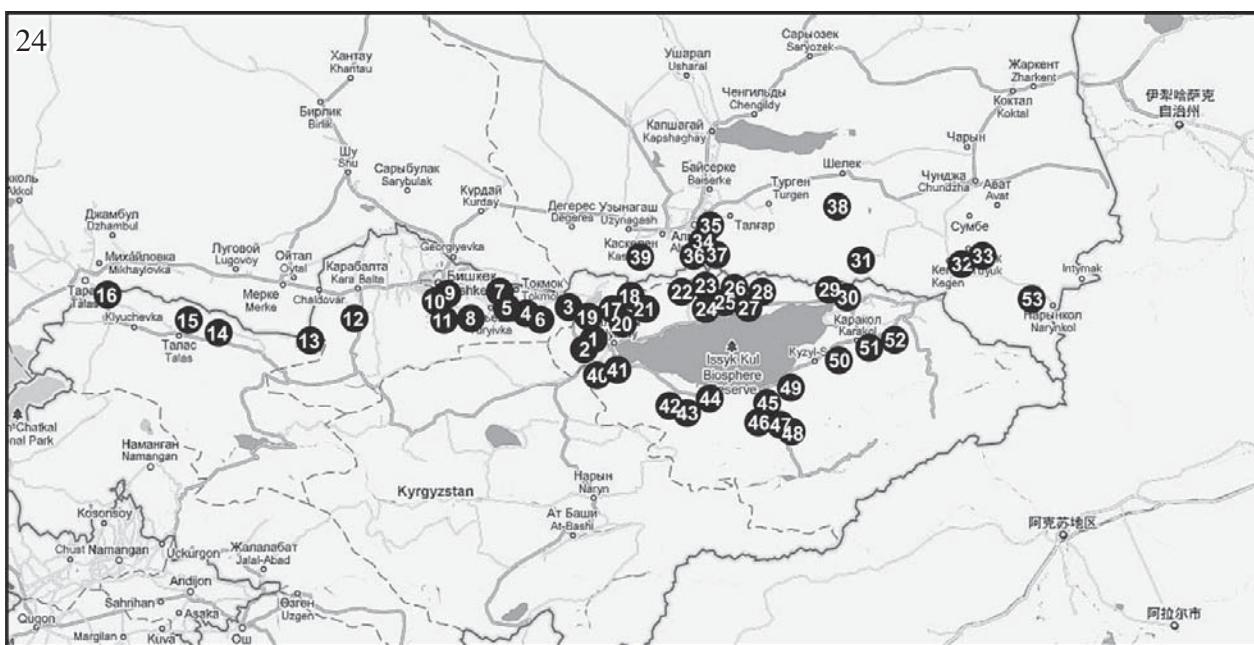


Fig. 24: Collecting points of the author in the North Tian Shan. Numbering see in text: List of localities.

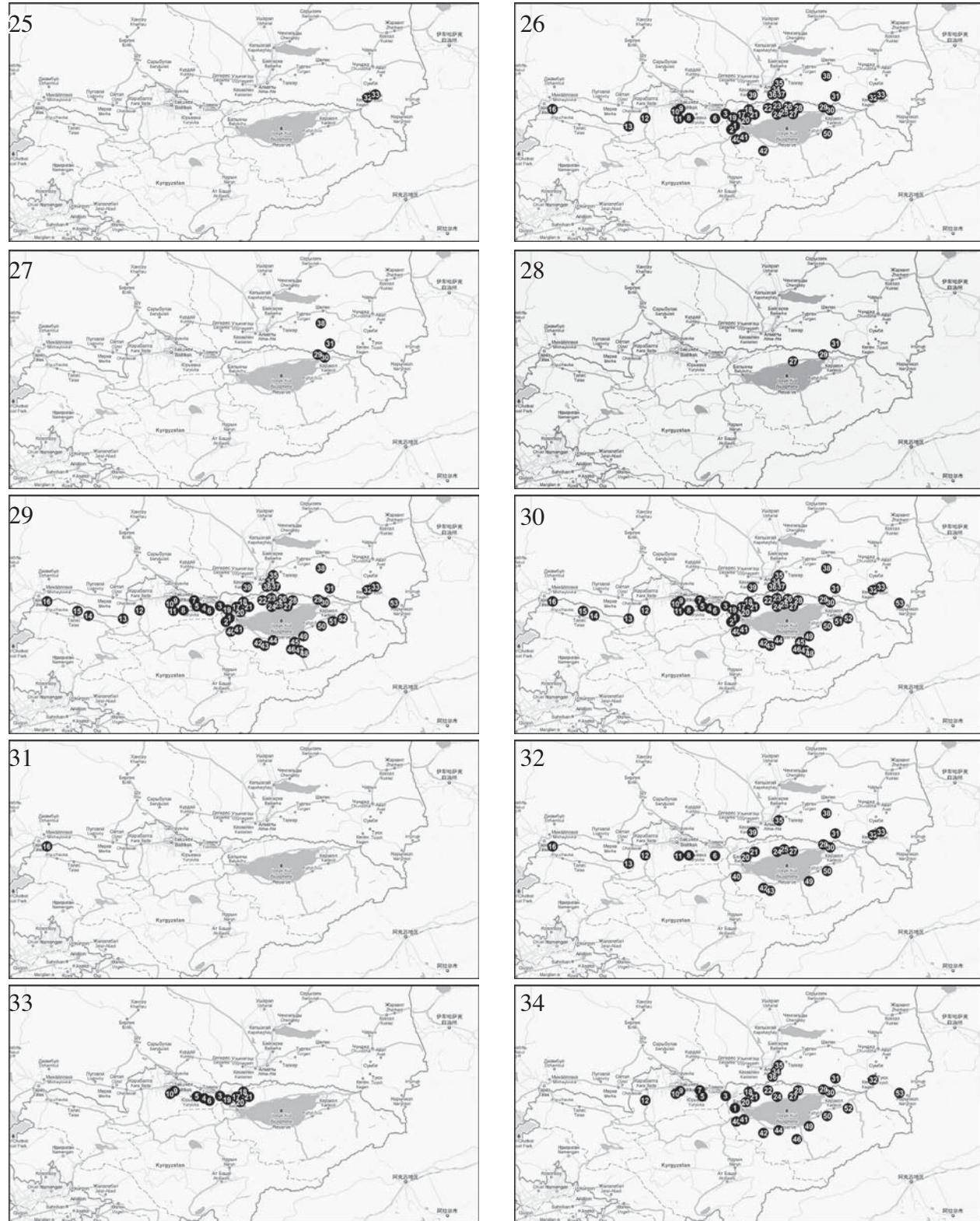


Fig. 25: Distribution of *Erynnis tages* (LINNAEUS, 1758)

Fig. 26: Distribution of *Carcharodus alceae* (ESPER, [1780]).

Fig. 27: Distribution of *Syrichtus antonia* (SPEYER, 1879).

Fig. 28: Distribution of *Syrichtus staudingeri* (SPEYER, 1879).

Fig. 29: Distribution of *Syrichtus tessellum nigricans* (MABILLE, 1909).

Fig. 30: Distribution of *Syrichtus nobilis* (STAUDINGER, 1882).

Fig. 31: Distribution of *Spialia geron struvei* PÜNGELER, 1914.

Fig. 32: Distribution of *Spialia orbifer lugens* (STAUDINGER, 1886).

Fig. 33: Distribution of *Pyrgus sidae* (ESPER, [1782]).

Fig. 34: Distribution of *Pyrgus malvae anubis* KORB, 2000.

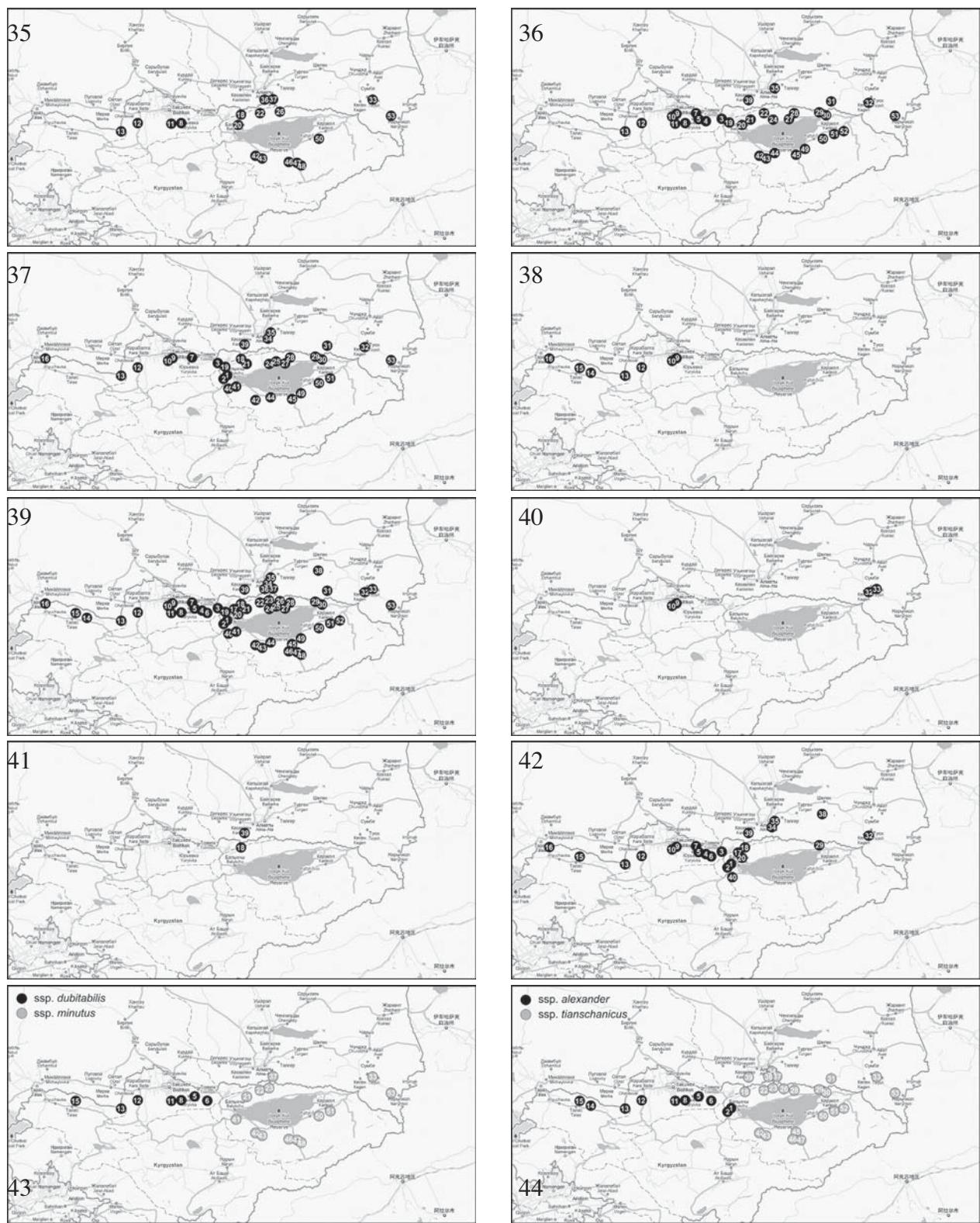


Fig. 35: Distribution of *Pyrgus alpines* (ERSCHOFF, 1874).

Fig. 36: Distribution of *Thymelicus lineola* (OCHSENHEIMER, [1808]).

Fig. 37: Distribution of *Hesperia comma mixta* ALPHÉRAKY, 1881.

Fig. 38: Distribution of *Hesperia sylvanus* (ESPER, [1777]).

Fig. 39: Distribution of *Papilio machaon ladakensis* MOORE, 1881.

Fig. 40: Distribution of *Iphiclus podalirius centralasiae* (ROSEN, 1929).

Fig. 41: Distribution of *Hypermnestra helios* (NICKERL, 1846).

Fig. 42: Distribution of *Parnassius apollonius alpines* STAUDINGER, 1887.

Fig. 43: Distribution of *Parnassius actius* (Eversmann, 1843): *P. a. dubitabilis* VERITY, [1911], *P. a. minutus* VERITY, [1911].

Fig. 44: Distribution of *Parnassius tianschanicus* OBERTHÜR, 1879; *P. t. tianschanicus* OBERTHÜR, 1879; *P. t. alexander* BRYK & EISNER, 1935.

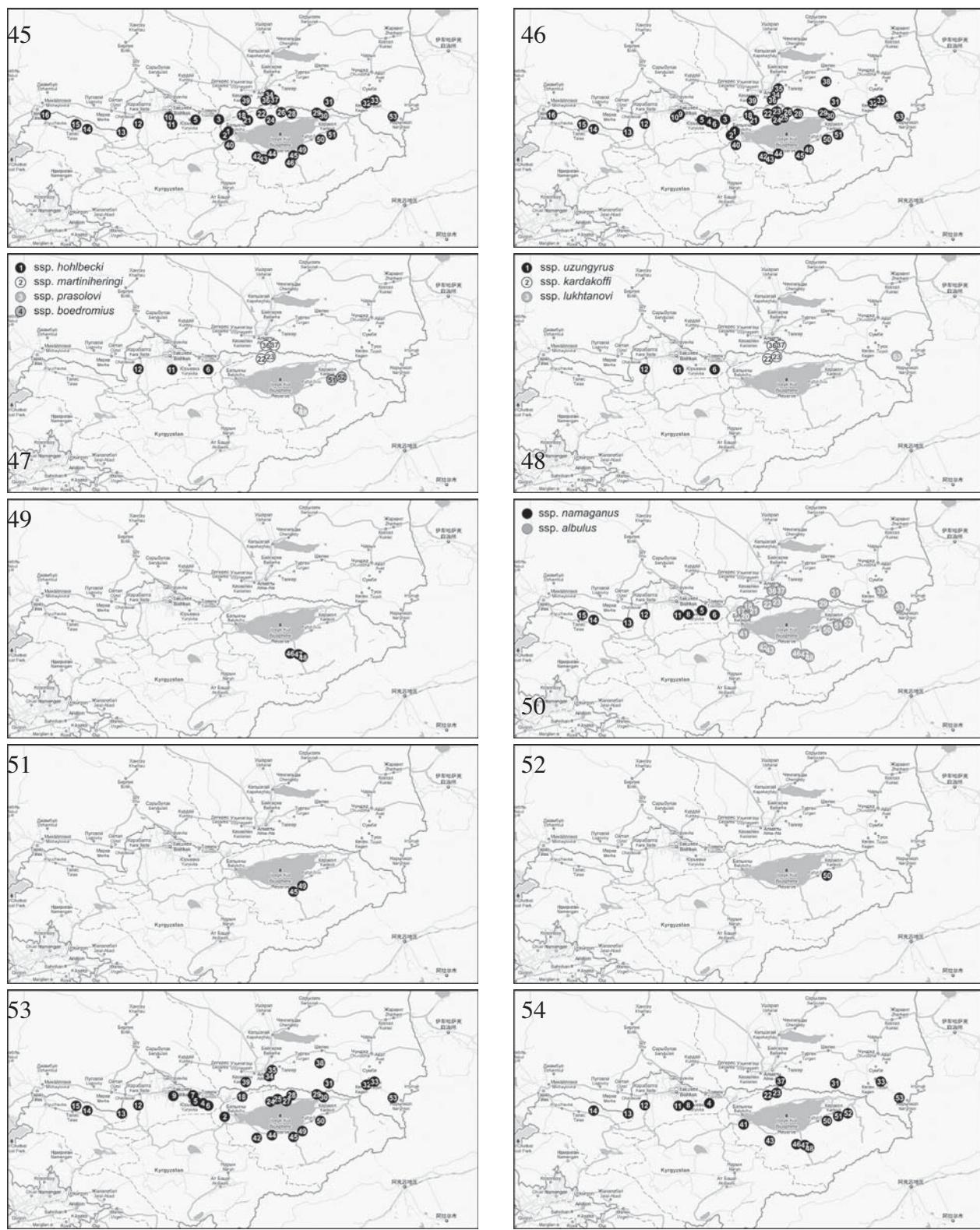


Fig. 45: Distribution of *Parnassius apollo transiliensis* EISNER, 1966.

Fig. 46: Distribution of *Driopa mnemosyne orientalis* (ROTHSCHILD, 1918).

Fig. 47: Distribution of *Kreizbergius boedromius* (PÜNGELER, 1901): *K. b. boedromius* (PÜNGELER, 1901); *K. b. martiniheringi* (BRYK & EISNER, 1930); *K. b. hohlebecki* (AVINOV, 1913); *K. b. prasolovi* (KREUZBERG, 1986).

Fig. 48: Distribution of *Koramius patricius* (NIEPELT, 1911): *K. p. kardakoffi* (BRYK & EISNER, 1930); *K. p. lukhtanovi* (ROSE, 1992); *K. p. uzyngyrus* (WEISS, 1979).

Fig. 49: Distribution of *Koramius priamus* (BRYK, 1914).

Fig. 50: Distribution of *Koramius delphius* (EVERSmann, 1843): *K. d. albulus* (HONRATH, 1889); *K. d. namaganus* (STAUDINGER, 1886).

Fig. 51: Distribution of *Leptidea reali mazeli* BOLSHAKOV, 2006.

Fig. 52: Distribution of *Leptidea descimoni* MAZEL, 2004.

Fig. 53: Distribution of *Leptidea sinapis* (LINNAEUS, 1758).

Fig. 54: Distribution of *Colias cocandica* ERSCHOFF, 1874.

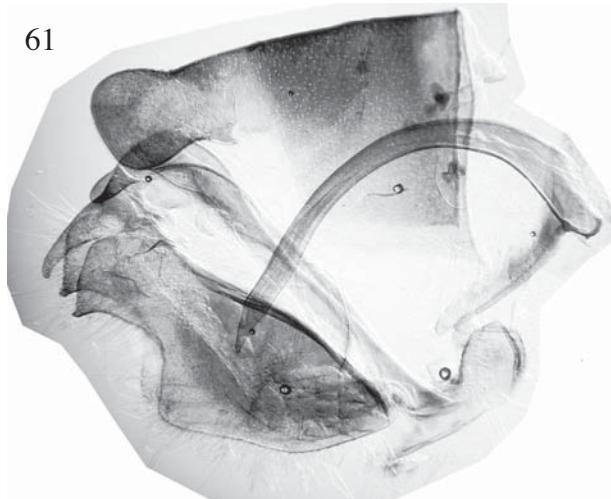
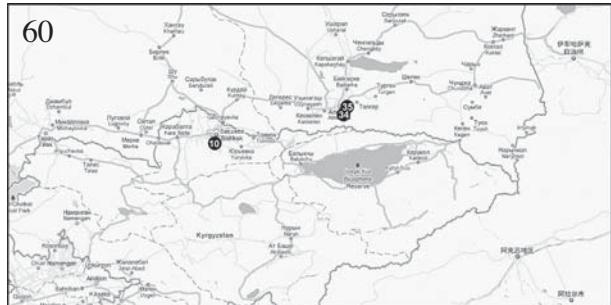
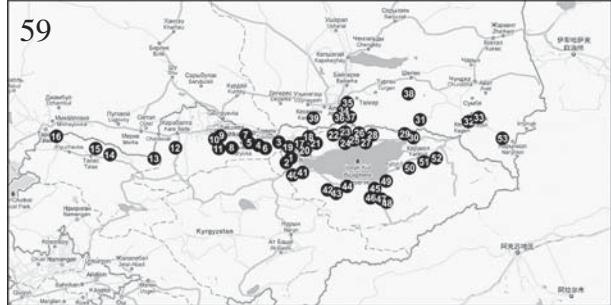
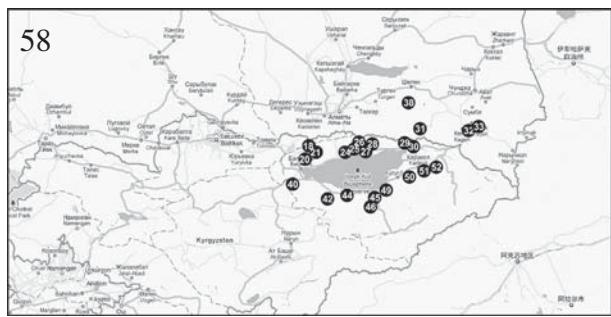
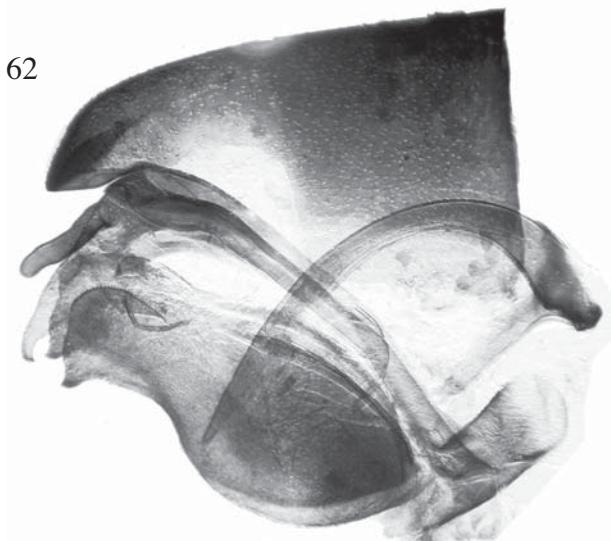
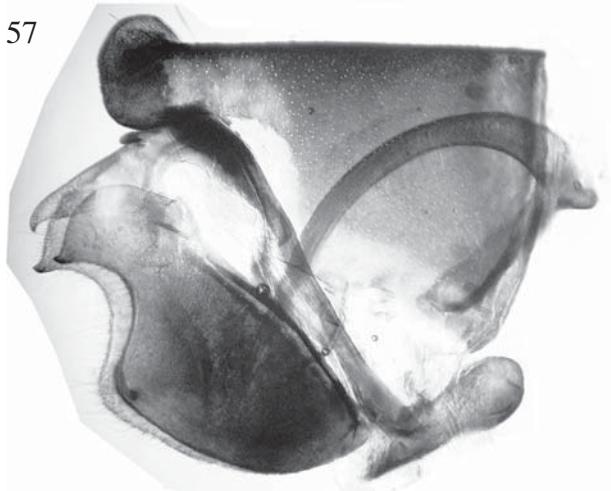
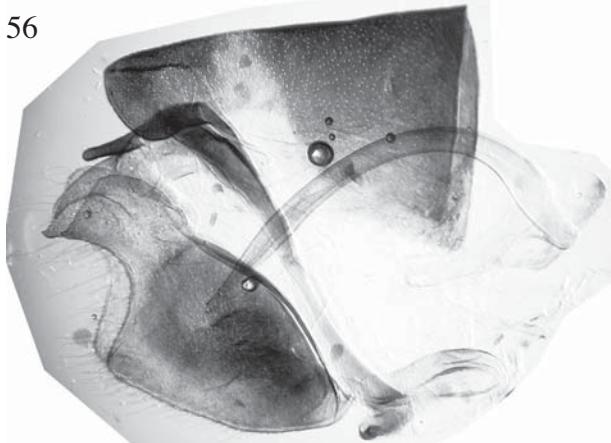
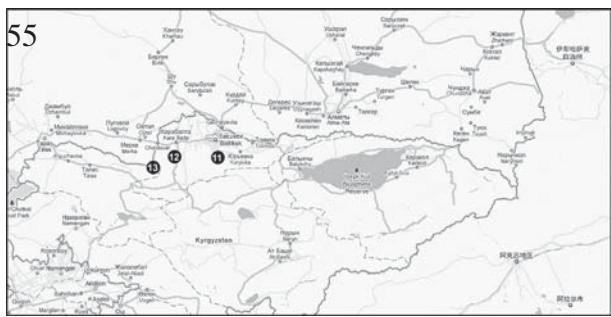


Fig. 55: Distribution of *Colias alta* STAUDINGER, 1886.

Fig. 56: ♂ genitalia of *Colias alta* STAUDINGER, 1886, Kyrgyz Mts., Chon-Kuurchak valley.

Fig. 57: ♂ genitalia of *Colias erate* (ESPER, [1801]), Akshiyarak Mts., Dolon Pass.

Fig. 58: Distribution of *Colias grieshuberi* KORB, 2004.

Fig. 59: Distribution of *Colias erate* (ESPER, [1801]).

Fig. 60: Distribution of *Colias ionovi* KORB, 2005.

Fig. 61: ♂ genitalia of *Colias ionovi* KORB, 2005, Transili Alatau Mts., near Almaty.

Fig. 62: ♂ genitalia of *Colias chrysotheme* (ESPER, 1781), Ukraine, Dobropolye.

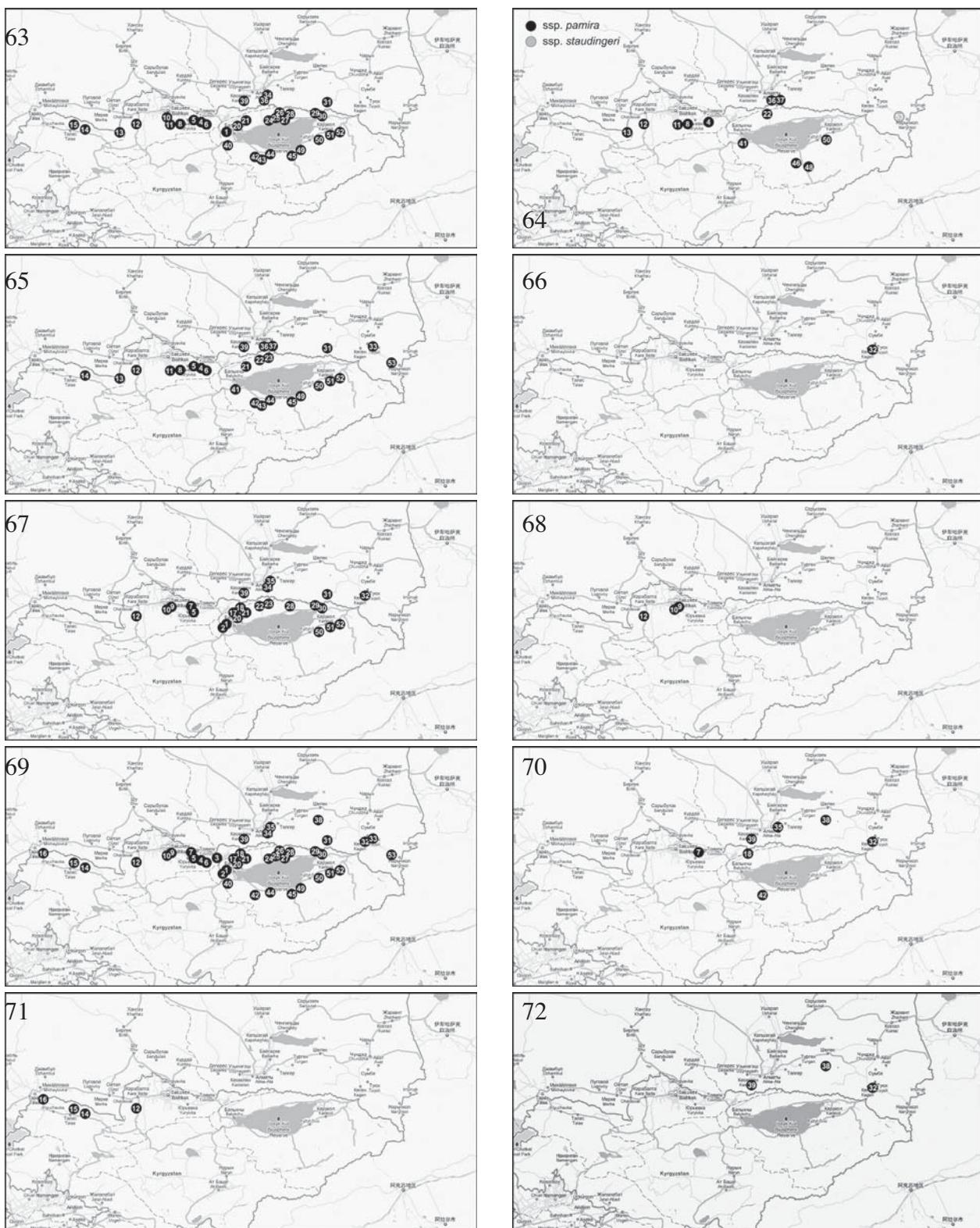


Fig. 63: Distribution of *Colias romanovi* GRUM-GRSHIMAILO, 1885.

Fig. 64: Distribution of *Colias staudingeri* ALPHÉRAKY, 1881: *C. s. staudingeri* ALPHÉRAKY, 1881; *C. s. pamira* GRUM-GRSHIMAILO, 1890.

Fig. 65: Distribution of *Colias thisoa urumtsiensis* VERITY, 1909.

Fig. 66: Distribution of *Colias erschoffi* ALPHÉRAKY, 1881.

Fig. 67: Distribution of *Gonepteryx rhamni tianschanica* NEKRUTENKO, 1970.

Fig. 68: Distribution of *Gonepteryx farinosa* ZELLER, 1847.

Fig. 69: Distribution of *Anthocharis cardamines alexandra* HEMMING, 1933.

Fig. 70: Distribution of *Euchloe ausonia transiens* VERITY, 1908.

Fig. 71: Distribution of *Euchloe daphalis pulverata* (CHRISTOPH, 1884).

Fig. 72: Distribution of *Zegris fausti* CHRISTOPH, 1877.

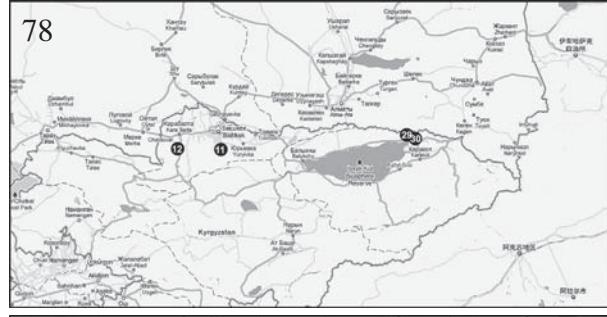
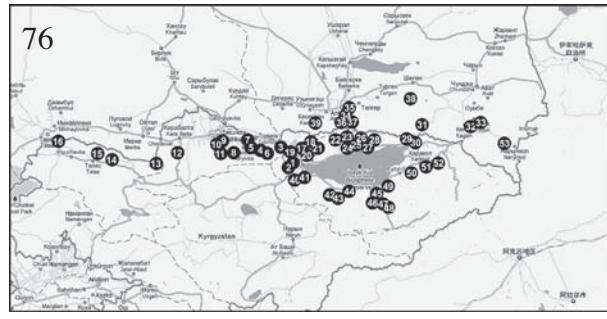
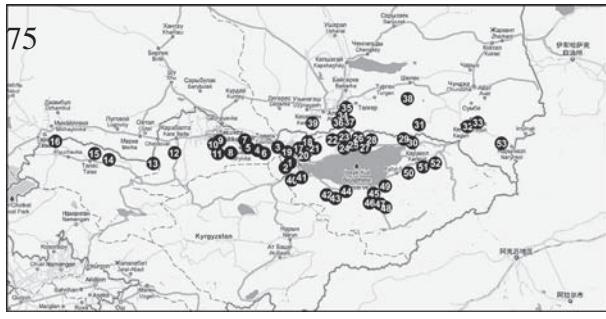
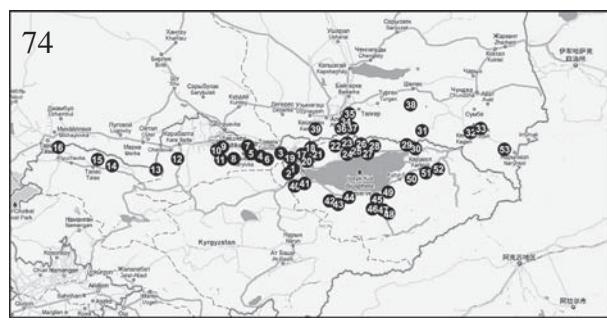
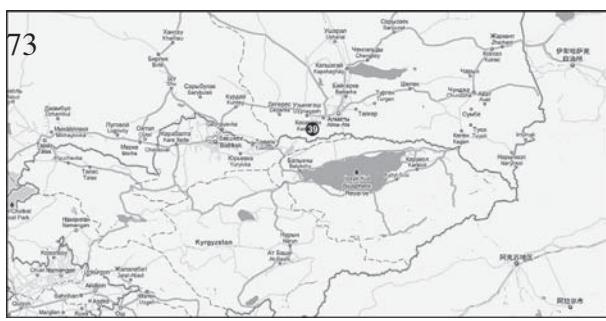


Fig. 73: Distribution of *Microzegris pyrothoe* (Eversmann, 1832).

Fig. 74: Distribution of *Aporia crataegi tianschanica* Rühl, [1893].

Fig. 75: Distribution of *Metaporia leucodice morosevitshae* Sheljuzhko, 1907.

Fig. 76: Distribution of *Pieris brassicae ottonis* Röber, 1907.

Fig. 77: Distribution of *Pieris napi bryonides* Sheljuzhko, 1910.

Fig. 78: Distribution of *Pieris banghaasi kirgizskana* (Korb, 2001).

Fig. 79: Distribution of *Pieris rapae debilis* Alphéراky, 1881.

Fig. 80: Distribution of *Pieris canidia palaearctica* Staudinger, 1886.

Fig. 81: Distribution of *Pieris krueperi devta* (de Nicéville, 1883).

Fig. 82: Distribution of *Pieris ochsenheimeri* (Staudinger, 1881).

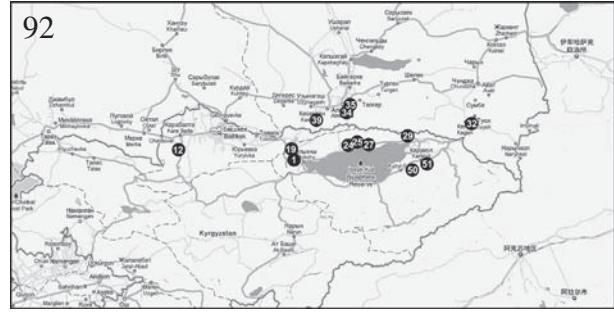
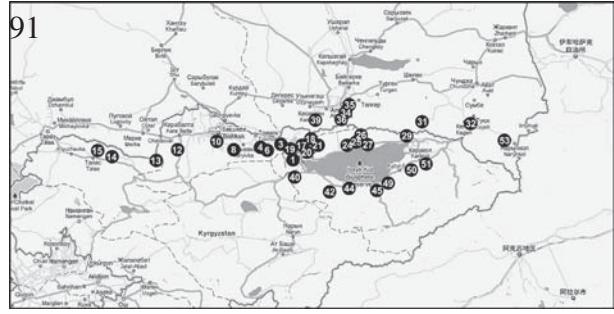
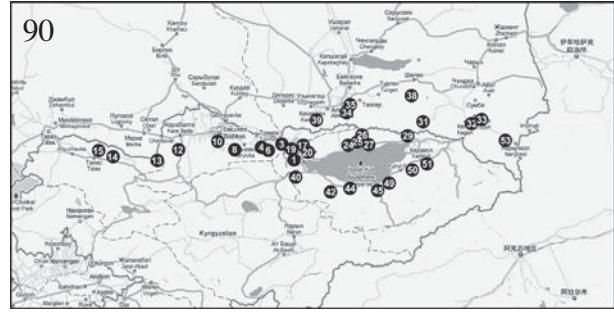
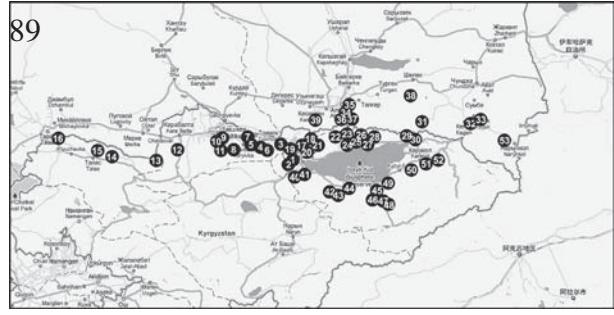
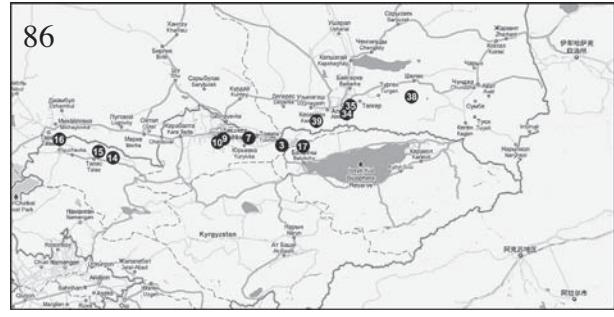
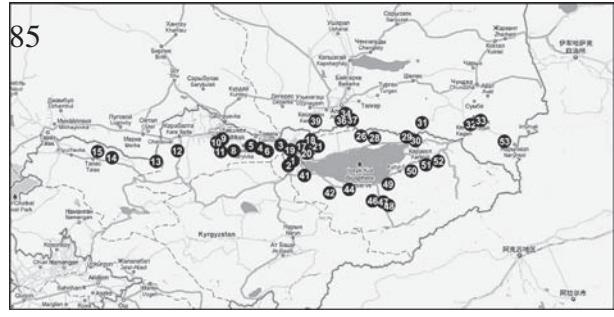
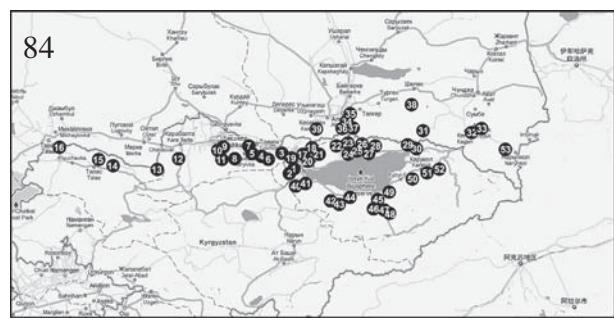
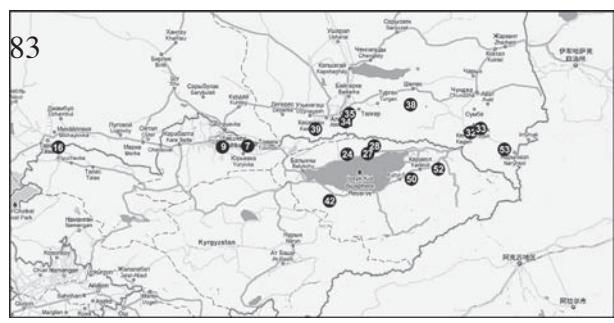


Fig. 83: Distribution of *Pontia chloridice* (HÜBNER, [1813]).

Fig. 84: Distribution of *Pontia daplidice* (LINNAEUS, 1758).

Fig. 85: Distribution of *Pontia callidice kalora* (MOORE, 1865).

Fig. 86: Distribution of *Libythea celtis platooni* KORB, 2005.

Fig. 87: Distribution of *Limenitis helmanni* KINDERMANN, 1853.

Fig. 88: Distribution of *Neptis rivularis ludmilla* HERRICH-SCHÄFFER, 1856.

Fig. 89: Distribution of *Argynnis pandora pasargades* FRUHSTORFER, 1908.

Fig. 90: Distribution of *Argynnis paphia* (LINNAEUS, 1758).

Fig. 91: Distribution of *Argynnis niobe orientalis* ALPHÉRAKY, 1881.

Fig. 92: Distribution of *Argynnis adippe tianschanica* ALPHÉRAKY, 1881.

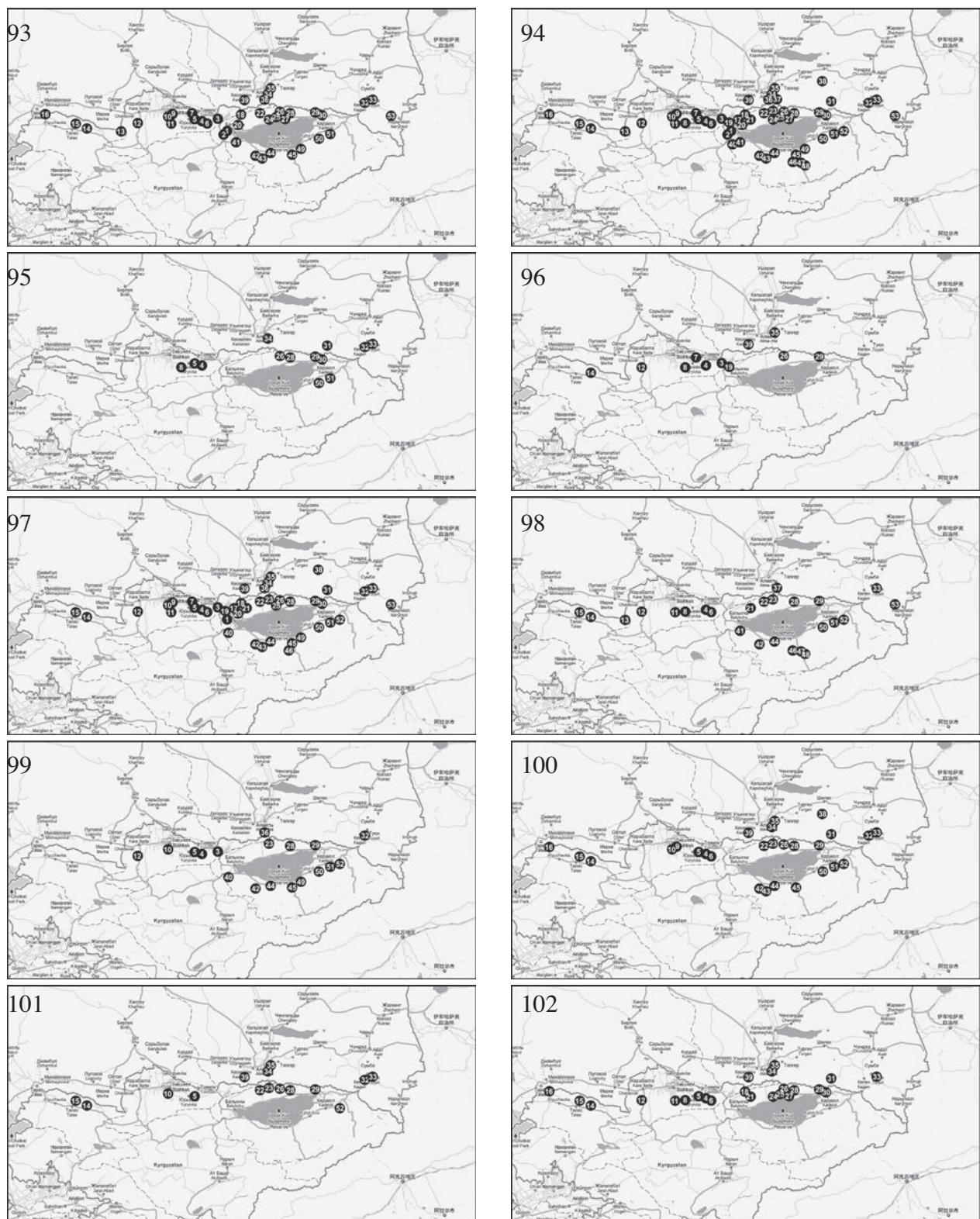


Fig. 93: Distribution of *Argynnis aglaja vitatha* MOORE, 1874.

Fig. 94: Distribution of *Issoria lathonia* (LINNAEUS, 1758).

Fig. 95: Distribution of *Brenthis ino trachalus* (FRUHSTORFER, 1916).

Fig. 96: Distribution of *Brenthis hecate alaica* (STAUDINGER, 1886).

Fig. 97: Distribution of *Clossiana erubescens* (STAUDINGER, 1901).

Fig. 98: Distribution of *Boloria generator* (STAUDINGER, 1886).

Fig. 99: Distribution of *Polygonia interposita* STAUDINGER, 1881.

Fig. 100: Distribution of *Polygonia egea undina* (GRUM-GRSHIMAILO, 1890).

Fig. 101: Distribution of *Nymphaalis vaualbum arbustus* CHURKIN & ZHDANKO, 2002.

Fig. 102: Distribution of *Nymphaalis xanthomelas hazara* WYATT & OMOTO, 1966.

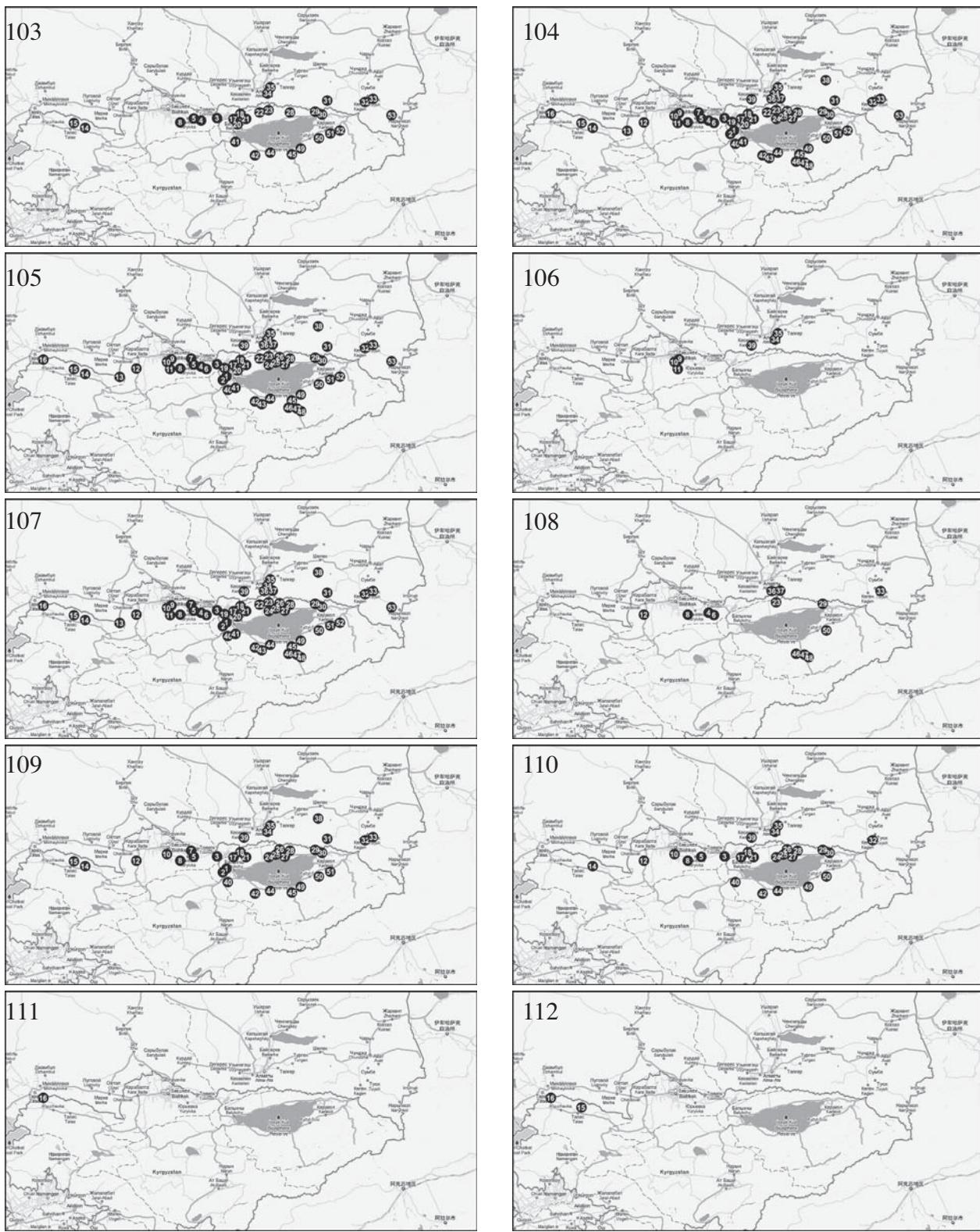


Fig. 103: Distribution of *Nymphalis antiopa* (LINNAEUS, 1758).

Fig. 104: Distribution of *Aglais urticae* (LINNAEUS, 1758).

Fig. 105: Distribution of *Inachis io* (LINNAEUS, 1758).

Fig. 106: Distribution of *Vanessa atalanta* (LINNAEUS, 1758).

Fig. 107: Distribution of *Vanessa cardui* (LINNAEUS, 1758).

Fig. 108: Distribution of *Euphydryas asiatica alexandrina* (STAUDINGER, 1887).

Fig. 109: Distribution of *Melitaea didyma turkestanica* SHELJUZHKO, 1929.

Fig. 110: Distribution of *Melitaea ala* STAUDINGER, 1881.

Fig. 111: Distribution of *Melitaea ninae* SHELJUZHKO, 1935.

Fig. 112: Distribution of *Melitaea lunulata merke* LUKHTANOV, 1999.

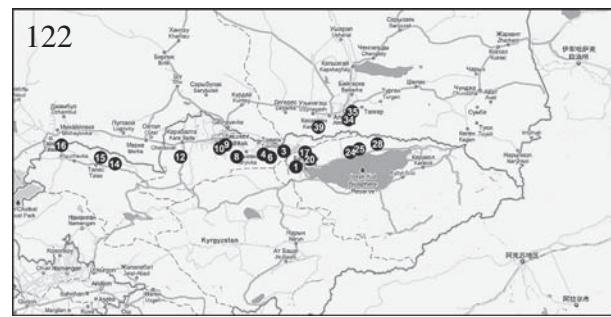
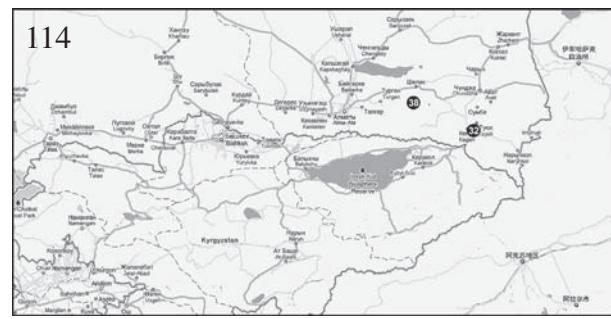
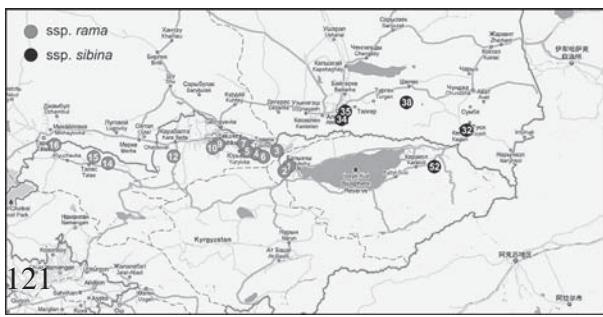
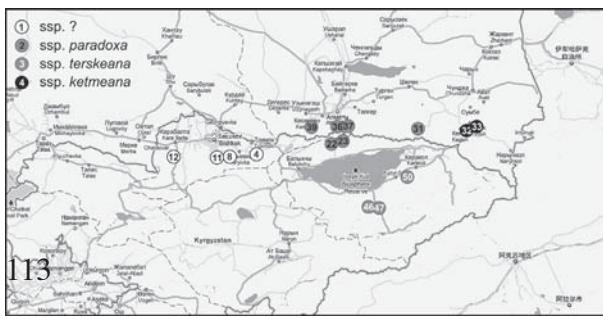


Fig. 113: Distribution of *Melitaea fergana* STAUDINGER, 1882: *M. f. ketmeana* LUKHTANOV, 1999; *M. f. paradoxa* CHURKIN & TUZOV, 2000; *M. f. terskeana* LUKHTANOV, 1999.

Fig. 114: Distribution of *Melitaea athene* STAUDINGER, 1881.

Fig. 115: Distribution of *Melitaea minerva* STAUDINGER, 1881.

Fig. 116: Distribution of *Melitaea pallas mendax* KOLESNICHENKO & TUZOV, 2000.

Fig. 117: Distribution of *Melitaea ludmilla* CHURKIN, KOLESNICHENKO & TUZOV, 2000.

Fig. 118: Distribution of *Melitaea palamedes danieli* ACHTELIK, 1999.

Fig. 119: Distribution of *Melitaea cassandra* KOLESNICHENKO & CHURKIN, 2001.

Fig. 120: Distribution of *Melitaea phoebe saturate* STAUDINGER, 1892.

Fig. 121: Distribution of *Melitaea sibina* ALPHÉRAKY, 1881: *M. s. sibina* ALPHÉRAKY, 1881; *M. s. rama* HIGGINS, 1941.

Fig. 122: Distribution of *Melitaea arduinna* (ESPER, [1784]).

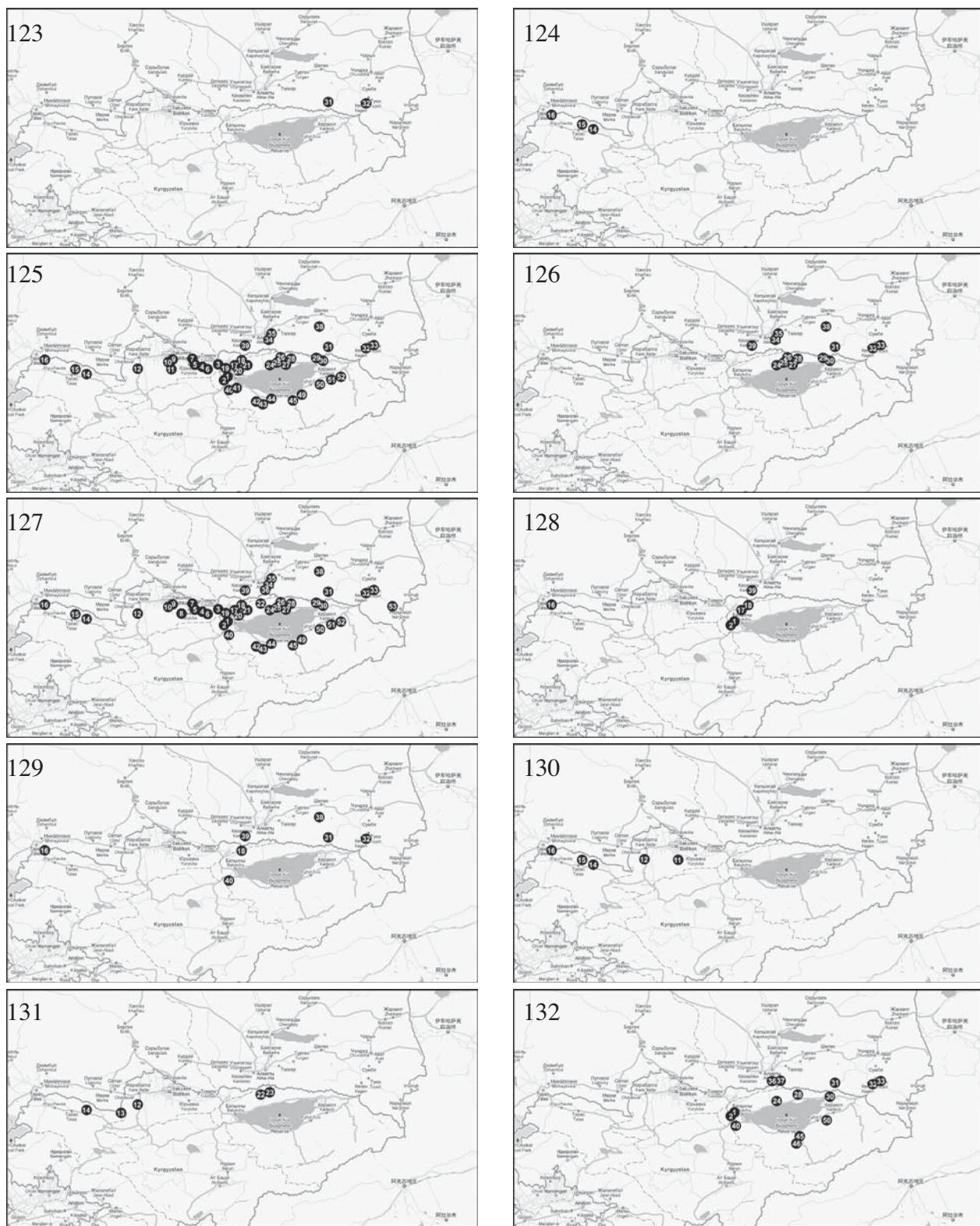


Fig. 123: Distribution of *Lasiommata maera* (LINNAEUS, 1758).

Fig. 124: Distribution of *Lasiommata menava* MOORE, 1865.

Fig. 125: Distribution of *Marginarge eversmanni* (EVERSMANN, 1847).

Fig. 126: Distribution of *Melanargia russiae* (ESPER, [1786]).

Fig. 127: Distribution of *Melanargia parce* STAUDINGER, 1882.

Fig. 128: Distribution of *Triphysa phryne striatula* ELWES, 1899.

Fig. 129: Distribution of *Lyela myops* (STAUDINGER, 1881).

Fig. 130: Distribution of *Coenonympha nolkeni* ERSCHOFF, 1874.

Fig. 131: Distribution of *Coenonympha caeca tshonkurtshakus* KORB, 1999.

Fig. 132: Distribution of *Coenonympha mahometana* ALPHÉRAKY, 1881.

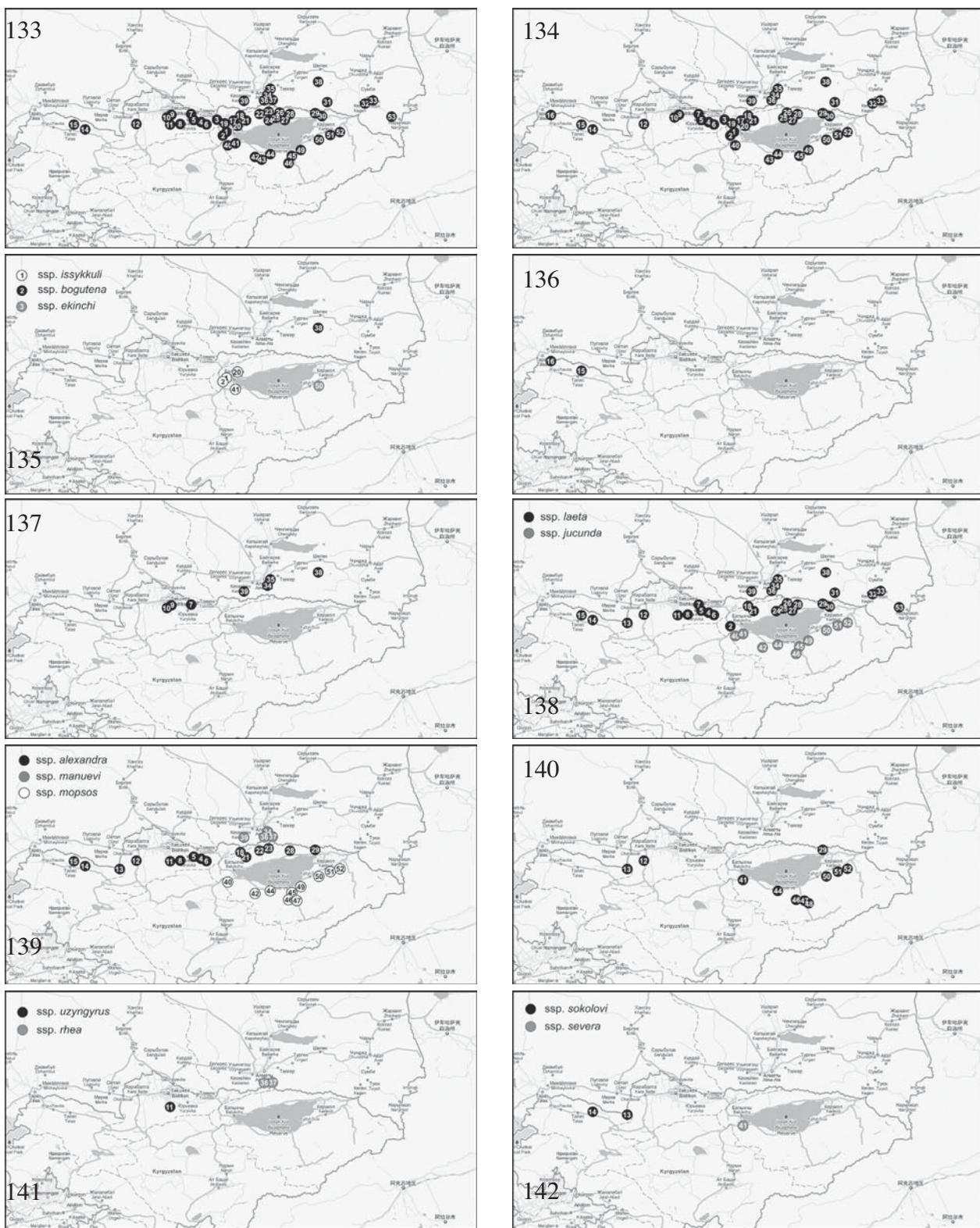


Fig. 133: Distribution of *Coenonympha sunbecca alexandra* HEYNE, 1894.

Fig. 134: Distribution of *Coenonympha pamphilus* (LINNAEUS, 1758).

Fig. 135: Distribution of *Paralasa bogutena* LUKHTANOV & LUKHTANOV, 1994: *P. b. bogutena* LUKHTANOV & LUKHTANOV, 1994; *P. b. issykului* LUKHTANOV, 1999; *P. b. ekinchi* KORB, 2008.

Fig. 136: Distribution of *Paralasa kusnezovi* (AVINOV, 1910).

Fig. 137: Distribution of *Proterebia afra* (FABRICIUS, 1787).

Fig. 138: Distribution of *Erebia turanica* ERSCHOFF, 1877: *E. t. jucunda* PÜNGELER, 1903; *E. t. laeta* STAUDINGER, 1881.

Fig. 139: Distribution of *Erebia mopsos* STAUDINGER, 1886: *E. m. mopsos* STAUDINGER, 1886; *E. m. alexandra* STAUDINGER, 1887; *E. m. manuevi* CHURKIN & ZHDANKO, 2000; *E. m. melanops* CHRISTOPH, 1889.

Fig. 140: Distribution of *Erebia mongolica* ERSCHOFF, 1888.

Fig. 141: Distribution of *Erebia radians* LANG, 1884: *E. r. rheia* CHURKIN & ZHDANKO, 2001; *E. r. uzyngyrus* CHURKIN & TUZOV, 2000.

Fig. 142: Distribution of *Erebia sokolovi* LUKHTANOV, 1990: *E. s. sokolovi* LUKHTANOV, 1990; *E. s. severa* CHURKIN & TUZOV, 2000.

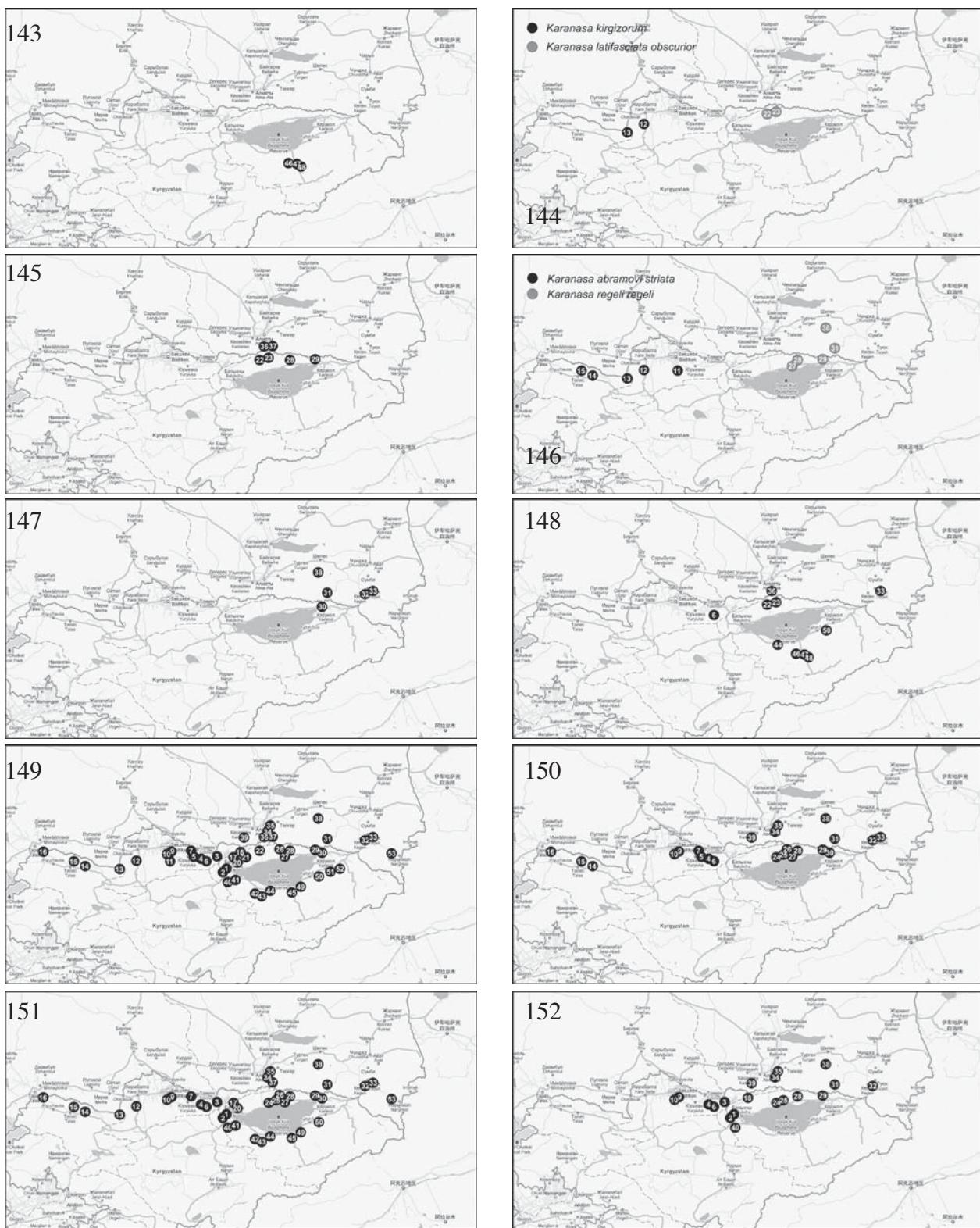


Fig. 143: Distribution of *Erebia kalmuka* ALPHÉRAKY, 1881.

Fig. 144: Distribution of *Karanasa kirgizorum* AVINOFF & SWEADNER, 1951 and *K. latifasciata obscurior* AVINOFF & SWEADNER, 1951.

Fig. 145: Distribution of *Karanasa wilkinsi dublitzkyi* (BANG-HAAS, 1927).

Fig. 146: Distribution of *Karanasa regeli* ALPHÉRAKY, 1881 and *K. abramovi striata* BOGDANOV, 2001.

Fig. 147: Distribution of *Oeneis tarpeia rozhdestvenskyi* KORB & YAKOVLEV, 1997.

Fig. 148: Distribution of *Oeneis hora* GRUM-GRSHIMAILO, 1888.

Fig. 149: Distribution of *Hipparchia autonoe* (ESPER, [1783]).

Fig. 150: Distribution of *Arethusana arethusa* ([DENIS & SCHIFFERMÜLLER], 1775).

Fig. 151: Distribution of *Chazara briseis magna* (HEYNE, 1894).

Fig. 152: Distribution of *Chazara enervata* (STAUDINGER, 1881).

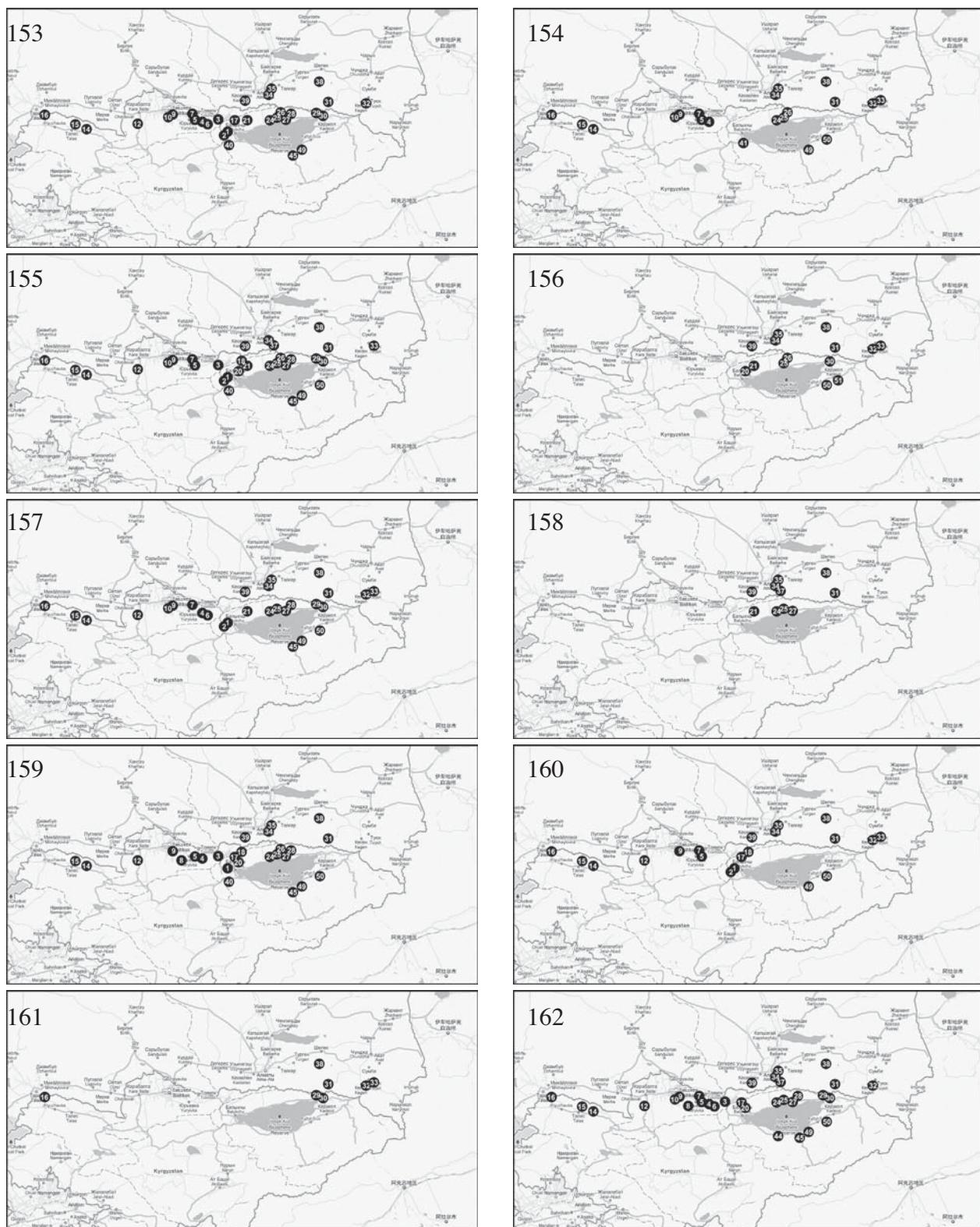


Fig. 153: Distribution of *Chazara kaufmanni obscurior* (STAUDINGER, 1887).

Fig. 154: Distribution of *Chazara heydenreichi* (LEDERER, 1853).

Fig. 155: Distribution of *Pseudochazara turkestanica* (GRUM-GRSHIMAILO, 1893).

Fig. 156: Distribution of *Pseudochazara esperi mercurius* (STAUDINGER, 1887).

Fig. 157: Distribution of *Satyrus ferula cordulina* LANG, 1884.

Fig. 158: Distribution of *Minois dryas septentrionalis* (WNUKOWSKY, 1929).

Fig. 159: Distribution of *Hyponephele przhewalskyi* DUBATOLOV, SERGEEV & Z[H]DANKO, 1994.

Fig. 160: Distribution of *Hyponephele lupina intermedia* (STAUDINGER, 1886).

Fig. 161: Distribution of *Hyponephele interposita* (ERSCHOFF, 1874).

Fig. 162: Distribution of *Hyponephele dysdora* (LEDERER, 1870).

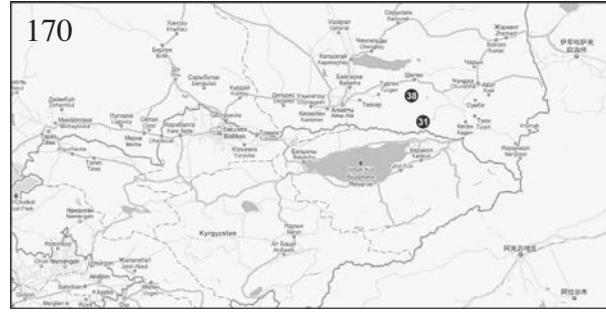
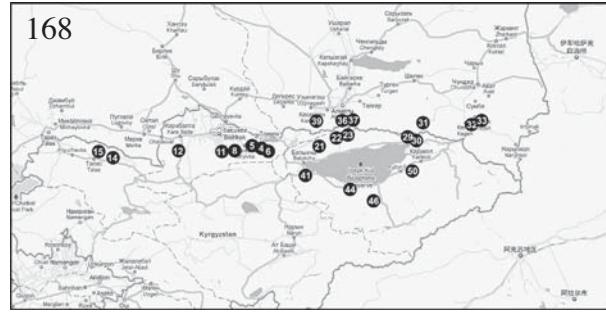
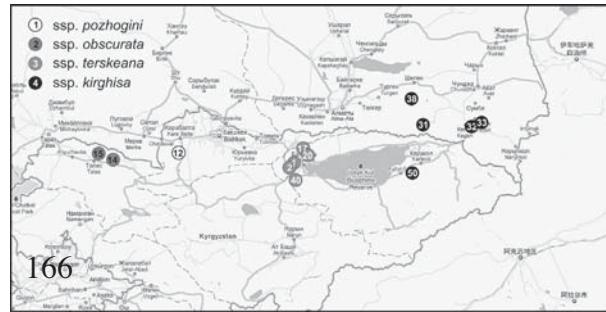
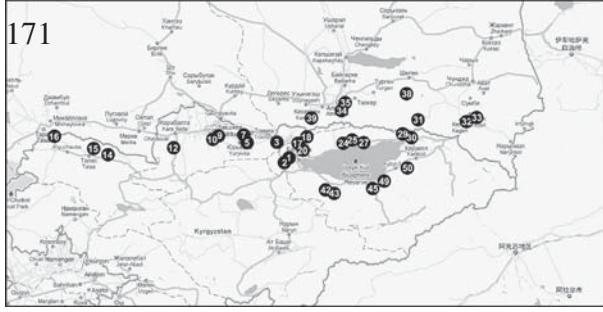
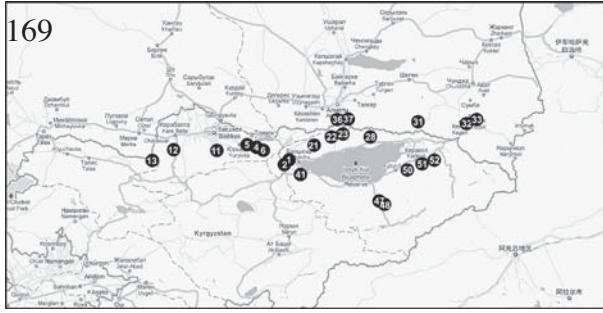
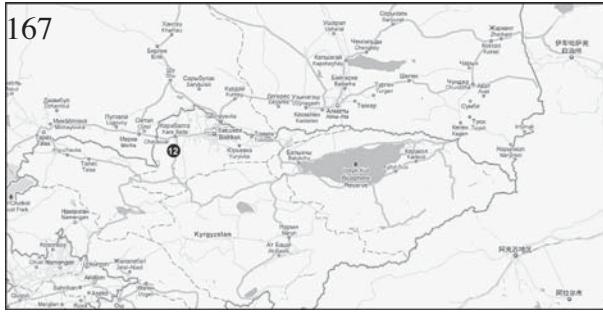
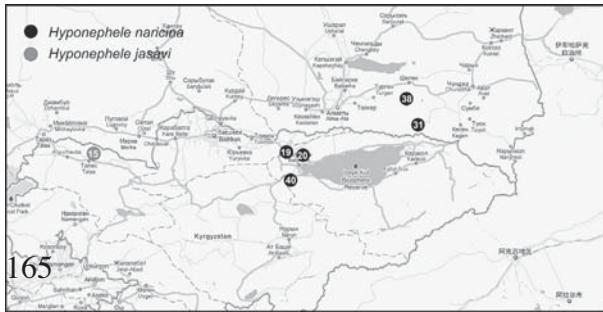


Fig. 163: Distribution of *Hyponephele issykkuli* SAMODUROV, 1996; *H. rueckbeili* (STAUDINGER, 1887); *H. germana* (STAUDINGER, 1887).

Fig. 164: Distribution of *Hyponephele hilaris* (STAUDINGER, 1886), *H. glasunovi magna* SAMODUROV, 1996.

Fig. 165: Distribution of *Hyponephele jasavi* LUKHTANOV, 1990 and *H. naricina* (STAUDINGER, 1870).

Fig. 166: Distribution of *Hyponephele kirghisa* (ALPHÉRAKY, 1881): *H. k. kirghisa* (ALPHÉRAKY, 1881); *H. k. obscura* SAMODUROV, 1996; *H. k. terskeana* LUKHTANOV & LUKHTANOV, 1994; *H. k. pozhogini* KORB, 2009.

Fig. 167: Distribution of *Hyponephele haberhaueri* (STAUDINGER, 1886).

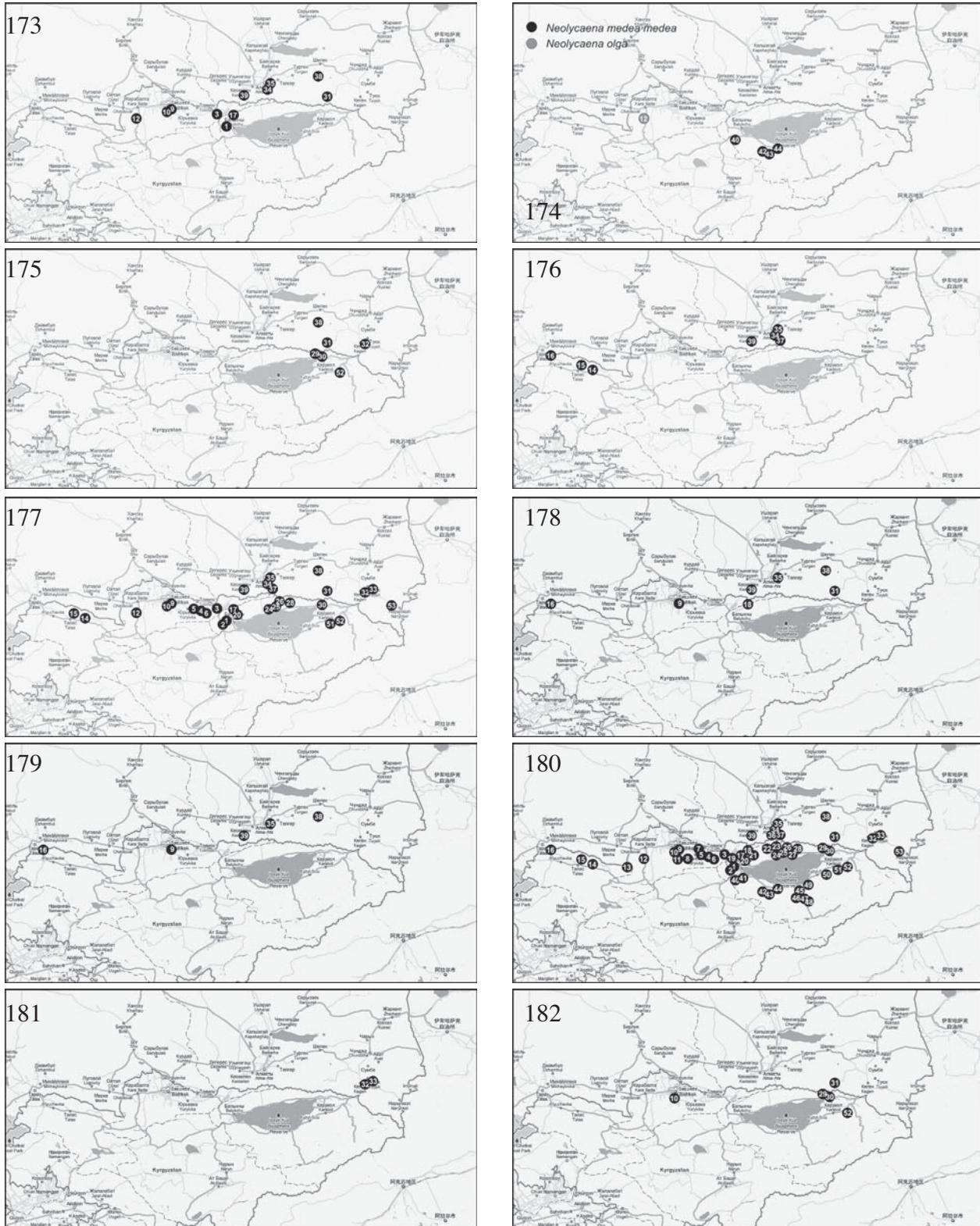
Fig. 168: Distribution of *Hyponephele naubidensis* (ERSCHOFF, 1874).

Fig. 169: Distribution of *Polycaena tamerlana* STAUDINGER, 1886.

Fig. 170: Distribution of *Thecla betulae* (LINNAEUS, 1758).

Fig. 171: Distribution of *Superflua acaudata* (STAUDINGER, 1901).

Fig. 172: Distribution of *Neolycaena eckweileri transiliens* LUKHTANOV, 1993.



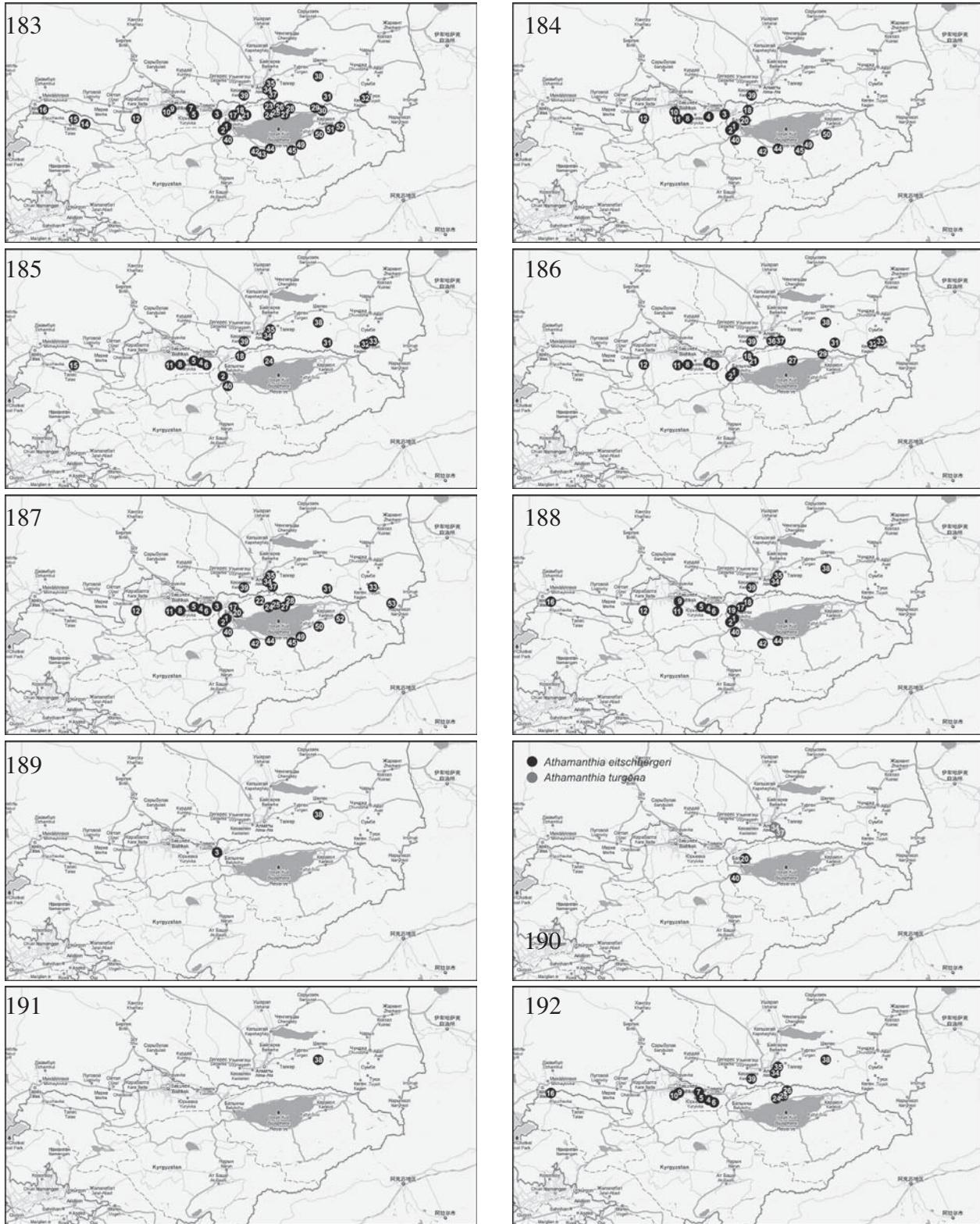


Fig. 183: Distribution of *Lycaena thersamon persica* (BIENERT, 1870).

Fig. 184: Distribution of *Lycaena solskyi fulminans* (GRUM-GRSHIMAILO, 1888).

Fig. 185: Distribution of *Lycaena dispar rutilus* (WERNEBURG, 1864).

Fig. 186: Distribution of *Lycaena alciphron naryna* (OBERTHÜR, 1910).

Fig. 187: Distribution of *Lycaena splendens* (STAUDINGER, 1887).

Fig. 188: Distribution of *Lycaena margelanica nigra* (ZHDANKO, 2000).

Fig. 189: Distribution of *Athamanthia alexandra* (PÜNGELER, 1901).

Fig. 190: Distribution of *Athamanthia eitschbergeri* LUKHTANOV, 1993 and *A. turgena* ZHDANKO, 1990.

Fig. 191: Distribution of *Athamanthia dimorpha bogutena* ZHDANKO, 1990.

Fig. 192: Distribution of *Lampides boeticus* (LINNAEUS, 1767).

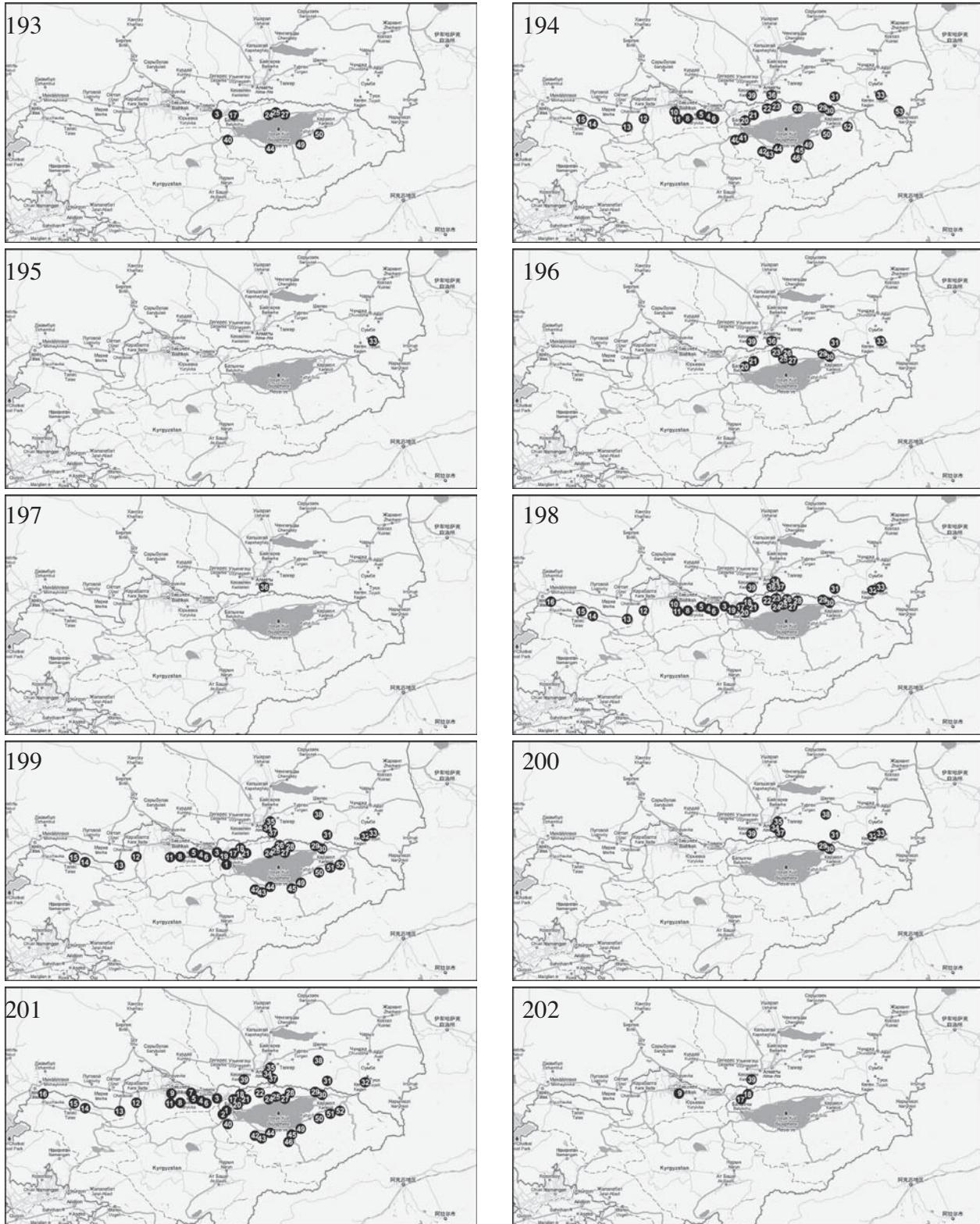


Fig. 193: Distribution of *Cupido proscus* (ERSCHOFF, 1874).

Fig. 194: Distribution of *Cupido buddhista* (ALPHÉRAKY, 1881).

Fig. 195: Distribution of *Cupido minimus* (FUESSLY, 1775).

Fig. 196: Distribution of *Cupido osiris* (MEIGEN, 1829).

Fig. 197: Distribution of *Everes argiades* (PALLAS, 1771).

Fig. 198: Distribution of *Celastrina argiolus* (LINNAEUS, 1758).

Fig. 199: Distribution of *Glaucopsyche aeruginosa* (STAUDINGER, 1881).

Fig. 200: Distribution of *Scolitantides orion johanseni* (WNUKOWSKY, 1934).

Fig. 201: Distribution of *Pseudophilotes vicrama cashmirensis* (MOORE, 1874).

Fig. 202: Distribution of *Otnjukovia tatjana* (ZHDANKO, 1984).

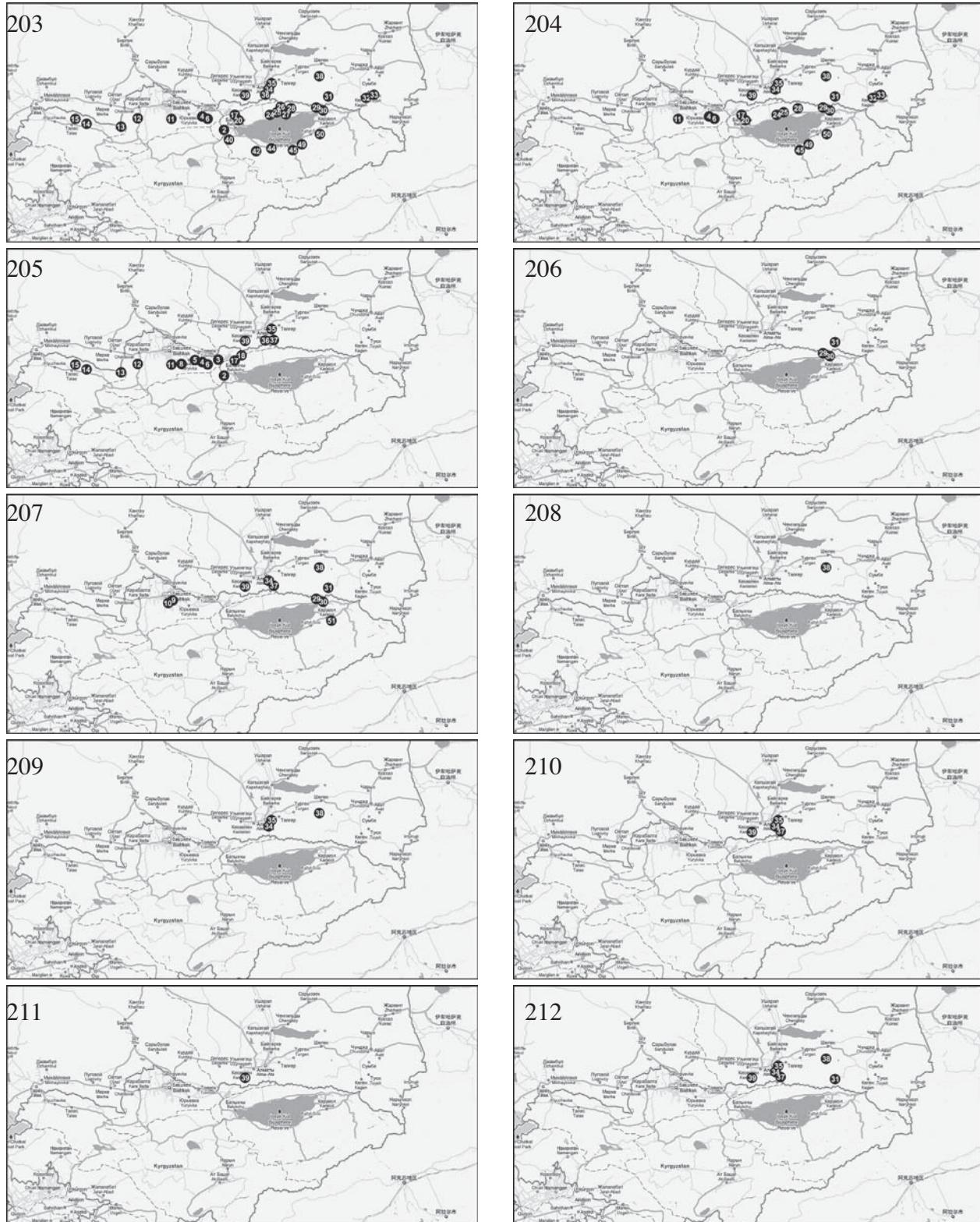


Fig. 203: Distribution of *Phengaris alcon imitator* (Tuzov, 2000).
 Fig. 204: Distribution of *Phengaris arion* (LINNAEUS, 1758).
 Fig. 205: Distribution of *Phengaris cyanecula sauron* (KORB, 2003).
 Fig. 206: Distribution of *Plebeius argus* (LINNAEUS, 1758).
 Fig. 207: Distribution of *Plebeius idas naruena* (COURVOISIER, 1913).
 Fig. 208: Distribution of *Plebeius agnate* (STAUDINGER, 1886).
 Fig. 209: Distribution of *Plebeius argiva* (STAUDINGER, 1886).
 Fig. 210: Distribution of *Plebeius mushibi* ZHDANKO, 2000.
 Fig. 211: Distribution of *Plebeius bergi* KUSNEZOV, 1908.
 Fig. 212: Distribution of *Plebeius christophi* (STAUDINGER, 1874).

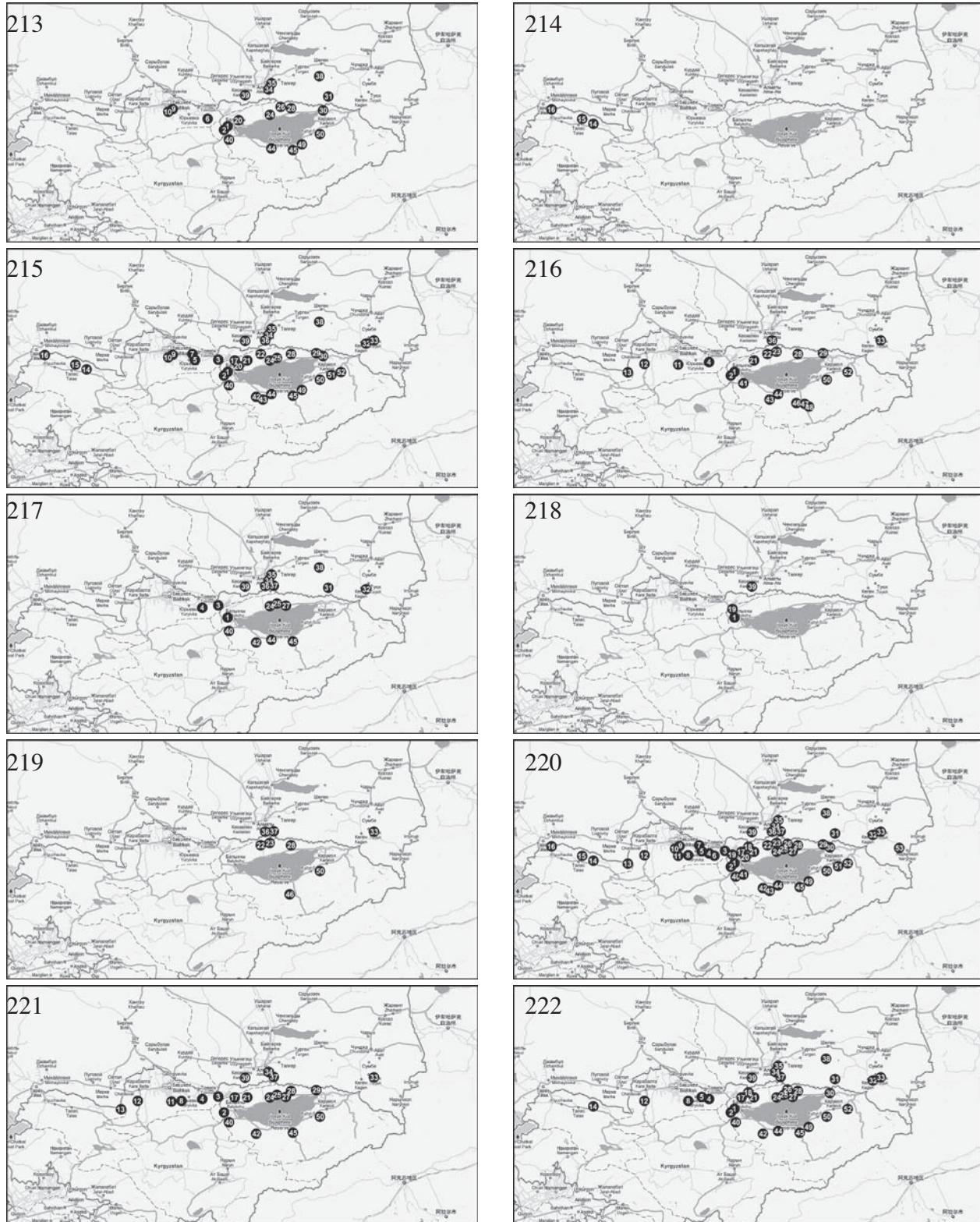


Fig. 213: Distribution of *Plebeius maracandica planorum* (ALPHÉRAKY, 1881).

Fig. 214: Distribution of *Plebeius usbekus* FORSTER, 1939.

Fig. 215: Distribution of *Vacciniina fergana* (STAUDINGER, 1881).

Fig. 216: Distribution of *Vacciniina pheretiades sveta* (CHURKIN & ZHDANKO, 2001).

Fig. 217: Distribution of *Vacciniina cyane ella* (BOLLOW, 1931).

Fig. 218: Distribution of *Vacciniina elvira* (Eversmann, 1854).

Fig. 219: Distribution of *Polyommatus eros napaea* (GRUM-GRSHIMAILO, 1891).

Fig. 220: Distribution of *Polyommatus icarus turanicus* (HEYNE, [1893]).

Fig. 221: Distribution of *Polyommatus icadius candidus* ZHDANKO, 2000.

Fig. 222: Distribution of *Polyommatus thersites orientis* (SHELJUZHKO, 1928).

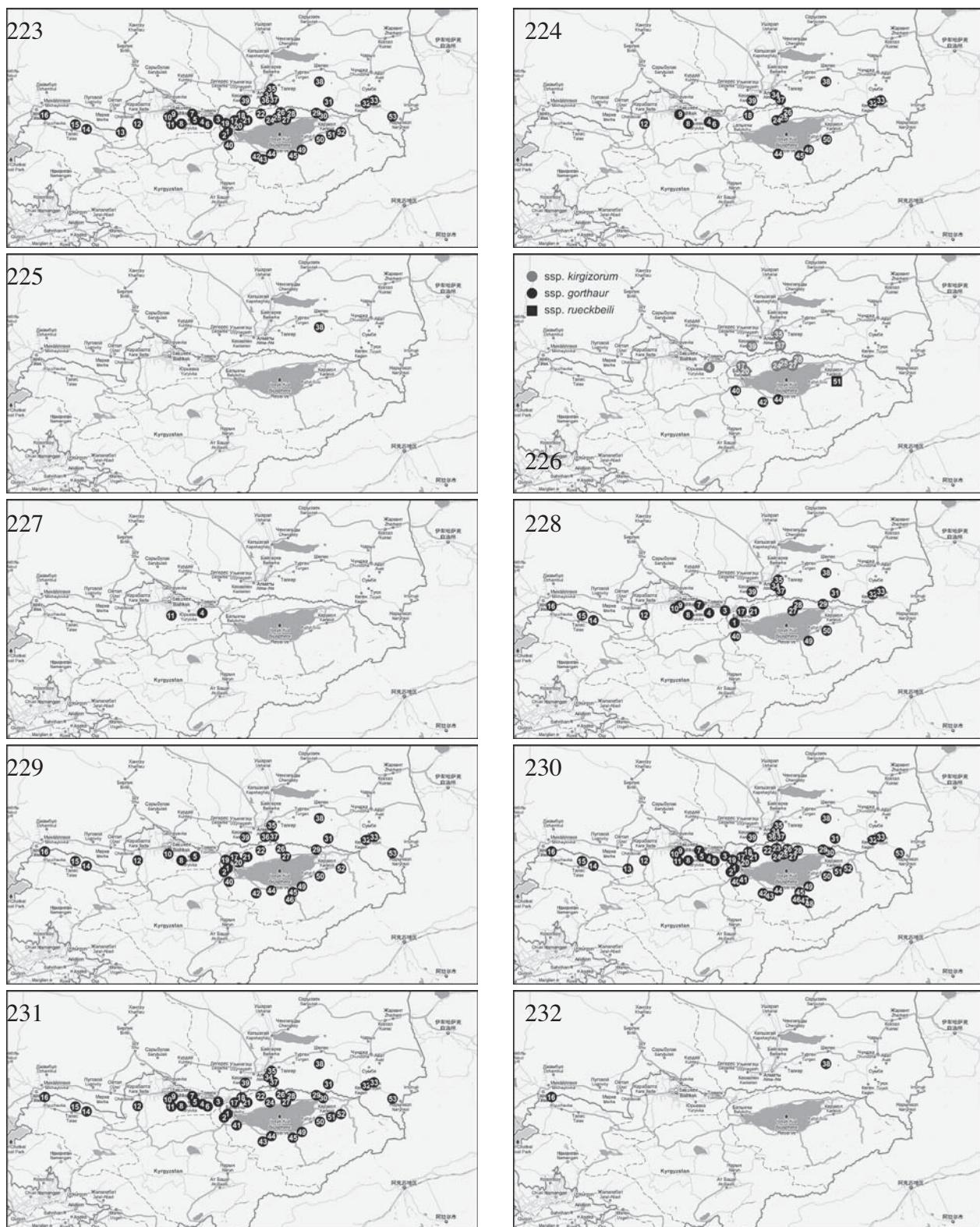


Fig. 223: Distribution of *Polyommatus amanda amata* (GRUM-GRSHIMAÏLO, 1890).

Fig. 224: Distribution of *Polyommatus damon merzbacheri* (COURVOISIER, 1913).

Fig. 225: Distribution of *Polyommatus juldusus* (STAUDINGER, 1886).

Fig. 226: Distribution of *Polyommatus kirgisorum* LUKHTANOV & DANTCHENKO, 1995; *P. k. kirgisorum* LUKHTANOV & DANTCHENKO, 1995; *P. k. gorthaur* KORB, 2009; *P. k. rueckbeili* (FORSTER, 1960).

Fig. 227: Distribution of *Polyommatus actinides weidenhofferi* ECKWEILER, 1997.

Fig. 228: Distribution of *Polyommatus ripartii* (FREYER, 1830).

Fig. 229: Distribution of *Alpherakya sartus* (ALPHÉRAKY, 1881).

Fig. 230: Distribution of *Eumedonia eumedon* (ESPER, [1780]).

Fig. 231: Distribution of *Aricia agestis maakherai* KORB, 2005.

Fig. 232: Distribution of *Rimisia miris* (STAUDINGER, 1881).

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