

To the plume moths fauna (Lepidoptera: Pterophoridae) of Laos

К фауне пальцекрылок (Lepidoptera: Pterophoridae) Лаоса

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KEY WORDS: Laos, new records, plume moths, Pterophoridae, fauna, biodiversity.

КЛЮЧЕВЫЕ СЛОВА: Лаос, новые находки, пальцекрылки, фауна, биоразнообразие.

ABSTRACT. Eight Pterophoridae species are reported for the fauna of Laos for the first time: *Ochyrotica yanoi* Arenberger, 1988, *Bipunctiphorus dissipata* (Yano, 1963), *Lantanophaga pusillidactylus* (Walker, 1864), *Nippoptilia regulae* (Meyrick, 1906), *Tomotilus celebrates* (Meyrick, 1932), *Megalorhipida leucodactylus* (Fabricius, 1794), *M. subtilis* (Rebel, 1907), *Agdistopsis sinhala* (Fletcher, 1909).

РЕЗЮМЕ. Для фауны Лаоса впервые приводятся восемь видов пальцекрылок: *Ochyrotica yanoi* Arenberger, 1988, *Bipunctiphorus dissipata* (Yano, 1963), *Lantanophaga pusillidactylus* (Walker, 1864), *Nippoptilia regulae* (Meyrick, 1906), *Tomotilus celebrates* (Meyrick, 1932), *Megalorhipida leucodactylus* (Fabricius, 1794), *M. subtilis* (Rebel, 1907), *Agdistopsis sinhala* (Fletcher, 1909).

Introduction

The plume moths fauna of Laos was described for the first time in the recently published article [Ustjuzhanin, Kovtunovich, 2018], where 21 species were reported. These species were collected in several localities of northern Laos and in one locality of the central part of the country (Na Hin, 18°12' N, 104°32' E). Thus, the Pterophoridae fauna of southern Laos remains unstudied. In this paper, we present the first data on records of 15 Pterophoridae species from the south of Laos, eight of

which are new to the fauna of the country. One of them, *Megalorhipida subtilis*, previously known from Africa and south-western Asia, was found in south-eastern Asia, which enlarges its habitat to the east to more than five thousand kilometers. Thus, the plume moths fauna of Laos currently includes 29 species. There is no doubt that future studies will significantly contribute to the knowledge of the Pterophoridae species composition of Laos.

Materials and Methods

The specimens were collected from December 2022 to January 2023 in three southern provinces of Laos: Champasak, Sekong, and Attapue. The studied specimens are deposited in the collection of the Zoological Institute St. Petersburg, Russia (ZISP) and in the Collection of P. Ustjuzhanin and V. Kovtunovich (Novosibirsk and Moscow, Russia, CUK).

Results

Ochyrotica yanoi Arenberger, 1988

Ochyrotica yanoi Arenberger, 1988: 276. (Type locality: Japan).

MATERIAL EXAMINED. LAOS: 1♀, Bolaven Plateau, Champasak province, Paksong town, mountain tropical forest and pine plantations, 15°10'54"N, 106°14'25"E, 16–17.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Japan, China, Vietnam, Taiwan, Philippines, China, India, Indonesia [Gielis, 2003], Laos.

REMARKS. First record from Laos.

Platyptilia farfarella Zeller, 1867

Platyptilus farfarellus Zeller, 1867: 334. (Type locality: Meseritz, Poland).

Platyptilia molopias Meyrick, 1906: 135. (Type locality: Maskeliya, Ceylon).

Platyptilia claripicta Fletcher, 1910: 400. (Type locality: Mahé, Cascade Estat, Seychelles).

MATERIAL EXAMINED. LAOS: 2♂♂, Bolaven Plateau, Champasak province, Paksong town, mountain tropical forest and pine plantations, 15°10'54"N, 106°14'25"E, 1–5.01.2023, E. Spitsyna & V. Spitsyn leg.; 1♀, Bolaven Plateau, Champasak province, Tad Fane Resort, mountain tropical forest, 15°11'01"N, 106°07'41"E, 28–29.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Europe, Iran, Japan, Kazakhstan, Siberia, Mongolia, Rep. S. Africa, Madagascar, Mauritius, Uganda, Kenya, Tanzania, São Tomé & Príncipe, Nigeria, Ghana, Sierra Leone, Burundi, Cameroon, Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Eswatini, Ethiopia, Gabon, Malawi, Seychelles, Zimbabwe, India, Sri Lanka, Laos, Bhutan, Indonesia, Thailand, Philippines, New Guinea, Solomon Islands, New Hebrides [De Prins, De Prins, 2022].

Bipunctiphorus dissipata (Yano, 1963)

Stenoptilia dissipata Yano, 1963: 103. (Type locality: Japan).

MATERIAL EXAMINED. LAOS: 1♂, Champasak province, Wopakok Hotel, dry monsoon forest and agricultural landscapes, 14°59'59"N, 105°51'28"E, 4–6.12.2022, E. Spitsyna & V. Spitsyn leg.; 5 ex., Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Japan, Nepal [Gielis, 2003], Laos.

REMARKS. First record from Laos.

Lantanophaga pusillidactylus (Walker, 1864)

Oxyptilus pusillidactylus Walker, 1864: 933. (Type locality: Jamaica).

MATERIAL EXAMINED. LAOS: 1♀, Bolaven Plateau, Champasak province, Paksong district, Tad Fane Resort, mountain tropical forest, 15°11'01"N, 106°07'41"E, 28–29.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. South Europe, Canary Islands, Madeira, Morocco, Cyprus, Egypt, China, Bhutan, India, Indonesia (Java), New Guinea, Philippines, Sri Lanka, Thailand, Vietnam, Argentina, Barbados, Brazil, Cuba, Dominica, Ecuador, Galápagos Islands, Grenada, Guiana, Jamaica, Mexico, Paraguay, Peru, Puerto Rico, Surinam, Virgin Islands, Hawaii, New Guinea, New Zealand, Palau, Pohnpei, Solomon Islands, Yap, Bermuda Islands, U.S.A., Cape Verde, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Eswatini, Madagascar, Malawi, Mauritius, Namibia, Nigeria, Reunion, Saint Helena, Seychelles, South Africa, Tanzania, Zambia, Zimbabwe [De Prins, De Prins, 2022], Laos.

REMARKS. First record from Laos.

Stenoptilodes taprobanes (Felder et Rogenhoffer, 1875)

Amblyptilia taprobanes Felder et Rogenhofer, 1875: plate 140, fig. 54. (Type locality: Ceylon).

MATERIAL EXAMINED. LAOS: 1♀, Champasak province, Wopakok Hotel, dry monsoon forest and agricultural landscapes, 14°59'59"N, 105°51'28"E, 4–6.12.2022, E. Spitsyna & V. Spitsyn leg.; 1♂, Attapu province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.; 1♀, Bolaven Plateau, Sekong province, Thateng town, mountain tropical forest, 15°24'16"N, 106°22'58"E, 22–25.12.2022, E. Spitsyna & V. Spitsyn leg.; 2♂♂, 1♀, Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Widely spread in tropical and subtropical regions [Arenberger, 2010].

Nippoptilia regulae (Meyrick, 1906)

Oxyptilus regulus Meyrick, 1906: 135. (Type locality: Ceylon).

MATERIAL EXAMINED. LAOS: 1♂, Attapu province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Nepal, Sri Lanka, Vietnam, Australia [Gielis, 2003], Tanzania [Gielis, 2011], Thailand, Malaysia [Arenberger, 2010], Japan, Korea [Kim et al., 2010], Russia (Primorsky Krai) [Ustjuzhanin et al., 2021], Sakhalin [Titova, 2022], Laos.

REMARKS. First record from Laos.

Sphenarches anisodactylus (Walker, 1864)

Oxyptilus anisodactylus Walker, 1864: 934. (Type locality: Ceylon).

MATERIAL EXAMINED. LAOS: 1♀, Attapu province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.; 3 ex., Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Widely spread in tropical and subtropical regions [Arenberger, 2010].

Exelastis atomosa (Walsingham, 1885)

Aciptilia atomosa Walsingham, 1885: 885. (Type locality: Bombay, India).

MATERIAL EXAMINED. LAOS: 1♂, Attapu province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Nepal, India, Ethiopia, Tanzania, Kenya, Swaziland, Madagascar [Gielis, 2003], Yemen [Arenberger, 2002], Laos.

Exelastis pumilio (Zeller, 1873)

Mimeseoptilus pumilio Zeller, 1873: 324. (Type locality: Texas, USA).

MATERIAL EXAMINED. LAOS: 4 ex., Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.; Sekong province, Lamam town, dry monsoon forest, 15°21'39"N, 106°42'45"E, 25–27.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Widely spread in tropical and subtropical regions [Arenberger, 2010].

Tomotilus celebratus (Meyrick, 1932)

Oxyptilus celebratus Meyrick, 1932: 249. (Type locality: Java, Indonesia).

Tomotilus saitoi Yano, 1961: 88. (Type locality: Japan).

MATERIAL EXAMINED. LAOS: 1♂, Attapu province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Indonesia, Japan [Gielis, 2003], India [Rose, Pooni, 2005], South Korea [Kim et al., 2012], Australia [Arenberger, 2006], Laos.

REMARKS. First record from Laos.

Megalorhipida leucodactyla (Fabricius, 1794)

Pterophorus leucodactylus Fabricius, 1794: 346. (Type locality: Virgin Islands).

MATERIAL EXAMINED. LAOS: 2♀♀, Sekong province, Lamam town, dry monsoon forest, 15°21'39"N, 106°42'45"E, 25–27.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Widely spread in tropical and subtropical regions [Arenberger, 2010].

REMARKS. First record from Laos.

Megalorrhypida subtilis (Rebel, 1907)

Trichoptilus subtilis Rebel, 1907: 114. (Type locality: Aden, Yemen).

MATERIAL EXAMINED. LAOS: 1 ex., Bolaven Plateau, Champasak province, Paksong town, mountain tropical forest and pine

plantations, 15°10'54"N, 106°14'25"E, 16–17.12.2022, E. Spitsyna & V. Spitsyn leg.; 41 ex., Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Yemen, Socotra, South Africa, Malawi, Kenya, Tanzania [De Prins, De Prins, 2022], Laos.

REMARKS. First record from Laos, as well as from south-eastern Asia.

Adaina microdactyla (Hübner, [1813])

Alucita microdactyla Hübner, [1813]: pl. 5, figs. 26, 27. (Type locality: Europe).

Adaina montivola Meyrick, 1937: 170. (Type locality: L China).

Adaina subflavescens Meyrick, 1930: 568. (Type locality: Sumatra, Medan, Indonesia).

MATERIAL EXAMINED. LAOS: 14 ex., Attapue province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.; 1 ex., Bolaven Plateau, Champasak province, Paksong town, mountain tropical forest and pine plantations, 15°10'54"N, 106°14'25"E, 16–17.12.2022, E. Spitsyna & V. Spitsyn leg.; 1 ex., Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.; 2 ex., Bolaven Plateau, Sekong province, Thateng town, mountain tropical forest, 15°24'16"N, 106°22'58"E, 22–25.12.2022, E. Spitsyna & V. Spitsyn leg.; 1 ex., Sekong province, Lamam town, dry monsoon forest, 15°21'39"N, 106°42'45"E, 25–27.12.2022, E. Spitsyna & V. Spitsyn leg.; 3 ex., Champasak province, Wang Tao (Border Crossing), dry monsoon forest, 15°07'56"N, 105°28'15"E, 29–30.12.2022, E. Spitsyna & V. Spitsyn leg.; 2 ex., Bolaven Plateau, Champasak province, Paksong town, mountain tropical forest and pine plantations, 15°10'54"N, 106°14'25"E, 1–5.01.2023, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Europe, Turkey, Israel, Iran, Nepal, China, Japan, Vietnam, Indonesia, Philippines, Malaysia, Australia, New Guinea, Solomon Islands, Madagascar, Congo, Tanzania, Malawi [De Prins, De Prins, 2022], Laos [Ustjuzhanin, Kovtunovich, 2018].

Pterophorus elaeopus (Meyrick, 1908)

Alucita elaeopa Meyrick, 1908: 490. (Type locality: Assam, India).

MATERIAL EXAMINED. LAOS: 2♂♂, Attapue province, tropical forest, 14°44'08"N, 107°29'17"E, 8–15.12.2022, E. Spitsyna & V. Spitsyn leg.; 1♂, Sekong province, Lamam town, dry monsoon forest, 15°21'39"N, 106°42'45"E, 25–27.12.2022, E. Spitsyna & V. Spitsyn leg.; 1♂, Bolaven Plateau, Champasak province, Paksong town, mountain tropical forest and pine plantations, 15°10'54"N, 106°14'25"E, 1–5.01.2023, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. India, Thailand, Malaysia, Indonesia [Gielis, 2003], Laos [Ustjuzhanin, Kovtunovich, 2018].

Agdistopsis sinhala (Fletcher, 1909)

Agdistis sinhala Fletcher, 1909: 8. (Type locality: Ceylon).

MATERIAL EXAMINED. LAOS: 1♀, Champasak province, dry monsoon forest, 14°36'26"N, 105°53'55"E, 18–21.12.2022, E. Spitsyna & V. Spitsyn leg.

DISTRIBUTION. Japan, Taiwan, Singapore, Sri Lanka [Gielis, 2003], Laos.

REMARKS. First record from Laos.

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Competing interests. The authors declare no competing interests.

References

- Arenberger E. 2002. Die Pterophoridae der 2. Jemen-Expedition durchgeführt im Frühjahr 1998 von den Herren A. Bischof, J. Bittermann, M. Fibiger, H. Hacker, H. Peks & H.-P. Schreier // *Esperiana*. Vol.9. S.57–60.
- Arenberger E. 2006. Beitrag zur Fauna Australiens // *Z. Arb. gem. österr. Entomol.* Bd.58. S.111–124.
- Arenberger E. 2010. Stichprobenartige Untersuchungen der Fauna Thailand (Lepidoptera: Pterophoridae) // *Z. Arb. gem. österr. Entomol.* Bd.62. S.1–16.
- De Prins J., De Prins W. 2022. AfroMoths. Online database of Afrotropical moth species (Lepidoptera). Available from: <http://www.afromoths.net>.
- Gielis C. 2003. Pterophoroidea & Alucitoidea // *World Catalogue of Insects*. Vol.4. Stenstrup: Apollo Books. 198 pp.
- Gielis C. 2011. Notes on some African Pterophoridae, with description of new species (Lepidoptera) // *Boletín de la S.E.A.* Vol.49. P.33–63.
- Kim S., Byun B.-K., Park K.-T., Lee S. 2010. A taxonomic review of the genus *Nippoptilia* from Korea, with description of a new species // *J. Nat. Hist.* Vol.44. P.601–613.
- Kim S., Park K., Byun B., Lee S. 2012. Taxonomic review of the tribe Oxyptilini (Lepidoptera: Pterophoridae) from Korea // *J. Asia Pac. Entomol.* Vol.15. P.35–43.
- Rose H.S., Pooni H.S. 2005. Taxonomic studies on the superfamily Pterophoroidea from Northwestern India // *Zoos Print J.* Vol.20. P.1787–1803.
- Titova O. 2022. New observation of *Nippoptilia regula* (Meyrick, 1906) (Insecta, Lepidoptera: Pterophoridae) on the Sakhalin Island // *Amur. Zool. J.* Vol.14. No.1. P.175–176.
- Ustjuzhanin P., Kovtunovich V. 2018. The Pterophoridae fauna of Laos (Lepidoptera, Pterophoridae) // *Ukr. J. Ecol.* Vol.8. No.4. P.504–507.
- Ustjuzhanin P., Kovtunovich V., Dubatolov V., Streltsov A. 2021. First record of the genus *Nippoptilia* Matsumura (Lepidoptera: Pterophoridae) from Russia // *Far East. Entomol.* No.438. P.13–15.