Data of Geometridae (Lepidoptera) from the Korean Peninsula in the collections of the Hungarian Natural History Museum – subfamily Larentiinae*

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Abstract – Data of 2597 specimens of 155 species collected in Korea from 239 collecting events representing the subfamily Larentiinae are presented. Five species, Electrophaes recens (Inoue, 1982), Horisme aquata (Hübner, 1813), Perizoma bifaciata (Haworth, 1809), Eupithecia inturbata (Hübner, 1817) and Eupithecia caliginea Butler, 1878 are new for the fauna of the Korean Peninsula and adjacent islands. Differential features, images of habitus and genitalia of these species are given. Further 16 species are new for North Korea, 3 species are new for South Korea. With 13 figures.

Key words – checklist, Electrophaes, Eupithecia, Horisme, new record, Perizoma, undescribed species

INTRODUCTION

The subfamily Larentiinae contains ca. 6300 described species, being the second most species-rich group of Geometridae (Hausmann & Viidalepp 2012).

CHOI (2003) made an important step in the study of Korean Larentiinae material preserved in the Hungarian Natural History Museum. He published data of 108 species from North Korea, including first records of ten species from the entire Korean Peninsula. Later on, he made a detailed overview of the Korean Larentiinae fauna in a series of books (CHOI 2012a, b, 2013, 2014).

This paper summarises the Larentiinae material from Korea in the format similar to the work of BÁLINT & KATONA (2011), and is intended to be a continuation of that paper. Another paper will be published on the subfamily Sterrhinae, and a supplementary paper will be prepared to the Geometrinae and Ennominae.

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MATERIAL AND METHODS

The material, deposited in the Lepidoptera Collection of the Hungarian Natural History Museum (HNHM, Budapest), consists of set and unset specimens. Some of them were previously identified by Hiroshi Inoue, Gyula M. László, Vladimir Mironov and András Vojnits; the latter two researchers also dissected specimens. In case of doubtful identification, we also made permanent slides, by using eosine stain and Euparal as mounting medium.

Books of Choi (2012a, b, 2013, 2014), Inoue et al. (1982) and Mironov (2003) were consulted for the identification of specimens. Reference list of Korean Larentiinae was compiled from the above-mentioned book series of Choi, with updates from recent publications e.g. Choi & Kim (2015).

Process of databasing and data handling are like those of described by Bálint & Katona (2011). All specimens listed are deposited in the collection of HNHM.

An unspecified amount of Korean Eupithecia specimens is currently on loan from HNHM to the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg (ZISP) for identification, under loan Nos 5882 and 7411 (sent on 24th November, 2000 and 20th December, 2007, respectively). After fruitful personal communication with Vladimir Mironov the correspondence was later interrupted, and attempts for its continuation have remained unsuccessful. Thus, we had to omit these specimens from the list below.

The species are arranged in systematic order, mainly based on Hausmann & Viidalepp (2012). Species of the genus Eupithecia Curtis, 1825 are arranged according to Mironov & Galsworthy (2014). Codes of collecting events follow the Latin names, together with the number of encountered specimens in parentheses.

LIST OF COLLECTING EVENTS

First the serial number of the HNHM expedition collecting event is given running from No. 193 (year 1971) to No. 1873 (year 2005). After the serial number the geographical identification of the collecting site and the date of the collecting event with the applied methods are given. These are taken verbatim from the HNHM staff collecting reports published in the periodicals Annales historico-naturales Musei nationalis hungarici and Folia entomologica hungarica. Some expressions have been explained by us, given in brackets. Abbreviations: NK = North Korea, SK = South Korea.

Beyond the serial numbers there are further codes with the following decipherments:

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Fig. 1. Collecting sites of Larentiinae new to Korea. Circle: *Electrophaes recens* Inoue, 1982; triangle: *Horisme aquata* (Hübner, 1813); asterisk: *Perizoma bifaciata* (Haworth, 1809); square: *Eupithecia inturbata* (Hübner, 1817); diamond: *Eupithecia caliginea* Butler, 1878
2010/## = Collecting events of the HNHM Expedition in 2010
BT-## = Expedition of J. Babics and B. Tóth
GJW-## = Collecting event of G. J. Weon
IAS-## = Collecting event with an abbreviation “I. A. S.” and data in Hangul script
JCS-## = Collecting events of J. C. Sohn
K-## = Collecting event of Z. Kaszab
KO-## = Collecting event with only one information: Korea.
KTP-## = Collecting events of K. T. Park
NK-## = Collecting events without exact location in North Korea.
PO-## = Collecting events of A. Popov
RTR-## = Collecting events of L. Ronkay and M. Tóth-Ronkay
SHO-## = Collecting events of S. H. Oh

197 – Prov. Ryanggang, Chann-Pay plateau Sam-zi-yan 1600 m, 25.VIII.1971. Singled material on flowers of Larix–Betula forest, along a road, leg. Papp, J. & Horvatovich, S., NK, exp. no. 2.
199 – Prov. Ryanggang, Chann-Pay plateau, Sam-zi-yan Hotel Sam-zi-yan 1600 m, 25.VIII.1971. Singled material at the lamps of Sam-zi-yan Hotel, leg. Papp, J. & Horvatovich, S., NK, exp. no. 2.
208 – Prov. Ryanggang, Chann-Pay plateau, Sam-zi-yan Hotel Sam-zi-yan 1700 m, 27.VIII.1971. Singled material at the lamps of Sam-zi-yan Hotel, leg. Papp, J. & Horvatovich, S., NK, exp. no. 2.
257 – Kaesong City, Mts. Pakyon, Pakyon popo, garden of Pakyon rest home 27 km NE of Kaesong, 10.IX.1971 Caught in Malaise-trap, leg. Papp, J. & Horvatovich, S., NK, exp. no. 2.
277 – Prov. Ryanggang, Chann-Pay plateau, on the road between Hyesan and Sam-zi-yan 15 km SSW of Sam-zi-yan 1600 m, 23.VII.1975. Cloudy weather, vegetation wet. Singled material along the road with rich vegetation, leg. Papp, J. & Vojnits, A., NK, exp. no. 3.
278 – Prov. Ryanggang, Chann-Pay plateau Sam-zi-yan 1700 m, 23.VII.1975. Singled material at Mv lamp in cloudy weather with some moonlight, leg. Papp, J. & Vojnits, A., NK, exp. no. 3.


373 – Prov. Ryanggang, Mt. Pektusan, wooded environs of the Sam-zi-yan hotel, on the shore of a small lake behind the hotel, 18.VII.1977. Collecting at Mv lamp erected on the shore of a small lake behind the hotel (at the edge of the wood), leg. Dely, O. Gy. & Dely-Draskovits, Á., NK, exp. no. 4.


fore the hotel (at the edge of the wood), leg. Dely, O. Gy. & Dely-Draskovits, Á., NK, exp. no. 4.


484 – Prov. Gangwon, Mt. Kumgang-san, some 50 m, from the rest-house, 11.X.1978. Collecting at mixed light some 50 m, from the rest-house in the forest, leg. Vojnits, A. & Zombori, L., NK, exp. no. 5.


539 – Pyongyang City, Hotel Tae Dong Pyongyang, 15.IX.1979. At the light of a 160 W MV bulb in the window of Hotel Tae Dong, leg. Steinmann, H. & Vásárhelyi, T., NK, exp. no. 6.


690 – Prov. Gangwon, Mt. Kumgang-san, Hotel Kumgang, 17.IX.1980. At the light of a 160 W Mv bulb in the window of the hotel and singled from lamps around the hotel and from grasses, leg. Forró, L. & Topál, Gy., NK, exp. no. 7.


762 – Pyongyang City, Mt. Ryongak-san, near Mangyondae Children’s Union Camp, 10.VII.1982. Singled material from a mixed forest near Mangyondae Children’s Union Camp, leg. Forró, L. & Ronkay, L., NK, exp. no. 8.


812 – Prov. North Pyongan, Mt. Myohyang-san, road to Manpoktong
near Hotel Myohyang-san, 16.VII.1982. Singled material along the road to
Manpoktong near Hotel Myohyang-san, leg. Forró, L. & Ronkay, L., NK, exp.
no. 8.

813 – Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san,
16.VII.1982. Collecting from white sheet illuminated by a mixed light, leg. Forró,
L. & Ronkay, L., NK, exp. no. 8.

815 – Prov. North Pyongan, Mt. Myohyang-san, under Hwajangam,
17.VII.1982. Singled material from the valley under Hwajangam, leg. Forró, L. &
Ronkay, L., NK, exp. no. 8.

818 – Prov. North Pyongan, Mt. Myohyang-san, behind Hotel Myohyang-
san, 17.VII.1982. Singled material in a mixed forest behind Hotel Myohyang-san,
leg. Forró, L. & Ronkay, L., NK, exp. no. 8.

821 – Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san,
17.VII.1982. Collecting from white sheet illuminated by mixed light, leg. Forró,
L. & Ronkay, L., NK, exp. no. 8.

829 – Prov. North Pyongan, Mt. Myohyang-san, Hotel Myohyang-san,
18.VII.1982. Collecting from white sheet illuminated by mixed light, leg. Forró,
L. & Ronkay, L., NK, exp. no. 8.

Collecting from white sheet illuminated by a mixed light, on the balcony of the
hotel, leg. Forró, L. & Ronkay, L., NK, exp. no. 8.

857 – Prov. Gangwon, Mt. Kumgang-san, pathway to Kuryong Falls,
23.VII.1982. Singled material collected along the pathway to Kuryong Falls, leg.
Forró, L. & Ronkay, L., NK, exp. no. 8.

Collecting from white sheet illuminated by a mixed light lamp and at an other
place by a black lamp, leg. Forró, L. & Ronkay, L., NK, exp. no. 8.

Collecting from white sheet illuminated by a mixed light lamp and at an other
place by a black lamp, leg. Forró, L. & Ronkay, L., NK, exp. no. 8.

Collecting from white sheet illuminated by a mixed light lamp and at an other
place by a black lamp, leg. Forró, L. & Ronkay, L., NK, exp. no. 8.

870 – Pyongyang City, Mt. Ryongak-san, near Mangyongdae Children’s
Union Camp, 27.VII.1982. Singled material around lampshades near Mangyong-
dae Children’s Union Camp, leg. Forró, L. & Ronkay, L., NK, exp. no. 8.

873 – Kaesong City, Hotel Janamsan Kaesong, 29.VII.1982. Collecting
from white sheet illuminated by a mixed light lamp, leg. Forró, L. & Ronkay, L.,
NK, exp. no. 8.


948 – Prov. Gangwon, Mt. Kumgang-san, some 100 m, from the rest house Oe-Kumgang, 26.V.1985. Cool night. Collecting at blended light, fed by a Honda generator, some 100 m, from the rest house Oe-Kumgang, in a mixed forest, leg. Vojnits, A. & Zombori, L., NK, exp. no. 9.


995 – Prov. Ryanggang, Samjiyon 2100 m, 4.VI.1985. Night collecting at blended light (250 W) fed by a Honda generator, in a Picea stand at an altitude
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of about 2100 m. Temperature about 16 °C, leg. Vojnits, A. & Zombori, L., NK, exp. no. 9.


1018 – Pyongyang City, Hotel Potonggang Pyongyang, 5.X.1987. Singled at light between 20.00 and 22.00 h in the vicinity of the hotel (gardens, dead arms [dried out river arms] and small ponds skirted with willow, poplar and various other trees), leg. Korsós, Z., Ronkay, L., Kováts, D. & Szollát, Gy., NK, exp. no. 11.

1020 – Pyongyang City, Hotel Potonggang Pyongyang, 6.X.1987. Collected at light between 20.00 and 03.00 h in the vicinity of the hotel, leg. Korsós, Z., Ronkay, L., Kováts, D. & Szollát, Gy., NK, exp. no. 11.


1649 – Prov. Gangwon, vic. of Chuncheon, Chuncheon-Dam Chuncheon 400 m, 37° 55’ N, 127° 40’ E, 24.X.1993. A steep rocky slope covered by dry,
warm, partly shrubby mixed forests near an artificial lake. Lepidoptera collected with sugar baits, a white screen illuminated by 125 W mercury vapour lamp and by two portable light-traps, leg. Peregovits, L. & Ronkay, L., SK, exp. no. 18.


1653 – Prov. Jeju, Halla-san National Park 1000 m, 33° 15' N, 126° 00' E, 27.X.1993. A mixed deciduous forest with dense, often bushy herbaceous vegetation, understory dominated by Sasa sp. (bamboo). Lepidoptera collected by sugar baits, a white screen illuminated by a 125 W mercury vapour bulb and by two portable light traps, leg. Peregovits, L. & Ronkay, L., SK, exp. no. 18.

1663 – Prov. South Jeolla, Mt. Paekun-san, at the vicinity of Nonshil Nonshil 550–600 m, 31.X.1993. A deep, narrow brook valley and its less steep slopes covered with rich, mixed deciduous forests. Various insect groups collected by sugar baits, a white screen illuminated by a 125 W mercury vapour bulb and by two portable light traps operating with 6 W UV-tubes, leg. Peregovits, L. & Ronkay, L., SK, exp. no. 18.

1665 – Prov. South Jeolla, Mt. Paekun-san, at the vicinity of Nonshil Nonshil 550–650 m, 1.XI.1993. Lepidoptera collected along two deep, narrow brook valleys, in rich, mixed deciduous forests with sugar baits, at a white screen illuminated by a 125 W mercury vapour bulb and by two portable light traps operating with 6 W UV-tubes, leg. Peregovits, L. & Ronkay, L., SK, exp. no. 18.


1670 – Prov. North Gyeongsang, Mt. Palgong-san, Natural Park 16 km N, of Taegu 750 m, 35° 59' N, 128° 40' E, 22.IV.1994. Lepidoptera, Trichoptera and Hymenoptera collected at light, also by light traps and sugar baits at edges of a mixed forest close to a Christian temple, in misty weather with drizzling rain, leg. Peregovits, L., Ronkay, L. & Vojnits, A., SK, exp. no. 19.


1684 – Prov. Jeju, Mt. Halla-san 3 km S of Songpanak 630–650 m, 33° 22’ N, 126° 36’ E, 29.IV.1994. Lepidoptera collected at light and by light-traps. A mixed deciduous forest with scattered Sasa patches but without stronger covering of Sasa, one of the light traps was placed close to a dried stream valley, leg. Peregovits, L., Ronkay, L. & Vojnits, A., SK, exp. no. 19.


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brook with dense herbaceous and shrubby vegetation and with old mixed forests. Lepidoptera collected at a white screen illuminated by a 125 W mercury vapour lamp and by three portable light-traps, leg. Peregovits, L., Ronkay, L. & Vojnits, A., SK, exp. no. 19.


2010/03 – Prov. Gangwon, Yangyang-gun, Seorak Mts, Osaek-Oncheon, 2 km W of the settlement, parking lot at the entrance of Yongso falls, 520 m, N 38° 05.180’, E 128° 26.021’, 08.IX.2010. At HgLi light, leg. Forró, L., Makranczy, Gy., Murányi, D., Sun Jae Park & Jung Do Yoon, SK.


2010/44 – Prov. South Gyeongsang, Sancheong-gun, Jiri Mts, Ogeok valley, 3 km NW of Daewon temple, N, branch of Yup-yeong, mixed forest, forest stream, open spring and its outlet, forest edge, 675 m, N 35° 22.926’, E 127° 47.112’, (singled, beaten, water-net, butterfly net, soil samples, 16.IX.2010. At HgLi light, leg. Hye Woo Byeon, Forró, L., Tae Woo Kim, Makranczy, Gy. & Murányi, D, SK.


HK-01 – Prov. Gangwon, Mt Kumgang-San Hotel Kumgang-San. Missing date and collectors label, but it may refer to Nos. 850, 859, 861, 865.: VII. 1982. leg. Forró, L. & Ronkay, L., NK.


NK-01 – 28.VII.1987. NK.

NK-02 – 21.VIII.1987. NK.


RTR-02 – Prov. Gangwon, Chuncheon University Campus 400 m, 22.III.2006. leg. L. Ronkay & M. Tóth-Ronkay, SK.

RTR-03 – Prov. Gangwon, Bongmyeung-Ri Near the University Research station 230 m, 23.III.2006. leg. L. Ronkay & M. Tóth-Ronkay, SK.


RTR-06 – Prov. South Jeolla, Mokpo Mt. Sabaek-San 200 m, 6 IV. 2006. leg. L. Ronkay & M. Tóth-Ronkay, SK.

**LIST OF SPECIES**

The species are listed according to their systematic order. Tribal names are indicated after Hausmann & Viidalepp (2012). Asterisk (*) is used for marking species new for North Korea; superscript S (S) indicates species new for South Korea; and those species which are new for the entire Korean peninsula are marked by exclamation mark (!).

**Cataclysmini Herbulot, 1962**

*Grammorhoe caespitaria* (Christoph, 1881) – 1018 (1).

*Orthonama obstipata* (Fabricius, 1794) – 265 (1), 423 (2), 492 (1), 539 (1), 624 (1), 705 (2), 720 (2), 737 (1), 1020 (1), 1042 (1), 1050 (4), 1055 (2), 1404 (1), 1411 (4), 1417 (1), 1427 (1), 1455 (2), 1680 (2), 1684 (1), 1686 (1), 1692 (1), 1706b (1), 1744b (1), RTR-12 (1), RTR-13 (1).

**Xanthorhoini Pierce, 1914**

*Xanthorhoe rectantemediana* Wehrli, 1927 – 958 (1), 1386 (1), 1417 (1), 1419 (1).

*Xanthorhoe muscicapata* (Christoph, 1881) – 663 (1), 705 (1), 780 (1), 783 (1), 821 (1), 859 (1), 861 (1), 865 (1), 923 (1), 933 (1), 938 (1), 939 (1), 1386 (9), 1388 (10), 1394 (2), 1396 (7), 1398 (1), 1404 (5), 1406 (1), 1411 (6), 1417 (4), 1419 (1), 1427 (1), 1432 (2), 1433 (2), 1439 (2), 1444 (1), 1449 (1), 1470 (1), 1472 (2), 1607 (2), 1639 (1), 1684 (1), 1692 (1), 1695 (18), 1709b (1), 1736b (1), 1739b (1), 1750b (3), 2010/44 (1).

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Xanthorhoe fluctuata malleola Inoue, 1955 – 1695 (2).
Xanthorhoe abraxina (Butler, 1879) – 285 (2), 379 (2), 812 (1), 821 (1), 1444 (1), 1742b (1).
Xanthorhoe quadrisiata ignobilis (Butler, 1881) – 276 (4), 285 (2), 322 (2).
Xanthorhoe saturata (Guenée, 1859) – 1610 (1), 1615 (1), 1682 (2), 1709b (3).
Catarhoe yokohamae (Butler, 1881) – 322 (1), 813 (1).
Catarhoe obscura (Butler, 1878) – 1639 (2), 1752b (1).
Glaucorhoe unduliferaria albostrigaria (Bremer, 1864) – 197 (1), 285 (1), 815 (1).


Euphyiini Herbulot, 1962

Euphyia unangulata gekatsungensis Bryk, 1949 – 373 (1), 379 (1).

Larentiini Duponchel, 1845

Mesoleuca albicillata casta (Butler, 1878) – 380 (1), NK-01 (1).
Mesoleuca mandshuricata Bremer, 1864 – 285 (1), 1426 (1), 1427 (2), 1433 (1), 1444 (1).
Pelurga comitata (Linnaeus, 1758) – 276 (1).
Photoscotosia atrostrigata (Bremer, 1864) – 577 (1), 599 (1), 673 (1), 690 (1), 1455 (1), 1644 (2), 1649 (2), 2 (1), 1750b (6), 2010/29 (1).

* Idiotephria evanescens (Staudinger, 1897) – 933 (1), 1668 (9), 1670 (26), 1692 (1), RTR-04 (12), RTR-05 (1).

Hydriomenini Meyrick, 1892

Hydriomena furcata (Thunberg, 1784) – 278 (1), 285 (2).
Hydriomena impluviata ([Denis et Schiffermüller], 1775) – 1437 (1).

Cidariini Duponchel, 1845

Heterothera postalbida (Wileman, 1911) – 484 (9), 490 (6), 663 (4), 673 (1), 690 (3), 705 (12), 720 (5), 948 (10), 954 (1), 969 (1), 1042 (1), 1057 (2), 1060 (1).
Pennithera djakonovi (Kurentzov, 1950) – 981 (1), 995 (10), 996 (3), 1005 (19).
Trichodezia kindermannii (Bremer, 1864) – 929 (1), 1408 (1).
Electrophaes corylata faberfactaria (Oberthür, 1880) – 783 (1), 933 (1), 939 (1), 1388 (3), 1411 (1), 1432 (1), 1457 (1), 1692 (1).
† Electrophaes recens (Inoue, 1982) – 1686 (1).
Hysterura declinans (Staudinger, 1897) – 285 (2), 829 (1), 1388 (2), 1404 (1), 1417 (2), 1421 (1).
Sibatania mactata (Felder et Rogenhofer, 1875) – 1610 (1), 1736b (2), 1744b (1), 1750b (2).
Eustroma reticulata obsoleta Djakonov, 1929 – 379 (1), 1684 (1).
Eustroma aerosum (Butler, 1878) – 783 (1), 813 (1), 818 (1), 923 (1), 933 (1), 939 (4), 950 (1), 958 (1), 1386 (2), 1388 (17), 1394 (1), 1396 (5), 1398 (8), 1400 (2), 1404 (13), 1405 (21), 1408 (1), 1411 (5), 1417 (34), 1419 (21), 1421 (1), 1433 (1), 1444 (1), 1455 (1), 1457 (3), 1465 (2), 1682 (1), 1695 (24), JCS-02 (1).
Eustroma melancholicum (Butler, 1878) – 780 (1), 933 (2), 948 (1), 958 (1), 1386 (14), 1388 (33), 1390 (1), 1394 (3), 1396 (6), 1398 (4), 1400 (2), 1404 (9), 1405 (2), 1406 (1), 1411 (16), 1412 (2), 1417 (28), 1419 (8), 1421 (1), 1427 (1), 1433 (1), 1439 (1), 1449 (1), 1463 (3), 1465 (3), 1474 (1), 1476 (1), 1631–1634 (1), 1680 (2), 1686 (6), 1690 (1), 1736b (3), 1739b (1), 1746b (1), 2010/03 (2), 2010/29 (1).
Evecliptopera illitata (Wileman, 1911) – 1637 (1), 1682 (2), 1686 (6).
Eulithis ledereri Bremer, 1864 – 577 (1), 705 (3), 1030 (1), 1034 (1), 1472 (1).
Eulithis convergenata (Bremer, 1864) – 783 (1).
* Eulithis testata Linneaus, 1761 – NK-02 (1).
Gandaritis whitleyi (Butler, 1878) – 793 (1), 1446 (1), 1449 (1), 1451 (6), 1470 (4), 1472 (8), 1476 (2).
Gandaritis fixseni (Bremer, 1864) – 351 (1), 577 (1), 652 (1), 663 (6), 783 (2), 788 (3), 793 (1), 813 (2), 1030 (6), 1038 (2), 1455 (1), 1472 (1), 1614 (1), 1707b (1), 1736b (8), 1739b (1), 1832 (1), 2010/03 (1), 2010/23 (1), RTR-11 (1).
Gandaritis agnes (Butler, 1878) – 780 (1), 783 (3), 783 (1), 788 (1), 793 (1), 813 (1).
Callabraxas ludovicaria (Oberthür, 1880) – 783 (1), 793 (1), 829 (1), 859 (1).
Callabraxas fabiolaria (Oberthür, 1884) – 591 (1), 663 (1), 813 (1), 1025 (1), 1030 (4), 1038 (1), 1451 (1), 1703b (1), 1707b (1), 1736b (1), 1741b (1), RTR-12 (1), RTR-11 (1).
Ecliptopera capitata capitulata (Staudinger, 1897) – 276 (1), 933 (2), 939 (2), 1386 (1), 1388 (4), 1394 (1), 1417 (3), 1419 (1), 1432 (1), 1457 (1), 1465 (1), 1692 (1), 1695 (1), 1750b (1).


Dysstroma cinereata japonica (Heydemann, 1929) – 450 (1), 942 (1), 1038 (2), 1050 (5), 1451 (1), 1457 (4), 1465 (1), 1641 (1), 1644 (1), 1649 (1), 1651 (1), 1680 (4), 1686 (11), 1706b (1).

Dysstroma citrata (Linnaeus, 1761) – 199 (1), 208 (2), 219 (1), 962 (2), 1050 (1), 1344 (1), 1465 (1), 1470 (1).

Dysstroma korbi Heydemann, 1929 – 208 (2), 219 (5), 1750b (1), 1750b (1), NK-01 (1).

Dysstroma latefasciata (Staudinger, 1889) – 198 (1), 285 (1), 373 (2), 379 (2).

Xenortholitha propinguata (Kollar, 1884) – 285 (1), 325 (1), 815 (1), 1417 (1), 1433 (1), 1444 (1), 1607 (1), 1690 (1), 1695 (3), 1741b (1).

Lampropteryx minna (Butler, 1881) – 1433 (1), 1457 (1).

Lampropteryx jameza (Butler, 1878) – 1439 (1).

Operophterini Packard, 1876

Operophtera relegata Prout, 1908 – 1034 (1), 1038 (1), 1649 (1), BT-01 (4), BT-02 (1), BT-03 (1), BT-04 (4).

Epirrita viridipurpurescens Prout, 1937 – 1038 (1), 1663 (1), 1665 (2), 1702b (6), 1703b (1).

Epirrita autumnata automna (Bryk, 1942) – 1030 (1).

Asthenini Warren, 1894

Laciniodes denigrata ussuriensis Prout, 1939 – 193 (1), 1388 (1), 1411 (1), 1427 (2), 1432 (6), 1433 (1), 1439 (2), 1444 (1), 1451 (1), 1627 (1).

Laciniodes unistirpis (Butler, 1878) – 319 (2), 1344 (1), 1417 (1), 1433 (1), 1451 (1), 1455 (5), 1470 (1), 1472 (1), 1476 (1), 1608 (2), 1610 (1), 1627 (2), 1633 (1).

Pseudostegania defectata (Christoph, 1881) – 829 (1), 1607 (1).

Asthena ansearia corculina Butler, 1878 – 948 (1), 1388 (1), 1404 (1), 1611 (1).

Asthena amurensis (Staudinger, 1897) – 1442 (1), 1608–1609 (1).

Asthena nymphaeata (Staudinger, 1897) – 319 (1), 322 (1), 351 (1), 744 (2), 762 (4), 778 (1), 850 (1), 865 (1), 942 (9), 962 (14), 969 (1), 972 (1), 1433 (1), 1444
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Hydrelia flammeolaria (Hufnagel, 1767) – 294 (1), 373 (1), 379 (2), 783 (1), 829 (1), 1449 (1), 1472 (2), 1692 (1).

Hydrelia bicauliata Prout, 1914 – 1386 (1), 1390 (1), 1396 (1).

Hydrelia parvulata (Staudinger, 1897) – 322 (1), 1388 (1).


Venusia semistrigata (Christoph, 1881) – 948 (1), 1692 (4).

Phileremini Pierce, 1914

Philereme transversata (Hufnagel, 1767) – 813 (1).

*Telenomeuta punctimarginaria (Leech, 1891) – 325 (1), 1455 (1), 1680 (1), 1686 (1), 1695 (2).

Rheumapterini Herbulot, 1962

Hydria hedemannaria (Oberthür, 1880) – 1427 (3), 1432 (3).

Hydria undulata (Linnaeus, 1758) – 276 (1), 278 (1), 285 (1).

Hydria neocervinalis (Inoue, 1982) – 1690 (3), 1692 (3).

Rheumaptera hecate (Butler, 1878) – 280 (1), 940 (4), 945 (1), 949 (1), 1379 (1), 1392 (1), 1440 (1), 1461 (6), 1467 (4).


Triphosa sericata (Butler, 1879) – 1651 (1).

Amoebotricha grataria (Leech, 1891) – 1050 (1), 1653 (3), 1663 (1), 1665 (1), RTR-12 (1), RTR-11 (1).

Pareulype taczanowskiiaria (Oberthür, 1880) – 294 (1), 958 (1), 1615–1618 (1), 1682 (2).

Solitaneini Leraut, 1980

Baptria tibiale mychioleuca Prout, 1938 – 929 (1), 1392 (1), 1422 (1), 1427 (1).

Melanthiini Duponchel, 1845

Horisme vitalbata staudingeri Prout, 1939 – 1432 (1).

* Horisme aquata (Hübner, 1813) – 1439 (3).
Horisme tersata ([Denis et Schiffermüller], 1775) – 861 (1), 1432 (5), 1433 (1), 1468 (1), 1695 (3), 1741b (1).

* Horisme stratata (Wileman, 1911) – 1050 (5), 1055 (1), 1701b (2), 1705b (1), 1873 (1), RTR-12 (1).

Melanthia procellata ([Denis et Schiffermüller], 1775) – 257 (1), 1405 (1), 1432 (3), 1433 (1), 1437 (1), 1449 (1), 1451 (1), 1457 (1), 1465 (1), 1468 (1), 1476 (1), 1633 (2), 1639 (1), 1736b (1).

Perizomini Herbulot, 1961

Gagitodes parvaria (Leech, 1891) – 1742b (1), 1750b (1), 2010/03 (1), 2010/44 (1).

Pierca bipartaria (Leech, 1897) – 663 (5).

Martania saxeia (Wileman, 1911) – 208 (2), 219 (1), 319 (1), 373 (2), 379 (1), 663 (3), 720 (1), 783 (1), 813 (1), 829 (1).

Martania minimata (Staudinger, 1897) – 780 (1), 793 (4), 813 (1).

* Perizoma bifaciata (Haworth, 1809) – 894 (1).

Eupitheciini Pierce, 1914


Gymnoscelis deleta (Hampson, 1891) – 1615–1618 (1), RTR-12 (1), RTR-13 (1).

Chloroclystis v-ata lucinda (Butler, 1879) – 319 (1), 783 (1), 861 (1), 870 (1), 1388 (1), 1396 (4), 1439 (2), 1451 (1), 1692 (4).

* Pasiphila rectangulata (Linnaeus, 1758) – 813 (1), 942 (1), 1457 (1).

Pasiphila obscura (West, 1929) – 1440 (2), 1446 (2), 1455 (2).

* Pasiphila debiliata (Hübner, 1817) – 285 (2), 373 (1), 373 (2), 379 (2).

Pasiphila chloerata (Mabille, 1870) – 1449 (1).

* Pasiphila subcinctata Prout, 1915 – 783 (1).

† Eupithecia inturbata (Hübner, 1817) – RTR-11 (1).

* Eupithecia subtacincta Hampson, 1895 – 1427 (1), 1430 (2), 1609 (1).

Eupithecia rufescens Butler, 1878 – 1682 (1).

Eupithecia proterva Butler, 1878 – 1668 (1), 1670 (1), 1692 (1).


Eupithecia clavifera Inoue, 1955 – 1668 (7), 1670 (12), 1672 (9), 1677 (2), 1690 (4), 1692 (6), 1695 (3), RTR-08 (4).

Eupithecia consortaria Leech, 1897 – 2010/03 (1).

Eupithecia pusillata ([Denis et Schiffermüller], 1775) – 1050 (12), 1055 (2), 1057 (1), 2010/03 (5), RTR-12 (4), RTR-13 (1).
Eupithecia takao Inoue, 1955 – 1005 (2).
Eupithecia okadai Inoue, 1958 – 1692 (5).
Eupithecia lariciata mesodeicta Prout, 1938 – 278 (4), 285 (11), 373 (29), 379 (30), 974 (10), 996 (2), 1005 (12), 1381 (3), 1411 (1), 1412 (1), 1432 (1), 1444 (1).
Eupithecia emanata Dietze, 1906 – 219 (1).
Eupithecia tripunctaria Herrich-Schäffer, 1852 – 1607 (1), 1736b (1), 1739b (1), 1750b (1).
Eupithecia selinata fusei Inoue, 1980 – 1005 (1), 1432 (4), 1444 (1).
* Eupithecia persuastrix Mironov, 1990 – 208 (1), 705 (8), 720 (10).
* Eupithecia actaeata praenubilata Inoue, 1958 – 1417 (1), 1744b (1).
Eupithecia detritata Staudinger, 1897 – 793 (1), 958 (1), 1404 (1), 1411 (2), 1432 (1), 1444 (1), 1454 (1).
Eupithecia quadripunctata Warren, 1888 – 1692 (2), 1695 (2), 1736b (1), 1752b (1), 2010/03 (6), RTR-06 (1).
* Eupithecia repentina Vojnits et de Laever, 1978 – 1388 (2), 1670 (1), 1680 (11), 1684 (13), 1686 (95), 1690 (1), 1692 (8), 1832 (1), 1750b (1), 2010/03 (1).
Eupithecia virgaureata invisa Butler, 1878 – 948 (1), 1411 (1), 1427 (1), 1668 (4), 1670 (1), 1692 (8), 1702b (1), 1741b (1), 1744b (1).
Eupithecia kobayashii Inoue, 1958 – 793 (1), 958 (1), 1692 (1).
Eupithecia subbrunneata Dietze, 1906 – 1386 (1), 1426 (5), 1427 (11), 1432 (13), 1433 (9), 1437 (5), 1439 (7), 1444 (4), 1476 (1).
Eupithecia insigneoides Wehrli, 1923 – 927 (1), 933 (1), 938 (1), 1677 (4), 1688 (1), 1692 (1).
Eupithecia costimacularia Leech, 1897 – 1684 (4).
† Eupithecia caliginea Butler, 1878 – 1388 (1).
† Eupithecia mandschurica Staudinger, 1897 – 995 (1), 1465 (1), 1690 (1), 1692 (3), 1695 (1).
* Eupithecia pernotata Guenée, 1858 – 1439 (1), KTP-03 (1).
Eupithecia amplexata Christoph, 1881 – 285 (1).
*Eupithecia scribai* Prout, 1938 – 285 (3).
Eupithecia absinbiata (Clerck, 1759) – 1627 (1).
Eupithecia interpunctaria Inoue, 1979 – 319 (2), 322 (1).
Eupithecia neosatyrrata Inoue, 1979 – 1427 (2), 1433 (1).
Eupithecia vulgata (Haworth, 1809) – 285 (1).
Eupithecia sp. 1 – 1465 (1).
Eupithecia sp. 2 – SHO-01 (1).
*Mesoptila melanolopha* (Swinhoe, 1895) – 888 (1).

Chesiadini Herbulot, 1963

Leptostegna tenerata Christoph, 1881 – 923 (1), 933 (1), 934 (1), 939 (2), 1385 (1), 1386 (1), 1404 (1), 1408 (1), 1411 (2), 1417 (1), 1439 (1), 1449 (1), 1454 (1), 1457 (1), 1476 (1), 1692 (1), 1695 (1).
Odezia atrata (Linnaeus, 1758) – 277 (1).

Trichopterygini Warren, 1894

Brabira artemidora (Oberthür, 1884) – 1417 (2), 1419 (1), 1433 (1), 1457 (4), 1472 (1), 1607 (1), 1750b (1).
Lobophora halterata (Hufnagel, 1767) – 1396 (1).
Acasis appensata (Eversmann, 1832) – 1005 (1), 1390 (1), 1394 (1), 1427 (1), 1695 (1), RTR-06 (1).
Acasis viretata (Hübner, [1799]) – 829 (1), 1432 (1), 1627 (6), 1631–1634 (8), 1633 (1), 1680 (24), 1682 (3), 1684 (1), 1686 (123), 1692 (3).
† Gen. et sp. indescr. – 1746b (1).
Trichopteryx hemana (Butler, 1878) – 1005 (1), 1398 (1), 1668 (1), 1672 (1), 1677 (4), 1690 (1), 1692 (3).
Trichopteryx terranea (Butler, 1879) – 1386 (1), 1411 (1).
Trichopteryx polycommata anna Inoue, 1957 – RTR-04 (2), RTR-03 (1).

Carige cruciplaga (Walker, 1861) – 322 (1), 857 (1).

Heterophleps fusca (Butler, 1878) – 800 (1), 813 (1), 1417 (3), 1455 (3), KO-01 (1).

DISCUSSION

Species new for Korea

Electrophaes recens Inoue, 1982 (Figs 2, 9) – This species is known from Japanese islands Hokkaido, Honshu, Shikoku and Kyushu; we hereby present its first record from Korea: 1 male, “Prov. Cheju, 1050 m, Mt. Halla-san; Yongshil route, 126° 30’ E; 33° 21’ N, 30.IV.1994. leg. Peregovits, Ronkay & Vojnits, No. 1686”; slide No. TB1300m. – Externally this species can be distinguished from its

Figs 2–8. Adults of Larentiinae species new to Korea or unidentified. 2 = Electrophaes recens Inoue, 1982, 3 = Horisme aquata (Hübner, 1813), 4 = Perizoma bifaciata (Haworth, 1809), 5 = Eupithecia inturbata (Hübner, 1817), 6 = Eupithecia caliginea Butler, 1878, 7 = genus and species undescribed, 8 = Eupithecia sp. 1. Scale = 10 mm
closest relative, *E. corylata* (Thunberg, 1792) by the smaller size and the ochreous ground-colour. In the male genitalia, the uncus is longer, the labides are shorter and broader than those of *E. corylata*, the valva of *E. recens* is curved and lacks the costal process present on the straight valva of *E. corylata*.

*Horisme aquata* (Hübner, 1813) (Figs 3, 10) – Distributed from France across the Eurasian steppe belt to NE China and the Upper Amur Basin, the known area of this species is extended by the following specimens: 3 males, “Prov. North Khamgen; Pur Yong, cca. 40 km NE of Chonjin; 04.06.1991. No. 1439; leg. L. Ronkay & A. Vojnits”; slide No. TB862m. – In habitus it differs from *H. vitalbata staudingeri* Prout, 1939 by the straighter transverse lines and the overall lack of brownish shade. The male genitalia of *H. aquata* have broad, spine-like sacculi terminal processes, gradually tapering valvae and relatively narrow aedeagus, while in *H. vitalbata staudingeri* the saccular processes are replaced by symmetrical sclerotised plates, the valva is much narrower beyond sacculus and the aedeagus is broader than in *H. aquata*. In the male genitalia of the Korean specimen presented here (Fig. 10) the saccular processes are larger and symmetrical, the valva and the aedeagus are somewhat broader than those of European specimens. In order to clarify the subspecific affiliation of Korean populations, genitalia of several European, NE Chinese and Far East Russian specimens should be studied.

*Perizoma bifaciata* (Haworth, 1809) (Figs 4, 11) – The hitherto known range of this species extends from Portugal to Northern Kazakhstan and from Southern Finland to Morocco, Cyprus and the southeastern corner of Turkey. Occurrence of this Euro-Turanian species in Korea is surprising. One male is recorded: “Prov. South Hwanghae, Haeju, Mt. Suyong-san, 31.07.1982., No. 894, leg. Dr. L. Forró and Dr. L. Ronkay”; slide No. TB1299m. – It cannot be confused with any other known *Perizoma* species in Korea, although somewhat similar to *Martania saxea* (Wileman, 1911) especially by the two-coloured forewing postmedial line. The forewing of *P. bifaciata* is less elongate, the postmedial line is less jagged and the hindwing is somewhat darker in colour than those of *M. saxea*. In the male genitalia of *P. bifaciata* the uncus is much more prominent, the valva is narrower, straighter and shorter, the vinculum is much shorter and the aedeagus is much broader than in *M. saxea* (i.e. they show the diagnostic differences of genera *Perizoma* Hübner, 1825 and *Martania* Mironov, 2000).

*Eupithecia inturbata* (Hübner, 1817) (Figs 5, 13) – This species is found in Europe, Caucasus and Northeastern Turkey. Material examined: 1 female, “Chollanam Prov., Mokpo, Mt. Seungdal-san, 200–250 m, 37°55’N, 126°27’E, 24–30.X.2012. leg. L. Ronkay & M. Tóth-Ronkay”; slide No. TB1201f. *Eupithecia inturbata* occurs in European deciduous forests, with *Acer* spp. as larval host plant. The Korean record is highly isolated from the hitherto known range of this species in such an extent that this is the first record from Asian areas east of the Urals. –
Figs 9−14. Genitalia of Larentiinae species new to Korea or unidentified. 9 = *Electrophaes recens* Inoue, 1982; slide No. TB1300m (aedeagus below), 10 = *Horisme aquata* (Hübner, 1813); slide No. TB862m (aedeagus below), 11 = *Perizoma bifaciata* (Haworth, 1809); slide No. TB1299m (aedeagus below), 12 = *Eupithecia* sp. 1; slide No. TB1063m (aedeagus below right, sternum A8 below left), 13 = *Eupithecia inturbata* (Hübner, 1817); slide No. TB1201f, 14 = *Eupithecia caliginea* Butler, 1878; slide No. TB1064f. Scale = 1 mm (all photos by B. Tóth).
Most *Eupithecia* specimens cannot be identified without genitalia dissection. The most similar species of *E. inturbata* in Korea is *E. proterva* Butler, 1878 with more contrasted pattern on wings, narrower medial area and more prominent discal spot on forewing. The male genitalia are characterized by much more rounded sternum A8, straighter costa and much more angled ventral edge of valva. The female possesses narrower ductus bursae, broader appendix and smaller proportion of corpus bursae covered with spines than those of *E. inturbata*.

*Eupithecia caliginea* Butler, 1878 (Figs 6, 14) – This species is known only from Japan (Honshu, Hokkaido). Material examined: 1 female, “Prov. North Pyongan, Mts. Myohyang-san, Isonnam valley, 23.05.1991., No. 1388, leg. L. Ronkay & A. Vojnits”; slide No. TB1064f. – With the dark grey ground-colour this species is mostly similar to *E. homogrammata* Dietze, 1906. The forewing is slightly more elongate and the light grey transverse lines are more conspicuous on fresh *E. caliginea* specimens than in *E. homogrammata*. In the female genitalia of *E. caliginea* the corpus bursae is more globular in shape, its surface is covered with smaller spines in smaller area, and the cervix is broader than in *E. homogrammata*.

**Species new for North Korea**

*Eulithis testata* Linneaus, 1761
*Eupithecia actaeata praenubilata* Inoue, 1958
*Eupithecia pernotata* Guenée, 1858
*Eupithecia persuasrix* Mironov, 1990
*Eupithecia repentina* Vojnits et de Laever, 1978
*Eupithecia scribai* Prout, 1938
*Eupithecia subtacincta* Hampson, 1895
*Eupithecia supercastigata* Inoue, 1958
*Grammorhoe caespitaria* (Christoph, 1881)
*Horisme stratata* (Wileman, 1911)
*Idiotephria evanescens* (Staudinger, 1897)
*Mesoptila melanolopha* (Swinhoe, 1895)
*Pasiphila rectangulata* (Linnaeus, 1758)
*Pasiphila debiliata* (Hübner, 1817)
*Pasiphila subcinctata* Prout, 1915
*Telenomeuta punctimarginaria* (Leech, 1891)

**Species new for South Korea**

*Eupithecia mandschurica* Staudinger, 1897
*Eupithecia pusillata* ([Denis et Schiffermüller], 1775)
*Xanthorhoe fluctuata malleola* Inoue, 1955
Specimens with unclarified status

Eupithecia sp. 1 (Figs 8, 12) – Material examined: 1 male, “Prov. Kangwon, Mts. Kumgang-san, Manmulsung Rocks, 750 m, 12.06.1991. No. 1465., leg. L. Ronkay & A. Vojnits”; slide No. TB1063m. – According to Mironov (pers. comm.) this specimen belongs to the “satyrata-group” of the genus (Mironov & Galsworthy 2014). A relatively large specimen, with a wingspan of 25 mm and the length of its forewing is 12.5 mm. Worn, without any recognisable pattern apart from the conspicuous discal spots on all wings. In the male genitalia the shape of valva and the configuration of cornuti in the aedeagus are very similar to those of E. absinthiata (Clerck, 1759) but the presence of the large discal spot on hindwing and the shape of sternum A8 contradict this association. The sternum shape is rather similar to that of E. mandschurica Staudinger, 1897 or (extra-limital) E. expallidata Doubleday, 1856.

Genus and species undescribed (Fig. 7) – The species representing a new genus, related to Heterophleps Herrich-Schäffer, 1854, is currently under description by an international team of lepidopterists (Dieter Stüning, pers. comm.; see Barcode of Life Database (Ratnasingham & Hebert 2007) under No. BC ZSM Lep. 30038.). We have one record of a male specimen from Mt. Noak, Gyeongsangbuk Province, SK.

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