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**A Contribution to the Knowledge of the Genus
Cyana WALKER in the South East Asia
(LEPIDOPTERA: Erebiidae, Arctiinae, Lithosiinae)**

Karel ČERNÝ

Abstract

Six new species of the Genus *Cyana* WALKER, 1854 from South-East Asia are described and figured: *Cyana jakli* nov.sp. from Borneo is similar to *Cyana barisana* RÖSLER & KÜPPERS, 1976 but related to *Cyana determinata* WALKER, (1862) (HT male in CMWM); *Cyana kubani* nov.sp. from Vietnam is similar to *Cyana gazella* MOORE, (1872) from the East Himalaya, North Thailand and North Vietnam (HT male in CMWM); *Cyana seismogrammica* nov.sp. from Timor is similar and related to *Cyana pitana* MOORE, (1859) from Java and Bali (HT male in CMWM); *Cyana centripuncta* nov.sp. from Vietnam and Cambodia is specific and can not be confused with other species (HT female in CMWM); *Cyana sumbawensis* nov.sp. from Sumbawa is similar and related to *Cyana vespertata* ČERNÝ, (1993) (HT male in CMWM) from the South-East Philippines (HT male in CMWM) and *Cyana succincta* nov.sp. from North Vietnam is similar and related to *Cyana detrita* WALKER, 1854 from Himalaya and Nepal (HT male in CMWM).

Key words: Lepidoptera, Erebiidae, East Asia species, Taxonomy, Genitalia.

Zusammenfassung

Sechs neue Arten der Gattung *Cyana* WALKER, 1854 aus Süd-Ost-Asien werden beschrieben und abgebildet: *Cyana jakli* nov.sp. aus Borneo ist ähnlich der *Cyana barisana* RÖSLER & KÜPPERS, 1976, aber verwandt mit *Cyana determinata* WALKER, (1862); *Cyana kubani* nov.sp. aus Vietnam ist ähnlich der *Cyana gazella* MOORE, (1872) aus Ost Himalaya, Nord Thailand und Nord Vietnam; *Cyana seismogrammica* nov.sp. aus Timor ist ähnlich und verwandt mit *Cyana pitana* MOORE, (1859) aus Java und Bali; *Cyana centripuncta* nov.sp. aus Vietnam und Kambodscha ist keiner anderen bekannten Art ähnlich und kann nicht verwechselt werden; *Cyana sumbawensis* nov.sp. aus Sumbawa ist ähnlich und verwandt mit *Cyana vespertata* ČERNÝ, (1993) aus den Süd-Ost Philippinen und *Cyana succincta* nov.sp. aus Nord Vietnam ist ähnlich und verwandt mit *Cyana detrita* WALKER, 1854 aus dem Himalaya und Nepal.

Introduction

Routine checking of Arctiinae specimens deposited in the collection of Museum Thomas Witt Munich, and of the author's own private collection revealed a number of tiger-moth species which requires being described. In the present paper six species of the genus *Cyana* WALKER, 1854 are described.

CKC coll. Karel Černý, Innsbruck;
CMWM coll. Museum Witt, München (Munich);
GP genitalia preparation slide/vial [no.];
HT holotype;
PT paratype.

***Cyana jakli* nov.sp.** (Plate 1, figs. 1-2; Plate 2, fig. 19)

M a t e r i a l : Holotype: ♂ Borneo, Kalimantan, Selatan, 30 km E von Kandangan, Regenwald, 800 m, 15 km NE Loksado, 2°52' S; 115°38' E, XI. 1997, leg. Jakl, CMWM. Paratypes: 2 ♂♂ like HT, CMWM, 2 ♂♂ like HT, CKC.

Male: The head is white with black eyes, the palpi are brown. The hair around the eyes is suffused with fine yellow. The antennae are pale brown, slightly pectinated. The tegulae and patagia are white, edget with dirty yellow hair. Prothorax and mesothorax are dorsally dirty yellow, metathorax is white, caudally suffused with yellow. The underside of the thorax is white, the legs are dirty yellow with white bands. The snow-white hairs at the abdomen are suffused with the dirty white and dirty yellow ones, the hair on the top of the abdomen is dirty yellow.

The extension is 34 mm, the length of forewing is 16 mm. The ground colour of the upper-side of the forewing is snow white with an oblique subbasal, a slightly sinuous submedian, a straight postmedian and a marginal orange transversal band. The areas between the subbasal and the submedian bands and between the postmedian and the marginal bands are black. In the white area in the median field there are one black comma and two rounded black spots. The hair on the costal fould is in the front of the submarginal black area orange, the fringes are white.

The underside of the forewing is dirty yellow, near of base and of the inner margin nearly snow white. The markings of the upperside are slightly visible on the underside too.

The hindwing is white, slightly suffused with yellow on the upperside and the underside. The female is not yet known.

D i s t r i b u t i o n : The species was recorded in the south of Borneo only.

G e n i t a l i a : (GP T 221): The armature is very similar to that of *Cyana determinata* WALKER, 1862. Phallus is robust, straight, vesica without specific structures.

S i m i l a r s p e c i e s : The male is similar to the *Cyana barisana* RÖSLER & KÜPPERS, 1976, described from Sumatra and recorded from Borneo, too (HOLLOWAY, 2001). *Cyana barisana* is relative to *Cyana malayensis* HAMPSON, (1914), and therefore her forewing is much wider as in *Cyana jakli* nov.sp. and the apex is rectangular. The genitalia differ being in *Cyana jakli* nov.sp. larger, with a very large phallus and similar to that of *Cyana determinata* WALKER, (1862).

E t y m o l o g y : The species is dedicated to the czech coleopterologist Stanislav Jákl, who collected the type series.

***Cyana kubani* nov.sp.** (Plate 1, figs. 3-6; Plate 2, figs. 20-21)

M a t e r i a l : Holotype: ♂ N. Vietnam, Tam Dao, 60 (km) NW Hanoi, 21,34°N; 105,20°E, 1200 m, 1.-5.V.1993, sek. Wald, leg. Sinjaev & Simonov, ex coll. Schintlmeister, CMWM. Paratypes: 5 ♂♂ like holotype, but CKC, 1 ♀ like holotype, but 23.-31.III. 1995, CKC; 1 ♂ N. Vietnam, Tam Dao, 60 km NW Hanoi, 21°34'N; 105°20'E; 950 m; 17.X. 1995 leg Sinjaev; ex coll. A. Schintlmeister, CKC; 1 ♀ Vietnam sept., Tam Dao, 950 m, V. 1990, leg Kubán, CKC; 1 ♂ N. Vietnam, 1200 m, Tam Dao, Sek.Wald, 60 km NW Hanoi; 21°34'N; 105°20'E; 01.-05.V.1993; leg V. Sinjaev & Simonov; CMWM; 3 ♂♂, 1 ♀ Vietnam, Prov. Vinh Phu, Tam Tao, 60 km NW Hanoi, 950-1200 m, 23°34'N; 105°20'O; Juli 1994, Sinjaev V. & Simonov leg, CMWM; 1 ♂ N. Vietnam, 1600 m, Mt. Fan-si-pan (Nord), Cha-pa, Primärurwald, 22°17'N; 103°44'E; 25.-30.III.1995 leg. V.Sinjaev & A. Schintlmeister, CMWM; 7 ♀♀, 16 ♂♂ N. Vietnam, 1400 m, Mai-chau, Urwald, 40 km SE Moc-chau; 20°50'N; 104°50'E; 07.-15.IV.1995; leg V.Sinjaev & einh. Samml., CMWM; 1 ♂, 1 ♀ N. Vietnam, 1400 m, Mai-chau, Urwald, 25 km S Moc-chau; 20°50'N; 104°40'E; 14.-18.XI.1994; leg V. Sinjaev (Gen. Prep), CMWM; 2 ♂♂ S. Vietnam, Bach-ma Nat.Park, 1200 m, 18°10'N; 107°54'E; 26.VII.-6.VIII.1996; leg Sinjaev & Afonin, ex. coll. A. Schintlmeister; CMWM; 1 ♂ the same but CKC; 1 ♂ Süd Vietnam, Bao Loc, (Sek.Wald), Rung Cat Tien, 1500m, 11°32'N; 107°48'E; 10.-20.12.1992; Sinjaev V. & Simonov leg., CMWM.

Male: The hair on the head is white and orange, the eyes are dark brown, the palpi brown, the pale brown antennae are pectinated. The tegulae and patagia are orange, the thorax is on the upperside white with a wide red transversal band in the middle and an orange caudal area. The underside is white with pale orange legs. The abdomen is on the upperside covered with white and with orange hair, the hair on the underside is white only.

The extension is 31 mm, the length of forewing is 15 mm. The ground colour of the upperside is orange with a snow white subbasal field, two dirty white rounded spots in 1/5 of the wing length, three rounded dirty white spots in 1/3 of the wing length, a snow white rounded patch near the costal fold and a dirty white sinuous submarginal band. The fringes are snow white. The underside is pale orange, the markings are less expressive.

The hindwing is paler orange as the ground colour of the forewing, the fringes are whitish. The female has the same markings but it is larger with 17 mm length of forewing.

G e n i t a l i a : Male (GP T 218 and T 222): Phallus is short and wide, getting narrower proximally. At the base of the vesica there are ten small toots which could not be everted. At the vesica there are two rounded areas and a narrow strip with scobinations. The valve is short, rounded with an equal long projection with a hook-like terminal part. The uncus is straight, without specific structures.

Female (GP T 219): Bursa copulatrix is rounded with sclerotised folds, without signa or other specific structures.

D i s t r i b u t i o n : The species was recorded in Vietnam.

S i m i l a r s p e c i e s : The species is similar to *Cyana gazella* MOORE, (1872) from North Vietnam, North Thailand and East Himalaya, which is significantly larger, has the markings on the forewing more contrastful and the hindwing grey in males and white in females.

E t y m o l o g y : The species is dedicated to the coleopterologist and the author's good friend Vítězslav Kubáň, Brno, Czech Republic who collected the first known male of the species.

***Cyana seismogrammica* nov.sp.** (Plate 1, figs. 7-10; Plate 2, figs. 22-23)

M a t e r i a l : Holotype: ♂ Indonesien, Timor, Prov. Nusa Tenggara, Timur, Mt. Mutis Süd, 1460 m, Fatumnasi, cult.sec. Vegetation, 21.-23.III.1996, leg. Dr. R. Brechlin, CMWM; Paratypes: 9 ♂♂, 12 ♀♀ like holotype, CMWM; 4 ♂♂, 1 ♀ like holotype, CKC; 1 ♀ Indonesien, Timor (Barat), Prov. Nusa Tenggara, Gunung (=Mt.) Mutis Süd, 5 km N Fatumnasi, 1730m; prim. forest, 26.III.1996, leg. Dr. Ron Brechlin, CKC. Additional material: 2 ♂♂ Indonesien, Sumba (W), Prov. Nusa Tenggara, Barat, 40m, Gunung (=Mt.) Aimal, 150 km S Sumbawa Besar, 11.-20. XI.1996, leg. Andang, CMWM, 1 ♂ the same but CKC..

Male: The head is snow white with brown palpi and a brown strip on the frons between the filliform creamy white antennae. The tegulae basally are snow white widely edged with brown. The patagia are snow white with a wide brown transversal band in the middle. The thorax is on the upperside snow white with a brown transversal band on the mesothorax and a brown triangular patch at metathorax. The underside and the legs are creamy white, the area between the first pair and the head is snow white. The abdomen is pale ochreous, caudally getting yellow.

The expanse is 35 mm, the length of forewing is 16 mm. The ground colour of the forewing is in the basal part snow white getting brownish terminally with four dark brown transversal bands. The costa is from the base to the second transversal band brown, on the terminal third pale brown. The most basal band consists of two spots, the first of them at costa. The second one in the medial area is moved terminally. The hindpart of that band is reduced to some dark brown scales. The antemedian band consists of three elements of which the first one touch the dark costa and is excurved in the subcostal area, the second one is a rounded spot in the medial area and the third one is a transversal strip from the medial area to the inner margin. The postmedian band consists of one spot near costa and a sinuous band, slightly excurved in the medial area. The marginal band is paler and consists of a series of six triangular spots. In the medial white area there is a small rounded spot near the excurvation of the ante-

median dark band, a large rounded spot in the middle and a slightly bent strip between the medial spot and the costal spot of the postmedian band. The fringes are white. The underside with a brown costal strip is white, costally and terminally suffused with pale brown, the markings are inexpressive. The hindwing is white, suffused with pale brown, with an inexpressive spot in the cell.

The female has similar markings but the bent strip near the postmedian band is more rounded. The females are larger with the length of forewing of 19 mm.

Genitalia: Male (GPT 285 and T 288): Phallus is short and straight, in its basal part most wide. Near of the basis of the everted vesica there is a rounded group of about 30 spines. Another one group of about 20 spines is on the top of the vesica. The valve is short, rounded, with strong sclerotised saccular projection which is on the top hook-like. The uncus is weak and blunt, without specific structures.

Female (GP T 286): Ductus bursae is strong sclerotised, the bursa copulatrix is divided to two parts, each one without signa or other specific structures.

Distribution: The species is known from the islands of Timor and Sumbawa.

Similar species: The new species is related to *Cyana pitana* MOORE, (1859) from Java and Bali, but the red markings on the forewing of *Cyana pitana* MOORE are dark brown in *Cyana seismogramica* nov.sp. The spots in the medial white band are brown in *Cyana seismogramica* nov.sp. but black in *Cyana pitana* MOORE. The male genitalia are similar in both species but in *Cyana seismogramica* nov.sp. they are larger. The position of the groups of spines at the vesica differs. In the female genitalia the dividing of bursa copulatrix is more expressive in *Cyana pitana* MOORE and concerns ductus bursae, too.

Ety m o l o g y: Seismogram = record of a seismograph, the form of the postmedian band.

***Cyana centripuncta* nov.sp.** (Plate 1, figs. 11-15; Plate 2, figs. 24-25)

Material: Holotype: 1 ♀ Süd Vietnam, Bao Loc, (Sek.Wald), Rung Cat Tien, 1500m, 11°32'N; 107°48'E; 10.-20.12.1992; Sinjaev V. & Simonov leg., CMWM. Paratypes: 3 ♂♂ like holotype, CMWM; 1 ♂, 1 ♀ like holotype, CKC; 1 ♂, 1 ♀ N. Vietnam, 1200 m, Tam Dao, Sek.Wald, 60 km NW Hanoi; 1200m, 21°34'N; 105°20'E; 01.-05.V.1993; leg V.Sinjaev & einh.Samml., CMWM; 1 ♂, the same, but CKC; 1 ♂, 3 ♀♀ N. Vietnam, 1600 m, Mt. Fan-si-pan (West), Cha-pa, Sekundärwald, 22°20'N; 103°40'E; 10.1995 leg. V. Sinjaev & einh. Slr., CMWM; 7 ♂♂, 1 ♀ Cambodia, Mondolkiri Prov., Seima Biodiversity Conservation Area between Seima and O'Rang, 12°15'44"N; 107°03'49"E, 360m, 27.-29.I.2006 leg. G. Csorba & G. Ronkay, CMWM; 1 ♂, 1 ♀ the same, but CKC; 1 ♂ Cambodia, Mondolkiri Prov., Seima Biodiversity Conservation Area between Seima and O'Rang, 12°12'12"N; 107°01'09"E, 300 m, 30.I.2006 leg. G. Csorba & G. Ronkay; 11 ♂♂, 3 ♀♀, Cambodia, Kampot Prov., Bokor N.P., Hill Station, 1025 m, 10°37'N; 104°01'E; 19.-21.I.2006, leg. G. Csorba & G. Ronkay, CMWM; 4 ♂♂, 1 ♀ the same but CKC.

Female: The head is chalk white, the palpi are beige, the antennae are filiform. The tegulae and patagia are chalk white, edged with orange hair. The thorax is dorsally chalk white with a wide transversal band, ventrally chalk white, with white, orange banded legs. The density of the orange colour is on the first pair most expressed and on the second two pairs gradually decreasing. The abdomen is dorsally grey and ventrally white.

The 10 mm long forewings (wingspan 21 mm) are chalk white with four orange transversal bands. The subbasal one is connected at the inner margin with the antemedian one which has a projection to the basis in the middle. The postmedian band is proximally narrow, distally significant wider, with a projection to the antemedian one. The submarginal band is wide and in the radial field connected with the postmedian one. The central part of the cellular black spot is white. The fringes are chalk white. On the underside the markings are less contrastful, the orange ground colour is less expressed.

The upperside of the hindwing is pale orange. The fringes are white. The underside is similar but the orange ground colour is more expressed, especially along the fore margin.

Male: Wingspan 19-21 mm. The antennae are filiform, slightly pectinated, with some chalk white scales near base. The markings are similar like in the female with a hair fringe at the costa, their marking corresponds with the drawing on the wings. The subbasal band is with the antemedian one at costa, in the middle and at the inner margin confluent and between the orange bands stay two rounded, chalk white spots. In the cell there is a single black spot with few white scales. The upperside of the hindwing is pale orange with an androconium at the subcosta. The fringes are white. The underside is similar but the orange ground colour is more expressed, especially along the fore margin.

V a r i a b i l i t y : The white spot in the cellular black spot is in the females more or less developed, in the males only indicated. In one male touch the antemedian and the postmedian bands. The wingspan varies in females between 21 and 26 mm.

G e n i t a l i a : Male (GP no. T 282 und T 284): Phallus is short and wide, straight. At the everted vesica there is laterally an elongate group of 20 long spines, one terminal group of short thorns and scobinations and a trapezoid group of short spines on a small lateral projection near the base. The valve is rounded with a short saccular projection, their top is claw-like. The uncus is equally thick, blunt.

Female (GP T 283): Ductus bursae is thin, hyaline, bursa copulatrix with a small signum near of top and small lateral bladder, which is connected with bursa copulatrix near of their base.

D i s t r i b u t i o n : The species was observed in Cambodia and Vietnam.

S i m i l a r s p e c i e s : The female is similar to *Cyana euryxantha* HAMPSON, (1914) from Luzon, but it is much smaller and the transversal bands are not edged with black. The male cannot be confused with any other known species.

E t y m o l o g y : The name describes the white spot in the middle of the black spot at the forewing.

***Cyana sumbawensis* nov.sp.** (Plate 1, figs. 15-16; Plate 2, fig. 26)

M a t e r i a l : Holotype: 1 ♂ Indonesien, Sumbawa (W), Prov. Nusa Tenggara, Barat, 430m, Gunung Mt. Tambora, 16.III.1998, leg. Andang, CMWM. Paratypes: 3 ♂♂ like holotype, CMWM; 3 ♂♂ like holotype, CKC.

Male: The head is white with orange frons and an orange shadow at the top, the palpi are beige as far as the filiforme, slightly pectinate antennae. The tegulae and patagia are white, edged with orange hair, the thorax is dorsally white with a wide orange transversal band in the middle, ventrally dirty orange with dirty white, orange banded legs. The abdomen is dorsally pale brown, ventrally dirty white.

The 12 mm long forewing (wingspan 25 mm) is at the upperside white with four orange transversal bands. The subbasal one is near costa wide and on the innermargin confluent with the twice excurved antemedian one. The postmedian band is slightly sinuous and the marginal one is with the brown costal fringe of hair confluent. The obligatory discoidal spot is only indicated, the fringes are white. The underside is dirty white, the costal half densely suffused with pale brown. The hindwing is pale orange with white fringes.

G e n i t a l i a : (GP T 287): Phallus is short and wide, proximally strong sclerotised. At vesica there is a small rounded group of 25 and a bigger elliptical group of 60 spines as far as two extensive scobinations. The valve is rounded, with an equal long projection, the top of which is claw-like. The uncus is thin and long, proximally slightly bifurced.

S i m i l a r s p e c i e s : *Cyana sumbawensis* nov.sp. is similar to *Cyana vespertata* ČERNÝ, 1993 from the south part of the Philippines in which the antemedian and the postmedian bands are edged with black. The genitalia are similar in the both species.

D i s t r i b u t i o n : *Cyana sumbawensis* nov.sp. only is known from the island of Sumbawa.

***Cyana succincta* nov.sp.** (Plate 1, figs. 17-18; Plate 2, fig. 27)

M a t e r i a l : Holotype: 1 ♂ N. Vietnam, 1400m, Mai Chau, Urwald, 40 km SE Moc Chau, 20.50'N, 104.50'E; 7.-15.IV.1995 leg. Sinjaev & inh. Samml., CMWM. Paratypes: 2 ♂♂ like holotype, CKC; 1 ♂ N. Vietnam, 16 - 1800 m; Mt. Fan-si-pan (West), Cha-pa, sek. Wald; 22.20'N 103.40'E, 10.-30.X. 1994; leg. Sinjaev & inh. Samml., CMWM; 1 ♂ N. Vietnam, 1600 m; Mt. Fan-si-pan (Nord), Cha-pa, prim. Urwald; 22.17'N 103.44'E, 20.-30.IV. 1995; leg. Sinjaev & inh. Samml., CKC.

Male: The head is grey with grey palpi, the antennae are grey with white basal segment. The tegulae and patagia are grey with white hair, the thorax is dorsally white with grey spots, ventrally dirty white with grey banded legs. The abdomen is dorsally dirty white, ventrally white.

The 15 mm long forewing (wingspan 31 mm) is at the upperside dirty white with four grey transversal bands. The subbasal one arises at costa and goes to the radial vein on which it is connected with the antemedian one. The antemedian transversal band is most wide near of costa and on the inner margin. It is apparent incurved in the medial area. The postmedian band is most dark on the costal lobe, in the medial area suffused and rectangular bent in cubital area. The submarginal transversal band consists of seven triangular grey spots on the veins. The fringes are white. In the cell there are two inexpressive black dots.

The underside is grey, the costal part nearly black, in the marginal area there are five rounded white spots divided by dark veins. The hindwings are pale grey with white fringes.

G e n i t a l i a : (GP no. T 323, 325 and T 326): Phallus is short and wide with two proximal scobinations, at vesica there is a transversal band of about 80 spines. The valve is wide, with an equal long projection. The uncus is thin and long, very weak and hard to prepare.

S i m i l a r s p e c i e s : *Cyana succincta* nov.sp. is very similar to *Cyana detrita* WALKER, 1854 from the Himalaya in which the grey markings at the forewing are much more extensive and the hindwings are chalk white. There are significant differences in the genitalia.

V a r i a b i l i t y : The wingspan in the examined males varies between 28 and 31 mm.

D i s t r i b u t i o n : *Cyana succincta* nov.sp. was observed in the primary and secondary forests in the north part of Vietnam only.

E t y m o l o g y : The name describes the form of the spines group at vesica which is like a belt extended transversal over the whole everted vesica (succincta = belted).

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Author's address:

Karel ČERNÝ
Tiergartenstrasse 27
A-6020 Innsbruck
Austria
E-Mail: natura.cerny@aon.at

Plate 1, Figs. 1-18:

- Fig. 1:** *Cyana jakli* nov.sp. ♂, paratype, Borneo, Kalimantan, Selatan, 30 km E von Kandangan, Regenwald, 800 m, 15 km NE Loksado, 2°52' S; 115°38'E, XI. 1997, leg. , (CMWM).
- Fig. 2:** *Cyana jakli* nov.sp. ♂, the same: reverse side.
- Fig. 3:** *Cyana kubani* nov.sp. ♂, holotype, N. Vietnam, Tam Dao, 60 (km) NW Hanoi, 21,34°N; 105,20°E, 1200 m, 1.-5.V.1993, sek. Wald, leg. Sinjaev & Simonov, ex.coll.Schintlmeister, (CMWM).
- Fig. 4:** *Cyana kubani* nov.sp. ♂, the same: reverse side.
- Fig. 5:** *Cyana kubani* nov.sp. ♀, paratype, Vietnam sept., Tam Dao, 950 m, V. 1990, leg Kubáň, (CKC).
- Fig. 6:** *Cyana kubani* nov.sp. ♀, the same: reverse side.
- Fig. 7:** *Cyana seismogrammica* nov.sp. ♂, holotype, Indonesien, Timor, Prov. Nusa Tenggara, Timur, Mt. Mutis Süd, 1460 m, Fatumnasi, cult.sec. Vegetation, 21.-23.III.1996, leg. Dr. R. Brechlin, (CMWM).
- Fig. 8:** *Cyana seismogrammica* nov.sp. ♂, the same: reverse side.
- Fig. 9:** *Cyana seismogrammica* nov.sp. ♀, paratype, Indonesien, Timor, Prov. Nusa Tenggara, Timur, Mt. Mutis Süd, 1460 m, Fatumnasi, cult.sec. Vegetation, 21.-23.III.1996, leg. Dr. R. Brechlin, (CMWM).
- Fig. 10:** *Cyana seismogrammica* nov.sp. ♀, the same: reverse side.
- Fig. 11:** *Cyana centripuncta* nov.sp. ♂, paratype, Cambodia, Kampot prov., Bokor N.P., Hill Station, 1025 m, 10°37'N; 104°01'E; 19.-21.I.2006, leg. G. Csorba & G. Ronkay, (CMWM).
- Fig. 12:** *Cyana centripuncta* nov.sp. ♂, the same: reverse side.
- Fig. 13:** *Cyana centripuncta* nov.sp. ♀, holotype, Süd Vietnam, Bao Loc, (Sek.Wald), Rung Cat Tien, 1500m, 11°32'N; 107°48'E; 10.-20.12.1992; Sinjaev V. & Simonov leg., (CMWM).
- Fig. 14:** *Cyana centripuncta* nov.sp. ♀, the same: reverse side.
- Fig. 15:** *Cyana sumbawensis* nov.sp. ♂, holotype, Indonesien, Sumbawa (W), Prov. Nusa Tenggara, Barat, 430m, Gunung Mt. Tambora, 16.III.1998, leg. Andang, (CMWM).
- Fig. 16:** *Cyana sumbawensis* nov.sp. ♂, the same: reverse side.
- Fig. 17:** *Cyana succincta* nov.sp. ♂, holotype, N. Vietnam, 1400m, Mai Chau, Urwald, 40 km SE Moc Chau, 20.50'N, 104.50'E; 7.-15.IV.1995 leg. Sinjaev & einh.Samml., (CMWM).
- Fig. 18:** *Cyana succincta* nov.sp. ♂, the same: reverse side.

Plate 1

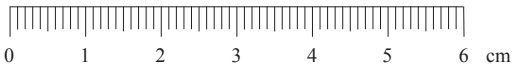
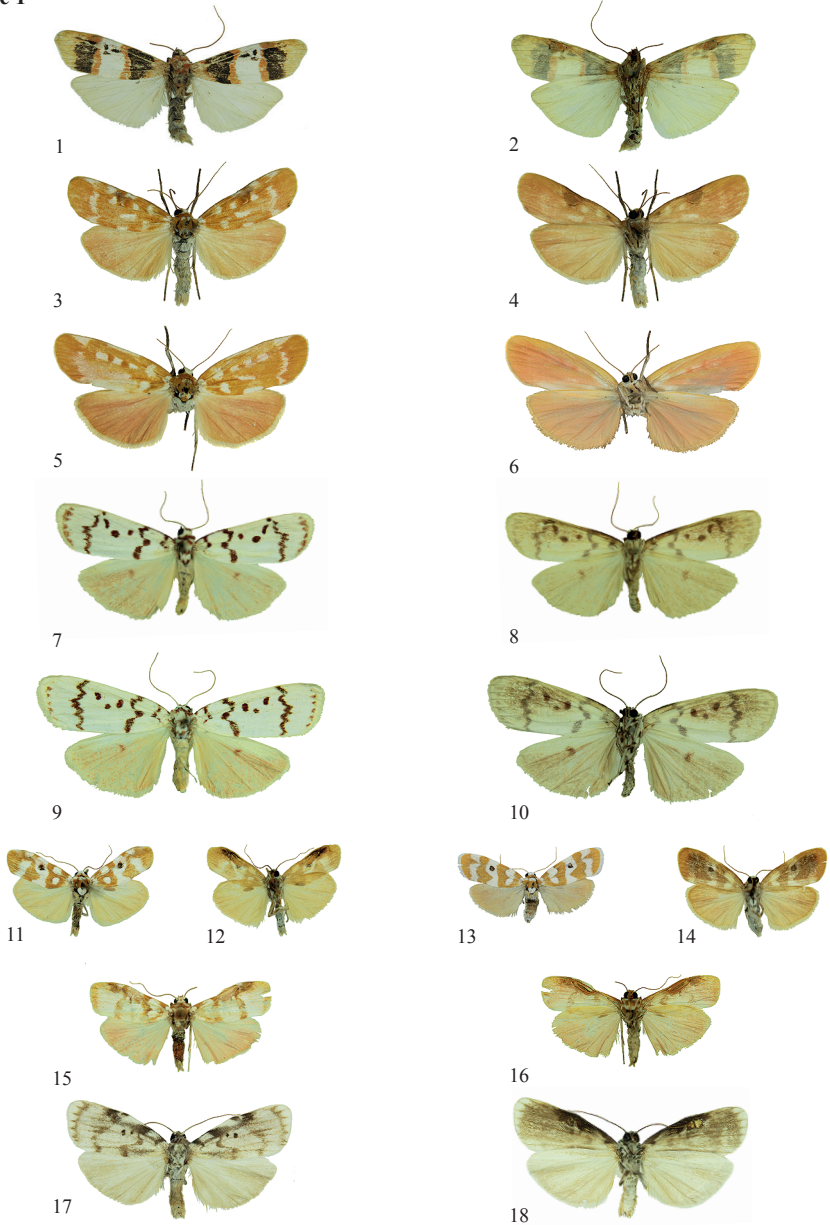
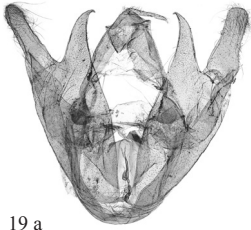


Plate 2, Figs. 19-27:

- Fig. 19:** *Cyana jakli* nov.sp. ♂, holotype, Borneo, Kalimantan, Selatan, 30 km E von Kandangan, Regenwald, 800 m, 15 km NE Loksado, 2°52' S; 115°38'E, XI. 1997, leg. Jakl, (CMWM). (GP T 221) a) genitalia, b) aedeagus.
- Fig. 20:** *Cyana kubani* nov.sp. ♂, paratype, N. Vietnam, Tam Dao, 60 (km) NW Hanoi, 21,34°N; 105,20°E, 1200 m, 1.-5.V.1993, sek. Wald, leg. Sinjaev & Simonov, ex coll. Schintlmeister, (CMWM). (GP T 222) a) genitalia, b) aedeagus.
- Fig. 21:** *Cyana kubani* nov.sp. ♀, paratype, Vietnam sept., Tam Dao, 950 m, V. 1990, leg Kubán, (CKC). (GP T 219)
- Fig. 22:** *Cyana seismogrammica* nov.sp. ♂, paratype: Indonesien, Sumba (W), Prov. Nusa Tenggara, Barat, 40m, Gunung (=Mt.) Aimual, 150 km S Sumbawa Besar, 11.-20.XI.1996, leg. Andang, (CMWM). (GP T 288) a) genitalia, b) aedeagus.
- Fig. 23:** *Cyana seismogrammica* nov.sp. ♀, paratype: Indonesien, Timor, Prov. Nusa Tenggara, Timur, Mt. Mutis Süd, 1460 m, Fatumnasi, cult.sec. Vegetation, 21.-23.III.1996, leg. Dr. R. Brechlin, (CMWM). (GP T 286)
- Fig. 24:** *Cyana centripuncta* nov.sp. ♂, paratype: Süd Vietnam, Bao Loc, (Sek.Wald), Rung Cat Tien, 1500m, 11°32'N; 107°48'E; 10.-20.12.1992; Sinjaev V. & Simonov leg., (CMWM). (GP T 284) a) genitalia, b) aedeagus.
- Fig. 25:** *Cyana centripuncta* nov.sp. ♀, paratype: Cambodia, Kampot prov., Bokor N.P., Hill Station, 1025 m, 10°37'N; 104°01'E; 19.-21.I.2006, leg. G. Csorba & G. Ronkay, (CMWM). (GP T 283)
- Fig. 26:** *Cyana sumbawensis* nov.sp. ♂, paratype, Indonesien, Sumbawa (W), Prov. Nusa Tenggara, Barat, 430m, Gunung Mt. Tambora, 16.III.1998, leg. Andang, (CMWM). (GP T 287) a) genitalia, b) aedeagus.
- Fig. 27:** *Cyana succincta* nov.sp. ♂, paratype: N. Vietnam, 1600 m; Mt. Fan-si-pan (Nord), Cha-pa, prim. Urwald; 22.17'N 103.44'E, 20.-30.IV. 1995; leg. Sinjaev & einh. Samml., (CKC). (GP T 326) a) genitalia, b) aedeagus.

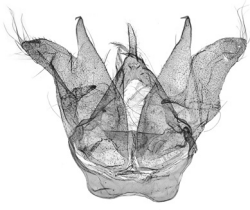
Plate 2



19 a



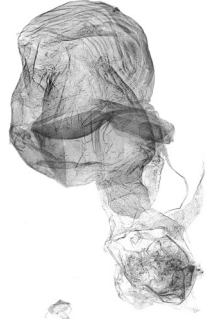
19 b



20 a



20 b



21



22 a



22 b



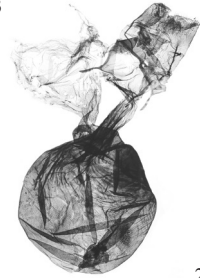
23



24 a



24 b



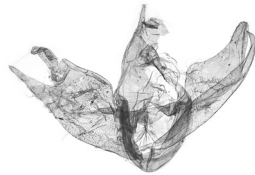
25



26 a



26 b



27 a

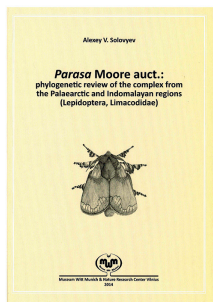


27 b

Book series

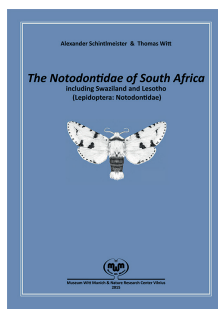
„Proceedings of the Museum Witt”

The “Proceedings of the Museum Witt“ were founded in 2014 by Dr. h.c. Thomas J. Witt in Munich as book series appearing irregularly with the aim to publish quickly comprehensive manuscripts written by corresponding authors of the Museum Witt, Munich. The series is published in cooperation with State Nature Research Centre in Vilnius, Lithuania.



Alexey V. SOLOVYEV

Parasa Moore auct.: phylogenetic review of the complex from the Palaearctic and Indomalayan regions (Lepidoptera, Limacodidae). – Proc. Mus. Witt Vol.1, Munich and Vilnius (2014). (110 distribution maps, 147 coloured figures, 120 genitalia figures, 239 pages).



Alexander SCHINTLMEISTER & Thomas J. WITT

The Notodontidae of South Africa including Swaziland and Lesotho (Lepidoptera).- Proc. Mus. Witt Vol.2, Munich and Vilnius (2015). (104 distribution maps, 37 colour plates, 42 plates with genitalia figures, 288 pages).

All books presented also on the homepage of Museum Witt Munich:

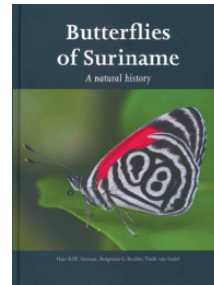
<http://www.insecta-web.org/LepWitt/>

Book exchange is welcome.

Buchbesprechung

Hajo B. P. E. Gernaat & Borgesius G. Beckles & Tinde van Anandel:
BUTTERFLIES OF SURINAME. A NATURAL HISTORY

KIT Publishers, Amsterdam, The Netherlands (2012). 680pp.,
5 Karten, 1475 Farbbilder, 19 s/w Fotos, 329 figs. Hardcover.
ISBN 978-94-6022-171-2.



Das vorliegende Buch behandelt die derzeit 150 Arten bekannter Tagfalter (Rhopalocera) von Surinam. Fast alle Arten werden umfangreich, nicht nur in ihrer Taxonomie, sondern auch in ihren Präimaginalstadien, Parasiten, ökologischen Ansprüchen (inklusive Nahrungspflanzen der Raupen), und in ihrer Verbreitung behandelt. Dazu gehören auch zahlreiche hervorragende Farbbildungen von Habitaten, Raupen, Puppen, Imagines in freier Wildbahn. Der Lebenszyklus von *Callima illioneus* (Cramer, 1775) vom Ei bis zum Schlüpfen des Falters wird beispielsweise auf 13 technisch ausgezeichneten Einzelbildern dokumentiert. Natürlich werden auch Serien der Imagines aller Arten auf insgesamt 52 Tafeln in präpariertem Zustand (Ober- und Unterseite) vor dezent hellgrauem Hintergrund ästhetisch perfekt illustriert.

Das Buch ist aber, wie der Untertitel bereits andeutet, weit mehr als nur eine monographische Bearbeitung der Tagfalter Surinams.

Teil I befasst sich allgemein mit den biologischen Namen (Nomenklatur), der Klassifikation, der Geographie, Geologie und den Böden in Surinam.

Teil II beschäftigt sich auf 41 Seiten mit den Pflanzen und Habitaten (Küstenbereiche, Savannen, Gebirge).

Teil III führt in die Tagfalter Surinams ein. Dazu gehören auch reich illustrierte Kapitel über Migration, Überlebensstrategien und Mimikry der Schmetterlinge. Besonders interessant ist auch das hier untergebrachte Kapitel über die Historie der Erforschung Surinamesischer Tagfalter. Eine wahre Fundgrube für den Interessierten: Von Maria Sibylla Merian, die Verwertung Ihrer Publikationen durch Linnaeus bis zu den Prachtwerken von Cramer und Sepp fehlt hier wirklich nichts. Auch weniger bekannte Werke, wie das *Diarium Surinamicum* von Daniel Rolander (1725-1793), ein Linnaeus-Schüler oder „Surinam, sein Land, seine Natur, Bevölkerung und seine Kultur-Verhältnisse mit Bezug auf Kolonisation“ von August Kappler (1815-1887) werden detailliert besprochen.

Auch werden alle bekannten 51 Typenexemplare von Cramer und Stoll (in 45 Arten), die im Netherlands Centre for Biodiversity Naturalis in Leiden aufbewahrt werden, auf 4 Tafeln abgebildet. An manchen Exemplaren hat allerdings der Zahn der Zeit die letzten 230 Jahre doch schon erheblich genagt.

In Teil III sind auch alle wesentlich Expeditionen nach Surinam mit vielen historischen Fotografien und die Bearbeiter Surinamesischer Tagfalter bis hin zur National Zoological collection of Suriname in Paramaribo und dem Butterfly Park Lelydorp auf Surinam dargestellt.

Teil IV behandelt dann die einzelnen in Surinam vorkommenden Arten. Insgesamt 7 Anhänge erläutern z.B. Details aller Cramer'schen Typen und ihre Besitzerwechsel, das berühmte Merian'sche Werk *Metamorphosis Insectorum Surinamensium* oder auch Fachausdrücke (Glossary). Appendix IV beinhaltet die genauen Daten der abgebildeten Falter. Der Appendix VII widmet sich dem Autorenteam, den Unterstützern und dem „SLI“ (das muss offenbar das Suriname Lepidoptera Institute sein) und dem „making off“ des Buches. Das Literaturverzeichnis umfasst 333 Einträge.

Das gesamte Buch in einer derartig exzellenten Ausstattung, welche weit über das „normale“ hinausgeht, war wohl nur möglich weil zahlreiche Sponsoren gefunden werden konnten, die auf den Innentitel präsentiert werden. Ihr zweifellos starker finanzieller Einsatz hat sich ganz offensichtlich gelohnt!

Alexander Schintlmeister

Druck, Eigentümer, Herausgeber, Verleger und für den Inhalt verantwortlich:
Maximilian SCHWARZ, Konsulent f. Wissenschaft der Oberösterreichischen Landesregierung, Eibenweg 6,
A-4052 Ansfelden, Austria; maximilian.schwarz@liwest.at.

Redaktion: Fritz GUSENLEITNER, Biologiezentrum Linz, f.gusenleitner@landesmuseum.at;
Roland GERSTMEIER, Lehrstuhl f. Zoologie, TU München, gerstmei@wzw.tum.de;
Thomas WITT, Tengstraße 33, D-80796 München, thomas@witt-thomas.com
Berthold CLEWING, Akademischer Verlag München, avm@druckmedien.de;
Harald SULAK, Museum Witt München, h.sulak@atelier-sulak.de;

Mitarbeiter: Karin TRAXLER, Biologiezentrum Linz, bio.redaktion@landesmuseum.at;
Heike REICHERT, Museum Witt München, heike_reichert66@web.de;
Erich DILLER, Zool. Staatssammlung München, Erich.Diller@zsm.mwn.de.

Adresse: Entomofauna, Redaktion und Schriftentausch Thomas WITT, c/o Museum Witt München,
Tengstr. 33, 80796 München, Deutschland, thomas@witt-thomas.com;
Entomofauna, Redaktion c/o Fritz GUSENLEITNER, Lungitzerstr. 51, 4222 St. Georgen/Gusen,
Austria, f.gusenleitner@landesmuseum.at.

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