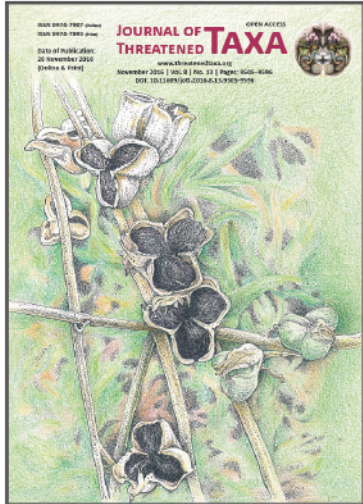


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Purnendu Roy

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## RECORDS OF *CIGARITIS ZHENGWEILIE* HUANG, 1998 (LEPIDOPTERA: THECLINAE) FROM ARUNACHAL PRADESH, INDIA AND SOUTHEASTERN TIBET, CHINA, AND A NOTE ON *CIGARITIS ELWESI* (EVANS, [1925])

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### OPEN ACCESS



**Abstract:** A specimen of *Cigaritis zhengweilie* Huang (1998) collected from Anini, Upper Dibang Valley District, Arunachal Pradesh, India is recorded and illustrated together with a paratype of *Cigaritis zhengweilie chayuensis* from Chayu county, southeastern Tibet. Brief diagnostic notes on separating this species from *Cigaritis syama* and *Cigaritis nipalicus*. A note on *Cigaritis elwesi*.

**Keywords:** Arunachal Pradesh, *Cigaritis elwesi*, *Cigaritis syama*, *Cigaritis nipalicus*, *Cigaritis zhengweilie*, Dibang Valley.

*Cigaritis zhengweilie* Huang, 1998 was first described from Arniqao, Mêdog (Motuo) County, southeastern Tibet (Fig. 1, site 1) and subspecies *chayuensis* Huang, 2001 from Lower Chayul (Chayu, Zayü, Zayul), southeastern Tibet (Fig. 1, site 4). I had collected a specimen of this species from the Upper Dibang District, Arunachal Pradesh, India (Fig. 1, site 2) in 1987, but misidentified the specimen firstly as *Cigaritis nipalicus* (Moore, 1884) and then *Cigaritis syama* (Horsfield, [1829]). Some specimens of *C. zhengweilie* have also been placed under *C. elwesi* in the Natural History Museum, London (BNHM) collection and I have written a note on that species. Recent field sightings of *C. zhengweilie* are briefly mentioned, together with diagnostic notes on this species and *C. elwesi*.

### DISCUSSION

My specimen (Images 1, 2(3)) was collected on 28 July 1987 from near Anini (approx. 1,650m), Upper Dibang Valley District, Arunachal Pradesh, India (Fig. 1, site 2). The specimen is very close to the paratype of *C. zhengweilie chayuensis* (Images 1,2(4)) deposited in the BNHM (collected from Chayu, 1,800m, southeastern Tibet (Fig. 1, site 4) on 29 July 2000). In regard to the subspecies *chayuensis* (the other described subspecies), it also matches, namely, in size (*chayuensis* is larger than the nominate subspecies), under forewing discal band reaching 1b and the white scaling on the upper forewing (this scaling is in fact much more prominent in my specimen than the paratype).

Huang, 2001 also noted that the records of *C. syama* collected by F.M. Bailey (South 1913) were perhaps a misidentification of this species. I have located one of these records (Images 3, 4(2)) in the BNHM and it is indeed *C. zhengweilie*, but it has been placed under *C. elwesi*. This specimen was collected on 5 July 1911 at "Rima, Mishmi" (Fig. 1, site 5) around the border of Chayul Province, southeastern Tibet and Anjaw District, Arunachal Pradesh, India. Subsequently, this species has been recorded in the field by Binita Goswami (Varshney

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**Conflict of Interest:** The author declares no competing interests.

**Acknowledgement:** Tipa Umbrey and all the people who guided me in the Dibang Valley. John Chainey, David Lees, Blanca Huertas and Geoff Martin for their help and assistance to photograph these specimens. Krushnamegh Kunte, for his valuable advice and for providing many of the images featured in the plates. Jo Lawbury my partner for her love and support.



& Smetacek, 2015) from the Ithun Valley, Upper Dibang Valley District, Arunachal Pradesh, India (Fig. 1, site 3) photographed on 9 June 2013 and by Krushnamegh Kunte (Roy & Kunte 2015) from Eaglenest Wildlife Sanctuary, West Kameng, Arunachal Pradesh, India (Fig. 1, site 6) photographed on 25 June 2016.

This species appears to be confined to southeastern Tibet and Arunachal Pradesh, India and the records indicate a flight period from June to early August at elevations between 1500m and 1800m.

### Diagnosis

In order to avoid confusion regarding terms used on the underside, please check Image 5 for a visual explanation.

The silver bands edged only in black, closely resemble that of *C. s. peguanus* (Moore, 1884) (Images 1, 2(1)). The species however is very distinct from *C. syama* and the following characters in external morphology are diagnostic in separating the two species:

1. Underside hindwing: the basal streak in *C.*

*zhengweilie* connects with the sub-basal spot in 1c. In *C. syama* the basal streak does not connect with the sub-basal spot in 1c. The basal spots tend to be more connected in *C. syama* and appear to form a more continuous band. The sub-basal spots of *C. zhengweilie* are also smaller and rounder and are more disconnected than *C. syama*.

2. Underside forewing cell: in *C. syama* the basal spot merges with the basal streak to form a single distinctive “club” shape mark. In *C. zhengweilie* the basal spot lies at an oblique angle to the basal streak, even if it joins the basal streak, the spot and streak are both clearly distinct units.

3. Upperside ground colour: the male blue is more opaque and purple in *C. zhengweilie*. Very noticeably different when compared side by side. Female *C. syama* is brown, while *C. zhengweilie* is bluish-grey.

*C. zhengweilie* also resembles *C. nipalicus* (Moore, 1884) (Images 1, 2(2)) and its allies and probably belongs to that group of species. The following characteristics

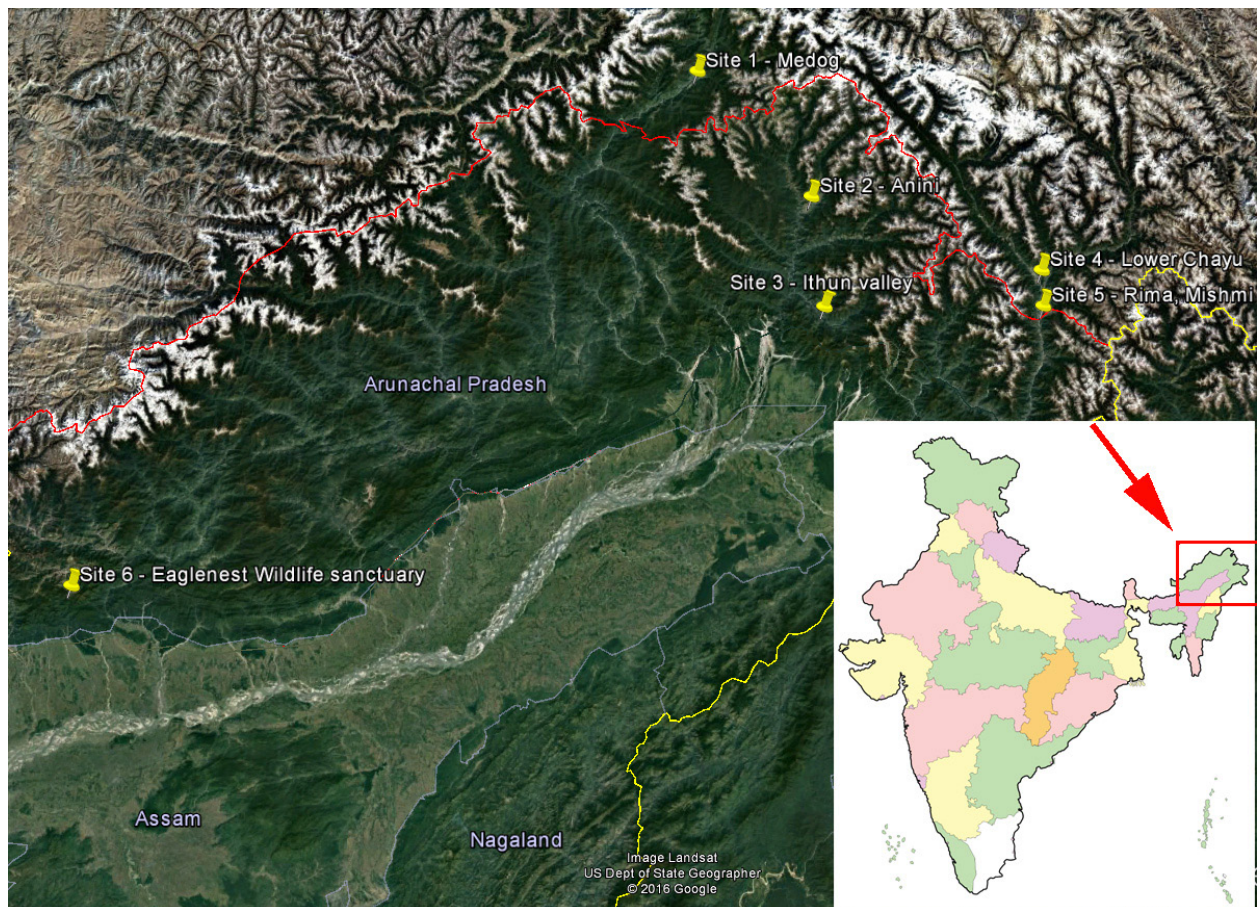


Figure 1. Recorded locations of *Cigaritis zhengweilie* in Arunachal Pradesh and adjacent Tibet. Insert by Rajeshodayan at Malayalam Wikipedia [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons.

in external morphology assist in the diagnostic between the two:

1. Underside bands: the silver lines in *C. nipalicus* are indistinct and surrounded by similar ground colour (or rarely very pale pink) and then edged thinly in black. In *C. zhengweilie* the silver lines are pronounced and bordered only in black (occasionally a little ground colour filling may be present in parts of the bands). The black borders of the bands in *C. nipalicus* are on average much thinner, consequently the forewing basal spot consists of a thin black ring filled with ground colour, but in *C. zhengweilie* it is filled only with black and has a small silver spot.

2. Underside hindwing black basal markings: usually very indistinct and blurred in *C. nipalicus*. This is a characteristic of only *C. nipalicus* it appears, clearer in *C. zhengweilie* and other similar species.

3. Upperside: *C. zhengweilie* has no orange markings on the forewing in both sexes, while in *C. nipalicus* the orange is quite prominent especially in the females and only rarely absent in the males.

Males in both species are purple above, in *C. zhengweilie* the purple hardly extends beyond the cell and has a wide margin at the tornus. In *C. nipalicus* the purple extends throughout the cell, into spaces 4 and 5 and the margin is narrow at the tornus. Both female *C. zhengweilie* and *C. nipalicus* have bluish-grey colour above, but *C. zhengweilie* has no red patch on the forewings.

4. The under hindwing orange tornal area: much broader in *C. zhengweilie* and extends to the dorsum in all specimens. In *C. nipalicus* it is much more restricted and does not extend to the dorsum.

5. The forewing is also clearly broader and less produced than *C. nipalicus*.

#### A note on *Cigaritis elwesi* (Evans, [1925])

Evans (1925) in his paper on the "The identification of Indian Butterflies" notes that *C. elwesi* is a "MS" (manuscript) name of Mr. N.D. Riley. This manuscript appears to be unpublished and I was not able to locate it in the BNHM archives. Neither does there appear to be any type specimen(s) designated. The specimens placed under *elwesi* appear to consist of four species and include male specimens of *C. zhengweilie*. Evans (1925) keys do not fit *C. zhengweilie* in the following important aspects:

The female key for the upper forewing "brown, with a broad orange area" does not match *C. zhengweilie* females which are bluish-grey and have no orange patch. The male key also states "often has a small orange



Image 1 (upperside). 1 - *Cigaritis syama peguanus* (#1036038 BNHM), Male, 750–1,500 m, June–August 1889, Naga Hills, Nagaland, India; 2 - *Cigaritis nipalicus* (#1035675 BNHM), 25.v.1893, male, Ranikhet, Uttarakhand, India; 3 - *Cigaritis zhengweilie chayuensis* (#983008 BNHM), male, 28.vii.1987, near Anini, 1,675m, Upper Dibang Valley District, Arunachal Pradesh, India. 4 - *Cigaritis zhengweilie zhengweilie* (Paratype #1035607 BNHM), male, 29.vii.2000, Chayu, 1800m, southeastern Tibet. Copyright Natural History Museum (British) used with permission. Original images provided by Krushnamegh Kunte.

spot upper forewing", while *C. zhengweilie* appears to never have any orange markings on the forewings in both sexes. I thereby conclude that *C. elwesi* is not *C. zhengweilie*. Evans' key makes no mention of the hindwing basal streak that may or may not join with the sub-basal spot in 1c. This would separate *C. zhengweilie* from some of the other specimens placed under *C. elwesi* where the streak does not reach the sub-basal spot. In the original description of *C. zhengweilie*, Huang stated that he thought the chief diagnostic character for separating this species from *C. syama*, *C. nipalicus* and *C. elwesi* was this streak. This character does appear to be constant in *C. zhengweilie* and it is also a character that is present in the other members of the *nipalicus* group, namely *Cigaritis rukma* (de Nicéville, [1889]), *Cigaritis evansii* (Tytler, 1915) and *Cigaritis rukmini* (de Nicéville, [1889]), except for *C. nipalicus* where the basal streak is very obscure like all the other basal markings in that species, so it is not clearly visible.

I have included a plate of the specimens (Images 3 & 4) that have been placed under "*elwesi*" to assist any future researcher. Further investigation may reveal more specimens in the BNHM, but I have given my diagnosis for these specimens as follows:

Images 3, 4(1) #1718626, 03.viii.1933, Dri, Zayul,





**Image 2 (underside).** 1 - *Cigaritis syama peguanus* (#1036038 BNHM), male, 750–1,500 m, June–August 1889, Naga Hills, Nagaland, India; 2 - *Cigaritis nipalicus* (#1035675 BNHM), 25.v.1893, male, Ranikhet, Uttarakhand, India; 3 - *Cigaritis zhengweilie chayuensis* (#983008 BNHM), 28.vii.1987, male, near Anini, 1675m, Upper Dibang Valley District, Arunachal Pradesh, India; 4 - *Cigaritis zhengweilie chayuensis* (Paratype #1035607 BNHM), male, 29.vii.2000, Chayul (Chayu), 1,800m, southeastern Tibet. Copyright Natural History Museum (British) used with permission. Original images provided by Krushnamegh Kunte.

Tibet, 6000ft (1,828m). This is from the same area of the *C. z. chayuensis* paratype. The specimen matches the paratype of *C. z. chayuensis*.

**Images 3,4(2)** #1718625, 05.vii.1911, Rima, Mishmi, 6000ft (1,828m). On the border of Chayul Province, southeastern Tibet and Anjaw District, Arunachal Pradesh, India. Rima lies within Tibet, however Mishmi may indicate that it was collected within Arunachal Pradesh. This specimen matches the paratype of *C. z. chayuensis*.

**Images 3,4(3)** #1035657 Darjeeling, northern India (West Bengal, India). Very close to *C. zhengweilie* and in the *nipalicus* group, but differs from *C. zhengweilie* as follows: (i) Upper forewing red spot beyond cell; (ii) Under forewing and hindwing bands are narrower (in this respect similar to *C. rukmini*). Most easily seen on the forewing in the sub-basal and discal bands. The forewing basal spot is also a little smaller and squarer; (iii) Hindwing tornal orange more restricted and not extending to dorsum, its extent is similar to *C. nipalicus*; and (iv) Forewing shape more angular and the termen straighter almost concave.

As this specimen appears to be related to *C. nipalicus* the female is unlikely to match the female description of *C. elwesi*. This could be an undescribed species.



**Image 3 (underside).** 1 - #1718626 Dri, Zayul, Tibet, 3.viii.33, 6000ft; 2 - #1718625 Rima, Mishmi, 05.vii.1911, 6000ft; 3 - #1035657 Darjeeling, northern India (West Bengal, India); 4 - #1718625 male, Gangtok, Sikkim 02.vi.1927, 5000ft; 5 - #1035772 male, Sikkim June 1907 or 1901; 6 - #1035806 female, Sikkim. Copyright Natural History Museum (British) used with permission. Original images for 3,5,6 provided by Krushnamegh Kunte.

**Images 3,4(4)** #1718625, 02.vi.1927, Male. Gangtok, Sikkim, 5000ft (1,524m). There is a label bearing *C. rukma*. The original description of *C. rukma* specifies a yellow ground colour and the upperside of this specimen matches well with *C. rukma*. I have seen field images of *C. rukma* that are very similar. This specimen appears to be *C. rukma*. It is very similar to *C. nipalicus*, but may be distinguished by under hindwing basal spots being better defined, a lack of silver bands and the upper forewing blue is also more restricted hardly extending beyond the orange patch. It can be distinguished from *C. zhengweilie*, as follows: (i) Orange patch upper forewing; (ii) Silver bands obsolete; (iii) Under forewing basal spot filled with ground colour and not filled with black and silver; and (iv) Hindwing tornal orange more restricted not extending to dorsum, like *C. nipalicus*.

It is a bit worn which does not assist in its identification, but I am confident that it as per original label and is *C. rukma*.

In the following two specimens the hindwing basal



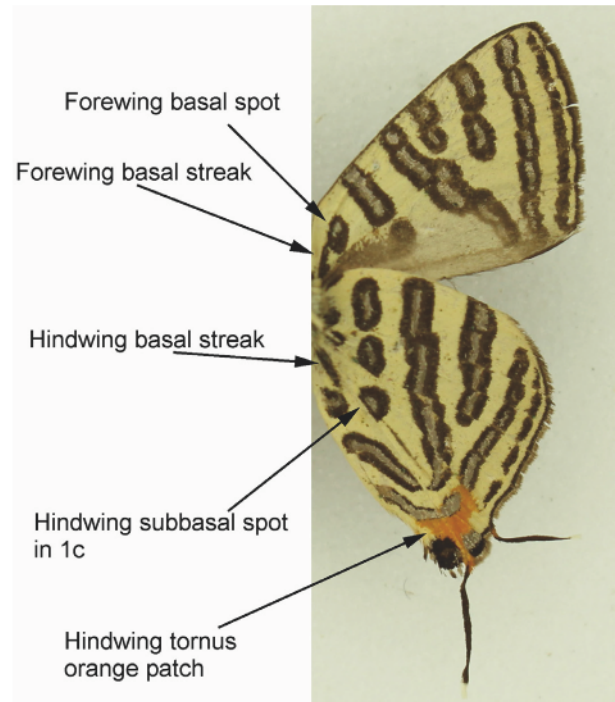
**Image 4 (upperside).** 1 - #1718626 Dri, Zayul, Tibet, 3.viii.33, 6000ft; 2 - #1718625 Rima, Mishmi, 05.vii.1911, 6000ft; 3 - #1035657 Darjeeling, northern India (West Bengal, India); 4 - #1718625 male, Gangtok, Sikkim 02.vi.1927, 5000ft; 5 - #1035772 male, Sikkim June 1907 or 1901; 6 - #1035806 female, Sikkim. Copyright Natural History Museum (British) used with permission. Original photography for 3,5,6 by Krushnamegh Kunte.

streak does not connect with the sub-basal spot in 1c. They have black bands filled with silver. The forewing cell has a basal streak and a basal spot, unlike the single “club” of *C. syama* and therefore do not appear to match any other Indian species. It cannot be certain if the male and female are the same species, but I feel these specimens represent *C. elwesi*.

**Images 3,4(5)** #1035772 male. Sikkim June 1907 or 1901

This is the specimen featured in D’Abrera (1986). It could be very difficult to distinguish field images *C. syama* from this specimen if the forewing basal markings are not visible. In the black and silver banded form of *C. syama* the hindwing orange tornal area is very broad unlike this specimen.

There is also a label of *A. ictis* (*Cigaritis ictis* (Hewitson, 1865)) for this specimen. In *ictis*, however, the underside bands are not totally filled with black, the hindwing basal streak connects with the sub-basal spot in 1c and on the forewing costa is edged in silver below the sub-basal band.



**Image 5. Visual explanation of terms used on the underside.** Specimen #1035772 “*Cigaritis elwesi*?” Copyright Natural History Museum (British) used with permission. In this example the hindwing basal streak does not connect with the sub-basal spot in 1c, unlike the *nipalicus* group and the forewing basal spot joins with the basal streak, but is not the single “club” mark of *C. syama*. The hindwing orange tornal area does not extend to the dorsum and is more restricted than *C. zhengweilie* and *C. syama* (black banded form).

**Images 3,4(6)** #1035806 female. Sikkim. D’Abrera (1986) states he could not locate the female, so it appears the specimens have been reorganised. This specimen also differs from *C. syama* in having an orange patch on the upper forewing. If we were to take that Images 3,4(5) and Images 3,4(6) to be *C. elwesi* it can be distinguished by the combination of the following key characters: (i) Underside bands black and filled only with silver; (ii) Underside hindwing basal streak not extending to subbasal spot in 1c; (iii) Under forewing basal spot and streak, even if joined, clearly still two elements unlike the single “club” of *C. syama*; and (iv) Female brown above with orange patch on forewings.

#### CONCLUSION

*Cigaritis zhengweilie* is recorded in India and has well-defined morphological characters that can easily distinguish it from other species. *C. elwesi* description and keys as per Evans (1925) are inadequate to determine a single species, hence that is why several species have been erroneously placed under this taxon in the BNHM

collection. If Riley's original manuscript cannot be located and a type specimen cannot be located, a type should be designated to sort out the present confusion.

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