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# Moths of Vietnam with special reference to Mt. Fan-si-pan Introduction and collecting localities

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The insect fauna of Vietnam is hitherto poorly known. My interest in this fauna started, when I studied the Chinese Notodontidae (SCHINTLMEISTER 1992), particularly the famous Höne collection. Virtually no material from south-Chinese provinces such as Guangdong and Guangxi was available for study. Therefore I hoped to use material from North Vietnam to reconstruct the fauna of the southern parts of China.

The "historical" material of moths from Vietnam is kept mainly in The Natural History Museum (BMNH) in London, and the Musée National d'Histoire Naturelle, Paris, but it is not very rich in specimens and species. It was mainly collected by LEMÉE and other collectors working for the insect dealer LE MOULT (1882–1959) in northern Vietnam, particulary in Cha-pa [= Sapa] near Mt. Fan-si-pan and also from the southern part ("Cochin-China").

In the existing literature, mainly DE JOANNIS (1929) and LEMÉE & TAMS (1950), less than 10% of the known species have been described.

In December 1992, when the political opening of Vietnam began, Victor SINJAEV, Moscow, was sent out on a first expedition to Vietnam. His equipment included two generators and some mercury vapour lamps.

The first material, mainly from Tam Dao, Cuc Phuong and Bao Loc, already demonstrated that there were many new and unexpected species. As a result the second expedition was quickly undertaken in May 1993, particularly to collect in the mountains of the Fan-si-pan range. However, at this time it was not possible to climb Mt. Fan-si-pan and so the next trip to North Vietnam was planned for summer 1994.

In June 1994 Mr. SINJAEV began to collect around Mt. Fan-si-pan. But again it was very difficult to get permits from the (many) Vietnamese authorities and the necessary guides to climb Mt. Fan-si-pan. I arrived at the end of June, accompanied by Dr. Ronald

BRECHLIN, Tegernsee (Germany) and fortunately the permissions were given in the last week of our stay—when Mr. SINJAEV had already travelled home—to climb Mt. Fan-sipan (3143 m) on July the 9th.

As expected the primary forests on Mt. Fan-si-pan host many moths not seen before in the secondary forests around Cha-pa. All the following expeditions focussed on the less disturbed primary forests of Mt. Fan-si-pan. Variation in altitude of the collecting sites between 1525–2900 m provided the opportunity to collect many different species. Besides this a staff of local collectors, led by Mr. SINJAEV, continued to collect with 4 generators permanently around Mt. Fan-si-pan between July 1994 and October 1995, including January 1995, when temperatures at night were often below 0 °C.

The expedition in October-December 1994 was undertaken by Mr. SINJAEV, during which he rediscovered on Mt. Fan-si-pan the fabulous *Actias chapae* MELL (Saturniidae) at 2250 m altitude. The temperature on the night he caught *A. chapae* for the first time had fallen to 6 °C.

Further visits were made in February 1995 by Dr. BRECHLIN and in March/April 1995 by Dr. Wolfram MEY, Humboldt Universität zu Berlin, Dr. SCHINTLMEISTER and Mr. SINJAEV. So our studies covered nearly the whole year and showed that many species are on the wing only in definite periods of the year, which may be very short, for example in many species of *Tarsolepis* (Notodontidae).

Apart from the studies on Mt. Fan-si-pan, other areas were also visited, mainly in the northern part of Vietnam. A regular station for catching moths is Tam Dao which is situated near the airport of Hanoi; but Cuc Phuong National Park, Mai chau and Ben En National Park are also important places for the lowland fauna of Vietnam.

Further activities have to be started in the southern parts of Vietnam, particularly the mountains. At present we do not have much material from the South but it appears that the fauna is quite different from that of Mt. Fan-si-pan.

Altogether the material, which forms the basis of our studies of Vietnamese moths, consists at present (1996) of about:

15.000 so-called "Microlepidoptera" (including Pyralid moths) deposited in the Natur-kundemuseum Dessau and Zoologisches Museum der Humboldt Universität zu Berlin; 90.000 Bombyces and Sphinges (sensu Seitz) deposited in the Museum Witt, Munich and coll. Schintlmeister, Dresden;

115.000 Noctuids deposited in the Naturhistorisches Museum Wien, 2. Zoologisches Museum;

26.000 Geometrids deposited in the Zoologisches Museum Alexander Koenig, Bonn. Further material is kept also by the authors of our publications.

#### The country and its fauna, flora, climate

The shape of Vietnam resembles the letter "S". The North-South extension is 1750 km: in the East-West direction (in the northern part of the country) the longest distance is 600 km, the smallest in the middle part only 50 km. About 75% of the territory of about 330.000 km² are mountain ranges. The Truong-Son-Mts. extend over 1200 km in the central part of Vietnam. The most important rivers are the Mekong (4400 km length) and the Red River (Song Hong, 1800 km length).

70% of the population of about 80 million inhabitants live in the lowlands along the rivers and the coast. 90% of the inhabitants belong to the Vietnamese people (Viet). Besides this there are more than 50 ethnic minorities in the country. Seven of them (e. g. Thai, Cham and Meo) live around Fan-si-pan which is the highest Peak in Vietnam (3143 m).

The climate, influenced by the monsoon, is tropical in the South, but in the North it is much cooler during the winter time. The temperatures on Mt. Fan-si-pan in December and January are usually around 0°C. The rainy time around Mt. Fan-si-pan ranges mainly from Mai to August. But September until November has many sunny days. From February until the middle of April there are often clouds, but generally it is not so rainy. When the clouds form, temperature falls rapidly. When we arrived in March 1995 in Cha-pa, the temperature was 26°C, but only four hours later clouds formed and the temperature at 7.00 p. m. was just 11°C!

The best time to catch butterflies (Rhopalocera) is during April and May. Moths fly in highest number between April and July particularly in the higher altitudes.

The natural vegetation of the primary forests on Mt. Fan-si-pan is (as viewed by an entomologist's eye) characterized by *Quercus*, Bamboo and in higher altitudes by Rhododendron and *Abies*. The lowlands are mainly used for agriculture (rice). Only in a few places in the lowlands, like in Cuc-phuong National Park, forests are seen.

The fauna and flora shows zoogeographic connections particularly to the Sino-Pacific center, but North Vietnam is also influenced by Himalayan and Yunnan elements. In the lowlands and especially in South Vietnam Sundanian elements are distributed. It is remarkable that many species occuring in Sundaland (Malaya, Sumatra, Borneo) and Vietnam as well, are not found in India.

### Collecting localities and their data

Tam Dao, 70 km NW Hanoi. A well known tourist site with many hotels near the airport of Hanoi on the top of a green hill (1250 m altitude). The collecting places were in the village (from a hotel) which is surrounded by secondary forest in good condition at about 950 m altitude and it is about a 30 minutes' walk into the "jungle". Tam Dao was often visited by us as well as by other entomologists (tourists) and is also a "classical" locality from former times.

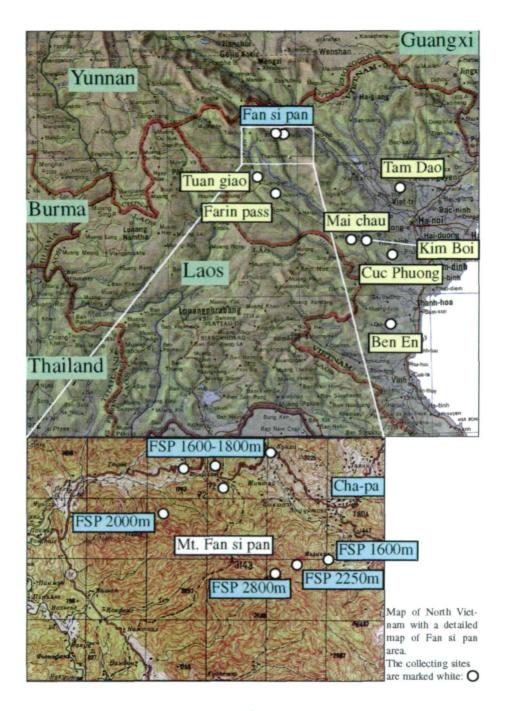
Geographical data: 21° 34' N, 105° 20' E.

Dates: 1.–15.xi.1992, 1.–5.v.1993, 30.vi.1993, 9.vi.1994, 14.–15.vii.1994, 17.x.1994, 2.xii. 1994, 23.–24.ii.1995, 9.–10.iii.1995, 18.iii.1995, 23.iii.1995, 31.iii.–7.iv.1995, 28.–30.iv.1995, 17.x.1995.

Cuc-Phuong, 100 km SW Hanoi, National park in a smaller mountain range (400 m altitude) covered by primary and secondary lowland forest in good condition. Inside the National park (about 20 km from the entrance) is a hotel-complex where we collected excellent species, although in smaller numbers, because of the restrictions of the national park-management.

Geographical data: 20° 15' N, 105° 20' E.

Dates: 18.xi.-3.xii.1992, 21.xi.1994, 1.-2.iv.1995.





Mr. Schintlmeister, Mr. Mey (Won) and Mr. Sinjaev are posing at the market of Cha-pa.



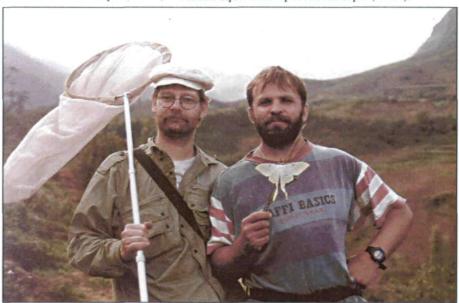




Panorama of Mt. Fan-si-pan (vi.1994).



Autumn aspect at the top of Mt. Fan-si-pan (x.1994).



Mr. Schintlmeister and Mr. Sinjaev in front of Mt. Fan-si-pan with a freshly hatched female of *Actias selene* which was sitting near the way to the base camp (FSP 1600m) in March 1995.



Mr. Schintlmeister and Mr. Brechlin at FSP 1600 –1800m in June 1994 selecting moths from the wall.



FSP 1600–1800m, first collecting place on the road ca. 1700m. The mercury vapour lamp was still burning when the video was taken in the early morning (29.vi.1994).



FSP 1600–1800m, first and second collecting place ca. 1700m, in April 1994.



Construction for light trapping moths ("Chalet"), also protection against rain and wind at FSP 1600–1800m, v.1993.



FSP 1600–1800m, second and third collecting place ca. 1750m, April 1994. Places 2 and 3 are situated directly on the road (secondary forest). Catch was made with excellent success at this places.



Crew of local collectors with Mr. Sinjaev at FSP 1600m-1800m.



FSP 1600-1800m, our base in the village O' kui ho about 15km NW Cha-pa (1600m). In this garden we caught many interesting species.



FSP 1600m, base camp with native Meo collectors Mr. Lee and Mr. Tyuh, the Vietnamese collectors Mr. Yok, Mr. Phuk and Mr. Anh. In the foreground Mr. Afonin and Mr. Sinjaev; in the background the white wall with the lamp.



FSP 2250m, locality of *Actias chapae* (right) and other beautifull moths. The picture was taken in March 1995.



View from the top of Mt. Fan-si-pan, ca. 3000m towards Chapa, end of Octobre 1994.



Actias chapae on FSP 2250m, xi.1995.



Flowering Rhododendron, in March 1995, FSP 2600m which is typical for higher altitudes on Mt. Fan-si-pan.



FSP 2600m, autumn aspect (x.1994).



Mr. Mey is looking for carterpillars of Bamboo-forest FSP 2400m altitude. mining Microlepidoptera in FSP The video was taken in March 1995. 2250m in March 1995.





Meo hunter and his prey a cu-li (FSP 2250m).



locality in March 1995.



FSP 1600m, view on the collecting FSP 2800m, view from the collecting locality. Many Noctuids were caught in this night in March 1995.

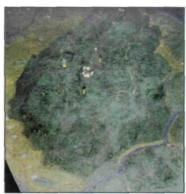




The collecting crew of local collectors led by Mr. Sinjaev is storming Mt. Fan-si-pan with extensive luggage for 3 weeks in October 1995.



Cuc Phuong National Park, hotel complex inside the park. We put mercury vapour lamps on the first floor of the hotel and 50m away on the bottom (see right picture).



Cuc Phuong National Park relief with Hotel complex inside.



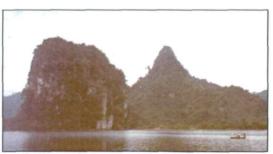
Ben En National Park, collecting site (xi.1994). The lake in the National Park is artifical however the forests are still in good condition.



Cuc Phuong: collecting place (2. iv. 1995).



Mr. Simonov in discussion with an eldery Meo woman in Cha-Pa.



Ben En National Park, panorama, xi.1994.



Tam Dao, view from the Hill (April 1994).

Bao-loc, Rung cat Tien, the collecting site is situated on the main road from Saigon, 15 km before Bao loc. It was situated half way up the montain hill (ca. 1500 m NN) on top of which Bao loc is situated. The vegetation consists of cultivated land and secondary forests. The material (about 3000 Lepidoptera) was mainly collected during the first trip.

The response to the lamp was rather poor, particularly during the second trip. On the other hand the fauna of Bao Loc seems to be very different in comparison with that of the North.

Further investigations should pay more attention to the Middle and South of Vietnam. Geographical data: 11° 32' N, 107° 48' E.

Dates: 10.-20.xii.1992, 25.-28.iv.1993.

Fan-si-pan (FSP 1600-1800 m, FSP 2000 m), Mountain range near Cha-pa (= Sapa), 1300-2400 m. The collecting sites are along the road from Lao-cai to Lai-chau and also in the town Cha-pa, which was in former French colonial times a well known place, particulary for its cooler climate during the hot summers. There are cultivated areas and a few places with secondary forests. People said that only 25 years ago Cha-pa was surrounded by extensive forests.

The main collecting points are about 15 km outside Cha-pa near the road to Lai-chau. We made our headquarters in the small village O' Kui Ho where we also collected with good results (gardens and other cultivated areas with secondary vegetation). The four collecting points are situated on the road (secondary forests in good condition) between 1600-1800 m.

The collections were made with the help of many local collectors. Four generators were operated simultanously in various places and biotopes mainly by local collectors.

Geographical data: 22° 20' N, 103° 40' E.

Dates: 8.–29.v.1993, 10.vi.–12.vii.1994, ix.–6.xii.1994, i.1995, 26.–27.ii.1995, 7.iii. 1995, 20.–30.iii.1995, iv.1995, July 1994 to October 1995 (by local collectors).

Mt. Fan-si-pan (FSP 1600 m, FSP 2250 m, FSP 2800 m) near Cha-pa, 1600 m, 2250 m, 2800 m (5 collecting places at different altitudes: 1525 m, 1600 m, 2250 m, 2400 m, 2800 m), virtually undisturbed primary forests in different zonations (up to rhododendron-forests, bamboo-forest, abies-forest and collin level).

Geographical data: 22° 15' N, 103° 44' E.

Dates: 5.-10.vii.1994, 28.x.-3.xi.1994, 1.-5.iii.1995, 20.-29.iii.1995, 20.-30.iv.1995, 20.x.-7.xi.1995.

Tuan-giao, on the road between Lai-chau and Hanoi. Secondary vegetation surrounded by interesting bizarre hills. The collecting site, 17 km before the town Tuan giao (from Lai-cau), was situated at 1200 m altitude. The lamps (two generators in operation) were positioned on the top and on the foot of a hill. Victor SINJAEV collected about 5.000 lepidoptera in Tuan-giao.

Geographical data: 21° 35' N, 103° 25' E.

Dates: 5.-10.xi.1994.

Farin-pass, 20 km NW Son-la on the road between Lai-chau and Hanoi. Secondary forest was found only in small fragments; altitude 1600 m. Two generators were operated on the

pass and at the foot of the hill. The collecting result was rather poor (ca. 2.000 Lepidoptera).

Geographical data: 21° 22' N, 103° 52' E.

Dates: 11.-13.xi.1994.

Mai-chau, 25 km SE Moc-chau. The collecting sites were situated on the road, 155 km before Hanoi near a Meo-village at approximately 1100–1400 m altitude. The collecting site was about 1 hour's walk on the mountain through secondary and also primary forests. The lamp (two generators) itself was hung inside the forest at the top of a small hill. The collecting results were excellent with regard to the quantity and quality of the species (more then 10.000 specimens).

Geographical data: 20° 50' N, 104° 40' E. Dates: 14.–18.xi.1994, 7.–15.iv.1995.

Kim Boi, 30 km W Hoa-Binh is a village (200 m altitude) surrounded by a cultivated area, known for its good mineral water. The place is situated on the road to Hanoi. However the collecting was very poor (less then 200 specimens).

Geographical data: 20° 50' N, 105° 15' E.

Dates: 19.xi.1994.

Ben En National Park is situated 40 km SW the town of Than Hoa. The national park was established when a big part of the lowland forest was flooded by water as a result of a new dam constructed for a power plant. The vegetation consists of secondary and a little primary forest on flat land. Collecting sites were near the lake at about 200 m altitude. The collecting results were good, particularly with regard to Lymantriidae and Noctuidae (about 15.000 specimens).

Geographical data: 18° 40' N, 105° 40' E.

Dates: 22.-30.xi.1994.

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