

ON SOME COLLECTIONS OF THYSANURA FROM EAST AND NORTH EAST INDIA

A. K. HAZRA, M. BISWAS and S. K. MITRA

Zoological Survey of India, M-Block, New Alipore, Calcutta-700 053

The study of Indian fauna of Thysanura has been neglected except some stray works by Escherich (1903), Silvestri (1913, 1938, 1948), Wygodzinsky (1954) and Hazra (1980). Mendes (1990) pointed out : "The quite poorly known Indian fauna of thysanurans is for the reason that these insects are not found frequently due to their concealing habit. Special efforts are needed for their collection." The present study is based on a small collection of about 150 examples present in the National Collection of Zoological Survey of India from the eastern and North-eastern parts of India. This report however reflects only part of the knowledge that we have on this group of insects from these areas. Thus there remains ample scope for further exploration of more taxa from these regions in future. Ten species under six genera were recorded so far from the states of North-eastern India.

The present paper deals with thirteen species of Thysanura under two families and nine genera of which the genus *Silvestrella termitophila*, *Stylifera impudica* and *Ctenolepisma dubitalis* are being recorded for the first time from India. Further, *Ctenolepisma longicaudata*, not known earlier from Tripura, is being recorded for the first time from this state alongwith *Acrotelsa collaris*, *Ctenolepisma longicaudata* and *Ctenolepisma ciliata* from Bihar having no records of Thysanura so far. *Acrotelsa collaris*, *Stylifera wygodzinskyi* and *Ctenolepisma nigra* are also being recorded for the first time from the state of Orissa. *Stylifera impudica*, *Silvestrella termitophila*, *Thermobia domestica* and *Afrolepisma nigrina*, not known from West Bengal, are also being recorded for the first time in this investigation. Sikkim thysanuran fauna, known so far through one species viz., *Lepisma saccharina* (Wygodzinsky, 1954), is being enriched through records of two more species viz., *Ctenolepisma longicaudata* and *Ctenolepisma ciliata*. Two more species of Thysanura namely *Ctenolepisma ciliata* and *Ctenolepisma dubitalis* are being recorded for the first time from Manipur, earlier record being only one species, viz., *Ctenolepisma longicaudata* from the state (Wygodzinsky, 1954).

The present contribution attempts to record various species of Thysanura from the states of east and north east India and descriptions of the species have already been given by Escherich (1905), Silvestri (1913), Wygodzinsky (1972) and Hazra (1993).

SYSTEMATIC ACCOUNT

| | |
|--------------|---------------|
| Order | THYSANURA |
| Sub order | ZYGENTOMA |
| Super Family | LEPISMATOIDEA |

Key to the families

- 1 Eyes and ocelli absent *Nicoletiidae*
 Eyes present 2
2. Ocelli present, scales absent *Lepidotrichidae*
 Ocelli absent, scales present *Lepismatidae*

Family : LEPISMATIDAE

Genus *Ctenolepisma* Escherich, 1905

Ctenolepisma longicaudata Escherich, 1905

1905. *Ctenolepisma longicaudata* Escherich. *Zoologica (Stuttgart)*, **43** : 83.

1940. *Ctenolepisma urbana*, Slabaugh, *Ent. News.*, **51** : 95 (*sensu*, Wygodzinsky, 1972).

Material examined : 1 ♂, INDIA West Bengal, Indian Museum compound, Calcutta, 10.1.1912. Coll. Anonymous; 1 ♂, Indian Museum, Calcutta, 23.xii.1947, Coll. Anonymous; 1 ♂, 1 ♀, Darjeeling, Birch Hill, 22.viii.1978. Coll. B. K. Mondal , 5 ♂♂, 2 ♀♀, Darjeeling, 4.v.1975. Coll. B. K. Biswas; 2 ♀♀, Z.S.I., West Bengal Survey, Murshidabad, Stn. 2. (from Mango tree bark), 4.xi.1974. Coll. A. K. Hazra; 1 ♂, Indian Museum compound, Calcutta, 3.i.1972. Coll. R. L. Chowdhury; 1 ♀, Birch Hill, Darjeeling, from old papers and stored atta, 20.ix.1975. Coll. B. K. Biswas, 1 ♀ from the wall of Jabakusum House, Calcutta, 9.i.1974, Coll. P. H. Roy, 2 ♂♂, 2 ♀♀ Manipur Z.S.I. Manipur Survey, 1992, Stn.-7 Circuit House, Churachandpur, 2.iv.1992 (at night) Coll. A. K. Hazra, 10 ♀♀, Z.S.I. Manipur Survey, 1992, Churachandpur (at night). 3.iv.1992, Coll. A. K. Hazra : 1 ♀, Z.S.I. Manipur Survey, Loc. Churachandpur Circuit House, 1.iv.1992, (at night) Coll. A. K. Hazra; 3 ♀♀ (Z.S.I. Reg. No. 50/69) Bihar Z.S.I. Chotanagpur Survey, Kamarhati, 3 km. south of Chaibasa Railway Station, Stn. No. 28; Field Coll. No. 3., Coll. Rajtilak; 1 ♀ (Z.S.I. Lot No. 99/71) TRIPURA Z.S.I. Tripura Survey, loc. Teliamura, 2.ii.1971. Coll. V C. Agrawal; 1 ♀, SIKKIM : Z.S.I. Sikkim Survey, 1995, Stn. No. 12. Rabun, 16.x.1995. Coll. S. K. Mitra; 2 ♀♀ (Z.S.I. Lot No. 93/88) Z.S.I. Sikkim Survey, Tumba, Alt. 1475 m. East Sikkim, Coll. V C. Agarwal.

Distribution : INDIA : West Bengal, Uttar Pradesh, Sikkim, Bihar, Tripura, Manipur.

Remarks : The species is recorded for the first time from the states of Tripura, Bihar and Sikkim.

Ctenolepisma ciliata (Dufour, 1831)

1831. *Lepisma ciliata* Dufour. *Ann. Sci. Nat.*, **22** : 420.

1890. *Lepisma ciliata* : Grassi et Rovelli, *Nat. Sci.*, **9** : 80.

1905. *Ctenolepisma ciliata*, Escherich, *Zoologica* (Stuttgart) **83** : 80.

Material examined : 2 ♀♀, INDIA : West Bengal, Bhatapur, Dhraka river, dist. Bankura, 20.xi.1974, Coll. A. K. Hazra. 1 ♀ (Juvenile), 1 ♀, Z.S.I. West Bengal Survey, District. Birbhum, Station-7. 10.xi.1974. Coll. A. K. Hazra; 3 ♀♀, West Bengal Survey, 1974. District Murshidabad, Hazarduari Campus, Station 2. (from mango tree bark), 4.xi.1974. Coll. A. K. Hazra, 1 ♂, Darjeeling Govt. College, District Darjeeling, 4.vii.1976, Coll. B. G. Kundu; 1 ♂, 1 ♀, Beldanga, District Murshidabad, 5.xi.1974 Coll. A. K. Hazra; 2 ♂♂, Ghatiali Hills, District Purulia Station-12, Alt. 800 ft. (from tick bark), 17.xi.1974 Coll. A. K. Hazra; 1 ♂, 1 ♀, Jabakusum House, Calcutta 26.viii.1976. Coll. D. C. Bhattacharya; 1 ♀, Kakdweep, South 24-Parganas, on the muddy road by the side of the river, 13.iii.1977. Coll. A. K. Sanyal, 2 ♂♂, Hazarduari, District Murshidabad. (from Mango tree bark) 4.xi.1974, Coll. A. K. Hazra; 1 ♀, Manipur Z.S.I. Manipur Survey 1992. Station-7, Loc. Churachandpur, Circuit House, 2.iv.1992. Coll. A. K. Hazra, 1 ♂, (Z.S.I. Lot No. 50/69) Bihar forest, 3 km. SE of chas, Bokaro Steel City, District Dhanbad. (from soil nest) Station No. 57, 20.xi.1968. Coll. Raj Tilak; 1 ♀ (Z.S.I. Lot No. 50/69) Bihar : Z.S.I., Chotanagpur Survey, Govindapur, 3 km. North West Chakulia Rly. Station, (from ant nest in a mango tree) Station No. 15. Field Coll No. 13, 29.x.1968 Coll. Raj Tilak; 1 ♂, Sikkim : Z.S.I. Sikkim Survey, 1995, Rabun. Station No. 12. 16.x.1995, Coll. S. K. Mitra; Z.S.I. Sikkim Survey, 1994. Mangan, F. C. No. 12/6 Stn.-2 (from wall of the Rest House) 2.iv.1994, Coll. P. H. Roy, 1 ♀, Chungtham, North Sikkim, Alt. 1500 m. 4.xi.1992, Coll M. S. Shishodia.

Distribution : INDIA : West Bengal, Delhi, Bihar, Sikkim, Manipur.

Remarks : This species is the first record from the states of Sikkim, Bihar and Manipur.

Ctenolepisma nigra (Oudemans, 1890)

1890. *Lepisma nigra* Oudemans In : *Weber zoolog.*, *Ergebnisse* **1** : 82.

1913. *Ctenolepisma nigra*, Silvestri, *Rec. Ind. Mus.*, **9** : 56-57.

Material examined : 1 ♀ (Z.S.I. Reg. No. 9942/18) INDIA West Bengal, Calcutta, 19.xii.1907. Coll. Mus. Collr. 5 ♂♂, 3 ♀♀, Orissa; Barkul District, Puri, (In Bunglow), ix.1912, Coll. F. H. Gravely.

Distribution : INDIA : West Bengal, Orissa.

Remarks : This species is recorded for the first time from the state of Orissa.

Ctenolepisma dubitalis Wygodzinsky, 1959

1959. *Ctenolepisma dubitalis* Wygodzinsky : In Studies on the fauna of Curacao and other Caribbean Islands, **9.**, No. 36 : 35.

Material examined : 1 ♀, INDIA Manipur, Z.S.I. Manipur Survey, 1992, Churachandpur, 3.iv.1992, Coll. A. K. Hazra.

Distribution : INDIA : Manipur.

Remarks : This species is recorded for the first time from India as well as from the state of Manipur.

Genus *Acrotelsa* Escherich, 1905*Acrotelsa collaris* (Fabricius, 1793)

1793. *Leppisma collaris* Fabricius, *Ent. Syst.*, **2** : 64.

1913. *Acrotelsa collaris*, Silvestri, *Rec. Ind. Mus. Calcutta.*, **9** : 58.

Material examined : 1 ♂, INDIA : Orissa, Balugaon to Barkul, from the nest of stegodyphns sarisinorum Karsch, 1.viii.1914. Coll. F. H. Gravely; 2 ♀♀, (Z.S.I. Reg. No. 9939/13) West Bengal : Indian Museum, Calcutta, among old papers. 19.xi.1910. Coll. Imms; 1 ♂, (Z.S.I. Reg. No. 8050/13), Indian Museum, Calcutta, date not cited, Coll. Anonymous; 1 ♂, (Z.S.I. Reg. No. 948/13), Indian Museum, Calcutta, (from wall), 1.xi.1908. Coll. N. A. 2 ♂♂ (Z.S.I. Reg. No. Nil), Loc. Indian Museum, Calcutta, 6 ♂♂, 2 ♀♀, Indian Museum, Calcutta (in Insect room) 29.vi.1912. Coll. F. H. Gravely, 1 ♀, Orissa; Barkul, Date not cited, Coll. F. H. Gravely; 1 ♀, Bihar, Z.S.I. Chotonagpur Coalfield area Survey E.I.A. Programme, 1994. Oundings, District Bokaro, Ranchi. 11.vi.1994. Coll. A. K. Sanyal; S. Chatterjee; T. K. Pal; A. Karmakar; 2 ♂♂ (Z.S.I. Lot No. 50/69), Z.S.I. Chottanagpur Survey, Daltongunj. Stn. No. 23. T-214 27.ix.1966, Coll. Raj Tilak.

Distribution : West Bengal, Orissa, Bihar.

Remarks : This species is recorded for the first time from the states of Bihar and Orissa.

Genus *Stylifera* Stech. 1932*Stylifera wygodzinskyi* Hazra, 1980

1980. *Stylifera wygodzinskyi* Hazra, *Bull. Zool. Surv. India.*, **2** (2 & 3) : 187-191.

Material examined : 6 ♂♂, 2 ♀♀, INDIA West Bengal, Cherichaforest, Suri, District Bhirbhum, under the bark of Saal tree. 2.xi.1974. Coll. A. K. Hazra; 5 ♂♂, 5 ♀♀, Bishnupur, District Bankura, Stn. 18 (Z.S.I. West Bengal Survey) from sall tree. 24.xi.1974. Coll. A. K. Hazra; 10 ♂♂, 9 ♀♀, Joypur forest, Bankura, Stn. 17, from Saal bark, 23.xi.1974. Coll.

Anonymous, 7 ♂♂, 11 ♀♀, gonpurforest, District Birbhum, Stn. 7. from bark of Saal tree 10.xi.1974. Coll. A. K. Hazra, 1 ♂, 3 ♀♀, Ghatiali Hills. Digha forest, District Purulia, Stn. 12 Teak bark, 17.xi.1974. Coll. A. K. Hazra, 15 ♂♂, 7 ♀♀ digha forest, Purulia, in Saal bark, Stn. 12 Alt. 800 ft. 17.xi.1974. Coll. A. K. Hazra, 2 ♂♂, 3 ♀♀, Beldanga, District, Murshidabad. Stn. No. 3, under the bark of mango tree. 5.xi.1974. Coll. A. K. Hazra; 1 ♂, Purulia, Matha Protected Hills Stn. 11, from streamside litter, 16.xi.1974. Coll. A. K. Hazra, 3 ♀♀, Bhatapur, side of Darakeswar river, Bankura, (from bark of mango tree), West Bengal Survey, 1974. Stn. No. 14, 20.xi.1974. Coll. A. K. Hazra; 1 ♂, Golapbag, District Murshidabad. Stn. 2 4.ii.1974. (from Mango tree bark) Coll. A. K. Hazra; 2 ♂♂, 1 ♀, Sushnia hills, Bankura, Stn. 15. Alt. 700 ft. (from bark of Segun), 21.xi.1974. Coll. A. K. Hazra; 1 ♂ Chandrapur forest, Sure, District, Birbhum (from bark of mango tree) 9.xi.1974. Coll. A. K. Hazra; 2 ♀♀ Berhampore, District. Murshidabad (under the bark of Mango tree) 3.ii.1974. Coll. A. K. Hazra, 1 ♂, Purulia West Bengal, Date not cited, Coll. Anonymous; 1 ♀, 1 ♂, (Z.S.I. Lot No. 97/72), Orissa, Z.S.I. Survey, Gopalpur, Keonjhar, 5.ii.1982. Coll. A. K. Sanyal.

Distribution : INDIA West Bengal, Orissa.

Remarks : This species is recorded for the first time from the states of Orissa.

Stylifera impudica (Escherich, 1905)

1905. *Acrotelsa impudica* Escherich, *Zoologica* (Stuttgart), **83** : 112.

1959. *Stylifera impudica*, Wygodzinsky, In : Studies on the Fauna of Curacao and other Caribbean Islands **9** : 28-49.

Material examined : 1 ♀, INDIA District. Murshidabad, Stn. 2, Z.S.I., West Bengal Survey, 4.xi.1974, Coll. A. K. Hazra.

Distribution : INDIA West Bengal.

Remarks : This species is recorded for the first time from India.

Genus : *Thermobia* Bergroth 1890

Thermobia domestica (Packard), 1873

1873. *Lepisma domestica* Packard, *Rep. peabody Acad. Arts and Sc.*, **5** : 48.

1894. *Lepismodes furnorum*, Bergroth, *Ent. Monthly Mag.*, **5** (2) : 111.

1905. *Thermobia domestica*, Escherich, *Zoologica* (Stuttgart) **83** : 101.

Material examined : 1 ♀, (Z.S.I. Reg. No. 8048/18), label reads as 'INDIA : West Bengal, Indian Museum, Calcutta (in insect box) 22.v.1911. Coll. N.A.'

Distribution : INDIA : West Bengal, Tamil Nadu.

Remarks : This species is recorded for the first time from the state of West Bengal.

Genus : *Lepisma* Linnaeus 1758

Lepisma saccharina Linnaeus, 1758

1758. *Lepisma saccharina* Linnaeus, *Syst. Natur.*, (ed. 10) 1 : 806.

1984. *Lepisma saccharina*, Mendes, *Stuttgart Beiträge Naturk.*, A (372 : 9).

Material examined : 1 ♀, INDIA : Sikkim, (Z.S.I. Sikkim Survey 1994), Mangan (from Wall of the rest houses) F.C. No. R/6 Stn. No. 2, 2.iv.1994, Coll. P. H. Roy; 8 ♂♂, 4 ♀♀ (Z.S.I. Lot No. 93/88), Sikkim, Tumin, Alt. 1800 m. East, (from Books) 29.ix.1988. Coll. V C. Agrawal.

Distribution : INDIA Sikkim.

Genus : *Tricholepisma* Paclt., 1967

Tricholepisma gravelyi (Silvestri, 1913)

1913. *Lepisma gravelyi* Silvestri, *Rec. Ind. Mus.*, 9 : 53.

1967. *Lepisma (Tricholepisma) gravelyi*, Paclt, *Genera Insectorum*; 218 : 23.

1981. *Asterolepisma (Asterolepisma) gravelyi*, Mendes, *Rev. Zool. afr.* 95 : (1) : 200.

1988. *Tricholepisma gravelyi*, Mendes, *Boletim da Sociedade Portuguesa de Entomologia*, Supl. No. 2 : 39.

Material examined : 1 ♂, INDIA : Indian Museum Compound, Calcutta, from tree trunk with termites, date not cited, Donor : C. Paiva.

Distribution : INDIA : West Bengal (Calcutta).

Genus : *Afrolepisma* Mendes, 1981

Afrolepisma nigrina (Silvestri, 1913)

1913. *Lepisma nigrina* Silvestri, *Rec. Ind. Mus.*, 9 : 54.

1978. *Asterolepisma nigrina*, Mendes. *Proc. I. Intern. Semin. Apterygota* (Siena) : 92.

1988. *Afrolepisma nigrina*, Mendes, *Boletim do Sociedade Portuguesa de Entomologia*, Supl. No. 2 : 63.

Material examined : 1 ♀, INDIA : West Bengal, South 24-Parganas, Port Canning Stn.-1. 7.viii.1964. Coll. Anonymous.

Distribution : INDIA : West Bengal. Orissa.

Remarks : It is the first record of the speices from West Bengal.

Genus : *Silvestrella* Escherich, 1905

Silvestrella termitophila Escherich, 1905

1905. *Silvestrella termitophila* Escherich, *Das System der lepismatiden* (Stuttgart), **83** : 66.

1970. *Silvestrella termitophila*, Wygodzinsky, *Amer. Mus. Nat. Hist.*, **142** (3) : 253.

Material examined : 1 ♂, INDIA : Indian Museum Premises, Calcutta (within termite mound), 21.v.1914, coll. F. H. Gravely.

Distribution : INDIA : West Bengal.

Remarks : This genus and speices, originally described from South Africa (Escherich, 1905), is being recorded for the first time from India.

Family : NICOLETIIDAE

Genus *Atelura* Vonheyden, 1855

Atelura typhloponis Silvestri, 1913

1913. *Atelura typhloponis* Silvestri, *Rec. Ind. Mus.*, **9** : 50.

1993. *Atelura typhloponis*, Hazra, *Rec. zool. Surv. India*, Fauna West Beng., **4** : 7.

Material examined : 1 ♀ (Z.S.I. Reg. No. 8034/18), INDIA : Siliguri, Base of Himalayas, with ants under log and wood, 3-4, vi.1911, Coll. N. A. & S. W. Kemp.

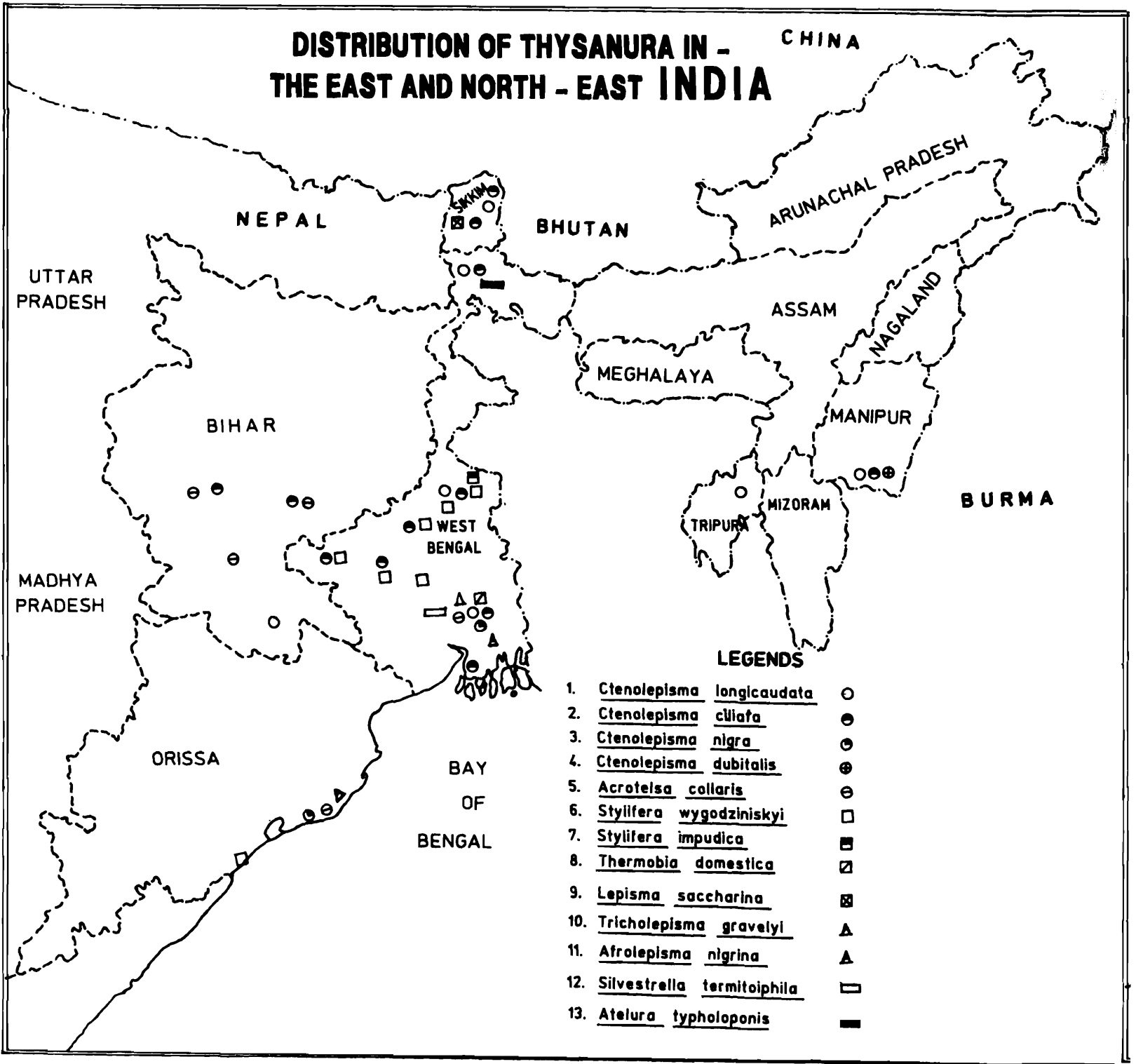
Distribution : INDIA : West Bengal.

ZOOGEOGRAPHY

The knowledge of Thysanura from India is very inadequate. Uptil now we have no information about this group of insects from all the states of N.E. India. Thus no species of Thysanura so far has been reported from four states, viz., Arunachal Pradesh, Assam, Meghalaya and Nagaland. From Tripura two species were recorded recently by the authors (Hazra, Biswas and Mitra, in press).

Out of the thirteen species reported here, *Ctenolepisma longicaudata* is most widely distributed being present in West Bengal, Sikkim, Manipur, Tripura and Bihar. *Ctenolepisma ciliata* is represented in four states of N.E. India, viz., West Bengal, Bihar, Sikkim and Manipur. *Ctenolepisma dubitalis* remains restricted to Manipur only. *Ctenolepisma nigra*, since its first record by Silvestri (1913) from Calcutta, hitherto remains unrecorded from other parts of N.E. India. *Acrotelsa collaris* so far has been recorded from West Bengal,

DISTRIBUTION OF THYSANURA IN - THE EAST AND NORTH - EAST INDIA



Map-1

Table-1
Distribution of the species of Thysanura from the Eastern and North-Eastern India

| Species | West Bengal | Bihar | Orissa | Sikkim | Tripura | Assam | Aruna- chal | Mani- pur | Megha- laya | Mizo- ram | Naga- land |
|--|----------------|-------|--------|--------|---------|-------|----------------|--------------|----------------|--------------|---------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| A. LEPISMATIDAE : | | | | | | | | | | | |
| *1. <i>Acrotelsa collaris</i> | + | + | + | — | — | — | — | — | — | — | — |
| *2. <i>Ctenolepisma longicaudata</i> | + | + | — | + | + | — | — | + | — | — | — |
| *3. <i>Ctenolepisma nigra</i> | + | — | + | — | — | — | — | — | — | — | — |
| *4. <i>Ctenolepisma ciliata</i> | + | + | — | + | — | — | — | + | — | — | — |
| **5. <i>Ctenolepisma dubitalis</i> | — | — | — | — | — | — | — | + | — | — | — |
| *6. <i>Stylifera wygodzinskyi</i> | + | — | + | — | — | — | — | — | — | — | — |
| 7. <i>Lepisma saccharina</i> | — | — | — | + | — | — | — | — | — | — | — |
| 8. <i>Tricholepisma graveleyi</i> | + | — | — | — | — | — | — | — | — | — | — |
| *9. <i>Afrolepisma nigrina</i> | + | — | — | — | — | — | — | — | — | — | — |
| *10. <i>Thermobia domestica</i> | + | — | — | — | — | — | — | — | — | — | — |
| **11. <i>Stylifera impudica</i> | + | — | — | — | — | — | — | — | — | — | — |
| **12. <i>Silvestrella termitophila</i> | + | — | — | — | — | — | — | — | — | — | — |
| NICOLETIDAE : | | | | | | | | | | | |
| 13. <i>Atelura typhloponis</i> | + | — | — | — | — | — | — | — | — | — | — |

* First record from the State

** First Record from India

Orissa and Bihar. *Lepisma saccharina*, recorded by Wygodzinsky (1954) for the first time from Sikkim, was further recorded in this investigation. *Tricholepisma gravelyi* described by Silvestri (1913) from Maidan, Calcutta, West Bengal is the only record of this species from eastern India. *Afrolepisma nigrina*, recorded by Silvestri (1913) for the first time from Orissa, also was found to occur in West Bengal. *Silvestrella termitophila*, originally described from South Africa (Escherich, 1905), is recorded for the first time from India (West Bengal). *Atelura typhloponis*, a myrmecophil, described by Silvestri (1913) from Siliguri, has not been recorded from any other part of India so far.

Stylifera wygodzinskyi, described for the first time from West Bengal (Hazra, 1980), is reported for the first time from Orissa. *Stylifera impudica*, known from Nearctic and Neotropical regions, recorded for the first time from India. *Thermobia domestica*, recorded by Silvestri (1913) from Lahore (Pakistan) is the first record from West Bengal. However, Mendes (1990) also recorded this species from Mandapam (South India) (Map-1).

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