

ON A COLLECTION OF CENTIPEDES (MYRIAPODA :
CHILOPODA) FROM PUNE, MAHARASHTRA.

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INTRODUCTION

The Centipedes are an important group of organisms. They are poisonous, cryptic, solitary, carnivorous and nocturnal. Their distribution and taxonomy have been studied by Attems (1930). The centipedes from Deccan area are reported by Jangi and Dass (1984). However, there is no upto-date account of centipedes occurring in and around Pune, Maharashtra.

On the basis of huge collection present in the Western Regional Station, Pune, an attempt has been made to record centipedes from Pune district.

The present paper deals with six genera comprising eighteen species of centipedes belonging to the family Scolopendridae, mostly collected from Haveli taluka (Fig. 1). Occasionally bling centipedes (Cryptopidae) as well as long centipedes possessing more than 21 trunk segments, were also observed.

DESCRIPTION ON LOCALITIES

Pune city is situated 18° 35' North latitude and 73° 53' East longitude at 558.6 m above MSL, with normal rainfall 675 mm per year in Maharashtra State.

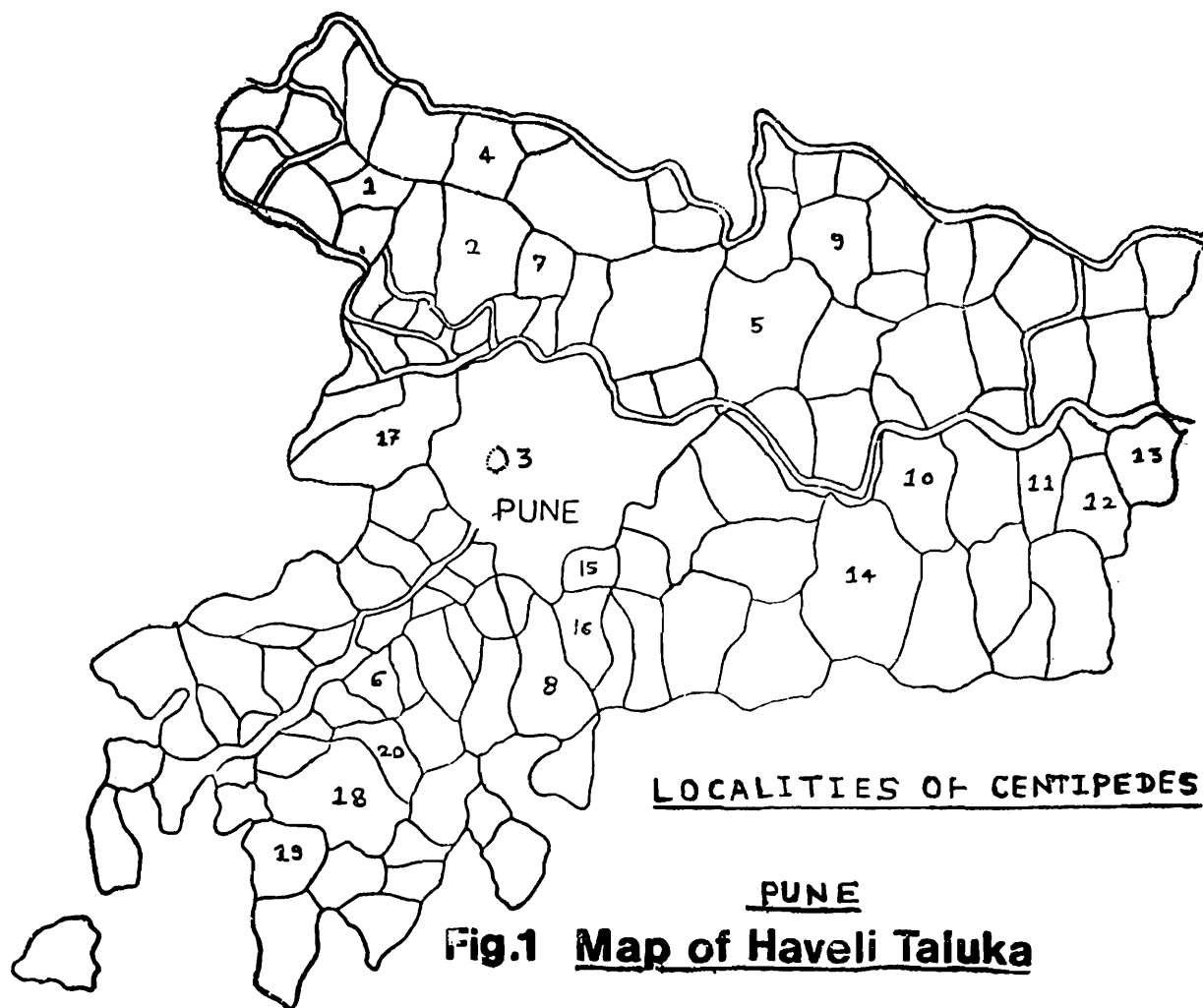
Centipedes were collected in the vicinity of Pune from Haveli, Khed, Maval, Ambegaon, Sirur and Purandar talukas.

Haveli taluka :

Eastern portion of this taluka is characterised by brown soil and mixed deciduous forest.

1. *Akurdi* : Akurdi is a small village situated 18 kms. NW of pune and at 575 m above MSL. This area occupies many stones and boulders.
2. *Bhosri* : Bhosri is a suburban area, 19 km. N of Pune on Pune-Nasik road. At the time of making collection, there was no human invasion.
3. *Chaturshingi hill* : This hill is C. 8 km from Pune, and 650 m above, MSL. It provided protective habitats for centipedes.

4. *Moshi* : Moshi is situated 22 km from Pune, and had wet soil. A good number of species were collected from this area.
5. *Wagholi* : This locality is situated at an altitude of 570.5 m above MSL, latitude 18°35' North and longitude 73°59' East on Pune-Nagar road. There were plenty of stones and boulders suitable for centipedes.
6. *Khadakwasla* : It is situated C 11 km SW of Pune where two localities of centipedes were recorded. One near the dam and the other in the foot hills of the Sahyadri.



7. *Dighi* : Dighi is C 15 km North of Pune on Pune-Alandi road.
8. *Katraj* : Katraj village is 8 km south of Pune on Pune-Satara road. Centipedes were collected in the Ghat area, near Katraj tank and around village.
9. *Lonikand* : Lonikand is 13 km NE of Pune.
10. *Theur* : Theur is C 15 km East of Pune and situated on the bank of Bhima river.

11. Koregaon village is 30 kms. SW of Pune. A good number of centipedes were collected from this station.
12. *Uruli-kanchan* : This locality is 18 km East of Pune and a fair site for collecting the centipedes.
13. *Khamgaon* : This site is 22 kms. East of Pune. Collection was made near village and Khamgaon tank.
14. *Loni Kalbhor* : Loni Kalbhor is at 11 kms. East of Pune on Sholapur road.
15. *Kondhave* : Kondhave is situated 8 kms. SE of Pune.
16. *Pashan* : This village is 9 kms. from Pune. Centipedes were collected around Pashan tank and on Sus-Baner road.
17. *Aundh* : Aundh is situated on the bank of Mula river 10 km from Pune. Centipedes were collected from underneath stones on the bank of river.
18. *Sinhgad* : Sinhgad is the highest locality 1440 M above MSL, 20 kms. SW Pune. It is located at 18° 22' North latitude and 73° 46' East longitude and has steep rocky way. The collection was made from the crevices of elevated land in Ghat area and at the top-Talai garden.
19. *Khamgaon (Maval)* : This area is having mixed type of soil, black and murum.
20. *Donje* : Donje is situated 14 kms. SW of Pune at the base of Sinhgad fort.
21. *Empress garden* : Garden is situated East of the Race course on Prince of Wales Drive. It provides good natural habitat for centipedes.
22. *Pune University compound* : It is a vast green zone having stones, boulders, barks and dry foliage suitable for centipedes to obtain shelter. Cooler climate and thick vegetation provide good opportunity for terrestrial invertebrates to enrich their population.
23. *Vaghur village* : The centipedes were collected from black, moist soil.
24. *Kowdi* : This locality offered suitable habitat for centipedes, underneath stones and boulders.
25. *Vetal hill* : This is a hill near Symbiosis Institute, Pune.
26. *Hanuman tekdi* : It is a small hill in Pune city.

Ambegano Taluka :

In the extreme west, evergreen forest is dominant, and the soil is red in some area.

27. *Bhimashankar* : It is a high altitude station surrounded by evergreen forest, characterised by cooler climate. A new species of centipede has been described by Jangi & Dass (1984) from this locality.

Khed Taluka :

The brown soil is in the transition tract of Khed, Haveli, West of Sirur and Purandar taluka.

28. *Alandi* : Alandi is 20 km from Pune, situated on the bank of Indrayani river.
29. *Chakan* : Chakan is situated 32 km south of Pune on Nasik road.
30. *Khed* : Khed or Rajgurunagar is 45 km from Pune.

Maval taluka :

31. *Taleganon Dabhade* : It is 32 km from Pune at latitude 18° 45' North, and longitude 73° 41' East.
32. *Kamshet* : It is 46 km from Pune. Indrayani river passes near the village.
33. *Karla* : Karla is 57 km from Pune. The hill provides fairly Protected habitats for centipedes.
34. *Bhor ghat* : Bhor ghat of Khandala ghat C 68 kms. from Pune, is the largest ghat in the area. The climate of this area remains cool throughout the year and the moist soil offers habitats for centipedes.

Mulshi taluka :

35. *Mulshi* : Mulshi is situated C 50 km from Pune.
36. *Paud* : Paud village is located 22 km from pune.
37. *Pirangut* : It is located C 15 km East of Pune.

Purandar taluka :

38. *Saswad* : It is located at 18°21' North latitude and 74° 1' East longitude, 30 km. from Pune on the bank of Karha river.
39. *Yavat* : Yavat is situated on Sholapur road.
40. *Kamthadi* : Kamthadi is situated C 20 kms. SW of Pune.

Sirur taluka :

The black soil observed in this taluka, while western portion occupies brown and red soil.

41. *Kondapuri* : This village is located 27 kms. SW of Pune, harbouring plenty of stones suitable for centipedes to hide.

SYSTEMATIC ACCOUNT

1. *Scolopendra amazonica* Bucherl

1946. *Scolopendra amazonica* Bucherl. *Mem Inst. Butantan*, 19 (1-10) ; 135-158.

Material examined : 265 ex., Akurdi, Bhosri, Chaturshingi hill, Moshi, Wagholi, Khadakwasls, Dighi, Katraj, Lonikand, Theur, Koregaon, Uruli Kanchan, Khamgaon,

Kondave, Pashan, Aundh, Singhgad, Pune University, Vaghur, Kowdi, Vetat hill Hanuman tekdi, Alandi, Chakan, Khed, Talegaon-Dabhade, Pirangut, Saswad, Yavat and Kondapuri ; collected in the months of February and from June to October.

***Distribution* :** Maharashtra, Karaataka, Andhra Pradesh, Goa, Madhya, Pradesh, Orissa, Pondicherry, Kerala, Tamil Nadu, in warmer lands.

***Diagnostic features* :** Spiracles triangular ; terminal leg segment with coxopleural pores ; 1st tergite overlaid by cephalic plate. Anal leg-prefemur ventrally have 9 spines in 3 longitudinal crows. 20th walking leg lacks tarsal spur.

2. *Scolopendra morsitans* Linnaeus

1758. *Scolopendra morsitans* Linnaeus *Syst. Nat.*, ed. 10 p. 638.

***Material examined* :** 36 ex., Bhosri, Moshi, Wagholi, Dighi, Katraj, Lonikand, Theur, Koregaon, Khamgaon, Kondhave, Empress garden, Kowdi, Alandi, Khed, Talegaon Dabhade, Bhor ghat and Kondapuri ; collected in the months of June to October.

***Distribution* :** Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Madhya Pradesh, Uttar Pradesh, Orissa, Himachal Pradesh, Jammu & Kashmir, Rajasthan, Bihar, in all tropical lands.

***Diagnostic features* :** Similar to *S. amazonica* but differs in the 20th walking leg, having tarsal Spur.

3. *Scolopendra hardwickei* Newport

1845. *Scolopendra hardwickei* Newport, *Trans, Linn. Soc.*, London, 19 : 349-439.

***Material examined* :** 2 exs., Vetat hill, Bhimashankar ; collected in the months of June and August.

***Distribution* :** Maharashtra, Andhra Pradesh, Karnataka, West Bengal, Andaman and Nicobar Islands.

***Diagnostic features* :** Alternate brown, dark, green or brownish yellow bands on the trunk. Anal leg prefemur without speines ventrally.

4. *Scolopendra punensis* Jangi & Dass

1984. *Scolopendra punensis* Jangi & Dass, *J. Sci. Ind. Res.* Vol. 43, 43 : 27-54.

***Distributton* :** Maharashtra, Pune district.

***Diagnostic features* :** Cephalic plate rugose.

5. *Scolopendra andhrensensis* Jangi & Dass

1984. *Scolopendra andhrensensis* Jangi & Dass, *J. Sci. Ind. Res.*, 43 : 27-54.

Material examined : 1 ex. Vetal hill, Pune ; collected in the month of September, by a survey party.

Distribution : Andhra Pradesh, Vishakhapatnam dist., Maharashtra—pune district.

Diagnostic feature : Cephalic plate having coarse pit like puncta.

6. *Cormocephalus pilosus* Jangi

1955. *Cormocephalus pilosus* Jangi, *Ann. Mag. nat. Hist.*, Ser 12.

Material examined : 38 exs., Moshi, Wagholi, Dighi, Katraj, Theur, Koregaon, Uruli Kanchan, Kowdi, Vetal hill, Khed, Talegaon-Dabhade ; collected from June to September and December.

Distribution : Maharashtra, Andhra Pradesh, Karnataka Mangalore and Karwar.

Diagnostic features : All legs without tarsal spur. Anal legs pilose.

7. *Cormocephalus nudipes* Jangi & Dass.

1984. *Cormocephalus nudipes* Jangi & Dass, *J. Sci. Ind. Res.*, 43 : 27-54.

Material examined : 1 ex., Pune University campus ; collected in the month of June.

Distribution : Maharashtra—Pune, Andhra Pradesh-Nalgonda dist ; Karnataka—Mangalore and Karwar.

Diagnostic feature : Anal legs smooth.

8. *Cormocephalus pseudonudipes* Jangi & Dass

1984. *Cormocephalus pseudonudipes* Jangi & Dass, *J. Sci. Ind. Res.*, 43 : 27-54.

Material examined : 3 exs., Bhimashankar ; collected in the month of May.

Distribution : Maharashtra, Andhra Pradesh, Tamil Nadu.

Diagnostic features : Lateral tergital margination present anteriorly to 21. Maxillipede with prefemoral process. Anal legs in both sexes smooth.

9. *Asanada brevicornis* Meinert

1886. *Asanada brevicornis* Meinert, Vidøn. Skabl. Meddel. mathi. Fore. Kjobe, Pt. 3.

Material examined : 13 exs., Bhosri, Chaturshingi hill, Lonikand, Theur, Koregaon, Urulikanchan, Paud, Saswad, Yavat ; collected in the months of February, July, August, October and December.

Distribution : Maharashtra, Rajasthan, Himachal Pradesh, Andaman Island,

Diagnostic features : Terminal leg segment without coxopleural pores ; longitudinal dorsal median groove present posteriorly on anal leg prefemur, femur & tibia.

10. *Asanada sokotrana* Pocock

1891. *Asanada sokotrana* Pocock, *Ann. Mag. nat. Hist* ; 7 : 51-68 and 221-231.

Material examined : 2 exs., Moshi, collected in the month of February.

Distribution : Maharashtra, Kerala, Tamil Nadu.

Diagnostic features : Longitudinal median groove present throughout on anal leg femur.

11. *Asanada indica* Jangi & Dass

1984. *Asanada indica* Jangi & Dass, *J. Sci. Ind. Res.*, 43 : 27-54.

Material examined : 1 ex., Uruli Kanchan, collected in August.

Distribution : Maharashtra.

Diagnostic features : Longitudinal median groove present only on posterior half of anal leg prefemur and femur.

12. *Digitipes barnabasi* Jangi & Dass

1984. *Digitipes barnabasi* Jangi & Dass, *J. Sci. Ind. Res.*, 43 : 26-54.

Material examined : 5 exs., Karla, Bhor ghat, Mulshi, Kamthadi ; collected in the months of June, September October.

Distribution : Maharashtra, Tamil Nadu.

Diagnostic features : Nine pairs of oval spiracles. Femur of anal leg, in male, with a posteriomedial process. Claw of 2nd maxilla without spur. Porous area of coxopleuron almost touching dorsal margin. Identification revealed the occurrence of *D. chhotanii* Jangi & Dass and *D. indicus* Jangi & Dass at Khandala ghat.

13. *Otostigmus (Otostigmus) orientalis* (Porat)

1876. *Otostigmus (Otostigmus) orientalis* Porat, *Bihan. Sevens vent. handlinger*, 4 : 1-48.

Material examined : 4 exs., Bhor ghat, collected in June.

Distribution : Maharashtra—Pune, Bombay districts.

Diagnostic features : Femur of anal leg, in male, without posteriomedial process ; claw of 2nd maxilla with spur ; tergites without throny tracts.

14. *Rhysida nuda* (Newport)

1845. *Rhysida nuda* (Newport), *Trans. Linn. Soc., London*, 19 : 349-439.

Material examined : 74 exs., Bhosri, Moshi, Wagholi, Khadakwasla, Dighi, Katraj, Theur, Koregaon, Sinhgad, Vetel hill, Hanuman tekdi, Chakan, Talegaon Dabhade, Kamshet, Paud, Kondapuri ; collected in April and from June to December.

Distribution : Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Assam.

Diagnostic features : Ten pairs of oval spiracles ; femur of maxillipede with median dental process ; tergites 1-20, not marginated laterally, and except anterior one, with complete paramedian sutures.

15. *Rhysida lithobioides* Newport

1845. *Rhysida lithobioides* Newport, Trans. Linn. Soc., London, 19 : 349-439.

Material examined : 2 exs., Vetel hill ; collected in July and September.

Distribution : Old world ; Maharashtra-Pune district.

Diagnostic features : Tergites 1-20 marginate laterally. Coxopleural process without lateral spines. Anterior sternites confined short suture. First 8 or more pairs of legs with two tarsal spurs.

16. *Rhysida lithobioides trispinosus* Jangi & Dass

1984. *Rhysida lithobioides trispinosus* Jangi & Dass, J. Sci. Ind. Res., 43 : 27-54.

Material examined : 24 exs., Wagholi, Khadakwasla, Katraj, Uruli Kanchan, Pashan, Kamthadi ; collected in the months from June to September.

Distribution : Maharashtra, Tamil Nadu.

Diagnostic feature : Coxopleural process tipped with 3 spines ; 21st Sternite tapering posteriorly.

DISCUSSION

It is evident from systematic account that *Scolopendra amazonica* Bucherl and *S. morsitans* (Linn.) are common species, occurring in most of the localities in Pune. These species were recorded from more than 14 localities of Haveli and Khed taluka, having brown soil. *S. hardwickei* Newport, collected from Vetel hill and Bhimashankar, *Digitipes barnabasi* Jangi & Dass and *Otostigmus (O.) orientalis* porat collected from Bhorghat and Karla, indicate preference for places of high altitudes and Ghat areas.

Digitipes barnabasi Jangi & Dass is mostly restricted to Mulshi, Maval and Purandar talukas except one from Haveli. Moshi and Koregaon seem to be best localities represented by 6-7 species of centipedes.

Asanada brevicornis Meinert was obtained from Koregaon, Bhosri, Chaturshingi hill, Urulikanchan, Lonikand, Paud, Yavat and Saswad villages of Haveli, Mulshi and Purandar talukas, showing preference for brown and mixed type of soil.

Cormocephalus pilosus Jangi was mainly collected from Haveli taluka. *C. pseudonudipes* Jangi & Dass was only noticed at Bhimashankar, an evergreen forest area on high altitude, and *C. nudipes* Jangi & Dass was collected from Pune University campus which is also a greenery with plenty of dry foliage.

Rhysida nuda (Newport) shows mixed distribution and general preference for brown soil. *R. lithobioides* (Newport) was collected from Vetal hill and Dighi. It appears that *Rhysida* may show liking for the hilly area.

Further, it was noticed that although surveys were conducted during monsoon and other months, actually a good number of collection was obtained in monsoon months (June to September). Since lower invertebrates undergo aestivation in winter months, few centipedes were located in these months. On account of their weaker cuticle and to conserve water, centipedes avoid direct solar radiation in summer and foliage during the hot day. Obviously only 3 examples of *C. pseudonudipes* Jangi & Dass could be collected in May at Bhimashankar.

In contrast to the observation of Khanna & Tripathi (1984) indicating that the genus *Cormocephalus* was collected by them mainly in winter, We mainly collected it in monsoon months and only 3 examples in winter and summer.

The collection data indicates that centipedes show general preference for brown soil and monsoon climate, and only a few were collected from the places of high altitudes, Ghat areas and evergreen forests.

The Pune and its environ provide suitable habitats, like stones, boulders, damp places, barks, on the ground, high hills, dense forests, etc., with sufficient entomofauna as food for successful survival of centipedes in the terrestrial ecosystem.

SUMMARY

Six genera comprising eighteen species of centipedes were collected from Pune and around. *S. amazonica* Bucharl and *S. morsitans* (Linn.) were predominant species. Centipedes show preference for brown soil in Haveli taluka. Eight species were collected in Ghat area. Moshi and Koregaan are the localities from where 6-7 species were recorded. Out of 5 talukas sarveyed, Haveli represented rich distribution of centipedes.

Centipedes were abundantly located in monsoon months (June to September). *Cormocephalus* was found to be abundant in monsoon rather than in winter and summer.

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LOCALITIES OF CENTIPEDES : (HAVELI)

- (1) Akurdi
- () Bhosri
- (3) Chaturshingi hill
- (4) Moshi
- (5) Wagholi
- (6) Khadakwasla
- (7) Dighi
- (8) Katraj
- (9) Lonikand
- (10) Theur
- (11) Koregaon (Mul)
- (12) Uruli Kanchan
- (13) Khamgaon (Tek)
- (14) Loni Kalbhor
- (15) Kondhave (Kurd)
- (16) Kondhave (Budruk)
- (17) Pashan
- (18) Ghera Sinhgad
- (19) Khamgaon (Maval)
- (20) Donje