



Additional information on the Fern-Diversity of Sikkim State, India-Part I

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Abstract

Sikkim is bestowed with numerous pteridophytes with 438 species and an additional 22 subspecies currently known from the State, counted from the 3 volumes of the *Annotated Checklist of Indian Pteridophytes* (Fraser-Jenkins et al., 2016, 2018 and 2020). This paper catalogues the collections of C.R. Fraser-Jenkins (CRFJ) in Sikkim, who visited several parts of the State and collected herbarium-material, depositing representative specimens in the herbarium of the Forest and Environment Department, Gangtok, Sikkim (SSFH). His collections represent some 200 of the species known from the State. This paper provides information concerning localities and the habitat of ferns and allied plants in the Sikkim Himalaya.

Keywords: Ferns, Fraser-Jenkins, Sikkim, Himalaya.

INTRODUCTION

C.R. Fraser-Jenkins (b. 1948) is a retired independent Welsh pteridologist, resident for 40 years in Kathmandu, Nepal, and formerly a research fellow at the Natural History Museum, London (BM), and at the Royal Botanic Garden, Edinburgh (E), who worked in conjunction with the National herbarium, Godavary, Nepal (KATH). During the course of his 5 and a half decades of study of Himalayan pteridophytes, culminating in his *Annotated Checklist of Indian Pteridophytes*, vols. 1-3 (Fraser-Jenkins, 2016-2020), he was able to study Sikkim Himalayan ferns, focussing mainly on the East and North Districts of Sikkim where he collected many species of ferns in 1993 and 1995. He has contributed many identifications and much information to the work and very extensive collection on Sikkim pteridophytes by Kholia (2010, 2014), of the Botanical Survey of India, then at Gangtok (BSHC), assisting with taxonomic questions and specimen- and photograph-identification throughout the work and identifying Sikkim material in BSHC, CAL, PAN and in the main European and N. American herbaria.

In East Sikkim District, he surveyed across the west and north side of Tsomgo Lake and towards Nathu La Pass, Karponang, South of Bakcha Chu, Bhusuk to Assamlingsay, Rora Chu Valley, ridge between Penlong La (pass) and Tinjure Peak, Gangtok and vicinity. In North Sikkim District, he covered Lachung, Yumthang, Yakchay, Teiling, Chungthang, Naga, Myang Chu, Namok, Tingchem to Rang Rang, Mangan etc. Further, according to the record, he investigated Rabungla, Kewsing, Geyzing, Yuksom and Dzongri vicinities in West Sikkim District and Singtam and Teesta Valley in the south.

The permit-documentation and specimen-lists provided show that the survey was conducted in consultation with the Forest Department for the collection of specimens. In personal communication with Fraser-Jenkins, he mentioned that he deposited the herbarium-specimens in the Forest Department Herbarium (SSFH) after the survey according to the terms of reference of his permit (Fraser-Jenkins, pers. comm. 20.02.2021). Consequently, we have been able to catalogue this significant collection, made available in Sikkim and made in conjunction with his critical knowledge of the ferns of Sikkim and elsewhere in the Himalaya, resulting in the present paper.

This paper provides a checklist and catalogue of representative species collected by Fraser-Jenkins (CREJ) during his research in Sikkim.

MATERIALS AND METHODS

Fraser-Jenkins' collection in the Forest Department, Gangtok, consists of shortly under 200 fully documented and critically identified herbarium-specimens, representing 57 genera and 169 species. This paper presents a catalogue of the specimens below.

RESULTS

Enumerated species from the East, West and North Districts of Sikkim, deposited by Fraser-Jenkins in Sikkim State Forest Herbarium, are as follows. We first list his 1995 collection:

1. *Acystopteris tenuisecta* (Blume) Tagawa (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N.W. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800 m; **Coll.:** CREJ 23059 (FN 967; S 111); **Collection Date:** 12 Nov. 1995.
2. *Adiantum incisum* Forssk. subsp. *incisum* (Pteridaceae).
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** CREJ & L.B. Tamang 23408 (FN 1315; S 243); **Collection Date:** 23 Nov. 1995.
3. *Aleuritopteris albomarginata* (C.B. Clarke) Ching (Pteridaceae).
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** CREJ 23271 (FN 1178; S 193); **Collection Date:** 17 Nov. 1995.
4. *Aleuritopteris bicolor* (Roxb.) Fraser-Jenk. (Pteridaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim highway"; **Habitat:** Forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** CREJ 23335 (FN 1242; S 209); **Collection Date:** 21 Nov. 1995.

5. *Aleuritopteris dubia* (C.Hope) Ching (Pteridaceae).
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, c. 7 km S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23268 (FN 1175; S 192); **Collection Date:** 17 Nov. 1995.
6. *Aleuritopteris formosana* (Hayata) Tagawa (Pteridaceae).
Locality: N. Sikkim District, c. 1 km N.E. of Chungthang on road to Lachung, N. of Gangtok; **Habitat:** cliffs by road; **Altitude:** c.6500ft.; **Coll.:** *CRFJ*, with *C. Carle*, *B.J. Seaton*, *S. Ruger* & *C. Barrett* 23241 (FN 1148; S 181); **Collection Date:** 16 Nov. 1995.
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800 m; **Coll.:** *CRFJ* 23041 (FN 949; S 101); **Collection Date:** 12 Nov. 1995.
7. *Aleuritopteris rufa* (D.Don) Ching (Pteridaceae).
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23267 (FN 1174; S 191); **Collection Date:** 17 Nov. 1995.
8. *Angiopteris crassipes* Wall. ex C.Presl (Marattiaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23109 (FN 927; S 84); **Collection Date:** 12 Nov. 1995.
9. *Antrophyum reticulatum* (G.Forst.) Kaulf. (Vittariaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22959 (FN 867; S 55); **Collection Date:** 9 Nov. 1995.
10. *Arachniodes conifolia* (T.Moore) Ching (Dryopteridaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 23000 (FN 908; S 76); **Collection Date:** 9 Nov. 1995.
11. *Arthromeris himalovata* Fraser-Jenk. & Kandel (Polypodiaceae).
Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c. 3 km N of Lachung on E. side of LachungChu river, S. of Teiling (which is on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway;

Habitat: densely forested gully and slopes beneath conifers, bamboos and broad-leaved trees; **Altitude:** 7800 ft.; **Coll.:** *CRFJ* 23208 (FN 1115; S 169); **Collection Date:** 16 Nov. 1995.

12. *Asplenium bullatum* Wall. ex Mett. (Aspleniaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22963 (FN 871; S 57); **Collection Date:** 9 Nov. 1995.
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up “N. Sikkim Highway” from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22894 (FN 802; S 26); **Collection Date:** 6 Nov. 1995.
13. *Asplenium cheilosorum* Kunze ex Mett. (Aspleniaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up “N. Sikkim Highway” from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22891 (FN 799; S 24); **Collection Date:** 6 Nov. 1995.
14. *Asplenium ensiforme* Wall. ex Hook. & Grev. (Aspleniaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800 m; **Coll.:** *CRFJ* 23054 (FN 962; S 107); **Collection Date:** 12 Nov. 1995.
15. *Asplenium finlaysonianum* Hook. (Aspleniaceae).
Locality: W. Sikkim District, c. ½ km up stream-valley from road-bridge, 8 km N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest on S. side of valley; **Coll.:** *CRFJ* & *L.B. Tamang* 23386 (FN 1293, S 228); **Collection Date:** 23 Nov. 1995.
16. *Asplenium lacinioides* Fraser-Jenk., Pangtey & Khullar (Aspleniaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22965 (FN 873; S 58); **Collection Date:** 9 Nov. 1995.
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800 m; **Coll.:** *CRFJ* 23051 (FN 959; S 104); **Collection Date:** 12 Nov. 1995.

17. *Asplenium nitidum* Sw. (Aspleniaceae).
Locality: N. Sikkim District, c. ½ - 1 km S. of Rang Rang bridge on road to Namok, "North Sikkim Highway" road from Chungthang S. to Gangtok, c. 50 km N. of Gangtok; **Habitat:** forest and rocks; **Altitude:** c. 2700 ft.; **Coll.:** CREJ 23312 (FN 1219; S 202); **Collection Date:** 17 Nov. 1995.
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim Highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** CREJ 23341 (FN 1248; S 211); **Collection Date:** 21 Nov. 1995.
18. *Asplenium normale* D. Don (Aspleniaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S side of BakchaChu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** CREJ 22890 (FN 798; S 23); **Collection Date:** 6 Nov. 1995.
19. *Asplenium (Hymenasplenium) obscurum* Blume (Aspleniaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** CREJ 22892 (FN 800, S 25); **Collection Date:** 6 Nov. 1995.
20. *Asplenium sikkimbirii* Fraser-Jenk. (Aspleniaceae).
Locality: N. Sikkim District, c. ½ km S. of Rang Rang bridge on road to Namok, "North Sikkim Highway" road from Chungthang S. to Gangtok, c. 50 km N. of Gangtok; **Habitat:** forest and rocks; **Altitude:** c. 2700 ft.; **Coll.:** CREJ 23313 (FN 1220; S 203); **Collection Date:** 17 Nov. 1995.
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** CREJ 22895 (FN 804, S 27); **Collection Date:** 6 Nov. 1995.
21. *Asplenium yoshinagae* Makino subsp. *indicum* (Sledge) Fraser-Jenk. (Aspleniaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** CREJ 22966 (FN 874, S 59); **Collection Date:** 9 Nov. 1995.
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar, N. of Gangtok across valley; **Habitat:** dense

- forest; **Altitude:** c. 1800 m; **Coll.:** *CREJ* 23048 (FN 956; S 103); **Collection Date:** 12 Nov. 1995.
22. *Athyrium attenuatum* (C.B. Clarke) Tagawa
(Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft.; **Coll.:** *CREJ&L.B. Tamang* 22831 (FN 739; S 4); **Collection Date:** 5 Nov. 1995.
23. *Athyrium davidii* (Franch.) Christ (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft.; **Coll.:** *CREJ&L.B. Tamang* 22832 (FN 740; S 5); **Collection Date:** 5 Nov. 1995.
24. *Athyrium decorum* Ching (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, c. 2 km above and E. of Karponang, c. 30 km E. of Gangtok on road to Tsomgo Lake and Nathu La Pass (to Chumbi, Tibet); **Habitat:** S.W. facing roadside steep slopes below rocks; **Altitude:** c. 10,800 ft.; **Coll.:** *CREJ&L.B. Tamang* 22838 (FN 746; S 8) and 22839 (FN 747; S 9); **Collection Date:** 5 Nov. 1995.
Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c. 3 km N. of Lachung on E. side of LachungChu river, S. of Teiling (on W. side of river), N of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CREJ* 23220 (FN 1127, S 175); **Collection Date:** 16 Nov. 1995.
25. *Athyrium distans* (D. Don) T. Moore (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800 m; **Coll.:** *CREJ* 23076 (FN 984; S 119) and 23077 (FN 985; S 118); **Collection Date:** 12 Nov. 1995.
26. *Athyrium eburneum* (J. Sm. ex Mett.) J. Sm.
(Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakchavillage, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22906 (FN 814; S 32); **Collection Date:** 6 Nov. 1995.
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at MyangChu (river), S. of Naga, on "North Sikkim Highway" road to Manul, c. 7 km S. of Chungthang, N. of Simdong and Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500 m; **Coll.:** *CREJ* 23287 (FN 1194; S 197); **Collection Date:** 17 Nov. 1995.

- Locality:** N. Sikkim District, Tingchim to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CREJ* 23350 (FN 1257; S 216); **Collection Date:** 21 Nov. 1995.
27. *Athyrium fimbriatum* T.Moore (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23185 (FN 1092; S 158); **Collection Date:** 16 Nov. 1995.
28. *Athyrium flabellulatum* (C.B.Clarke) Tardieu (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft; **Coll.:** *CREJ&L.B. Tamang* 22829 (FN 736, 737; S 2); **Collection Date:** 5 Nov. 1995.
29. *Athyrium foliolosum* T.Moore ex R.Sim (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CREJ* 22989 (FN 897; S 71); **Collection Date:** 9 Nov. 1995.
30. *Athyrium himalaicum* Ching ex Mehra & Bir (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c. 3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CREJ* 23219 (FN1126; S 174); **Collection Date:** 16 Nov. 1995.
31. *Athyrium mehrae* Bir (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft.; **Coll.:** *CREJ&L.B. Tamang* 22830a (FN 738 p.p.; S 3 pp.); **Collection Date:** 5 Nov. 1995.
32. *Athyrium rupicola* (Edgew. ex C.Hope) C.Chr. (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft.; **Coll.:** *CREJ&L.B. Tamang* 22830b (FN 738 p.p.; S 3 p.p.); **Collection Date:** 5 Nov. 1995.
33. *Athyrium setiferum* C.Chr. (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes;

- Altitude:** c. 7700 ft.; **Coll.:** CREJ 23186 (FN 1093, S 159); **Collection Date:** 16 Nov. 1995.
- Locality:** E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** CREJ 22993 (FN 901; S 72); **Collection Date:** 9 Nov. 1995.
- Locality:** E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** CREJ 23080 (FN 988; S 121); **Collection Date:** 12 Nov. 1995.
34. *Athyrium spinulosum* (Maxim.) Milde
(Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, c. 2-6 km below and South of Yumthang on road to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** among Abies forest, on mossy boulders; **Altitude:** c. 11,600 ft.; **Coll.:** CREJ, with Clemens Carle, Brian J. Seaton, Silvia Ruger & Catharine Barrett (tour companions) 23124 (FN 1031; S 134); **Collection Date:** 15 Nov. 1995.
35. *Athyrium xichouense* Y.T.Hsieh & Z.R.Wang
(Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** CREJ 22911 (FN 819; S 34); **Collection Date:** 6 Nov. 1995.
36. *Bolbitis heteroclita* (C.Presl) Ching (Lomariopsidaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000ft.; **Coll.:** CREJ 23355 (FN 1262; S 218); **Collection Date:** 21 Nov. 1995.
- Locality:** W. Sikkim District, c. ½ up stream-valley from road-bridge, 8 km N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest on S. side of valley; **Coll.:** CREJ & L.B.Tamang 23393 (FN 1300; S233); **Collection Date:** 23 Nov. 1995.
- Locality:** E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley; **Habitat:** N.W. of Gangtok; patches of forest; **Coll.:** CREJ 23425 (FN 1332; S 259); **Collection Date:** 23 Nov. 1995.
37. *Botrychium ternatum* (Thunb.) Sw. (Ophioglossaceae).
Habitat: among rocks and bushes; **Locality:** N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok;

- Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23168 (FN 1075; S 153);
Collection Date: 16 Nov. 1995.
38. *Coniogramme affinis* Hieron. (Pteridaceae).
Locality: N. Sikkim District, below and S. of Yakchay, below mountain slopes overlooking road on way to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** Forest; **Altitude:** c.8000 ft.; **Coll.:** *CRFJ* 23156 (FN 1063; S 148); **Collection Date:** 15 Nov. 1995.
39. *Coniogramme fraxinea* (D.Don) Fée (Pteridaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22950 (FN 858; S 52); **Collection Date:** 9 Nov. 1995.
40. *Cornopteris badia* Ching (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E.Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22903 (FN 811; S 31); **Collection Date:** 6 Nov. 1995.
41. *Cornopteris banajaoensis* (C.Chr.) K.Iwats. & M.G.Price (Woodsiaceae/Athyriaceae).
Habitat: densely forested ravine with waterfalls, below road;
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Altitude:** 900 m; **Coll.:** *CRFJ* 22986 (FN 894; S 70); **Collection Date:** 9 Nov. 1995.
42. *Cornopteris decurrenti-alata* (Hook.) Nakai (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c.3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CRFJ* 23216-23218 (FN 1123-1125; S 171-173); **Collection Date:** 16 Nov. 1995.
43. *Cryptogramma brunoniana* Wall. ex Hook. & Grev. subsp. *brunoniana* (Pteridaceae).
Locality: E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft.; **Coll.:** *CRFJ* & *L.B. Tamang* 22826 (FN 733; S1); **Collection Date:** 5 Nov. 1995.
44. *Cyathea (Alsophila) spinulosa* Wall. ex Hook. (Cyatheaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22930 (FN 838; S 42); **Collection Date:** 9 Nov. 1995.

- Locality:** E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23401a (FN 1308a; S 238); **Collection Date:** 23 Nov. 1995.
45. *Cystopteris moupinensis* Franch. (Woodsiaaceae/Athyriaceae).
Locality: N. Sikkim District, c. 2-6 km below and South of Yumthang on road to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** on mossy boulders, among Abies forest; **Altitude:** c. 11,600 ft.; **Coll.:** *CRFJ*, with *Clemens Carle*, *Brian J. Seaton*, *Silvia Ruger* & *Catharine Barrett* 23117 (FN 1024; S 133); **Collection Date:** 15 Nov. 1995.
46. *Davallia bullata* Wall. ex Hook. (Davalliaceae).
Locality: N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23305 (FN 1212; S 199); **Collection Date:** 17 Nov. 1995.
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23357 (FN 1264; S 219); **Collection Date:** 21 Nov. 1995.
47. *Dennstaedtia zeylanica* (Sw.) Zink ex Fraser-Jenk. (Dennstaedtiaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23038 (FN 946; S 99); **Collection Date:** 12 Nov. 1995.
48. *Deparia boryana* (Willd.) M.Kato (Woodsiaaceae/Athyriaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22985 (FN 893; S 69); **Collection Date:** 9 Nov. 1995.
49. *Dicranopteris taiwanensis* Ching & P.S.Chiou (Gleicheniaceae).
Locality: E. Sikkim District, between Bushuk and 8th Mile village, c. 1 km S.W. of Bushuk, 16 km (by road) below and S.E. of Gangtok on road to Asam, S. side of Rora Chu valley; **Habitat:** road-bank in forest; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 23010 (FN 918; S 79); **Collection Date:** 9 Nov. 1995.
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22982-22983 (FN 890-891; S 66-67); **Collection Date:** 9 Nov. 1995.

50. *Diplazium dilatatum* Blume (Woodsiaceae/Athyriaceae).
Habitat: forest and rocks above road; **Locality:** N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23346 (FN 1253; S 215); **Collection Date:** 21 Nov. 1995.
51. *Diplazium doederleinii* (Luer) Makino (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between PenlongLa (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23061 (FN 969; S 113); **Collection Date:** 12 Nov. 1995.
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22983 (FN 891; S 67); **Collection Date:** 9 Nov. 1995.
52. *Diplazium esculentum* (Retz.) Sw. (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23343-23344 (FN 1250-1251; S 212-213); **Collection Date:** 21 Nov. 1995.
53. *Diplazium himalayense* (Ching) Panigrahi (Woodsiaceae/Athyriaceae).
Habitat: dense forest; **Locality:** E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23067 (FN 975; S 117); **Collection Date:** 12 Nov. 1995.
54. *Diplazium kawakamii* Hayata (Woodsiaceae/Athyriaceae).
Habitat: densely forested ravine with waterfalls, below road; **Locality:** E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22984 (FN 892; S 68); **Collection Date:** 9 Nov. 1995.
55. *Diplazium latifolium* T. Moore (Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23345 (FN 1252; S 214); **Collection Date:** 21 Nov. 1995.
Habitat: densely forested ravine with waterfalls, below road; **Locality:** E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of

- and below Gangtok; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22971 (FN 879; S 62); **Collection Date:** 9 Nov. 1995.
56. *Diplazium maximum* (D.Don) C.Chr.
(Woodsiaceae/Athyriaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E.Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W.facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22901 (FN 809; S 30); **Collection Date:** 6 Nov. 1995.
57. *Diplazium sikkimense* (C.B.Clarke) C.Chr.
(Woodsiaceae/Athyriaceae).
Habitat: semi cardamom-planted woods and boulders in sand; **Locality:** N. Sikkim District, by edge of Teesta river, across and N. of footbridge on W. side of river, at Rang Rang, 9 km S. of Mangan, c. 51 km N. of Gangtok, off "North Sikkim highway; **Altitude:** c. 2600 ft.; **Coll.:** *CREJ* 23374 (FN 1281; S 225); **Collection Date:** 22 Nov. 1995.
Habitat: densely forested ravine with waterfalls, below road; **Locality:** E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22975 (FN 882; S 64); **Collection Date:** 9 Nov. 1995.
58. *Diplazium spectabile* (Wall. ex Mett.) Ching
(Woodsiaceae/Athyriaceae).
Locality: W. Sikkim District, up stream-valley from road-bridge, 8 km N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest on S. side of valley; **Altitude:** c. 1300 ft.; **Coll.:** *CREJ* & *L.B. Tamang* 23390 (FN 1297; S 231); **Collection Date:** 23 Nov. 1995.
59. *Diplazium stoliczkae* Bedd. (Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23060 (FN 968; S 112); **Collection Date:** 12 Nov. 1995.
60. *Diplazium succulentum* (C.B.Clarke) C.Chr.
(Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CREJ* 22979 (FN 887; S 65); **Collection Date:** 9 Nov. 1995.
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:**

- dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23063-23064 (FN 971-972; S 114-115); **Collection Date:** 12 Nov. 1995.
61. *Diplazium tibeticum* (Ching & S.K.Wu) Z.R.He
(Woodsiaceae/Athyriaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22973 (FN 881; S 63); **Collection Date:** 9 Nov. 1995.
62. *Drynaria coronans* (Wall. ex Mett.) J.Sm. ex T.Moore
(Polypodiaceae).
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CREJ* & *L.B. Tamang* 23403 (FN 1319; S 239); **Collection Date:** 23 Nov. 1995.
63. *Drynaria propinqua* (Wall. ex Mett.) J.Sm. (Polypodiaceae).
Locality: E. Sikkim District, near Tashiling, Government of Sikkim offices, at top of ridge above Gangtok; **Habitat:** on trees; **Altitude:** c. 1500m; **Coll.:** *CREJ* 23091 (FN 999; S 126); **Collection Date:** 14 Nov. 1995.
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CREJ* 23258 (FN 1165; S 188); **Collection Date:** 17 Nov. 1995.
64. *Dryopsis apiciflora* (Wall. ex Mett.) Holttum & P.J.Edwards
(Dryopteridaceae).
Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** Forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CREJ* 23152 (FN 1059; S 145); **Collection Date:** 15 Nov. 1995.
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23200 (FN 1107; S 167); **Collection Date:** 16 Nov. 1995.
65. *Dryopsis clarkei* (Baker) Holttum & P.J.Edwards
(Dryopteridaceae).
Locality: N. Sikkim District, above and c.2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** Forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CREJ* 23151 (FN 1058; S 144); **Collection Date:** 15 Nov. 1995.
66. *Dryopsis nidus* (Baker) Holttum & P.J.Edwards
(Dryopteridaceae).

- Locality:** E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Habitat:** rocky slopes with bushes; **Altitude:** c. 12,500 ft.; **Coll.:** *CRFJ&L.B. Tamang* 22835a and b (FN 743a and b; S 7 p.p.); **Collection Date:** 5 Nov. 1995.
- Locality:** E. Sikkim District, c. 2 km below and west of Karponang, c. 26 km E. of Gangtok on road to Tsomgo Lake and Nathu La Pass (to Chumbi, Tibet); **Habitat:** roadside rocks and cliffs; **Altitude:** c. 10,000 ft.; **Coll.:** *CRFJ&L.B. Tamang* 22850 (FN 758; S11); **Collection Date:** 5 Nov. 1995.
67. *Dryopsis transmorrisonensis* (Hayata) Holttum & P.J. Edwards (Dryopteridaceae).
Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay, on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** Forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CRFJ* 23153 (FN 1060; S 146); **Collection Date:** 15 Nov. 1995.
68. *Dryopteris atrata* (Kunze) Ching (Dryopteridaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22994 (FN 902; S 73); **Collection Date:** 9 Nov. 1995.
69. *Dryopteris basisora* Christ (Dryopteridaceae).
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23197 (FN 1104; S 164); **Collection Date:** 16 Nov. 1995.
Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c. 3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CRFJ* 23231 (FN 1138; S 177); **Collection Date:** 16 Nov. 1995.
70. *Dryopteris lepidopoda* Hayata (Dryopteridaceae).
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23187 (FN 1094; S 160); **Collection Date:** 16 Nov. 1995.
71. *Dryopteris panda* (C.B. Clarke) Christ (Dryopteridaceae).
Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CRFJ* 23150 (FN 1057; S 143); **Collection Date:** 15 Nov. 1995.
72. *Dryopteris sparsa* (D. Don) Kuntze (Dryopteridaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of

Gangtok on "North Sikkim highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CREJ* 23354 (FN 1261; S 217); **Collection Date:** 21 Nov. 1995.

Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CREJ* 22996 (FN 904; S 74); **Collection Date:** 9 Nov. 1995.

73. *Dryopteris splendens* (Hook.) Kuntze (Dryopteridaceae).

Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c.3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CREJ* 23230 (FN 1137; S 176); **Collection Date:** 16 Nov. 1995.

74. *Dryopteris subimprensa* Loyal (Dryopteridaceae).

Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23198 (FN 1105; S 165); **Collection Date:** 16 Nov. 1995.

75. *Dryopteris wallichiana* (Spreng.) Hyl. subsp. *himalaica* Fraser-Jenk. (Dryopteridaceae).

Locality: N. Sikkim District, below and S. of Yakchay, below mountain slopes overlooking road on way to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** forest; **Altitude:** c.8000 ft.; **Coll.:** *CREJ* 23164 (FN 1071; S 151); **Collection Date:** 15 Nov. 1995.

76. *Dryopteris wallichiana* (Spreng.) Hyl. subsp. *nepalensis* Fraser-Jenk. (Dryopteridaceae).

Locality: N. Sikkim District, below and S. of Yakchay, below mountain slopes overlooking road on way to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** forest; **Altitude:** c.8000 ft.; **Coll.:** *CREJ* 23162 (FN 1069; S 150); **Collection Date:** 15 Nov. 1995.

77. *Dryopteris wallichiana* (Spreng.) Hyl. subsp. *wallichiana* (Dryopteridaceae).

Locality: N. Sikkim District, on W. side of Lachung river, below Lachung to Yumthang road, c. 1 km N. of Lachung, N. of Gangtok; **Habitat:** bushy, steep riverbank; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23105 (FN 1012; S 129); **Collection Date:** 14 Nov. 1995.

Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23189 (FN 1096; S 161) and 23195 (FN 1102; S 163); **Collection Date:** 16 Nov. 1995.

78. *Dryopteris xanthomelas* (Christ) C.Chr. (Dryopteridaceae).

Locality: N. Sikkim District, c. 2-6 km below and South of Yumthang on road to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** on mossy boulders among *Abies* forest; **Altitude:** c.

11,600 ft.; **Coll.:** *CRFJ*, with *Clemens Carle*, *Brian J. Seaton*, *Silvia Ruger* & *Catharine Barrett* 23125 (FN 1032; S 135); **Collection Date:** 15 Nov. 1995.

79. *Dryopteris zayuensis* Ching & S.K.Wu (Dryopteridaceae).
Locality: N. Sikkim District, c. 2-6 km below and South of Yumthang on road to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** on mossy boulders among *Abies* forest; **Altitude:** c. 11,600 ft.; **Coll.:** *CRFJ*, with *Clemens Carle*, *Brian J. Seaton*, *Silvia Ruger* & *Catharine Barrett* 23126 (FN 1033; S 136); **Collection Date:** 15 Nov. 1995.
Locality: N. Sikkim District, on W. side of Lachung river, below Lachung to Yumthang road, c. 1 km N. of Lachung, N. of Gangtok; **Habitat:** bushy, steep riverbank; **Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23104 (FN 1011; S 128); **Collection Date:** 14 Nov. 1995.
80. *Elaphoglossum marginatum* T.Moore (Lomariopsidaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22920 (FN 828; S 38); **Collection Date:** 6 Nov. 1995.
81. *Elaphoglossum stelligerum* (Wall. ex Baker) T.Moore ex Salom. (Lomariopsidaceae).
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23304 (FN 1211; S 199); **Collection Date:** 17 Nov. 1995.
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22921 (FN 829; S 39); **Collection Date:** 6 Nov. 1995.
82. *Equisetum diffusum* D.Don (Equisetaceae).
Locality: N. Sikkim District, c. ½ - 1½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23253-23254 (FN 1160-1161; S 185-186); **Collection Date:** 17 Nov. 1995.
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22928 (FN 836; S 41); **Collection Date:** 9 Nov. 1995.

83. *Goniophlebium argutum* (Wall. ex Hook.) Bedd.
(Polypodiaceae).
Habitat: among rocks and bushes; **Locality:** N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23174 (FN 1081; S 155); **Collection Date:** 16 Nov. 1995.
84. *Haplopteris* (*Vittaria*) *flexuosa* (Fée) E.H.Crane (Vittariaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22960 (FN 868; S 56); **Collection Date:** 9 Nov. 1995.
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up “N. Sikkim Highway” from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22889 (FN 797; S 22); **Collection Date:** 6 Nov. 1995.
Locality: E.Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23045 (FN 953; S 102); **Collection Date:** 12 Nov. 1995.
85. *Haplopteris* (*Vittaria*) *mediosora* (Hayata) X.C.Zhang (syn. *H. linearifolia* (Ching) X.C.Zhang). (Vittariaceae).
Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CRFJ* 23144 (FN 1051; S 142); **Collection Date:** 15 Nov. 1995.
86. *Haplopteris* (*Vittaria*) *sikkimensis* (Kuhn) E.H.Crane (Vittariaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23336 (FN 1243; S 210); **Collection Date:** 21 Nov. 1995.
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23336 (FN 1243; S 210); **Collection Date:** 21 Nov. 1995.
87. *Haplopteris* (*Vittaria*) *taeniophylla* (Copel.) E.H.Crane (syn.: *V. himalayensis* Ching). (Vittariaceae).
Locality: N. Sikkim District, above water-tanks and up to c. 1½km up main valley to N.E., c.3 km N. of Lachung on E. side of Lachung Chu river, S of Teiling (on W. side of river), N. of

- Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CREJ* 23213 (FN 1120; S 170); **Collection Date:** 16 Nov. 1995.
- Locality:** N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23180 (FN 1087; S 157); **Collection Date:** 16 Nov. 1995.
88. *Haplopteris (Vittaria) zosterifolia* (Willd.) E.H.Crane (Vittariaceae).
Locality: N. Sikkim District, c. ½ - 1km S. of Rang Rangbridge on road to Namok, "North Sikkim Highway" road from Chungthang S. to Gangtok, c.50 km N. of Gangtok; **Habitat:** forest and rocks; **Altitude:** c.2700 ft.; **Coll.:** *CREJ* 23310 (FN 1217; S 201); **Collection Date:** 17 Nov. 1995.
89. *Histiopteris incisa* (Thumb.) J.Sm. (Dennstaedtiaceae).
Locality: E. Sikkim District, S.of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CREJ* & *L.B. Tamang* 23407 (FN1314; S 242); **Collection Date:** 23 Nov. 1995.
90. *Huperzia herteriana* (Kümmerle) T.Sen&U.Sen (Lycopodiaceae).
Locality: N. Sikkim District, c. 2-6 km below and South of Yumthang on road to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** among Abies forest, on mossy boulders; **Altitude:** c. 11,600 ft.; **Coll.:** *CREJ*, with *Clemens Carle, Brian J. Seaton, Silvia Ruger & Catharine Barrett* 23112 (FN 1019; S 131); **Collection Date:** 15 Nov. 1995.
91. *Huperzia pulcherrima* (Wall. ex Hook.&Grev.) Pic.Serm. (Lycopodiaceae).
Locality: E. Sikkim District, S.of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CREJ* & *L.B. Tamang* 23395 (FN 1302; S 234); **Collection Date:** 23 Nov. 1995.
92. *Huperzia squarrosa* (G.Forst.) Trevis.(Lycopodiaceae).
Locality: E. Sikkim District, S.of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CREJ* & *L.B. Tamang* 23396 (FN 1303; S 235); **Collection Date:** 23 Nov. 1995.
93. *Hymenophyllum badium* Hook. & Grev. (Hymenophyllaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23023 (FN 931; S 87); **Collection Date:** 12 Nov. 1995.
94. *Hymenophyllum exsertum* Wall. ex Hook.(Hymenophyllaceae).

- Locality:** E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22932 (FN 840; S 44); **Collection Date:** 9 Nov. 1995.
- Locality:** E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23025 (FN 933; S 89); **Collection Date:** 12 Nov. 1995.
95. *Hymenophyllum tenellum* D.Don (Hymenophyllaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23024 (FN 932; S 88); **Collection Date:** 12 Nov. 1995.
- Locality:** N. Sikkim District, above and c.2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** forested slope and moss-covered boulders; **Altitude:** c. 9500ft.; **Coll.:** *CRFJ* 23133 (FN 1040; S 137); **Collection Date:** 15 Nov. 1995.
96. *Hypolepis polypodioides* (Blume) Hook. (Dennstaedtiaceae).
Locality: N. Sikkim District, below and S. of Yakchay, below mountain slopes overlooking road on way to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** forest; **Altitude:** c.8000 ft.; **Coll.:** *CRFJ* 23157 (FN 1964; S 149); **Collection Date:** 15 Nov. 1995.
97. *Katoella squamata* (Decne.) Fraser-Jenk., Kandel & Pariyar (Davalliaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of BakchaChu (E. Dikchu) river, E. of Bakchavillage, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22922 (FN 830; S 40); **Collection Date:** 6 Nov. 1995.
98. *Lemmaphyllum carnosum* (Hook.) C.Presl subsp. *carnosum* (Polypodiaceae).
Habitat: densely forested ravine with waterfalls, below road;
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c 4 km ..of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Altitude:** 900 m; **Coll.:** *CRFJ* 22940 (FN 848; S 47); **Collection Date:** 9 Nov. 1995.
99. *Lemmaphyllum rostratum* (Bedd.) Tagawa (Polypodiaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:**

dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23034 (FN 942; S 97); **Collection Date:** 12 Nov. 1995.

100. *Lepisorus contortus* (Christ) Ching (Polypodiaceae).

Locality: N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Mantul, 7 km S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23260 (FN 1167; S 189); **Collection Date:** 17 Nov. 1995.

Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23031 (FN 939; S 94); **Collection Date:** 12 Nov. 1995.

101. *Lepisorus henryi* (Hieron. ex C. Chr.) Li Wang (Polypodiaceae).

Locality: N. Sikkim District, by edge of Teesta river, across and N. of footbridge on W. side of river, at Rang Rang, 9 km S. of Mangan, c. 51 km N. of Gangtok, off "North Sikkim highway"; **Habitat:** semi cardamom-planted woods and boulders in sand; **Altitude:** c. 2600 ft.; **Coll.:** *CRFJ* 23361 (FN 1268; S 221); **Collection Date:** 22 Nov. 1995.

102. *Lepisorus loriformis* (Wall. ex Mett.) Ching (Polypodiaceae).

Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23032 (FN 940; S 95); **Collection Date:** 12 Nov. 1995.

Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23179 (FN 1086; S 156); **Collection Date:** 16 Nov. 1995.

Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CRFJ* 23140 (FN 1047; S 140); **Collection Date:** 15 Nov. 1995.

Locality: N. Sikkim District, below and S. of Yakchay, below mountain slopes overlooking road on way to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** forest; **Altitude:** c. 8000 ft.; **Coll.:** *CRFJ* 23154 (FN 1061; S 147); **Collection Date:** 15 Nov. 1995.

103. *Lepisorus sublinearis* (Baker ex Takeda) Ching (Polypodiaceae).

Locality: E. Sikkim District, c. 1 km SW of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22938 (FN 846; S 46); **Collection Date:** 9 Nov. 1995.

104. *Lepisorus thunbergianus* (Kaulf.) Ching (Polypodiaceae).
Locality: N. Sikkim District, above and c.2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok;
Habitat: forested slope and moss-covered boulders; **Altitude:** c. 9500ft.; **Coll.:** *CREJ* 23138 (FN 1945; S 139); **Collection Date:** 15 Nov. 1995.
105. *Leptochilus decurrens* Blume subsp. *decurrens* (Polypodiaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000ft.; **Coll.:** *CREJ* 23327 (FN 1234; S 206); **Collection Date:** 21 Nov. 1995.
106. *Leptochilus decurrens* Blume subsp. *hemionitideus* (C.Presl) Fraser-Jenk. (Polypodiaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CREJ* 22944 (FN 852; S 49); **Collection Date:** 9 Nov. 1995.
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up “N. Sikkim Highway” from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22876 (FN 784; S 18); **Collection Date:** 6 Nov. 1995.
107. *Leptochilus ellipticus* (Thumb.) Noot. (Polypodiaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up “N. Sikkim Highway” from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c 900 m; **Coll.:** *CREJ* 22877 (FN 785; S 20); **Collection Date:** 6 Nov. 1995.
108. *Microlepia rhomboidea* (Hook.) C.Presl ex Prantl (Dennstaedtiaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on “North Sikkim highway”; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CREJ* 23332 (FN 1239; S 208); **Collection Date:** 21 Nov. 1995.
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CREJ* 22949 (FN 857; S 51); **Collection Date:** 9 Nov. 1995.
109. *Microlepia spelunca* (L.) T.Moore (Dennstaedtiaceae).
Locality: W. Sikkim District, upstream-valley from road-bridge, 8 km N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest

- on S. side of valley; **Coll.:** *CRFJ & L.B. Tamang* 23385 (FN 1292; S 227); **Collection Date:** 23 Nov. 1995.
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley; **Habitat:** N.W. of Gangtok; patches of forest; **Coll.:** *CRFJ & L.B. Tamang* 23406 (FN 1313; S 241); **Collection Date:** 23 Nov. 1995.
110. *Microsorium cuspidatum* (D. Don) Tagawa (Polypodiaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22869 (FN 777; S 17); **Collection Date:** 6 Nov. 1995.
111. *Microsorium insigne* (Blume) Copel. (Polypodiaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000 ft.; **Coll.:** *CRFJ* 23330 (FN 1237; S 207); **Collection Date:** 21 Nov. 1995.
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900m; **Coll.:** *CRFJ* 22945 (FN 853; S 50); **Collection Date:** 9 Nov. 1995.
112. *Microsorium punctatum* (L.) Copel. (Polypodiaceae).
Locality: W. Sikkim District, upstream-valley from road-bridge, 8 km N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest on S. side of valley; **Coll.:** *CRFJ & L.B. Tamang* 23380 (FN 1287; S 226); **Collection Date:** 23 Nov. 1995.
113. *Neocheiropteris normalis* (D. Don) Tagawa (Polypodiaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23033 (FN 941; S 96); **Collection Date:** 12 Nov. 1995.
114. *Neocheiropteris zippelii* (Blume) Bosman (Polypodiaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22875 (FN 783; S 18); **Collection Date:** 6 Nov. 1995.
115. *Nothoperanema hendersonii* (Bedd.) Ching (Dryopteridaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of

- Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23085 (FN 993; S 122); **Collection Date:** 12 Nov. 1995.
116. *Odontosoria chinensis* (L.) J.Sm. subsp. *chinensis* (Lindsaeaceae).
Locality: E. Sikkim District, between Bushuk and 8th Mile village, c.1 km S.W. of Bushuk, 16 km (by road) below and S.E. of Gangtok on road to Asam, S. side of Rora Chu valley; **Habitat:** road-bank in forest; **Altitude:** c.900m; **Coll.:** *CREJ* 23011 (FN 919; S 80); **Collection Date:** 9 Nov. 1995.
117. *Oleandra wallichii* (Hook.) C.Presl (Oleandraceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23088 (FN 995; S 125); **Collection Date:** 12 Nov. 1995.
118. *Onoclea intermedia* (C.Chr.) M.Kato, T.Suzuki&Nakato (Onocleaceae).
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CREJ* 23199 (FN 1106; S 166); **Collection Date:** 16 Nov. 1995.
119. *Onychium cryptogrammoides* Christ subsp. *cryptogrammoides* (Pteridaceae).
Locality: N. Sikkim District, in Lachung village, on way to road north to Yumthang, N. of Gangtok; **Habitat:** walls; **Altitude:** c. 7500 ft. **Coll.:** *CREJ* 23094 (FN 1002; S 127); **Collection Date:** 14 Nov. 1995.
120. *Onychium lucidum* (D.Don) Spreng. (Pteridaceae).
Locality: N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CREJ* 23275 (FN 1182; S 194); **Collection Date:** 17 Nov. 1995.
121. *Palhinhaea cernua* (L.) Vasc. & Franco (Lycopodiaceae).
Locality: E. Sikkim District, between Bushuk and 8th Mile village, c.1 km S.W. of Bushuk, 16 km (by road) below and S.E. of Gangtok on road to Asam, S. side of Rora Chu valley; **Habitat:** road-bank in forest; **Altitude:** c.900m; **Coll.:** *CREJ* 23007 (FN 915; S 78); **Collection Date:** 9 Nov. 1995.
122. *Pichisermollodes* (*Selliguea*) *ebenipes* (Hook.) Fraser-Jenk. (Polypodiaceae).
Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.E., c.3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:**

7800 ft.; **Coll.:** *CRFJ* 23206 (FN 1113; S 168); **Collection Date:** 16 Nov. 1995.

123. *Pichisermolodes* (*Selliguea*) *erythrocarpa* (Mett. ex Kuhn) Fraser-Jenk. (Polypodiaceae).
Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** forested slope and moss-covered boulders; **Altitude:** c. 9500ft.; **Coll.:** *CRFJ* 23135 (FN 1042; S 138); **Collection Date:** 15 Nov. 1995.
124. *Pichisermolodes* (*Selliguea*) *malacodon* (Hook.) Fraser-Jenk. (Polypodiaceae).
Locality: N. Sikkim District, c. 2-6 km below and South of Yumthang on road to Lachung, N. of Lachung, N. of Gangtok; among *Abies* forest; **Habitat:** on mossy boulders; **Altitude:** c. 11,600 ft.; **Coll.:** *CRFJ*, with *Clemens Carle*, *Brian J. Seaton*, *Silvia Ruger* & *Catharine Barrett* 23114 (FN 1021; S 132); **Collection Date:** 15 Nov. 1995.
125. *Plagiogyria pycnophylla* (Kunze) Mett. (Plagiogyriaceae).
Locality: N. Sikkim District, 1½ km N. of Lachung on E. side of main river, N. of Gangtok; **Habitat:** among rocks and bushes; **Altitude:** c. 7700 ft.; **Coll.:** *CRFJ* 23170 (FN 1077; S 154); **Collection Date:** 16 Nov. 1995.
126. *Polypodiodes* (*Goniophlebium*) *amoenum* (Wall. ex Mett.) Ching subsp. *amoenum* (Polypodiaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22935 (FN 843; S 45); **Collection Date:** 9 Nov. 1995.
127. *Polystichum acutidens* Christ (Dryopteridaceae).
Locality: N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23299 (FN 1206; S 197); **Collection Date:** 17 Nov. 1995.
128. *Polystichum hookerianum* (C.Presl) C.Chr. (Dryopteridaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23807 (FN 995; S 124); **Collection Date:** 12 Nov. 1995.
129. *Polystichum nepalense* (Spreng.) C.Chr. (Dryopteridaceae).
Locality: N. Sikkim District, above water-tanks and up to c. ½ km up main valley to N.E., c. 3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:**

7800 ft.; **Coll.:** *CREJ* 23235 (FN 1142; S 178); **Collection Date:** 16 Nov. 1995.

130. *Polystichum piceopaleaceum* Tagawa (Dryopteridaceae).

Locality: N. Sikkim District, above water-tanks and up to c. ½ km up main valley to N.E., c.3 km N. of Lachung on E. side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CREJ* 23236 (FN 1143, S 179); **Collection Date:** 16 Nov. 1995.

Locality: N. Sikkim District, below and S. of Yakchay, below mountain slopes overlooking road on way to Lachung, N. of Lachung, N. of Gangtok; **Habitat:** forest; **Altitude:** c.8000 ft.; **Coll.:** *CREJ* 23165 (FN 1072, S 152); **Collection Date:** 15 Nov. 1995.

131. *Polystichum prescottianum* (Wall. ex Mett.) T.Moore (Dryopteridaceae).

Habitat: rocky slopes with bushes; **Locality:** E. Sikkim District, above W. and N. side of Tsomgo Lake, c. 40 km E. of Gangtok on road to Nathu La Pass; **Altitude:** c. 12,500 ft.; **Coll.:** *CREJ* & *L.B. Tamang* 22834 (FN 742; S6); **Collection Date:** 5 Nov. 1995.

132. *Polystichum punctiferum* C.Chr. (Dryopteridaceae).

Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23086 (FN 994; S 123); **Collection Date:** 12 Nov. 1995.

133. *Polystichum scariosum* (Roxb.) C.V.Morton (Dryopteridaceae).

Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22999 (FN 907; S 75); **Collection Date:** 9 Nov. 1995.

134. *Pyrosia costata* (Wall. ex C.Presl) Tagawa & K.Iwats. (Polypodiaceae).

Locality: N. Sikkim District, c. ½ km S. of Rang Rangbridge on road to Namok, "North Sikkim Highway" road from Chungthang S. to Gangtok, c. 50 km N. of Gangtok; **Habitat:** forest and rocks; **Altitude:** c. 2700 ft.; **Coll.:** *CREJ* 23307 (FN 1214; S 200); **Collection Date:** 17 Nov. 1995.

135. *Pyrosia glabra* (Desv.) Fraser-Jenk. (Polypodiaceae).

Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CREJ* & *L.B. Tamang* 23405 (FN 1312; S 240); **Collection Date:** 23 Nov. 1995.

136. *Pyrosia heteractis* (Mett. ex Kuhn) Ching (Polypodiaceae).

- Locality:** N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CREJ* 23263 (FN 1170; S 190); **Collection Date:** 17 Nov. 1995.
137. *Pyrrhosia lanceolata* (L.) Farw. (Polypodiaceae).
Locality: N. Sikkim District, Tingchim N. to Rang Rang, c. 9-13 km S. of Mangan, Gangtok N. to Chungthang, c. 46-50 km N. of Gangtok on "North Sikkim highway"; **Habitat:** forest and rocks above road; **Altitude:** c. 2900-3000ft.; **Coll.:** *CREJ* 23325 (FN 1232; S 205); **Collection Date:** 21 Nov. 1995.
138. *Pyrrhosia mannii* (Giesenh.) Ching (Polypodiaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CREJ* 22942 (FN 850; S 48); **Collection Date:** 9 Nov. 1995.
139. *Selaginella bisulcata* Spring (Selaginellaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22857 (FN 765; S 13); **Collection Date:** 6 Nov. 1995.
Locality: N. Sikkim District, by edge of Teesta river, across and N. of footbridge on W. side of river, at Rang Rang, 9 km S. of Mangan, c.51 km N. of Gangtok, off "North Sikkim highway"; **Habitat:** semi cardamom-planted woods and boulders in sand; **Altitude:** c. 2600 ft.; **Coll.:** *CREJ* 23359a (FN 1266b; S 220); **Collection Date:** 22 Nov. 1995.
140. *Selaginella involvens* (Sw.) Spring (Selaginellaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CREJ* 22856 (FN 764; S 12); **Collection Date:** 6 Nov. 1995.
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CREJ* 23015 (FN 923; S 81); **Collection Date:** 12 Nov. 1995.
141. *Selaginella monospora* Spring (Selaginellaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with

Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22858 (FN 766; S 14); **Collection Date:** 6 Nov. 1995.

Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23018 (FN 926; S 83); **Collection Date:** 12 Nov. 1995.

Locality: N. Sikkim District, c. ½ - 1 km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23251 (FN 1158; S 184); **Collection Date:** 17 Nov. 1995.

Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23398 (FN 1305; S 237); **Collection Date:** 23 Nov. 1995.

142. *Selaginella pennata* (D. Don) Spring (Selaginellaceae).

Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley; **Habitat:** N.W. of Gangtok; patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23397 (FN 1304; S 236); **Collection Date:** 23 Nov. 1995.

143. *Selaginella reticulata* (Hook. & Grev.) Spring (Selaginellaceae).

Locality: N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23250 (FN 1157; S 183); **Collection Date:** 17 Nov. 1995.

144. *Selaginella* ?*tenuifolia* Spring (Selaginellaceae).

Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23016 (FN 924; S 82); **Collection Date:** 12 Nov. 1995.

145. *Selaginella vaginata* Spring (Selaginellaceae).

Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22861 (FN 769; S 15); **Collection Date:** 6 Nov. 1995.

Locality: N. Sikkim District, c. ½ km on either side of and at Myang Chu (river), S. of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of

- Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23247 (FN 1154; S 182); **Collection Date:** 17 Nov. 1995.
146. *Tectaria coadunata* (J.Sm.) C.Chr.
(Dryopteridaceae/Tectariaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22919 (FN 827; S 37); **Collection Date:** 6 Nov. 1995.
147. *Tectaria fuscipes* (Wall. ex Bedd.) C.Chr.
(Dryopteridaceae/Tectariaceae).
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23424 (FN 1331; S 249); **Collection Date:** 23 Nov. 1995.
148. *Tectaria ingens* (Atk. ex C.B. Clarke) Holttum
(Dryopteridaceae/Tectariaceae).
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22918 (FN 826; S 36); **Collection Date:** 6 Nov. 1995.
149. *Tectaria polymorpha* (Wall. ex Hook.) Copel.
(Dryopteridaceae/Tectariaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, RoraChu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 23001 (FN 909; S 77); **Collection Date:** 9 Nov. 1995.
150. *Thelypteris* (*Christella*) *arida* (D. Don) C.V. Morton
(Thelypteridaceae).
Locality: N. Sikkim District, c. ½ - 1 km S. of Rang Rangbridge on road to Namok, "North Sikkim Highway" road from Chungthang S. to Gangtok, c. 50 km N. of Gangtok; **Habitat:** forest and rocks; **Altitude:** c. 2700 ft.; **Coll.:** *CRFJ* 23314 (FN 1221; S 204); **Collection Date:** 17 Nov. 1995.
151. *Thelypteris* (*Pseudophegopteris*) *aurita* (Hook.) Ching
(Thelypteridaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22968 (FN 876; S 61); **Collection Date:** 9 Nov. 1995.
152. *Thelypteris* (*Pseudocyclosorus*) *cana* (J.Sm.) Ching
(Thelypteridaceae).

Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22899 (FN 807; S 28); **Collection Date:** 6 Nov. 1995.

153. *Thelypteris* (*Christella*) *clarkei* (Bedd.) C.F. Reed
(Thelypteridaceae).

Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23416 (FN 1323; S 247); **Collection Date:** 23 Nov. 1995.

154. *Thelypteris* (*Christella*) *dentata* (Forssk.) E.P. St. John
(Thelypteridaceae).

Locality: W. Sikkim District, c. ½ km up stream-valley from road-bridge, N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest on S. side of valley; **Coll.:** *CRFJ* & *L.B. Tamang* 23388 (FN 1295; S 230); **Collection Date:** 23 Nov. 1995.

155. *Thelypteris* (*Oreopteris*) *elwesii* (Baker) Holttum
(Thelypteridaceae).

Locality: N. Sikkim District, above and c. 2-5 km N. of Yakchay on road from Lachung to Yumthang, N. of Lachung, N. of Gangtok; **Habitat:** forested slope and moss-covered boulders; **Altitude:** c. 9500 ft.; **Coll.:** *CRFJ* 23142 (FN 1049; S 141); **Collection Date:** 15 Nov. 1995.

156. *Thelypteris* (*Metathelypteris*) *flaccid* (Blume) Ching
(Thelypteridaceae).

Habitat: dense forest; **Locality:** E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23055 (FN 963; S 108); **Collection Date:** 12 Nov. 1995.

157. *Thelypteris* (*Menisciopteris*) *lakhimpurensis* (Rosenst.) K. Iwats.
(Thelypteridaceae).

Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** 900 m; **Coll.:** *CRFJ* 22967 (FN 875; S 60); **Collection Date:** 9 Nov. 1995.

Locality: N. Sikkim District, by edge of Teesta river, across and N. of footbridge on W. side of river, at Rang Rang, 9 km S. of Mangan, c. 51 km N. of Gangtok, off "North Sikkim highway"; **Habitat:** semi cardamom-planted woods and boulders in sand; **Altitude:** c. 2600 ft.; **Coll.:** *CRFJ* 23371 (FN 1278; S 224); **Collection Date:** 22 Nov. 1995.

158. *Thelypteris* (*Pseudophegopteris*) *microstegia* (Hook.) Fraser-Jenk. subsp. *hirtirachis* (C.Chr.) Fraser-Jenk. (Thelypteridaceae).
Locality: E. Sikkim District, c. 2 km above and E. of Karponang, c. 30 km E. of Gangtok on road to Tsomgo Lake and Nathu La Pass (to Chumbi, Tibet); **Habitat:** S.W. facing roadside steep slopes below rocks; **Altitude:** c. 10,800 ft.; **Coll.:** *CRFJ* & *L.B. Tamang* 22836 (FN 744; S 7); **Collection Date:** 5 Nov. 1995.
159. *Thelypteris* (*Pseudophegopteris*) *microstegia* (Hook.) Fraser-Jenk. subsp. *microstegia* (Thelypteridaceae).
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23415 (FN 1322; S 246); **Collection Date:** 23 Nov. 1995.
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23057 (FN 965; S 109); **Collection Date:** 12 Nov. 1995.
160. *Thelypteris* (*Christella*) *papilio* (C.Hope) K.Iwats. (Thelypteridaceae).
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley, N.W. of Gangtok; **Habitat:** patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23417 (FN 1324; S 248); **Collection Date:** 23 Nov. 1995.
161. *Thelypteris* (*Christella*) *procera* (D.Don) Fraser-Jenk. (Thelypteridaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800 m; **Coll.:** *CRFJ* 23058 (FN 966; S 109); **Collection Date:** 12 Nov. 1995.
Locality: W. Sikkim District, ½ km up stream-valley from road-bridge, 8 km N. of Singtam, but on W. side of Teesta valley, on road from Singtam to Rabungla and Kewsing, W. of Gangtok; **Habitat:** forest on S. side of valley; **Coll.:** *CRFJ* & *L.B. Tamang* 23387 (FN 1294a and b; S 229); **Collection Date:** 23 Nov. 1995.
162. *Thelypteris* (*Macrothelypteris*) *ornate* (J.Sm.) Ching (Thelypteridaceae).
Locality: E. Sikkim District, S. of and above Dikchu, on road to Rakdong, between Penlong and Dikchu, on S. side of and above Rate Chu valley, near junction with E. side of Teesta valley; **Habitat:** N.W. of Gangtok; patches of forest; **Coll.:** *CRFJ* & *L.B. Tamang* 23414 (FN 1321; S 245); **Collection Date:** 23 Nov. 1995.
163. *Thelypteris* (*Macrothelypteris*) *torresiana* (Gaudich.) Alston (Thelypteridaceae).

- Locality:** N. Sikkim District, by edge of Teesta river, across and N. of footbridge on W. side of river, at Rang Rang, 9 km S. of Mangan, c.51 km N. of Gangtok, off "North Sikkim highway"; **Habitat:** semi cardamom-planted woods and boulders in sand; **Altitude:** c. 2600 ft.; **Coll.:** *CRFJ* 23367 (FN 1274; S 222); **Collection Date:** 22 Nov. 1995.
164. *Tomophyllum donianum* (Spreng.) Fraser-Jenk. & Parris (Grammitidaceae/Polypodiaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23037 (FN 945; S 98); **Collection Date:** 12 Nov. 1995.
165. *Trichomanes (Vandenboschia) auriculatum* Blume (Hymenophyllaceae).
Locality: E. Sikkim District, on N. slope and along top of ridge between Penlong La (pass) and Tinjure Peak, just below and E. of Tinjure Peak, above and S. of Ataman village, above and W. of Penlong Bazaar village, N. of Gangtok across valley; **Habitat:** dense forest; **Altitude:** c. 1800m; **Coll.:** *CRFJ* 23021 (FN 929; S 86); **Collection Date:** 12 Nov. 1995.
166. *Trichomanes (Crepidomanes) campanulatum* Roxb. (Hymenophyllaceae).
Locality: E. Sikkim District, c. 1 km S.W. of 8th Mile village, c. 4 km S.W. of Bushuk on road to Asam, Rora Chu Valley, S.E. of and below Gangtok; **Habitat:** densely forested ravine with waterfalls, below road; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22931 (FN 839; S 43); **Collection Date:** 9 Nov. 1995.
167. *Trichomanes (Vandenboschia) striatum* D. Don (Hymenophyllaceae).
Locality: N. Sikkim District, c. ½- 1½ km on either side of and at Myang Chu (river), S of Naga, on "North Sikkim Highway" road to Manul, S. of Chungthang, N. of Mangan, 76-79 km N. of Gangtok; **Habitat:** roadside forest and damp rocks; **Altitude:** 1400-1500m; **Coll.:** *CRFJ* 23255 (FN 1162; S 187); **Collection Date:** 17 Nov. 1995.
Locality: N. Sikkim District, c. 2 km N.E. of bridge B 3, on S. side of Bakcha Chu (E. Dikchu) river, E. of Bakcha village, between Kabi and Phensong, c. 37 km up "N. Sikkim Highway" from Gangtok; **Habitat:** N.W. facing slope partly planted with Cardamom; **Altitude:** c. 900 m; **Coll.:** *CRFJ* 22863 (FN 771; S 16); **Collection Date:** 6 Nov. 1995.
168. *Woodsia elongata* Hook. (Woodsiaceae).
Locality: E. Sikkim District, c. 2 km below and west of Karponang, c. 26 km E. of Gangtok on road to Tsomgo Lake and Nathu La Pass (to Chumbi, Tibet); **Habitat:** roadside rocks and cliffs; **Altitude:** c. 10,000 ft.; **Coll.:** *CRFJ* & *L.B. Tamang* 22848 (FN 756; S 10); **Collection Date:** 5 Nov. 1995.

169. *Woodwardia unigemmata* (Makino) Nakai (Blechnaceae).

Locality: N. Sikkim District, above water-tanks and up to c. 1½ km up main valley to N.N.E., c.3 km N. of Lachung on E side of Lachung Chu river, S. of Teiling (on W. side of river), N. of Chungthang, c. 110 km N. of Gangtok on N. Sikkim Highway; **Habitat:** densely forested gully and slopes below trees; **Altitude:** 7800 ft.; **Coll.:** *CRFJ* 23238 (FN 1145; S 180); **Collection Date:** 16 Nov. 1995.

DISCUSSION

A checklist of the pteridophytes from Sikkim collected by C.R. Fraser-Jenkins for the Sikkim Forest Department herbarium is presented, with the habitat, elevation and other details. All herbarium-data was extracted from the records to reveal the details of the collection and critical updated nomenclature and identification has kindly been provided for us by Fraser-Jenkins. There is no record of any holotype or other type-specimen in the state repository.

Many workers and collectors have studied the flora of the Sikkim, a few examples of relevant publications are those of Hooker & Thomson (1855) [no pteridophytes], Hooker (1872-1897) [no pteridophytes], Clarke (1880), Hara et al. (1966, 1971), Ohashi (1975), Mehra & Bir (1964), Mehra & Loyal (1965), Grierson & Long (1983), Kholia (2010, 2014), Fraser-Jenkins (2008), Fraser-Jenkins et al. (2016, 2018, 2020) and Maity et al. (2018). It is hoped that the present study serves to bring to light the extent of this valuable and critical, but previously unpublished collection, showing some of the diversity of ferns in the Sikkim Himalaya.

CONCLUSION

In the most up-to-date and detailed account of Indian pteridophytes by Fraser-Jenkins et al. (2016-2020), 438 species and 22 additional subspecies have been listed from modern Sikkim State, based only on specimens seen in all relevant herbaria world-wide, including those of the Botanical Survey of India, Gangtok and Kolkata (BSHC and CAL), and identifying and deleting erroneous literature-records. The present study of his collections in Gangtok amounts to 169 species, though it should be noted that the genus *Pteris* was not included, being the subject of a separate study by Fraser-Jenkins (2008). The specimens in BSHC only represent less than half the species known from the State, but are a useful guide to workers for identification and to add to the distribution. It is suggested here that the Sikkim Himalaya warrants more research on ferns and fern-allies, concerning bioprospecting, plant association, local conservation studies, fern diversity and taxonomy.

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