

The
Bryological
Times
Newsletter of
the International
Association of Bryologists



Volume 92
March 1997
ISSN 0253-4738
Contents

Bryological activities in North West Himalaya IV. A field trip to Namik Glacier region of district Pithoragarh (Kumaon Himalaya)	1
Nordic Bryological Society Excursion	5
New Column in "Tropical Bryology"	5
New Publication	5
Russian Flora of Bryophyta	5
IAB Meeting in China	6
Annual Blomquist Bryological Foray	7
Mosses 1998	7
Bryological Excursion, 10 May 1997, Swan Valley, Montana	7
Errata	7
XII Symposium of Cryptogamic Botany, Valencia, Spain ..	8
Bryophyte courses in Helsinki	8
Field trip on the West Coast of North America	8
The 1997 Stanley Greene Award	9
Living <i>Scorpidium scorpioides</i> used as caddisfly casing material in a northwest Montana fen	9
DIARY	10

Bryological activities in North West Himalaya IV. A field trip to Namik Glacier region of district Pithoragarh (Kumaon Himalaya)

S.D. Tewari & G. Pant, Department of Botany, DSB Campus, Kumaon University, Naini Tal-263002,
U.P. India

In continuation of our earlier bryophyte forays in bryologically unexplored, interesting areas of Kumaon Himalaya (Pant, et al. 1986; Tewari & Pant 1989) a twelve day field collection trip was undertaken from 24th August to 6th September 1990 to the Namik glacier region (3800 m). The study area is located in the northwestern sector of Kumaon, extending between 30°2'-30°10' N lat. and 79°48'-80°4' E long. within the source region of three rivers: Pindar, Sarju, and East Ramganga (Fig. 1). It was a team of six members including one taxonomist, three ecologists, one geographer, and the first named author (S.D.T.) all from Kumaon University.

We started our journey by bus in the morning the 24th from Naini Tal (2000 m) to Bageshwar (975 m). While moving from Naini Tal to Almora, one can observe an eight km area of exposed granite/gneiss rocks from Kwarab to Karbala (1100-1700 m) beautifully

adorned by characteristic cushions/patches of *Grimmia* spp. From Almora onwards numerous limonitic rocky outcrops of rusty appearance on road-cut ends were observed, all supporting a community of acidophilous bryophytes. Characteristic dominants of this community were *Campylopus involutus* and *Scopelophila lingulata* (a 'copper moss'). From Naini Tal to Bageshwar, Oak and Pine forests dominate the landscape. The *Quercus* dominated hill slopes support bryophytes in luxuriance while the *Pinus* forests present poor bryophyte growth.

Our first halt came at Bageshwar. The Bageshwar valley is situated at the confluence of holy Sarju and Gomti rivers. The valley was observed to be poor in terms of bryodiversity. Almost similar type of common hardy hepatics like *Asterella wallichiana*, *Cyathodium tuberosum*, *Plagiochasma appendiculatum*, *Targionia hypophylla* and mosses like *Bryum argenteum*, *Brachy-*

thecium buchananii, *Didymodon recurvus*, *Entodon plicatus*, *Herpetineuron toccocae*, *Hyophila involuta*, *Hymenostylium recurvirostrum*, *Pogonatum aloides*, *Thuidium tamariscellum*, *Timmia anomala* and *Trachypodopsis crispatula* dominate. At places the spring water seepage's provide congenial habitat for the growth of *Anthoceros* sp., *Marchantia palmata*, *Pellia endivifolia*, *Hydrogonium gracilentum* and *Philonotis fontana*.

The next morning around 10 am, we started our journey by bus from Bageshwar to Song (the last head of motor road). In this route up to Bharadi (Kapkot 1200 m) numerous calc-tufa deposits along the roadside attract attention. We passed through huge moss-laden tufaceous masses of polymorphic shapes and sizes characteristic of numerous calcareous springs. Taxa like *Hydrogonium gracilentum* and *Hymenostylium recurvirostrum* were among

Continued on page 2

Continued from page 1
the dominant tufa builders of these deposits. From Bharadi to Song, the roadside bryoflora was found to be highly disturbed due to continuous pressure of landslides and road construction. On the way we were greeted by numerous fast flowing streams whose edges were thickly covered with layers of aquatic mosses like *Cratoneuron commutatum*, *Eurynchium riparioides*, *Fissidens grandifrons*, *Philonotis fontana* and *Vesicularia montagnei*. Near spring water seepage's colonisation of *Anthoceros*, *Aneura*, *Pellia*, *Anomobryum* and *Philonotis* species was noteworthy. Scattered populations of *Asterella wallichiana*, *Conocephalum conicum*, *Cyathodium tuberosum*, *Dumortiera hirsuta*, *Plagiochasma appendiculatum*, *Reboulia hemisphae-*

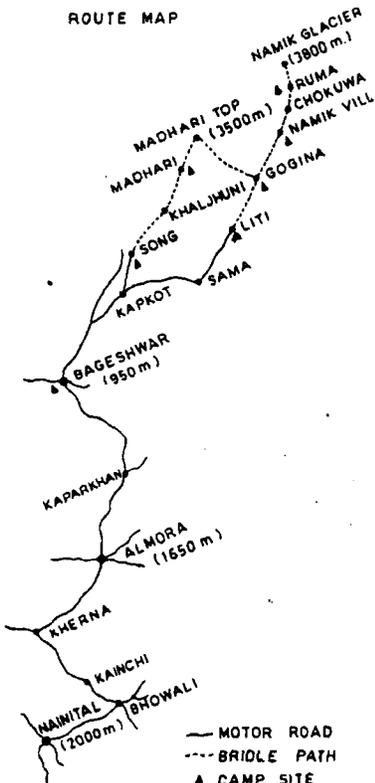
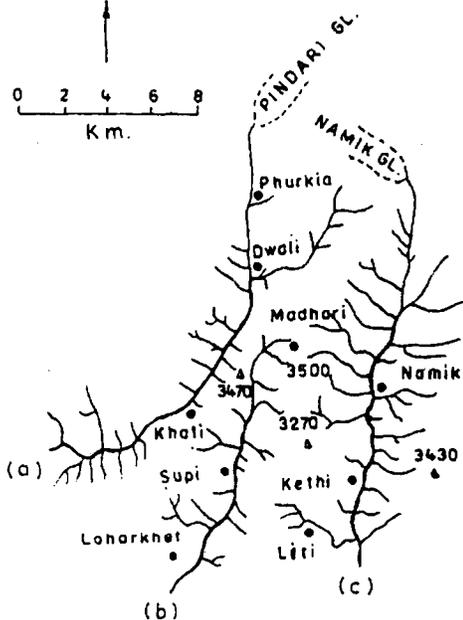
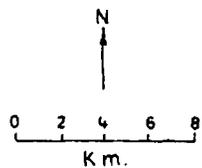
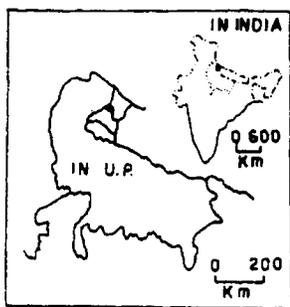
rica and *Targionia hypophylla* were not uncommon along this route.

We rested at Song (1700 m) and soon started trekking towards our next halt Madhari (3300 m). It was a 2 km walk from Song along the bank of river Sarju. Interestingly along this route few patches of *Riccia fluitans* were noticed floating over small, stagnant ditches along the river banks. Our next trekking route was a steep ascent of about 4 km. The entire sloping ridge was dry rocky and exposed with scattered Pine trees (*Pinus roxburghii*). At places small cushions of *Grimmia* sp. and copiously fruiting patches of *Macromitrium moorcroftii* were conspicuous over exposed rocks/boulders. On muddy slopes isolated patches of *Trematodon capillifolius* were noteworthy. Few epiphytic mosses, *Cyathophorella intermedia*

(gemmiferous), *Homaliiodendron scalpellifolium*, *Neckeropsis exserta* and *Rosea pterogonioides* (gemmiferous) were also collected from this route. Passing through ups and downs of the undulating hilly terrain we reached a remote village, Khaljhiuni. This village is situated in the midst of sylvan surroundings where bryophytes dominate on every kind of substrate. Here we took rest for half an hour taking a few ethnobryological notes from the local inhabitants. The common uses of the locally available mosses are the same throughout the bryophyte rich high altitude remote areas of Kumaon Himalaya where they are invariably used as chinking, bedding, stuffing (mattresses, pillows, cushions); as extensive matting surfaces for chattels in the lower story of the house and as a smoke filter by making 'Patkudi' (Pant & Tewari 1989). From this village we passed through the dense mixed oak-conifer forest supporting an amazing diversity and luxuriance of bryophytes. The trunks and branches of each tree were thickly loaded variety of liverworts and mosses. The forest floor was equally carpeted with layers of bryophytes. We reached Madhari around 6 pm. There were some abandoned stone in the area of artificial meadows in the subalpine forest zone formed due to deforestation and over grazing. These are the places where the nomadic herdsmen stay during their winter transmigration. In one of the huts we found one such family. It was interesting to note that the holes and leaks on the walls of stone huts, doors and window frames were all plugged with mosses. At night the shepherd offered us a delicious dish of wild edible mushrooms like species of *Pleurotus*, *Morchella* and *Agaricus*. The villagers/shepherds and even their children are well acquainted with the edible varieties.

Next day we started exploring the area around Madhari (3000-3500 m). It was a thrilling experience to see the enormous growth and diversity of bryophytes. This area gives an idea of a

LOCATION OF STUDY AREA



(a) Pindar Catchment
(b) Sarju Catchment
(c) Ramganga Catchment

Continued on page 3

Continued from page 2

real 'bryophytic paradise'. Some interesting taxa collected from this area include *Calycularia*, *Metzgeria*, *Riccardia*, *Chandonanthus*, *Diplophyllum*, *Herbertus*, *Lepidozia*, *Scapania* and *Trichocolea* amongst liverworts and *Actinothuidium*, *Aerobryidium*, *Anomodon*, *Barbella*, *Braunia*, *Bryoerythrophyllum*, *Bryum*, *Bryosedgwickia*, *Campylopus*, *Encalypta*, *Grimmia*, *Homaliodendron*, *Hylocomium*, *Hypnum*, *Leucobryum*, *Macrocoma*, *Macromitrium*, *Meteorium*, *Mnium*, *Octoblepharum*, *Papillaria*, *Philonotis*, *Pleurozium*, *Ptilium*, *Sphagnum*, *Timmia*, *Thuidium* and *Trachypodopsis* amongst mosses.

Madhari area provided a range of diversified habitats yielding a large collection of bryophytes (both hepatics and mosses). In addition we came across an exceptional (nitrophilous) habitat of sheep/goat faecal pellets around the temporary huts and camping sites. The partly humified but recognisable dung/pellets were densely covered with gemmiferous species of mosses like *Bryum argenteum*, *Gymnostomiella vernicosa* and *Leptodontium flexifolium*.

While leaving Madhari laden with the bulk of this collection the bryologist of this team (S.D.T.) was pondering over the potential of this unexplored area in Kumaon Himalaya, how rich and neglected it is, waiting for thorough bryoexploration (with international cooperation). A laboratory study of the collections has revealed many elements not earlier collected from Kumaon Himalaya like species of *Sphagnum*, *Pogonatum*, *Didymodon* and *Trichocolea*. The genus *Sphagnum* was recorded for the first time from the Kumaon Himalaya and the species *S. ovatum* turned out to be a new record for the western Himalayan moss flora. Interestingly *Trichocolea* has also turned out to be a new addition to the western Himalayan liverwort flora.

On the 27th we started our journey from Madhari to Gogina (2700 m). It was a straight ascent of 4 km up to Madhari Top (3500 m). Enroute, the grassy pasture was rich in a colourful

variety of herbaceous plants like *Ane-mone*, *Aster*, *Gentiana*, *Pedicularis*, *Polygonum*, *Potentilla*, *Primula*, *Ranunculus*, *Senecio* and *Saxifraga* with a sprinkling of leafy liverworts and mosses forming a lush ground cover all around the pasture area. Characteristic leafy liverworts and mosses included species of *Bazzania*, *Jungermannia*, *Lejeunea*, *Lophocolea*, *Plagiochila*, *Radula*, *Scapania*, *Bryum*, *Brachythecium*, *Bryoerythrophyllum*, *Entodon*, *Fissidens*, *Hypnum*, *Mnium*, *Plagiomnium*, *Pleurozium*, *Philonotis*, *Pogonatum*, *Racomitrium* and *Thuidium*. From Madhari top we had to descend down passing through steep, rugged hill slopes. We reached Gogina, a remote village about 20 km away from the last motor road. Here we took night halt. The entire collection was sorted and kept in custody of a villager who gave us shelter in his house.

Next day we explored the area from Godina to Namik village. The area was observed to be a remarkable lowland valley with hot and humid climate. An interesting collection of the profusely gemmiferous moss *Cyathophorella* was made from the exposed surfaces of rocks lying all along the mountainous streams. Other common hepatics and mosses of spring/stream communities were *Aneura pinguis*, *Pellia endiivifolia*, *Riccardia multifida*, *Chiloscyphus polyanthos*, *Plagiochila* sp., *Anthoceros* sp., *Asterella* sp., *Conocephalum conicum*, *Dumortiera hirsuta*, *Marchantia palmata*, *Cratoneuron commutatum*, *Drepanocladus uncinatus*, *Eurhynchium riparioides*, *Fissidens grandifrons*, *Hydrogonium gracilentum*, *Mnium cuspidatum* and *Vesicularia montagnei*. It was interesting to observe the colonisation of an enormous population of male thalli of *Cyathodium tuberosum* all along the walls of terraced fields bearing lobate, cushion shaped subsessile receptacles. Taxa like *Anthoceros*, *Notothylas*, *Riccia* and *Physcomitrium* were found common in the cultivated fields of the main local crop of *Eleusine coracana* ('Madua'). With this collection, we reached Namik village (2800 m). It was raining heavily.

We could not explore much that day and decided to stop for the day.

Next morning the weather was clear and sunny. We spent some time with the local inhabitants of Namik village and collected some ethnobryological notes. One of the villagers showed us a cushion made up of mosses like *Actinothuidium*, *Brachythecium*, *Hypnum*, *Macrothamnium* and *Trachypodopsis*. Another villager/shepherd who was smoking tobacco with the help of a conical structure made up of *Rhododendron* leaves had used mosses and leafy liverworts as smoking filter (Pant & Tewari 1989). When S.D.T was taking a photograph of the poor innocent fellow holding 'Patkudi' in his hand, clad in a tattered coat, he asked him with apprehension in his eyes 'it would not create any trouble for me?'. How limited is their world! They have no idea of camera or photography or the outside world. Anyway we convinced him and took the photograph. Besides agriculture and sheep rearing, the alternate source of their income is by weaving mats of *Arundinaria* sticks locally called 'Mosta'.

From Namik village it was a straight ascent of about 8 km passing through mixed oak-conifer forest. *Fissidens* sp. (epiphytic) and profusely fruiting patches of *Calycularia crispula* were the interesting elements collected from this route. Farther up, around an elevation of 2700-3000 m) we were thrilled to observe profusely fruiting patches of *Stephensoniella brevipedunculata* growing over the moist soil of hill slopes. The exposed granite rocks and boulders of this zone were densely decorated with a colourful variety of mosses like species of *Bryum*, *Desmatodon*, *Grimmia*, *Hyophila*, *Macromitrium*, *Macrocoma*, *Racomitrium*, *Tortella* and *Tortula*. At places fruiting patches of *Encalypta ciliata* were conspicuous on muddy ledges. Above timberline (3100 m) from Chakuwa, grassy 'bugyals' dominate. We observed a decrease in bryodiversity and luxuriance along with an increase in elevation. However, taxa with broad habitat

Continued on page 4

Continued from page 3

tolerance and wide range of distribution occur side by side with high elevation taxa having a restricted distribution. Foggy weather prevented us to continue with our exploration and we looked for a suitable place for night halt at Ruma (3300 m). Fortunately, we took refuge in a small stone hut occupied already by two shepherds. It rained heavily at night and none of us could sleep in the crowded hut.

Bright sunshine cheered us in the morning. We explored the bryophyte vegetation of the nearby shrub zone and 'bugyal' areas. Among the exciting finds were the collection of the rare, monotypic endemic liverwort *Sauchia spongiosa*. Other noteworthy hepatic collections were those of *Preissia quadrata*, *Calycularia crispula*, *Metzgeria leptoneura*, *Bazzania praerupta*, *Chandonanthus hirtellus*, *Herbertus* sp., *Lepidozia reptans*, *Lophocolea* spp., *Plagiochila* spp., *Scapania verrucosa*, *S. undulata* and *Tritomaria exsecta*. Prominent mosses collected from the shrub zone sites were species of *Actinothuidium*, *Anacolia*, *Aongstroemia*, *Bartramia*, *Brothera*, *Breuetelia*, *Bryoerythrophyllum*, *Campylopus*, *Dicranum*, *Hylocomium*, *Hypnum*, *Pleurozium*, *Pogonatum*, *Racomitrium* and *Timmia*.

While crawling in search of bryophytic habitats in the grassy meadows (bugyals) we found an unusual bryophyte incorporated substrate (collected for the first time from India) of sheep carcasses lying on the ground. Each piece of partly humified old bones/skeleton was beautifully colonised by mosses. Bryophytic components included species of *Brachythecium*, *Bryoerythrophyllum*, *Bryum*, *Desmatodon*, *Plagiomnium*, *Tetraplodon*, *Thuidium* and *Tayloria*. Colonisation of two splachnaceous nitrophilous mosses, *Tayloria subglabra* and *Tetraplodon mnioides*, was noteworthy almost in every moss colonised bone piece. *Riccia* sp., *Marchantia polymorpha*, *Bryum argenteum* and *Funaria hygrometrica* were recognised as conspicuous ele-

ments of charred ground near camp fire sites in the 'bugyals'. Due to heavy land slides further travel to Namik and Hiramani Glaciers was not possible. It was about 10-12 km distance up to the zero point (3800 m) which could not be explored.

Next day, we started our journey back. Route of the return journey was the same up to Gogina where we took a night halt. The entire collections were assembled and packed. In the morning we followed another route and moved towards Liti with over loaded rucksacks. It was a distance of about 22 km from Gogina. On the way, we came across a large forested ridge of dense mixed oak forest near Ratir Kethi (2200 m). The forest trees were covered with epiphytic bryophytes. Some interesting epiphytic mosses collected were species of *Anomodon*, *Cryptoleptodon*, *Cyatophorella* (gemmiferous), *Dicranum*, *Forsstroemia*, *Homaliodendron*, *Neckeropsis*, *Octoblepharum*, *Plagiothecium*, *Rosea* (gemmiferous), *Syrrophodon* (gemmiferous), *Thamnobryum* and *Thuidium*. Amongst the forest floor bryophyte community, species of *Brachythecium*, *Entodon*, *Macrothamnium*, *Hylocomium*, *Hypnum*, *Pleurozium*, *Plagiomnium*, *Ptilium*, *Rhodobryum*, *Thuidium* and *Trachypodopsis* were prominent. Due to shortage of time, we could not devote enough time, but this unexplored site was recognised as a 'star' spot for further exploration. Farther enroute, the drier rocky hill slopes showed a dense colonisation of *Campylopus umbellatus*. At places the exposed limonitic outcrops supported acidophilous mosses like *Campylopus involutus*, *Scopelophila lingulata* and the leafy liverwort *Jungermannia confertissima*. The closely associated limestone pockets in-between limonitic outcrops were invaded by basophilous mosses viz., *Hymenostylium recurvirostrum*, *Hyophila involuta* and *Tortella tortuosa*. On the way, we also came across a zone of simultaneously running magnesite and soapstone (talc) deposits. Bryophytic colonisation was found to be poor in

these rocks. Scant colonisation of *Hymenostylium recurvirostrum* was observed on magnesite rocks/boulders. Moist surfaces of talc boulders supported species of *Frullania*, *Bryum Philonotis* and *Pohlia*. Numerous springs and streams of this zone provide congenial habitat for the growth of *Asterella wallichiana*, *Dumortiera hirsuta*, *Marchantia palmata*, *Pellia endivifolia*, *Chiloscyphus polyanthos*, *Cratoneuron commutatum*, *Fissidens grandifrons*, *F. nobilis* Griff., *Eurynchium riparioides*, *Hydrogonium gracilentum*, *Philonotis fontana* and *Vesicularia montagnei*. This was the last spot of our collection trip. We took night halt at Liti. In the morning (6th September 1990) we started the trip homewards. During the last six years, a major part of the collection has been identified. Above timberline, bryophytic elements of the present foray have been documented (Tewari et al. 1994). Further study of the collections is in progress. All prominent taxa identified so far have been mentioned in this paper.

ACKNOWLEDGEMENTS

Financial assistance from Council of Scientific and Industrial Research (CSIR), New Delhi is gratefully acknowledged. S.D.T. is thankful to all participants of the field trip for their cooperation.

REFERENCES

- Pant, G., Tewari, S.D., Pargaien, M.C. & Bisht, L.S. 1986. Bryological activities in the North-West Himalaya-II. A bryophyte foray in the Askot region of district Pithoragarh (Kumaon Himalaya). The Bryol. Times 39: 2-3.
- Pant, G. & Tewari, S.D. 1989. Various human uses of bryophytes in the Kumaon region of the North West Himalaya. The Bryologist 92: 120-122.
- Tewari, S.D. & Pant, G. 1989. Bryological activities in North west Himalaya III. A field excursion to the Pindari Glacier region of district Almora (Kumaon Himalaya). The Bryol. Times. 52: 1-5.
- Tewari, S.D., Pant, G., Joshi, S. & Airi, S. 1994. High altitude (above timber-line) bryoflora of Kumaon Himalaya. In: Pangtey, Y.P.S. & Rawal, R. S. (eds.) High Altitudes of Himalaya. pp. 263-280. Gyanodaya, Nainital.

NORDIC BRYOLOGICAL SOCIETY

First circular

Annual meeting and excursion 1997 will take place at Åland, Finland 8.-10.8. from Friday to Sunday.

Accommodation: Nätö Biological Station, 10-15 FIM/night/ 2-3 persons in one room.

Breakfast and supper will be organized (if wanted) at the station but with extra costs, ca. 30 FIM/day.

Lunch/dinner at restaurants, paid by yourself, ca. 40-80 FIM each .

Transport in Åland by bus paid by NBS (or by own cars).

Travel costs: Ferry (Viking Line), Stockholm-Mariehamn, normal one way 90 FIM, students ca. FIM mk, Ferry, Kapellskär-Mariehamn, normal one way 50 FIM, student 30 FIM.

It is also possible to travel by plane to Åland. If you will take car to the ferry it costs ca. FIM mk. If more information is needed, please contact Hanna Jalkanen or Viivi Virtanen.

A second circular will be sent out in May.

Return to: Hanna Jalkanen, P.O.Box 47, FIN-00014 University of Helsinki, Finland.

Tel +358 09 708 4725, Fax +358 09 708 4726, email hanna.jalkanen@helsinki.fi

I will participate the NBS excursion 1997

Name:

Address:

I have a car (number of free seats):

Secretary Viivi Virtanen, P.O. Box 47, FIN-00014 University of Helsinki, Finland, Tel + 358 09 708 4726, Fax + 358 09 708 4830, email viivi.virtanen@helsinki.fi

New Column in "Tropical Bryology"

Sometimes bryophyte specimens collected in tropical countries which are identified by chance turn out to be new records for a country. Since a publication on a single new records would hardly be accepted by any bryological journal, the specimen may disappear in a herbarium with a note attached (new to xy country) and the information may be lost or at least hidden. However, single new floristic records are important insofar as they are the base for compilation of checklists, the base for calculation of biodiversity and the base for constructing ranges of species.

For such reason Martin Wiggington asked to publish new records from tropical Africa in "Tropical Bryology". At the same time, I came across new records of mosses from Peru and Cameroun when sorting in herbarium specimens and looked for a chance how to get them published. First I considered

to include even very small publications in the journal to give such records an appropriate place but then Brian O'Shea suggested to establish a new column in "Tropical Bryology" for such new records similar to the "New vice-county records" in the "Bulletin of the British Bryological Society". This column shall be established in vol. 14, which will be published in summer 1997. Contributions shall include the herbarium label information as well as any comments to the range of the species or the specimen and the name of the identifier or contributor. They can be send on disk directly to the managing editor Jan-Peter Frahm, Botanisches Institut, Meckenheimer Alle 170, 53115 Bonn, Germany, or by e-mail to frahm@uni-bonn.de, preferably as in Wordprocessor format as attached file.

New Publication

Gao, C. (editor in chief), Li, X.J., Li, Z.H., Lin, P.J. & Cao, T. 1996. *Flora Bryophytorum Sinicorum, Vol. 2, Fissidentales through Pottiales. Science Press, Beijing.* 293 pp. 93 plates. Price: US\$ 30.00 (including air postage). Local price: C¥ 39.00. Available from Chien Gao & Tong Cao, Institute of Applied Ecology, Academia Sinica, Shenyang, Liaoning 110015, China.

This is the second volume of Bryoflora of China that will in total consist of 12 volumes. The project is supported by National Natural Science Foundation of China. In this volume, 264 species and 40 genera belonging to 5 families (Fissidentaceae, Calymperaceae, Encalyptaceae, Pottiaceae and Ptychomitriaceae) are reported in China. For each taxon, full description, habitat and distribution and figures are presented. The key to the families, genera and species are provided. 51 species of *Fissidens* and 157 species belonging to 34 genera of Pottiaceae are recorded in the book. Among these species reported, four species of *Syrrhopodon*, one species of *Encalypta* and nine species of Pottiaceae were newly described species in China during 1981-1991.

Russian Flora of Bryophyta

Dear colleagues

The work on composing the "Russian Flora of Bryophyta" has begun in Russia. In this connection I address bryologists of all countries asking you to send samples of bryophytes belonging to different taxa. I will be most thankful for copies of checklists and articles concerning problems of nomenclature, taxonomy and geography of bryophytes.

Alexander P. Dyachenko, Urals State Pedagogical University, Faculty of Geography and Biology, 620219, Cosmonauts' prospect, 26, GSP-135, Ekatherinburg, Russia

JAB Meeting in China

Since the first circular of the IAB Symposium on 2000's Bryology has been mailed to the bryologists around the world, we have received a series of questions concerning the symposium and we will try to reply to these below.

1. The registration fee should be paid in advance by a bank check/money order (we will accept most major world currencies); this will help us to estimate the exact number of participants. The other fees can be paid by cash when arriving in Beijing. We apologize that all the speakers have to pay their registration fees, but we sincerely hope that all the participants can understand our situation. We hope to receive the registration fees before April 15, 1997.

2. The student registration fee is \$80 US per person.

3. Concerning the post-field trips, it was thought that participants in the SW field trip would rather leave China via Hong Kong to save their funding. Therefore, it was planned for persons to go there from Chengdu City or Xifan City. If this is not the case, we will make arrangements for travel back to Beijing from Chengdu City or Xifan City for those who need to return to Beijing. **However, please be aware that the cost of travel to Beijing or Hong Kong has not been included in the cost of the SW trip. This will add about \$200 to the cost of each of the trips. If this added cost changes your travel plans please make any changes that are needed as soon as possible to allow for final planning.** The SW trip will begin by airplane and includes three routes: SW A-1 to Royal Dragon Rocky Moss Garden, ca \$500 US (\$700 with return airfare), returning to Beijing or Hong Kong on June 4 for a total of 4 days; SW A-2 to Royal Dragon Rocky Moss Garden and then on to Xifan City to visit the Xifan Botanical Garden and Qing Emperor's Tomb, ca \$650 US (\$850 with return airfare), returning to Beijing or Hong Kong on June 7 for a total of 7 days; and SW-B to Royal Dragon Rocky Moss Garden and then on to Jiu-Zhai-Gou (Nine Tibetan Villages and Natural Moss Forests), ca \$950 US (\$1150 with return airfare), returning to Beijing or Hong Kong on June 9 for a total of 9 days. The field trip to NE China will take 8 days and will return to Beijing on June 8.

4. We think that all abstracts will be accepted as long as there is not more than three from the same person. These should be submitted before April 15, 1997. The posters can be decided by the authors themselves, but the speakers will be arranged after consideration when all submissions have been received.

5. We would be pleased to send a formal invitation letter if someone requires it.

6. The participants can show the following Chinese to a taxi driver at the Beijing International Airport.

To get to the hostel of the Botanical Garden of the Institute of Botany, Academia Sinica:

请送我去北京香山科学院植物园

Or show the following Chinese to get to Xi'angshan Hotel:

请送我去香山饭店

7. The standard room will be arranged in the Xi'angshan Hotel, which is very close to the Botanical Garden and the Auditorium of the Botanical Garden of the Institute of Botany. We can also make arrangements at the Xiyuan Hotel, which is located in the city, if the participants require.

8. Visa and credit cards will be accepted in the large hotels and in some of the department stores in China.

9. During the symposium we will hold a small bryological exhibit show including: 1) black and white drawings and 2) spore pictures dealing with bryophytes. Any participant who is interested, bring the above to Beijing. Please make sure that every picture has a Latin name.

Peng-cheng Wu

General Secretary

IAB Symposium on 2000's Bryology

**KEEP UP TO DATE
ON THE
IAB BEIJING MEETING**

<http://www.devonian.ualberta.ca/IAB>

Annual Blomquist Bryological Foray

The Tenth Annual Blomquist Bryological Foray will be held this year at "The Mountain" Highlands Camp and Conference Center in Highlands, North Carolina, October 3-5. It is located four miles southwest of Highlands, on NC106, on top of Scaly Mountain, on the Blue Ridge Divide. The per person prices listed below include lodging for two nights, social hour and dinner on Friday and Saturday nights, and breakfast and bag lunches on Saturday and Sunday. Lodge: \$139; Cabin, private bath: \$129 (4 people per cabin); Cabin, shared bath: \$119; Rustic bunkhouse: \$105. For those who attended last year's exciting meeting at The Mountain, this year we will visit different field sites. One site planned is Rabun Bald, in northern Georgia. For further information and registration form, please contact Molly McMullen, Cryptogamic Herbarium, Department of Botany, Box 90342, Duke University, Durham NC, 27708-0342, USA. Telephone: (919) 660-7300; e-mail mmcm@duke.edu.

Mosses 1998

International Conference on the Developmental Biology, Physiology and Molecular Biology of Bryophytes January 8-12, 1998.

The 2nd International Meeting on the Developmental Biology, Physiology, and Molecular Biology of Bryophytes will be held during January 8-12, 1998 at Mumbai, India. It will be sponsored by the Tata Institute of Fundamental Research (T.I.F.R.). A broad range of topics highlighting recent developments in genetics, developmental biology and molecular biology of bryophytes will be emphasized in oral and poster presentations. The programme will feature plenary lectures, invited speakers and contributed oral and poster presentations. The following is a preliminary list of the major themes:

- Growth, Development and Differentiation
- Nuclear and Organelle Genom-

BRYOLOGICAL EXCURSION, 10 MAY 1997, SWAN VALLEY, MONTANA

A bryological excursion day is planned for 10 May 1997 near the northwest Montana town of Bigfork, led by Drs. Dale Vitt (University of Alberta, Edmonton) and Lars Söderström (University of Trondheim, Norway). The object of the field trip is to bring together people with interest in mosses and liverworts to meet and exchange ideas and information while inventoring the bryoflora of the bottoms of the Porcupine Creek drainage just southeast of the town of Bigfork in the beautiful Swan Valley. This is an area with high species diversity and many unique phylogeographic elements, including boreal and coastal. There are several calcareous fens in the area. The excursion will include guided visits to these unique habitats as well as surrounding upland terrain.

Excursion participants will meet at the Forest Service Ranger Station in Bigfork at 8:00 AM on the morning of the 10th of May and will carpool to go

to the field sites. The excursion is planned to last until about 4:00 PM. Participants are advised to bring raingear and rubber boots, a boxed lunch, collecting bags and hand lenses.

Accommodations and restaurants are found in abundance in Bigfork and nearby Kalispell.

Registration is free of charge. To register, please provide your name, mailing address (incl. e-mail!) and phone/fax to

Toby Spribille
Fortine Ranger District
Kootenai Nat'l Forest
P.O. Box 116
Fortine, MT 59918
(406) 882 4451 (phone)
(406) 882 4835 (fax)

email t.spribille@mhs.attmail.com

This will allow us to anticipate turnout and better plan specific activities. In addition, we will be able to mail vicinity maps to registrants to help them plan their attendance.

Errata

Unfortunately, there is a printing error in the table of S. Risse's paper on "*Ephemerum minutissimum* Lindb. and *E. serratum* (Hedw.) Hampe" in Bryological Times no. 90, 1996. We apologize for this and include the correct table below. [Ed.].

<i>Ephemerum serratum</i>	<i>E. minutissimum</i>
Spores	
warty	finely papillose
without hyaline veil	surrounded by a hyaline veil
(62) 64 - 88 (96) μ m	(38) 46 - 68 (72) μ m
Upper leaves	
acumen often with a hint of nerve	nerve lacking
Length of plant	
1.4 - 2.2 mm	1.0 - 1.8 mm

es; RNA Editing • Signal Transduction
• Characterization of Genes • Transcription of Bryophytes • Ultrastructure, Cell biology • Metabolism • Population Genetics and Bryophyte informatics •

The next circular, to be published in Sept. 1997, would contain details of programme, abstract submission, registration fee and local arrangements. All those interested in attending the

Conference should contact before May 30, 1997: Prof. M. M. Johri, Chairperson, MOSES 1998, Molecular Biology Unit, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India. Fax. 91 (22) 215-2110. Phone 91 (22) 215-2971. Email: MOSES1998@tifrvax.tifr.res.in or mjohri@tifrvax.tifr.res.in

XII Symposium of Cryptogamic Botany, Valencia, Spain

The organizing committee takes pleasure in inviting you to attend the XII Symposium of Cryptogamic Botany, scheduled to take place September 17-20, 1997 in Valencia (Spain).

The symposium will be organized in five sections as usual: Algae, Bryophytes, Ferns, Fungi, and Lichens, and it will be open to everyone working in subjects related to cryptogams, their habitats and conservation.

The aim is to offer an overview of the state of research in these fields specially in the Mediterranean Basin and the Macaronesian Islands areas.

The congress program will encompass a wide array of themes organized in symposium sessions and daily plenary lectures:

- * Flora, Systematics and Evolution
- * Life Strategies and Adaptations
- * Communities, Biogeography and Ecology

- * Ecophysiology.
- * Biodiversity, Conservation and Global Change.
- * Perspectives on Cryptogamic Research.

Additional communications would be welcome.

Spanish and English will be the official languages. Communications will also be presented as posters.

Second announcements will be sent to people included on the mailing list. To be included, please contact with secretariat by E-mail:cripto97@uv.es

For more information <http://bioweb.uv.es/cripto97>

Felisa Puche, Departamento de Biología Vegetal, Facultad de Ciencias Biológicas, Universitat de Valencia, Dr. Moliner 50, 46100-Burjassot, Valencia, Spain, E-mail: M.F. Puche@uv.es

Bryophyte courses in Helsinki

EU Program "Advanced instruction in Bryology and lichenology" organized through the Division of Systematic Biology, University of Helsinki, announces the following courses:

1. Taxonomy and ecology of epigeic lichens, Oulujärvi Biological Station, May 12.- 17.1997. The course is already nearly full; those willing to participate, please, contact Professor Teuvo Ahti by e-mail: Teuvo.Ahti@Helsinki.fi

2. Summer school: Taxonomy and ecology of peatland and aquatic bryophytes, August 17 - September 2, 1997 in Lammi, Mekrijärvi and Oulanka Biological Stations. Teachers: M. Haapasaari, L. Hedenäs, T. Koponen, S. Piippo, P. Pakarinen, L. Söderström, J. Vana. Contact person, Professor Timo Koponen, e-mail: Timo.Koponen@helsinki.fi

3. Biomonitoring of atmospheric heavy metal deposition. Autumn of 1997, exact time will be announced later. Contact person, Dr. Ahti Mäkinen, e-mail: Ahti.Mäkinen@helsinki.fi

Only postgraduate and postdoctoral students will be accepted as participants. The travel expenses to Finland and course fee costs (ca. FIM 1 600,-) from of the students from EU countries (excluding Finland), Switzerland, Iceland and Norway will be subsidised.

Application forms available from Timo Koponen, Dept of Ecology and Systematics, Division of Systematic Biology, P.O. Box 7 (Unioninkatu 44), FIN-00014 University of Helsinki, Finland. Phone +358-0-191 8614, fax +358-0-191 8656, e-mail Timo.Koponen@Helsinki.FI

Field trip on the West Coast of North America

The Second Annual Spring Outing, Bryo-Lab Excursion, Foray, Retreat, and Escape to the Environment

With the aim of providing for the West Coast of North America an annual field oriented event for bryologists, lichenologists, and other botanists, the Bryological Laboratory of Dr. Brent Mishler and associates cordially invites participants in the second annual.

Spring Outing Bryolab Excursion Foray, Retreat, and Escape to the Environment

Last year we convened at the Granite Mountain Reserve in the Mojave Desert for three days of botanical exploration and comradery. This year we will be staying at the Angelo Preserve, in the coast ranges of Mendocino County. The Angelo Reserve, on the Eel River, contains a large stand of old growth Douglas Fir and Redwoods. The old growth forests, with its snags, downed logs, dense canopy, and clear flowing streams, supports an abundance and diversity of plants and wildlife.

Among the inhabitants are Spotted Owls and Ouzels, Black Bear and California Blackberry, Fishers, Fish, and King Fishers... no monkeys, but don't scoff, there are seven different Monkey-flowers (and other scrophi)... Mountain Lions, a *Calochortus*, or maybe two, Rattlesnakes and *Good-yeara*, and other orchids, more than just a few, ..and ferns galore on the forest floor among them, you'll learn, there's *Anemone oregana*, not a fern (but then, with fronds like these who needs Ane:nones)...and for all the bryologists, of course, it won't be a loss: everything there is covered in moss! ...or, if lichens are your gig, you'll find them growing on every twig...and I'm sure we'll find lots lots more, maybe even a wild boar

Continued on page 7

Continued from page 6

(I mean wild pig)... I'm sure it will be a good year: it's guaranteed you won't be bored.

Accommodations include: The Fox Creek Lodge where we will gather for meals. Rustic bunk houses (no heat... bring warm sleeping bag and pad)

During our stay at the Angelo Reserve we will take day hikes to sites within the Reserve to study the flora, collect specimens, and compile a list of species. We'll have scopes set up in the main lodge for examining our collections during the evenings.

We will be doing all our own cooking and cleanup, so everyone will get a chance to contribute in the kitchen, either before or after meals.

We will arrive in the morning on Saturday, March 22, and depart on Tuesday, March 25.

The cost will be minimal. We'll split the cost of food. Aside from that, and a small fee of \$4 per night for use of the cabins, the only costs will be transportation to and from the Reserve. Participants are responsible for arranging their own transportation.

If you would like to attend the outing, please contact the trip organizer, Steven Jessup, by email sjessup@ucjeps.berkeley.edu to reserve a space. We are limited to about 35 people, so don't delay sending a reservation. Please indicate your intention to attend as soon as possible so we can begin planning meals. You will receive a confirmation by email, directions to the Reserve, and a checklist of items to bring (such as sleeping bag, etc.)

Steven Jessup, U.C. & Jepson Herbaria, 1001 Valley Life Science Bldg., Berkeley, CA 94720, ph. (510) 642-8687

Return the reservation via email to: sjessup@herb.ucjeps.edu

Let us know your name(s), address, special meal requests or dietary restrictions, telephone and email address.

Living *Scorpidium scorpioides* used as caddisfly casing material in a northwest Montana fen

Joe Elliott, Conservation Biology Research Ltd., 835 8th Ave., Helena, MT 56601, USA.

Toby Spribille, Kootenai National Forest, Fortine Ranger District, P.O. Box 116, Fortine, MT 59918, USA.

While surveying a small calcareous fen in the Rocky Mountain Trench in northwest Montana the authors were startled to find balls of *Scorpidium scorpioides* (Hedw.) Limpr. floating on the surface of shallow water surrounding the peat mat. Upon closer examination, it became apparent that the balls were larval casings of a caddisfly, *Limnephilus* sp. It appears that the floating *Scorpidium*, which continues to grow and thrive even detached from a holdfast, provides a buoyant platform on which the caddis can emerge and prey upon other invertebrates, and eventually fly off. Apparently, the caddis harvest sprigs of *Scorpidium* from plants growing submerged in shallow water and attach the moss to the casing. The sprig of *Scorpidium* appear to be the photosynthetically active tips of longer strands attached to the bottom of the pond.

The construction of the casings is intricate; the moss, consisting almost exclusively of *Scorpidium*, is intricately woven together into a ball about 2 cm. in diameter. The interior chamber is cylindrical, about 3 mm. in diameter, and reinforced with short pieces of sedge leaves from *Carex lasiocarpa*. The photosynthesizing moss naturally floats

the entire apparatus to the surface.

In Montana, *Scorpidium scorpioides* is rare, being found only in highly calcareous fens and on alkali flats in the Rocky Mountain Trench and Salish Mountains, and on the Rocky Mountain Front west of Great Falls. The authors found it growing loosely attached to mucky bottom material under about 70 cm of water. Several other mosses and rare vascular plants were found occurring in association with the *Scorpidium* including *Utricularia intermedia* Hayne (floating unattached in cooler water), *Eriophorum gracile* Koch and the rare mosses *Hamatocaulis vernicosus* (Mitt.) Hedenäs and *Meesia triquetra* Hedw. dominating the adjacent peat mat.

Specimen. U.S.A., Montana, Lincoln Co., Rocky Mountain Trench, fen ca. 1 km. south of Rattlebone Lake, 48°41'00"N, 114°48'00"W, 995 msm., 14 June 1996, *Spribille & Elliott #5139*.

Specimens have been deposited in the herbaria of the University of Alberta (ALTA) and the University of Colorado (COLO) as well as the Herbarium of the Fortine Ranger District, Fortine, Montana. Thanks are extended to Dr. Carlene Farmer (Helena, Montana) for examining the caddis.

THE 1997

STANLEY GREENE AWARD

The 1997 Stanley Greene Award will be announced in Beijing, China. These support research in Bryology — why not apply next time

The *Bryological Times* is a newsletter published bimonthly for the *International Association of Bryologists*. Items for publication are to be sent to the Editors (preferably HW), except for those for the regular columns, which may go **direct** to the column editors.

Deadlines for material to the *Bryol. Times* will be January 15, March 15, May 15, July 15, September 15 and November 15 with the publication shortly afterwards. Shorter notes may be accepted later if there is still space.

Editors

Lars Söderström, Dept. of Bot., Norwegian Univ. of Sci. & Techn., N-7055 Dragvoll, Norway. FAX +47 73596100. Larss@alfa.itea.ntnu.no

Henrik Weibull, Dept. Ecol & Envir. Sci., Swedish Agric. Univ., Box 7072, S-75007 Uppsala, Sweden. FAX +46 18673430.

Henrik.Weibull@emc.slu.se

Terry Hedderson, Dept. of Bot., Univ. of Reading, Whiteknights, RG6 2AS Reading, UK. FAX +44 1 734 753 676. T.A.J.Hedderson@reading.ac.uk

Column Editors

J.-P. Frahm & B. O'Shea (computer techniques); J. M. Glime (ecology); T. Hallingbäck & E. Urmí (conservation); A. R. Perry (news from the herbaria); T. Pócs (tropical bryology); M. L. Sargent (techniques); J. Vána & W. R. Buck (floristics and phytogeography); D. H. Vitt (best book buys, taxonomy).

The *Bryological Times*, founded in 1980 by Stanley Wilson Greene (1928-1989), is distributed from Beijing (China), Canberra (Australia), Edmonton (Canada), Eger (Hungary), Geneva (Switzerland), Hiroshima (Japan), Moscow (Russia), Praha (Czech Republic), St. Louis (USA) and Trondheim (Norway).

Production

Lars Söderström, Trondheim

For details regarding membership of to *International Association of Bryologists* (currently US \$ 11.- per year) write to Dale H. Vitt, Department of Biological Sciences, University of Alberta, Edmonton, Alberta, Canada T6G 2E9.

DIARY

1997

March 22-25. Field trip to the Angelo Preserve, Mendocino County, California. Information from: Steven Jessup, U.C. & Jepson Herbaria, 1001 Valley Life Science Bldg., Berkeley, CA 94720, ph. (510) 642-8687

April 2-9. BBS Spring Meeting, Torquay, Devon, U.K. Local secretary: Mr Mark Pool, "Camelot", 91 Warbro Road, Torquay TQ1 3PS, UK Tel: (+44) (0)1803-316154 (evenings please). Fax: (+44) (0) 1803-386507 (please mark your fax "M. Pool - personal").

April 12. Field meeting with DBLS. Driebergen. Lichens. Contact person: L. Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.

April 26. Field meeting with DBLS. Harderwijk. Bryophytes. Contact person: L. Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.

May 3-5. Spring field meeting with DBLS at Ave-et-Auffe in Belgium. Contact person: L. Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.

May 10. Bryol. excursion, Swan Valley, Montana. Contact: Toby Spribille, Fortine Ranger Dist., Kootenai Nat'l Forest, P.O.Box 116, Fortine, MT 59918, ph. (406)882 4451, fax (406)882 4835, email t.spribille@mhs.attmail.com

May 26-30. IAB meeting in Beijing, China. Topic: "2000's Bryology. Followed by two excursions, one to SE China and one to NW China. Contact person: Prof. P. C. Wu, Inst. of Botany, Academia Sinica, Xian shan, 100093 Beijing, China. Fax: 0086-010-8319534.

June 7. Field meeting with DBLS. Lichens. Contact person: L. Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.

June 13 - 15. Annual assembly of the SVBL. Les Diablerets (Calcareous Alps in Western Switzerland). Contact person: Patricia Geissler, Conservatoire et jardin botaniques de la Ville de Genève, Case Postale 60, CH-1292 Chambésy, Switzerland. Phone +41 22 418 51 48 (direct) 418 51 00 (switchboard), Fax +41 22 418 51 01, e-mail: geissler@cjb.unige.ch

July 5. Field meeting with DBLS. Bryophytes round Boxmeer. Contact person: L. Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.

August 3 - 7. ABL Annual Meeting in Montreal, Quebec. Information from: Brent Mishler, Dept. of Integrative Biology, Univ. of California, Berkeley, CA 94720-2465 phone: (510)642-6810 FAX: (510)643-5390 E-mail: bmishler@garnet.berkeley.edu

August 8-10. Annual Meeting and Excursion with the Nordic Bryological Society on the archipelago of Åland. Information from: Hanna Jalkanen, P.O.Box 47, FIN-00014 University of Helsinki, Finland. Tel. +358 09 708 4725. Fax. +358 09 708 4726. Email hanna.jalkanen@helsinki.fi

September. Weekend with DBLS around Coevorden-Emmen. Date to be decided later. Contact person: L. Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.

September 17-20. XII Symposium on Cryptogamic Botany, Valencia, Spain. Information from: Felisa Puche, Dept. de Biología Vegetal, Facultad de Ciencias Biológicas, Universitat de Valencia, Dr. Moliner 50, 46100-Burjassot, Valencia, Spain, E-mail: M.F. Puche@uv.es. <http://bioweb.uv.es/cripto97>.

October 3-5. Annual Blomquist Bryological Foray. Contact person: Molly McMullen, Cryptogamic Herbarium, Box 90342, Duke University, Durham, NC, 27708-0342, USA. Phone: (919)-660-7300. Fax: (919) 660-7293., e-mail: mmcm@duke.edu