

# International Organization of Plant Biosystematists

**Newsletter**

**No. 20**

**Edited by**

**K. M. Urbanska**

**D. J. Crawford**

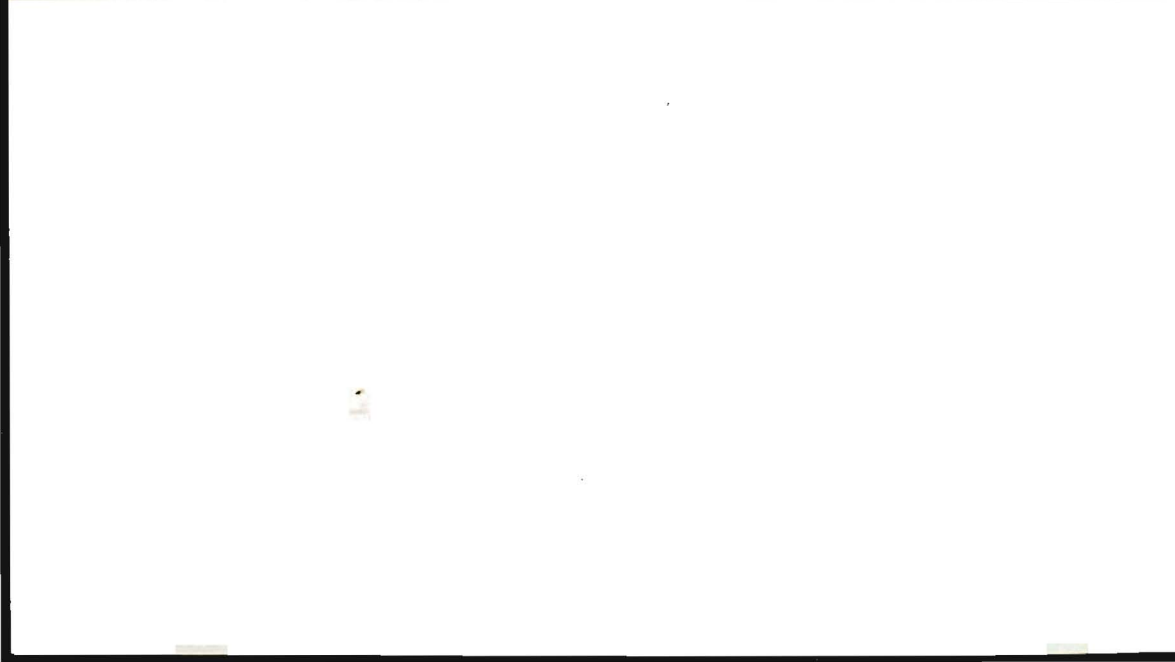
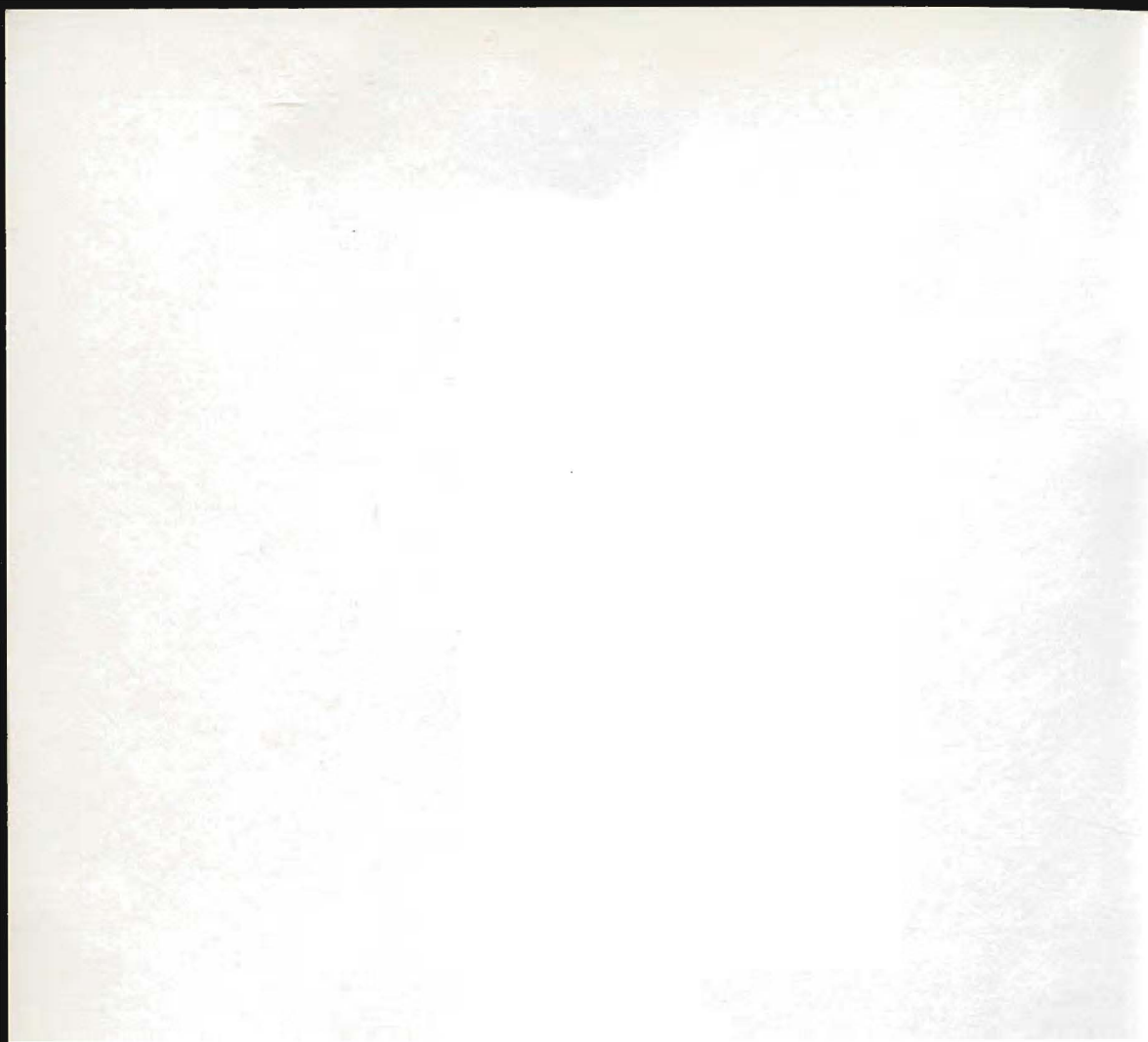
**C. A. Stace**



Issued from  
The Department of Geobotany  
Swiss Federal Institute of Technology

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Zürich 1993

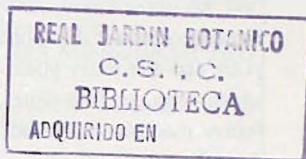


28 JUN. 1993

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## International Organization of Plant Biosystematists

Newsletter No. 20



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## 1. Editorial Comment

Dear IOPB Members,

Slowly comes the time for celebration: the first issue of IOPB Newsletter n.s. appeared ten years ago and today you're offered No. 20. Thank you all for your diverse contributions which keep our Newsletter alive - already for a decade - and please send me more. Our festive mood is shadowed, however, by the unexpected death of our Editorial Secretary Anny Honegger (p. 3).

A new column on molecular research will be included in the Newsletter from now on (p. 9), our new Co-Editor is Dan J. Crawford, who graciously accepted this time-consuming task. For opening, Konrad Bachmann contributed to Dan's column on very short notice and we thank him for doing so. The Chromosome Data column continues of course to appear (p. 4); thanks to Clive's fine editorial work, this particular feature of the Newsletter is very successful.

Dan is replaced in the Council by Randall J. Bayer (p. 21). Welcome to our Council, Randy, we hope to have soon some news from you/your area.

No usual individual research reports this time. Instead, we have Profile of a Lab contributed from Canada by Sue Warwick (p. 17), a short paper on some Balkan chromosome numbers by Matthias Baltisberger (p. 12), an interesting report from Germany sent by Herbert Hurka and his colleagues (p. 15), and a brief information on summer research plans in Alaska contributed by Dave Murray (p. 16). Best thanks to all colleagues for sharing this varied and interesting news with IOPB Members. Incidentally, your Editor just received two further research reports from Czech Republic and Japan, respectively; these welcome contributions arrived here shortly after this Newsletter went to printing but obviously will be published in the next issue. The cooperation of Drs. Kirschner and Murakami is much appreciated.

A brand piece of news, too, is the announcement of IOPB FUTURE Award (p. 20).

Please help out if possible with establishing a fund destined to distinguish young outstanding biosystematists.

These and many other news included in the present issue will certainly make an interesting reading to the IOPB Members. A call to all persons who did not yet contribute to our Newsletter: please send me your news, don't be shy.

Data for Newsletter No. 21 should arrive here before November 30, 1993.

Good summer to you all,

The Editor

## 2. From the Editorial Office

Please write in capital letters or use typewriter while preparing your reports for the Newsletter. You don't want to have some words misspelled in print, do you?

**It would be a great help if contributions are sent *both* on RPS Microdisc(MC2HD 3.5 inch hard disc) as well as the printout.**

As our Institute has its own publication series, we are able to convert all the contributions we receive on **ASCII text file on 3.5 and 5.25 disc for-matted for Macintosh.**

Thank you for your cooperation.

\* \* \*

## 3. In Memoriam Anny Honegger



Please stop reading for a moment and have a look at the photo: this was the lady who organized the IOPB Newsletter publication for you since 1983 but is no more with us. Anny Honegger-Lacaf passed away suddenly on April 27, 1993. She was our Editorial Secretary. We will sorely miss her sunny smile, positive thinking, and great efficiency in solving small and bigger publication problems.

Goodbye Anny, sleep peacefully. It was good to know you.

\* \* \*

#### 4. IOPB Chromosome Data 5

edited by Clive A. Stace  
Department of Botany, Univ. of Leicester  
Leicester LE1 7RH  
England  
Fax 44-533-471001



Please send contributions to Professor Stace at the above address on RPS Microdisc with text in ASCII-file and a printed copy, using the **exact layout** of the present list and stating whether or not you are a Member of IOPB. Neither proofs nor reprints will be made available, but the editor will acknowledge receipt of contributions and raise queries with authors if necessary.

\* \* \*

Reports by **M. BALTISBERGER** and **W. HUBER**, Geobotanisches Institut ETH, Zollikerstrasse 107, CH-8008 Zürich, Switzerland. Vouchers in Z-ZT. Authors' names abbreviated to MB and WH.

##### **APIACEAE**

*Astrantia major* L.  $2n=28$ . Switzerland: ct. Tessin, N.E. of Lugano, south side of Denti della Vecchia, 1200 m, 1.5.1989, WH cult. 11994.

##### **ASTERACEAE**

*Anthemis carpatica* Willd.  $2n=36$ . Serbia: Kosovo, 55 km S.S.W. of Pristina, E. of Prizren, mount Osljak, 1950-2000 m, 5.8.1990, MB & U.Schäppi 12284, cult. 12514.

*Aposeris foetida* (L.) Less.  $2n=16$ . Austria: Carinthia, Karawanken, S. of Zell-Pfarre, near Koschutahütte, 1300 m, 24.7.1992, MB & A.Widmer 12657.

*Chrysanthemum minimum* Vill.  $2n=36$ . Austria: Styria, Rottenmanner Tauern, 8 km S.W. of Trieben, east side of Kleiner Bösenstein, 1850-1950 m, 22.7.1992, MB & A.Widmer 12618.

*Erigeron acer* L.  $2n=18$ . Macedonia: Popova Sapka, 10 km W. of Tetovo, 1710 m, 2.8.1990, MB & U.Schäppi 12257.

##### **BORAGINACEAE**

*Myosotis decumbens* Host  $2n=32$ . Switzerland: ct. Obwalden, below Aa Alp near Melchsee-Frutt, 1610 m, 3.8.1989, WH & G.Huber-Meinicke 19435.

##### **CARYOPHYLLACEAE**

*Silene ciliata* Pourret  $2n=24$ . Macedonia: Popova Sapka, 10 km W. of Tetovo, 1830-1845 m, 2.8.1990, MB & U.Schäppi cult. 12499.

*Silene nutans* L.  $2n=24$ . Austria: Styria, Koralpe, Bärentalkar, near Grillitschhütte, 1730 m, 24.7.1990, M.Fötsch & WH 12448, cult. 13424.

##### **DIPSACACEAE**

\* *Scabiosa columbaria* L. s.l.  $2n=16$ . France: Alpes Maritimes, Picougl, between Benil

and Valberg, 1600 m, 3.8.1990, M.Fotsch & WH 12550, cult. 12568; Spain: Eastern Pyrenees, Gerona, on the road from Camprodon to Circo de Ull de Ter, 1550 m, 25.7.1988, WH & G.Huber-Meinicke 11366; Spain: Cordillera Cantabrica, Oviedo, 37 km S. of Oviedo, on the road N. of Tuiza de abajo, 1150 m, 22.7.1988 WH & G.Huber-Meinicke 11336; Serbia: Kosovo, 55 km S.S.W. of Pristina, E. of Prizren, mount Osljak, 1950-2000 m, 5.8.1990, MB & U.Schäppi 12285, cult. 12571; Macedonia: Popova Sapka, 10 km W. of Tetovo, 1830-1845 m, 2.8.1990, MB & U.Schäppi 12249, cult. 12595.

#### FABACEAE

*Anthyllis alpestris* (Kit.) Rchb.  $2n=12$ . Switzerland: ct. St.Gall, mount Pizol, S. of Pizolhütte, 2200 m, 27.7.1989, M.Fotsch & WH cult. 11674.

*Trifolium arvense* L.  $2n=14$ . Switzerland: ct. Wallis, Lötschbergsüdrampe, between Ausserberg and Eggen, below Geissbalma, 1000 m, 19.6.1989, MB & WH cult. 11999.

#### GENTIANACEAE

*Gentiana verna* L.  $2n=28$ . Switzerland: ct. Obwalden, Höch Gumme, mountain-chain of Brienzer Rothorn, 2020 m, 23.7.1988, MB & WH 10980.

#### GERANIACEAE

*Geranium sanguineum* L.  $2n=84$ . Switzerland: ct. Tessin, N.E. of Lugano, south side of Denti della Vecchia, 1200 m, 1.5.1989, WH cult. 12077.

#### LAMIACEAE

*Betonica alopecuros* L.  $2n=16$ . Austria: Carinthia, Karawanken, 20 km S.E. of Klagenfurt, south-east side of Hochobir, above Eisenkappelerhütte, 1650 m, 24.7.1992, MB & A.Widmer 12655; Slovenia: N.E. of Bovec, W. of Vrsic Pass, 1860 m, 25.7.1992, MB & A.Widmer 12672; Italia: Veneto, N.N.W. of Feltre, S. of Passo le Vette Grande, 1900 m, 26.7.1992, MB & A.Widmer 12687.

*Betonica scardica* Griseb.  $2n=16$ . Serbia: Kosovo, 55 km S.S.W. of Pristina, E. of Prizren, mount Osljak, 1700-1800 m, 5.8.1990, MB & U.Schäppi 12293.

*Horminum pyrenaicum* L.  $2n=12$ . Italia: N.N.E. of Brescia, W. of Lago d'Idro, N.E. of Corno Barzo, on the road from Anfo to Passo del Maniva, 1750 m, 27.7.1992, MB & A.Widmer cult. 12715.

*Nepeta nepetella* L.  $2n=34$ . France: Alpes Maritimes, 5 km S.W. of Benil, summit of L'Adrech de Forche, 2010 m, 3.8.1990, M.Fotsch & WH 12549, cult. 12398.

\* *Sideritis hirsuta* L. (det. S.Cirujano, Madrid)  $2n=34$ . Spain: Cordillera Cantabrica, Leon, 40 km S.S.W. of Oviedo, near the summit of Pena Ubina, 2100 m, 22.7.1988, WH & G.Huber-Meinicke 11304, cult. 11858.

#### LINACEAE

*Linum capitatum* Kit. ex Schultes  $2n=28$ . Serbia: Kosovo, 55 km S.S.W. of Pristina, E. of Prizren, mount Osljak, 2200 m, 5.8.1990, MB & U.Schäppi 12279, cult. 12513.

#### RANUNCULACEAE

*Pulsatilla alba* Rchb. s.l.  $2n=16$ . Austria: Styria, Rottenmanner Tauern, 8 km S.W. of Trieben, east side of Kleiner Bösenstein, 1850-1950 m, 22.7.1992, MB & A.Widmer 12617.

*Ranunculus seguieri* Vill.  $2n=16$ . France: Provence, Vaucluse, E. of summit of Mont Ventoux, 1770 m, 26.7.1988, WH & G.Huber-Meinicke 11381, cult. 11695.

#### ROSACEAE

*Dryas octopetala* L.  $2n=18$ . Switzerland: ct. Appenzell Innerrhoden, mountain-chain of Säntis, E. of Wagenlücke, 2000 m, 26.7.1989, WH cult. 11664.

*Potentilla speciosa* Willd.  $2n=14$ . Serbia: Kosovo, 55 km S.S.W. of Pristina, E. of Prizren, mount Osljak, 1950-2000 m, 5.8.1990, MB & U.Schäppi 12286.

#### SAXIFRAGACEAE

*Saxifraga biflora* All.  $2n=26$ . Switzerland: ct. Wallis, Val d'Anniviers, N.W. of Zinal, Sorebois, 2700 m, 7.7.1989, WH 11805.

**VALERIANACEAE**

*Valeriana elongata* Jacq. 2n=24. Austria: Carinthia, Karawanken, 20 km S.E. of Klagenfurt, east side of Hochobir, 1800-1830 m, 24.7.1992, MB & A. Widmer 12651.

\* \* \*

Reports by **J. C. DIOSDADO**, **F. OJEDA** and **J. PASTOR**, Departamento de Biología Vegetal y Ecología, Universidad de Sevilla, Apdo. 1095, 41080 Sevilla, Spain. Vouchers in Herbarium of the Department of Vegetable Biology, University of Sevilla (SEV).

**APIACEAE**

*Lagoecia cuminoides* L. n=8. España: Jaén, Sierra de Cazorla, El Chorro, Diosdado (SEV 135045).

**ASCLEPIADACEAE**

*Gomphocarpus fruticosus* (L.) W. T. Aiton 2n=22. España: Cádiz, Tarifa, Diosdado (SEV 135046).

*Vincetoxicum nigrum* (L.) Moench n=11. España: Almería, Santa María de Nieva, Diosdado (SEV 135047).

**ASTERACEAE**

+ *Calendula stellata* Cav. n=7. Marruecos: Entre Tánger y Tetuán, Ojeda (SEV 135048).

*Otanthus maritimus* (L.) Hoffmanns. & Link n=9. España: Almería, Cabo de Gata, Diosdado (SEV 135049).

*Phagnalon sordidum* (L.) Reichenb. 2n=18. España: Jaén, Sierra Mágina, Torres, Diosdado (SEV 135050).

*Santolina viscosa* Lag. n=9. España: Almería, Sorbas, Diosdado (SEV 135051).

**BERBERIDACEAE**

*Berberis hispanica* Boiss. & Reuter n=14. España: Jaén, Sierra de Cazorla, Pico Cabañas, Diosdado (SEV 135052).

**BRASSICACEAE**

+ *Biscutella baetica* Boiss. & Reuter n=8. Marruecos: Tetuán, Jbel Habib, Ojeda (SEV 135053).

*Carychtera annua* (L.) DC. 2n=16. España: Almería, Rambla Honda, Diosdado (SEV 135054).

*Euzomodendron bourgeanum* Cosson 2n=34. España: Almería, Rambla de Tabernas, Diosdado (SEV 135055).

*Moricandia arvensis* (L.) DC. 2n=28. España: Almería, Santa María de Nieva, Diosdado (SEV 135056).

**CARYOPHYLLACEAE**

*Rhodalsine geniculata* (Poir.) F. N. Williams 2n=18. España: Almería, Cabo de Gata, Diosdado (SEV 135057).

*Silene nocturna* L. 2n=24. España: Almería, Rambla Honda, Diosdado (SEV 135058).

**FABACEAE**

+ *Tetragonolobus purpureus* Moench n=7. Marruecos, Ojeda (SEV 135059).

**FUMARIACEAE**

*Hypocoum imberbe* Sm. n=8. España: Almería, Santa María de Nieva, Diosdado (SEV 135060).

**LAMIACEAE**

*Phlomis lychnitis* L. 2n=20. España: Jaén, Sierra Mágina, Torres, Diosdado (SEV 135061).

**LILIACEAE**

+ *Ornithogalum orthophyllum* Ten. 2n=54. Marruecos: Tetuán, Jbel Habib, Ojeda (SEV 135062).



- + *Scilla monophyllos* Link 2n=20. Marruecos: Tetuán, Jbel Habib, Ojeda (SEV 135063).  
+ *Scilla ramburei* Boiss. 2n=20. Marruecos: Tanger, entre El-Manzla y Dar-Chaoui, Ojeda (SEV 135064).

**SOLANACEAE**

*Hyosциamus albus* L. 2n=68. España: Jaén, Hornos, Diosdado (SEV 135065).

**THYMELAEACEAE**

*Thymelaea hirsuta* (L.) Endl. 2n=36. España: Almería, Rambla de Tabernas, Diosdado (SEV 135066).

**VIOLACEAE**

*Viola cazorlensis* Gandoger n=10. España: Jaén, Sierra de Cazorla, Pico de Cabañas, Diosdado (SEV 135067).

**ZYGOPHYLLACEAE**

*Fagonia cretica* L. 2n=18. España: Almería, Rambla de Tabernas, Diosdado (SEV 135068).

\* \* \*

Report by **OLAYAN HAIFA** and **ELBABA JOURMENA**, Plant Ecology Laboratory, Girls Education College, Malaz, Seteen Street, 11113 Riyadh, Saudi Arabia. Vouchers in MARSSJ.

**ZYGOPHYLLACEAE**

*Fagonia zilloides* Humbert 2n=18. Algeria: Al Kantara, 1960m, AA-F3.

In the report by the same authors in IOPB Chromosome Data 3 (1991), for *Fagonia livieri* read *Fagonia olivieri*, and for *Helianthemum getulum* Powel read *Helianthemum getulum* Pomel.

\* \* \*

Reports by **M. G. VASIL'EVA**, **J. V. DAUSHKEVICH**, **T. V. ALEXEEVA** and **M. G. PIMENOV**, Botanical Garden, Moscow State University, Moscow 119899, Russia. Vouchers in MW. The collectors are M. G. Vasil'eva (V), M. G. Pimenov (P), J. V. Dauschkevich (D), and E. V. Kljuykov (K), unless otherwise stated.

**APIACEAE**

*Angelica tenuifolia* (Pall. ex Spreng.) Pimenov 2n=22. Russia: Altai Mts, Valley of Chuja River, between Aktash and Kurai, 1990, P & V 77.

*Aphanopleura capillifolia* (Regel & Schmalh.) Lipsky n=11. Tadzhikistan: Peter the Great Mts, Valley of Obichingou River, Dashti-Khasan, 1990, P & K 183.

*Astomaea galiocarpa* (Korovin) Pimenov & Kljuykov n=6. Tadzhikistan: Hissar Mts, S. slope, River Maikhura, 1990, P & K 169.

*Conioselinum longifolium* Turcz. n=11. Russia: Burjatia, E. Sajan Mts, Tunka Ridge, Khubyty, 1992, P & K 38.

*Crithmum maritimum* L. n=10. Georgia: Abkhasia, Kholodnaja Rechka, shore of Black Sea, 1991, D 64.

*Elaeosticta hirtula* (Regel & Schmalh.) Kljuykov, Pimenov & V. N. Tikhom. n=10. Tadzhikistan: Peter the Great Mts, Valley of Obichingou River, Dashti-Khasan, 1990, P & K 189.

*Elaeosticta paniculata* (Korovin) Kljuykov & Pimenov n=11. Uzbekistan: Zeravshan Mts, W. part, Mechnatkam, 1990, P & K 93.

*Ferula fedtschenkoana* Koso-Pol. n=11. Tadzhikistan: Fan Mts, Lake Iskanderkul, 1990,

- P & K 147. Uzbekistan: Malgusar Mts, W. of Shurbali Pass, 1991, P & K 188.
- Ferula seravschanica* Pimenov & Ju. Baranova n=11. Tadzhikistan: Turkestan Mts, Valley of Zeravshan River, Gusaribad, 1990, P & K 143.
- Galagania gracilis* (Kamelin & Pimenov) Kamelin & Pimenov n=11. Tadzhikistan: Peter the Great Mts, Valley of Obichingou River, Dashti-Khasan, 1990, P & K 190.
- Galagania platypoda* (Aitch. & Hemsl.) M. Vassil. & Pimenov n=11. Turkmenia: Kopet Dag Mts, Valley of River Arvas, Ipaikala, 1990, P & K s.n.
- Korshinskia olgae* (Regel & Schmalh.) Lipsky n=9. Tadzhikistan: Peter the Great Mts, Valley of Obichingou River, Dashti-Khasan, 1990, P & K 190.
- Palimbia salsa* (L.f.) Bess. n=11. Kazakhstan: Dzheskazgan Prov., Aktau Mts, 1991, P & K 107.
- Palimbia turgaica* Lipsky ex Woronow n=11. Kazakhstan: near Karaganda, 1991, P & K 20.
- Peucedanum calcareum* Albov n=11. Georgia: Abkhasia, Kholodnaja Rechka, 1991, D 65. Georgia: Abkhasia, Novy Afon, 1991, D 73.
- Peucedanum longifolium* Waldst. & Kit. n=22. Georgia: Adzharia, Valley of Adzhariestschali River near Adzhariestschali, 1991, D 75. Georgia: Adzharia, Valley of Chorokh River, 1991, D 76.
- Peucedanum tauricum* Bieb. n=11. Ukraine: Crimea, Ai-Petri Mt., 1991, D 5. Ukraine: Crimea, Baidarsky Vorota Pass, 1991, D 19. Russia: Krasnodar Prov., near Novorossiysk, Andreevski Pass, 1991, D 59. n=11,11+1B. Ukraine: Crimea, South Demerdzhi Mt., 1991, D 49. Ukraine, Crimea, near Simpheropol, Dubki, 1991, D 59.
- Pimpinella tragium* Vill n=10. Ukraine: Crimea, Ai-Petri Mt., 1991, D 6.
- Pimpinella tripartita* Kolen. n=10. Russia: Krasnodar Prov., between Adler and Krasnaja Poljana, near Kepsha, 1989, D s.n.
- Pleurospermum apiolens* C. B. Clarke 2n=22. China: Xizang, near Nianjan, 1991, Tiskov s.n.
- Polyophium panjutinii* Manden. & Schischk. n=11. Georgia: Martvili District, near Kursu, Mt. Migaria, 1987, Ostroumova 294.
- Prangos saravschanica* (Regel & Schmalh.) Korovin n=11. Tadzhikistan: Hissar Mts, Ansof Pass, 1990, P & K 158.
- Schtschurowskia meifolia* Regel & Schmalh. n=11, 2n=22. Tadzhikistan: Fan Mts, Lake Iskanderkul, 1990, P & K s.n.
- Semenovia pimpinelloides* (Nevski) Manden. n=11. Tadzhikistan: Zeravshan Mts, N. slope, near Vashan, 1990, P & K 122.
- Seseli alpinum* Bieb. n=11. Russia: Krasnodar Prov., near Krasnaja Poljana, Mt. Achishkho, 1989, D 95.
- Seseli foliosum* (Somm. & Levier) Manden. n=11. Georgia: Adzharia, Valley of Adzhariestschali River, near Machunczeti, 1991, D 78.
- Seseli glabratum* Willd. ex Spreng. n=10. Kazakhstan: Dzheskasgan Prov., Aktau Mts, 1991, P & K 101.
- Seseli lehmannianum* (Bunge) Boiss. n=10. Tadzhikistan: Fan Mts, Lake Iskanderkul, 1990, P & K s.n.
- Seseli ponticum* Lipsky n=10. Russia: Krasnodar Prov., near Novorossiysk, Myskhako, 1991, D 55. Russia: Krasnodar Prov., near Tuapse, 1989, Lavrova s.n.
- Seseli rimosum* Pimenov n=11. Tadzhikistan: Peter the Great Mts, Valley of Obichingou River, Kaftar-Gusar, 1990, P & K 176.
- Seseli rupicola* Woronow n=10. Russia: Krasnodar Prov., between Adler and Krasnaja Poljana, near Kepsha, 1989, D 106. Georgia: Abkhasia, N. of Gagra, 1991, D 70.
- Seseli strictum* Ledeb. n=9. Kazakhstan: Dzheskazgan Prov., between Atosu and Aktau Mts, 1991, P & K 101.
- Sium latifolium* L. n=6. Kazakhstan: Dzheskazgan Prov., Valley of Sarysu River, Kudai-

mendy, 1991, P & K 150.

*Sium sisaroides* DC. n=11. Kazakhstan: Karaganda Prov., Kysyltas Mts, 1991, P & K 44. Kazakhstan: Dzheskazgan Prov., Valley of Sarysu River, Kudaimendy, 1991, P & K 151.

*Sinodielsia thibetica* (H. Boissieu) Kljuykov & P. K. Mukh. (*Vicatia thibetica* H. Boissieu) 2n=24. China: Xizang, near Nianjan, 1991, Tishkov s.n.

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## 5. News from Molecular Biosystematists

edited by Dan J. Crawford  
Department of Plant Biology  
The Ohio State University  
Columbus, Ohio 43210-1293, USA  
Fax 614-292-6345



The purpose of this new column "News from Molecular Biosystematists" is to provide news of the various activities in the laboratories of workers in molecular systematics in the broadest sense. This is not envisioned as a place to present "hard" data but rather to give a general description of the projects being carried out in a given lab, including the questions of problems being studied, the methods used, and some general results to date. Also, projects in their initial stages could be included in these reports.

I hope that people will send me reports unsolicited for the Newsletter. While these can vary in length, they should not take up more than a page or two when printed, citations of publications from the lab included. Ideally, several reports could be published in each issue of the Newsletter. I will also encourage labs to contribute, particularly if the voluntary contributions are slow in coming!

I think that this column can be an effective means of communication among labs doing molecular systematics, with the communication at the international level being particularly important. So please send me something for the next issue of the Newsletter!

Please send your contributions at the above address, if possible on RPS Microdisc with text in ASCII-file on 3.5" and 5.25" disc formatted for Macintosh, and stating whether or not you are IOPB Member. Thank you.

\* \* \*

DNA News by K. BACHMANN, Lab of Evolutionary Botany, Hugo de Vries Lab, Univ. of Amsterdam, Kruislaan 318, NL-1098 SM Amsterdam.

We have described our research projects in IOPB Newsletter No. 15 (1990). In the last years, the use of molecular markers has become increasingly important in the research on our model system for higher plant speciation, the genus *Microseris* D. Don (Asteraceae, Lactucaceae). Wallace and Jansen (1990) and Jansen et al. (1991) had already used RFLPs in the chloroplast DNA (cpDNA) to clarify the relationship of *Microseris* with the related genera. Their research had resulted in the reestablishment of the genus *Uropappus* Nuttall for *M. lindleyi* and the creation of *Stebbinsoseris* Chambers for the allotetraploids between *U. lindleyi* and annuals of *Microseris* (Chambers in Jansen et al. 1991). Within *Microseris*, RFLPs in the cpDNA discriminate between the perennial species and the annuals (plus all tetraploids). We are using nuclear DNA markers in order to reconstruct the evolution within species where that is possible. The intraspecific and interspecific polymorphisms which we find can then be used as markers for the study of segregation in interspecific and interpopulation hybrids. The availability of many molecular single-gene markers has greatly facilitated the analysis of the genetics of morphological evolution in *Microseris*. We have tried several different methods for the detection of nuclear DNA polymorphisms. The molecular studies involving multilocus DNA fingerprinting mentioned in our earlier profile have meanwhile been published (Van Heusden et al. 1991; Van Houten et al. 1991). At the time, we're developing a set of low-copy-number nuclear DNA probes from the Chilean annual *M. pygmaea*. One of these probes revealed and RFLP linked to a gene determining the constancy of pappus part number in *M. douglasii* (Vlot et al. 1992). The probes have also been used to detect markers for the "annual" and the "perennial" genomes that are combined in the Australian allotetraploid *M. scapigera* (Van Houten et al. 1993), and these probes permit the reconstruction of the adaptive radiation of *M. scapigera* in Australia and New Zealand after its arrival by long-distance dispersal. Meanwhile various PCR based techniques esp. RAPDs, have become available. Since genetic variation in the annuals is mainly among populations, and population-specific biotypes can be propagated as inbred lines, essential information about intraspecific differentiation may be obtained by a very thorough analysis of relatively few lines per species. The closely related *M. elegans* and *M. bigelovii* of California and *M. pygmaea* of Chile show subtle differences in the distribution of markers among populations (Van Heusden and Bachmann 1992a, b, c). These are congruent with morphological variation patterns but the availability of very many molecular markers (RAPDs) permits a much more reliable interpretation (Bachmann and Van Heusden 1992; Bachmann 1992b; Van Heusden and Bachmann 1992c). The exact relationship among the three species, and with it the closest relative of *M. pygmaea* in North America, has not yet been established. This problem requires an analysis of the very variable outgroup species, *M. douglasii* (Roelofs, in progress). RAPDs also permit a focused search for genes involved in morphological and physiological evolution of the species. Such genes segregate in the appropriate artificial hybrids. Their number and distribution can be estimated by mapping the genome with RAPDs and studying the cosegregation

with phenotypic characters (Van Houten, in preparation; Hombergen, in progress). RAPD markers closely linked to specific loci of interest can be found by comparing bulked DNA from all F2 plants homozygous for the locus (Michelmore et al. 1991). The informative amplification products can be isolated, cloned, sequenced, and used as diagnostic single-locus markers (Hofman and Van den Bijl, in progress).

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## 6. Two Interesting Chromosome Numbers from the Balkans

by Matthias Baltisberger, Geobotanisches Institut ETH, Zollikerstr. 107, CH-8008 Zürich

In our long-term biosystematic investigations program, material from mountain chains of the Balkan Peninsula was sampled (BALTISBERGER 1992). Chromosome numbers of the plants collected were determined. Two numbers of a special interest are presented and briefly discussed here.

### GERANIACEAE

*Geranium subcaulescens* L'Hérit.  $2n=56$  (Fig. 1)

Macedonia: Popova Sapka, 10 km W of Tetovo, 1830-1845 m, 2.8.1990, M. Baltisberger & U. Schöpfi, no. 12250, cult. no. 12497.

The chromosome number of *G. subcaulescens* was previously given as  $2n=28$  (GAUGER 1937, WARBURG 1938, LOVKA & al. 1971, GUITTONEAU 1975, STRID & FRANZEN 1981, VAN LOON & OUDEMANS 1982, FRANZEN & GUSTAVSSON 1983, VAN LOON 1984, BALTISBERGER 1987, 1991, 1992, BALTISBERGER & HUBER 1987). As YEO (1984) pointed out, the basic chromosome number within *Geranium* subgen. *Erodioideae* sect. *Subacaulia* to which *G. subcaulescens* belongs is  $x=14$ , and all known taxa are diploid ( $2n=2x=28$ ). All the 5 plants from Macedonia investigated here were 56-chromosomic; this is the first record of a tetraploid chromosome number for *G. subcaulescens* and for the whole section *Subacaulia* as well.



Fig. 1. Somatic metaphase of *Geranium subcaulescens* ( $2n=56$ ).

### LABIATAE

*Teucrium chamaedrys* L.  $2n=62$  (Fig. 2, 3)

Serbia: Kosovo, 55 km SSW of Pristina, E of Prizren, mount Osljak, 1700-1800 m, 5.8.1990, M. Baltisberger & U. Schöpfi, no. 12294, cult. no. 12515.

Greece: N. Grevena, 35 km ESE of Grevena, Kamvounia, Vounassa, 1500-1615 m, 9.8.1990, M. Baltisberger & U. Schöpfi, no. 12321, cult. no. 12521.

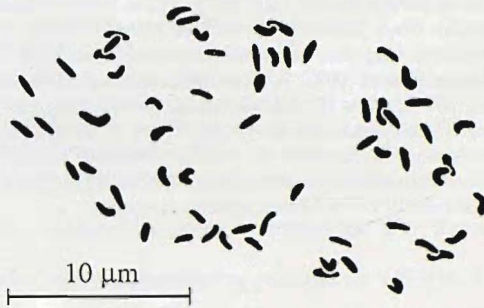


Fig. 2. Somatic metaphase of *Teucrium chamaedrys* (no. 12294;  $2n=62$ ).

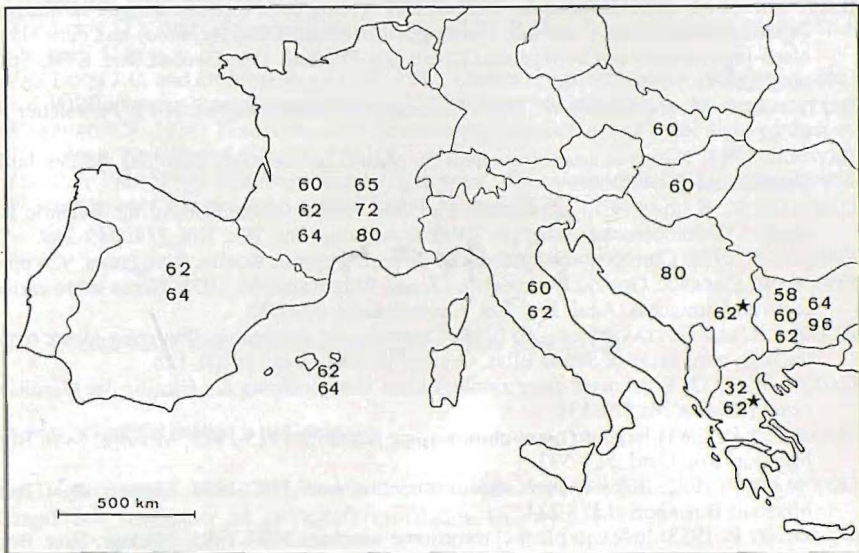


Fig. 3. *Teucrium chamaedrys* : Geographical distribution of chromosome numbers. Map based mostly on the literature data, the numbers marked with asterisk refer to the present results.

*T. chamaedrys* is very variable (TUTIN & WOOD 1972, BADEN 1991), and many infraspecific taxa have been described (e.g. RECHINGER 1941). The known chromosome numbers correspond to various ploidy levels, and may be eu- or aneuploid ( $2n=32, 58, 60, 62, 64, 65, 72, 80, 96$ ; compilations see MOORE 1973, 1974, 1977, FEDEROV 1974, GOLDBLATT 1981, 1985, 1988, VAN LOON 1987, GOLDBLATT & JOHNSON 1990, 1991). The chromosome number  $2n=62$  presented here was previously reported from Spain (BAYON 1988), the Balearic Islands (DAHLGREN & al. 1971, BAYON 1988), France (FERNANDEZ CASAS & al. 1978, AFZAL-RAFIL & al. 1986), Italy (RAIMONDO & al. 1983), Bulgaria (MARKOVA 1982) and from Azerbaydzhan (KORDISHEVA & al. 1968). There is no apparent correlation between morphology and chromosome number. No precise pattern of geographic distribution of the respective chromosome numbers can be recognized (Fig. 3) but the 62-chromosomic plants seem to be restricted mostly to the Mediterranean countries.

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## 7. Molecular Methods in Plant Evolution Research

### A new scientific network in Germany

by Herbert Hurka, Klaus Mummenhoff and Barbara Neuffer, Institut f. Biologie, Univ. Osnabrück, Barbarastr. 11, D-W-4500 Osnabrück. Fax: 49-541-9692870

In 1992, the Deutsche Forschungsgemeinschaft (DFG) founded a priority ("Schwerpunkt") program "Molekulare Grundlagen der Evolution bei Pflanzen". (Coordinator: Prof. Uwe Jenssen, University of Bayreuth). It has been initiated to promote the application of molecular techniques in the fields of systematic and evolutionary botany.

Presently, about 20 projects at 15 Universities in Germany are funded within this network. Frequently organized colloquia and round table discussions ensure cooperation and integration of research goals.

The network includes research groups with special expertise in advanced areas of molecular biology, evolutionary biology, computer sciences, systematic botany, and field ecology. Technical cooperation and training in molecular techniques are provided by experimental workshops on specific techniques such as cDNA cloning, PCR and RAPD technology, data analysis etc. A "Plant Molecular Evolution Newsletter" has been established as an informal forum for the exchange of ideas and data and helps to integrate international efforts in the field. (Enquiries should be sent to Dr. William Martin, Institut für Genetik, TU Braunschweig, D-3300 Braunschweig, Germany; Fax: 49-531-391-5765).

At present, the network has focussed on phylogenetic and evolutionary questions within algae and higher plants: (a) evolution of genes and gene families within systematic categories; (b) molecular markers for tracing algae phylogeny; (c) molecular markers for phylogenetic studies within certain families (green algae; some angiosperm families); (d) evolution of and within selected species and genera.

Several projects within the outlined program are in progress in our laboratory at Osnabrück. They all concern problems within the family *Brassicaceae*: cpDNA restriction site variation in the tribe Lepidieae and related tribes for phylogenetic studies at the genus level; phylogenetic relationships within *Thlaspi* s.l., *Lepidium* and *Cochlearia* (cpDNA, isozymes, Rubisco); speciation and evolution within *Capsella*, *Cardamine*, *Cochlearia*, and *Thlaspi* (isozymes, RAPDs, cpDNA, rDNA); evolution of the AAT gene complex in *Capsella* (gene fishing, cloning, sequencing); differentiation between populations of *Arabis alpina* with special reference to its disjunct distribution pattern (cpDNA, rDNA, isozymes).

As our studies highly depend on original seed material, we would be very pleased if IOPB members could support us by sending authentic seed material collected in the wild from individual plants!

We would also very much appreciate cooperation with persons who have special interest in one of the taxa mentioned above. Such a cooperation has already developed with the biosystematists at Zürich (Krystyna Urbanska and Elias Landolt) in the case of the *Cardamine pratensis* complex.

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## 8. Panarctic Flora Project - Current News

Writes David F. Murray, IOPB Council Member, Museum, University of Alaska, 907 Yukon Drive, Fairbanks, AK 99775 - 1200 USA:

The search for funds is constant and difficult but we were able to have the database manager for the Russian side Volodya Razzshivin work for a month with Alan Batten on our system. Volodya returned to St. Petersburg with the computer equipment and accessories we had purchased for the Russian team.

Plans for the coming summer: we are going to have another field season with the same Russian colleagues as reported in Newsletter No.18/19, again on the Seward Peninsula of W Alaska. We hope for some air support part of the time so we can explore the Bendeleben Mts. We will also follow on the new and interesting things we discovered last year. The Asiatic taxa *Leymus interior* and *Calamagrostis tenuis* were found last year for the first time in North America; we anticipate the discovery of even more range extensions from Chukotchka, and from elsewhere in Alaska to the central Seward Peninsula where our work is concentrated. We also are planning more time in the herbarium esp. for the cryptogamic botanists.

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## 9. Profile of a Lab

### **Current research at the Economic Plant Project, Centre for Land and Biological Resources Research, Agriculture Canada, Ottawa.**

by Suzanne I. Warwick, IOPB Council Member, Centre for Land and Biological Resources Research, Agriculture Canada, K.W. Neatby Bldg., C.E.F., Ottawa, Ontario, Canada, K1A 0C6 Phone 613- 9961665, FAX 613- 9951823

As you can see, we have undergone a recent name change. The old Biosystematic Research Centre, which many of you will recognize, has joined forces with the Land Resource Research Centre to form CLBRR. If only acronyms, such as clobber, could reflect the reality of the political clout of taxonomists in Canada!!

Currently we are eight PhD level botanists, with a total support staff of 8 people. Studies include both taxonomic and genetic investigations of crop and related wild germplasm biodiversity, as well as studies of Canadian native floristic diversity. Several contributions to the co-operative projects Manual of North American Grasses and Flora of North America are going on, with the herbarium (DAO) now amounting to 800,000 vascular plant collections. Laboratories have been established for macromolecular studies, including isozymes and DNA analysis, which have proved useful in resolving problems at several taxonomic levels.

#### **BAUM. B.**

Current research is centred on the study of *Hordeum* (barley) and the Triticeae. A molecular systematic approach is being taken to clarify the relationships of barley and relatives using the 5S DNA gene, as well as more traditional numerical taxonomic applications. Further work is being done on the diagnostic markers of cereal crop cultivars and as aids in specific breeding programs. An international triticale cultivar register database is also being compiled.

CATLING, P.

Systematic studies on Canadian native germplasm resources, particularly sedges (Cyperaceae) which are important as forage and the clonally propagated crops: ginseng (*Panax quinquefolium*) and strawberries (*Fragaria*). A second research interest is on aquatic plants in eastern North America, especially aquatic weeds in Canada.

CAYOUILLE, J.

Current research studies on economic grasses and sedges of Canada, particularly the perennial forage species of *Bromus* and weedy species of *Panicum* Sect. *Capillaria*. General research interests include natural hybridization (particularly in grasses and *Carex*), cytology, flora of boreal and arctic regions of eastern North America, and historical aspects of taxonomy and floristics.

CODY, W.

Currently completing preparation of a flora of the Yukon Territory of Northern Canada.

CROMPTON, C.

Research studies on the pollen grains of Canadian plants important to agriculture, with the recent preparation of a Pollen Atlas of Honey Plants in Canada. Comparative palynological studies of select legume and rapeseed wild relatives are in progress, as well as biosystematic studies of Canadian agricultural weeds with particular emphasis on the Polygonoaceae.

MULLIGAN, G.

Taxonomic revision and preparation of a monograph of the genus *Arabis* (Cruciferae).

SMALL, E.

Research studies on the Tribe Trifolieae (*Leguminosae*), including the important crop genera *Medicago*, *Trifolium*, and *Melilotus*. Studies include the systematic relationships of *Medicago* with its allied genera, genetic relationships within poorly understood species complexes in the genus *Medicago*, and the preparation of a biosystematic monograph of *Medicago*.

WARWICK, S.

Research studies on the Tribe Brassiceae (*Cruciferae*), a group of 53 genera, including the important crop genera *Brassica*, *Raphanus*, *Sinapis*. The emphasis is on molecular systematic studies, which are designed to complement and test proposed taxonomic and phylogenetic relationships based on morphological and cytological based taxonomies. Such studies have revealed that several wild species in related genera are genetically much more closely related to key *Brassica* crop genomes than previously recognized and that the tribe requires extensive revision to reflect more natural groups. A computer database on these wild *Brassica* germplasms (Tribe Brassiceae) has been initiated, along with a seed increase program of key wild species. Graduate students projects in Tribe Brassiceae include: Systematic revision of the genus *Moricandia*, and: Isozyme number and chromosome evolution in the Tribe Brassiceae.

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## 10. IOPB Symposium 1995 - News from the Organizing Committee

Writes Bengt E. Jonsell, IOPB Vice-President, Bergius Foundation, Box 50017, S-104-05 Stockholm, Sweden:

The planning of the IOPB Symposium 1995 has made progress recently. The Symposium will be held in Tromsø, the university town in northernmost Norway, from July 29 through August 2, 1995. There will be four days for meetings and one in the middle for field trips in the Tromsø area. The tentative theme is "Evolutionary Potential in Arctic-Alpine Flora". Suggestions to organizers are welcome!

Additional trips include a pre-symposium excursion to Spitsbergen, and a post-symposium visit to Abisko (northernmost Sweden). Flora and vegetation as well as research activities in the respective areas will be shown.

We hope to distribute the first circular in the coming autumn. **Only by that time shall the Symposium schedule be definite.** We look forward to seeing many IOPB Members in the midnight sun lands of Europe.

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## 11. Mendel Forum, Brno, 1992

by William F. Grant, Dpt. of Plant Science, P.O. Box 4000, Macdonald Campus of McGill University, Ste. Anne de Bellevue, Quebec, Canada H9X 3V9, Phone (514) 398 7863, Fax: (514) 398 7897.

On July 22, the 170th anniversary of Mendel's birth, scientists from 29 countries visited the farm house which was the birthplace of Mendel in the small village of Hyncice, now Odry, in northern Moravia, Czechoslovakia. In the farm house a museum has been established and in the village the firehouse still stands that Mendel helped finance for its construction after a serious fire. Visits were also made to the Parish College in Lipnik where Mendel attended College from 1833-1834, the Parish Church in Vrazne where Mendel was baptized and the Augustinian monastic crypt containing his grave in Brno. An earlier visit had been made to the Augustinian Monastery where Mendel had served as Abbot and carried out his inheritance studies on peas. At the monastery that was Mendel's home for 42 years there is a marble statue to Mendel which was removed from the Mendel Square during the communist anti-Mendelian campaign in the fifties. The foundation of Mendel's greenhouse was recently excavated and is to be rebuilt. Mendel's experimental plot is situated in the courtyard close to the entrance of the Mendelianum (museum) in which a familiar 3:1 ratio is exhibited by red and white wax begonias (although Mendel did not work with this species). The plants are arranged as parents (red and white),  $F_1$  (red),  $F_2$  3:1 ratio (red and white) and an  $F_3$ . In the museum (the former refectory) are displayed Mendel's papers and information on

Mendel's studies, as well as pictures and information on the scientists in Mendel's time. Other displays in the museum depict highlights in genetic studies up to the present time including a diagram on gene transfer and the human genome. In the entrance there is a large model in bronze of a DNA double helix that reaches to the ceiling.

The Mendel Forum was held July 20 and 21 in honor of the 170th anniversary of the birth of Mendel and was organized by the Mendelianum Museum in cooperation with the Genetical and the Medical Genetics Societies of Czechoslovakia. One of the sponsors was the Gregor Mendel Genetic Society of Japan. The lectures were held in the Dietrichstein Palace.

The Mendel Lecture was given by Bruce Jennings (USA), on Genetics and Human Rights - Dilemmas of Power, Privacy, and Public Health in the New Genetic Medicine. Titles of the sessions included The concept of the Gene, Ethical Problems in Genetics, Acceptance of Mendel's Theory in Different countries from 1865 to 1900 and after 1900, and Interrelations Between Molecular and Human Genetics. A social program paralleled the scientific sessions. For those interested in the early development of genetics and possibly visiting Brno, a detailed account of the life of Mendel with pictures of Mendel's statue and his garden plot in the monastery grounds, details on the history of the discovery of Mendel's work with excerpts from letters from many of the scientists at the time is published in an article, "The impact of Mendel", by B. C. Boyes, *BioScience*, 16 (2): 85-92, 1966.

A Mendel World Foundation has been established to preserve Mendel's cultural heritage and to present a Mendel award for special achievements in Mendelian research and the history of genetics. It is planned to hold the second Mendel Forum in 1995. For information, contact Dr. Anna Matalova, Director, Mendelianum Musei Moraviae, Mendel Square, 603 00 Brno, Slovakia.

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## 12. IOPB FUTURE Award

The IOPB FUTURE Award (US dollars 400-500) should serve as means of recognition of outstanding young biosystematists. It shall be granted every three years, preferably to support financially travel and/or other expenses for the presentation of the recipient's research at the IOPB Symposium. Candidate, not more than ca. 35 years old, should be nominated by her or his Thesis supervisor or another senior scientist familiar with the research results.

The required application material should include:

1. An extended (3-4 pages) abstract of the results scheduled for the presentation at the Symposium;
2. Recommendation letter(see about nominations);
3. College(university) transcript or any corresponding statement including the date of birth.

The applications should be sent to IOPB Secretary Dr. Hans den Nijs (address see p. 22), at least five months prior to IOPB Symposium date. They will be reviewed by IOPB Executive and Council, the final decision announced during the Symposium, and later published in the Newsletter together with a short presentation of the prize-winner.

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### 13. Our New Council Member

**Randall J. Bayer** replaced Dan Crawford who moved to IOPB Executive as the Co-Editor of the Newsletter responsible for the Molecular News column (p. 9). Welcome to our Council, Randy.

Randall is aged 37, single, has no children. At the time being he is Associate Professor of Systematic Botany and Curator of Vascular Plants (ALTA) at the University of Alberta, Edmonton, Canada.

His main research interests are: evolution of polyploid sexual and agamic complexes; classical and molecular systematics of *Antennaria*; genetic conservation of rare species.

Two current projects: cpDNA- based phylogeny of sexual species of *Antennaria*; origin of *Antennaria rosea* complex using nuclear genetic markers.

Hobbies: hiking and fishing.

Address: Department of Botany, Univ. of Alberta, Edmonton, Alberta, T6G 2E9, Canada.

Phone: (403)492-7567; Fax: (403)492-9457

e-mail: USERBAY@UALTAMTS(bitnet)

RANDALL\_BAYER@ MTS\_UCS.UALBERTA.CA(internet)

\* \* \*

### 14. About 1993 Symposium Book

Writes Peter C. Hoch, Missouri Botanical Garden. St. Louis, MO 613166.0299 USA:

Delays in reviewing manuscripts have set the publication date back somewhat, but all manuscripts have been returned to authors or are in definite form. Preparation of the final copy is proceeding well. Should no unexpected major difficulties intervene, an estimated publication date is about August 1993.

\* \* \*

## 15. Membership Fees for 1993 - 1995

Writes Hans C. M. den Nijs, IOPB Secretary/Treasurer, Hugo de Vries Lab, University of Amsterdam, Kruislaan 318, NL-1098 SM Amsterdam, The Netherlands:

As already stated in the former issue of the Newsletter, the personal membership fees for the current period through 1995 are set at US\$ 33.= (or the equivalent of DFL 66.=). Members may pay their fees for two periods in once: the fees for the next period (for the years 1996-1998) have also been set at US\$ 33.=. Later possible rise of the fees will not be charged to those members who pay now for this period too. The total amount for these almost century-transgressing membership period thus is US\$ 66.=, equalling Dfl 132.=.

As IOPB is still trying to avoid banking charges as much as possible, we would like to ask members to consider this payment if possible.

It is anyway important to reduce the banking charges, so I have to ask the members to pay through by one of the here mentioned **charge free** (or at least relatively **cheap**) ways of transferring their dues.

### Dutch Florin payments:

- Send an **Eurocheque** to J.C.M. den Nijs, amounting **DFL 66.-**, or DFL 132.= for two membership periods, made payable to J.C.M. den Nijs - IOPB
- or
- Send an **International Postal Money Order**, amounting **DFL 66.-**, or DFL 132.=, see above, made payable to J.C.M. den Nijs - IOPB

Eurocheques and Postal Money Orders should be send to:

**Hans C.M. den Nijs**  
**Hugo de Vries Laboratory**  
**University of Amsterdam**  
**Kruislaan 318**  
**1098 SM Amsterdam, The Netherlands**

### US Dollar payments:

- Send a cheque, made out to **IOPB/9039 - Eshbaugh**, and amounting **US\$ 33.=**, or **US\$ 66.=** for two membership periods.

Cheques should be send to: **W. Hardy Eshbaugh,**  
**Department of Botany, Miami University**  
**316, Biological Sciences Building**  
**Oxford, Ohio 45056**  
**USA**

The membership fee for **INSTITUTIONAL** members amounts **US\$ 40.=** (equalling **DFL 80.=**) for the three-year period, postage not included (to be added to the amount due: **US\$ 10.=**, or **DFL 20.=**).

Thank you very much for your cooperation.

\* \* \*



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\* \* \*



# MEMBERSHIP APPLICATION FORM

International Organization of Plant Taxonomists  
c/o Department of Botany, University of Toronto  
257 Spadina Avenue, Toronto, Ontario M5S 1A5, Canada

The International Organization of Plant Taxonomists (IOPOT) is an international organization of plant taxonomists and related disciplines. It was founded in 1951 and has since then grown to include members from all continents. The IOPOT is a non-profit organization and its primary purpose is to promote the advancement of plant taxonomy and related disciplines. The IOPOT is a member of the International Union of Biological Sciences (IUBS) and the International Union of Pure and Applied Chemistry (IUPAC). The IOPOT is also a member of the International Union of Geographical and Ethnographical Societies (IUGES) and the International Union of Prehistoric and Protohistoric Sciences (IUPS).

Each year a number of members are elected to the Executive Committee. The Executive Committee is responsible for the general administration of the IOPOT. The Executive Committee also elects the President and Vice-President of the IOPOT. The Executive Committee also elects the members of the Council of the IOPOT. The Council of the IOPOT is responsible for the financial and administrative affairs of the IOPOT. The Council of the IOPOT also elects the members of the Executive Committee.

Membership for individuals is US\$ 25.00 for 1997-1998. Membership for institutions is US\$ 100.00 for 1997-1998. The IOPOT also offers a number of special rates for students and young professionals. The IOPOT also offers a number of special rates for members of the International Union of Biological Sciences (IUBS) and the International Union of Pure and Applied Chemistry (IUPAC). The IOPOT also offers a number of special rates for members of the International Union of Geographical and Ethnographical Societies (IUGES) and the International Union of Prehistoric and Protohistoric Sciences (IUPS).

All requests for IOPOT membership should be sent to the Secretary of the IOPOT. The Secretary of the IOPOT is Dr. J. S. Burley, Department of Botany, University of Toronto, 257 Spadina Avenue, Toronto, Ontario M5S 1A5, Canada. The telephone number is (416) 978-2731. The fax number is (416) 978-2732.

Please don't send such stuff as the New Yorker letter. It delays the process.

NAME - Membership application form

Address

City

State

Country

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E-mail



## Research News

for the International Organization of Plant Biosystematists Newsletter  
(IOPB Newsletter)

**Typewritten or in capital letters**

.....  
Last name

.....  
First name (Mr., Ms.)

.....  
Title

Address:

Personal news (Promotions etc.)

Publications during the year\*:

Current projects:

Projects completed:

Projects started:

Requests for research material and information:

### Articles and reports should be attached

To be sent to Krystyna M. Urbanska, Geobotanisches Institut ETH, Stiftung Rübel,  
Zürichbergstrasse 38, CH-8044 Zürich, Switzerland

\* Please select **three** titles and add the remainder as e.g. "seven further papers".



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The International Commission of Peace Researchers  
ICPR Secretariat  
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Project completed \_\_\_\_\_

Research interest \_\_\_\_\_

Answers for research interest and information \_\_\_\_\_

Articles and reports should be attached \_\_\_\_\_

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