

EUROPEAN POLLEN DATABASE NEWSLETTER NUMBER 3 ARLES NOVEMBER 1992

INTRODUCTION

Since the beginning of the European Pollen Database (EPD) two Newsletters have been sent to about a thousand palynologists throughout Europe. These two newsletters outlined the protocols of the EPD and the improvement of the database structure.

The aim of this Newsletter is to inform you about the main activities of the EPD and its progress during the last year.

EXECUTIVE COMMITTEE meeting (EC)

In October 1991, the Executive Committee (B. Ammann, J.-L. de Beaulieu, B. Huntley) met in Arles to discuss the technical improvements and the status of the database, and the coordination between the compilation centres. An Agenda/Programme for the meeting to be held in Arles during April 1992 was also proposed and two intensive pre- and post-meeting courses on the use of the database were planned. It was also decided that a further application to TEMPUS would be made. Among several other points, a problem had risen with some sites that had been offered were available but where only percentage data sheets and the raw counts no longer available. It was proposed that, if the basis of calculation, and the calculation sum, were known, then it was possible to back calculate to the raw counts. Obviously, the precision of the back-calculated counts would depend upon the precision of the percentages values relative to the pollen sum. The EC agreed that if data for important sites are offered only in this form, then they will be admissible to the database only if they can be back-calculated precisely, although with a flag to indicate how they were derived.

10th EPC WORKSHOP

From the 23rd to the 26th of April 1992, the 10th EPC (European Palaeoclimate and Man) Workshop "*Computer management of pollen data. An introduction to the structure, organisation and handling of the European Pollen Database*

(EPD)", funded by the European Science Foundation (ESF), was held in Arles. This meeting was an important step as it aims were threefold:

1. To assess, together with the Advisory Board (AB), the progress of the EPD and how the latter has been received by the different national scientific communities; to consider propositions for improving the EPD development, both from the practical point of view (structure and content of the pollen base) and from the ethical point of view (protocols in the EPD administration and in the organization of data use).

2. To devote one day to the theme "Quantification of pollen data" in order to gather the experience of experts in statistical data processing;

3. To offer practical training in the use of the routine software of the EPD for junior scientists from western and eastern Europe during two intensive courses before and after the workshop.

The preparation of the training courses was done in Durham in January 1992.

I. Reports on data compilation

The first morning of the 10th EPC Workshop (23 April 1992) was devoted to reports on data compilation from the Cambridge, Durham, Groningen and Arles centres and to reports on the management of pollen data and regional databases or working groups in the following European countries: Switzerland, Denmark, Russia, Germany, Spain, Norway, Bulgaria, Italy, Sweden, Finland, Great Britain, Netherlands, Georgia, Hungary, Poland, Lithuania, Czechoslovakia, Estonia and France.

After these reports two sessions of the AB occurred. The initial "open session" discussed issues of systematics and nomenclature and the subsequent "closed session" of the AB/EC dealt with matters of finance, membership of the AB, and the problems of acquiring hardware for some laboratories.

II. A.B. OPEN SESSION

During the "open session" of the AB a list of pollen taxa outlined by Annabel Gear was discussed. This lists the pollen taxa coded in the EPD in *Flora Europaea* nomenclature. Brigitta Ammann then outlined the different origins of the list in use by ALPADABA. The conventions for nomenclature being followed in the development of both lists were then clarified by John Birks. A small number of examples of pollen taxon names that are difficult to accommodate within these conventions were briefly discussed. It was agreed that a "pollen morphological hierarchy" was a desirable goal and that the data compilers were obliged by the AB to honour the original nomenclature; the present hierarchical list had simply been a convenient starting point in indicating the range of pollen taxon names encountered within particular plant-taxonomic groups. It has been suggested that the taxa list has to be checked against keys etc. with the help of specialists from various parts of Europe. Ultimately, some groups could only be resolved by examining a range of reference material under the microscope. It has been suggested that a small working group of 4/5 might begin reviewing the existing list. John Birks and Marie-José Gaillard will convene this working group. HJBB and MJG had agreed to gather a small group for ca. 2 days with the aims of 1. establishing a pollen-morphological hierarchy, 2. identifying the "lowest common denominator" and 3. identifying the "difficult" groups and appropriate persons who might advise upon or conduct reviews of each. The proposed membership of the group would include Jacqueline van Leeuwen, Sylvia Peglar and Ruth Schneider. It has been agreed that HJBB and MJG should be free to gather these or other people whom they might wish to co-opt. Following a wide-ranging discussion of the problems of the geographic limitations to the applicability of "standard" nomenclature, the proposal was made that "lowest common denominator" taxa could often be easily determined for groups of pollen taxa. It was generally agreed that many of these issues were dealt with by the proposed structure of the database and that the "quality" of data must

be sustained to the same high level in the central as well as in component regional databases.

A circular dated July 7th 1992 by M.-J. Gaillard and H.J.B. Birks established this working group with the aims discussed above.

III. Quantification of pollen data

During the EPC Workshop a day was devoted to lectures about quantitative analysis of pollen data. The participants were:

H.J.B. Birks "Quantitative techniques in Quaternary palynology - an appraisal of their contribution to palaeoecology"

B. Huntley "Palaeological reconstruction from pollen data"

J. Guiot "Palaeoclimate reconstruction from pollen data (The French approach)"

V. Klimanov "The Russian approach to palaeoclimate from pollen data"

G.L. Jacobson "Palaeoclimatological and palaeoecological reconstructions from pollen data (The US approach)"

R. Jeansoulin "New tools for database management and application to spatially referenced information"

B. Frenzel "The EPC programme: connection with the EPD"

M.J. Gaillard "Modern surface samples and vegetation reconstruction"

E. van Campo and J. Guiot "Palaeobiomass from pollen data"

IV. A.B. CLOSED SESSION

During the "closed session" the following matters have been discussed:

1. **Finances:** J.L. de Beaulieu presented an outline report of the mechanisms and sources of funding for the EPD. The present funding extends only to June 1993. B. Huntley and J.L. de Beaulieu reported that an application has been submitted to the EC in January for further funding for the period 1993/94 to provide a bridge towards the next phase of EPOCH funds for which they will also apply to continue funding beyond 1994.

2. **AB membership role:** As regards the present size and the membership of both the Executive Committee (3 members) and the Advisory Board (10 members) no changes have been made. However, since it

is difficult to bring the entire group together frequently many of the technical matters of pollen morphology/nomenclature and of software etc. would best be dealt with by smaller working groups. One Advisory Board meeting would be planned per year.

3. Hardware: In order to approach the computer hardware manufacturers the AB decided to take steps to develop a list (See questionnaire) of: (a) what hardware is already available in which laboratories in Central and East European countries, (b) what types of hardware are suitable for running the EPD-associated software, (c) which laboratories are interested in using this software and need hardware to enable them to do so, and (d) possible donors of new equipment, of used equipment or of funds for the purchase of equipment. After that step the Executive Committee will submit an application on behalf of the EPD.

4. Use and distribution of the data: The first release of the data, previously scheduled for the beginning of 1993, might certainly be delayed due to the great number of data to be compiled and other time-consuming tasks such as resolving pollen taxa synonymy. The end of 1993 seems to be more convenient for this first release.

As regards the Late-Glacial and Interglacial data, Durham and Cambridge made the wish to use the data compiled so far. The AB agreed that such data-use was expected and should be accepted (see first newsletter). However, Cambridge and Durham should write to contributors for permission to use their data and invite them to collaborate in the analysis of their data.

Regarding the EPD protocols (published in the first Newsletter) a discussion concerning the restricted data led to a comparison with the Alpine Pollen Database (ALPADABA) protocols (in which the restricted data are distributed only with permission from the author). A decision at this time to change the EPD protocols seemed to be potentially premature. The issue should be placed upon the Agenda for the AB meeting in Aix-en-Provence in September 1992; at that time a decision must be made between the *status quo* and the alternative of adopting a similar protocol

to that used by the ALPADABA, unless further proposals were then made.

In order to report the achievements of the EPD to date, an "article" as a simple report will be prepared by the data compilers and published in a widely dispersed journal.

V. TRAINING COURSES

As regards the main programme of the EPD, the 10th EPC Workshop and the VIII IPC Congress (Aix-en-Provence) were two opportunities to organize intensive training courses for European scientists. These courses were designed to provide training and experience in the entry, display, processing and manipulation of pollen data. The first training course (20th-22nd April 1992) preceded the EPC Workshop and the second followed it (27th-29th April 1992). The organization of the training courses was funded by the European Science Foundation. Twenty participants, divided into two groups, from different European countries were able to attend the courses. The programme, including a brief introduction of DOS commands for those who needed an introduction to DOS, was as follows:

1. Tilia (data entry software used by the EPD) and Tilia_Graph (plotting software)
2. Paradox (The relational database used to store the pollen data)
3. Handling programmes for applications on EPD: Palaeoclimate, Analogues, Statistics.

Besides these main programmes, other public domain software was demonstrated and distributed to all those who wished to have copies.

These training courses show how open the database is to all palynologists.

The EPD is particularly grateful to Eric Grimm, John Keltner, Steve Juggins for helping the EPD compilers run these courses.

January 1993: Other training courses are planned. The Arles Database is ready to organise "training courses" for all contributors who would be willing to support their own travel costs and accommodation. For Eastern European countries, applications for grants can be sent to the EC

or to the "International Exchanges" of the CNRS (France).

VIII IPC : Aix-en-Provence 6-12 September 1992

The IPC Congress in Aix-en-Provence provided an opportunity to present the EPD during the session on "Pollen and Computers", and to obtain publicity for the EPD activities.

Short meetings of the AB were organised during the Congress. Following Jim Ritchie's resignation, the AB hoped to co-opt a replacement during the Congress. The AB sought a palynologist from the former Soviet Union, but no agreement could be reached as to the most appropriate person.

The group working on pollen taxonomy held its first meeting during the Congress. This group now includes Lucia Wick, in addition to the five people designated earlier during the 10th EPC Workshop. The pollen taxonomy working group announced that the morphological hierarchy of pollen types would not be ready until the end of 1993, thereby postponing the release of data from the EPD.

A training course on computers and software, with 12 participants, organised in cooperation with Louis Maher, was held in Arles after the VIII IPC Congress between 12-14 September 1992.

GRANTS

During the 10th EPC Workshop, the role of regional databases was discussed. Data compilation at a regional scale in a way totally compatible with the European Pollen Database structure would save much time for our community since much of these data are not computerized. Their entry in electronic format would be more effectively handled by regional centres. The ESF is offering 93,300FF for pollen data compilation. Nine Eastern and Western European countries will benefit from these ESF funds.

The Executive Committee's application to TEMPUS was unsuccessful.

An application to the EEC was also made in August 1992 to obtain funds for the creation of a network between the Western

and the Eastern European countries. These funds, if obtained, would be used to acquire computer hardware and cover travel costs.

The application made to the EEC for the study of the paleoclimatology of the last two Glacial/InterGlacial cycles was approved. These funds will go to support the EPD structure for about 18 months.

An application made to the "Regional Council PACA" (southern France) was recently accepted. These funds (about 110KFF) are intended for the acquisition of books and equipment, and for the support of the Arles database.

LATE NEWS

The working group "Pollen Taxonomy and Nomenclature" (S. Peglar, R. Leuchner-Schneider, L. Wick, J. van Leuwen; H.J.B. Birks and M.J. Gaillard were unable to attend) met in Bern on 6 November and started to prepare the EPD standard list of taxa for Northern and Middle Europe. Taxa from *Abies* to *Quercus* in the alphabetic list based on contributors' data were checked.

The working group proposed that a complementary list for Mediterranean and Near East taxa be prepared by a group with more regional experience.

APPENDIX 1 SITES

Besides these activities, the data of several European sites have been compiled. Enclosed is a list of these sites with the name of the donor.

APPENDIX II RECORD SHEETS

A revised version of "Record sheets" is available at the end of the present Newsletter. The reason for re-designing the "Record sheets" is that many palynologists, who are willing to contribute, are still reluctant to fill in several pages. In the enclosed version, the three first pages concern information about each site. The last two pages show the type of data that can be stored in the EPD. A simple copy of these data, when available, could be sent to the database. If, for instance, none of these data are available for a site then only the first three pages with the pollen counts could be sent to the EPD.

	CORING NAME	CONTRIBUTOR	CORING NAME	CONTRIBUTOR
1	[Ammann81]LQ-90	Ammann, B.	[Birks69]Loch Maree	Birks, H.H. 58
2	[Andersen]HHM	Andersen, S.Th.	[Birks72]Loch Meodal	Birks, H.J.B. 59
3	[Argant90]Le Grand Etang	Argant, J.	[Birks72]Loch Roag	Birks, H.J.B. 60
4	[Balaga82]Lake Lukcze	Balaga, K.	[Birks73]Loch Cleat	Birks, H.J.B. 61
5	[Balaga82]Lake Lukcze 2	Balaga, K.	[Birks75]Loch Ashik	Birks, H.J.B. 62
6	[Balaga82]Lake Lukcze 3	Balaga, K.	[Bottema]Abant Gölü	Bottema, S. 63
7	[Balaga82]Lake Lukcze 4	Balaga, K.	[Bottema]Aghia Galini	Bottema, S. 64
8	[Barber75]Church Moor	Barber, K.E.	[Bottema]Akgöl Adabag	Bottema, S. 65
9	[Bartley62]Tadcaster	Bartley, D.D.	[Bottema]Akgöl adatepe	Bottema, S. 66
10	[Bartley75]boring 1	Bartley, D.D.	[Bottema]Avian Gölü	Bottema, S. 67
11	[Bartley75]boring 2	Bartley, D.D.	[Bottema]Balikh	Bottema, S. 68
12	[Bartley76]Thorpe Bulmer	Bartley, D.D.	[Bottema]Beysehîr Gölü I	Bottema, S. 69
13	[Bartley92]King's Pool	Bartley, D.D.	[Bottema]Bouara	Bottema, S. 70
14	[Baruch]Dead Sea I	Baruch, U.	[Bottema]Bozova Lake	Bottema, S. 71
15	[Baruch]Dead Sea II	Baruch, U.	[Bottema]Büyük Gölü	Bottema, S. 72
16	[Baruch]Kin I	Baruch, U.	[Bottema]Demiryurt Gölü	Bottema, S. 73
	[Beaulieu]Aig_hou 17	Beaulieu, J.L de	[Bottema]Edessa	Bottema, S. 74
	[Beaulieu]Brugiroux 18	Beaulieu, J.L de	[Bottema]Eimali	Bottema, S. 75
	[Beaulieu]Carnino 19	Beaulieu, J.L de	[Bottema]Ghab I	Bottema, S. 76
	[Beaulieu]Clapeyret68 20	Beaulieu, J.L de	[Bottema]Giannitsa	Bottema, S. 77
	[Beaulieu]Colbas 21	Beaulieu, J.L de	[Bottema]Gölbasi Lake	Bottema, S. 78
	[Beaulieu]Echets77 22	Beaulieu, J.L de	[Bottema]Gölbasi Gölü	Bottema, S. 79
	[Beaulieu]La Flatiere 23	Beaulieu, J.L de	[Bottema]Halos	Bottema, S. 80
	[Beaulieu]Lacs Noels 24	Beaulieu, J.L de	[Bottema]Hoyran Gölü	Bottema, S. 81
	[Beaulieu]Lastioules 25	Beaulieu, J.L de	[Bottema]Huleh	Bottema, S. 82
	[Beaulieu]Col des Lauzes 26	Beaulieu, J.L de	[Bottema]Ioannina I	Bottema, S. 83
	[Beaulieu]Limagne5 27	Beaulieu, J.L de	[Bottema]Karamik Batakligi	Bottema, S. 84
	[Beaulieu]Moussous 28	Beaulieu, J.L de	[Bottema]Kaz Gölü	Bottema, S. 85
	[Beaulieu]Lac Mouton 29	Beaulieu, J.L de	[Bottema]Khimatidis Ia + Ib	Bottema, S. 86
	[Beaulieu]Pelleautier 30	Beaulieu, J.L de	[Bottema]Köycegiz Gölü	Bottema, S. 87
	[Beaulieu]Perle 31	Beaulieu, J.L de	[Bottema]Koiladha	Bottema, S. 88
	[Beaulieu]Prarion 32	Beaulieu, J.L de	[Bottema]Küçük Akgöl	Bottema, S. 89
	[Beaulieu]Sabbion 33	Beaulieu, J.L de	[Bottema]Ladik Gölü	Bottema, S. 90
	[Beaulieu]Siguret 34	Beaulieu, J.L de	[Bottema]Lake Kastoria	Bottema, S. 91
	[Beaulieu]Saint Leger 35	Beaulieu, J.L de	[Bottema]Lake Mirabad	Bottema, S. 92
	[Beaulieu74]Lac Long Inferieur 36	Beaulieu, J.L de	[Bottema]Lake Mirabad	Bottema, S. 93
	[Beaulieu85]Ampoix 37	Beaulieu, J.L de	[Bottema]Lake Urmia	Bottema, S. 94
38	[Beckett81]The Bog 1	Beckett, S.C.	[Bottema]Lake Van	Bottema, S. 95
39	[Behre]Ahlenmoor V	Behre, K.E.	[Bottema]Lake Vivis	Bottema, S. 96
40	[Behre]Dunum	Behre, K.E.	[Bottema]Lake Xinias	Bottema, S. 97
41	[Behre]Flogeln IV	Behre, K.E.	[Bottema]Lake Zeribar	Bottema, S. 98
42	[Behre]Flogeln V	Behre, K.E.	[Bottema]Melen Gölü	Bottema, S. 99
43	[Behre]Flogeln VI	Behre, K.E.	[Bottema]Ova Gölü	Bottema, S. 100
44	[Behre]Swienskuhle	Behre, K.E.	[Bottema]Pinarbasi	Bottema, S. 1
45	[Behre]Westrauderfehn	Behre, K.E.	[Bottema]Seyfe Gölü	Bottema, S.
46	[Bennett79]Hockham Mere	Bennett, K.D.	[Bottema]Sögüt Gölü	Bottema, S.
47	[Bennett86]The Mere	Bennett, K.D.	[Bottema]Tatli Gölü	Bottema, S.
48	[Bennett90]Loch Lang	Bennett, K.D.	[Bottema]Trikhonis 5	Bottema, S.
49	[Birks]Abernethy Forest	Birks, H.H.	[Bottema]Tuzla Gölü	Bottema, S.
50	[Birks]LD	Birks, H.H.	[Bottema]Vegoritis 8	Bottema, S.
51	[Birks]Snibe Bog	Birks, H.H.	[Bottema]Volvi6	Bottema, S.
52	[Birks65]Clatteringshaws	Birks, H.H.	[Bottema]Waz Göl	Bottema, S.
53	[Birks65]Cooran Lane	Birks, H.H.	[Bottema]Yeniçaga Gölü	Bottema, S.
54	[Birks66]Alit na Feithe Sheil	Birks, H.H.	[Bottema]Zirelia	Bottema, S. 11
55	[Birks66]Coire Bog	Birks, H.H.	[Bozilova]Kupena 1	Bozilova, E.
56	[Birks66]L. Dungeon Peat	Birks, H.H.	[Bozilova]Shabla	Bozilova, E.
57	[Birks66]Loch Einich	Birks, H.H.	[Bozilova86]Dry Lake II	Bozilova, E.
			[Bradshaw]Oak Island	Bradshaw, R.

CORING NAME	CONTRIBUTOR	CORING NAME	CONTRIBUTOR
[Bradshaw]Penningholmen	Bradshaw, R.	[Hannon85]Sanabria Marsh	Hannon, G.E.
[Bradshaw]Thompson common	Bradshaw, R.	[Heyworth85]Clarach Bay 1	Heyworth, A.
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[Brown70]Hawks Tor 1	Brown, A.G.	[Heyworth85]Clarach Bay 3	Heyworth, A.
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120 - [Brown71]Hawks Tor 3	Brown, A.G.	[Heyworth85]Clarach Bay 5	Heyworth, A.
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130 - [Clerc]Loras84	Clerc, J.	[Jalut]Balsère	Jalut, G.
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[Craig78]Belle Lake	Craig, A.J.	[Jalut]Laurentie	Jalut, G.
[Craig78]Coolteen 69B	Craig, A.J.	[Jalut]Moulinasse	Jalut, G.
[Craig78]Coolteen 71A	Craig, A.J.	[Jalut]Nohèdes	Jalut, G.
140 - [Craig78]Coolteen 71D	Craig, A.J.	[Jalut]Pinet	Jalut, G.
[Craig78]Coolteen 71E	Craig, A.J.	[Jalut]Pla se Salinas	Jalut, G.
[Cwynar89]Ballybetagh	Cwynar, L.C.	[Jalut71]La Borde	Jalut, G.
[Dickson84]Straloch	Dickson, J.H.	200 - [Janssen75]core A	Janssen, C.R.
[Digerfeldt]Lake Flarken	Digerfeldt, G.	[Johansen]Hovi A	Jóhansen, J.
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[Digerfeldt77]Sambosjon	Digerfeldt, G.	[Johansen]Lambi	Jóhansen, J.
[Donner72]Vakojarvis	Donner, J.J.	[Johansen]Saksunarvatn	Jóhansen, J.
[Filbrandt-Czajka]Kamionek	Filbrandt-Czajka, A.	[Johansen]Ukdalio	Jóhansen, J.
150 - [Gaillard]Bjåresjösjön	Gaillard, M.J.	[Koff87]Livjarve	Koff, T.
[Gaillard]Krageholmssjön	Gaillard, M.J.	[Kvamme88]Frettestol	Kvamme, M.
[Gaillard]Le Joux des Ponts	Gaillard, M.J.	[Kvamme88]Hovden	Kvamme, M.
[Gaillard]Le Tronchet	Gaillard, M.J.	210 - [Kvamme88]Seltuftene	Kvamme, M.
[Gaillard]Marais des Rances	Gaillard, M.J.	[Kvamme88]Sunndalsastra	Kvamme, M.
[Gaillard]Marais du Rosey	Gaillard, M.J.	[Latalowa]Kolczewo	Latalowa, M.
[Geunet]Chambedaze	Guenet, P.	[Latalowa]Lake Racze	Latalowa, M.
[Geunet]Lac Noir	Guenet, P.	[Latalowa]Wolbrom	Latalowa, M.
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160 - [Guenet]Chambon	Guenet, P.	[Latalowa]Zarnowiev mire	Latalowa, M.
[Guenet]Couze	Guenet, P.	[Latalowa]Zurawiec	Latalowa, M.
[Guenet]Mareuge	Guenet, P.	[Latalowa82]P.Darz/78	Latalowa, M.
[Guenet]Prugnolias	Guenet, P.	220 - [Lazarova]Lake Srebarna	Lazarova, M.A.
[Guenet]Sancy	Guenet, P.	[Lotter]Amspo3	Lotter, A.F.
[Hall85]Long Lough	Hall, V. A. H.	[Lotter84]Hirschen H1-1	Lotter, A.F.
[Hall85]Lough Henney	Hall, V. A. H.	[Lotter85]Amsop1	Lotter, A.F.
[Hall90]Fallahogy	Hall, V. A. H.	[Lotter85]Amsop2	Lotter, A.F.
[Hallsdóttir74]Mosfell	Hallsdóttir, M.	[Lowe78]Tynaspirit	Lotter, A.F.
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170 - [Hallsdóttir74]Vatnsmyri	Hallsdóttir, M.	[Lowe86]Mishnish	Lowe, J.J.
[Hallsdóttir77]Svinavatn	Hallsdóttir, M.	[Lowe88]Llyn Gwernan	Lowe, J.J.

CORING NAME	CONTRIBUTOR	CORING NAME	CONTRIBUTOR
[Makohonienko]LI86	Makohonienko, M.	[Saarse88]Kirikumae-core 63	Saarse, L.
230 [Makohonienko]LWal87	Makohonienko, M.	[Saarse88]Paidre core 45	Saarse, L.
[Mariscal]Alsa	Mariscal, B.	[Smith68]Sluggan Moss	Mitchell, F.
[Mariscal]Cueto Avellanosa	Mariscal, B.	[Stevenson]El Acebrón	Stevenson, A.C.
[Mariscal]Pico Sertal	Mariscal, B.	[Stevenson]Las Madres	Stevenson, A.C.
[Mariscal]Puerto de Estaces	Mariscal, B.	[Stevenson]Trenedal	Stevenson, A.C.
[Markgraf]Boehnigsee	Markgraf, V.	[Stevenson79]AS3	Stevenson, A.C.
[Markgraf]Venice	Markgraf, V.	[Stewart76]LLRD1	Stewart, D.A.
[Milecka]G189	Milecka, K.	[Suggate59]Aby Grange 1	Suggate, R.P.
[Milecka]GC90	Milecka, K.	[Suggate59]Aby Grange 2	Suggate, R.P.
[Moar64]Roberthill	Moar, N.T.	[Tobolski]Kluki	Tobolski, K.
240 [Moar69]Bigholm 1	Moar, N.T.	[Tobolski]Lake Lednica	Tobolski, K.
[Moar69]Bigholm 2	Moar, N.T.	[Verbruggen]Vinderhout	Verbruggen
[Moar69]Bigholm 3	Moar, N.T.	[Verbruggen]Snelligem	Verbruggen
[Moar69]Culhorn	Moar, N.T.	[Verbruggen]Moerbeka	Verbruggen
[Moar69]Curleywee	Moar, N.T.	[Verbruggen]Uitbergen-Heisbroek	Verbruggen
[Moar69]Duartbeg	Moar, N.T.	[Verbruggen]Berlare	Verbruggen
[Moar69]Little Lochans	Moar, N.T.	[Verbruggen]Dendermonde	Verbruggen
[Moar69]Moss of Cree	Moar, N.T.	[Verbruggen]Moerzeka	Verbruggen
[Moar69]Tauchers	Moar, N.T.	[Vergne]Artense	Vergne, V.
[Moar69]The Loons	Moar, N.T.	[Vergne]Chastreix	Vergne, V.
[Moar69]Yesnaby	Moar, N.T.	[Vergne]Cousteix	Vergne, V.
250 [O'Connell86]Carrownoglogh	O'Connell, M.	[Vergne]Garde	Vergne, V.
[Odgaard81]Solso 81	Odgaard, B.V.	[Vergne]Madic 4	Vergne, V.
[Odgaard83]Solso 83	Odgaard, B.V.	[Vergne]Paille	Vergne, V.
[Parra84]ST1	Parra-Vergara, I.	[Vergne]Pich84	Vergne, V.
[Peglar79]Loch of Winless	Peglar, S.	[Vergne]Sarran	Vergne, V.
[Penalba]Arreo	Penalba, C.	[Visset]La Brière	Visset, L.
[Penalba]Abxuri	Penalba, C.	[Visset]La pierre folle	Visset, L.
[Penalba]Belate	Penalba, C.	[Visset]Le Clion	Visset, L.
[Penalba]Inurritz	Penalba, C.	[Visset]Loire	Visset, L.
[Penalba]Quintanar	Penalba, C.	[Visset]Marais Poitevin	Visset, L.
260 [Penalba]Los Tornos	Penalba, C.	[Visset]Nantes	Visset, L.
[Pennington]Loch a'Chroisg	Pennington, W.	[Walker86]Llanilid	Walker, M.J.C.
[Pennington72]Badentarbat	Pennington, W.	[Walker88]boring 1	Walker, M.J.C.
[Pennington72]Borrallan	Pennington, W.	[Walker90]boring 1	Walker, M.J.C.
[Pennington72]Druim Bad	Pennington, W.	[Waller83]Brede Bridge	Waller, M.
[Pennington72]Loch Clair	Pennington, W.	[Waller83]Pannel Bridge	Waller, M.
[Pennington72]Loch Craggie	Pennington, W.	[Watts]Gortalecka	Watts, W.A.
[Pennington72]Loch Tarff	Pennington, W.	[Watts63]Lough Goller	Watts, W.A.
[Pennington72]Sionascaig	Pennington, W.	[Watts77]Dunshaughlin	Watts, W.A.
[Pennington72]Strath Oykell	Pennington, W.	[Watts77]Pouroe	Watts, W.A.
270 [Pennington75]Cam Loch	Pennington, W.	[Watts81]Laguna Grande	Watts, W.A.
[Pennington77]Smuraich	Pennington, W.	[Watts82]Monticchio-boring1	Watts, W.A.
[Pennington88]Ballingloghig	Pennington, W.	[Watts88]Mackereth	Watts, W.A.
[Perez-Obiol]Banyoles	Perez-Obiol, R.P.	[Watts90]Mackereth	Watts, W.A.
[Perez-Obiol]Olot	Perez-Obiol, R.P.	[Webb82]Beanrig Moss 4c	Webb, J.A.
[Pilcher]Lough na Trosk	Pilcher, J.R.	[Webb82]Blackpool H	Webb, J.A.
[Pilcher82]Meenadoan	Pilcher, J.R.	[Whittington91]BL-boring 1	Whittington, G.
[Riera88]Drassanes	Riera i Mora, S.	[Whittington91]BL-boring 2	Whittington, G.
[Saarse]Mardui	Saarse, L.	[Whittington91]BL-boring 3	Whittington, G.
280 [Saarse]Marduil	Saarse, L.	[Whittington91]BL-boring 4	Whittington, G.
[Saarse]Raigast	Saarse, L.	[Whittington91]Pickdilleem	Whittington, G.
[Saarse]Saviku	Saarse, L.	[Williams76]Lochan Doilead	Williams, W.
[Saarse]West	Saarse, L.		
[Saarse87]Karujarv	Saarse, L.		
[Saarse88]Antu core 11	Saarse, L.		

Name of data provider:
Entity label:

EUROPEAN POLLEN DATABASE

I. SITE LOCATION

1. Site name (40)*
2. Country
3. Major political division
4. Minor political division
5. Latitude
6. Longitude E/W
7. Elevation (m):
8. UTM
9. Approximate area of site (ha):
10. Year that the site was last known to exist or not to exist (eg. "Y1988" or "N1960"):

II. SITE DESCRIPTION

1. Description of the present state of the site (eg. "lake with marginal fen") (40)
.....
2. Physiographic description (eg. "rolling stagnation moraine") (40)
.....
3. Vegetation surrounding the entity site (40)
.....
4. Vegetation formation (eg. "Boreal forest") (40)
.....
5. IGCP type region

Name of data provider:

Entity label:

III. ENTITY DESCRIPTION

1. The Entity is a:
 Core Section Surface sample

2. Entity label (eg. Core 1) (30):

3. Month and Year of collection: .. / ..

4. Sampling device (30):

5. Diameter of core (cm): ..

6. Depth at coring location (cm):

7. Annual laminations:
 Annually laminated to top (T)
 Laminated, but not to top (P)
 No laminations or laminations not analysed (N)

8. Location where the entity was taken (eg. "north side of lake") (40):

9. Description of the modern site (see enclosed list):

10. Vegetation at the collection site (40):

11. Adjustment needed to relate C14 dated samples to pollen samples: ..

IV. POLLEN DATA

1. Worker responsible for the entity collection:

2. Pollen analyst(s):

3. Worker responsible for the data:

4. Year analysis was completed:

5. Sample preparation method:

6. Use status: **Restricted** **Unrestricted**

*0 = Maximum number of characters

Name of data provider:
Entity label:

XII. BIBLIOGRAPHIC REFERENCES WHERE THE SITE HAS BEEN PUBLISHED
And other references for published data from the same site (eg. 14C, L.O.I.).

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XIII. NOTES AND REMARKS CONCERNING THE SITE.

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XIV. WORKER DETAILS RECORD.

1. Last name (30) -
2. Full initials (10) - 3. Suffix (5) -
4. First name by which known (15) -
5. Title (5) - 6. Status: Active/Inactive/Deceased
7. Address -
.....
..... Country -
Phone - Fax -
EMail -

*() = Maximum number of characters

OTHER DATA STORED IN THE EUROPEAN POLLEN DATABASE -1-

V. CORING DRIVES

Information required for each drive:

1. Drive top (cm)
2. Drive bottom (cm)
3. Inferred top (cm)
4. Inferred bottom (cm)
5. Core length (cm)

VI. LITHOLOGY

Information required for each lithological unit:

1. Depth of the top (cm)
2. Depth of the bottom (cm)
3. Nature of lower boundary (eg. Sharp, Diffuse...) (40)
4. Description (40)

VII. ANNUAL LAMINATIONS

Information required for each segment:

1. Depth of the top (cm)
2. Depth of the bottom (cm)

Information required for each sample:

1. Depth of the mid-point (cm)
2. Thickness
3. Annual laminations count at the top
4. Annual laminations count at the bottom

VIII. LOSS ON IGNITION

Information required:

The low L.O.I. temperature (°C)

The high L.O.I. temperature (°C)

And for each sample:

1. Depth of the mid-point of the sample (cm)
2. Thickness
3. Bulk density (g/cm³)
4. % L.O.I. (at low temperature)
5. % L.O.I. (at high temperature)

OTHER DATA STORED IN THE EUROPEAN POLLEN DATABASE -2-

IX. CARBON-14 DATING INFORMATION

Information required for each sample:

1. Laboratory number
2. Age (Yr B.P.)
3. Upper standard deviation
4. Lower standard deviation
5. Dated "greater than" "Y" or "N"
6. Delta 13C
7. Method used (A = accelerator, G = gas decay count, L = decay count liquid scintillation, U = decay count method unknown)
8. Enriched "Y" or "N"
9. Depth of mid-point (cm)
10. Thickness (cm)
11. Material dated (30)

X. FOR THE FOLLOWING DATING METHODS:

- | | |
|----------------------------|----------------------------|
| a. Pb-210 | g. Electron Spin Resonance |
| b. Fission-Track | h. Cesium-134, Cesium-137 |
| c. Amino Acid Racemization | i. Dendrochronology |
| d. Potassium / Argon | j. Radon-226 |
| e. Uranium series | k. Palaeomagnetism |
| f. Thermoluminescence | |

The information required is:

1. Age BP, AD for (a)
2. Upper Standard Deviation for (a)
3. Lower Standard Deviation for (a)
4. Error limits
5. Depth of mid-point (cm)
6. Thickness of sample (cm)
7. Material dated
8. Dating laboratory number
9. Dated "greater than" "Y" "N"
10. Taxon dated for (c)
11. Grain size (microns) for (f)

XI. SYNCHRONOUS EVENTS

The information required is:

1. Event type (eg. Tephra)
2. Event name (eg. Vedde ash bed)
3. Estimated age in 14C years BP
4. Upper limit of uncertainty
5. Lower limit of uncertainty
6. Depth of the mid-point of the event (cm)
7. Thickness (cm)