

HISCOM

HISCOM96 Proceedings and Outcomes of the Second Meeting of HISCOM at the National Herbarium of Victoria July 17 - 19, 1996

Amendments to the draft of this document, distributed on 2 August, were received from Alan Brooks, Barry Conn, Barbara Briggs, Peter Bostock, Alex Chapman, Keith Houston, Geraldine Jones, Ian Pascoe and Greg Whitbread. My thanks to them. Summaries of contributions by others to the meeting may be somewhat vague; hopefully there are few inaccuracies. Contact can be made direct with the people concerned for clarification. Where action on the HISCOM Actions and CHAH Recommendations is known to have taken place to the above date, a note to this effect has been added. Jim Croft is thanked for suggestions for amendments to the coverage of the projected "Software in Systematics" symposium, here included.

W.R. (Bill) Barker
State Herbarium of South Australia
6 September, 1996

A minor omission to 5. HISPID ... has been added.

W.R. (Bill) Barker
13 September, 1996

Host institution

National Herbarium of Victoria,
Royal Botanic Gardens and National Herbarium,
Birdwood Avenue, South Yarra, Victoria 3141

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| • Attendance |
| • Proceedings |
| • Results - HISCOM95 |
| • Flora of Indonesia - Application Demo. |
| • HISPID3 Redraft |
| • Platypus Application Demonstration |

<ul style="list-style-type: none"> • Australian Plant Name Index
<ul style="list-style-type: none"> • Kew Database Proposals
<ul style="list-style-type: none"> • Application Demo: National Fungi Collection
<ul style="list-style-type: none"> • Loans Management System - MEL's experience
<ul style="list-style-type: none"> • Data Exchange - Its Happening
<ul style="list-style-type: none"> • Returning Tapes
<ul style="list-style-type: none"> • DELTA & descriptive databases
<ul style="list-style-type: none"> • Viridans - Application Demo.
<ul style="list-style-type: none"> • HISCOM - The year ahead
<ul style="list-style-type: none"> • HISCOM96 - Actions & Recommendations
<ul style="list-style-type: none"> • Proposed Adelaide HISCOM97 & ASBS meetings



Attendance

Alan Brooks (*Convener and Chair*), Royal Botanic Gardens and National Herbarium, Sydney (NSW)

Barry Conn, Royal Botanic Gardens and National Herbarium, Sydney (NSW)

Bill Barker (*Meeting secretary*), State Herbarium of South Australia, Adelaide (AD)

Peter Bostock, Queensland Herbarium, Brisbane (BRI)

Maria Holohan, Northern Territory Herbarium, Darwin (DNA)

Pennie Hohnen, Australian National Herbarium, Canberra (CANB)

Greg Whitbread, Australian National Herbarium, Canberra (CANB)

Jim Croft, Australian National Herbarium, Canberra (CANB)

Alex Chapman, Western Australian Herbarium, Perth (PERTH)

Host members and organising committee

Joan Thomas, National Herbarium of Victoria, Melbourne (MEL)

Don Foreman, National Herbarium of Victoria, Melbourne (MEL)

Geraldine Jones, National Herbarium of Victoria, Melbourne (MEL)

Invited participants

Ian Pascoe, Institute for Horticultural Research, Victorian Department of Natural Resources & Environment, Knoxfield (VPRI)

Karyn Maling, John Ray Herbarium, University of Sydney (SYD)

Liz Kolster, Arnold Arboretum, Harvard University, USA

Demonstrations

Keith Houston, Australian Biological Resources Study, Canberra (*Platypus*)

Paul Gullan, Viridans Pty Ltd, Melbourne (*Viridans Biological Databases*)



Proceedings

July 17th, 9:00 a.m. - 5: 00 p.m., Gardens House

1. Welcome

Don Foreman, MEL

Participants were welcomed and introduced to the facilities available, modifications to the agenda, and general housekeeping arrangements.

2. Introduction to HISCOM96

Alan Brooks, NSW (Convener and Chair of HISCOM96)

Alan welcomed participants and thanked the three from National Herbarium of Victoria for their organisation of the facilities for this meeting.

3. HISCOM in 1995-96: The Year in Review

Alan Brooks, NSW

Key Successes

- Establishment of HISCOM with its acceptance by CHAH as an advisory working group
- Development of transfer codes for HISPID3 (Barry Conn)
- Development of protocols for effective data exchange. There had been several successful tests between NSW and CANB; NSW and MEL; with NSW and AD about to take place. Rates of 4-500 exchange specimens per day dealt with by data entry operators were achieved in NSW. (Barry Conn, Gary Chapple and Alan Brooks)
- Redraft of HISPID in preparation for publication (Barry Conn)



Results of actions arising from HISCOM95

Action 1 [Data Exchange]

Barry Conn to develop a list of field identifiers for HISPID and circulate to HISCOM members	Done. These field identifiers are referred to as transfer codes.
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Action 2 [Data Exchange]

Alan Brooks & Barry Conn to	
<ul style="list-style-type: none"> Refine the NSW protocol for data interchange. 	Done.
<ul style="list-style-type: none"> Test in conjunction with the Centre for Biodiversity Research. 	Interchange between NSW and respectively CANB and MEL tested separately.
<ul style="list-style-type: none"> Circulate the protocol for evaluation. 	The model being made available this meeting.

Action 1 [HISPID]

Jim Croft & Barry Conn compare and evaluate the completeness and accuracy of the latest versions of HISPID	Barry has updated HISPID. Extra information outside of the transfer standard were removed from the body of HISPID and will be added as future appendices, supplements, or separate documents.
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Action 2 [HISPID]

Jim Croft & Barry Conn prepare HISPID for publication.	As a result of the above, HISPID is almost ready for publication. The main task remaining is indexing.
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Action 3 [HISPID]

Alan Brooks & Barry Conn outline procedures to participate in the interchange programme including examples of the output. These procedures should for an appendix to HISPID.	Suggestions will be required arising from this meeting.
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Recommendations to CHAH

A letter from Dr Barbara Briggs, NSW, of May 1996 representing the responses of CHAH to recommendations by HISCOM had been circulated to HISCOM representatives and was distributed to

new members. It was very positive about the outcomes of the first meeting of HISCOM, and generally positive about the first nine recommendations, apart from those involving the development of APNI. Unfortunately, due to an oversight, the response to the final five proposals was omitted. Peter Bostock, who was minutes secretary of CHAH was able to communicate in general terms the approval of CHAH of these recommendations (bracketed below, and confirmed by B. Briggs subsequent to the meeting).

Recommendation 1

The establishment of HISCOM	Accepted with slight change.
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Recommendation 2

CHAH continues its support for APNI and encourages its development as a data set owned and maintained by the Australian plant taxonomic community.	Accepted unchanged.
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Recommendation 3

CHAH urge the Centre for Plant Biodiversity Research to include an update form on the internet version of APNI to allow registered users to make corrections.	Accepted with a note.
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Recommendation 4

CHAH urge the Centre for Plant Biodiversity Research to have plants of conservation significance added to APNI enabling regulation of access to specific location data in all herbarium databases.	Accepted, with a reference to ROTAP added.
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Recommendation 5

CHAH urges ABRS to develop an application for specialists to develop and maintain their alternative taxonomies using APNI.	Not accepted. More information was needed (the reference to developing along the lines of the Zoological Catalogue was considered possibly inappropriate in botanical nomenclature).
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Recommendation 6

CHAH supports the extension of APNI to include and display alternative taxonomies where agreed by their custodians.	Not accepted. (The reference to following the same way as IOPI was not considered necessarily appropriate. CHAH asked that APNI be maintained rather than necessarily supporting this extension.)
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Recommendation 7

BRI be urged by CHAH to modify and expand the type photograph information currently held in the Australian Register of Type photographs, compatible with APNI.	Accepted.
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Recommendation 8

CHAH to urge Centre for Biodiversity Research to collaborate with BRI to mirror the type information to the internet version of APNI.	Agreed.
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Recommendation 9

CHAH urged to inform grant bodies etc. of the immediate and long term limitations and dangers inherent in non-vouchered data.	No response received. (Accepted with comments on problems with implementation and costs).
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Recommendation 10

CHAH to publish the forthcoming version of HISPID.	No response received. (Agreed. Barbara Briggs offered that NSW fund the publication on behalf of CHAH. Since this now arises in a different financial year, NSW will check that it can still do this.)
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Recommendation 11

CHAH encourage the continued development of DELTA.	No response received. (Approved).
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Recommendation 12

CHAH encourage ERIN to place its data validation service in the public domain to enable use by herbaria.	No response received. (Agreed).
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Recommendation 13

CHAH actively promotes barcoding of specimen record numbers.	No response received. (CHAH actively encourages barcoding/optical character recognition of specimen record numbers in all Australian herbaria).
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Discussion

The matter of the need for a HISCOM member to represent its recommendations to CHAH was discussed. Jeremy Bruhl and Peter Bostock were present at both meetings, but there still seemed to have been confusion, for example with the APNI proposal. There had been no intention to modify APNI,

only to improve access to its information and add additional useful data sets and tools to it.

The presence of a representative from a herbarium not normally represented on CHAH, namely Karyn Maling from SYD, together with Liz Kostler from Harvard University (Flora of Indonesia project) was welcomed. Ian Pascoe from VPRI periodically represented the three herbaria of the National Collection of Fungi on CHAH on a rotation basis. It was recommended that HISCOM organisers offer the opportunity for similar participation to such herbaria, particularly in the State where the meeting is being held, as appropriate.

Outcomes: HISCOM and CHAH activities

A number of suggestions relating to setting up a good working relationship between HISCOM and CHAH were discussed in this session and in subsequent sessions. These were finalised in Session 15 in which HISCOM activities for the forthcoming year were discussed (q.v).



4. Application demonstration: MSAccess and ArcView in Flora of Indonesia project

Liz Kolster, Arnold Arboretum, Harvard University.

Editor's note: Liz's presentation gave a detailed description of the development of her system for producing a series of databases relating to specimen and taxon-related data and mapping at various resolutions, taking into account the constraints in Indonesia on expertise and resources. It included a demonstration of the new MapObjects software. A description of this application is deferred until contact is made with Liz and will be inserted in this document on the HISCOM Web site.



5. HISPID redraft, the ASN.1 standard and publishing

Barry Conn, NSW

Some important features of HISPID3

ASN.1

The transfer format of HISPID3 is based on 'Information technology - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1)'. International Standard ISO/IEC 8824, 2nd ed. (1990)(ISO/IEC: Genève).

Field identifier

Each field is prefaced by an unique identifier (this refers to the fields which describe the contents of the file, as well as to those which describe the information contained in each record). This unique identifier is known as the transfer code.

Each unique identifier must begin with a lowercase letter (a-z) and cannot contain any spaces. In HISPID3 all letters of this identifier are in lowercase.

File identifier

A transfer file begins with the file identifier 'startfile'

Each transfer file ends with the file identifier 'endfile'

Record identifier

Each record begins with the opened brace character '{'

Each record ends with the closed brace character '}'

Data notation

Alphanumeric data are enclosed by double quotation marks (")

Numeric data are not enclosed by double quotation marks

Each field and each file information is one line long and is terminated by a comma (,)

Other Important features

Fields can be omitted from the transfer file if there is no information available for that field

The interchange format of HISPID3 is as a flat-file. However, a format more suited to the interchange of hierarchical data, i.e. data with non-fixed (multiple) number of repeats, is being developed as an alternative to the current format.

International Transfer Format Version 2

HISPID3 has been developed in conjunction with ITF2 (International Transfer Format for Botanic Gardens Plant Records version 2.00) so that the two interchange standards are as compatible as possible

Date Format

Integer; year (4 digits) followed by month (2 digits) and then day (2 digits), *without spaces between each (i.e., YYYYMMDD)*. For example, the 6th July 1987 would be transferred in the form 19870706

Non-Standard Option

This field allows for the inclusion of data or standards that have not been included in the HISPID standard.

Non-Standard Example 1:

newfields "pol (Pollinator; alphanumeric - scientific name of pollinator and authority at lowest level name or epithet); arch (Plant architectural models; alphanumeric; F. Hallé et al. 1978. 'Tropical trees and forests', Springer-Verlag: Berlin)".

Non-Standard Example 2:

newfields "subsoil (sub, soil); vegass (veg, asspp)", subsoil is the non -standard identifier for the combined Substrate and Soil Type fields; vegass is the non-standard identifier for the combined Vegetation and Associated Species fields.

Publication of HISPID3

Previous Timetable

1: The evaluation of the completeness and accuracy of HISPID2 was completed by the end of November 1995.

2: Although the preparation of HISPID3 was to be completed by December 1995, this proved not to be possible because of the need for an extensive rewrite of the previous version. There was also a need to wait for the completion of the revision of ITF so that the two standards would remain as compatible as possible.

Current Timetable

December 1996.

Key Issues

The finalising of the publication of HISPID3 is dependent on how promptly Australian herbaria provide comments on the draft. The role of HISCOM is important in maintaining the momentum. A draft copy of HISPID3 will be tabled at the forthcoming annual meeting of TDWG in Toronto (October 1996).

Method

HISPID will be published both as a hard printed copy - including ISBN number, and will be available electronically on the Internet.

[Note: a draft of HISPID 3 (a WinWord 6 document) is available via WWW from the TDWG Accessions subgroup site <http://bgbm3.bgbm.fu-berlin.de/TDWG/acc/default.htm>].

Discussion

The current HISCOM Workshop discussed various aspects of HISPID3, including the addition of extra fields and redefinition and clarification of others. In particular, the following were discussed:

- the handling of delimiters for italicised scientific names (previous versions of HISPID allowed braces { } for this.
- the handling of multiple value items (e.g. determiners, collectors, exchange recipients, etc.). For the present concatenation of secondary and subsequent values delimited by commas was to be used, but it was generally agreed that this had to be improved upon.
- in the interchange file header:
 - a separate "file action" item
 - a separate "file descriptor" item
 - replace "new field" with a "non-standard option" field

- the handling of image addresses (URLs)
 - the discrepancies between global and existing Australian spatial reference systems for geographical (latitude and longitude) and grid reference coordinates. The Australian standards for spatial reference systems for latitudes and longitudes and for grid references are in a transition to conforming with the world standard of 1984, a process to be completed by the year 2000. Geocoordinates will not be the same under the different reference systems. There are discrepancies between the existing and forthcoming Australian systems of about 200 metres in both latitudes and longitudes and grid references.

It was considered unnecessary to hold up the draft of HISPID3 being forwarded for consideration at the TDWG meeting later in the year. Some of these issues may have to be left to HISCOP1997 if they cannot be resolved by consultation beforehand.

Outcomes

The HISPID data interchange standard and the commencement of electronic data transfer between herbaria

The National Herbarium of New South Wales has played the major role since the first meeting of HISCOP in actively promoting this Australian standard for interchange of data between herbaria and the upgrading of the HISPID standard into publishable form.

Discussion on the actual process of transfer of data between Australian herbaria, a test of the HISPID3 interchange standard, was dealt with in session 11 of the meeting (q.v.).

HISCOP Action 1

That each institution through its HISCOP member be urged to join or further develop the testing of electronic data interchange associated with exchange and loans under HISPID standards and to report to the group on success or problems.

All HISCOP members (December 1996)

HISCOP Action 2

That a draft edition of HISPID Version 3 be sent for tabling at the forthcoming Executive Committee of TDWG in Toronto in October 1996.

Barry Conn (August 1996; acted upon on 24 July 1996)

HISCOP Action 3

That the Editor of the third edition of HISPID finalise its contents and index ready for publication by CHAH.

Barry Conn (August 1996)

[Barry has completed the task and sent drafts to TDWG. A copy has been placed on the HISCOP World Wide Web home page.]

HISCOP Action 4

That advice be sought on international exchange standards for spatial data, particularly in relation to the different spatial reference systems adopted in various countries and in relation to a general trend to changing to a global reference system.

Bill Barker, Peter Bostock (August 1996)

[With assistance from the Resource Information Group, South Australian Department of Environment & Natural Resources, a summary of information on international and Australasian spatial interchange standards as well as source documentation have been forwarded to Barry Conn.]

HISCOM Action 5

That a data interchange format be developed to cope with nested hierarchies (arising from multiple value items such as determiners, collectors, exchange institutions, etc.) in time for the next meeting of HISCOM.

Barry Conn, Jim Croft, Greg Whitbread, Alan Brooks (July 1997)



6. Application demonstration: Platypus taxonomic/nomenclatural database

Keith Houston, Executive Editor, Fauna, ABRS

Keith demonstrated Platypus, an application specifically geared to taxon-based faunal work with output in the format of the Zoological Catalogue produced by ABRS. He had demonstrated this package around Australia, the British Museum, and at a recent international conference in Amsterdam on biodiversity (including a group of Legume specialists), where it has generated much enthusiasm. The most frequently asked questions about it have been:

- when is point data going to be added? He plans to extend it to mapping specimens in the future.
- when will it be adapted to flora? The package is 80% towards this goal, but needs resources to achieve this.
- where and when can it be bought? Platypus will be available as a CD-ROM for \$220 [it should now be available], but if downloaded from the World Wide Web registration is \$200. Site licences may be negotiated. The Web site is <http://www.ento.csiro.au/platypus/platypus.html>. CSIRO Publishing is handling the sales and registration.

The program requires about 10Mb to run but if downloaded from the Web about 15Mb of free hard disk is initially required for installation.

It is intended that income from sales will fund further developments, such as linkage with MapInfo, specimen databases, descriptive data software such as DELTA, INTKEY and LUCID, and other packages.

Platypus runs using Access Jet 2.5 and Visual Basic 4.0. It requires at a minimum a 486DX PC, with at least a 486DX2/66 recommended, Windows 3.1 or later versions, 8Mb RAM (16Mb recommended), and 10Mb of hard disk free for installation.

Some of the many features of the Platypus package were demonstrated, including

- the central checklist that is used to manage data and allow ready manipulation of the taxonomic hierarchy;
- the powerful facilities to integrate data and to preview in preset, typeset and indexed formats;
- the sophisticated and versatile bibliographic reference program;
- rigorous quality control and data validation.

A pamphlet giving an overview is supplied as an appendix. Further details may be found on the features page of the Platypus Web site.

Discussion

HISCOM members were positive about the application, and its usefulness to plant taxonomists. The need for more flexibility in report output was indicated. It was considered desirable that ABRS support its extension into the botanical arena.

Outcomes: Support for a potentially valuable tool in plant taxonomy

Recommendation to CHAH 1

As a result of seeing a demonstration of *Platypus* by its developer (Dr Keith Houston, Executive Editor, Fauna, ABRS), HISCOM believes it to be a valuable and unique taxonomic tool, particularly for use by specialists, and requests that CHAH urge ABRS to extend the application into the botanical arena

HISCOM notes that the Advisory Committee of ABRS meets in late August. In view of the fact that this proposal was made in the submission to the last CHAH meeting and in anticipation of positive response to demonstrations offered by HISCOM members to the heads of Australian herbaria (see below), it requests that a supportive letter to ABRS be made *in time for the August meeting of the Advisory Committee*.

HISCOM Action 6

HISCOM members download *Platypus* and demonstrate it to their herbarium head, noting its developer's desire to extend it into the botanical arena in response to demand within and outside Australia.

HISCOM members (July 1996)

July 18th, Gardens House, 9:00 a.m. - 5:00 p.m.



7. APNI: the state of play; where to next?

Greg Whitbread and Jim Croft, CANB

Greg provided handouts showing the relational structure of the new APNI database system, located on

an Oracle platform. These had little changed since the last meeting of HISCOM as considerable time and effort over the past year had been expended in combining the CANB and CBG datasets and getting APNI to interact with them.

The structure of the new APNI system was described. The original data, in which the few items comprised many concatenated heterogeneous sets of data, had been broken up into the component individual data categories. This process had been 95% successful, meaning that the remaining 5% of records (about 50 000) with errors had to be identified and corrected. With existing resources it may take 3 to 5 years to produce a reasonably clean APNI. A major problem was the normalisation of data (bringing repeated data into a single reference in one table). For example, the old APNI had a primary reference and often up to 6 repeats of the same reference in a secondary context; these repeats were rarely the same in the original data.

The way in which a name is now stored in the APNI was discussed. It is intended that a name can be exported either as a full name, including all ranks between species and the lowest infrspecific rank, or as a trinomial.

The structure of the new APNI system will handle an infinite number of classifications.

One problem is rank: there are up to 100 symbols and other informal rank designations (e.g. Group) in APNI, and it is important that these be given their correct place in the hierarchical sequence.

In addition, the system needs to be able to handle hybrids, hybrids between hybrids, and hybrids between these.

Jim told of a proposal to pool Index Kewensis, the Grey Herbarium Card Index and APNI into one enterprise, where the workload is shared. A workshop involving the herbaria at Kew, Canberra and Harvard is being held in September 1996 to talk about data structure and content, and the process of data integration. [Contact Jim Croft for details.]

He also indicated that one issue is the need to have taxonomists driving the data, with a distribution of effort much as with the CHAH sponsored card index to taxonomic literature of the Australian region (ITLA) of the 1980s.

A data entry and editing front end is being developed, initially in Oracle forms. Platypus has been evaluated for this purpose, but it does not meet all requirements of APNI (this is not to deny its potential in other areas, e.g. in developing conspectuses for researchers). There are too many tables in APNI for transportation to PCs. Ultimately the front end will be complemented with a Web html interface. Ad hoc querying of APNI will also be available on the Web, as now, but in a more sophisticated form.

It is suggested that the way APNI would work would be by means of:

- a registry of taxonomic groups and approved specialists
- names and changes supplied to be held in a holding area
- the APNI administrator who vets proposals and accepts, rejects or consults specialists via the Web
- only then are changes incorporated into APNI

Discussion

It was suggested that the name APNI is inappropriate for the information system being produced, combining with the old APNI taxonomic concepts (accepted names and synonymies), state distribution

(and also possibly regional distributions where available), and other data associated with plant names.

There was no reason to fear that APNI in its original form will be lost. Its data, however, would be made more consistent and accessible.

The desirability of archiving copies of protologues of plant names to save double handling by ABLOs and librarians was raised. Copyright was discussed, but it was felt that these copies would be rarely consulted and then only where a photocopy would have been made anyway and for research purposes. There were no problems with scanning them and storing them in a JPEG file (even 100 000 protologues at 10K each would be easily storable).

Outcomes: The continuing development of APNI

HISCOM supports the refinement of the structure of APNI in its electronic form with a World Wide Web interface due to be completed in the coming year by the Centre of Plant Biodiversity Research, Canberra.

As a result the following were agreed:

Recommendation to CHAH 2

That CHAH note the improvements to APNI by the Centre of Plant Biodiversity Research. HISCOM believes that the proposed electronic form will prove cost-effective, functional, widely available and usable, and, in being a distributed tool, will facilitate updating by specialists.

HISCOM Action 7

That a test of the World Wide Web interface for data entry and editing be conducted internally at the Centre of Plant Biodiversity Research with existing editorial staff.

Jim Croft, Greg Whitbread (November 1996)

HISCOM Action 8

That the acceptance testing of APNI be extended to an external specialist with entry and editing of data relating to accepted names and synonyms within a specialist group.

Greg Whitbread, Bill Barker (June 1997)

HISCOM Action 9

That the overall outcomes of the APNI testing process be reported to HISCOM.

Jim Croft, Greg Whitbread (June 1997)



8. Bob Makinson's Kew database proposals and implications for future ABLOs

Don Foreman, MEL

Don requested comments as the new ABLO to take to Kew from the meeting of HISCOM. Bob Makinson's paper had indicated the huge size of the Kew project if information associated with specimens was databased. He expressed concern about the possibility of reduction of the ABLO position to a largely technical one if Kew gave Australian requests high priority as a continuance of its traditional benevolence to our country. This would apply whether material was to be databased or imaged. He assumed the work would have to be done in Kew (i.e., there was no possibility of it being done by repatriation of specimens).

He believed that HISCOM, in considering how Kew might handle the problem, had considerable collective experience both in databasing specimens and, in the older herbaria in MEL and NSW in particular, with older collections with limited data and poor handwriting. There was a need to take a long term view.

Questions that should be considered were:

- the form of the data
- components of greatest priority
- how might Australia help?

Estimated number of collections at Kew is 8 million.

Berkeley with 5 million collections has taken the course of digitising their images. Their database system includes:

- checkboxes (vouchers for localities and ecology)
- redeterminations
- a set of standard characters scored for each specimen on the fly to enable the creation of interactive keys
- a place name index (hierarchical ??)
- 200 Mb/sheet

Special projects (e.g. 15 000 databased Brunei specimens) can provide pockets of already databased specimens, just as with Kew where there are many research data sets.

Discussion

It was felt that there would never be a way of entering data into databases without data entry by human intervention. A database for information associated with specimens should be set up from the outset, with scanned images of secondary importance from a data access viewpoint.

It was agreed that specimens should be prioritised for Australian herbaria as follows:

- types
- historical value (as providing localities representing distributions of plants prior to or early in European colonisation).

On the question of scanning specimens, Kew should continue to take large format photographs (Cibachromes), to archive them, and to digitise these photographs as the technology becomes acceptable, rather than adopt a new approach of digitising only.

Could there be an Australian contribution to this effort? Doubts were expressed as to doubts whether funds could be found for scanning or data entry when many herbaria have difficulty with their own collections. It was, however, considered that the small database relating to the many Cibachromes produced for Australian botanists should be re-established, taking into account the BRI type register.

The linking of scanned images, including those emanating from Kew, to APNI would be extremely useful.

Outcomes: Databasing at Kew and their Cibachrome images

Recommendation to CHAH 3

Depending on decisions already made by the Royal Botanic Gardens, Kew and possible submissions already by CHAH, that CHAH recommend that Kew adopt a databasing strategy based on specimen label data, with scanning of specimens being for special requirements.

Apart from special needs, highest priority in general databasing areas was considered to be types, followed by those historical collections of Australia with specific locality details (providing data which may be poorly represented in Australian herbaria on the historical distribution of our plants).

Recommendation to CHAH 4

In view of the expense of the photographic process at Kew, the Australian herbaria should consider locating the many Cibachromes (and previous quality type photographs) that have been already distributed by Kew to Australian botanists, curate and database them in the resident herbarium, and forward the information to the Queensland Herbarium (BRI) for assembling in a suitable database and forwarding to the ABLO.

To avoid duplication in Cibachrome production and in view of the likely delays in getting the information back from BRI, the ABLO set up and maintain database with a small number of core fields (e.g. identification, addressee) conforming with HISPID standards able to incorporate data from BRI.

HISCOM Action 10

Depending on the response from CHAH and the Queensland Herbarium to the above Recommendations to CHAH on tracking Kew Cibachromes in Australia, a suitable database format for Cibachrome and other image data from Kew be developed and circulated to HISCOM members for comment.

Peter Bostock (December 1996)

[Peter has so far compiled an Access 2.5 database as a first version of a photographic database for the ABLO, and populated it with all data from BM, K and LINN in BRI's Australian Type Photo Index: 1300 taxa, c. 1800 photographs. These records lack some of the data required in the new database, e.g. recipient of photo, date, and often image type. Conversion to Access95, provision of a help file, and evaluation by a few HISCOM and CHAH members (present and former ABLOs) are anticipated before putting it into operation.]



9. Application demonstration:

Experiences with data exchange from the National Collection of Fungi herbaria

Ian Pascoe, VPRI

Introduction

Ian is a fungal taxonomist at the Institute of Horticultural Development (IHD) at Knoxfield, an institution in Agriculture Victoria, now in the Department of Natural Resources and Environment. The IHD has 160 staff. It has a local area network of 120 PCs run by Novell server, but also accessing a Unix server, the Internet, and Head Office servers.

Among the problems, the Herbarium database has low priority, institutional priorities taking precedence. The Unix server is slow and so are the tape drives.

National Collection of Fungi (NCOF)

This collection largely of plant pathogenic fungi and other organisms is a combination of Department of Agriculture herbaria in three states: VPRI in Victoria, BRIP at Indooroopilly in Queensland, and DAR at Rydalmere in New South Wales.

History and purpose of the NCOF

- Endorsed by the Standing Committee of Agriculture in 1983.
- Began databasing on Titan data management system: VPRI (then at Burnley) in 1989, BRIP in 1991, and DAR in 1992. John Walker's 32,000 records, originally databased in the 1970s at Rydalmere, were loaded.
- Data exchange began in 1992.
- Aim: to have equal access to each others data, such that in effect a single collection.
- Constraints: not to be dependent on each others administrations; not to have a single stand alone system under control of one person; not to compromise integrity of local herbarium management; not to require electronic communication; not to require too much computer savvy; no interference with one another's data (NCOF is not edited as a whole, but component collections are prior to loading onto NCOF).
- Data exchange is by floppy disk or 60 Mb tapes

Some peculiarities of data set:

- Deliberately aimed for simplicity: single screen; no peripherals; priority on inputting useable data, omitting the bells and whistles.
- Mainly plant parasitic fungi and other microorganisms.
- Form design: Every record has two organisms, a parasite and a host. We have trouble coping with records with only one organism, e.g those that have a non-living substrate, rather than a binomial name for host, need a separate substrate item.
- Data accuracy requires both parasite and host to be accurately identified.
- Many specimens have more than one pathogenic organism. As a result a,b,c suffixes to specimen number to provide an open ended sequence of record numbers (e.g. VPRI10586a, VPRI10586b, etc., where VPRI10586 is the specimen number).
- Specimens may have living cultures linked to them, but stored separately.
- The NCOF database can have looser field attributes than the other collections to allow insertion of

data kept in slightly different forms. For example, cultures are number separately in VPRI (in an interger field), but in DAR and BRIP cultures are flagged, but not numbered; the NCOF field is textual to accommodate either data type.

- Locality designation is not up to standards in higher plant herbaria. Latitudes and longitudes have not been entered as yet. The nature of collections (handed in by third party for identification or via independent research data) makes this information often unavailable in any case.
- Duplicates: this item comprises a single long field (includes *ad/ex*). Duplicates might occur several times in NCOF
- Long list of design changes needed, especially to support different kinds of organisms.
- Design does not support synonymy. A separate peripheral database, regularly updated, is needed. There are no formal protocols equivalent to HISPID. These are possibly not needed, as the NCOF databases have been developed on identical collections and identical standards
- An example of a specimen label was shown.

Detailed mechanism of data exchange

- At intervals all new or edited data in each local database is queried on and sent via a report form to a Texload file.
- File is texloaded to NCOF copy at local site - using script `iload file`
- File is copied (`cpio`) to floppy or 60Mb tape and sent to other sites. This file is then texloaded to site copy of NCOF using script `iloadfloppy` or `iloadtape`

Problems and Advantages

- Not enough staff or support or resources. The system has broken down temporarily after a good start.
- The Titan/Texpress versions at the three sites are out of step
- There is no time to fix minor bugs in scripts.
- Advantage that collections are small, herbarium management consistent (historical), small number of compatible curators (Ian can't help wondering why herbaria don't agree to run identical curatorial systems and identical databases; HISPID must almost force that).
- Open electronic access for quarantine services and other herbaria. There is the issue of ownership of data (if someone asks me for data from one of the other two NCOF institutions am I free to give it?).
- Other problems are quality of data (a big problem) and misuse of data (especially by quarantine, which might jeopardise trade). The data quality problem relates to fungal diversity (3 taxonomists: so little known, so much to do, so little time), problems with identification (taxa collected on host but only identifiable in culture), quick and dirty IDs, undetermined specimens, old determinations not yet re-examined or edited to reflect taxonomic changes.

The Future

- Use of the Internet to FTP of data and access remote databases via Telnet. Limited internet access for wider community (though Ian can access a number of fungal collections via the Internet).

Discussion

Databasing of fungal collections in other institutions, including herbaria (e.g. PERTH, already being databased, and the ADW collection in AD), was discussed. Herbaria tend to be macrofungi. NCOF at

the moment relates principally to plant parasitic (pathogenic) fungi. The well curated Hansford/Talbot microfungal collections in the Waite Agricultural Research Institute include much pathogenic material and are important in this respect.



10. Melbourne's experiences with the Loans Management System, developed by NSW

Geraldine Jones, MEL

Geraldine thanked NSW and in particular Alan Brooks for their generosity in providing and installing this system at MEL. The Loans Management System (LMS) consists of 5 separate databases which are linked together and back the specimen database (MELISR in this case). It allows the tracing of any specimen during the loan procedure and in the future will provide statistical data and handle incoming loans. Specimens are now databased before being sent on loan. Last year 8 000 specimens were sent on loan. Five staff and a volunteer are involved with specimen databasing, which means response to loan requests can often be slow.

Implementation of the LMS in TExpress was fairly easy, with few people involved in the databasing. It is expected that the system will gain momentum as more specimens are handled. The installation of a LAN in the near future will encourage the involvement of more staff.

The LMS provides information about each specimen from the link to MELISR. The total number of sheets, an advice slip and all other paper work are automatically generated.

Alan said barcode reading of incoming loan specimens has not been linked as yet. The incoming loans part of the system is now partially implemented. The whole system will probably be operating around mid 1997. There is thought of developing an Access version of the LMS.

In dealing with exchange, there is no real need for much paper work. Hopefully electronic transfer of specimen data will be done as a matter of course on the understanding that updates to fields (e.g. associated with determinations) will be provided with the return of loan to facilitate updating MELISR.

Information can only be updated by the Loans Officer. Others at MEL can access the LMS but only on partially and on a read-only basis.



11. Herbarium data exchange: the story so far and the next step

Alan Brooks, NSW

exchange.ppt

Data interchange: it's happening!

Alan reported on the initial experiences of data interchange between herbaria, commenced since the first

HISCOM meeting in the previous year. There had been effective and successful data transfer between NSW and CANB, and NSW and MEL, as follows:.

- NSW MEL (twice)
- MEL NSW (once)
- NSW CANB (once)
- CANB NSW (twice)

HISPID in, HISPID out!

The only practical way for data interchange to work was within HISPID standards.

The long term: HISPID compliance in all databases (tables).

The ultimate is to amend our databases to comply with HISPID standards.

Short term solutions: data massaging.

Data massaging, i.e. modifying data to conform with our HISPID interchange standard and even further, to help other herbaria who may find difficulty extracting their data from a HISPID standard, is only practical in the short term. The main differences between the HISPID standards and databases in MEL, CANB and NSW were in:

- Collector's names and initials
- Additional collectors
- Dates
- Descriptive fields

Data Holding Tank: practicing "safe data"

The provision of an intermediate database for taking transfer data ensures that:

- Data can be further massaged.
- Data is not loaded into the Specimen Database until the sheet is in front of the operator. This enables the marriage of the data and the new sheet number and the opportunity to perform a final check of the data.

Data Flow

Using these methods enabled the editing of data at the rate of 400-500 specimens daily once the incoming material had been mounted and made readily accessible to the data editing personnel. It is important that curation be linked closely with data editing and loading into the specimen database. Experience so far has shown that the handling of data and specimens at all stages should be dealt with by a team so that links in the chain do not become lost. There is also a need for effective change management in convincing staff understandably committed to previous long-established practices. Data transfer is not difficult, it is the process of managing it that may prove to be. Volunteers have proved good at this process in NSW.

Internal Procedures: Outgoing Data

- Data generation from specimen database
- Data manipulation and formatting in the generated report to meet HISPID standard.
 - Data file Emailed or loaded to tape or disk. Do not include a tape or disk with specimens. Mail these items separately. The insect eradication procedure might affect them.

Internal Procedures: Incoming Data

- Unload Email document or file from tape
 - Data massaging, to bring it into form not compliant with HISPID standard. This may include spell checks.
- Load to "holding tank" database (this could be just a PC database eg. Access)
- Link holding tank to specimen database via the key or record identifier of the sending institution.
- Add record number on sheet and scan new record for errors

Setting up data interchange: summary

- Develop internal procedures
- Develop data unloading procedures
- Develop HISPID output (and HISPID compliant databases)

What do we do with it now?

Give it a go! The best way to get electronic data exchange happening is to start exchanging data in the best form you can make it and then deal with difficult issues. Even if you cannot comply with HISPID standards at this stage, your data will still help in the development of an exchange programme for Australian herbaria.

Remember to send data with every exchange batch and loans. This will encourage others to take the opportunities presented as a result and develop their own data interchange procedures.

Discussion

There was general agreement to continue developing data interchange, conforming as closely as practicable to HISPID standards in the first instance. It was considered desirable to transfer data only in HISPID format to ensure that only one transfer file format for each institution. This was after all the raison d'être of HISPID and the most efficient way of undertaking a data exchange programme involving many herbaria.

Outcomes

See Session 5: HISCOM Action 1



12. Protocols for returning tapes, etc.

Don Foreman, MEL

Discussion

In response to Don's request for the ways in which data could be transferred between herbaria, all members of HISCOM were asked to fill in a form developed by Jim Croft summarising IT capabilities (See Appendix 3). This information should prove particularly useful in facilitating electronic interchange of mail, files and data. It also will provide herbaria with a useful resource when considering their own planning.

Outcomes: Information on computerisation in Australian herbaria

That the drafted questionnaire on computerisation in Australian herbaria be completed, to be filled in by HISCOM representatives, and collated.

**response by HISCOM members (October 1996),
collation by Alan Brooks (November 1996)**

[Jim Croft completed the questionnaire. A few have been returned to the Editor. Alan is compiling it on the HISCOM Web home page for entry of information and display.]

July 19th, Astronomers Residence, 9:00 a.m. - 4:30 p.m.



13. DELTA and descriptive databases

Alex Chapman, PERTH

The 4 fundamental data types

Alex pointed to the four basic data types in herbaria:

- specimen
- nomenclatural
- spatial
- descriptive

While HISCOM had concentrated on at least the first two data types, he suggested that much of HISCOM's work in future will revolve around the coordination of flora descriptive data.

Dealing with descriptive data: DELTA - the DEscriptive Language for TAxonomy

DELTA, an international standard developed largely by Mike Dallwitz (CSIRO, Canberra) and Richard Pankhurst (Edinburgh Botanic Gardens), provides methods for:

- creating codified taxon descriptions, thereby
- producing multiple automated information output (polychotomous keys, natural language descriptions, interactive keys, phenetic and cladistic matrices, and most recently World Wide Web format descriptions).

Examples of major DELTA datasets include the Watson and Dallwitz' *Angiosperm Families of the World*, the world Virus database, and the Australian *Eucalyptus* project, plus many individual revisional studies. In PERTH there are major projects such as *RED*, the *Rare and Endangered Database*, involving 282 conservation taxa (scored for 150 morphological characters, of which 35 are currently illustrated), a *Generic Flora of WA*, and the *Western Australian Flora Database*.

The Western Australian Flora Database

This provides an example of an comprehensive descriptive data set using DELTA. It is fundamentally a computerised update on Beard's *Descriptive Catalogue* (1965, 1970), and is a joint project between the Western Australian Herbarium, Kings Park and Botanic Garden, and the Wildflower Society of Western Australia.

So far all 2000 monocots and over 4000 dicots out of the over 11 000 species making up the Western Australia flora have been scored, for a small number of core characters.

Alex demonstrated the interactive key (INTKEY4.03T on a Windows platform) based on the W.A. Flora data set. It included improved graphics and buttons. He also described the process of production and archiving of images in TIFF and JPEG formats.

Institutional Descriptive Data

To manage, maintain and integrate numbers of independent DELTA descriptive datasets within an institution, four main areas must be covered (Chapman and Choo, 1996).

Coordination of DELTA character sets

It is useful to identify three fundamental types of character sets:

- **Individual projects.** Each have their own independent character sets meeting specific project criteria.
- **Institutional characters.** Initially comprised of standard characters drawn from sources such as the *Angiosperm Families of the World* character set (Watson & Dallwitz, 1994), the institutional character list becomes a reference list also containing all characters used in individual projects. New projects can be formulated using this repository of existing characters in use, one method for achieving comparability across multiple projects.
- **Core characters.** Mandatory characters which must be included and scored in any new project. Pankhurst postulated a set of thirty such global characters at the Xalapa TDWG meeting in 1992. PERTH took this list and rationalised it against the Angiosperm Family character list to develop its core character list. Mandatory inclusion of core characters is another method for achieving character comparability across multiple projects.

Creation of a DELTA translator

For a project spanning 11,000 taxa such as the WA Flora database, keeping pace with nomenclatural

changes is achieved by scoring the data in a relational database (SEdit) linked to the Census table.

Hence a translator is needed to output descriptions scored in the database environment to a standard ASCII ITEMS file, for submission to the DELTA suite of software for further processing.

In the case of the WA Flora database, Mike Choo first programmed a Database to DELTA translator in 1994.

Management of ancillary datasets

A management tool is needed to help in the integration and management of ancillary datasets, such as:

- a standard image for each taxon
- a standard image for characters
- a standard description file (either natural language output from DELTA-coded data or from descriptive works such as state Floras)

The data should be accessible via a standard file naming protocol. Again SEDIT is used to enable the unique identifier (Taxon ID) to be available as a standard base for automated file name assignment.

A DELTA database engine

To allow an institution to manage its growing number of descriptive and ancillary data sets a comprehensive database application is needed. Such a tool would integrate all of the above elements into three areas:

- a Database Engine to provide for data input, editing, exception reporting, character management and all other database manipulation facilities, both for individual projects, the institutional character list and ancillary datasets.
- a DELTA Interface comprising:
 - a DELTA to Database translator. Used to import DELTA SPECS, CHARS, and ITEMS files into the Database Engine. This enables compilation and updating of the institutional character list and gives a project custodian access to the engine's data manipulation tools.
 - a Database to DELTA translator. A more robust and fully featured version of that referred to in point 2 (above). Enables new and existing projects created or maintained by the Database Engine to be output in DELTA format for further processing by DELTA software such as CONFOR or INTKEY.
- an Administration module to handle initialisation and setup as well as backup and restore routines.

In the Future

Researchers at PERTH are now developing prototypes of such a package. When developed such a tool will allow:

- Automated co-ordination of characters
- Maintenance of coded descriptions
- Readily available taxon descriptions and interactive keys
- Publications on demand from electronic data sets

Conclusions

Compared to traditional methods for preparing and disseminating descriptive flora information, this method requires a coordinated and sustained approach to managing and maintaining descriptive data. However, at PERTH we perceive that the long term gains in maintaining the currency of flora descriptions (as we now do specimen and nomenclatural data sets) are significant.

References

Beard, J.S. (1970). A Descriptive Catalogue of Western Australian Plants, 2nd edition. Kings Park and Botanic Garden.

Chapman, A.R. & M. Choo (1996). Institutional DELTA databases: a case study. *DELTA Newsletter* 12: 14 - 16.

Watson, L. & M. Dallwitz (1994). *Angiosperm Families of the World*. Version 1.0 CD-ROM. CSIRO Division of Entomology, Canberra.

Discussion

The discussion that followed largely revolved around the provision of information over the Internet and resulted in two Recommendations to CHAH.

Outcomes: Australian plant taxonomic information on the World Wide Web

HISCOM Action 12

That a registry of DELTA data sets be set up by the Western Australian Herbarium as part of the proposed DELTA Newsletter site on the World Wide Web, and that HISCOM members provide information on ongoing and completed DELTA-based projects when requested.

Alex Chapman, all HISCOM members (June 1997)

HISCOM Action 13

That a HISCOM home page be developed and linked to the CHAH home page

Alan Brooks, Jim Croft (December 1996)

[Alan has almost completed the HISCOM home page, Web address

<http://www.rbgsyd.gov.au/HISCOM>. Anticipated completion date for this part of Action 13 is Friday 13th September!]



14. Application demonstration: Viridans Victorian 10 minute grid database

Paul Gullan, Viridans Pty Ltd, Brighton East, Victoria

Paul demonstrated his "Victorian Flora on CD-Rom" application based on his Viridans software as a way of providing information which the general public wants simply and inexpensively. He set up the application on the basis of the most frequently asked questions:

- Where does a plant occur?
- What does it look like and other minor items of information about it?
- What plants occur in a particular geographical area?

The application has large buttons, designed for ease of use and touch screen capability.

Less than 10% of the 1.2 million records in the data base are vouchered. These are mainly survey site records. 1500 species are illustrated to date, many with multiple illustrations.

The application has a Visual Basic/ MS Access platform. The data is in DBase format, but could theoretically derive from Oracle, Paradox, etc. The application has been written on an open platform. One could incorporate a special-purpose interface via Visual Basic.

The Flora module enables the search for information and images relating to individual taxa. It includes the capacity for:

- a search on synonyms,
- the viewing of images in small or large format,
- use of any form of image file (.tif, etc.),
- the ability to introduce textual windows, in which the information can be edited and imported from a word processed file (he is working on an object link to a Word Processor),
- provision of distribution maps, with overlays, indication of different categories of records (e.g. based on source and therefore precision of data).

The Flora List module enables the listing of all taxa from a particular region (able to be defined by a user-defined box). A component has been added to provide other information in the form of "pick lists", such as on propagation and broad diagnostic data, to provide simple ways of identifying plants (on flower colour and general habit, leaf and floral shape characters) such as attempted in the "It's Blue with Five Petals" field books in South Australia. Paul did not see it as competing with DELTA applications. New pick lists can be defined and new information can be added.

He demonstrated how one could select an area surrounding Wilsons Promontory, obtain the list of its plants, query on those with yellow flowers and prickles to provide a selection, and then browse through images or use other data in the "pick lists" to arrive at the plant in hand.

The Victorian Flora CD costs \$120. During the 2.5 months it has been on sale 600 CDs have been sold, mainly to the Education Department (schools) and to the farming community (LandCare). The product has been advertised by way of reviews such as in regional newspapers. Most of the product has been financed by Viridans, though there will be some return to the Victorian Government. A similar package is being developed for Kangaroo Island, South Australia, with considerable funding by the South Australian Government, which will as a consequence receive a significant proportion of income from sales.

Paul also indicated that the application could be programmed into a more specialised, professional package. Grid squares have been used rather than dots in this package, but the latter is able to be handled by Viridans. Viridans was available in two forms: one within which one can make up databases, the other in which he can provide a custom made package, for example for dealing with plants from a National Park. Viridans is not meant to be a full-blown package for editing taxonomies and generating

highly developed keys. He believed that it provides access for the general public to the taxonomy.

A copy of the sales brochure for the "Victorian Flora on CD-Rom" is found under Appendix 5.



15. HISCOM: the year ahead, the next coordinator and the next meeting

Led by Alan Brooks, NSW

Discussion

The various HISCOM Actions and Recommendations to CHAH agreed to in each session were presented in draft form and refined.

Discussion on HISCOM over the next year and its interaction with CHAH was finalised in this session. The conclusions on HISCOM's coordination and its relationship with CHAH were formalised in several actions and recommendations.

It was agreed that Adelaide be the next venue for HISCOM, to be concatenated with the national meeting of ASBS, which the South Australian wished to hold in the September 1997 vacation period. This timing was dependent on CHAH meeting about 2 months after HISCOM, which was felt to be a reasonable period for ensuring HISCOM matters are adequately prepared for consideration at the CHAH meeting.

Outcomes: HISCOM and CHAH activities

Recommendation to CHAH 5

That CHAH invite a representative appointed by HISCOM to help explain as necessary aspects of HISCOM's annual submission. This would most likely be the previous or next Convener or a local member of HISCOM. (See HISCOM Actions 14, 15)

Recommendation to CHAH 6

In acknowledging the response made on behalf of CHAH by Dr Barbara Briggs of the National Herbarium of New South Wales, HISCOM recommends that:
CHAH provide a response after each meeting to HISCOM's submission and indicate, if possible well in advance of the next meeting of HISCOM

- where further assistance is required, or
- action has been taken by CHAH

Recommendation to CHAH 7

Where CHAH is asked for its opinion on computing and data issues, that it seek advice from HISCOM as it sees fit.

It is possible for HISCOM to provide advice to CHAH outside of the annual meeting, if required, for example through the Convener by use of electronic mail.

Recommendation to CHAH 8

Whenever possible, that HISCOM meet at least 6-8 weeks before the meeting of CHAH. In 1997 it is planned to convene HISCOM in the September 1997 vacation to link with the projected ASBS meeting (see HISCOM Action 16)

HISCOM Action 14

HISCOM decided to annually elect a Convener to enable communication with the chairperson of CHAH and with HISCOM membership.

Alex Chapman was elected Convener.

Alex Chapman (role confirmed August 1996)

HISCOM Action 15

HISCOM also decided that it should appoint a provisional representative for CHAH meetings, not necessarily the local representative.

Alan Brooks was appointed HISCOM representative to the coming meeting of CHAH, subject to approval by NSW and CHAH. If unavailable, the local Darwin representative Maria Holohan is happy to fill the role.

Alan Brooks (role confirmed August 1996)

HISCOM Action 16

HISCOM accepted the offer by the State Herbarium of South Australia to host its next meeting

- Venue: State Herbarium of South Australia. Organiser: W. Barker
- Preferred time: September 1997 vacation (subject to timing of ASBS symposium and CHAH).

In view of the developments in HISCOM projects achieved outside of the formal presentations in this and the prior meeting, it was deemed that a day free of formal presentations for finalising documentation and progressing joint projects for the next year be considered for the end of each annual meeting.

HISCOM supports the projected "Software in Systematics" symposium being organised by the South Australian Chapter of ASBS to follow the HISCOM meeting.

Action: Bill Barker (September 1996: ASBS and CHAH meetings)

HISCOM



Appendix 1:

HISCOM Actions and Recommendations to CHAH arising from HISCOM96

A. The HISPID data interchange standard and the commencement of electronic data transfer between herbaria

The National Herbarium of New South Wales has played the major role since the first meeting of HISCOM in actively promoting this Australian standard for interchange of data between herbaria and the upgrading of the HISPID standard into publishable form.

Discussion on the actual process of transfer of data between Australian herbaria, a test of the HISPID3 interchange standard, was dealt with in session 11 of the meeting (q.v.).

HISCOM Action 1

That each institution through its HISCOM member be urged to join or further develop the testing of electronic data interchange associated with exchange and loans under HISPID standards and to report to the group on success or problems.

All HISCOM members (December 1996)

HISCOM Action 2

That a draft edition of HISPID Version 3 be sent for tabling at the forthcoming Executive Committee of TDWG in Toronto in October 1996.

Barry Conn (August 1996; acted upon on 24 July 1996)

HISCOM Action 3

That the Editor of the third edition of HISPID finalise its contents and index ready for publication by CHAH.

Barry Conn (August 1996)

[Barry has completed the task and sent drafts to TDWG. A copy has been placed on the HISCOM World Wide Web home page.]

HISCOM Action 4

That advice be sought on international exchange standards for spatial data, particularly in relation to the different spatial reference systems adopted in various countries and in relation to a general trend to changing to a global reference system.

Bill Barker, Peter Bostock (August 1996)

[With assistance from the Resource Information Group, South Australian Department of Environment & Natural Resources, a summary of information on international and Australasian spatial interchange standards as well as source documentation has been forwarded to Barry Conn.]

HISCOM Action 5

That a data interchange format be developed to cope with nested hierarchies (arising from multiple value items such as determiners, collectors, exchange institutions, etc.) in time for the next meeting of HISCOM.

Barry Conn, Jim Croft, Greg Whitbread, Alan Brooks (July 1997)

B. Support for a potentially valuable tool in plant taxonomy

Recommendation to CHAH 1

As a result of seeing a demonstration of *Platypus* by its developer (Dr Keith Houston, Executive Editor, Fauna, ABRS), HISCOM believes it to be a valuable and unique taxonomic tool, particularly for use by specialists, and requests that CHAH urge ABRS to extend the application into the botanical arena

HISCOM notes that the Advisory Committee of ABRS meets in late August. In view of the fact that this proposal was made in the submission to the last CHAH meeting and in anticipation of positive response to demonstrations offered by HISCOM members to the heads of Australian herbaria (see below), it requests that a supportive letter to ABRS be made *in time for the August meeting of the Advisory Committee*.

HISCOM Action 6

HISCOM members download *Platypus* and demonstrate it to their herbarium head, noting its developer's desire to extend it into the botanical arena in response to demand within and outside Australia.

HISCOM members (July 1996)

C. The continuing development of APNI

HISCOM supports the refinement of the structure of APNI in its electronic form with a World Wide Web interface due to be completed in the coming year by the Centre of Plant Biodiversity Research, Canberra.

As a result the following were agreed:

Recommendation to CHAH 2

That CHAH note the improvements to APNI by the Centre of Plant Biodiversity Research. HISCOM believes that the proposed electronic form will prove cost-effective, functional, widely available and useable, and, in being a distributed tool, will facilitate updating by specialists.

HISCOM Action 7

That a test of the World Wide Web interface for data entry and editing be conducted internally at the Centre of Plant Biodiversity Research with existing editorial staff.

Jim Croft, Greg Whitbread (November 1996)

HISCOM Action 8

That the acceptance testing of APNI be extended to an external specialist with entry and editing of data relating to accepted names and synonyms within a specialist group.

Greg Whitbread, Bill Barker (June 1997)

HISCOM Action 9

That the overall outcomes of the APNI testing process be reported to HISCOM.

Jim Croft, Greg Whitbread (June 1997)

D. Databasing at Kew and their Cibachrome images

Recommendation to CHAH 3

Depending on decisions already made by the Royal Botanic Gardens, Kew and possible submissions already by CHAH, that CHAH recommend that Kew adopt a databasing strategy based on specimen label data, with scanning of specimens being for special requirements.

Apart from special needs, highest priority in general databasing areas was considered to be types, followed by those historical collections of Australia with specific locality details (providing data which may be poorly represented in Australian herbaria on the historical distribution of our plants).

Recommendation to CHAH 4

In view of the expense of the photographic process at Kew, the Australian herbaria should consider locating the many Cibachromes (and previous quality type photographs) that have been already distributed by Kew to Australian botanists, curate and database them in the resident herbarium, and forward the information to the Queensland Herbarium (BRI) for assembling in a suitable database and forwarding to the ABLO.

To avoid duplication in Cibachrome production and in view of the likely delays in getting the information back from BRI, the ABLO set up and maintain database with a small number of core fields (e.g. identification, addressee) conforming with HISPID standards able to incorporate data from BRI.

HISCOM Action 10

Depending on the response from CHAH and the Queensland Herbarium to the above Recommendations to CHAH on tracking Kew Cibachromes in Australia, a suitable database format for Cibachrome and other image data from Kew be developed and circulated to HISCOM members for comment.

Peter Bostock (December 1996)

[Peter has so far compiled an Access 2.5 database as a first version of a photographic database for the ABLO, and populated it with all data from BM, K and LINN in BRI's Australian Type Photo Index: 1300 taxa, c. 1800 photographs. These records lack some of the data required in the new database, e.g. recipient of photo, date, and often image type. Conversion to Access95, provision of a help file, and evaluation by a few HISCOM and CHAH members (present and former ABLOs) are anticipated before putting it into operation.]

E. Information on computerisation in Australian herbaria

HISCOM Action 11

That the drafted questionnaire on computerisation in Australian herbaria be completed, to be filled in by HISCOM representatives, and collated.

**response by HISCOM members (October 1996),
collation by Alan Brooks (November 1996)**

[Jim Croft completed the questionnaire. A few have been returned to the Editor. Alan is compiling it on the HISCOM Web home page for entry of information and display.]

F. Australian plant taxonomic information on the World Wide Web

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Alex Chapman, all HISCOM members (June 1997)

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- Venue: State Herbarium of South Australia. Organiser: W. Barker
- Preferred time: September 1997 vacation (subject to timing of ASBS symposium and CHAH).

In view of the developments in HISCOM projects achieved outside of the formal presentations in this and the prior meeting, it was deemed that a day free of formal presentations for finalising documentation and progressing joint projects for the next year be considered for the end of each annual meeting.

HISCOM supports the projected "Software in Systematics" symposium being organised by the South Australian Chapter of ASBS to follow the HISCOM meeting.

Action: Bill Barker (September 1996: ASBS and CHAH meetings)

Appendix 2:



Proposed Adelaide meetings of HISCOM and ASBS in latter half of 1997

Your comments on the following would be very welcome. Bill Barker

HISCOM97

The State Herbarium of South Australia would be happy to host HISCOM next year if invited.

It is timely in relation to recognition that IT is vital to realising core businesses of the Botanic Gardens and State Herbarium, in the context of HISCOM, its Plant Biodiversity Research Programmes headed by newly appointed Manager, Laurie Haegi. The parent Department of Environment and Natural Resources is supporting the upgrading of the general IT capability of the institution, not only in human and financial management and in general clerical work, but also in the development of the Plant Biodiversity, Living Collections and Library Services Information Systems.

It is also timely in that the local Australian Systematic Botany Society Chapter has undertaken to host the Society's 1997 meeting. It is felt that the proposed subject of the associated forum on IT in herbaria and plant systematics (see below) would provide an additional attraction for participants in HISCOM.

The venue for HISCOM would be at the State Herbarium itself.

If agreed to, we would like feedback on

- the date (with enough time to report to CHAH and appropriate to the timing of the ASBS meeting)
- facilities required (we would have email and internet access)

ASBS Meeting 1997

A draft programme is provided. Helpful would be our ideas on

- additions of software
- possible discussion leaders / "assessors" / "critics". Can we obtain reviews of all fields
- numbers attending (will influence venue)
- hands-on vs. mainly demos (will influence or be influenced by numbers able to participate, number of PCs and Internet links needed)
- Paup and MacClade need Macs. Anything else on this platform?
- visual aids required (e.g. concurrent running of different applications by reviewers)
- obtaining software (the easiest would be to use reviewers or can/should we expect to obtain from distributors)

Possible format (vary depending on perceived demand for demos?):

- (If time) demonstration of each package (including hands-on if feasible)

- one/two reviews/assessments (functionality, versatility, ease of use, price)
- discussion

Above all: is this too much? What might we prune down to?

**"Software in Systematics:
evaluating information technology tools for herbaria and plant taxonomists"**

Australian Systematic Botany Society workshop

Adelaide, 1997 (September vacation)

Potential subject areas:

Handling descriptive and other textual taxon-based information

- DELTA and INTKEY
- Lucid
- ALICE

Taxonomic and nomenclatural applications

- APNI
- ROTAP (national, state, regional)

Censuses (national, state, regional)

Cladistics

- Hennig86
- Paup[4.0]
- McClade
- Component

Pattern and similarity analysis

- PATN

Statistics packages

- SAS
- SPSS

Spatial analysis

- ArcInfo
- BioClim

Mapping

- ArcInfo/ArcView
- MapInfo
- Viridans
- Base data, layers, coverage
- GPSs: caveats and limitations

Presentation

- PowerPoint
- Commercial
- Hardware

Publishing software and media

- Desk-top publishing
- Hardcopy
- CD ROM
- The Internet (WWW, home pages, etc.)

Artists and imaging

- Graphics packages (Corell Draw, Paint Shop)
- Scanning images
 - Do it yourself vs. commercial
 - Digital photography
 - Resolution
 - Colours
 - File formats, conversions

Databases

- Platforms (Oracle, Titan, PC-based)
- Data transfer (HISPID)
- Linking
- Custom made packages (e.g. Herbie; cf. DELTA , Lucid, Alice above)
- Barcoding
- On-line access (Internet, WWW, etc.)

Archiving data and information

- local
- federated, distributed, Internet
- formats and conventions

Teaching aids

"Poster sessions": demonstrations of systematics tools already developed by participants

Organising committee:
Robyn and Bill Barker, Laurie Haegi, Molly Whalen

Appendix 3:

Form for entry of IT capability details for herbaria

Designed by Jim Croft, CANB. (See Action 11 for mode of capture)

Herbarium:

Contacts:

Email:

Address:

Background Information:

IT/Database Staff:

No Database Managers/Developers:

Names:

No. Data Entry Staff

No. Other IT Support Staff

Estimated No. Users

Hardware Configuration:

Unix: No.:

IBM PC: No.:

MacIntosh: No.:

Other: No.:

Network Architecture:

Hardware:

Software:

Protocol:

Databases:

Software:

Specimen Database Name:

Specimen Database Tables:

Specimen Records:

Estimated Specimens:

Other Significant Tables:

Name: Records

Specimen Loans Applications:

No Loans per Year: Outgoing: Incoming:

No Specimens per Year Outgoing: Incoming:

Census Information:

Application Name:

Scope:

No. Records:

Rare or Threatened Plants Information:

Application Name:

No. Records:

Botanic Gardens Information:

Associated Botanic Gardens/Arboretum:

Database Name:

No. Records

Geographic Information Systems:

Software:

Applications:

Internet Connectivity:

Email: Client: Server:

Gopher: Client: Server: URL:

FTP: Client: Server: URL:

WAIS: Client: Server: URL:

WWW: Client: Server: URL:

Bandwidth/Speed of Connection:

Descriptive Data Sets (DELTA, etc.):

Software:

Applications:

Scientific Applications (Cladistic, pattern analysis, etc):

Software:

Applications:

Other Technical Stuff:

Appendix 4:

Pamphlet relating to Platypus

(Can be supplied by Fax if HISCOM participant has not one)

Appendix 5:

Pamphlet relating to the Viridans application: Victorian Flora on CD-Rom

(Can be supplied by Fax if HISCOM participant has not one)

