

General Background

What are Herbaria?

Herbaria are collections of preserved plant specimens that are used for reference and research—basically scientific storehouses of botanical information. The primary function of herbaria is to provide botanical—and especially plant taxonomic—information that may include information such as the morphology, distribution, conservation status, local name, local uses, economic importance and an accurate scientific name for any single plant taxon.

Most herbaria also document the flora¹ of a region—information that can be used to determine the locality of (for example) centres of plant endemism² or centres of plant diversity³, information which, in turn, may guide conservation efforts in a region. Research on and documentation of diverse subjects such as plant classification, diversity, conservation and use, are all supported by herbaria.

In addition, herbaria may offer some services such as plant identification by specialists, species lists compiled from national and regional (electronic and hardcopy) databases, and distribution maps compiled from numerous specimens housed in a single, or in several

herbaria. Environmental education is also strongly encouraged and in many instances supported by herbaria.

Herbaria are often associated with botanical gardens, universities, agricultural institutions, national parks, and private game farms. There are many different types of herbaria in southern Africa, rang-

ing from local herbaria e.g. the Umtamvuna Herbarium, to regional herbaria e.g. in Grahamstown (GRA) and Durban (NH), to national herbaria such as in Harare (SRGH), Gaborone (GAB) and Pretoria (PRE).

Main Products of Taxonomic Work

- (a) Scientific names
- (b) Predictive classifications
- (c) Accurate descriptions and identifications
- (d) Understanding of relationships among organisms
- (e) Knowledge of geographical distribution of species
- (f) Knowledge of geographical focal points of distribution—identification of centres of diversity, endemism and hot spots of diversity
- (g) Speculation of historical reasons for current distributions
- (h) Knowledge of natural history
- (i) Collections for comparison
- (j) Basic data for monitoring of biodiversity and environmental quality
- (k) Knowledge of plant diversity already lost.



Fig 3. Taxonomist at work in herbarium



Fig 4. Databasing herbarium information

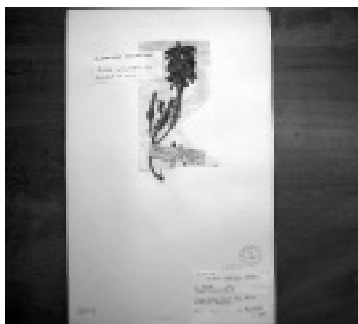


Fig 5. The oldest PRE-specimen—dated 1861.



Fig 6. Pickled-preserved plant material in jars.



Fig 7. Special collection type: wood collection.

Some definitions

1. **flora**: all plant species occurring in a defined geographical area
Flora: a taxonomic treatment of the plants of a defined geographical area
2. **Centres of plant endemism**: defined geographical areas where a large number of taxa occur that occur only there and nowhere else in the world.
3. **Centres of plant diversity**: a defined geographical area where a relatively large number of different taxa occur in a relatively small area.
4. **Hot spots of diversity**: a centre of plant diversity or endemism, which is under severe threat of destruction due to human activities such as development, habitat destruction etc.

“Herbaria are an integral and essential part of all botanical research, and in particular provide the cornerstone for systematics, biogeographical and floristic studies. It is usually only in the herbarium that all the related species of a genus can be compared in the same place and at the same time. Furthermore, herbarium collections form the archives of natural plant resources of a country, and must therefore be considered irreplaceable national assets”

{Smith, G.F, Van Wyk, A.E., Johnson, L.A.S. and Van Wyk, B-E. 1996. Southern African plant systematics: needs, priorities and action. *South African Journal of Science* 92: 314–320.}

Who are the End-Users of the Work Produced by Taxonomy and Herbaria?

The potential users of the work produced by plant taxonomy and by herbaria are many and varied. The following list provides only a sample of the possible users and the information they may require:

Ecological/environmental consultants need complete lists of species with their common names for specific regions. They need to know whether species composition changes with disturbance, and what the conservation status of the various species in a region is. They also need to know the environmental preferences and tolerances of the various species.

Vegetation surveyors need to know which species can be expected to grow together under certain environmental conditions, and information on ecosystems where similar environmental conditions occur.

Forest managers, Mining engineers and Rehabilitation specialists need information on the environmental requirements, preferences and tolerances of species that would naturally occur in an area. They need predicted species

compositions after various recovery times. They need to know of rare, endemic and also of invasive, alien plants to look out for. They need to know which plants can be used for erosion control, which will grow on toxic or nutrient-poor soil and how to protect rare and endangered species in areas earmarked for mining/development.

Farmers need to know the palatability of pasture grasses, the identities of pasture weeds, toxic plants in pasture, what plants can be used to control slough bank erosion, the grazing potential and tolerance of different pasture grasses, and whether or not there is anything rare on their properties.

Environmental lawyers want to know whether their clients can be expected to know the conservation status of a plant, how easy or difficult it is to recognise the plant and how controversial the name of the plant is. They may also need confirmation of the identity of species.

Landscape architects need to know the mature plant habit and


“form” of a species. They need to know which species can be transplanted, which species have attractive foliage, which have attractive flowers or fruit and what, if any, are the hazards of a species—e.g. does a tree species have an aggressive and invasive root system that may lift up paving and crack walls?

Custom, Border and Airport officials need a quick method to identify illegally traded and transported, rare and endangered plants, and they also need to know the names of these plants that are in use, as well as their synonyms.


Animal feed companies need to know the digestibility of a plant species, as well as about any irritating structures such as thorns, trichomes, raphide crystals etc. that may reduce the species’ value as a potential animal feed. They also need to know if the plant contains any toxic or allergenic substances.

Interior designers would like to know what species are tolerant to drought and low light conditions, what pests might attack them, how





large they would grow in a container, whether they may be toxic and whether or not they produce a lot of waste (shedding of leaves, large amounts of pollen etc.) that would need to be cleaned up.



The **Health and Food industries** would like to know about edible, inedible and toxic parts of plants, how the edible parts can be preserved for market, whether or not there are any known side effects of consumption of the plant parts, the nutritive constituents of the plant, special handling requirements and allergenic potential of the various plant parts.

Forensic scientists and Medical examiners might need identification of minimal or damaged samples, they might need phenological data on the species—what time of day/year it flowers, they might need to know how fast the plant rots or deteriorates. They might also need pollen identified.

Lastly, **Outdoor enthusiasts** want easily workable identification keys to the local flora, field and other identification guides, what plants and plant parts are edible, which are poisonous, which are rare or endangered and where to look for them, which are invaders, which

may be used for shelter, firewood etc.

These users of botanical information (and especially of plant taxonomic information and of herbaria) described above represent the public sector, governmental services, international agencies responsible for the administration of health, food, trade and conservation agreements, as well as the general public. As mentioned before, however, it is not a complete list. The potential and actual users of botanical information include many others not mentioned above.

Box 4 – Potential users of botanical information

Probably the most complete list of potential users of botanical information produced in the last 20 years was compiled by Morin *et al.* (1988), and gives a northern, but globally applicable perspective of the issue. The complete list follows below:

1. ECOLOGICAL CONSULTANT

- Full list of species and common names
- Does species composition change with disturbance?
- What is the species' conservation status? (rare, etc.)
- Species substrate preference / tolerance
- Are the names in my list reliable and recognisable by my user / client?

2. ENVIRONMENTAL ENGINEERS

- Life form of plants
- Life cycle time of plants
- Tolerance of flooding (xeric, mesic, hydric preference)
- Tolerance of atmospheric and substrate toxicity
- Local climate

3. ENVIRONMENTAL ASSESSMENT

- Local climate
- Environmental sensitivity
- Soil properties
- Shade-tolerant species

4. VEGETATION SURVEYORS

- What species may be expected to grow together?
- A local key for use on a site
- Any information from similar ecosystems

5. FOREST MANAGERS

- Shade tolerance of seedlings
- Animal present now and predicted to occur after proper forest use
- Predicted species composition (naturally present) after a certain time, e.g., in 30-year-old regenerated stands
- Rare plants represented
- Herbicide tolerance
- Pathogen sensitivity
- What plants produce contact poisons?
- What plants have fast-growing, extensive root systems?

6. SILVICULTURISTS

- Seed germination rates and survival for naturally generated vegetation
- Life cycle patterns of natural vegetation

- Shade-forming capacity (i.e. deciduous versus evergreen)
- Leaf size of natural vegetation

7. MINING ENGINEERS

- What plants can be used for erosion control
- What will grow on my "waste tip"?
- Will my waste kill plants growing downstream?
- Where should I look for rare plants at the start of my project so I can site my mine?

8. RARE AND ENDANGERED SPECIES AGENTS

- What is rare?
- When can I hope to find a variety?
- Does a variety prefer a particular association?
- Are names reliable/controversial?
- From how many locations is taxon reported?

9. FARMERS

- Identity of pasture weeds
- Toxic plants in pasture
- What plants can be hedged or cropped?
- Anything rare on my property?
- What plants can I use to control slough bank erosion?
- Grazing tolerance
- Prediction of plants in field during fallow season

10. ENVIRONMENTAL LAWYERS

- How controversial is the name?
- What are the common names?
- Could my client be expected to know endangered status of this plant?
- How easy is it to recognise this plant?

11. FERTILIZER MANUFACTURERS

- Species tolerance of particular nutrients
- Large-scale soil maps with associated species
- Prevailing weed species in sales area

12. REAL ESTATE APPRAISERS

- Identity of cultivated plants
- Life history time scales for selected plants
- Value of any native plants in cultivation
- Weeds present

13. LAND USE MANAGERS

- Species tolerance to grazing, trampling
- Rare plants known or likely to be present
- Prediction of species change in time and with use

14. MUNICIPAL AND REGIONAL PLANNERS

- Species suitable for planting, i.e., tolerant of proposed use
- Species identification in very local "refuge" sites
- Plants suitable for reclamation use (on garbage dumps, etc.)
- Weed identity, especially noxious species

15. AGRICULTURAL CONSULTANTS AND EXTENSION AGENTS

- Weeds present in area
- Correlative lists of plants, animals, and pathogens of both cultivated and weedy species

16. WEED AND PEST CONTROLLERS

- Plants that may actively compete
- Natural controlling species
- Host/food plants for pests
- Soil preference or lack of it for weeds, valuable plants



- Herbicide/pesticide effects

17. RECREATION MANAGERS AND PLANNERS

- Use-tough species (“kid-proof”)
- Potentially harmful weeds
- Visually compatible plants
- Identification of common weeds
- Native species suitable for planting

18. SPORTS FIELD AND GREENS KEEPERS

- Strongly sod-forming grasses
- Mowable species
- Naturally low-growing grasses
- Weed identity

19. RIGHT-OF-WAY ENGINEERS

- Weed species identity
- Rare plant occurrence
- Marker species for soil types
- Species tolerance of any proposed management practices (e.g., fire)

20. FLOOD CONTROL ENGINEERS

- Rare plants in locale
- Soil water tolerance
- Which plants will be damaged by drying or wetting caused when I change flow at a given time of year?

21. WATERWAY MANAGERS

- What are seasonal growth patterns for weeds, e.g. water hyacinth?
- What species are useful to support bank structures?
- What plants in a watershed generate toxic exudates?
- What species have fast-holding leaves (won't clog up the flow?)

22. LANDSCAPE ARCHITECTS

- What is the mature habit and “form” of a species
- What can be transplanted?
- What plants have attractive foliage
- What, if any, are the hazards of a species?

23. ARCHITECTS

- How fast does a plant grow?
- How tolerant of water stress is a plant?
- How many and which native trees are spring-flowering

24. FOOD QUALITY CONTROLLERS

- What is this plant bit?
- Are there any toxic natural chemicals in this plant?

25. POSTAL SERVICES

- Which plants are allergenic?
- When are they allergenic?
- What plants are contact-irritative?
- How can we tell if this plant / plant part is from a species whose transport is illegal?

26. CUSTOMS OFFICIALS, BORDER AND OTHER ENFORCEMENT AGENCIES

- How can I identify illegal plants? (quick method)
- What hazards exist from plants (contact irritants, irritants, allergens)?
- What are legally accepted names?

27. PLANT BREEDERS

- What is the extent of character variation?
- What taxa are in cultivation?

- What taxa are closely related to cultivated form (e.g., same chromosome number)?
- What characters are known to have a clear genetic basis (Mendelian-type inheritance)?
- What are known pests and pathogens?
- What is breeding system?
- When is flowering time?
- What is compatibility biology?

28. POISON CONTROL CENTERS

- What is this plant? —with either very few bits or a verbal (emotionally deformed) account
- What non-poisonous plants are like it?
- Is it poisonous and how poisonous?
- Is there a treatment?

29. PLANT PATHOLOGISTS

- What are host plants for my pathogen?
- Are there any related, non-susceptible hosts?
- What are intermediate host's known relatives?
- Are these symptoms known in other taxa (e.g., galls)?

30. CIVIL ENGINEERS

- Are there species that will tell me about the soil properties?
- What plans can I expect to find as a result of my project?
- What species will be good soil stabilizers?

31. ANIMAL FEED COMPANIES

- What is digestibility of shoot material?
- Any irritating structures (thorns, trichomes, etc.)?
- Any toxic or allergenic component?

32. SEED LABORATORIES

- What is the correct name?
- How do we identify or characterise seeds of new introductions?
- Where are natural sources of seeds?
- How do we identify seeds of wild species?

33. SEED COMPANIES

- What is the season for seed germination?
- What is the viability time limit?
- What, if any, is the intraspecific variation in seed production or performance?
- Is seed clean when produced (i.e., free of fruit material)?

34. NURSERYMEN

- Weed seedling identity (native plant)
- Transplant survival
- Flowering form (size, longevity)

35. TOXICOLOGISTS

- Is plant poisonous? What parts?
- Chemical composition data
- What are non-poisonous plants that may lead to confusion?

36. INTERIOR DESIGNERS

- Drought tolerance
- Low light tolerance
- Pests
- Contact irritation

37. DERMATOLOGISTS

- Allergenic properties present
- Contact properties present
- Phototoxic properties present





38. ILLUSTRATORS

- What are visible “key” characters?
- What is average form, shape, colour?
- What plants would be found growing with it?
- What are the forms of co-existing plants?
- What animals favour it for food?
- What animals would you not expect?

39. HEALTH AND INDUSTRY

- Edible and inedible parts
- How can I best preserve for market?
- Any side effects from consumption?
- Nutritive constituents
- Potential quality-reducing agents or special handling requirements (e.g., store in light versus dark)

40. OUTDOOR ENTHUSIASTS

- Workable keys to local flora that fit in back pocket
- What are the local plants with antidote value?
- What parts of what plants are edible?

41. USERS OF NATURAL DYES, CRAFTSPEOPLE

- What natural dye pigments occur in the flora?
- What local plants contain dye pigments?
- When is best collecting time?
- What local plants have fiber or weaving potential?

42. FORENSIC SCIENTISTS

- Identification from minimal or damaged samples
- Toxic information on plants
- What time or day, year is flower open?
- Does plant rot quickly?
- Pollen identification

43. ELEMENTARY TEACHERS

- Common name, local taxonomy
- Toxic plants and antidote plants
- Rare plants
- Simple propagation information
- Seed germinability
- All I need to plan a field trip for 20 children

44. SECONDARY TEACHERS

- List of local plants of interest and why
- Suggestion of good local study
- Poison/antidote
- Reproductive biology
- Good examples of the idea of “key”
- How can I make botany interesting for unwilling students?

45. UNDERGRADUATE TEACHERS

- What are the fundamental premises upon which the Flora of North America and Floras are build?
- Doorways to academic floristics

46. ADULT EDUCATION

- See # 43
- What are native plants? (Both a list and definition)
- What does the Flora of North America mean to John O. Doe?
- My interest is _____. How can I use a Flora?

{MORIN, N.R., WHETSTONE, R.D., WILKEN, D., TOMLINSON, K.L. 1988. *Floristics For The 21st Century*. Proceedings of the workshop sponsored by the American Society of Plant Taxonomists and the Flora of North America Project. Alexandria, Virginia.}

The relevance of Herbaria and Taxonomic Work in southern Africa

On less than two percent of the global land surface, the southern African sub-continent possesses no less than 30 000 different plant species—12% of the world's total. This is the richest centre of plant biodiversity for its size on the globe.

- Southern Africa (Fig. 7), not only contains over 30 000 species of flowering plants and ferns, but also the whole of one of the world's six floristic kingdoms, the Cape Floristic Kingdom (CFR) (Smith, G.F., Willis, C.K. & Mössmer, M. 1999).
- Endemism levels are high: for example, 80% of the species and 29% of the genera of the FSA region (Botswana, Lesotho, Namibia, South Africa and Swaziland) are endemic to this region. Eleven plant families (Achariaceae, Bruniaceae, Geissolomataceae, Greyiaceae, Grubbiaceae, Lanariaceae, Penaeaceae, Retziaceae, Rynchocalycaceae, Roridulaceae and Stilbaceae) are endemic to southern Africa. The centres of diversity of five families that are endemic to Africa (Eriospermaceae, Heteropyxidaceae, Melianthaceae, Myrothamnaceae and Oliniaceae) also lie within the borders of southern Africa (Smith, G.F., Willis, C.K. & Mössmer, M. 1999).
 - Species/area ratios are exceptionally high. In the FSA region, for example, the value is 0.0081 species/km². This value is much higher than those recorded for humid tropical floras such as Brazil (0.0044) and Asia (0.0041) (Smith, G.F., Willis, C.K. & Mössmer, M. 1999).
 - Roughly half of the world's known succulents are contained within the arid and semi-arid ecosystems of southern Africa.
- Seventeen centres of plant diversity (as identified by the WWF/IUCN), as well as several RAMSAR and World Heritage Sites, also lie within the borders of southern Africa.
- The region's coastal and inland natural landscapes are important drawcards for southern Africa's rapidly expanding and extremely lucrative eco-tourism industry.
- The region has provided many of the plant species, such as gladiolus, pelargonium and Barberton daisy (*Gerbera*) that contribute substantially to the multi-million Rand cut-flower and horticulture industry in Western Europe and North America.

South Africa is the only country in the world to have an entire floral kingdom (the Cape Floral Kingdom) falling within its borders.



Fig 8. Map of southern Africa showing the countries that participate in the SABONET project.

Workshop Proceedings

The Workshop for Stakeholders and End-Users of Botanical Information and Herbaria

The first National Workshop for End-Users of Botanical Information and Herbaria was held at the National Herbarium in Pretoria, South Africa, from 6 February to 8 February 2002. Prof. Gideon Smith (NBI) hosted and facilitated the workshop. The workshop was organised by the SABONET Regional Office, and was attended by 34 stakeholders and end-users. The stakeholders included agricultural institutions, botanical societies, conservation agencies, environmental consultants, ethnobotanists, traditional healers, tour operators, universities and several others. A complete list of participants and their affiliations is included in this section.

Ten Information & Service Requirements were identified, discussed, and prioritised during the

workshop. The five most important requirements are (in order of descending importance and priority):

1. An annually updated list of recommended, annotated current plant names.
2. Correct, up-to-date, standardised, "added-value" species lists.
3. The development and implementation of a web-based Integrated Botanical Information System.
4. The expansion of current herbarium collections by organised and coordinated collection trips to under-collected areas, and the targeting of under-collected taxa.
5. The maintenance and improvement of a plant identification service, not only by the National Herbarium, but also by smaller herbaria where ex-

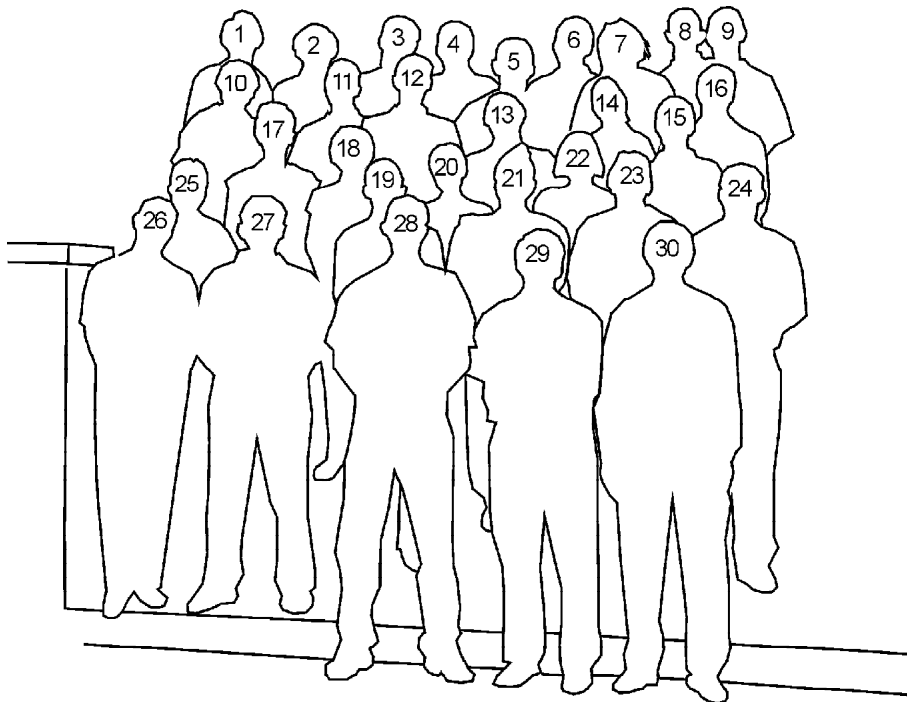
pertise might reside.

Other requirements (or areas for action) that were identified, include the training of taxonomists, curators and data-capturers, a centralised, widely accessible library system, including a frequently updated list of new literature to be distributed to smaller herbaria, and an herbarium management plan.

The attendees agreed that although funding was necessary for many of the issues identified during the workshop, a spirit of cooperation between the various stakeholders and some re-engineering of existing facilities would go a long way towards attaining the goals listed above.



Group Photograph



1. Prof. Braam van Wyk, 2. Prof. Ben-Erik van Wyk, 3. Dr Bob Scholes, 4. Mr Gerrit Germishuizen, 5. Mr John Burrows, 6. Dr Connal Eardly, 7. Dr Elliot Ndlovu, 8. Mr Graham Deall, 9. Dr Neil Crouch, 10. Dr Ansie Dippenaar-Schoeman, 11. Prof. Kevin Balkwill, 12. Dr Matt Buys, 13. Ms Marinda Koekemoer, 14. Ms Janice Golding, 15. Mr Pieter Winter, 16. Mr Christopher Willis, 17. Ms Sonnette Krynauw, 18. Ms Michelle Pfab, 19. Prof. Gideon Smith, 20. Ms Michelle Harck, 21. Ms Priscilla Burgoyne, 22. Ms Lyn Fish, 23. Ms Almie van den Berg, 24. Dr Stefan Siebert, 25. Ms Yolande Steenkamp, 26. Dr Hugo Bezuidenhout, 27. Dr Ziets Zietsman, 28. Mr Barend Erasmus, 29. Dr Coert Geldenhuis, 30. Dr Marthinus Horak.

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Background to the Workshop

The Mid-term Review of the SABONET project looked at what had already been achieved and how SABONET would best meet its remaining goals before the end of the project. Forty-two recommendations were made, one of which was that National End-User Workshops be held to look at the needs of the users of botanical (and specifically taxonomic) information. It was realised that a series of national workshops for stakeholders and end-users of botanical information would be the best way to address user needs in the future. End-user workshops form an integral part of an exit strategy of a regional project and could contribute to the development of future regional initiatives.

End-user workshops are necessary to ensure that botanical institutions are relevant to their stakeholders' needs and that they, at least in part, cater for those that in one way or another finance their continued existence—e.g. government, international donor funds etc. At the end of such an end-user workshop, the botanical institution should have:

- (a) a clearer idea of what the stakeholders actually want in terms of service and information,
- (b) an idea of what needs to be done to improve its service to satisfy these wants and needs, and
- (c) informed and satisfied end-users

It was decided that regional syntheses—possibly in the form of regional workshops—should follow on the national workshops. These syntheses should determine, at a regional level:

- (a) who the major users of botanical information are,
- (b) what sort of information they require,
- (c) in what format they require this information,
- (d) how any future botanical project could address these issues at national or regional level,
- (e) whether any future botanical project should be regional or national, and
- (f) what the financial and human implications of such a project would be.

The Mid-term Review Process recommended that funds be made available under the remainder of the current SABONET project to carry out a national workshop in each participating country. These workshops should be comprised, at minimum, of representatives of the following stakeholders and end-users:

- (a) Herbarium staff
- (b) National Biodiversity Focal Point
- (c) Ministry of Environment (or similar)
- (d) Government / parastatal conservation agencies (National Parks, Forestry, etc.)
- (e) University botany / forestry departments (teaching and research)

- (f) Persons carrying out vegetation surveys or ecological assessments
- (g) International conservation NGOs (WWF, IUCN, etc.)
- (h) National conservation NGOs (wildlife societies, etc.)
- (i) Environmental consultants / consulting companies
- (j) Traditional plant users
- (k) Organisations concerned with botany (Tree Society, Botanical Society, etc.)
- (l) Amateur botanists, visitors to gardens (Friends of Gardens, etc.)

The output from these workshops should be a brief but clear indication of:


- (a) users of botanical information
- (b) botanical information required by each user group
- (c) format in which the information is required
- (d) priorities

It was further recommended that every national workshop be followed by a synthesis of the information gathered. The synthesis should be aimed at:

- (a) determining what, at a national level, the major botanical information requirements are, and
- (b) how these could usefully be addressed and carried out at a regional level

{adapted from Timberlake & Paton (2001)}





The **OBJECTIVES** and **OUTPUTS** of the Workshop for the Stakeholders and End- Users of Botanical Information and Herbaria

1. Gain clarity on the **functions** and **activities** of herbaria.
2. Compile a **comprehensive list** of the **users** of information generated by herbaria.
3. Determine the nature of the botanical **information needed** by user-groups.
4. Establish the **format** in which this **information** is required.
5. Set **priorities** and **quantify the costs** associated with providing the desired information to user groups.
6. Compile a **final report** that can act as a guide to achieve these objectives.



Workshop Programme and Forms used at the Workshop



Workshop Programme



WORKSHOP for STAKEHOLDERS and END-USERS of BOTANICAL INFORMATION and HERBARIA

6–8 February 2002

Venue: Pretoria National Herbarium Lecture Hall

Outline Programme:

TIME	6 FEBRUARY	7 FEBRUARY	8 FEBRUARY
08:30 to 10:00	Delegates arrive	Introduction Discussion in groups (cont.): <i>Functions and Users of Herbaria</i> Feedback from groups	Introduction Discussion in groups: <i>Priorities and Quantifying the Costs</i>
10:30	Tea	Tea & Group Photograph	Tea
11:00 to 13:00	Welcome Setting the scene: <i>Taxonomy in the 21st century</i> <i>A training herbarium</i> <i>The National Herbarium</i>	Introduction Discussion in groups: <i>Information and Service Requirements</i>	Discussion in groups (cont.): <i>Priorities and Quantifying the Costs</i> Feedback from groups Consolidation
13:00	Lunch	Lunch	Lunch
14:00 to 15:00	Setting the scene (cont.): <i>A conservation herbarium</i> <i>A private herbarium</i>	Discussion in groups: <i>Information and Service Requirements</i>	Delegates depart
15:00	Tea	Tea	
15:30 to 17:00	Format of the Workshop Discussion in groups: <i>Functions and Users of Herbaria</i>	Discussion in groups: <i>Information and Service Requirements</i> Feedback from groups	
18:00	Dinner at Tea Garden	Dinner at Restaurant	

Detailed Programme:

TIME	WEDNESDAY, 6 FEBRUARY 2002	
08:30–10:00	Delegates arrive	
10:00–11:00	Tea	Venue: Tea Garden
11:00–11:15	Welcome	<i>Dr Stefan Siebert</i>
	SETTING THE SCENE:	
11:15–12:00	Taxonomy in the 21 st century	<i>Prof. Gideon Smith</i>
12:00–12:30	A Training Herbarium	<i>Prof. Braam van Wyk</i>
12:30–13:00	The National Herbarium	<i>Ms Marinda Koekemoer</i>
13:00–14:00	Lunch	Venue: Tea Garden
	SETTING THE SCENE (CONT.):	
14:00–14:30	A Conservation Herbarium	<i>Ms Sonnette Krynauw</i>
14:30–15:00	A Private Herbarium	<i>Mr John Burrows</i>
15:00–15:30	Tea	Venue: Tea Garden
15:30–15:40	Format of Workshop	<i>Prof. Gideon Smith</i>
15:40–15:50	Election of chairpersons	
15:50–16:00	Establish break-away groups	
16:00–17:00	DISCUSSION IN GROUPS: <i>Functions and Users of Herbaria</i>	
18:00	Dinner	Venue: Tea Garden

TIME	THURSDAY, 7 FEBRUARY 2002	
08:30–08:40	Introduction	<i>Prof. Gideon Smith</i>
08:40–09:30	DISCUSSION IN GROUPS (CONT.): <i>Functions and Users of Herbaria</i>	
09:30–10:00	Feedback from groups	
10:00	Submission of written summaries	
10:00–10:30	Tea & Group Photograph	Venue: Tea Garden
10:30–10:40	Introduction	<i>Prof. Gideon Smith</i>
10:40–13:00	DISCUSSION IN GROUPS: <i>Information and Service Requirements</i>	
13:00–14:00	Lunch	Venue: Tea Garden
14:00–15:00	DISCUSSION IN GROUPS (CONT.): <i>Information and Service Requirements</i>	
15:00–15:30	Tea	Venue: Tea Garden
15:30–16:30	DISCUSSION IN GROUPS (CONT.): <i>Information and Service Requirements</i>	
16:30–17:00	Feedback from groups	
17:00	Submission of written summaries	
18:00	Dinner	Venue: Restaurant