

DRAFT REPORT

Global Strategy for Plant Conservation

Stakeholder consultation on:

Target 1: A widely accessible working list of known plant species, as a step towards a complete world flora

Facilitated by the Royal Botanic Gardens, Kew, at the request of the CBD Secretariat

Introduction

1. A working list of known plant species is essential for biodiversity management. It is an inventory of resources and a means of organising information in a logical and retrievable way. It also helps prevent duplication of effort and accidental oversight when planning conservation action. The name of a plant is the key to information about its uses, conservation status, relationships and place within ecosystems. The accepted name is a unique identifier for species without which it is impossible to plan the sustainable use of plants, essential resources for food, medicines, and ecosystem services. There is thus a very broad constituency of potential users of a global plant checklist.
2. As the key to basic information on plant diversity, an accessible working list of the accepted names of known plant species is necessary for implementing and monitoring progress of actions recommended under many of the Thematic Programmes and Cross-Cutting Issues of the CBD (see UNEP/CBD/COP/6/INF/21/App2). It is impossible to manage and monitor plant diversity if an inventory of plant resources does not exist. For example, for mountains, SBSTTA VIII/7 states, “biological inventories of mountain ecosystems are lacking for most developing countries, and therefore the current understanding of the status of the biological diversity of mountain ecosystems is still limited”; for Forest Biodiversity, “taxonomic studies and inventories at the national level provide for a basic assessment of forest biological diversity”, (Decision IV/7). The implementation of several of the Articles of the Convention on Biological Diversity (CBD), particularly Articles 6 (General Measures for Conservation and Sustainable Use), 7 (Identification and Monitoring), 8 (In-situ Conservation), 10 (Sustainable Use) & 17 (Exchange of Information) depends on knowing the correct names for plants and using them and their synonyms to access the relevant information.
3. A working list of the accepted names of known plant species is an important step in implementing the Global Taxonomy Initiative (GTI). Such a list directly addresses four of the five operational objectives of the GTI work plan (Decision VI/8).

Operational objective 2 - Provide focus to help build and maintain the systems and infrastructure needed to obtain, collate and curate the biological specimens that are the basis for taxonomic knowledge.

Operational objective 3 - Facilitate an improved and effective infrastructure/system for access to taxonomic information; with priority on

ensuring countries of origin gain access to information concerning elements of their biodiversity.

Operational objective 4 - Within the major thematic work programmes of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components.

Operational objective 5 - Within the work on cross-cutting issues of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components

4. In the absence of a working list of the accepted names of known plant species, completing or even measuring progress towards the other 15 targets of the Global Strategy for Plant Conservation strategy is extremely difficult or impossible. Target 2, “to measure and achieve a preliminary assessment of the conservation status of all known plant species”, can be tackled on the basis of current knowledge but a comprehensive assessment cannot be achieved without a backbone list of those species to be assessed. Likewise, Target 7, “to conserve 60 percent of the world’s threatened species *in situ*”, and Target 8, “to conserve 60 percent of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10 percent of them included in recovery and restoration programs”, also depend on having a Checklist of accepted names as a robust baseline. Concerted action is needed to produce the Checklist quickly to facilitate progress with the other, more applied targets in the strategy, all of which are focused on the year 2010.
5. This document represents the outcome of a stakeholder consultation over the period July to September 2003, facilitated by the Royal Botanic Gardens, Kew, at the invitation of the Secretariat of the Convention on Biological Diversity. Participating stakeholders are listed in Annex 1.
6. The stakeholder consultation report does not attempt a comprehensive review of the many initiatives and achievements in this area over the past decade. Rather, the report adheres closely to the terms of reference prepared by the CBD Secretariat, the chief aim being to make recommendations which facilitate the measurement of progress towards Target 1. The recommendations pertain to: clarifying the scope of the target; establishing baselines; establishing sub-targets, milestones and indicators of progress towards the target over time. Also addressed are the desirability of a flexible co-ordination mechanism and recommendations relating to cross-cutting targets (3, 14, 15 and 16).

Part 1 Clarification of the scope of the target.

7. The strategy addresses the Plant Kingdom with focus on vascular plants (flowering plants and ferns) and Bryophytes (mosses and allies). It excludes algae, lichens and fungi with the proviso that parties may choose on a national basis to include lower taxa (COP Decision VI/9).
8. The aim is to produce a working list which represents a summary of current knowledge. This list will be more definitive for some groups than for others, reflecting different levels of understanding. For all groups, the list will continue to be enhanced as new species are discovered and understanding of plant diversity

develops. The list of accepted names will reflect a consensus view wherever this is possible. However, where differences in taxonomic opinion cannot be resolved, a pragmatic decision must be taken in order to provide a unique identifier for each species recognised. As species can have several names, it is important that the accepted name is established and linked to other names for the same species (synonyms), so that all information pertaining to one species can be found. Thus users searching the list for a name not listed as accepted will still be able to find the appropriate species and the associated information

9. Important initiatives are underway to provide lists of accepted names for some of these groups not currently included in the main focus of the GSPC. In particular, considerable progress has been made on producing a working list for algae (www.algaebase.org). **Stakeholders recommend that the importance of algae be recognised within the remit of Target 1 and that a completion date for a list of algae be discussed at subsequent stakeholder meetings. Parties may consider the inclusion of algae in national targets where possible.**
10. The past decade has seen much international discussion on the minimum elements required for a working list of known plant species (TDWG, IOPI, Species 2000, GBIF-see *Final Report of the GBIF Scientific and Technical Group (STAG) Workshop on An Electronic Catalogue of Names of Known Organisms Sydney, Australia, 2002*). Most recent initiatives treat the following core data as essential:
 - (a) Accepted Name (including reference citation)
 - (b) Synonyms (including reference citation) with link to Accepted Name
 - (c) Latest Taxonomic Scrutiny (the name of the taxonomist who last scrutinised the species record, and the date).
 - (d) Geographic Distribution by country (includes reference citation)
 - (e) Source (acknowledgement of the provider(s) of the data)**Stakeholders recommend that these data are included. Other possible additional data elements may be considered for inclusion in the global working list in the light of an analysis of how the list will support and underpin the completion of the other targets.**
11. More detailed geographic distribution data (underpinned by literature and/or specimen citations where possible) are considered essential by some stakeholder groups and optional by others. Some stakeholders emphasised the need to underpin geographic distribution statements with verifiable literature or specimen records. It was also noted that detailed geographic data would be essential for progress on Target 2.
12. Common names were considered important by some stakeholders, but many were concerned that the complexities of handling such information would divert time and resources from the gathering of the essential data specified in 10 above.
13. Life form was considered by some stakeholders to be important additional information and should be included if it can be compiled easily.
14. A global working list of accepted names is needed for two main classes of use - as a resource in its own right, and as an indexing tool for referencing, searching, locating and accessing other information (see also GBIF STAG report 2002 as cited above). Both of these functions are increasingly realised through electronic means on the Internet. **Stakeholders recommend that the list should be an electronic product available on the Internet, free at the point of access for non-commercial users. To ensure maximum accessibility, especially in**

developing countries, the list should also be available in other digital and non-digital forms (e.g. CD-ROMs, hard copy of subsets of data).

15. In compiling a global working list of the accepted names of known plant species the approach should maximise consensus and make use of and acknowledge existing datasets, data standards and infrastructures for dissemination such as the Global Biodiversity Information Facility (GBIF), Species 2000/ITIS consortium, International Organisation for Plant Information (IOPI), Clearing House Mechanism and other national and regional initiatives.
16. While the production of a working list is a worthwhile and challenging target, it must be understood that it is simply a first step in documenting plant diversity and not the final chapter for global taxonomic work. Even when a comprehensive list is in place, much work will remain to be done on completing the inventory of all plant species on earth, and improving understanding of their origin, relationships, status and potential uses. Thus the production of the working list must be seen within the context of a broader taxonomic enterprise ranging from 'pure' to applied aspects and including training and capacity building (see GTI, Decision VI/8). The Species Plantarum Programme goes some way towards addressing these broader needs, by means of a World Flora.

Part II Availability of baseline data and the need for co-ordination

17. Of the estimated 280,000-425,000 species of vascular plants and 25,000 species of bryophytes, global lists of accepted names are known to exist for c. 110,000 species, 25-40% of the total. However, fewer than 50% of these records are widely accessible in published form, the others being stored as individual or institutional databases. Species 2000 holds an unpublished metadatabase summarising much of this information. **Stakeholders recommend that the metadatabase on accepted name lists be updated and made widely accessible by April 2004 (Species 2000/ITIS; ECAT-GBIF).**
18. The majority of the baseline data available has been prepared on a national or regional rather than a global basis. Regional baselines exist for some areas e.g. *Euro + Med Checklist*, *List of East African Plants*, *Vascular Plants of Russia and adjacent countries*, *Moss Flora of Central America*. There are significant gaps in coverage of biodiverse tropical areas. Large Flora projects such as *Flora Neotropica*, *Flora Malesiana*, *Flora Zambesiaca*, *Flora of Tropical East Africa*, *Flore de Madagascar et des Comores*, and *Flora Mesoamericana* and large botanical institutes with a regional or global outlook are important mechanisms for stimulating the production of regional checklists.
19. At national level, comprehensive accepted name checklists are available for some countries, for example, Catalogue of the Flowering Plants and Gymnosperms of Peru, Catalogue of the Vascular Plants of Ecuador, Checklist of the Plants of the Guianas, Flora of China, A Catalogue of the Vascular Plants of Malaya, Flore de Senegal, Flora de Hepaticas e Antoceros do Brasil. The Southern African Botanical Diversity Network (SABONET) has stimulated national and regional checklists within Southern Africa. National botanical institutes play an important role in producing national checklists.
20. The following provides a source of baseline data on the status of national and regional plant inventories: Frodin, D.G. (2001). *Guide to standard floras of the world : an annotated, geographically arranged systematic bibliography of the*

principal floras, enumerations, checklists and chorological atlases of different areas. Cambridge University Press.

21. Such national and regional checklists are an important resource providing information of great value for the compilation of a global working list of the accepted names of known plant species.
22. A global approach is essential because many of the challenges associated with developing a working list of the accepted names of known plant species cross national and regional boundaries and can only be addressed within a global context. These include: broadening access to literature and expertise, resolving problems of species delimitation over the whole range of the species in question, and clarifying differences in species delimitation and nomenclature used between different countries and regions.
23. A global working list of the accepted names of known plant species will in turn greatly facilitate the production and refinement of regional and national lists. Additional information relevant to particular ecosystems or countries can be added to those regional and national lists.
24. Organisations such as IOPI, the ECAT programme (electronic Catalogue of Names of Known Organisms) of GBIF and the Species 2000/ITIS consortium have become important sources for an overview of activity in these areas and are well placed to identify key taxonomic and geographic gaps in coverage. However, active co-ordination of checklisting activities is limited and *ad hoc* at present, and is likely to remain so in the absence of secure funding for data compilation and maintenance. **Stakeholders recommend that a meeting be convened in mid-2004 to (i) agree a flexible co-ordination mechanism for the achievement of Target 1 which reflects a consensus view; (ii) identify gaps in coverage, possible funding sources and targets to address them; and (iii) address issues of ownership and maintenance of data, learning from the experiences of established initiatives.**

Part III Sub-targets, milestones and relevant indicators

25. As a working list of the accepted names of known plant species is necessary to achieve or monitor progress towards several of the Targets of the GSPC (para. 4), and will greatly facilitate the production of national and regional lists, it is important that this target is substantially completed well ahead of the 2010 deadline. **Given the dependencies of other targets on the availability of a working list, stakeholders recommend the completion of Target 1 by 2008. In the interim, access to draft checklists still undergoing revision should be encouraged as they will help facilitate progress towards other targets.**
26. The existing rate of work to produce a global working list of the accepted names of known plant species needs to be increased. Recent experience indicates that a single compiler can treat c. 7,000 accepted names with their synonyms per year. Since up to 325,000 accepted names remain to be treated, funding for ten compilers over five years would ensure that the raw data could be assembled in a timely fashion. **Stakeholders recommend that all Parties, Governments, international and national organisations, and other relevant bodies and institutions support measures to increase the rate of production of draft working lists of plant species, at all appropriate levels.**

27. The more complex task of taxonomic reviewing and refining of the draft checklists ensures the quality and utility of the working list. This is an ongoing process which depends on the taxonomic expertise and training of a large body of specialists world-wide. Given sufficient funding and access to taxonomic expertise, significant portions of the checklist could undergo taxonomic quality checking and upgrading by the 2010 deadline. However, it must be understood that additions and corrections to the working list will continue to be made to reflect changes and improvements in understanding of plant diversity.
Stakeholders recommend that specialist study visits and workshops to refine draft checklists are actively supported and funded. Networks have an important role to play in facilitating exchange of knowledge and expertise (see 34 below).
28. The production of regional checklists should be undertaken where possible and supported by relevant funding bodies. For example, *Euro + Med Checklist* aims to provide a working list of all known European plant species by 2004. Plans are underway to produce a neotropical plant species checklist. Plant groups endemic to a particular region may be particularly suitable targets for regional checklist initiatives since they can feed directly into the global list.
29. **Stakeholders recommend that National Biodiversity Strategies and Action Plans should address the need for national checklists of accepted plant names and the taxonomic capacity necessary to produce and maintain them. Parties may consider reporting on progress of national checklists of accepted plant names as part of the CBD reporting process as a contribution towards the achievement of Target 1.**
30. Progress on checklist production at national, regional and global level is severely constrained by funding. Funding for adding content to databases has been particularly problematic, especially at global level. Recent opportunities in this area include GBIF's ECAT programme. New York Botanical Garden, Missouri Botanical Garden and Royal Botanic Gardens, Kew have formed a consortium to seek funding for an international collaborative venture to produce a global checklist with additional conservation information for selected species.
31. Following the proposed international meeting in mid-2004 (see under 21 above), the International Botanical Congress in 2005 will provide an opportunity for reviewing progress towards Target 1. By this date, a global working list of the accepted names of known plant species should be at least 50% complete, and there should be demonstrable progress to address gaps identified in 2004. Furthermore, a funded action plan should be in place to fill remaining gaps in coverage, if the 2010 targets are to be met.
32. **By 2008 also, stakeholders recommend agreement on an ongoing maintenance programme designed to ensure that the working list continues to represent a consensus view of plant diversity and can continue to be updated and refined.**

Part IV Relationship and cross-sectoral relevance of the target to the achievement of other targets, and in particular the GSPC cross-cutting targets 3, 14, 15 and 16.

33. The accepted name of a plant is the key to information about that plant. Without a list of accepted names linked to synonymy it is difficult to communicate clearly the importance of a particular species in sustainable use or to conservation.
34. Production of national, regional and global checklists requires a stable infrastructure of collections and access to taxonomic resources and expertise as outlined in the GTI .
35. A global checklist can only be produced through consensus, sharing of expertise and collection information. Networks such as the BIONET loops, SABONET and the planned BOZONET will provide important mechanisms for ensuring broad participation in the target, facilitating access to taxonomic expertise and collections necessary to support checklist production. **Stakeholders recommend ongoing support for existing networks, and the creation of new networks, where appropriate, to increase access to key taxonomic resources such as types.**
36. Capacity building in biodiverse countries is not only necessary to complete national, regional and global checklists, but vital if such checklists are to be updated and used as the basis for monitoring CBD implementation (UNEP/CBD/COP/6/INF/21/App2). **Stakeholders recommend that Parties may wish to consider reporting on whether they have access to the taxonomic capacity necessary to produce national checklists. This will help identify areas where there may be particular challenges in achieving Target 1 and where capacity building and networking is particularly required**
37. **Stakeholders recommend that case studies demonstrating the value of checklists for conservation and sustainable use be disseminated via the Clearing House Mechanism and networks such as BIONET International.**

Part V Recommendations, proposals and suggested timetable for action

i. Action by Parties

38. Parties may consider providing support for national checklists, including the necessary capacity building in taxonomic infrastructure. **Stakeholders recommend that all Parties, Governments, international and national organisations, and other relevant bodies and institutions support measures to increase the rate of production of draft working lists of plant species, at all appropriate levels. These measures should include building taxonomic capacity to levels where national checklist production and updating is possible.**
39. Parties may consider making national checklists of known plant species, including summary of where knowledge is insufficient, available on the Web (including the Clearing House Mechanism), as CD-ROM and/or printed versions by 2005.
40. Parties may consider support of collaborations and networks to provide regional checklists and to contribute to global efforts.
41. Parties may identify in-country taxonomic expertise which could usefully be applied at global, regional and national levels to compile, refine or review relevant sections of the working list. Parties may also highlight priorities for training and capacity building and to identify gaps in coverage and resources.

ii. Actions by international/regional agencies charged with biodiversity conservation

42. Seek funding to support the achievement of Target 1.
43. Disseminate current and updated progress on Target 1, including current activity, percentage completion, status of gaps in coverage. Stakeholders recommend that the metadatabase on accepted name lists be updated and published by April 2004 (Species 2000/ITIS; ECAT-GBIF). Stakeholders further recommend that a meeting be convened in mid-2004 to (i) agree a flexible co-ordination mechanism which reflects a consensus view and (ii) identify gaps in coverage and appropriate funding targets to address them.
44. Present report on progress towards Target 1 at an appropriate symposium during the International Botanical Congress 2005. The aim is for 50% completion by 2005, and demonstrable progress to address the gaps previously identified in 2004.
45. Encourage networking to maximise collaboration in pursuit of Target 1.

iii. Actions by International NGOs

46. Encourage networking to maximise collaboration in pursuit of Target 1.
47. Where possible help lever funding for achievement of Target 1.
48. Where possible include opportunities for workshops and other meetings on the achievement of Target 1 in relevant international meetings.

iv. Actions in relation to regional initiatives for plant conservation

49. Seek funding for completion of regional checklists
50. Encourage networking to maximise collaboration in pursuit of Target 1.

v. Action by CBD

51. COP 7 may wish to consider instructing the financial mechanism to support the funding of national, regional and global initiatives to achieve Target 1 as a means to support other aspects of the GSPC, prioritising allocation of funding in order to achieve the subtargets listed within the designated time-frame.
52. COP7 may consider including a report on the status of national checklists as part of the structure of the country reports.
53. Clearing House Mechanism should consider providing internet links to the ECAT programme (electronic Catalogue of Names of Known Organisms) of GBIF, to record progress towards completion of, and provide links to datasets contributing to, Target 1.