Report (Minutes) on the 3rd Meeting of the Council of the World Flora Online (WFO)
Wednesday and Thursday 28-29 January, 2015
Conservatoire et Jardin botaniques de la Ville de Genève, Geneva Switzerland

Host: Dr Pierre André Loizeau, Director, Conservatoire et Jardin botaniques de la Ville de Genève

Chair: Dr Peter Wyse Jackson, President, Missouri Botanical Garden/Chair GPPC)

Participants: See Annex 1

1.0   INTRODUCTION

The representative of the host institution, Dr Pierre André Loizeau (Geneva), welcomed participants and introduced the staff of the Conservatoire et Jardin botaniques de la Ville de Genève. He also asked that the Swiss Federation, the Swiss Government and the City of Geneva be recognized for their generous support for the WFO meeting. Pierre Andrè was recognized for his efforts in organizing the meetings in Geneva. Dmitry Geltman (St Petersburg) was recognized as the host of the previous meeting in June, 2014.   As Chairman of the World Flora Online Council, Dr Peter Wyse Jackson then thanked the City of Geneva and the Swiss Government and the Swiss Federation, and welcomed the participants to the meeting.

The Chair introduced the meeting with a brief overview of a recent side event on the World Flora Online (WFO) held at the Conference of the Parties (COP) to the Convention on Biological Diversity, in South Korea. The speakers at the side event had been several members of the Council - Peter Wyse Jackson (Missouri), Maïté Delmas (Paris), Saw Len Guan (Malaysia), Ma Keping (Beijing) and the Executive Secretary of the Convention, Braulio F. de Souza Dias. The WFO received a significant endorsement by the COP that the WFO is recognized as the global project to achieve Target 1.

1.1 Adoption of Documents

The draft agenda was adopted, leaving room for additions/modifications as and when needed. All were in favour, none in opposition.

The draft minutes from the meeting in St Petersburg were adopted. All were in favour, none in opposition.

1.2 Apologies

Apologies were received from the following Council members who were not able to attend the meeting: Keping Ma, Wang Lisong, Parajmit Singh (Observer), De Zhu Li, and Fernando Zuloaga.

2.0   WORKING GROUP PRESENTATION SUMMARIES

2.1   Governance Working Group

Presenter: Dr. Peter Wyse Jackson, USA

RESOURCE MOBILIZATION: The Chairman asked that the Council defer discussion on resource mobilization until later in the meeting. He showed a page on the WFO website that shows the current signatories of the MOU.

PENDING MEMBERS: The discussion on pending members or members that have showed interest in signing was deferred to the Taxonomic Working Group report, but it was noted that the Botanical Survey of India and IAPT have expressed interest in joining the WFO Council.

COMMUNICATIONS STRATEGY: When discussing a draft communications strategy, Council members were reminded that the WFO logos had been distributed late in 2014. A suggestion was made to send all logo formats to the Consortium members. An overview of the WFO Information Website (www.worldfloraonline.org) was given by Chuck Miller (Missouri). The suggestion was made by Mark Watson (Edinburgh) to make the fonts consistent on the website. The WFO Twitter and Facebook pages were reviewed and Richelle Weihe (Missouri) gave a brief overview of the use of social media to promote the project and asked for Council members to utilize the pages for distributing information, news, and other items of interest. Missouri Botanical Garden will continue to monitor and manage the social media pages.

SERVER PROPOSAL FROM NYBG: Wayt Thomas (NYBG) presented to the group a proposal to utilize the funding in hand of US$100,000 "credits" from Google to utilize their cloud services to host the WFO portal. Melissa Tulig (NYBG) added that Google Cloud services had been reviewed by the Technical Working Group and were deemed adequate for hosting the WFO portal. She noted that the Google credits would be available indefinitely, but that the US$100,000 credits will last approximately 5 years. Google has indicated that they will likely continue with additional credits once the $100,000 are expended. Eduardo Dalcin (Rio de Janeiro) agreed that it is good to have the WFO on a neutral site/host. Walter Berendsohn was supportive of the funding from Google, but wanted to stress that it is important that when the site goes public, that the WFO is "hosted" by Google, and not related to their search data collection service. Barbara Thiers (NYBG) stated that there was no requirement for the Google name to be attached to the project and that they understood that it was for hosting only. The Chairman stated that in his view the connection to Google is positive and may be helpful when seeking other funding. Nancy Morin (Flora of North America Association) suggested that Google should be approached to help promote the WFO project, and Mark Watson suggested that International Biodiversity Day may be a great day for Google to promote the project.

The Council moved to adopt the recommendation to adopt the offer from Google and the Chairman thanked the New York Botanical Garden for their work toward securing an agreement with Google.

PORTAL DEVELOPMENT: A proposal from the Chair on the development and adoption of a WFO portal was discussed, and the two alternative prototypes presented in St Petersburg were reviewed. It was noted that no conclusion was made at the St Petersburg meeting regarding the adoption of a portal. After the meeting in St Petersburg, the Chairman had held discussions with Richard Deverell, Director of the Royal Botanic Gardens, Kew about the potential use of eMonocot software to become the basis for the public portal. Richard Deverell stated that Kew would be pleased to provide this software for the development of a public portal based on eMonocot, and that he agreed that the public portal could be hosted on a neutral server (i.e. a server not belonging to any one of the Consortium members). David Simpson (Kew) added that eMonocot was also prepared with contributions from the Natural History Museum (London) and Oxford University. The offer from Kew is for the WFO Consortium to use the eMonocot software and manage the WFO portal in any way that it wishes. He stated and stressed that the Royal Botanic Gardens Kew is not in a position to help with maintenance of the portal of the eMonocot software, as developed for the purposes of the WFO public portal. Therefore it is for the WFO Council to decide how to move forward.

The Chairman stated that he and the WFO were extremely grateful to Kew for its generous offer to provide the eMonocot for this purpose. This will be a very important contribution for the international community and toward the achievement of Target 1.

It was noted that the Taxonomic and Technology Working Groups will report on their discussion about the adoption of eMonocot as the basis for the WFO public portal. Informal discussion on the use of eMonocot was noted to be encouraging at that stage of the meeting but that a formal vote on its adoption was deferred until later in the meeting.

2.2   Technical Working Group Report

Presenter: Chuck Miller, Missouri Botanical Garden, USA

Chuck Miller reported on the work of the Technical Working Group since the last WFO meeting in St Petersburg in June 2014. He reported that three conference calls and one meeting had taken place since June 2014, to discuss continuing technical work arising from decisions at the St Petersburg meeting. These items include: Implementation of the WFO information website, technical architecture blueprint, taxonomic backbone management requirements, systems requirements and concepts, and data export format definition. He reported that the English language Information Website is now online, and includes relevant Twitter feeds and links. Other languages are to be added in due course and a translation table is to be created and used to obtain translations. Two conference calls and a meeting in Sweden have been held concerning the technical architecture blueprint. No additional work has been completed regarding the remaining items.

Chuck then outlined the Kew portal prototype presented in St Petersburg in comparison with the components which would be needed for a WFO portal and then compared those

components also with the eMonocot system. He then discussed existing or potential gaps in the eMonocot system. He suggested a "workaround" approach to addressing possible gaps in what features the eMonocot software could provide. Examples of possible 'gaps' included that there would not be a 'specialists' website and also a 'how to contribute to the WFO'" section of the portal. Chuck then reviewed the components of a WFO portal that, in the opinion of the Technical Working Group, would be needed or useful, but were not included in eMonocot.

The summary use cases not included in eMonocot are:
- Storage and viewing of content provider classifications
- Taxonomic review/advice of quality/reliability of data sources
- Taxonomic Backbone creation and management
- Data ingestion preparation tools (however GBIF can provide these)
- Deeper levels of faceted searches and queries using WFO data elements
- Extended bespoke data exports
- Statistics generation
- Machine to Machine interaction (APIs)

The core data fields not included in eMonocot are:
- acceptedNameUsage
    - But acceptedNameUsageID is included
- verbatimDistribution
    - Alternative to use GBIF Distribution extension
- sourceCitation
    - Alternative, use DwC bibliographicCitation
- verbatimElevation
- created
- modified

The extended data fields not included in eMonocot are:
- ipniID, bryoID
- taxonomicStatusReference
- nomenclaturalNote
- originalNameUsage
- originalNameUsageID
- typification
- verbatimDistributionSource
- minimumElevationinMeters
- maximumElevationinMeters
- verbatimSpecimentList
- sourcePageURL
- sourceStartPage, sourceEndPage
- rightsHolder

Discussion focused on the need for the development of additional software to address the missing use cases. However, it was considered that such additions and add-ons could be considered subsequent to the development of a 1st phase WFO public portal.

Chuck then discussed the resources that in the opinion of the Technical Working Group would be needed to get a WFO portal in place, based upon the eMonocot software platform:

	Resources Estimated
Code migration and deployment of eMonocot at Google	1 week- 1 month Programmer/Sys Admin
User interface re-design for WFO	4-6 weeks Graphic Designer, Programmer
WFO Backbone Addition	Jan-Oct 2015: Load TPL V1.1 dataset After Oct 2015: Technical: TBD Taxonomic: TBD
WFO Content Addition & Coordination	10-15 FTEs for 5 years Data Coordinator
System administration support • System • Data	2.5 – 3 days/month for 5 years System Administrator
Additional Software Development	2 FTEs for 5 years Programmer

The following were the Recommendations of the Technical Working Group that were being brought to the Council for a decision:

Recommendation 1: **Accept the Kew offer**
– eMonocot platform, as-is
– Portal and Harvester only

Recommendation 2: **Accept the Google offer**
– $100K credit for Google Cloud Services

Recommendation 3: **Deployment of the eMonocot platform at Google**
– Change the design and style of user interface to WFO brand
– Remainder of eMonocot platform initially remains unchanged

Recommendation 4: **Add early content from willing MOU partners**
– Install a WFO Backbone initially on the new WFO platform, based on the most recent version of The Plant List
– Document list of content data sources
– Do easiest content, least issues first

Recommendation 5: **Start fundraising quickly**

Recommendation 6: Do Additional Software Development for Missing Use Cases, After October
• Create missing functions
• Missing data fields

- Editing taxonomic backbone data capability

Recommendation 7: Install IPT Content Hosting Environment
- To run IPT for those who don't have resources for their own IPT

Next steps:

The following schedule and next steps/continuing work were proposed by the Technical Working Group:

Future Schedule	
Obtain Resources	April 2015

Complete the Migration of eMonocot to Google
    Programmer/Sys Admin – 2 months
    Graphic Designer – 1 month
	June 2015

Add data content from easiest data Sources
    e.g.: 1 vol from Flora China, Flora Neotropica, Flora Nepal based on DwCA & IPT
    Programmer – 1 Day/Wk for 3.5 months
    Sys Admin – 3 Days/Month for 3.5 months
	October 2015

Beyond October, 2015
   – Add additional data content, partners – Data Coordinators
   – Develop additional functionality - Programmers
   – Substantial resources are needed	

Chuck Miller then outlined the need for offers to help with the portal. He asked if any WFO partners can offer in-house support to accomplish work needed before the Rio meeting. He suggested considering an ad hoc working group to investigate the feasibility of getting resources by April, and said that the Council should consider a fundraising subgroup to investigate getting long-term financial support. Markus Doring (GBIF) had stated that the Help Desk at GBIF can assist with data files and it is presumed that this would be offered as "in kind" support. It was then discussed that NYBG can assist with Google account setup as "in kind" support.

Walter Berendsohn (Berlin-Dahlem) thanked Chuck Miller for his work on the Technical Working Group summary. Nancy Morin asked how eMonocot would be modified for the WFO, and Abigail Barker (Kew) explained that fundraising would have to take place for work on eMonocot modifications. A copy of eMonocot software is being given for WFO use. It will continue to be used by Kew too for its own purposes and it is recognized that as developed at Kew, and for the WFO portal, the software will not remain identical.

DISCUSSION OF TECHNICAL WORKING GROUP RECOMMENDATIONS:

Recommendation1: Accept the Kew Offer
The Chairman made a formal proposal to accept the Kew offer to use the eMonocot software as the software platform for the WFO portal. All were in favour, none in opposition. Dr. Wyse Jackson thanked Kew and noted that the project is now in a great position to move forward successfully.
Recommendation 1: ADOPTED

Recommendation 2: Accept Google Offer
The Chairman made a formal proposal to accept the offer from Google. All were in favour, none in opposition. There were some concerns expressed that at some point Google could say free access is over, and that countries that do not have Google access may not be able to access the portal, but the NYBG representatives present reassured the meeting that these things do not look to be an issue per discussions with Google. The Chair thanked NYBG for their help and for their ongoing assistance. It was decided that NYBG would administer and manage the link with the Google company going forward.
Recommendation 2: ADOPTED

Recommendation 3: Deployment of the eMonocot platform at Google
The Chairman made a formal proposal that this recommendation be accepted; noting that it essentially joins the first two recommendations. Eduardo Dalcin offered technical help of 4 days per month FTE to help to revise the user interface to the WFO brand. A proposal was made to accept Eduardo's offer, and it was accepted. Chuck Miller, on behalf of the Missouri Botanical Garden, offered technical assistance to collaborate with Eduardo and provide graphic design work. That offer was also accepted. A recommendation was made to keep eMonocot as is and unchanged until absolutely necessary.
Recommendation 3: ADOPTED

Recommendation 4: Add early content from willing MOU partners

The Chairman proposed the adoption of recommendation four, and proposed that there should be an internal test between now and the October meeting. He stated that October would be time for setting some real targets for the public portal and it will be useful to have it available online by October to help attract funders, etc. Adding early content from willing MOU partners will involve several components. The initial taxonomic backbone will be the latest version of The Plant List and everyone agreed that The Plant List will be used as the taxonomic backbone until at least the next meeting in October 2015. Abigail Barker noted that taxonomic expert groups will be told that the next time the backbone will be updated will be October 2015. She stated that a quick win in terms of data available was that anything matching up to The Plant List until October could be used. Chuck stated that a comprehensive backbone was needed to put in data that is available and ready to go. The Chairman stated that the aim at this point is to have The Plant List used unaltered. The Chairman would like to see exemplar data coming in by next meeting and asked Council members to volunteer to provide data. He also asked that the Taxonomic Working Group agree to have some work done for the WFO/eMonocot platform and that some demonstration data be included. They agreed. Melissa Tulig noted that all work is a test of

the system at this point, and that it's not feasible to state that all information will have been entered by October.

All were in favour of recommendation 4, none in opposition.

Recommendation 4: ADOPTED

Recommendation 5: Start fundraising quickly

Walter Berendsohn stated that he might have the possibility to get funding from the German Environmental Agency – he asked for permission to approach them for funding. Approved.

The Chairman asked to have a fundraising brainstorming session later in the meeting. This was agreeable to all participants.

2.3 Taxonomic Working Group

Presenter: David Simpson, Royal Botanic Gardens, Kew, United Kingdom

General Recommendations:

Recommendation 1: The Taxonomic Working Group is the connecting link to the contributing specialist networks. Abigail Barker stated that it is very important that the Taxonomic Working Group must communicate with the Technical Working Group, and that it is important to manage expectations when sending letters to specialists and expert networks, meaning that contributions and recognitions must be spelled out. The Chairman offered to write letters to specialists and specialist groups (based on the suggestions of the Taxonomic Working Group) and the Secretariat will help with the communications and tracking. All were in favour of recommendation 1, none in opposition.

Recommendation 1: ADOPTED

Recommendation 2: The Taxonomic Working Group will identify and recommend expert networks and individuals that may be approached to contribute to the WFO. All were in favour of recommendation 2, none in opposition.

Recommendation 2: ADOPTED

Recommendation 3: The guidelines for contributors, as agreed by the Taxonomic Working Group and the memo on technical requirements, as worked out by the Technical Working Group will be distributed by the Taxonomic Working Group. The Taxonomic Working Group was asked to work further on the guidelines for contributors and add/modify it based upon the results of this week's meeting. They were asked to define the following: contributing to the backbone, descriptive data, and how the quality of data will be judged. Barbara Thiers suggested that the Taxonomic Working Group be mindful of community perception when defining the benefits to contributors. Jim Miller (Missouri) stated that attribution can't be determined until the portal is ready. Wayt Thomas suggested that the benefit to each type of user should be described. The Chairman suggested that we may need a letter to establish guidelines for attributions at all levels. Erik Smets (Naturalis) asked if publication would be a benefit, and Mark Watson stated that the use case process has looked at attribution but no decisions have been made. All were in favour of recommendation 3, none in opposition.

Recommendation 3: ADOPTED

Recommendation 4: The Taxonomic Working Group will be responsible for the scientific scrutiny of the contribution of the networks/individuals invited to monitor, manage or review taxa for the WFO. It was proposed by the Chairman that this recommendation not be put to a vote and that a new recommendation will be developed later. No vote on adoption taken.

Recommendation 5: The Taxonomic Working Group will coordinate modifications to the taxonomic backbone of the WFO (using the existing Plant List as the starting point) and will be the taxonomic backbone authority of the WFO. All were in favour of recommendation 5, none in opposition.
Recommendation 5: ADOPTED

Recommendation regarding exemplar taxonomic groups as a next milestone (not adopted by the Taxonomic Working Group, milestone only):

Information was compiled by the participants on what existing taxonomic networks are already developing or implementing taxonomic information sources electronically. Such existing networks will be invited to adopt "their" taxonomic slice and coordinate the work for incorporation into the WFO or to help review other data sets.. The first networks invited will be exemplar groups expected to deliver content as quickly as possible to maintain the momentum of the WFO.

Recommendation regarding milestones and deliverables (not adopted by the Taxonomic Working Group, milestone only):
Milestones to be achieved by the next Council meeting, October 2015:
- Public portal, based on eMonocot, live with exemplar data;
- Existing WFO Consortium members would be encouraged to provide some exemplar data sets to populate the first (pre- the October meeting) phase of the public portal;
- Network invitation terms to be determined;
- Invitations would be sent to identified networks;
- Positive responses received would be recorded, representing networks committed to contributing in a timely manner;
- Revised guidelines for contributors would be prepared, informed on the basis of feedback from first contributions;
- The Taxonomic Working Group will hold a conference call meeting every two months.

Recommendation on data service from The Plant List: The backbone data from The Plant List should be made available to taxonomic expert networks in an electronic form to facilitate their work.
ADOPTED

Recommendation on communications strategy: Initiate a stakeholder dialogue between the WFO science community and wider user groups.
ADOPTED

Recommendation: Emphasize the importance of broader communities of WFO by members to wider stakeholder communities.
ADOPTED

Recommendation on inclusion of non-digitized taxonomic accounts: Council members are encouraged to identify non-digitized taxonomic accounts and other resources for possible inclusion in the WFO – the list of these resources will be maintained by the Taxonomic Working Group.
ADOPTED

Mark Watson suggested that expert networks should have three roles: 1) Managing the taxonomic backbone; 2) reviewing contributions, and 3) providing descriptive content. He asked if the Taxonomic Working Group was also looking at involving floristic experts in the project, in addition to taxonomic experts. The Council members were in agreement that they were keen on involving such experts. Chuck Miller stated that a contributor's guide may not be sufficient to achieve required goals, and asked about quality checking. He stated that there is no tool that allows for the review of data sets before ingestion. He suggested that if something needs to be reviewed or resolved before it is submitted, that there needs to be a technique developed. Wayt Thomas stated that specialists have a role in helping with quality control of a description. The Chairman suggested that the project will have the ability to utilize output from Scratchpads, and this was confirmed by Abigail Barker. Walter Berendsohn suggested that there could be two alternative cases with regard to quality control: 1) stamped "fully reviewed" or "non-reviewed" or 2) networks should be established to do review. Chuck Miller asked the Taxonomic Working Group members how they felt about the WFO being mostly based on regional floras and not on taxonomic revisions. The members of the Working Group agreed that they were fine with that. Chuck then asked if regional flora data needed to be reviewed before they went online. It was agreed that this was neither feasible nor necessary and that users of the WFO could make their own judgment on data quality. Mark Watson suggested that geographic scope could be used, and Wayt Thomas stated that information coming in will have been edited and reviewed. David Simpson stated that he didn't want the work of the Taxonomic Working Group to get hung up on technical questions. Walter Berendsohn suggests that the networks invited to participate should also be invited to sort out things that aren't right.

Pierre Andre Loizeau stated that the Conservatoire et Jardin Botanique de Geneve was now working on development of a management program for taxonomy and would like to offer the system to the WFO as an open source program. The Chairman thanked him for his offer and stated that the Taxonomic and Technical Working Groups would need to review the program to see how it would be most useful. Pierre Andre stated that the program would be available in March 2015, and that the program will be open source, so things that are done for the Geneva garden would also be useful to the WFO. Chuck Miller suggested that Pierre Andre's program could be put on the Google server and used as a WFO service.

3.0   Presentation on WFO Data Collection

Presenter: Paul Smock, Missouri Botanical Garden, USA

Paul Smock discussed the current markup tool that had been developed by the Missouri Botanical Garden and then discussed the replacement process to convert to the ABBYY OCR Engine. The replacement process will harness the power of the ABBYY OCR Engine to ingest and process scanned formats of floristic publications. It will present the content in a user friendly, easy-to-use markup tool. It will save the captured data and images to a database and then export the captured data to Darwin Core Archive format so that it can be uploaded to the WFO portal or any flora database management system. Paul then discussed the features of the ABBYY Fine Reader Application Program Interface (API). The ABBY Fine Reader API is a comprehensive set of interactive and batch APIs that will give the project the leverage to extract data and embedded images from scanned flora publication pages. ABBYY provides support for over 200 languages. ABBYY has the ability to learn patterns and save profiles to aid in processing of publication pages to gain more accurate results. ABBYY has the ability to use custom dictionaries when processing images to aid in accuracy of extracted text and also has the ability to collect and analyze recognition statistics.

Paul then demonstrated the new extraction tool and pointed out the following advantages: The new tool is much easier to read because it preserves formatting of the document and looks more like the original publication. It also has the ability to tag images that are to be extracted and cataloged. Users have full control over markup tags and their colour. The new tool provides a side by side view of original uploaded page images for comparison and also archives the original image in order to preserve authenticity, as well as a visual aid.

Finally, the tool extracts data to the Darwin Core Archive Format. The new tool currently supports the following Text Tags: Family, Genus, Species, Sup Specific, PPub – Place of Publication, Ref – Reference, Synonym, Key, Description, Habitat, Spec Text – Specimen Text, Dist – Distribution, Native, Elevation – Elevation Range, Note, Common – Common Name, and Contributor. It also supports the following Image Tags: Photo, Herb Spec – Herbarium Specimen, and Line – Line Drawing.

Paul then discussed the upcoming work that he intends to complete on the new tool. Metadata will be published and page numbered, and it will give the user the ability to correct/alter text. Administration features that are forthcoming are a custom dictionary builder and user administration. Data parsing and data validation and data export services are also expected to be complete. With regard to workflow, status tracking controlling tasks that can be completed within the workflow, signoff and approval for publication, and email notifications of modifications and/or status changes to publications will be forthcoming as well as OCR quality and measures statistics.

The discussion of Paul's presentation followed, and Walter Berendsohn asked if there was a possibility to feed a natively electronic product, and the answer was yes, a PDF or Zip of all images could be used and this would help address error correction. Walter then asked where the set of terms for the markup are coming from. The terms came from Tropicos and all links are database driven. Walter asked if there is a possibility for an XML format for the document. Paul stated yes, and Walter then suggested a format where there can be automatic tagging, which will allow for more precision. Chuck Miller then stated that the "learning" component of the tool will allow for precise tagging/markup. Eduardo Dalcin

congratulated Paul on the impressive work on the tool, and feels that the project will likely go after "low hanging fruit" or digital data, and wondered if there was a timeframe for the tool to be available for digital and analogical data. The Chairman then said that he would like to know when the tool will be available and to whom, and that he feels that citizen science may be useful to utilize it – for example volunteers might be recruited to complete the markup of various families and publications. He stated that the Taxonomic Working Group has a list of printed documents that they'd like to use as a start and wondered when it would be available. Paul is hopeful that it will be available by the Rio meeting. Abigail Barker then asked where the tool would be housed, citing that it cannot be housed on the Google server. Paul said he had thought about approaching Microsoft or Amazon for server space, and Chuck Miller followed up stating that the idea is that the markup tool could be used in a distributive way. Walter Berendsohn stated that crowd sourcing might be the best way to move forward without complications. The Chairman asked how long a flora might take to mark up, hypothetically, the Flora of Panama. Paul and Chuck stated that Bob Magill (of the Missouri Botanical Garden) should be asked this point in order to obtain a benchmark for future such work (since he has extensive experience in leading a mark-up of the Flora of Panama). Erik Smets noted that a learning curve will help things go faster as time goes on. The Chairman stated that the information regarding the markup tool and other efforts for markup would be useful to have on the WFO website and that a user forum would also be helpful. Chuck Miller suggested that a "related activities" tab be developed for the website. Barbara Thiers suggested to Paul that the iDigBio program at NSF may be a good resource to help with his work.

4.0   Discussion of a potential list of WFO Taxonomic Specialists

Presenter: David Simpson, Royal Botanic Gardens, Kew, U.K.

David stated that a list of specialists with suggestions for people to approach has been developed by the Taxonomic Working Group. Chuck Miller asked what the expectations for deliverables were for the WFO and what was being asked of them. Jim Miller (Missouri) replied that content was the goal. Chuck asked if the specialists were going to be asked to provide a Darwin Core Archive file, and Jim Miller responded that the data will come via various formats and will have to be converted. Chuck noted that the information will only be useful if it can be converted into Darwin Core. The Chairman said that those on the list would be of mixed abilities, resources and experience. The Taxonomic Working Group will need to work out terms for their contributions. Chuck suggested that a "data partner" needed to be set up to help various people who might struggle with the technology requirement. Abigail Barker and Walter Berendsohn suggested that organisations that had signed the MOU as members of the Consortium could act as mentors for other potential data providers. Barbara Thiers stated that NYBG has received dedicated funding to take publications for ingestion into the WFO. They will be working on the Flora Neotropica monographs - a rough estimate of 4,000 electronic descriptions and a further 8,000 in Flora Neotropica. NYBG will be using this opportunity to get staff to send their images for ingestion as well. Barbara stated that she may have a better sense about work rates at the Rio meeting. Chuck inquired about data markup, and Barbara stated that they are cleaning up the formatting, and that the aim is to have them be as clean as they can be. Three staff members are dedicated to this project. Wayt Thomas noted that this technology is being

used on the memoir series as well. Paul Smock asked if they had glossaries, etc. that they were using, and Barbara stated she would be happy to share them with him.

5.0   Fundraising and Resource Strategies for the WFO

Discussion led by Dr. Peter Wyse Jackson, Missouri Botanical Garden, USA

Two approaches to fundraising for the WFO were discussed: 1) Collective applications and 2) Individual approaches. It was discussed that perhaps some members of the Council could determine if the WFO could piggyback onto existing taxonomic projects. It was suggested that the EU institutions may decide to form a consortium and look for collective funding – Erik Smets offered to speak to his science chair and look at possibilities for funding. It was determined that the U.S. institutions could have opportunities with some of the larger U.S. based foundations, and that promoting the WFO as a grassroots effort with a publicly available database would be beneficial. Barbara Thiers stated that Google was drawn to the WFO project because it will provide data that is expertly curated. U.S. institutions should also look to the National Science Foundation for funding because they have focused very heavily on digitization in the past. It was discussed that because this project is promoting global capacity building, that it may be helpful to have a clear introductory paper/paragraph to help raise awareness of the project amongst various donor agencies and potential funders. The paper should also document institutional experiences up to this point, outlining what in-kind contributions had also been made – this may be helpful to interest potential funders. Abigail Barker suggested that a short brief description of the project and funding received to date was needed to take to institutions and ask for funding. The Chairman suggested it and it was decided that a subcommittee was needed for funding matters, and also to be responsible for the development of a short (2 page) paper for marketing the project. The committee will consist of the Chairman, Barbara Thiers, and David Simpson.

Mark Watson inquired about approaching the CBD for funding. The Chairman stated that any funding for the GSPC from the CBD support mechanisms would be likely only to support and build capacity within developing countries, perhaps to help build and use the WFO. Karol Marhold stated that his proposal to the GBF was rejected because it had been too global. The Chairman stated that he would speak to the CBD Secretariat to determine if contributions to the WFO could be considered as "voluntary" contributions to the CBD from governments. Eduardo stated that he believed the Brazil Ministry of Science and Technology would be very interested in the project, specifically the digitization aspect. He said that funding for the WFO would enable him to work on the Flora of Brazil. Wayt Thomas asked if members of the Brazilian Science Ministry would be attending the meetings held in Rio in October, and Eduardo said it all depended on the agenda, but he believed someone would attend. Victoria Sosa stated that she will determine if any initiatives of the upcoming CBD Conference of the Parties in Mexico are being used in support of the CBD. The Chairman suggested that the Consortium might also explore whether funding for the WFO could be available from the Chinese government.

6.0   Intellectual Property Rights

Presenter: Chuck Miller, Missouri Botanical Garden, USA

Chuck Miller began the discussion about intellectual property rights, stating that the issue had been carried over from the St Petersburg meeting. The first question discussed was whether data or images with restrictions on re-use could be accepted by the WFO. Software must be written to capture the restrictions and omit restricted data or images from export. CC0 (Creative Commons, "No Rights Reserved") or public domain would enable unrestricted export and a much simpler software, but some institutions will not provide CC0. It needs to be decided if the project should exclude non-CC0 data. Currently in eMonocot, there are guidelines for intellectual property rights in each entry, with a disclaimer on the site stating that users should only use entries per the directions/rights indicated. However the WFO cannot use a "non-derivative" clause because information from the project could not be used to help achieve other GSPC targets. Ideally the WFO project would be CC0, or without restrictions, but it needs to be decided the procedure for when someone passes along information that has a more restrictive license. It was discussed that a group may need to be established to monitor attribution. The definition of "open access" was discussed, and Eduardo Dalcin stated that open access means free to access, regardless of any restrictions placed by the provider. The Chairman suggested that the easiest solution would be to adopt eMonocot's current intellectual property policy and process.

The Chairman proposed the Council adopt and use the current intellectual property rights process within eMonocot, but to continue to monitor any changes, and be sure to alert any data providers if there are changes.
THE PROPOSAL WAS APPROVED, BUT COUNCIL MEMBERS WERE ASKED TO ADDRESS ANY ISSUES QUICKLY AS THEY MAY ARISE.

7.0   Consortium Membership

Presenter: Dr. Peter Wyse Jackson, Missouri Botanical Garden USA

In its meeting earlier in the week, the Taxonomic Working Group had discussed the current membership of the Consortium, and had held a brainstorming session on other institutions that might be approached to become members. The following suggestions were made:

Potential Partner	Responsible for making contact
Flora Malesiana	Erik Smets
International Association for Plant Taxonomy	Karol Marhold
Botanical Survey of India	Paramjit Singh
Mexico	Victoria Sosa
National Botanic Garden, Belgium	Erik Smits suggested that the WFO Chairman reach out to the new director
Flora Nordica	Dmitry Geltman
Encyclopedia of Life	Chuck Miller
Flora of Japan	No responsible contact identified
Flora of Thailand	David Simpson
Columbia (Von Humbolt or Institute of Science at the National University)	Wayt Thomas
InBio, Costa Rica	The WFO Chairman

Consortium of European Taxonomic Facilities (CETAF)	Erik Smets
Association for the Taxonomic Study of the Flora of Tropical Africa (AETFAT)	David Simpson
Forest Research Institute Malaysia	Saw Leng Guan
Indonesia	Erik Smets
Ethiopia	The Chairman
Korea – newly created institute	Dmitry Geltman/Jim Miller
Natural Museum of History, London	Abigail Barker
Copenhagen	No responsible contact identified
Helsinki	Dmitry Geltman
Stockholm	No responsible contact identified
Australia	The WFO Chairman will contact Judy West to see if additional organisations/institutions from Australia should be invited to join
Cuba	Carlos Sanchez/Wayt Thomas

Erik Smets suggested that in the future two lists should be made – one for institutions and one for flora projects / organisations. It was also mentioned that the project should look into inviting group oriented networks – and look specifically at those who are organized enough to be members of the consortium.

8.0   Next Meetings and Opportunities to Promote the WFO Project

The Chairman restated that it continues to be helpful for the Council to meet every 6-8 months. Eduardo Dalcin has offered to host the next meeting in Rio de Janeiro in October 2015. The tentative dates for the meeting are 19-24 October. The tentative itinerary will be: Monday – Tuesday: Working Group Meetings, Wednesday Morning: Symposium, Wednesday Afternoon: Council meeting begins, Thursday – Friday morning: Council Meetings.

Barbara Thiers and Wayt Thomas again stated that the New York Botanical Garden would like to host the Spring 2016 meeting, and the tentative time would be in the last week of April, and would coincide with the 125th anniversary year of the Garden.

ADOPTED: Tentative Program Schedule:

Fall 2015   Rio de Janeiro
Spring 2016   New York
Fall 2016   Cape Town (proposed)
Summer 2016   China (proposed)

Other key opportunities to promote WFO:

European Botanic Garden Meetings – Maïté Delmas

Botanical Society of America (BSA) – Canada – July 2015

Systematics Association – Oxford – David Simpson

9.0   Elections

Following discussions, the Chairman, Peter Wyse Jackson, stated that he would be willing to continue as Chair of the WFO. Wayt Thomas proposed for Peter Wyse Jackson to continue / Colin Pendry (Edinburgh) seconded the proposal. The proposal was adopted.

David Simpson stated that he was willing to continue as co-Chair of the Taxonomic Working Group, with Thomas Borsch (Berlin-Dahlem). All were in favour.

Chuck Miller stated that he was willing to continue as Chair of the Technical Working Group. All were in favour.

Eduardo Dalcin proposed that Mark Watson become co-Chair the Technical Working Group. All were in favour.

Missouri Botanical Garden will continue to provide secretariat support of the Consortium.

Abigail Barker suggested that nominations for chair/co-chair positions be requested in advance of the meeting.

10.0   Conclusion

The Chairman reiterated the thanks of the Council to the hosts, Conservatoire et Jardin botaniques de la Ville de Genève, Geneva Switzerland and the Swiss Government and in particular thanked Pierre Andrè Loizeau, Veronique Besse, and their staff for all they had done to support the meeting and make it a great success.

MEETING ADJOURNED

ANNEX 1
World Flora Online
January, 2015 Geneva
Attendee List

Azerbaijan National Academy of Sciences – Institute of Botany
AZERBAIJAN
     Aida Dadashova

Botanischer Garten und Botanisches Museum Berlin-Dahlem, Zentraleinrichtung der Freien Universität Berlin
GERMANY
     Walter Berendsohn
     Thomas Borsch

Conservatoire et Jardin botaniques de la Ville de Genève
SWITZERLAND
     Pierre-Andre Loizeau

Flora of North America Association
UNITED STATES OF AMERICA
     Nancy Morin

Global Biodiversity Information Facility
DENMARK
     Markus Doring

Instituto de Ecolologia
MEXICO
     Victoria Sosa

Instituto de Pesquisas Jardim Botânico do Rio de Janeiro
BRAZIL
     Eduardo Dalcin

Komarov Botanical Institute
RUSSIA
     Dmitry Geltman

Missouri Botanical Garden
UNITED STATES OF AMERICA
Chuck Miller
Jim Miller
Paul Smock
William Ulate
Richelle Weihe
Diane Wyse Jackson
Peter Wyse Jackson

Muséum National d'Histoire Naturelle
FRANCE
Maite Delmas
Thomas Haevermans

Naturalis Biodiversity Center
NETHERLANDS
Erik Smets

New York Botanical Garden
UNITED STATES OF AMERICA
Barbara Thiers
Wayt Thomas
Melissa Tulig

Royal Botanic Garden Edinburgh
UNITED KINGDOM
Colin Pendry
Mark Watson

Royal Botanic Gardens, Kew
UNITED KINGDOM
Abigail Barker
David Simpson

Slovak Academy of Sciences – Institute of Botany
SLOVAKIA
Karol Marhold