

EDIT Workpackage 5 – Model 1 Detail

This model depicts the work of a botanist working at the Royal Botanic Gardens at Kew, London. His particular specialism is the Palm family *Arecaceae*, flowering plants largely found in the tropical and sub-tropical regions of the Earth.

The model depicts a particular project, Palms of New Guinea, a wide review and cataloguing of the palms of this region of the world. The project, still ongoing, aims to publish a book and a number of other publications along the way. PoNG is an international, collaborative project involving scientists from Kew and New Guinea and several other countries. The project was initiated in 1998 and has continued since then.

The following table describes the individual steps of the process model in detail.

Swimlane	Project Group	Actions and activities in this swimlane are those undertaken by the whole project group
Action	Determine project colleagues	Those involved in the PoNG project were drawn from those scientists working with this taxon group around the world. The group was formed with counterparts in New Guinea, Australia, Denmark and the USA. In fact the pool to draw from was a relatively small one and the choices here clear to those working in the field. Working on such a project with a renowned institution such as Kew is beneficial to developing countries, and in return Kew receives co-operation and local knowledge. On a project of this duration, collaborators come and go. It is still possible that other names will be brought in as requirements dictate. The process is still open and determined by need.
Action	Set up communication channels	In this case, this involved contacting the various parties by email and phone and setting up a mailing list. No formal kick-off meetings were arranged for the PoNG project.
Action	Assign work-groups of taxa to individual members of staff	Sub-groups are assigned by the existing interests of the collaborating scientists. This covers most of the groups but some still remain unresolved. These will be addressed in the future.
Datasource	Specimen database	An Access database that stores information about Palm specimens the world over, not just limited to those of New Guinea. The specimen database is a multi-purpose resource that has applications outside of the PoNG project. The project collaborators send specimen data to the taxonomist in the form of Excel sheets which he then imports into the database. Equally, project collaborators can request data sets from the taxonomist at any time. The specimen database has inputs into practically all work processes in the project, and is continually updated.
Datasource	Palm Checklist	The Palm checklist was initially created by a fellow taxonomist at Kew. It is limited to the Palm species of New Guinea and is used, amongst other resources, to help the taxonomists ensure that their coverage of the

		countries species is comprehensive. Again, the checklist is a dynamic resource, serving as an input to almost all of the project stages and evolving as the project progresses.
Datasource	past literature	A broad category representing the sum total of previous publications on Palms. It is necessary to include this in the model as the concepts from past literature form part of a taxonomist's thinking as he studies the current sample set. This resource is not added to as the project progresses but influences all of the individual work undertaken.
Swimlane	Individual work	The actions in this swimlane are those undertaken by the taxonomist himself.
Activity	Identify sub-divisions	This pass over the specimen group is more the practical sub-dividing of a large body of work than rigorous scientific analysis. Taxon concepts are only broadly defined at this point.
Action	Gather together work-specimens	Using information found in specimen database, personal knowledge, and the experience gained during this project, identify all available specimens of the work-group and gather together.
Action	Preliminary examination of work-group specimens	Broad examination of specimens. Assisted by his knowledge of previous taxon concepts and an awareness of the broad physical characteristics of the taxon group under study, the taxonomist attempts to divide the total pool of specimens into manageable sub-divisions.
Action	Split off manageable sub-division	Separate out a group of specimens for further study.
Activity	Work on sub-division	This activity is an iterative approach, first broadly examining the specimens looking for fundamental physical trends, then narrowing down the taxon hypothesis with finer observations. Concepts are tested and refined as the iterations proceed.
Action	Examine sub-division specimens	Physical examination of specimens. Measurements are not taken at this stage, more the examination is visual. The taxonomist attempts to take in the broad physical characteristics of the specimen set. Along with existing knowledge, this examination will form the bedrock of the developing species hypotheses.
Action	Develop species hypothesis	Mainly intuitive and based on existing accounts. Actions include sorting specimens, making groups of specimens (the essence of developing a species hypothesis) and examining published taxon concepts. The taxonomist moves on from the broader characters and begins to form ideas about potential species groupings.
Action	Define species hypothesis	Define the hypothesis qualitatively and quantitatively. Make measurements and input them into a datasheet.
Document	Datasheet	The output of the process by which the specimens are

		measured. This document consists of a series of tables recording ranges of measurements and serves as a useful resource when creating the description
Action	Compare definitions	Assess the developing hypothesis against the samples. Does the taxon concept accurately reflect the physical nature of the specimens?
Decision	Is the Hypothesis supported or falsified?	If the hypothesis is judged to be correct, proceed on. If more work is required, loop back to examination
Document	Description template	A template document created by the taxonomist in order to speed and partially automate the process of creating a description.
Action	Prepare description	Write a description of the species, using the description template as a basis.
Document	Description	The final description, compiled from inputting the datasheet information into the description template. This process is not entirely automated however; the template serves as a guide.
Decision	Publish a paper at this point?	After working on a particular group it may be felt that a scientific paper is justified. This can be for many reasons; a topical subject, a new understanding of the group, a desire to have the work recognised.
Activity	Publish paper on interim results	Encompasses all actions involved in the production of a scientific paper
Decision	Are images needed for the paper?	If images are needed, on to commissioning an artist. If not, skip this action.
Action	Prepare taxonomic treatment	Incorporates the description from the "work on sub-division" stage, the taxonomic key, and any comparison tables. Whereas some broad guidelines are followed for the production of the key, it was felt by the expert that any other rules for completing this action derived more from general standards for producing a scientific paper rather than any specific to taxonomy.
Action	Commission artist to produce images	An artist is commissioned to create images for the scientific paper to be published. This process will take place usually under the close supervision of the taxonomist to ensure that all physical details relevant to the taxon hypothesis are represented.
Action	Prepare references and specimen list	Largely completed manually, though the taxonomist may use the End Note application to compile references.
Action	Compile paper	Write a scientific paper for publishing in a journal. Likely to include abstract, introduction, taxonomic treatment (description, taxonomic key, comparison table), also images, a list of all specimens used and a list of references to cited papers.
Action	Submit paper to editorial board	Papers are submitted to the editorial board of the publication in question. Procedures differ between journals but all papers are peer-reviewed by independent and impartial experts. Almost always

		papers require further editing and are returned to the writer for this.
Decision	Paper accepted for publication?	The journal will either accept the paper outright (though this is rare) or return it to the taxonomist along with comments for editing
Decision	Remaining sub-groups?	If there is any work remaining, return to the preliminary examination stage and focus on another group. Proceed onto publication only when all work is complete.
Activity	Gather together output from all work-groups	The collaborators in this book will forward their contributions to the PoNG editors, consisting of that taxonomist and other colleagues. The taxonomist has produced guidelines for the formatting and presentation of this work.
Activity	Compile book and publish	Both this and the previous stage have not been reached yet. I intend to gather information about this in the future.