

EDIT Workpackage 5 – Model 9 Detail

The taxonomist is a botanist working in the Royal Botanic Gardens of Edinburgh and his work currently focuses on the genera Gesneriaceae. This genera cover a wide area of SE Asia and the taxonomist focuses on the region of Thailand.

The taxonomist also has curatorial responsibility for RBGE's collection of these groups, so assesses loan requests and develops the strategy for developing and maintaining the collection. He also serves as editor of the Edinburgh Journal of Botany, teaches, and supervises post-graduate courses. His revisionary work is directed towards the production of a Flora in the longer term, with findings published into scientific papers where appropriate.

His work can be divided as follows:

Editing the EJB	40%
Revisionary work	20%
Field work	10%
Curation	9%
Community science	5%
Funding applications	2%
Floras	1%

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

Event	Starting trigger	The taxonomist's revisionary work focuses on the genus Gesneriaceae in Thailand at present. This work will take some years to complete and will comprise many individual projects and iterations of the revisionary cycle.
Activity	Collection activities	A broad activity describing the organising and undertaking of collecting field-trips.
Action	Arrange permits and practicalities	Permits can be required to conduct a collection and to remove biological material from a region. Flights, accommodation, local guides, transport to site, and all other practicalities are generally organised in advance, and usually by project colleagues working in the region.
Action	Conduct collection	Collecting tends to be of a general nature, rather than limited to a particular taxonomic group
Action	Store & post specimens	Specimens are quickly stored in alcohol after collecting for preservation, then dried back at the institute. Transportation will be by air or sea mail, depending on cost and other factors.
Activity	Select sub-group to work with	Individual projects arise from numerous factors; this institutional focus, the scientist's own interests and the interests of counterparts in Thailand, and the natural direction of research into an area.
Activity	Search Literature	A broad category describing the identification and gathering together of scientific literature.
Action	Compile a checklist of all names in the group	The first step is to identify those species relevant to the group under study. This is done through IPNI, which is considered to provide a comprehensive list

		of names and protologs down to the species level.
Action	Collect all protologs and other relevant literature	This is done through the library office of the RBGE. The taxonomist will forward his request for papers to them, and they will either copy from the library archives or seek out a library that stores it. This action covers the collection of papers in it's entirety. The orders will be passed to the herbarium office who will carry out the request.
Activity	Gather specimens	The sourcing and gathering together of all type specimens on the above checklist, together with other specimens though relevant.
Action	Source specimens from literature	In many cases the location of the type specimen will be cited in the paper describing it. If not, there are a number of other sources: <ul style="list-style-type: none"> - personal knowledge of the field and of the collector who described the specimen - contacting colleagues with a knowledge of the field - contact a likely herbaria and request all specimens known to and suspected to belong to the group under study - visit herbaria wherever possible and examine collections. This can often be combined with travel for other purposes, and can in some cases be necessary; not all specimens will be eligible for loan due to fragility or institutional policy.
Action	Request specific known specimens from institutes	Again, requests are sent to the library office for forwarding to the respective herbaria.
Action	Quarantine specimens	All incoming specimens are quarantined for three days to remove potentially damaging parasites. This is carried out by other RBGE staff.
Activity	Examine specimens	The broad activity of examining and taking measurements from the gathered specimens
Activity	Prepare specimens	The preparation of the specimens for examination. This can involve dissection to reveal internal structures, the preparation of stained and unstained slides, the boiling of specimen parts to restore characters that fade under storage, and others.
Action	First broad examination	Perform a 'first-pass' examination to familiarise with the collected specimens.
Action	Sort specimens into piles	Physically sort the specimens into groups as an aid for examination and study.
Action	Detailed examination	Specimens are examined in detail with the light and stereo microscope
Action	Establish major characters for the group	The important characters for the group are established. That this action occurs relatively late in the chain of examination events is indicative of the iterative nature of the examination. It is a cyclical process, to be repeated a number of times, usually

		with an increasing focus on fine details, until the theory is considered complete.
Action	Record character states directly into PADME	Character states are input directly into the RBGE collections database, PADME, in-house software with a range of functions to assist in the taxonomic process, including the generation of descriptions from character states. Typically, the drafting of the scientific paper will begin now.
Decision	Further analysis?	Is further analysis required
Action	Further analysis	This can include molecular and chemical analysis of the specimens, or SEM examination. Such analyses are not commonly required in this field but they are available.
Action	Assess theory	Step back and assess the taxonomic theory against the specimens.
Decision	Theory complete?	Is the examination and theory complete?
Activity	Apply nomenclatural rules	A broad category representing the application of the rules of nomenclature to the specimen groups.
Action	Resolve type specimens	Type specimens are assigned to each group, according to the rules of the ICBN.
Action	Resolve nomenclature	Nomenclature is resolved for the type specimens in each group.
Activity	Publish paper	Broad activity encompassing all actions that contribute towards the compilation and publication of a scientific paper.
Action	Write manuscript	The taxonomist prepares the constituent parts of the scientific paper.
Action	Prepare taxonomic key	A standard (though not mandatory) section of a taxonomic review, the key serves as an identification aid. As such, it should be based around easily observable characters (avoiding temporary structures such as fruit and flowers can be helpful), and be structured such that identification can be achieved in as few steps as possible. Choosing characters visible by the eye and taking care to divide the species pool as evenly as possible with each step can help achieve this.
Action	Prepare Illustrations	Illustrations are prepared by a local artist.
Action	Prepare taxonomic description	The taxonomic description is prepared
Action	Prepare distribution maps	PADME can produce distribution maps from specimen localities. GIS measurements can be acquired from gazeteers if they are not available.
Action	Prepare	Produce acknowledgements and references

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Action	Friendly review	The taxonomist arranges for colleagues to informally review the paper and pass on any comments they might have.
Action	Revise paper	The paper is revised in the light of editorial comments.
Action	Submit to journal	The manuscript is submitted in accordance with the editorial guidelines of the journal. This is now almost always by email.
Decision	Manuscript reviewed	The submitted manuscript is reviewed by the journals nominated reviewers. The editorial board will then choose from three options: <ul style="list-style-type: none"> – Paper is accepted outright – Paper is accepted subject to a revision – Paper is not accepted
Activity	Curation activities	Mainly, but not exclusively, carried out by the departmental assistant.
Action	Label all specimens and dissected parts	Labels are printed out using PADME, then applied to the specimens
Action	Place specimens in local collection	Labelled specimens are sent to the Herbarium office for permanent storage in the collection.
Action	Return loans and send out duplicates	Depending on the agreement reached with collaborating institutes prior to collecting activities, paratypes or holotypes may be sent to these institutes for storage in their collections. This process can take a long time, but this is not a factor for this activity.
Action	Update collection database	The RGBE collection management database is updated by the taxonomist or a departmental assistant

Notes

Gathering protologs

IPNI is great – dates of publication would make it better though.

The gathering of protologues is probably the most time-consuming step of the revisionary process.

Gathering specimens

The most important new tool the taxonomist can think of would be a central database of all European type specimens.