

EDIT Workpackage 5 – Model 13 Detail

The taxonomist in this case works in the Comenius University of Bratislava. His work at the moment focuses on acarology – the study of mites. This group comprises an estimated 500k -1,000k species, of which approximately 50k have been described. The taxonomist's studies take place in Slovakia and surrounding countries, in particular Romania, the Czech Republic and the Netherlands. The rest of the taxonomist's work is comprised of teaching and curation, in roughly the following amounts:

Research	70%
Teaching	20%
Admin and curation	10%

Because this group is relatively poorly understood, the thrust of the taxonomist's work is the description of new species. At present this is focussed on Slovakia and surrounding countries, but in the longer term a European Fauna of these species can be envisaged.

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

Activity	Select sub-group to work on	The taxonomist enjoys relative freedom in his choice of what group to study at any particular time. He is currently working through the geographical regions of Slovakia in order to produce a body of work covering this country.
Activity	Search Literature	Many of the papers in this field are old, so not only can they be difficult to find it is also likely that digital copies will not exist. As a result, if inter-library loans are required new scanning will be necessary. Many institutes charge for this service. Acquiring papers can be a lengthy process
Action	Identify existing literature	<p>Sources of literature include:</p> <ul style="list-style-type: none"> - References from existing papers - The University Library - Inter-Library Loans - The Zoological Record - Web of Science - ACARI - Colleagues <p>ACARI – or “Bibliographica Acarologica” is a yearly publication that compiles all new work in the field. It lists all papers and contact details for the scientist's publishing.</p> <p>There also exists a European checklist for the mites, as they are currently understood. Although this checklist is not complete it remains the best available work of its type. Checklists in general are incomplete in this field.</p> <p>The taxonomist sends copies of his work to colleagues on CD as a matter of routine. This is possible because of the relatively small number of scientists working in Acardiology.</p>
Action	Gather existing literature	Either through an inter-library loan, internet download, or from a reprint or other copy sent by a colleague.

Activity	Gather existing specimens	Containing all the activities that contribute to the sourcing and gathering together of existing specimens.
Action	Identify existing specimens	Existing specimens are largely identified through references in literature. The main other source is personal knowledge of the field; the major collectors in acaridology, where they worked and stored their collections.
Action	Gather existing specimens	Loan applications are prepared and submitted to the curator of the collection in question. Speculative requests can also be submitted; "send me all that you have from group X"; "send all that you have with the following characters."
Activity	Collecting activities / Field work	<p>Field work is relatively local, to Slovakia and the surrounding countries. The taxonomist organises trips himself, and tends to drive to location. Both formal permits and informal agreements are in place to allow collecting.</p> <p>The taxonomist collects for about 30-50 days of the year. Some collections are targeted towards specific projects; others general collecting, to boost the institute's collection, or cover a geographical area or other factors.</p>
Action	Arrange permits and practicalities	Collecting permits are required in Slovakia. Official permits are acquired from the Ministry of the Environment, which can entail a 2-3 months turn around. Through regular collecting over the years, the taxonomist built up good relationships with local wardens, who are aware of his work.
Action	Conduct collection	Mites are found largely in the upper stratum of soil. The size of the animals means that collecting is more about gathering the right substrate than targeting any actual organisms. There are some restrictions on substrate collection particular to this field; bark can not be collected for example, as this would damage trees.
Action	Transport specimens home	The taxonomist transports the specimens personally.
Activity	Examine specimens	This activity represents the processes involved in specimens examination, starting at when they arrive in the institute.
Activity	Prepare specimens	The process of separating out the specimens and preparing them for examination
Action	Separate specimens from substrate	Exposing the samples to unidirectional light from above causes organisms to move downwards through the sample, upon which they fall into a second container.
Action	Store specimens in alcohol	Specimens are quickly placed in alcohol for preservation

Action	Prepare slides	Slides need to be prepared from the soil as soon as possible, preferably within 1-2 days of collecting, though up to 6 days is acceptable. Microscope slides are prepared in the usual way.
Action	First visual examination	Perform a 'first-pass' examination to familiarise with the collected specimens.
Action	Sort specimens	Physically sort the specimens into groups as an aid for examination and study.
Action	Detailed visual examination	Specimens are examined in detail with the light and stereo microscope
Decision	Further analysis	Is further analysis required?
Action	Further analysis	This can include molecular and chemical analysis of the specimens, or SEM examination. Molecular analysis is a relatively uncommon investigation in this field, though this is likely to change over the next few years. The University has access to an SEM but this is not used for revisionary papers.
Decision	Assess emerging theory	Although the development of the taxonomic theory is continuous with the examination, there will be a stage at which the theory is assessed and a decision made as to whether to move on.
Activity	Apply nomenclatural rules	A broad category representing the application of the rules of nomenclature to the specimen groups.
Action	Determine nomenclature	Type specimens are assigned to each group, according to the rules of the ICBN.
Action	Assist type specimens	Nomenclature is resolved for the type specimens in each group.
Activity	Prepare Paper	The process of producing a scientific paper for publication. Papers are published in both Slovakian and English.
Action	Compile manuscript	<p>The paper will contain the standard sections required for a revision:</p> <ul style="list-style-type: none"> - an abstract, in English - the taxonomic treatment - illustrations, prepared by the taxonomist himself, then scanned and finished using Adobe Photoshop - references, using the "Reference Manager" application - distribution maps, using Arc Explorer and Arc View. Positioning is worked out in the office using maps and notes from the field. <p>The paper is compiled using Microsoft Word.</p>
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	<p>The submitted manuscript is reviewed by the journals nominated reviewers. The editorial board will then choose from three options:</p> <ul style="list-style-type: none"> - Paper is accepted outright - Paper is accepted subject to a revision - Paper is not accepted <p>In the taxonomist's experience, papers are never rejected outright, and a blanket acceptance is equally rare.</p>
Activity	Curation activities	Mainly, but not exclusively, carried out by the departmental assistant.
Action	Label all specimens and dissected parts	Labels are printed out then applied to the specimens
Action	Place specimens in local collection	Labelled specimens are stored in the permanent collection. Several slides are prepared for each specimen, as contingency against future unknowns.
Action	Return loans and send out duplicates	Loans in this case are relatively uncommon, as are collaborations that would require the sending of duplicates. The process for returning loans is the same however; post.
Action	Update collection database	The taxonomist stores specimen information in a personal database, produced using Paradox DB.

In terms of future developments, the taxonomist considers the scanning and online provision of past papers to be the most important resource that EDIT could provide.