Basics of Taxonomy: Describing, Illustrating and Writing biodiversity

A course in the DEST Modern Taxonomy course program 2012-2013, consisting of five modules: ¹Learning the computer program DELTA (DEscription Language for Taxonomy), ²Vectorbased digital illustration technique, ³Scientific writing and communication, ⁴Different methods to make a scientific illustration and ⁵Overview and introduction to Scratchpads (equivalent to 5 ECTS).

Report to DEST
2014-02-18
Introduction

Exploration of biodiversity is one of the big challenges of this century. In many areas there is ongoing loss of species and biodiversity is decreasing. There is an increasing demand for taxonomic expertise and an increased need for more efficient data handling by the taxonomists. Therefore there is a dire need for courses dealing with different aspects of taxonomy.

To meet this need and to increase the interest, knowledge and skills in taxonomy, it was decided to offer PhD-students and early postdocs the opportunity of learning DELTA (DEscription Language for TAXonomy), which is the state of the art tool in taxonomy. Although being built on an almost outdated program/operating system it is still the only fully versatile program today. It contains all aspects on coding characters in text and illustrations, generating and exporting both interactive species keys as well as written dichotomous keys, and it can also generate a natural language description from the species database system. This will automatically make the description setup standardized and thereby the format will be consistent throughout all the taxa described! Learning how to use computerized taxonomy and how to build a complex database is a knowledge needed for the future. Together with illustration, writing and presenting lectures and web-based Scratchpads we thought this would be a good help for future taxonomists!
Funding
Funding for the course was provided by the DEST Modern Taxonomy course program 2012-2013 and by participants fee.

Venue
The venue of the course was at the Sven Lovén Centre for Marine Sciences, Kristineberg, Sweden. 14 – 25 October 2013.

Participants
The course was attended by 17 participants (Ph.D.-, M.Sc.-students and postdoctoral researchers) representing 14 countries; of which, two were Brazilian, two were German, two from Singapore and the other eleven was divided as being one person each from China, Colombia, France, India, Iran, Mexico, Poland, Portugal, Russia, Switzerland and United Kingdom respectively. A list of participants and teachers is enclosed in Appendix 1.

Organizers
The course was set up by Dr. Isabella Van de Velde and Dr. Hendrik Gheerardyn (Royal Belgian Institute of Natural Sciences, Brussel, Belgium) together with Dr. Matz Berggren (Inst. Biological and Environmental Sciences, Gothenburg University), at the Sven Lovén Centre for Marine Sciences, Kristineberg, in Fiskebäckskil, Sweden. Dr. Matz Berggren was also the organizer on-site.

Teachers
The teachers were (listed for the five different modules):

1. **DELTA**: Dr Matz Berggren, Institution of Marine Ecology, Göteborg University, Sweden and Dr Charles Oliver Coleman, Museum für Naturkunde, Berlin, Germany.
2. **Digital drawing**: Dr Charles Oliver Coleman, Museum für Naturkunde, Berlin, Germany.
3. **Scientific illustration**: Prof. Tomas Cedhagen, Department of Bioscience, University of Aarhus, Denmark.
4. **Scientific writing and communication**: Dr Gabor Lövei, Department of Agroecology, Aarhus University, Denmark.
5. **Scratchpads**: Dr Dimitrios N Koureas, Department of Life Sciences, Natural History Museum, London, UK
Content

Overview
The course focused on describing taxonomy in different ways. The first part was focused on how to write and present scientific studies, explaining extensively the details of writing scientific publications. Also, an important part is how to prepare figures and tables for publications and presentations. The second part of the course (new for this course) was an introduction and how to use the interactive web-based Scratchpads in making a workflow of biodiversity data from databases to a published paper. The third part concentrated on technical issues on how to use the software program Adobe Illustrator to make vector-based illustrations, from a photo or a sketch from a camera lucida. The program makes it possible to edit the illustration continuously until a publishable result has been reached! The fourth part dealt with the software package DELTA (DEscription Language for TAxonomy) used for description of both species and higher taxa. The course gives some general introductions to databases and construction of databases in general, and to biological databases available on the internet. The last part of the course targeted how to illustrate the material one wants to describe. This part, aimed at understanding the human perception of illustrations as well as to be informed about a variety of illustration methods and techniques. For a day to day schedule see Appendix 2.

Course program
The first day (Monday), a “Welcome to the station” was given by the administrative manager of the Lovén Center, Michael Klages, who also mentioned some of the European networks giving access to marine stations in Europe, such as ASSEMBLE, the European marine network (Mars) and how the Lovén center provides access and working conditions for a variety of marine research. After that Matz Berggren, gave an introduction to the area of Gullmarsfjord and a brief history of the Kristineberg marine station. The rest of the afternoon Matz gave a seminar on various types of databases and about the construction of databases in general from the Biodiversity Information Standards (TDWG) web-site. Also, some taxonomy sources on the internet were shown and discussed.

Scientific writing
On Tuesday, the module of “Scientific writing and communication” started. It
covered how to make a scientific text understandable and how to communicate with the potential reader, to make the message as clear and interesting as possible. The use of tables and figures was extensively discussed and how they should be designed to enhance the understanding of the text. Examples from the library were used to exemplify how the writer should think when deciding to which journal a certain manuscript should first be sent to. Furthermore, the important aspects of participating in international conferences (posters, talks, personal interactions) were covered. This course module was running from Tuesday to Wednesday.

Scratchpads

Introduction to the Scratchpads exploring it as a social networking tool to build, share and publish information on the diversity of life on the Web (http://scratchpads.eu/). The focus in this course was on creating and setting up a Scratchpad site, adding various kinds of data such as a biological classification, images, literature, taxon descriptions with distribution maps. The participants was shown how to communicate with other users (in the course) by adding users to their site, creating a forum or blog. The goal of this course was to give an overview of what a Scratchpad can do for the research of the participants and allow them to independently explore their Scratchpad after the course.
The next module started on Saturday and consisted of one day of digital drawing, introducing a new method to make publishable illustrations using the Adobe Illustrator together with a digitizer. It was first described during a lecture and also shown in detail by a series of small movies focusing on the different steps. Thereafter, the students started hands-on testing/training of the method with their own material.
DELTA
The DELTA-lectures started with an overview of the system with the highlights and drawbacks and ending with how it can be published on the internet. After the general structure of the program had been demonstrated, the software was installed on all laptops and the students could start building their own interactive keys. All students were given “Beginners guide of DELTA” in pdf-format. From Monday until Wednesday, the participants had mixed lectures and demonstrations. After each newly introduced part of the computer program, the participants used their own data to build a simple database in the Delta-program. These activities allowed the students to add on more and more details into their dataset after each new part of the program was explained and exemplified.

A small section was dedicated to images and illustration handling inside the Delta program because more information on these topics has already been discussed and also would be provided in the last module of the course. This was explained in the form of a demonstration using the photo/illustration editing program Adobe Photoshop.

An image was edited by using different layers in order to emphasize the character of interest using layer techniques, finally resizing the image to a usable size in DELTA. The further step of making the illustrations interactive using clickable areas in the DELTA program, e.g. Intkey, was demonstrated, and later tried out by the students through hands-on.
**Students presentation**

During the first week, three evenings were designated to student presentations, in which students discussed their current (or intended) research and indicated the need for this course (titles in appendix 3).
The last module “Scientific illustration” started on Thursday 24 October, and dealt with the theories behind the use of illustrations for various scientific purposes, human perception of illustrations and composition, colour theory and choice of the illustration method. The lectures also included a short history of scientific illustrations. Both demonstrations and hands-on of different techniques were covered, including aids like camera lucida, black and white methods like copper graphics, charcoal, pencil and black ink and also colour methods like water-colour (aquarelle), crayons, coloured pencils, pastel, computer graphics and airbrush. Beside illustrations of biological specimens, aspects on projections in cartography, diagrams, tables, typography and posters were discussed.
Course material
The course material consisted of the DELTA program package, including a new user guide “Delta for beginners”. A number of printed text pages, explaining specific parts of the program more in detail, were distributed. In Digital drawing, Scientific writing as well as in Scientific illustration, different instruction texts were given to the participants both in printed and pdf-format. Some material of pen and paper was given to the participants in the module “Scientific illustration”. Many examples of recommended textbooks to buy from the internet were given.

Leisure
Although the course had a tight schedule with both day and evening activities, there was time for some leisure. On Friday 18 October, we had the course dinner – a shrimp party (Northern shrimp - *Pandalus borealis*) that was very nice.
In the afternoon of 20 October, the course did an excursion to a small nature reserve with one of the northern-most natural Beech (Fagus sylvatica) forests in Sweden. This time of year, the ground is full of golden brown Beech leaves.

The area (Vägeröd) does also have a high peak which we climbed. There is a beautiful view over the island and down to the waterways between us and the mainland.
The certificate given to the participants:

**Basics of Taxonomy:**
Describing, Illustrating and Writing biodiversity

Sven Lovén Centre for Marine Sciences, Kristineberg, Sweden
14 - 25 October 2013

**CERTIFICATE OF ATTENDANCE**

This is to certify that

**Participants name**

has successfully completed the EDIT Modern Taxonomy course programme 2012-2013, in this five module course:¹ Learning the computer program DELTA (DEscription Language for TAxonomy), ² Vector based digital illustration technique, ³ Scientific writing and communication, ⁴ Scratch Pad, ⁵ Different methods to make a scientific illustration (equivalent to 5 ECTS).

Fiskebäcks投稿 25 October 2013

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**Instructors:**

**Mats Berggren**
Co-organiser

**DELTA:**
Dr Mats Berggren, Institution of Biological and Environmental Sciences, Göteborg University, Sweden
Dr Charles Oliver Coleman, Museum für Naturkunde, Berlin, Germany

**Digital drawing:**
Dr Charles Oliver Coleman, Museum für Naturkunde, Berlin, Germany

**Scientific illustration:**
Prof. Tomas Cedioggen, Department of Marine Ecology, University of Aarhus, Denmark
Scientific writing and communication:
Dr Gabor Loves, Department of Plant Protection, Danish Institute of Agricultural Sciences, Slagelse, Denmark

**Scratch Pad:**
Dr Dimitrios K Kourlas, Department of Life Sciences, Natural History Museum, London, UK
Diploma time

Evaluation
The course was evaluated by a questionnaire (Appendix 4). (Information was compiled by one of the participants, Karin Steffen, to make it anonymous).
Appendix 1 – List of participants.

Participants:
Name, current workplace, country - nationality
Abdullah Lashkari, University of Hohenheim, Germany, Iranian
Ali Eimran Alip, Tropical Marine Science Institute, Singapore, Singaporean
Ana Cristina Rebelo, University of Azores, Portugal, Portuguese
Benjamin Ramassamy, NHM Copenhagen University, Denmark, French
Daniel Apolonio Silva De Oliveira, Univ. Gent, Belgium, Brazilian
Deneb Ortigosa, University of Cadiz, Spain, Mexican
Fabio Hernandes, Sao Paulo State University, Brazil, Brazilian
Fiona Ware, National Museums of Scotland, Edinburgh, UK, British
Hwee Peng Ang, National University of Singapore, Singapore, Singaporean
Karin Steffen, Evolutionary Biology Center, Uppsala, Sweden, German
Lingfei Peng, Fujian University, China, Chinese
Lisa Tippelt, Institute For Biological Sciences, Rostock, Germany, German
Malgorzata Nowak, Institute of Oceanology, Polish Academy of Sciences, Poland, Polish
Nadezda Karaseva, Moscow State University, Russia, Russian
Paula Rozo, University of Bonn, Germany, Colombian
Sreeraj Chemmencheri Ramakrishnan, National Centre for Sustainable Coastal Management, Chennai, India, Indian
Theo Leger, Natural History Museum of Geneva, Switzerland, French/Swiss

Instructors:
Delta:
Dr Matz Berggren, Institution of Biological and Environmental Science, Göteborg University, Sweden
Dr Charles Oliver Coleman, Museum für Naturkunde, Berlin, Germany

Digital drawing
Dr Charles Oliver Coleman, Museum für Naturkunde, Berlin, Germany

Scratchpads
Dr Dimitrios Koureas, Department of Life Sciences, The Natural History Museum, London, UK

Scientific illustration:
Prof. Tomas Cedhagen, Department of Bioscience, University of Aarhus, Denmark

Scientific writing and communication:
Dr Gabor Lövei, Department of Agroecology, University of Aarhus, Denmark
<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>Monday 14 October 2013</td>
<td></td>
<td>08:00 – 13:30</td>
<td>Arrival</td>
</tr>
<tr>
<td>14:00 – 15:00</td>
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<td></td>
<td>Welcome to the station by Michael Klages/Matz Berggren</td>
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<tr>
<td>15:30 – 17:00</td>
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<td>Introduction to databases, what is available and a short overview of DELTA</td>
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<tr>
<td>Tuesday 15 October 2013</td>
<td>Gabor Lövei</td>
<td>09:00 – 17:00</td>
<td>Scientific writing and communication</td>
</tr>
<tr>
<td>19:00 – 20:30</td>
<td></td>
<td></td>
<td>5 participants present their research (10+5min each)</td>
</tr>
<tr>
<td>Wednesday 16 October 2013</td>
<td>Gabor Lövei</td>
<td>09:00 – 17:00</td>
<td>Scientific writing and communication</td>
</tr>
<tr>
<td>19:00 – 20:30</td>
<td></td>
<td></td>
<td>5 participants present their research (10+5min each)</td>
</tr>
<tr>
<td>Thursday 17 October 2013</td>
<td>Dimitrios Koureas</td>
<td>09:00 – 17:00</td>
<td>Scratchpads</td>
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<tr>
<td>19:00 – 20:30</td>
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<td></td>
<td>5 participants present their research (10+5min each)</td>
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<tr>
<td>Friday 18 October 2013</td>
<td>Dimitrios Koureas</td>
<td>09:00 – 17:00</td>
<td>Scratchpads</td>
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<tr>
<td>Saturday 19 October 2013</td>
<td>Oliver Coleman</td>
<td>09:00 – 17:00</td>
<td>Morphological illustration using digitizer</td>
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<tr>
<td>Sunday 20 October 2013</td>
<td></td>
<td>09:00 – 17:00</td>
<td>Day off and excursion (weather dependent)</td>
</tr>
<tr>
<td>Monday 21 October 2013</td>
<td>Matz Berggren &amp; Oliver Coleman</td>
<td>09:00 – 17:00</td>
<td>DELTA</td>
</tr>
<tr>
<td>Tuesday 22 October 2013</td>
<td>Matz Berggren &amp; Oliver Coleman</td>
<td>09:00 – 17:00</td>
<td>DELTA</td>
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<tr>
<td>18:00 – 20:00</td>
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<td></td>
<td>DELTA</td>
</tr>
<tr>
<td>Wednesday 23 October 2013</td>
<td>Matz Berggren &amp; Oliver Coleman</td>
<td>09:00 – 17:00</td>
<td>DELTA</td>
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<tr>
<td>18:00 – 20:00</td>
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<td>DELTA</td>
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<tr>
<td>Thursday 24 October 2013</td>
<td>Tomas Cedhagen</td>
<td>09:00 – 17:00</td>
<td>Scientific illustration – methods and use</td>
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<tr>
<td>18:00 – 20:00</td>
<td></td>
<td></td>
<td>Scientific illustration – methods and use</td>
</tr>
<tr>
<td>Friday 25 October 2013</td>
<td>Tomas Cedhagen</td>
<td>09:00 – 12:30</td>
<td>Scientific illustration – methods and use</td>
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<td>13:30</td>
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<td>Departure</td>
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Appendix 3 – Participants presentations.

Name and the title of students’ presentation:

Abdullah Lashkari – “Functional Parasitoid biodiversity in fruit orchards and Opinae from Iran”


Ana Cristina Rebelo – “Miocene to Recent rhodoliths of the Azores: Taxonomy, Palaeoecology and Palaeobiogeography”

Benjamin Ramassamy – “Description of a new fossil beaked whale from the Late Miocene Gram Fm. in Denmark, and aspects of beaked whale evolution”

Daniel Apolonio Silva De Oliveira – “Connectivity of Nematofauna between seaweed beds”

Deneb Ortigosa – “Who are the Chromodorididae (Mollusca, Gastropoda, Heterobranchia) in the Atlantic and Mediterranean Sea.”

Fabio Hernandes – “Diversity and taxonomy of feather mites (Arachnida: Acari: Astigmata) in Passeriformes (Aves) in Brazil”

Fiona Ware - "National Museums Scotland"

Hwee Peng Ang - "Benthic Biomonitoring in Singapore"

Karin Steffen - “Phylogenies of Australian Trichosanthes; Investigating two isolates of Dictyostelids using Atp1 as novel molecular phylogenetic marker”

Lingfei Peng - “About my research: Taxonomy Flatidae (Hemiptera) and Eupelmidae (Hymenoptera); Morphology Cassidinae (Coleptera)”

Lisa Tippelt – “Finding the difference -Taxonomic assessment of Australian Eocyzicus species (Crustacea: Spinicaudata”

Malgorzata Nowak – “Antarctic Bryozoa taxonomy, ecology, mineralogy”

Nadezda Karaseva – “Vestimentifera (Annelida: Siboglinidae) (results, problematics, ideas)”

Paula Rozo – “Mosquitos: Biology and diversity of the world’s most deadly animal”


Theo Leger – “Systematics of the neotropical genus Catharylla zeller (Lepidoptera: Pyralidae: Crambinae)”
Appendix 4 – Course evaluation.

COURSE EVALUATION

Name of course: Basics of Taxonomy: Describing, Illustrating and Writing biodiversity.
Consisting of: Learning the computer program DELTA (DEscription Language for TAxonomy), Vectorbased digital illustration technique, Scientific writing and communication, Different methods to make a scientific illustration, Scratch Pads (equivalent to 5 ECTS).

Semester: October  Year 2013

NB! If the answer in the questions can’t be applied to all of the course modules, please make it more clearly in the comments!

From 14 participants, 11 answered the questionnaire.

1. The correspondence between the objective and content of the course has been:

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<thead>
<tr>
<th>Very good</th>
<th>Very bad</th>
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Comments:
- Objectives set out for the course was covered and provided an excellent overview of the various topics
- a great experience very rich on the social and the scientific plan. All the courses were interesting; I think I will use each module in my own work.
- Everything that was announced also took place
- Excellent way of correspondence to all the contents
- The only areas where I felt the objectives and content didn’t quite match were the ‘overview of international biodiversity aggregators’ and ‘attention will be given to Biodiversity Information Standards’ - everything else was an excellent match.

2. How was the work load compared to the number of credits?

<table>
<thead>
<tr>
<th>Much too high</th>
<th>Much too low</th>
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<tr>
<td>3X</td>
<td>2X 7X</td>
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</table>

Comments:
- On par though would have liked more exercises but given time constraints was well managed perfectly balanced
- It was just right. I felt quite motivated. It was long days but interesting.
- Workload was not considered heavy but for DELTA, more detailed course notes could be provided so that students do not need to spend too much time with simple steps like attaching PDF references to the data base.
- Workload for DELTA was too high, it should have been better if we had two days more to that. One more day for all other topics might be more appreciable
- 1 NA.

3. Were there areas where you didn’t have the necessary previous knowledge?

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<tr>
<th>No</th>
<th>Yes, in</th>
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Comments:
• all the teachers were great, but I have some comments: - the Delta part was frustrating because of the multiple bugs - the course about the illustration was a bit chaotic, I would have prefer to test the different methods than ..... 
• Yes, I did not have the knowledge on Scratchpads or Delta which turned out to be very helpful tools for my work.
• Scratchpads, traditional drawing techniques
• Before the course I had no idea of Scratchpads.
• Scratchpads and DELTA.
• DELTA was entirely new for me, a much more simpler introduction with all the basic things would have been more better, but I could make it in the next day.
• Scratchpads and scientific illustration.
• I had never used any graphics software before which I felt was a disadvantage during the Adobe Illustrator part of the course.
• I do not realize the question.

4. How will you assess the lectures?

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<th>Very useful</th>
<th>Not at all useful</th>
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<td><strong>7X</strong></td>
<td><strong>5X</strong></td>
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</table>

Comments (on the pedagogics, the standard, etc.):
• Lecturers were engaging and made lessons easily digestible for ease of learning even when student doesn't have prior experience on topics covered.
• I thought it was very interesting and I wiull use a lot of the stuff from the lectures as I have only limited knowledge about the scientific world.
• Good methods and the option to stop (coffe break) was great!
• Scientific writing lectures were pretty dry but were helpful in pointing out how the impact factor of a journal is being counted and the usefulness of it in choosing a journal for publication. Scratchpads lectures were good but was too short and so many other useful features may have been left.
• Lectures were so useful for me. The DELTA lectures can be improved much focusing on beginners who doesnt have any knowledge about the software.
• Mostly very useful and very well delivered but 'scientific illustration' was a bit hard going - would probably have been less so in its original slot at the beginning of the course.

5. How will you assess the field course/practicals (delete if does not apply)?

<table>
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<tr>
<th>Very useful</th>
<th>Not at all useful</th>
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<tr>
<td><strong>6X</strong></td>
<td><strong>2X</strong></td>
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Comments (on the pedagogics, the standard, did you get the necessary help, etc.):
• 5 NA
• fine for me, just the Delta part a bit difficult sometime
• :) The excursion was fun!
• Sometime too much time for just one activity.
• The DELTA practical was too good and the professors (MATZ and OLIVER) were so helpful while the practical time.
• Essential! Tutors were very helpful and attentive but could have done with a few more of you at times!
• all of instructors were helpful in the courses. I think some parts of DELTA software needs to be revised and be supported by programming expertise to pave the way for the users to work conveniently. some problems exited for the compatibility of software to Mac; some parts did not function well (which is mostly related to software). the section of digital illustration could have been more practical if we could simulate the process by using our own samples using microscope and learning how to make the shadow illustration (2 dimensions) which I think it was the most neglected part for the digital illustration.
6. How will you assess the seminars/student presentation (delete if does not apply)?

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<tr>
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<th>Very useful</th>
<th>Not at all useful</th>
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<tbody>
<tr>
<td>Comments:</td>
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<tr>
<td>Student presentations gave a good picture of what the other course participants do and structure of the presentations mimicked conference presentations which was good practice.</td>
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<tr>
<td>a good diversity of topics and interesting subjects</td>
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<tr>
<td>The seminars were a great opportunity to exercise our capability of synthesising our work in a short time and communicate with people from other fields of expertise. Must keep on.</td>
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<tr>
<td>I thought they were interesting but some of them were too specific and therefore hard to follow.</td>
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<tr>
<td>The presentations helped a lot to know each other. I have a suggestion to make it more simpler one to know each other rather than making it a kind of research analysis (only the first day), I could see that most ….</td>
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<tr>
<td>1 NA</td>
<td></td>
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<tr>
<td>This is a great idea and the quality was excellent. Perhaps a little time-consuming given the number of participants though and those that felt the need to prepare the previous evening lost some early 'bonding time' with the rest of the group which was a shame.</td>
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<tr>
<td>it was a quite appealing part. this section let us know each other for further scientific cooperation and getting familiar with our expertise.</td>
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7. How will you assess the syllabus (extent and contents)?

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<tr>
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<tbody>
<tr>
<td>Comments:</td>
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<tr>
<td>Each part of the course provided a good overview although I would've liked it to be more in-depth. But given the time constraints it was understandable.</td>
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<td>two weeks seems like the perfect time to work on the topics proposed by the course.</td>
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<tr>
<td>I liked everything.</td>
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<tr>
<td>Sometime, I feel part of the course is difficult; I need more time to digest.</td>
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<tr>
<td>The training should have been conducted for at least 20 days so that we could improve much more into each topics.</td>
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<tr>
<td>This course contains a lot of information, so it is possibly could be longer.</td>
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<tr>
<td>A bit of a tricky one! Delta and Adobe Illustrator were particularly steep learning curves for me so the course was perhaps a little too intensive for me to retain as much information as I would like. In that respect individual courses may have suited me better but on the other hand all the individual components do make a very comprehensive and coherent package.</td>
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8. How do you assess the organizing and practical arrangements of the course?

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<tr>
<th></th>
<th>Very good</th>
<th>Very bad</th>
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<tr>
<td>Comments:</td>
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<tr>
<td>Much effort was put in to accommodate the participants and was very much appreciated.</td>
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<tr>
<td>Excellent. I have had no problem to find the centre and the planning was clear. All the activities were well organized (and the shrimps so good!)</td>
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<tr>
<td>I would preferred that that were more specific about &quot;bring pictures and database to work with&quot;, I spend too much time during the lessons in preparing my material to use in Scratchpads and Delta</td>
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</tr>
<tr>
<td>In the beginning a van could take people from the bus stop to the place of course, since some students might come from distant countries and therefore carrying large luggage in the last day this occurred and ....</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Everything went perfect.
• Good information before the course. Excellent food, accommodation (could do with WiFi in the annex) & hospitality.

9. Your general impression of the course:

<table>
<thead>
<tr>
<th>Very good</th>
<th>Very bad</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11X</strong></td>
<td><strong>2X</strong></td>
</tr>
</tbody>
</table>

10. Did this course readily combine with other courses that you took this term (e.g. in terms of work load and schedule)?

<table>
<thead>
<tr>
<th>Yes, very much so</th>
<th>No, not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4X</strong></td>
<td><strong>3X</strong></td>
</tr>
</tbody>
</table>

Comments:
• 5 participants wrote "Not applicable".
• Did not take other courses this term.
• I didn't take courses but it fits my research scheme.
• It was really good for me to get this training at this time. I have started using the information in my ....
• Not applicable – I have had no other courses, but this course was rather applicable to my work.

11. How did you receive information about the course?

• 2 email from a colleague.
• 2 by an email of my supervisor
• EDIT website
• From colleagues.
• receive information about the course from professor
• Through the Annelida forum
• Annelida.net subscription
• From my colleague through an online forum.
• The Natural Science Collections Association discussion list <NATSCA@JISCMAIL.AC.UK> (I think)
• via e-mail.

Any suggestions on how to advertise future courses?

• Targeted emails to institutions
• maybe large societies (entomology, ichthyology, malacology etc) through e-mail lists.
• Send posters to the institutions and universities or direct letters to the heads of departments

General comments / suggestions for improvement / criticism:

• Was very satisfied with the contents and structure of the course. All efforts contributed by the organizer and lecturers are appreciated especially in making the transition smooth, especially for those with longer flights.
• There is nothing I can say, the course was very well organized and professors were always very patient, helpful and attentive.
• The first lecture - about the marine station and its facilities - could be replaced by another one more directly related to the central theme of the course (taxonomy). Maybe a lecture on the basic rules of taxonomic nomenclature could be added. The lecture on how to write a scientific paper could include a more specific part directed to taxonomic papers (descriptions, redescriptions, revisions etc), including the basic and specific parts of it (etymology, rules and common prefixes for naming a new species, materials/specimens used,
the importance of depositing types on several world accessible collections. Good and bad papers could be shown to illustrate several points: good/bad illustrations, photos, names, etc.

- This was great, I very thankful that I could be there! Keep going =)
- The DEST training courses are useful and very focused, we can choose the course what we like. Actually I think all the things are very good!
- The course gave a good overview about various methods and techniques in taxonomy. The different parts were divided not only in lectures but also in training session for applying the new knowledge for the own data. It was possible to get to know many different participants of all over the world and also their research fields. Besides the lectures spare time activities like an excursion or a shrimp party were provided and completeted my very positive impression of the DEST taxonomy course 2013 in Sweden.
- I really liked and enjoy the course and the content. Accommodation and food was perfect and also nice lecture room. The time invested on lectures was good too. Thank you so much.
- Some parts of the courses overlapped to each other, for example; Scientific illustration and Scientific writing and communication. Part of Delta was too much about how to fix problems with program environment.
- To me, the title of the course ('Basics...') is a bit understated. I think this could result in it being overlooked by many who would benefit from it! My Head of Department, the Director of Collections & the Training & Development Manager all questioned the relevance of a 'Basics' course but were easily convinced once we explained the course content. The Delta/Windows 7 compatibility issue was problematic - it was distracting and disruptive which made it difficult to concentrate on and learn the basic processes. I appreciate this was completely out with the tutors’ control but as a key component of the course a resolution does need to be found. Particular thanks to Matz for organising and running the course (time commitment beyond the call of duty!), to all the tutors and to the kitchen staff.
- I have a deep gratitude toward Dr. Matz Berggren for his warm and friendly welcome. during the course, I had a feeling I was really welcome in the station. thanks every body!