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## **C8.1.2 Report on gap analysis on training resources and needs in Europe and globally, with recommendations on priorities**

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<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

## CONCLUSIONS AND RECOMMENDATIONS

### *Strengths*

In Europe, training offer in taxonomy definitely exists and it is relatively well established. Courses are mainly organised on a regular basis or on request so that the offer is likely to meet the demand, at least for the covered topics. Short, intensive and hence easily accessible trainings are not the rule but still represent 40% of all the courses surveyed.

Taxonomy has no political or national borders and this statement is clearly understood by trainers who are open-minded about opening their courses to an international audience. The offer covers a wide diversity of subjects: most of the trainings do not focus exclusively on taxonomy, but also include related disciplines such as biodiversity assessment and conservation.

### *Weaknesses*

The training offer clearly suffers from a lack of visibility and publicity. There is no centralised information system providing an overview or compilation of available courses in Europe.

Since many courses are organised by universities and can be spread over several terms, potential students can be deterred by the time and cost investments needed for these trainings. Certain categories of potential trainees are susceptible to be attracted by short trainings. However, enrolment fees in universities are often prohibitive for these categories of training seekers.

Natural history museums hold a great expertise in taxonomy. They already offer a considerable number of courses, often in cooperation with universities. In some countries almost no more courses on taxonomy are taught in universities. Most of the remaining teaching capacity lies into the hands of the museums.

Unfortunately, a large proportion of the trainings does not cover the study of nomenclatural rules. A good background in nomenclatural practice is essential for the taxonomist. Targeted taxonomic groups in the trainings mainly involve arthropods, vertebrates and flowering plants, which is a biased view of worldwide biodiversity. Organisms that are less popular or more difficult to identify are often neglected. Yet, the need to produce accurate assessment of biodiversity has never been more pressing and encompasses these less studied groups.

Most of the course materials are only available to people attending particular trainings. Comprehensive e-learning taxonomic facilities would provide a very efficient and cheap alternative to teach taxonomy to a broad audience.

There is an evident lack of trainings for technicians and other non-academics working in taxonomy. A subject hardly covered by trainings is the search for funding opportunities in taxonomy. Many trainings do not have a systematic and standardised way to describe their educational programme and consequently suffer from a lack of recognition.

### *Opportunities*

The School of Taxonomy is an essential component of EDIT's centre of excellence. Quality education and knowledge sharing are fundamental prerequisites in the development of future generations of taxonomists in Europe and beyond. The curriculum will target both modern disciplines and the more traditional approaches. The School needs to re-integrate taxonomy into the future challenge that science is facing regarding ecology, biodiversity research, ecosystem conservation, forestry, fisheries, agriculture, biosecurity, bioprospecting or even epidemiology. This framework is a prerequisite to the revalorisation of taxonomy and to the creation of durable and attractive job opportunities for young taxonomists.

In conjunction with the overall objectives, the School will address the following issues:

- Defining teaching priorities related to future research, new tools and technologies
- Promoting collaboration with societies and associations
- Stimulating the organisation of more short and intensive courses.
- Reinforcing the study of nomenclatural rules in the training programmes.
- Improving the accessibility and exchange of training material
- Sharing the unique expertise and access to resources derived from the study of fauna and flora in the former colonial territories by supporting capacity building in countries in the South.

### *Threats*

This study indicated a gap between what is taught and what is done in research. Half of the trainings do not take into account molecular approach while most of the newly financed research programmes promote molecular approach, either in conjunction to more traditional work or not. There is an increasing threat that traditional taxonomy becomes obsolete with the rise of new technologies if taxonomists do not integrate molecular techniques in their research and teaching.

Consequently, there is a risk that those trainings only dealing with the traditional approach fall in disuse and will disappear in favour of trainings which are more or entirely molecular oriented. Future taxonomy needs to evolve and encompasses both traditional and molecular techniques. Achievements in this direction exist in North America with the Partnership for Enhanced Expertise in Taxonomy that links traditional and molecular works on particular groups of organisms, leading to joint publications.

K. Elaine Hoagland, Executive Director of the Association of Systematics Collections, highlighted an important threat to the future of taxonomic expertise and training while responding to the 'taxonomic impediment', the term coined to point to the lack of taxonomic expertise preventing other biodiversity research from going forward. To solve this problem, the costs of taxonomy will need to be internalised when planning research projects.

Another evident threat is the lack of replacement of retiring taxonomic experts. Many of these experts are also involved in trainings in taxonomy. Without their active participation, the quality of trainings could rapidly decrease. The succession of retiring qualified taxonomists is, however, hampered by reorientation of work and by cuts in staff. Consequently, training opportunities may decrease together with long-term professional prospects for young taxonomists.

Although the numbers and impacts of international actions to promote taxonomy are increasing, similar initiatives tend to develop less well at national levels. The tendency is to believe that since biodiversity (and consequently its utmost important scientific component, taxonomy) is a global concern, national initiatives are less important and less necessary. However, international initiatives base themselves on the already existing expertise at a national level. This situation will not evolve until national politics realise the importance of taxonomists and take concrete measures to assure them long-term positions.

There is a threat that the increased funding of database-related projects will absorb the funds needed for feeding them with valuable and new information, *i.e.* taxonomy-oriented programmes. The same reasoning holds true for taxonomic trainings that should not exclusively become courses on database accessing and handling.

*The complete report is available at: [http://www.e-taxonomy.eu/files/EDIT\\_Component\\_8\\_1\\_2.pdf](http://www.e-taxonomy.eu/files/EDIT_Component_8_1_2.pdf)*