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Assessing biodiversity: a glorious past, an uncertain future

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Measuring and maintaining diversity of life forms is undoubtedly of high importance. Paradoxically, support allocated to taxonomists, that is to those who reveal this diversity, seems to be negatively correlated to the importance given to biodiversity. In the past, taxonomists participating in building an important body of knowledge, were regarded with respect and many of them achieved leading positions. Their situation changed over the last decades, especially due to several blows. Some of the blows came from their own ranks, others derive from modern trends and practises. Among the first category are phylocodist's who deny classification and blame taxonomists to be essentialist, the barcoding movement that promotes substitution of the holistic view of species by a single identifier as well as the establishment of taxa in absence of vouchers that produces unverifiable data and suggest non-scientific foundation of taxonomy. Also the recurrent statements about usefulness of taxonomy in other fields, such as ecology or applied research (as if the interactions of species would be more important than the species itself, or knowledge would have its *raison d'être* in potential applications), are downgrading taxonomy to a subservice. Probably more detrimental to taxonomy are:

(i) Granting practices that promote short-term studies, deterring the formation of future experts, lead to loss of time by responding to requirements and the establishment of agencies that auto-consume resources meant to support research;

(ii) Shifts from collection-based research to curating possessions in museums, resulting in reduced time for research and instead the enforcement of bureaucracy that usually fails to understand that the value of natural history collections is correlated to the input of scientific work, unlike other collections which have their own, intrinsic value. In addition, the augmented tasks are quite often paralleled by decreased scientific staff;

(iii) Global diversity assessment studies deal with numbers and extrapolations and may lack adequate efforts to identify samples. The use of ambiguous terms, such as "morphospecies" and "OTU's", suggests that progress in assessing biodiversity may still be achieved even in the absence of named species;

(iv) Global overviews of recognised taxa, applying correct nomenclature, are uneasy to establish. The *Catalogue of Life* is a major project set up to address this issue. It mopes up resources, but does not meet the needs, and may be a source of major errors for those who rely on easily available online information. It provides unfounded illusions about achievements in assessing biodiversity;

(v) Metrics used to evaluate science have perverse effects since, parameters useful to evaluate scientific journals got used to evaluate individuals. As far as taxonomy is concerned, the effect may be seen in:

- evaluating of studies in correlation with the metrics of journals, not with the results;

- research paradigms shifted from quality of results towards acceptance of quantity of papers in journals with a high Impact Factor (IF);

- responsibility for correctness is shifted onto unremunerated reviewers;

- major, long-term studies are disadvantaged;

- shifts from revising taxa to phylogenies;

- studies on local issues are disadvantaged;

- studies in fields covered by low density of researchers are disadvantaged;

- stimulating inflation of short papers;

- stimulating inflation in numbers of co-authors, partly also due to the 'myth' of the superiority of team-work.

The metrics applied onto individuals may be comfortable for those decision makers who reconduct evaluations based on the illusion of objectivity of the above mentioned criteria, and is interesting for publishers of major profit-based journals that may assure high IF. A major concern is that they undermine deontology;

(vi) Conservation focuses to a large extent on protection of species, however no species can survive without appropriate habitats. The conservation of species became often disassociated from conservation of habitats, while sampling became associated with killing. Taxonomists who sample specimens used to be considered partly responsible for fragilised populations. Conservationists, administrators and legislators have introduced regulations that in practise ignore fundamental differences between small, rapidly reproducing and large-sized, slowly reproducing organisms.

This results in slowing the quest for knowledge and is also counter-productive as far as conservation issues are concerned. The regulations may annihilate vocations and interest for organismal biology, shift students away from a holistic view of organisms, freeze faunal studies of poorly known groups, but they do not hinder pollution and destruction of habitats.

The true reasons for the current biodiversity disaster, primarily derived from economic myopia, ignorance, and population pressure, seem to be to a large extent disregarded while, taxonomists are used as a scape-goat.