THE TRANSDISCIPLINARY AND TRANSLINGUISTIC MANAGEMENT OF THE 
BIODIVERSITY: AN APPLICATION TO EARTHWORMS

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One of the major drawbacks in biology and ecology is the lack of true access to know-
ledge elements gathered by scientists. Classical publications, even registered by key 
words and accessible by Internet, are inefficient. Only 1 to 2% of the knowledge ele-
ments are accessible.

All the biological and ecological knowledge is related necessarily to taxa. The opportunity 
to describe taxa following international rules paves the way to use modern means allowing 
automatic translations and direct access to facts. Using three complementary means: 
Integrology, Informatics (hypermedia) and Internet every biological or ecological facts could 
be today accessible and at least the descriptions are understandable.

This paper deals with data proper to earthworm morphological features. It demonstrates our 
ability for every organisms (i) to make exhaustive descriptions, (ii) to standardize the termino-
logy, (iii) to describe in an automatically translated manner (e.g. to describe in French and to 
read in Chinese pictographs) and (iv) to follow the international nomenclature rules with a fle-
xible management of synonyms, homonyms, vernacular names....

This is made easily by (i) the classical earthworm description using any available character-
istics (i.e. at atomic, molecular, histological or individual scales), (ii) the relations of each 
Datum, initial and controlled (Dic, i.e. directly observed or measured) of this composition of 
each individual to space, time, protocol of analysis and the observer (who is registering and 
for who?), (iii) following these five 'referencers' of relations (composition, time, observer, 
protocol, space) every initial datum (Dic) from ecology, environmental studies, agronomy,... 
could be related to any individual, (iv) the use of a normalized explained terminology allows 
the codification of each term-meaning from any language and conversely this code gives 
access to each tabulated language, (v) hypermedia systems allow to link all data together to 
access to each term-meaning and to get any explanation, figure or video connecting to them.

The result is a biodiversity knowledge management with a conservative system of holotypes 
and original printed descriptions and a dynamic access to all knowledge (incl. additions) 
and interpretations of facts. About 300 taxa of Lumbricoidea are now available in this way. 
Among them 108 are new to science, doubling the Spanish fauna. Reasons for these disco-
veries are briefly given.