**S1. Questionnaire on functional traits use**

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| 1. Have you already used soil invertebrate traits within your research activities? |
| 2. Functional traits for soil invertebrates have been defined by Pey at al. (2014) (http://dx.doi.org/10.1016/j.baae.2014.03.007) as “Any morphological, physiological, phenological or behavioural feature measurable at the individual level, from the cell to the whole-organism level, without reference to any other level of organization”. Do you agree with this definition? |
| 3. Would you like to propose an alternative definition to Pey et al. (2014)? |
| 4. To predict which of the following soil processes would you use functional traits of soil invertebrates? |
| 5. To predict which of the following soil functions would you use functional traits of soil invertebrates? |
| 6. To predict which of the following ecosystem services would you use functional traits of soil invertebrates? |
| 7. For which other purpose would you use functional traits of soil invertebrates ? |
| 8. Please give a maximum of 10 traits, separated by commas (","), you have already used or intend to use in your research. |
| 9. How did you obtain data on these functional traits : |
| 10. For the traits you measured : |
| If you used a standardised method to measure traits, please provide reference(s) in the box below (DOI or full bibliography). |
| 11. In order to obtain functional traits data on soil fauna from existing on-line databases, which database(s) did you use ? |
| If you use other database or your own trait data collection on soil fauna, please list them in the box below and precise if it is available for other researchers |
| 12. On which taxonomic groups of soil fauna do you work |
| 13. Please precise your age |
| 14. Please precise your current role |

**S2. Raw data about traits listed by the questionnaire respondents**

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| (micro-)cavernicol |
| alitrunksize |
| antenna lenght |
| assimilation |
| assimilation efficiency |
| average vertical distribution |
| avoidance behaviour |
| biodiversity |
| body form |
| length |
| body lenght |
| body size |
| body weight |
| body mass |
| Biomass |
| Body modification |
| body shape |
| body width |
| buccal length |
| burrowing behaviour |
| burrowing rate |
| Burrow types |
| calcium concentration in the cuticle |
| casts type |
| chelicerae shape |
| chemical degradation |
| body colour |
| body pigmentation |
| Color |
| color(gradients) |
| coloration |
| color or pigments |
| composition |
| consumption rate |
| cuticle color and thickness |
| daily consumption of soil (mouthsize) |
| depth |
| desiccation resistance |
| diameter |
| diet |
| digestive tract anatomy |
| dispersal ability |
| dispersal mode |
| dispersal traits |
| diversity |
| diversity index (in-situ) |
| droughtresistance/tolerance |
| droughttolerance(responsetrait) |
| drougthtolerance |
| Earthworm ecological groups |
| earthworm ecotypes |
| eco/functional category |
| ecological type |
| ecomorphological group of earthworms |
| ecomorphosis |
| ecophysiological traits |
| enchytraeid indicator values |
| energy available |
| enzyme activity |
| Eye size |
| faeces decomposition rates |
| faeces production |
| faeces quality |
| fatty acid composition |
| fatty acid profiles |
| fecundity |
| feeding activity |
| feedinggroup |
| feeding behavior |
| Feeding guild |
| feeding habit |
| feeding mode |
| feeding preference |
| feeding type |
| flooding tolerance |
| fluctuat in gasymmetry |
| food |
| food habits/preference |
| freezing tolerance |
| function(trophy) |
| furca |
| furca length |
| growth rate |
| habitat |
| habitat preference |
| habitat specificity |
| Hair presence |
| halotolerant |
| head size |
| hunting strategy |
| hunting type |
| hyfgrophil |
| Indice shannon |
| individual lifec ycle |
| ingestion rate |
| inhabited stratum |
| inundation resistance |
| leg lenght |
| leg morphology |
| length/width ratio |
| length of appendages |
| length of furca |
| length of legs |
| lifeform |
| life strategy |
| life time |
| light sensitivity |
| location of the clitellum and the puberculata |
| locomotion mode |
| longevity |
| mandible width |
| mandibule size |
| mandibule strength |
| mass |
| maximum body size |
| maxium diameter |
| metabolic rate |
| metal detoxication |
| microhabitat |
| mobility |
| moisture demand |
| molecular traits |
| morphological adaptation-protection against predators |
| morphological traits |
| morphology |
| morphometrics (bodylength |
| motion strategy |
| mouthmorphology |
| mouthpart |
| movement |
| Mtgene expression |
| nesting behaviour |
| number of Ocelli |
| number of offsprings |
| number of ommatidia |
| number of Pseudocelli |
| number of segments |
| nutritional value |
| ocelli |
| organism enzymaticactivities(AChEactivity) |
| orientation behaviour |
| pharynx shape |
| pH ecological optima and range of tolerance |
| Piélouandriche |
| pigementation |
| population growth rate |
| postantennal organ |
| predators |
| preference for givenC/Nratios |
| preference for humus horizon(Ol/Of/Oh/A) |
| presence of chemial defense(glands) |
| presence of defensive structures |
| presence of plastron mechanism |
| presence of wings |
| prostomium |
| pseudocelli |
| ptychoidbody) |
| ratio legs/bodysize |
| reproduction |
| reproduction speed |
| reproduction strategy(r-/K-strategy) |
| reproduction test |
| reproduction type |
| reproduction mode |
| reproductive mode |
| reproductive season |
| respiration |
| scales |
| sensitivity |
| sensitivity to chemicals |
| size |
| soil enzymatic activity |
| soil formation |
| soil layer preference |
| soil physical impact(aggregation&porosity) |
| soil position(meso-fauna) |
| spatial distribution index |
| speed of move |
| stable isotope composition |
| stable isotopes |
| stylet |
| surface foraging |
| survival test |
| temperature preferences |
| temperature tolerance |
| temperature tolerance |
| Thermal tolerance |
| time to maturity |
| tolerance of acidity |
| tolerance of water logging |
| toxicokinetics |
| trophic group |
| trophic guilds |
| trophiclevel |
| trophic preferences |
| type of mouth |
| vertical distribution |
| vertical migration |
| visualorgan |
| water regime preference |
| weight |
| wingmorphology |