

SPECIES RICHNESS AND COMPOSITION PATTERNS OF LARGE BRANCHIOPODS ASSEMBLAGES IN THE IBERIAN PENINSULA AND BALEARIC ISLANDS

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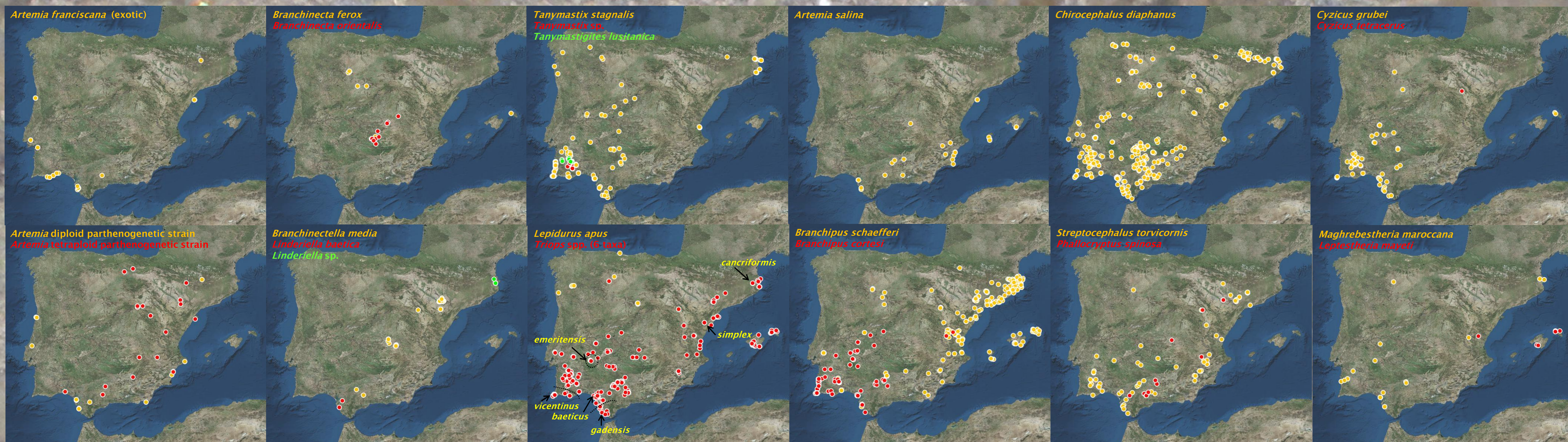
The distribution of the large branchiopod fauna (Crustacea: Branchiopoda: Anostraca, Notostraca, Spinicaudata) in The Iberian Peninsula and Balearic Islands is being updated based on bibliographical and recent records. The revision includes 1101 sites, and 1639 records of large branchiopods. The checklist includes 16 anostracans (1 of them exotic), 4 spinicaudatans and 7 notostracans (parthenogenetic strains of *Artemia* are counted as 1 taxon).

We considered the different species of genus *Triops* as one taxa, due to the difficulties to allocate the bibliographical records of this genus to the 6 new species (the co-occurrence of different species of *Triops* has not been recorded in the Iberian Peninsula or the Balearic Islands). Similarly, the exotic invasive *Artemia franciscana* has been considered only for the faunistic approach, but not for the study of the assemblage structure, as this species competitively displaces the autochthonous species of *Artemia*.

Co-occurrences were analysed for the whole dataset, and for each UTM 100 km square. Probabilistic species co-occurrences were calculated in order to know if they co-occur randomly, or they are associated positively or negatively. For each UTM 100 km grid square, we calculated the maximum number of species per site, and the percentage of sites that showed co-occurring species.

Similarly, for each UTM 100 km grid square, diversity patterns were measured as γ -diversity, mean α -diversity, and mean β -diversity and were thereafter compared along latitudinal and longitudinal gradients. UTM 100km grid squares with less than 5 localities were removed from the analyses.

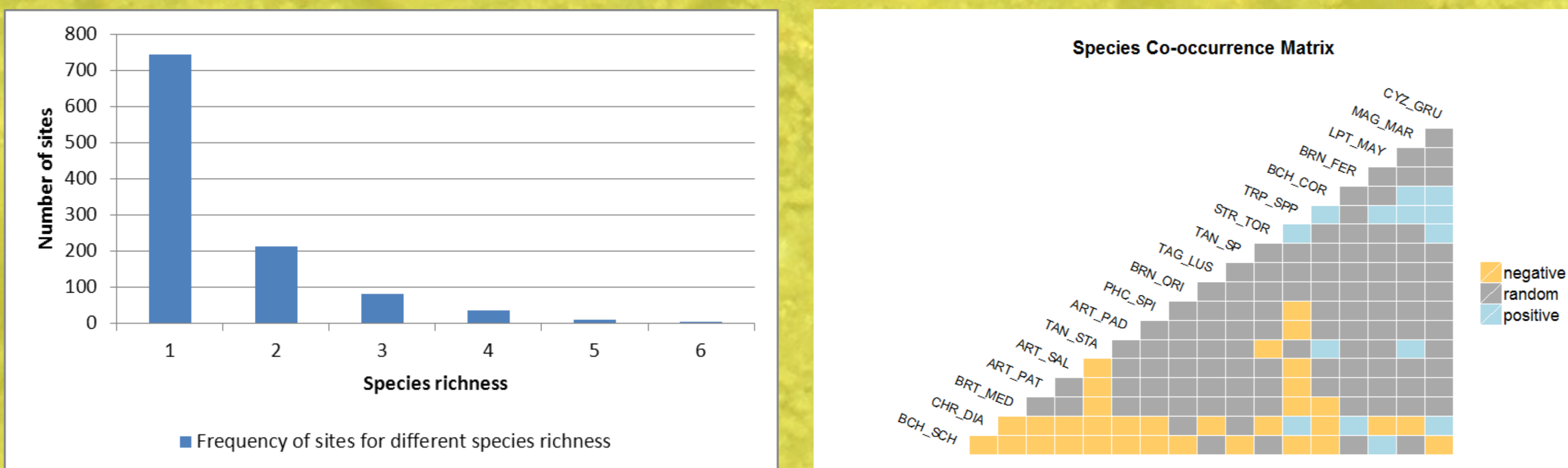
Distribution of bibliographical and recent records of large branchiopods



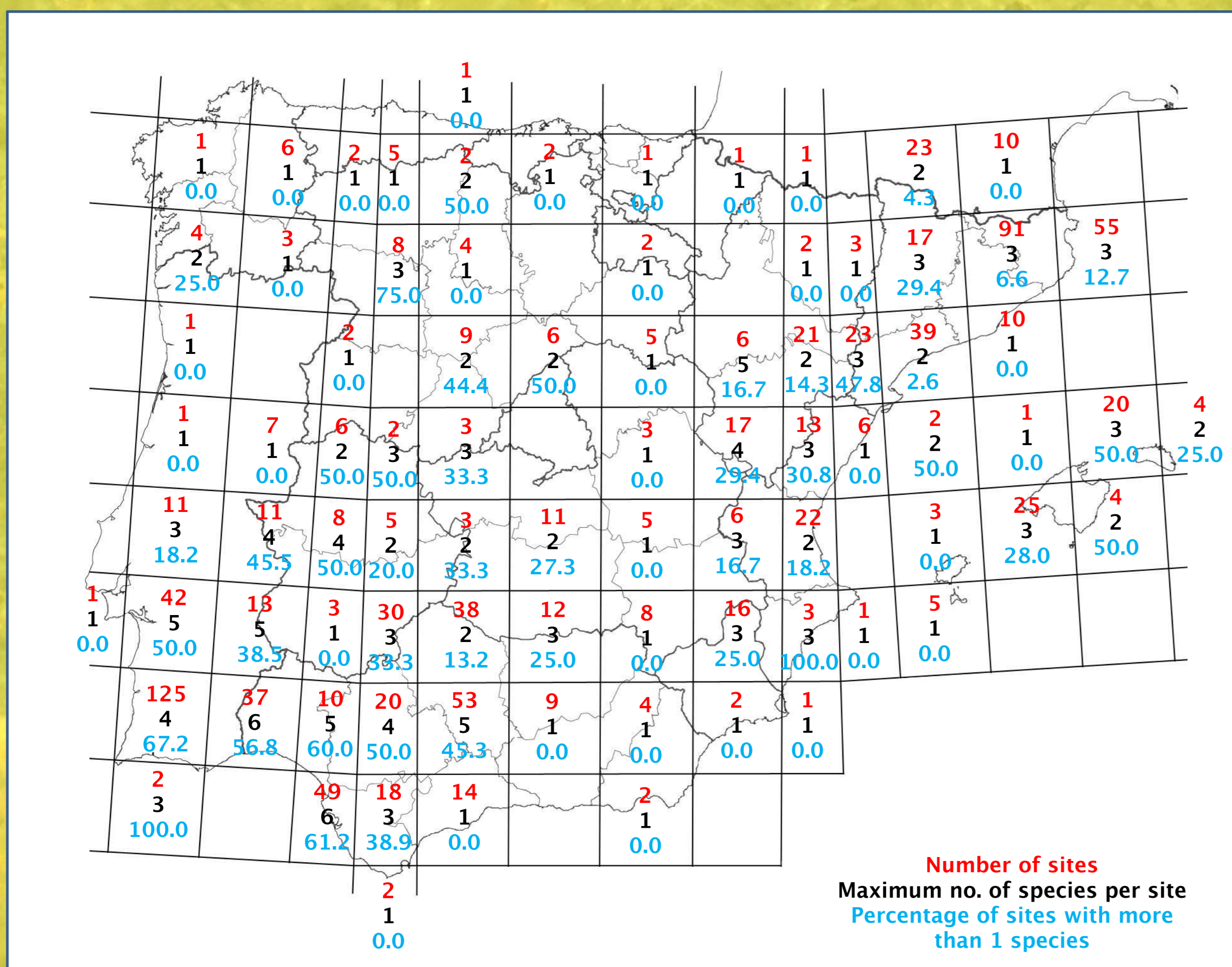
3 species are considered common in the Iberian Peninsula (>100 sites): *Chirocephalus diaphanus*, *Branchipus schaefferi* and *Tanyastix stagnalis*. Further studies are needed in order to know if *Triops baeticus* is largely distributed in southern Iberian Peninsula. Rare species were also detected (<15 sites): both *Branchinecta* species, *Linderiella baetica*, *Linderiella* sp., *Tanyastix lusitanica*, *Phallocryptus spinosa*, *Leptestheria mayeti*, *Cyzicus tetracerus* and *Lepidurus apus*. Of these species, the conservation status of *C. tetracerus* and both *Linderiella* species are of high concern, due to the low number of sites in which these species are present, and specially to the loss of habitat in the case of *Linderiella baetica*. Similarly, there is also high concern in the status of the populations of the autochthonous species of *Artemia* due to the expansion of invasive *Artemia franciscana*.



More than 45% of sites presented co-occurrence of large branchiopod species, with decreasing frequencies when species richness increased. A maximum of 6 species were found co-occurring together in 3 different sites (in Doñana, Cádiz and Algarve). Some species pairs showed significant positive co-occurrences (e.g., *B. cortesi* vs. *T. stagnalis*; *B. schaefferi* vs. *L. mayeti*; *C. diaphanus* vs. *Triops* spp.), whereas other species pairs showed significant negative co-occurrences (e.g., halophilous species vs. freshwater species; *C. diaphanus* vs. *S. torvicornis*; *C. diaphanus* vs. *M. maroccana*).



Higher values of maximum number of species per site were more common in the south-west of Iberian Peninsula. Likewise, the percentage of sites with more than 1 species was also higher in SW, always taking into account that the number of sites per UTM square was large enough.



Mean α -diversity values significantly decreased with increasing longitude, whereas mean β -diversity and γ -diversity values decreased with increasing latitudes. These results can be also observed in the maps, where higher values are observed in the SW, except for some high values in Castilla y León (Villafáfila).

