What and When Local Predictors Drive Tadpole Diversity in Subtropical Temporary Ponds?

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ABSTRACT

We evaluated seasonal variation in taxonomic, functional and phylogenetic diversity and redundancy of tadpoles in 401 points of 10 ponds in southern Brazil. We predicted i) congruent patterns between all components of diversity and environmental descriptors; ii) stronger effects of environment in the diversity

components in seasons when the water level in ponds is low; iii) diversity components to be influenced by distinct sets of environmental factors in different periods. Predictions were tested using Linear Mixed Models. We observed positive influence of water depth on taxonomic, functional and phylogenetic diversity, as well as on functional redundancy during periods when the water level in ponds is high. Phylogenetic redundancy was not explained by any of the selected environmental variables. When the water level in ponds is low none of the environmental descriptors affects any of the diversity components. Environmental filtering seems to strongly influence tadpole community structure in temporary ponds, at least in periods when water depth gradients create a variety of micro-habitats allowing diverse sets of species to settle and co-occur. These species sets are then filtered according to their swimming and foraging abilities along the depth gradient, where intermediate depths should contain the greatest tadpole diversity.

KEYWORDS

Amphibians, community assembly, depth gradients, environmental filtering, seasonality, functional and phylogenetic diversity.

INTRODUCTION

Different niche-based processes influence aquatic communities, suggesting that biological communities do not result exclusively from events of dispersion and stochasticity (Petchey et al., 2007; Villéger et al., 2010, Mason et al., 2011; de Bello et al., 2013), but are also the result of biotic interactions and, mostly, environmental filtering. In this process, environmental factors act as a filter, selecting the species of the regional pool (see the recent debate on the environmental filtering mechanism in Kraft et al., 2015, and Cadotte & Tucker, 2017), so that the local community composition results from the direct relation between the ecological characteristics of the species and the biotic and abiotic environment (Poff, 1997; Leibold et al., 2004; Hubbel, 2001). Thus, communities under equivalent environmental conditions should harbor species with similar ecological requirements and should be more similar to each other than expected at random (Parris, 2004; Heino et al., 2015).

Recent studies support the idea that research on community structure should not focus solely on taxonomic diversity, but also on a set of metrics encompassing different aspects of diversity that

are complementary to each other (Díaz et al., 2007; Mouchet et al., 2010; Cavender-Bares et al., 2009). A more accurate evaluation of functional attributes associated with environmental descriptors and the cumulative evolutionary history in each community is achieved by evaluating functional and phylogenetic diversity (diversity of traits and diversity of evolutionary lineages, respectively; Villéger et al., 2012; de Bello et al., 2013; Corbelli et al., 2015). These aspects are crucial, as they tend to reflect the resilience of a system to environmental change (Petchey & Gaston, 2006; Mouchet et al., 2010; Meynard et al., 2011). Incorporating information on the evolutionary history of the species through phylogenetic diversity allows for the evaluation of the contribution of historical processes (e.g. extinction and speciation events) to the assembly of present-day communities, even when these processes act at larger spatial scales (Faith, 2016). Frequently patterns in the three components of diversity tend to be consistent (Erös et al., 2009; Meynard et al., 2011; Arnan et al., 2017), but these relationships between components vary according to the taxonomic group and degree of niche conservatism of the traits (Cavender-Bares et al., 2009; Arnan et al., 2015; Sobral & Cianciaruso, 2016). Thus, there are cases when the evaluated metrics may vary differentially along the same environmental gradients (Devictor et al., 2010; Safi et al., 2011; Corbelli et al., 2015).

Temporary ponds are part of the huge diversity of freshwater environments (Williams et al., 2004). The effect of environmental filtering on the community structure of these ponds is dependent on seasonal changes in the hydroperiod – period during which the pond retains water – and other local environmental conditions (Williams, 2006; Mendez et al., 2012; Ruhi et al., 2013). The filtering process is generally accentuated when the water level in ponds is low. Temperature and evapotranspiration rates, for example, tend to increase, constraining more severely the set of species able to persist in the ponds (Peltzer & Lajmanovich, 2004; Williams, 2006; Hamerlik et al., 2014). So, hydroperiod tends to define the composition of the community, with evolutionarily convergent and more functionally redundant species co-occurring when the water level in ponds is low (clustering pattern; Ruhi et al., 2013). On the other hand, functional and phylogenetically more divergent species co-occur when the water level in ponds is high, because temperature, dissolved oxygen and pH are not extreme (Schriever & Lytle, 2016; Ruhí et al., 2014; Martins et al., 2015; Strauß et al., 2016).

Tadpoles select specific micro-habitats along environmental gradients (Altig & Johnston, 1989). This behavior seems to reflect the morphology and the evolutionary history of each species

(Marques & Nomura, 2015) and may be influenced by several environmental factors (Haramuda, 2007). In fact, aquatic vegetation and depth were considered the main predictors of species richness and functional and phylogenetic diversity of tadpoles in ponds and streams (Both et al., 2011b; Queiroz, da Silva & Rossa-Feres, 2015; Melo et al., 2017; Escoriza & Ben Hassine, 2017). The presence and structuring of aquatic vegetation promotes micro-spatial heterogeneity, increasing the availability of sites for foraging and for seeking refuge from predators (Eterovick & Fernandes, 2001; Alford et al., 1999; Hero et al., 2001; Kopp, Wachlewski & Eterovick, 2006), while depth gradients allow for the exploration of different levels along the water column and the maintenance of species in distinct periods of larval development (Welborn, Skelly & Werner, 1996; Both et al., 2011a; Escoriza & Ben Hassine, 2017). Water chemistry (dissolved oxygen, pH) and temperature may also influence tadpole diversity, as they induce physiological and behavioral responses that are determinant in relationships with predators and competitors (Warner, Dunson & Travis, 1991). In drying pools pH levels generally increase due to the high concentration of ions and CO₂ (Rowe, Sadinski & Dunson, 1992; Angélibert et al., 2004). Thus, tadpole survival rates should be expected to be different along the gradients of water chemistry (Moore & Townsend, 1998). Finally, tadpole distribution may also respond to pond morphology and its spatial distribution (Provete et al., 2014). Thus the effects of the physical and chemical descriptors of water can be irrelevant for the tadpole community assembly in ponds (Provete et al., 2014).

Few studies on tadpole community structuring have explored the influence of environmental filtering on the three components of diversity (taxonomic, functional, and phylogenetic) (Strauß et al., 2016; Escoriza & Ben Hassine, 2017). Here, we aim to evaluate the relationships between local environmental descriptors and these metrics of diversity of tadpole communities in temporary ponds in southern Brazil. We evaluate if: i) local environmental factors act as predictors of tadpole diversity; ii) different components of diversity respond to the same environmental factors; iii) the influence of the environment on the diversity metrics changes seasonally. We expect congruent patterns between the three components of diversity and significant relationships with local environmental descriptors (Ribeiro et al., 2017; Escoriza & Ben Hassine, 2017). However, the patterns of diversity should be contrasting between seasons as a consequence of the reproductive phenology of the adults of some species that show seasonal peaks of activity related to some environmental conditions (e.g photoperiod – daylight length – and temperature; Both et al., 2008a). When the water level in ponds is high (Austral Spring and Winter), we

expect a positive influence of aquatic vegetation, temperature and depth on the three components of diversity (Both et al., 2011a; Pujol-Buxó et al., 2017; Melo et al., 2017). Greater gradients of aquatic vegetation, temperature and depth favor the co-occurrence of benthic and nektonic species, which explore different resources according to their specific morphologies (Michel, 2011, Queiroz, da Silva & Rossa-Feres, 2015, Escoriza & Ben Hassine, 2017). However, when the water level in ponds is low (Austral Summer and Autumn) we expect a drastic change in pond environmental conditions, with shallow gradients in aquatic vegetation, temperature and depth, resulting in lower levels of diversity and higher levels of functional redundancy (Ruhí et al., 2014; Strauß et al., 2016; Nunes et al. 2016). Diversities should be influenced by the environmental descriptors that affect the survival of tadpoles (Strauß et al., 2016). Therefore, we expect that taxonomic, functional and phylogenetic diversities to be positively associated with dissolved oxygen levels and negatively associated with extreme temperature and pH values (Warner, Dunson & Travis, 1991).

MATERIAL AND METHODS

STUDY AREA

The study was done in the southern remnants of the Atlantic Forest Biome at the Reserva Biológica do Lami José Lutzemberger (30 ° 14'10.3 "S, 51 ° 05'51.7" W), an area with 204.04 hectares located on the banks of the Guaíba Lake, Porto Alegre, Rio Grande do Sul, Brazil (Figure 1). This is a conservation unit characterized by a low sandy plain landscape, formed by Quaternary sediments, and by a flat relief, which may present sandy elevations interspersed with depressions (Borges-Martins et al., 2013). Vegetation is typical of the ecotone between Semi-deciduous Seasonal Forest and Dense Ombrophylous Forest (Brack et al., 1998). Climate is mainly of the Cfa type (Wrege et al., 2011), characterized by average temperatures of 33°C in the warmest month and varying between 10 and 23°C in the coldest month (see the Table S1 of the Supplementary Material). Rainfall is well distributed throughout the year, with slightly higher rainfall volume between July (Austral Winter) and December (Austral Spring-Summer), a period of low water stress, while low levels of precipitation occur frequently between March (Austral Autumn-Summer) and May (Austral Autumn), a period of higher water stress,

although there is no well-defined dry season. Annual average rainfall is 1500 mm (Wrege et al., 2011; Radin et al., 2017; Table S1 of the Supplementary Material).

DATA COLLECTION

The study was carried out in a group of small temporary water bodies (ponds) used as breeding sites by anurans. There are numerous ponds at the site with average depth of 50 centimeters when the water levels are high, surrounded by native vegetation cover composed mostly of grasslands associated with shrubs – predominantly of the Asteraceae and the Poaceae. Pond hydroperiod has two well-defined stages: low and high water levels, distributed in a non-predictive way throughout the year. We selected 10 ponds for sampling collection according to i) area accessibility and ii) distance between ponds of at least 250 meters. Data collection took place one time per month during anuran breeding season, between September 2013 and August 2014. Samples were collected in each pond at survey points at least three meters apart from each other (Prado et al., 2009). Delimitation of collection points and sampling methods of tadpoles followed Alford and Crump (1982), by marking each point to be sampled with a metal cylinder (70 centimeters long and 32 centimeters diameter), open in both ends. The metal cylinder was dropped to the chosen sampling point and, before tadpole collection, we checked if the lower end of the cylinder was well positioned on the pond substrate to prevent individuals from escaping. The individuals confined to the metal cylinder were collected with a wire mesh of 3 millimeters for a period of three minutes (more details on the sampling scheme in the Supplementary Material Figure S2). Each sampling point was resampled each month. Specimens collected in each sampling point were stored in separate flasks and identified in the laboratory to the species level with basis on literature and using specimens from scientific collections. The collected individuals were deposited in the Scientific Collection of the Zoology Department of the Universidade Federal do Rio Grande do Sul.

The characterization of the hydroperiod was done monthly by recording each pond's individual total area and average depth. The surveyed ponds differed in relation to the environmental structure and the number of months they retained water (Table 1), as well as to the number of surveyed points (see Supplementary Material Table S3).

For each collection point the following local descriptors were evaluated: percentage of vegetation cover in the internal area of the cylinder, categorized in: 1) (none), 2) (1-25%), 3) (26 - 50%), 4) (51-75%), 5) (> 76%); distance from the sampling point to the margin (cm); depth of the sampling point (cm); pH; dissolved oxygen; water temperature ($^{\circ}\text{C}$); month of sampling. PH and water temperature were measured with a pHmeter, and dissolved oxygen of water was measured with an oximeter. The depth of the water column was measured with a ruler positioned in the center of the cylinder. Lastly, we divided the area of the cylinder into four parts, each representing approximately 25% of the covered area, to measure the percentage of aquatic vegetation in each section. The variation of each environmental descriptor between the seasons is presented in the Supplementary Material (S4).

ETHICS STATEMENT

Collection permits were provided by the Brazilian government (ICMBio) (authorization 40180-2). Field studies did not involve endangered or protected species. Manipulation of animals in the field was restricted to a minimum, as sampling was restricted to specimens collected in the points delimited by the cylinder (see the section above). The collected specimens were immediately anesthetized with xylocaine and fixed in 10% formaldehyde. This study was approved by the Research and Ethics committee of the Universidade Federal do Rio Grande do Sul.

DATA MATRICES

We built two matrices - a presence/absence matrix and an environmental descriptor matrix - containing the data of the species collected at the collection points of each of the sampled ponds during the two seasons: when the water level in ponds is high, September and October/2013 and May-August/2014, and when the water level in ponds is low, November and December/2013 and January-April/2014 (see Supplementary Material Table S1 for details). Environmental variables were standardized by subtracting the corresponding average and dividing by the standard deviation.

Based on the information contained in the presence/absence matrix, we created a phylogenetic tree by pruning the dated amphibian tree proposed by Jetz and Pyron (2018) to include

only the species found in the communities using the function *prune.sample* of the R package *picante* (Kembel et al., 2010). We then built a matrix of phylogenetic distances composed of all the species occurring in the ponds throughout the seasons.

For the functional matrix, we measured 12 different traits (see Table S5 of the Supplementary Material) from a minimum of five tadpoles of each species collected during the study period in all ponds. The tadpoles were previously classified according to developmental stage (*sensu* Gosner, 1960), and only those between stages 33 and 39 were measured (Queiroz, da Silva & Rossa-Feres, 2015; Jordani et al., 2019). Restriction to this range of development reduces the influence of intraspecific variation, thus excluding possible allometric differences related to ontogenetic development (Grosjean, 2005). The functional traits we used were selected on the basis of their well-known relations with feeding and swimming behavior, habitat use, or tadpole life history (Inger et al., 1987; Altig & Johnston, 1989; Rossa-Feres, Jim, & Fonseca, 2004; Lajmanovich, 2000; Eterovick & Barros, 2003; Strauß et al., 2010).

We used Variance Inflation Factor Analysis (VIF, Lin, Foster, & Ungar, 2011) to assess multicollinearity between the descriptors of the environmental matrix and between the traits of the functional matrix. The value of VIF for an explanatory variable is obtained using the R^2 value of the regression of this variable against all other explanatory variables. We considered variables with VIF values above five as correlated. Results were not indicative of significant correlation between any of the traits (Supplementary Material Table S6) or between any of the environmental descriptors (Supplementary Material Table S7).

All analyses were performed using the 'SYNCSA', 'ade4', 'ape' and 'vegan' packages in R (R Development Core Team, 2013).

STATISTICAL ANALYSIS

The tadpole diversity at each of the sampling points was evaluated using Rao's Quadratic Entropy Index (Rao, 1982). This index is based on the proportion of species present in a community and some measure of dissimilarity, ranging from 0 to 1. One of the advantages of this method is that it allows for the division of biodiversity into alpha, beta and gamma components (Pavoine, Dufour, & Chessel, 2004), providing a flexible framework that can be adapted to quantify and compare different components of diversity such as taxonomic, functional, and phylogenetic diversity of the

communities (de Bello et al., 2009, Meynard et al., 2011, Bernard-Verdier, Flores, Navas & Garnier, 2013; Arnan, Cerdá & Retana, 2014; 2017). Taxonomic distances between species within each sampled point k were obtained from the presence/absence matrix using the formula:

$$Rao(k) = \sum_{i=1}^n \sum_{j=1}^n dij$$

$dij = 1$, where dij is the distance between species i and j . Phylogenetic distances between species were measured using the co-phenetic distances of the phylogenetic matrix. We used the functional matrix to calculate the Euclidean distances between species based on the Gower distance. Finally, we evaluated the functional and phylogenetic redundancies that measure the resilience of a community to ensure the provision of ecosystem processes against any type of disturbance (Pillar et al., 2013). This maintenance is ensured by the presence of functional and phylogenetically similar species, differing in their responses to those disturbances. Redundancy metrics were obtained by calculating the difference between species diversity and the Rao quadratic entropy based on their functional and phylogenetic dissimilarity, respectively (de Bello et al., 2006). All Rao's quadratic entropy calculations were performed using the 'SYNCSA' package in the R environment (R Development Core Team, 2013).

We used Linear Mixed-Effect Models (LMM) with Gaussian distribution to model the relation between diversity indexes (taxonomic, functional and phylogenetic diversity and functional and phylogenetic redundancies) and local environmental descriptors. This approach explicitly models the relation within the data set using random effects or latent random variables (Breslow & Clayton, 1993; Zhang et al., 2012). We built several models with different sets of environmental descriptors, so that all possible combinations would be evaluated. Pond was included as random effect. Model selection was carried out using the corrected Akaike Information Criteria (AICc) to select the model containing the most information between all candidate hypotheses (Buham & Anderson, 2002). We also took into account the AICc weights (w), indicative of the empirical support for each model relative to the others in the candidate set. Finally, we applied a threshold of AICc 2 units to define model support (in other words, we considered models with $\Delta AICc < 2$ as equivalent; Zuur et al., 2009). Models were built using the 'lme4' package in R (R Development Core Team, 2013).

RESULTS

We collected a total of 2,390 tadpoles from 18 species of three families: Hylidae (seven species), Leptodactylidae (10 species) and Odontophrynidae (one species) (Table 2). The highest richness and abundance of tadpoles occurred when the water level was higher (Austral Spring and Winter) showed (Table 2).

Models showed that the three components of diversity generally responded to the same set of local environmental descriptors (Tables 3 and 4). However, that relationship varied throughout the seasons. In the Austral Winter (when the water level is high) water depth positively affected the components of diversity. However, phylogenetic redundancy was not explained by any of the local environmental descriptors. When the water level is low – Austral Summer and Autumn – none of local environmental descriptors explained the observed patterns of diversity. The table including all the models for all the evaluated diversity metrics is presented as Supplementary Material (Tables S8-S27).

During the Austral Winter, intermediary (16-45 centimeters) and deep (46-70 centimeters) water depth micro-habitats showed the highest richness and diversity of tadpoles (Figure 2; Figure 3 a-d), while shallow depth micro-habitats (0-15 cm) presented the lowest values. We also observed that benthic tadpoles – those with vertically flattened bodies and low fins – were more abundant at shallow and intermediary depths, whereas nektonic tadpoles – those with horizontally flattened bodies and high fins – were more abundant at intermediary and deep depths (Figure 4).

DISCUSSION

Tadpole community assembly is not completely random

Results showed local environmental factors influence tadpole diversity in ponds. Although the null model was frequently among the best set of models, all diversity metrics evaluated here were associated with water depth in the Austral Winter, when the water level is higher. Therefore, environmental descriptors drive the diversity of tadpoles in lentic systems, at least under such conditions. This is in agreement with non-random patterns of organization in tadpole communities found in other studies (Both et al., 2011b, Strauß et al., 2016; Knauth, Moreira & Maltchik, 2018).

This not with standing, environmental filtering does not seem to be the only mechanism driving tadpole assembly. Recent studies have reported that tadpole diversity patterns in ponds are the result of a complex balance between environmental and spatial factors, the latter of which seemingly having the largest fraction of total variance observed in communities (Leão-Pires, Luiz & Sawaya, 2018; Marques et al., 2018; Dalmolin et al., 2019). Furthermore, other niche-based processes (e.g. predation and competition) have been identified as the main agents in the modification of the structure of aquatic communities, to the extent of modifying the relation between environmental and spatial factors and the components of diversity (Livingston et al., 2017).

The multifaceted approach we used made it possible to bring to the foreground the role of local environmental descriptors as predictors of tadpole diversity in temporary ponds. Some studies suggested that the environment governs the relation between taxonomic, functional and phylogenetic diversity and that these may covariate differentially along the environmental gradients (Devictor et al., 2010, Safi et al., 2011; Bernard-Verdier, Flores, Navas & Garnier et al., 2013). However, our results revealed congruent responses of the three components of diversity to the environmental gradients, corroborating our initial prediction, and patterns described for other anuran communities (Ribeiro et al., 2017, Escoriza & Ben Hassenin, 2017).

The relation between the environment and tadpole diversity changes seasonally

Results are consistent with the theory that environmental filtering is an important agent driving the assembly of communities in seasonal systems, as evidenced by several groups of aquatic organisms (e.g. Poff, 1997; ; Florencio et al., 2014; Datry, Bonada & Heino, 2016), including anurans (Escoriza & Ben Hassine, 2017; Couto et al., 2017; Knauth, Moreira & Maltchik, 2018). The effect of local environmental factors on components of diversity was discrepant between seasons, and significantly when the water level is high. These results do not support our initial prediction and are discrepant with the findings of previous studies in similar systems, where there was evidence of environmental filtering when the water level is low (e.g. Chase, 2007; Ruhí et al., 2013).

Richness and abundance of tadpoles was highest in the end of the period when the water level is high and declined gradually towards periods when the water level is low, following the general pattern found in tropical and subtropical regions (e.g. Kopp, Wachlevski, & Eterovick, 2006, Both et al., 2008b; Both et al. 2011b; Strauß et al., 2016). The period when water level is high coincides with the peak of the reproductive activity for most of the registered species (see Supplementary Material Table S28). During this period the ponds are full of water, and the gradual increase of photoperiod and air temperature may serve as stimulus for the beginning of reproduction of several species; this may even occur by the end of the Austral Winter (Both et al., 2008a). As environmental seasonality strongly influences anuran reproductive phenology and may affect functional and phylogenetic diversities (da Silva et al., 2012; Martins et al., 2015), it is not surprising that tadpole community assembly, specifically species spatial and temporal distribution, to be closely related to the reproductive activity of the adults (Resetaritis & Wilbur, 1991; Alford, 1999).

In the area of our study, the increase in water volume seems to create more favorable conditions for the species present (Lake, 2003), including greater diversity and availability of foraging and roosting resources (e.g. food and micro-habitats). Different micro-habitats combining for a wide array of environmental conditions are necessary for the co-occurrence of a larger set of species (Eterovick & Barata, 2006; Both et al., 2011b). Environmental heterogeneity (e.g. depth, temperature and vegetation) usually presents a linear relation with the diversity of tadpoles in ponds, as it maximizes the occupancy of the functional space and, consequently, should also add to the phylogenetic diversity (Escoriza & Ben Hassine, 2017).

Periods of low water were characterized by the reduction of tadpole richness and abundance. In fact, most tadpoles probably complete larval development and leave the ponds before these dry completely (Strauß et al., 2016). During these periods, water depth may reach extremely low levels and this is a limiting factor for the occurrence of some groups of species that have limited swimming ability at shallow depths (e.g. genus *Scinax*; Queiroz, Silva & Rossa-Feres, 2015). Accordingly, the remaining sets of species were composed, for the most part, of species that present flat bodies, low fins and ventral oral discs (e.g. genus *Physalaemus*). These functional traits are shared by species belonging to different lineages; they constitute adaptations for exploring the bottom of the ponds and may also be

important for resisting extreme temperatures and low levels of dissolved oxygen (Babbitt & Turner, 2000; Martins et al., 2015; Queiroz, Silva & Rossa-Feres, 2015; Strauß et al., 2016). Under these conditions the influence of local predictors may be irrelevant, and community patterns may simply result from stochasticity (Chase, 2007; Delatorre et al., 2015).

The interchange between the deterministic and stochastic processes in the assembly of tadpole communities along the disturbance cycle associated to the level of water corroborates the patterns evidenced for other organisms in ponds subjected to desiccation (Zhou et al., 2014; Llamas et al., 2017; Daniel et al., 2019). These cycles influence the processes of ecological succession, and the disturbance intensity will condition communities to distinct structuring agents (Zhou et al., 2014; Måren et al., 2018). Although we have observed more severe local environmental conditions in seasons when the water volume in ponds is low, it is possible that environment filters the species in the late Spring, i.e. when evapotranspiration increases and local environmental conditions begin to modify. The end of the desiccation period resulting from the increase in water depth, occurring in the Winter, expose species to a new selection process, allowing for a modified community to establish and for species to segregate along depth gradients (Figure; O'Neill, 2016). In summary, the effect of deterministic processes on the ecological succession and on the community assembly seems to dominate in the early and late periods of the disturbance cycle, while stochastic processes apparently dominate in the intermediate periods (Zhou et al., 2014; Daniel et al., 2019).

Tadpole diversity responds to water depth

When the water level in ponds is high, taxonomic, functional, and phylogenetic tadpole diversity seem to be influenced by water depth, corroborating our initial prediction. Many studies have reported a strong influence of water depth in the assembly process of aquatic organisms, including on functional and phylogenetic alpha and beta diversity patterns (e.g., corals: Doxa et al., 2016; fishes: Langer et al., 2017; anurans: Werner et al., 2007; Both et al., 2011a; Semlitsch et al., 2015; Queiroz, da Silva & Rossa-Feres, 2015; Péntek et al., 2016; Dalmolin et al., 2019) and also an influence on the recolonization of ponds that undergo some type of environmental stress (Lesbarrères et al., 2009).

Water depth is, obviously, related to the variation in the water volume of the ponds and may be used as proxy for the hydroperiod (Vanschoenwinkel et al., 2009). Tadpoles exhibit strong and

direct responses to the variation in the water volume of the ponds (e.g. phenotypic plasticity and adjustments in the levels of activity, movement and time of metamorphosis), especially under extreme environmental situations (Welborn, Skelly & Werner, 1996; Werner et al., 2007). There seems to be a trend for peaks of richness, density and diversity to be reached at intermediate depths and hydroperiods (Welborn, Skelly & Werner, 1996; Snodgrass, Bryan Jr. & Burger, 2000; Semlitsch et al., 2015), and our results are consistent with this trend.

The relation between tadpole diversity and water depth became even clearer when traits were used to explain the patterns of functional dissimilarity between pond communities (Queiroz, da Silva & Rossa-Feres, 2015). Indeed, species seem to be filtered according to their swimming and foraging abilities (Escoriza & Ben Hassine, 2017), and ponds in the extreme of the depth gradient will mostly contain tadpoles of the Leptodactylidae (in shallow depths) or of the Hylidae (in deep depths), while intermediate depths should harbor more functionally and phylogenetically diverse clusters (Queiroz, da Silva & Rossa-Feres, 2015).

Water depth can also affect the resources used by tadpoles. In fact, pond productivity, represented by abundance and diversity of aquatic vegetation, algae (which are food resources for tadpoles), and other organic matter, are all influenced by depth (Altig, 2007; Shulse et al., 2010, 2012; Langer et al., 2017). Foraging and roosting resources decline in extreme ranges of the depth gradient and are less variable in seasons when the water persists for longer times in the ponds (Wetzel, 2001; Anusa, Ndagurwa & Magadza, 2012; Doxa et al., 2016; Langer et al., 2017). So, the availability and variation of these resources should drive diversity patterns and promote dissimilarities at the local scale (Levin et al., 2001; Lins et al., 2017).

CONCLUSIONS

Tadpole components of diversity respond to environmental factors. However, in our study system this relation was only significant when the water level in ponds is high, because the environmental conditions are milder and tend to allow for the coexistence of phylogenetically and functionally diverse

taxa. Under these conditions diversity metrics were significantly associated with water depth. Also, the diversity metrics used here were consistent in their response to local environmental factors, demonstrating that the results produced for one metric may be extended to the others. Our results show the impact of environment on the anuran life cycle and reinforce the thesis that the assembly of tadpole communities is not random. Our results contribute to the understanding of the ecology of the anuran larval phase, a less known stage of the life of a group of organisms participating in important and diverse ecosystem functions.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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Figure 1: Location of the study area at Reserva Biológica do Lami in the Porto Alegre municipality, Rio Grande do Sul, Brazil. Dots indicate the 10 ponds sampled for tadpoles.

Table 2 – Abundance of tadpoles of anuran species registered at the Reserve Biológica do Lami, southern Brazil, between September/2013 and August/2014. Seasons with high water levels in ponds - Austral Spring and Winter; Seasons with low water levels in ponds Austral Summer and Autumn.

Ecological guild	Species	Spring	Summer	Autumn	Winter
Benthonic	<i>Boana faber</i>	12	219	76	64
	<i>Boana pulchella</i>	15	0	0	11
	<i>Leptodactylus fuscus</i>	5	2	0	0
	<i>Leptodactylus gracilis</i>	8	0	0	1
	<i>Leptodactylus latrans</i>	98	0	0	0
	<i>Leptodactylus mystacinus</i>	6	0	0	0
	<i>Odontophrynus americanus</i>	22	0	0	0
	<i>Physalaemus biligonigerus</i>	7	0	0	2

Nektonic	<i>Physalaemus cuvieri</i>	4	32	2	0
	<i>Physalaemus gracilis</i>	142	12	0	3
	<i>Physalaemus henselii</i>	188	0	0	191
	<i>Physalaemus lisei</i>	36	0	0	1
	<i>Pseudopaludicola falcipes</i>	2	0	0	0
	<i>Dendropsophus minutus</i>	10	8	38	4
	<i>Ololygon berthae</i>	155	2	7	89
	<i>Scinax granulatus</i>	446	23	2	6
	<i>Scinax squalirostris</i>	363	39	0	31
	<i>Scinax uruguayus</i>	6	0	0	0
Abundance		1525	337	125	403
Richness		18	8	5	11

Table 3 - Summary of the best-adjusted LMM for each of the diversity components analyzed for tadpole communities. R²m (fixed effects); R²C (fixed + random effects).

	Season	Model	AICc	ΔAICc	Weight	R ² m	R ² C
Functional Diversity	Winter	Null	-32.61	0	0.54	0.09	0.10
		Depth	-30.79	1.82	0.23		
	Spring	Null	-123.27	0	0.91	<0.01	0.21
	Summer	Null	-0.93	0	0.70	0.21	0.21
	Autumn	Null	-18.12	0	0.73	0.22	0.82
Functional Redundancy	Winter	Null	-96.06	0	0.51	0.11	0.14
		Depth	-94.72	1.33	0.26		
	Spring	Null	-247.69	0	0.92	0.02	0.13
	Summer	Null	-32.86	0	0.76	0.25	0.25
	Autumn	Null	-50.14	0	0.88	0.25	0.87
Phylogenetic Diversity	Winter	Depth	22.04	0	0.35	0.11	0.16
		Null	22.30	0.25	0.29		
	Spring	Null	26.09	0	0.89	<0.01	0.21
	Summer	Null	17.15	0	0.57	0.24	0.24

	Autumn	Null	-10.05	0	0.74	0.21	0.80
Phylogenetic Redundancy	Winter	Null	2296.60	0	0.99	0.12	0.29
	Spring	Null	6653.53	0	0.99	0.03	0.05
	Summer	Null	753.05	0	0.99	0.02	0.03
	Autumn	Null	667.70	0	0.99	<0.01	0.01
Taxonomic Diversity	Winter	Depth	40.12	0	0.32	0.10	0.12
		Null	40.17	0.05	0.31		
	Spring	Null	92.11	0	0.87	<0.01	0.17
	Summer	Null	23.76	0	0.55	0.23	0.23
	Autumn	Null	1.33	0	0.71	0.24	0.89

Table 4: Results of ANOVA tests showing the effects of water depth on tadpole diversity components in the Winter.

Diversity Components	Effect	F	p
Functional diversity	0.05	6.95	0.010
Functional redundancy	0.04	9.06	0.003
Phylogenetic diversity	0.08	8.55	0.004
Phylogenetic redundancy	NS	NS	NS
Taxonomic diversity	0.09	8.08	0.006

Figure 2: Tadpole richness distribution in microhabitats along the depth gradient during the winter. SR: species richness; S: shallow (0-15 cm); I: intermediary (16-45 cm); D: deep (46-70 cm).

Figure 3: Distribution of the components of tadpole diversity along the depth gradient during the period of high water levels in ponds (winter). S: shallow (0-15 cm); I: intermediary (16-45 cm); D: deep (46-70 cm).

Figure 4: Distribution of tadpole morphological guilds along depth gradient during the period of high water levels in ponds (winter): shallow (0-15 cm); intermediary (16-45 cm); and deep (46-70 cm).

SUPPLEMENTARY MATERIAL

1) Supplementary Material relating to the material and methods section

§1 - Monthly average of the climate descriptors recorded for the city of Porto Alegre, Rio Grande do Sul, Brazil, in the period between September 2013 and August 2014.

Month	Season	Photoperiod/day length (hours)	Total Precipitation (cm ³)	Maximum Temperature (°C)	Minimum Temperature (°C)	Air humidity (average)	Evaporation (average)
September/2013	Wet	137,7	135,3	21,2	13,6	78,3	55,9
October/2013	Wet	207,8	131,8	22,9	15	74,7	75,3
November/2013	Dry	258,1	184,6	26,5	17,47	71,1	107,1
December/2013	Dry	282,8	76,6	33,1	20,28	70,9	123,9
January/2014	Dry	244,9	76,8	33,8	21,9	71,2	106,7
February/2014	Dry	222,3	147,7	32,4	21,8	74,3	130,5
March/2014	Dry	191,3	126,4	29,8	19,41	77,7	106,9

April/2014	Dry	181,4	83,5	27,4	17,4	76,9	78,8
May/2014	Wet	134,7	71	21,6	13,67	83,8	47,1
June/2014	Wet	102,8	228,6	19,8	12,11	87,1	36,1
July/2014	Wet	154	253,5	21,16	11,29	82,8	38,3
August/2014	Wet	164,3	129,1	22,8	10,5	78,1	43,6

12 – Scheme showing (a) the sampling procedure in transects and (b) the metal cylinder that was used to delimit the collection points and confine the tadpoles.

13 – Number of points sampled in each pond across seasons

Pond	Spring	Summer	Autumn	Winter
Pond 1	12	0	0	3
Pond 2	49	17	9	17
Pond 3	10	0	0	6
Pond 4	41	7	16	9
Pond 5	45	8	5	21
Pond 6	23	4	0	7
Pond 7	6	0	0	0
Pond 8	29	6	3	14
Pond 9	9	0	0	6
Pond 10	11	0	0	8
Total	235	42	33	91

14 – Boxplots showing the total variation in micro-habitats within each season of: a) water depth; b) dissolved oxygen; c) of distance from micro-habitats to the ponds' edge; d) pH of water; e) temperature of water; f) % aquatic vegetation.

15 - Functional traits measured from different functional characteristics of tadpoles present in the studied ponds.

Functional trait	Characteristics measured	Variable
Body Height	body height/total length	Continuous
Body length	Body length/total length	Continuous
Body Width	Body Width/Total Length	Continuous
Caudal muscles width	maximum width of the caudal musculature/body length	Continuous
Dorsal fin height	maximum height of dorsal fin/ maximum height of the caudal musculature	Continuous
Ventral fin height	maximum height of ventral fin/ maximum height of the caudal musculature	Continuous
Number of teeth rows	Sum of number of forward and back rows	Continuous
Eye size	eye diameter / body length	Continuous

Oral disc position	Anteroventral; ventral	Categorical
Position in the water column	Benthic; nectonic	Categorical
Protection of eggs and early stages of life	protected in a foam nest; protected in natural or constructed basins; none/absent	Categorical
Presence of scourge	Present or absent	Binary

36 – Variation Inflation Factor Analysis of tadpole traits.

Functional traits	VIF value
Body length	1.62
Body width	2.06
Body height	1.93
Width of caudal muscles	1.45
Dorsal fin height	1.52
Ventral fin height	1.22
Nostril size	1.03
Nostril position	2.06
Eye size	1.49
Spiracle length	1.34
Opening position of the spiracle	1.29
Presence of flagellum	1.17
Number of teeth rows	1.05
Oral disc position	2.76
Eye position	1.47
Eggs	1.21

§7 – Variation Inflation Factor Analysis of Environmental descriptors of micro-habitats.

Environmental descriptors	VIF value
Aquatic Vegetation	1.08
Depth	1.32
Dissolved Oxygen	1.02
Edge Distance	1.13
pH	1.10
Temperature	1.21

2) Supplementary Material relating to Results section

§8: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic diversity in tadpole communities in ponds at Winter season (season with low hydric stress). Local descriptors: Depth (water column depth); Diss. ox. (dissolved oxygen); edge. dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	delta	weight
depth	4	-6,74016	22,04369	0	0,35449
null	3	-7,98018	22,2937	0,250001	0,295186
depth+temp.	5	-7,18605	25,22924	3,185548	0,068022
depth+diss.ox.	5	-7,37819	25,61352	3,569828	0,056131
pH	4	-8,89937	26,36212	4,318427	0,038605
diss.ox.	4	-8,9824	26,52817	4,48448	0,03553
-					
temp.	4	9,05298	26,66935	4,625651	0,033108
depth+pH	5	-7,97526	26,80766	4,763965	0,030896
edge.dist.	4	-	28,26428	6,220586	0,014914

		9,85045			
depth+veget.	5	-8,81608	28,4893	6,445604	0,013327
		-			
veget.	4	10,0666	28,69663	6,652935	0,012015
		-			
depth+diss.ox.+temp.	6	7,87405	28,9655	6,921801	0,010503
depth+edge.dist.	5	-9,07621	29,00956	6,965864	0,010275
depth+pH+temp.	6	-8,21646	29,65032	7,606622	0,007458
		-			
pH+temp.	5	9,63686	30,13087	8,087172	0,005865
		-			
depth+temp.+veget.	6	8,94224	31,10187	9,058172	0,003609
diss.ox.+temp.	5	-10,2649	31,38695	9,34326	0,00313
depth+diss.ox.+pH	6	-9,09331	31,40401	9,36032	0,003103
diss.ox.+pH	5	-10,282	31,42105	9,377356	0,003077
depth+edge.dist.+temp.	6	-9,43735	32,0921	10,0484	0,0022
edge.dist.+temp.	5	-10,7146	32,28634	10,24264	0,001996
temp.+veget.	5	-10,8442	32,54556	10,50186	0,001754
depth+diss.ox.+veget.	6	-9,82216	32,86171	10,81802	0,001497
edge.dist.+pH	5	-11,0462	32,94959	10,90589	0,001433
depth+diss.ox.+edge.dist.	6	-9,95775	33,13289	11,08919	0,001307
diss.ox.+edge.dist.	5	-11,1649	33,18698	11,14328	0,001272
pH+veget.	5	-11,2013	33,25967	11,21597	0,001227
diss.ox.+veget.	5	-11,3332	33,52361	11,47992	0,001075
depth+pH+veget.	6	-10,2282	33,6737	11,63	0,000998
depth+diss.ox.+pH+temp.	7	-9,07951	33,80608	11,76239	0,000934
depth+edge.dist.+pH	6	-10,4453	34,10796	12,06427	0,000803
edge.dist.+veget.	5	-11,8157	34,48854	12,44485	0,000664
diss.ox.+pH+temp.	6	-10,9782	35,17377	13,13007	0,000471
depth+edge.dist.+veget.	6	-11,0419	35,30119	13,2575	0,000442
depthdiss.ox.+temp.+veget.	7	-9,87786	35,40278	13,35909	0,00042
depth+pH+temp.+veget.	7	-10,2959	36,23878	14,19509	0,000277
depth+diss.ox.+edge.dist.+temp.	7	-10,3276	36,3022	14,25851	0,000268
pH+temp.+veget.	6	-11,7541	36,72551	14,68182	0,000217
edge.dist.+pH+temp.	6	-11,7747	36,76671	14,72301	0,000212
depth+edge.dist.+pH+temp.	7	-10,7011	37,04922	15,00553	0,000184
diss.ox.+edge.dist.+temp.	6	-12,1957	37,60887	15,56517	0,000139
diss.ox.+temp.+veget.	6	-12,2191	37,65558	15,61188	0,000136
depth+edge.dist.+temp.+veget.	7	-11,1227	37,89242	15,84872	0,000121
edge.dist.+temp.+veget.	6	-12,4233	38,06396	16,02027	0,000111
diss.ox.+edge.dist.+pH	6	-12,6123	38,44197	16,39827	9,19E-05
diss.ox.+pH+veget.	6	-12,6893	38,59597	16,55228	8,51E-05

depth+diss.ox.+pH+veget.	7	-11,5066	38,66019	16,61649	8,24E-05
depth+diss.ox.+edge.dist.+pH	7	-11,6922	39,03145	16,98776	6,85E-05
edge.dist.+pH+veget.	6	-13,2478	39,71306	17,66936	4,87E-05
diss.ox.+edge.dist.+veget.	6	-13,4342	40,0857	18,04201	4,04E-05
depth+diss.ox.+edge.dist.+veget.	7	-12,3223	40,29165	18,24796	3,65E-05
depth+diss.ox.+pH+temp.+veget.	8	-11,3531	40,85542	18,81173	2,75E-05
depth+edge.dist.+pH+veget.	7	-12,6145	40,87604	18,83235	2,72E-05
depth+diss.ox.+edge.dist.+pH+temp.	8	-11,6586	41,46653	19,42284	2,03E-05
diss.ox.+edge.dist.+pH+temp.	7	-13,2099	42,06694	20,02325	1,50E-05
diss.ox.+pH+temp.+veget.	7	-13,2376	42,12222	20,07852	1,46E-05
depth+diss.ox.+edge.dist.+temp.+veget.	8	-12,2946	42,73852	20,69482	1,07E-05
edge.dist.+pH+temp.+veget.	7	-13,8135	43,27403	21,23033	8,21E-06
depth+edge.dist.+pH+temp.+veget.	8	-12,7142	43,5777	21,53401	7,05E-06
diss.ox.+edge.dist.+temp.+veget.	7	-14,0989	43,84478	21,80108	6,17E-06
diss.ox.+edge.dist.+pH+veget.	7	-14,9669	45,5809	23,53721	2,59E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-14,0591	46,26745	24,22376	1,84E-06
depth+diss.ox.+edge.dist.+pH+temp.+ veget.	9	-13,896	48,51932	26,47563	5,96E-07
diss.ox.+edge.dist.+pH+temp.+veget.	8	-15,4205	48,99025	26,94656	4,71E-07

§9: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic diversity in tadpole communities in ponds in the Spring (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	delta	weight
null	3	-9,99194	26,09982	0	0,891468
temp.	4	-12,6134	33,42099	7,321165	0,022926
depth	4	-12,7333	33,66068	7,560853	0,020337
pH	4	-12,9769	34,14792	8,048093	0,01594
diss.ox.	4	-12,9907	34,17562	8,075797	0,015721
veget.	4	-13,0593	34,31276	8,212933	0,014679
edge.dist.	4	-13,1135	34,42117	8,321348	0,013904
depth+temp.	5	-15,4158	41,12438	15,02456	0,000487
pH+temp.	5	-15,5723	41,43735	15,33753	0,000416
diss.ox.+temp.	5	-15,6198	41,53238	15,43255	0,000397
temp.+veget.	5	-15,6914	41,67549	15,57567	0,00037
depth+pH	5	-15,6931	41,67892	15,57909	0,000369
depth+diss.ox.	5	-15,7423	41,77736	15,67754	0,000351
edge.dist.+temp.	5	-15,7442	41,78102	15,68119	0,000351
depth+veget.	5	-15,8167	41,92609	15,82626	0,000326
depth+edge.dist.	5	-15,8416	41,9759	15,87607	0,000318
diss.ox.+pH	5	-15,9747	42,24207	16,14225	0,000279
pH+veget.	5	-16,0411	42,37491	16,27508	0,000261
diss.ox.+veget.	5	-16,0566	42,40585	16,30603	0,000257
edge.dist.+pH	5	-16,0883	42,46932	16,36949	0,000249

diss.ox.+edge.dist.	5	-16,1066	42,50589	16,40606	0,000244
edge.dist.+veget.	5	-16,1804	42,65346	16,55364	0,000227
depth+pH+temp.	6	-18,3543	49,12035	23,02052	8,94E-06
depth+diss.ox.+temp.	6	-18,423	49,25771	23,15789	8,35E-06
depth+temp.+veget.	6	-18,5014	49,41456	23,31474	7,72E-06
depth+edge.dist.+temp.	6	-18,5227	49,45723	23,35741	7,55E-06
diss.ox.+pH+temp.	6	-18,5771	49,56601	23,46618	7,15E-06
pH+temp.+veget.	6	-18,6477	49,70725	23,60742	6,67E-06
edge.dist.+pH+temp.	6	-18,6908	49,79337	23,69354	6,38E-06
diss.ox.+temp.+veget.	6	-18,6952	49,80223	23,70241	6,36E-06
depth+diss.ox.+pH	6	-18,7017	49,81509	23,71527	6,32E-06
diss.ox.+edge.dist.+temp.	6	-18,7447	49,90116	23,80133	6,05E-06
depth+pH+veget.	6	-18,7745	49,96069	23,86087	5,87E-06
depth+edge.dist.+pH	6	-18,7745	49,96071	23,86088	5,87E-06
edge.dist.+temp.+veget.	6	-18,8207	50,05314	23,95331	5,61E-06
depth+diss.ox.+veget.	6	-18,8233	50,0584	23,95857	5,59E-06
depth+diss.ox.+edge.dist.	6	-18,8456	50,10295	24,00313	5,47E-06
depth+edge.dist.+veget.	6	-18,9221	50,25602	24,15619	5,07E-06
diss.ox.+pH+veget.	6	-19,0375	50,48668	24,38686	4,51E-06
diss.ox.+edge.dist.+pH	6	-19,0802	50,57226	24,47244	4,32E-06
edge.dist.+pH+veget.	6	-19,152	50,71567	24,61584	4,03E-06
diss.ox.+edge.dist.+veget.	6	-19,1721	50,75592	24,65609	3,95E-06
depth+diss.ox.+pH+temp.	7	-21,3598	57,27125	31,17142	1,52E-07
depth+edge.dist.+pH+temp.	7	-21,431	57,41364	31,31381	1,41E-07
depth+pH+temp.+veget.	7	-21,438	57,42771	31,32789	1,40E-07
depth+diss.ox.+pH+temp.	7	-21,5058	57,56334	31,46351	1,31E-07
depth+diss.ox.+edge.dist.+temp.	7	-21,5246	57,60091	31,50108	1,29E-07
depth+edge.dist.+temp.+veget.	7	-21,6054	57,76254	31,66272	1,19E-07
diss.ox.+pH+temp.+veget.	7	-21,6499	57,85162	31,7518	1,14E-07
diss.ox.+edge.dist.+pH+temp.	7	-21,6892	57,93019	31,83037	1,09E-07
edge.dist.+pH+temp.+veget.	7	-21,7645	58,0807	31,98088	1,01E-07
depth+diss.ox.+edge.dist.+pH	7	-21,7782	58,10805	32,00823	9,99E-08
depth+diss.ox.+pH+veget.	7	-21,7805	58,11277	32,01295	9,97E-08
diss.ox.+edge.dist.+temp.+veget.	7	-21,8186	58,18897	32,08915	9,59E-08
depth+edge.dist.+pH+veget.	7	-21,8532	58,25807	32,15824	9,27E-08
depth+diss.ox.+edge.dist.+veget.	7	-21,9235	58,39881	32,29899	8,64E-08
diss.ox.+edge.dist.+pH+veget.	7	-22,1425	58,83672	32,7369	6,94E-08
		-			
depth+diss.ox.+edge.dist.+pH+temp.	8	24,4306	65,57417	39,47434	2,39E-09
		-			
depth+diss.ox.+pH+temp.+veget.	8	24,4408	65,5944	39,49457	2,37E-09
depth+edge.dist.+pH+temp.+veget.	8	-24,5121	65,73709	39,63727	2,20E-09
		-			
depth+diss.ox.+edge.dist.+temp.+veget.	8	24,6045	65,92179	39,82197	2,01E-09
		-			
diss.ox.+edge.dist.+pH+temp.+veget.	8	24,7604	66,23362	40,1338	1,72E-09
depth+diss.ox.+edge.dist.+pH+veget.	8	-24,8543	66,42141	40,32159	1,56E-09
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-27,509	73,91355	47,81373	3,69E-11

§15: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic diversity in tadpole communities in ponds in the Summer (season with high hydric stress). Local descriptors: Depth (water column

depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	delta	weight
null	3	-5,09569	17,15138	0	0,568755
temp.	4	-5,49076	20,64819	3,496806	0,098993
pH	4	-5,90338	21,47342	4,322036	0,065525
diss.ox.	4	-6,05522	21,7771	4,625716	0,056294
edge.dist.	4	-6,26452	22,19571	5,044331	0,045663
depth	4	-6,3351	22,33687	5,185492	0,042551
veget.	4	-6,79761	23,26188	6,1105	0,026795
pH+temp.	5	-5,99517	24,59903	7,447645	0,013731
edge.dist.+pH	5	-6,01013	24,62895	7,477567	0,013527
depth+pH	5	-6,66672	25,94214	8,790755	0,007015
edge.dist.+temp.	5	-6,73785	26,0844	8,933021	0,006533
diss.ox.+pH	5	-6,82715	26,263	9,111621	0,005975
temp.+veget.	5	-6,84112	26,29094	9,13956	0,005892
diss.ox.+temp.	5	-7,01365	26,63599	9,484606	0,004959
depth+temp.	5	-7,02605	26,66079	9,509408	0,004898
diss.ox.+edge.dist.	5	-7,20413	27,01696	9,865582	0,004099
depth+veget.	5	-7,24182	27,09233	9,940948	0,003947
depth+edge.dist.	5	-7,41542	27,43953	10,28815	0,003318
edge.dist.+veget.	5	-7,42857	27,46584	10,31445	0,003275
depth+diss.ox.	5	-7,57915	27,767	10,61561	0,002817
pH+veget.	5	-7,60341	27,81551	10,66413	0,002749
diss.ox.+veget.	5	-7,75303	28,11475	10,96337	0,002367
edge.dist.+pH+temp.	6	-6,71967	29,25752	12,10614	0,001337
diss.ox.+edge.dist.+pH	6	-7,00198	29,82215	12,67076	0,001008
depth+edge.dist.+pH	6	-7,27169	30,36156	13,21018	0,00077
edge.dist.+pH+veget.	6	-7,28464	30,38746	13,23608	0,00076
depth+pH+temp.	6	-7,30324	30,42467	13,27328	0,000746
pH+temp.+veget.	6	-7,46604	30,75027	13,59889	0,000634
diss.ox.+pH+temp.	6	-7,55762	30,93341	13,78203	0,000578
depth+pH+veget.	6	-7,62512	31,06841	13,91703	0,000541
edge.dist.+temp.+veget.	6	-7,94845	31,71509	14,5637	0,000391
depth+temp.+veget.	6	-7,96896	31,7561	14,60472	0,000383
depth+diss.ox.+pH	6	-8,0164	31,85098	14,6996	0,000366
depth+edge.dist.+temp.	6	-8,0826	31,98337	14,83199	0,000342
depth+edge.dist.+veget.	6	-8,20224	32,22266	15,07128	0,000304
diss.ox.+edge.dist.+temp.	6	-8,25327	32,32472	15,17334	0,000288
diss.ox.+temp.+veget.	6	-8,42297	32,66412	15,51274	0,000243
diss.ox.+edge.dist.+veget.	6	-8,42722	32,67262	15,52123	0,000242
diss.ox.+pH+veget.	6	-8,53349	32,88516	15,73378	0,000218
depth+diss.ox.+temp.	6	-8,53977	32,89771	15,74633	0,000217
depth+diss.ox.+edge.dist.	6	-8,66237	33,14292	15,99154	0,000192
depth+diss.ox.+veget.	6	-8,66376	33,1457	15,99431	0,000191
edge.dist.+pH+temp.+veget.	7	-7,65447	34,64226	17,49088	9,05E-05
depth+edge.dist.+pH+veget.	7	-7,90556	35,14446	17,99308	7,04E-05
diss.ox.+edge.dist.+pH+temp.	7	-8,04307	35,41947	18,26809	6,14E-05
depth+edge.dist.+pH+temp.	7	-8,0967	35,52673	18,37534	5,82E-05
depth+pH+temp.+veget.	7	-8,30445	35,94223	18,79085	4,73E-05
depth+diss.ox.+edge.dist.+pH	7	-8,418	36,16934	19,01795	4,22E-05
diss.ox.+edge.dist.+pH+veget.	7	-8,48033	36,294	19,14262	3,96E-05
depth+diss.ox.+pH+temp.	7	-8,8904	37,11414	19,96276	2,63E-05

diss.ox.+pH+temp.+veget.	7	-9,05577	37,44487	20,29349	2,23E-05
depth+edge.dist.+temp.+veget.	7	-9,06178	37,45689	20,3055	2,22E-05
depth+diss.ox.+pH+veget.	7	-9,10512	37,54358	20,39219	2,12E-05
diss.ox.+edge.dist.+temp.+veget.	7	-9,41288	38,1591	21,00772	1,56E-05
depth+diss.ox.+edge.dist.+veget.	7	-9,52832	38,38997	21,23858	1,39E-05
depth+diss.ox.+temp.+veget.	7	-9,56646	38,46625	21,31487	1,34E-05
depth+diss.ox.+edge.dist.+temp.	7	-9,62528	38,58389	21,43251	1,26E-05
depth+edge.dist.+pH+temp.+veget.	8	-8,67516	40,55032	23,39893	4,72E-06
diss.ox.+edge.dist.+pH+veget.+temp.	8	-9,20356	41,60711	24,45573	2,78E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-9,42122	42,04244	24,89106	2,24E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	-9,43232	42,06465	24,91327	2,21E-06
depth+diss.ox.+pH+temp.+veget.	8	-9,91925	43,03849	25,88711	1,36E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-10,5586	44,31727	27,16589	7,18E-07
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-10,2583	47,99025	30,83886	1,14E-07

§10: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic diversity in tadpole communities in ponds in the Autumn (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	8,546509	-10,0495	0	0,739697
veget.	4	7,275804	-4,73343	5,316112	0,051841
temp.	4	7,249725	-4,68127	5,368272	0,050507
edge.dist.	4	7,188721	-4,55926	5,490279	0,047518
pH	4	6,896197	-3,97421	6,075326	0,035466
depth	4	6,52309	-3,228	6,821541	0,024422
diss.ox.	4	6,381929	-2,94568	7,103862	0,021207
pH+temp.	5	5,928931	0,99928	11,04882	0,00295
temp.+veget.	5	5,823815	1,209512	11,25905	0,002656
edge.dist.+veget.	5	5,75536	1,346424	11,39596	0,00248
edge.dist.+pH	5	5,722968	1,411207	11,46075	0,002401
edge.dist.+temp.	5	5,71512	1,426902	11,47644	0,002382
pH+veget.	5	5,683607	1,489929	11,53947	0,002308
depth+diss.ox.	5	5,618333	1,620476	11,67002	0,002162
diss.ox.+temp.	5	5,323733	2,209678	12,25922	0,001611
depth+temp.	5	5,300832	2,25548	12,30502	0,001574
depth+edge.dist.	5	5,12443	2,608282	12,65782	0,00132
diss.ox.+veget.	5	5,101567	2,654009	12,70355	0,00129
depth+veget.	5	5,027298	2,802546	12,85208	0,001197
diss.ox.+edge.dist.	5	5,00792	2,841303	12,89084	0,001174
depth+pH	5	4,98243	2,892283	12,94182	0,001145
diss.ox.+pH	5	4,748799	3,359545	13,40908	0,000906
edge.dist.+pH+temp.	6	4,57107	7,057859	17,1074	0,000143
pH+temp.+veget.	6	4,458644	7,282711	17,33225	0,000127
depth+diss.ox.+temp.	6	4,354273	7,491454	17,54099	0,000115
edge.dist.+pH+veget.	6	4,34385	7,5123	17,56184	0,000114
depth+diss.ox.+pH	6	4,338109	7,523781	17,57332	0,000113
edge.dist.+temp.+veget.	6	4,219934	7,760132	17,80967	0,0001
depth+diss.ox.+edge.dist.	6	4,219208	7,761584	17,81112	0,0001

diss.ox.+pH+temp.	6	4,208257	7,783485	17,83302	9,92E-05
diss.ox.+temp.+veget.	6	4,188031	7,823937	17,87348	9,72E-05
depth+diss.ox.+veget.	6	4,12261	7,95478	18,00432	9,11E-05
depth+pH+temp.	6	4,052262	8,095476	18,14501	8,49E-05
depth+temp.+veget.	6	3,951511	8,296978	18,34652	7,68E-05
depth+edge.dist.+temp.	6	3,929132	8,341737	18,39128	7,51E-05
depth+pH+edge.dist.	6	3,849742	8,500516	18,55005	6,93E-05
diss.ox.+edge.dist.+temp.	6	3,769659	8,660682	18,71022	6,40E-05
diss.ox.+edge.dist.+veget.	6	3,581692	9,036616	19,08616	5,30E-05
diss.ox.+edge.dist.+pH	6	3,55109	9,09782	19,14736	5,14E-05
depth+pH+veget.	6	3,52484	9,15032	19,19986	5,01E-05
diss.ox.+pH+veget.	6	3,519755	9,16049	19,21003	4,98E-05
depth+edge.dist.+veget.	6	3,502226	9,195548	19,24509	4,90E-05
depth+diss.ox.+pH+temp.	7	3,420189	13,05436	23,1039	7,11E-06
depth+diss.ox.+edge.dist.+pH	7	3,416418	13,0619	23,11144	7,09E-06
edge.dist.+pH+temp.+veget.	7	3,015814	13,86311	23,91265	4,75E-06
depth+diss.ox.+pH+temp.	7	3,014516	13,8657	23,91524	4,74E-06
depth+diss.ox.+edge.dist.+temp.	7	3,0055	13,88374	23,93328	4,70E-06
diss.ox.+pH+temp.+veget.	7	2,98355	13,92764	23,97718	4,60E-06
depth+edge.dist.+pH+temp.	7	2,917975	14,05879	24,10833	4,31E-06
depth+diss.ox.+pH+veget.	7	2,887188	14,12036	24,1699	4,17E-06
diss.ox.+edge.dist.+pH+temp.	7	2,780689	14,33336	24,3829	3,75E-06
depth+pH+temp.+veget.	7	2,630889	14,63296	24,6825	3,23E-06
depth+diss.ox.+edge.dist.+veget.	7	2,601655	14,69143	24,74097	3,14E-06
diss.ox.+edge.dist.+temp.+veget.	7	2,473433	14,94787	24,99741	2,76E-06
depth+edge.dist.+temp.+veget.	7	2,396155	15,10243	25,15197	2,55E-06
depth+edge.dist.+temp.+veget.	7	2,216456	15,46182	25,51136	2,13E-06
diss.ox.+edge.dist.+pH+veget.	7	2,160943	15,57285	25,62239	2,02E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	2,529287	18,94143	28,99096	3,75E-07
depth+diss.ox.+pH+temp.+veget.	8	1,98694	20,02612	30,07566	2,18E-07
depth+diss.ox.+edge.dist.+pH+veget.	8	1,770675	20,45865	30,50819	1,76E-07
depth+diss.ox.+edge.dist.+temp.+veget.	8	1,478071	21,04386	31,0934	1,31E-07
diss.ox.+edge.dist.+pH+temp.+veget.	8	1,390355	21,21929	31,26883	1,20E-07
depth+edge.dist.+pH+temp.+veget.	8	1,296098	21,4078	31,45734	1,09E-07
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	0,889692	26,80885	36,85839	7,33E-09

§11: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic redundancy in tadpole communities in ponds in the Winter (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	9	-1137,94	2296,598	0	0,999988
depth+diss.ox.+edge.dist.+pH+temp.+veget.	8	-1151,79	2321,725	25,12764	3,50E-06
depth+diss.ox.+pH+temp.+veget.	8	-1151,82	2321,789	25,19087	3,39E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-1151,95	2322,049	25,45131	2,97E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	-1152,65	2323,449	26,85073	1,48E-06
diss.ox.+edge.dist.+pH+temp.+veget.	8	-1153,52	2325,193	28,59477	6,18E-07
depth+edge.dist.+pH+temp.+veget.	8	-1156,32	2330,791	34,19341	3,76E-08
depth+diss.ox.+edge.dist.+pH+veget.	7	-1165,68	2347,016	50,41842	1,13E-11

depth+diss.ox.+temp.+veget.	7	-1165,8	2347,244	50,64595	1,01E-11
depth+diss.ox.+edge.dist.+temp.	7	-1165,9	2347,438	50,84069	9,12E-12
depth+diss.ox.+pH+temp.	7	-1166,36	2348,36	51,76227	5,75E-12
diss.ox.+pH+temp.+veget.	7	-1166,54	2348,724	52,12617	4,80E-12
diss.ox.+edge.dist.+temp.+veget.	7	-1166,63	2348,911	52,31293	4,37E-12
diss.ox.+edge.dist.+pH+temp.	7	-1167,25	2350,148	53,55027	2,35E-12
depth+pH+temp.+veget.	7	-1167,43	2350,497	53,89961	1,98E-12
depth+edge.dist.+temp.+veget.	7	-1167,78	2351,209	54,61116	1,38E-12
depth+edge.dist.+pH+temp.	7	-1168,02	2351,692	55,09424	1,09E-12
edge.dist.+pH+temp.+veget.	7	-1170,12	2355,894	59,29589	1,33E-13
depth+diss.ox.+pH+veget.	7	-1170,25	2356,143	59,54534	1,17E-13
depth+diss.ox.+edge.dist.+veget.	7	-1170,36	2356,376	59,77868	1,05E-13
depth+diss.ox.+edge.dist.+pH	7	-1170,74	2357,133	60,53482	7,16E-14
diss.ox.+edge.dist.+pH+veget.	7	-1171,63	2358,898	62,30019	2,96E-14
depth+edge.dist.+temp.+veget.	6	-1179,73	2372,685	76,08765	3,00E-17
depth+diss.ox.+temp.	6	-1180,23	2373,677	77,07952	1,83E-17
diss.ox.+temp.+veget.	6	-1180,42	2374,062	77,46412	1,51E-17
diss.ox.+pH+temp.	6	-1180,51	2374,246	77,64868	1,38E-17
diss.ox.+edge.dist.+temp.	6	-1181,15	2375,509	78,91092	7,32E-18
depth+temp.+veget.	6	-1181,59	2376,39	79,79265	4,71E-18
depth+pH+temp.	6	-1181,65	2376,52	79,92255	4,42E-18
pH+temp.+veget.	6	-1181,68	2376,586	79,98785	4,27E-18
depth+edge.dist.+temp.	6	-1181,93	2377,084	80,48637	3,33E-18
edge.dist.+temp.+veget.	6	-1182,25	2377,713	81,11551	2,43E-18
edge.dist.+pH+temp.	6	-1184,03	2381,286	84,68791	4,08E-19
depth+diss.ox.+veget.	6	-1184,24	2381,695	85,0971	3,32E-19
depth+diss.ox.+pH	6	-1184,27	2381,764	85,16662	3,21E-19
depth+diss.ox.+edge.dist.	6	-1184,42	2382,065	85,46723	2,76E-19
diss.ox.+pH+veget.	6	-1184,68	2382,569	85,97156	2,15E-19
diss.ox.+edge.dist.+veget.	6	-1184,77	2382,748	86,15072	1,96E-19
diss.ox.+edge.dist.+pH	6	-1185,33	2383,875	87,27713	1,12E-19
depth+pH+veget.	6	-1185,58	2384,368	87,77031	8,73E-20
depth+edge.dist.+veget.	6	-1185,85	2384,924	88,32609	6,61E-20
depth+edge.dist.+pH	6	-1185,89	2385,002	88,40443	6,36E-20
edge.dist.+pH+veget.	5	-1194,27	2399,389	102,7908	4,78E-23
diss.ox.+temp.	5	-1195,45	2401,766	105,1682	1,46E-23
depth+temp.	5	-1195,54	2401,935	105,3369	1,34E-23
temp.+veget.	5	-1195,94	2402,73	106,1322	8,99E-24
pH+temp.	5	-1196,19	2403,233	106,635	6,99E-24
edge.dist.+temp.	5	-1198,13	2407,122	110,5241	1,00E-24
depth+diss.ox.	5	-1198,34	2407,527	110,9297	8,16E-25
diss.ox.+veget.	5	-1198,5	2407,849	111,2509	6,95E-25
diss.ox.+pH	5	-1198,68	2408,218	111,6199	5,78E-25
diss.ox.+edge.dist.	5	-1199,25	2409,364	112,766	3,26E-25
depth+veget.	5	-1199,52	2409,894	113,2963	2,50E-25
pH+veget.	5	-1199,62	2410,103	113,5049	2,25E-25
depth+pH	5	-1199,81	2410,479	113,8807	1,87E-25
depth+edge.dist.	5	-1199,85	2410,555	113,9575	1,80E-25
edge.dist.+veget.	5	-1200,09	2411,036	114,4387	1,41E-25
edge.dist.+pH	4	-1209,83	2428,214	131,6161	2,63E-29
temp.	4	-1212,39	2433,346	136,748	2,02E-30
diss.ox.	4	-1213,45	2435,462	138,8638	7,02E-31
veget.	4	-1213,55	2435,666	139,068	6,34E-31

depth	4	-1213,76	2436,081	139,4828	5,15E-31
pH	4	-1214,06	2436,675	140,0769	3,83E-31
edge.dist.	3	-1227,7	2461,726	165,1277	1,39E-36

§12: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic redundancy in tadpole communities in ponds in the Spring (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	9	-3317,32	6653,532	0	0,999975
depth+diss.ox.+edge.dist.+pH+temp.+veget.	8	-3330,42	6677,549	24,01641	6,09E-06
depth+edge.dist.+pH+temp.+veget.	8	-3330,61	6677,938	24,40516	5,02E-06
depth+diss.ox.+pH+temp.+veget.	8	-3330,81	6678,342	24,81008	4,10E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-3330,85	6678,405	24,87251	3,97E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-3330,88	6678,481	24,94844	3,82E-06
diss.ox.+edge.dist.+pH+temp.+veget.	8	-3331,52	6679,755	26,22215	2,02E-06
depth+diss.ox.+edge.dist.+pH+temp.	7	-3343,71	6701,974	48,4421	3,03E-11
depth+pH+temp.+veget.	7	-3343,9	6702,347	48,81488	2,51E-11
depth+edge.dist.+pH+veget.	7	-3343,94	6702,441	48,90878	2,40E-11
depth+edge.dist.+temp.+veget.	7	-3343,99	6702,529	48,99692	2,29E-11
edge.dist.+pH+temp.+veget.	7	-3344,07	6702,696	49,16357	2,11E-11
depth+diss.ox.+pH+veget.	7	-3344,27	6703,084	49,55195	1,74E-11
diss.ox.+edge.dist.+temp.+veget.	7	-3344,28	6703,114	49,58141	1,71E-11
depth+diss.ox.+temp.+veget.	7	-3344,31	6703,162	49,62995	1,67E-11
diss.ox.+edge.dist.+pH+veget.	7	-3344,41	6703,366	49,8339	1,51E-11
depth+diss.ox.+edge.dist.+veget.	7	-3344,42	6703,394	49,86141	1,49E-11
diss.ox.+pH+temp.+veget.	7	-3344,63	6703,812	50,27984	1,21E-11
depth+edge.dist.+pH+temp.	7	-3344,83	6704,204	50,67168	9,93E-12
depth+diss.ox.+pH+temp.	7	-3344,99	6704,539	51,00673	8,39E-12
depth+diss.ox.+edge.dist.+temp.	7	-3345,03	6704,618	51,08536	8,07E-12
diss.ox.+edge.dist.+pH+temp.	7	-3345,05	6704,652	51,11997	7,93E-12

depth+diss.ox.+edge.dist.+pH	6	-3357,16	6726,732	73,19955	1,27E-16
depth+pH+veget.	6	-3357,36	6727,138	73,60566	1,04E-16
edge.dist.+pH+veget.	6	-3357,37	6727,156	73,62323	1,03E-16
edge.dist.+temp.+veget.	6	-3357,38	6727,17	73,63719	1,02E-16
depth+temp.+veget.	6	-3357,49	6727,388	73,8558	9,17E-17
depth+edge.dist.+veget.	6	-3357,52	6727,457	73,9242	8,86E-17
pH+temp.+veget.	6	-3357,74	6727,896	74,36325	7,12E-17
diss.ox.+edge.dist.+veget.	6	-3357,77	6727,946	74,41364	6,94E-17
diss.ox.+pH+veget.	6	-3357,8	6728,019	74,48689	6,69E-17
depth+diss.ox.+veget.	6	-3357,94	6728,286	74,7539	5,85E-17
depth+pH+temp.	6	-3357,94	6728,289	74,75631	5,85E-17
diss.ox.+temp.+veget.	6	-3358,1	6728,611	75,07815	4,98E-17
depth+edge.dist.+temp.	6	-3358,14	6728,687	75,15455	4,79E-17
edge.dist.+pH+temp.	6	-3358,15	6728,714	75,18142	4,73E-17
depth+edge.dist.+pH	6	-3358,32	6729,047	75,51427	4,00E-17
depth+diss.ox.+pH	6	-3358,38	6729,176	75,64349	3,75E-17
diss.ox.+edge.dist.+temp.	6	-3358,43	6729,275	75,74257	3,57E-17
depth+diss.ox.+temp.	6	-3358,48	6729,374	75,84146	3,40E-17
diss.ox.+edge.dist.+pH	6	-3358,55	6729,518	75,98611	3,16E-17
diss.ox.+pH+temp.	6	-3358,59	6729,583	76,05024	3,06E-17
depth+diss.ox.+edge.dist.	5	-3370,8	6751,892	98,35993	4,38E-22
edge.dist.+veget.	5	-3370,82	6751,942	98,40985	4,27E-22
pH+veget.	5	-3370,89	6752,077	98,54483	3,99E-22
depth+veget.	5	-3371,04	6752,375	98,8427	3,44E-22
temp.+veget.	5	-3371,33	6752,958	99,42592	2,57E-22
diss.ox.+veget.	5	-3371,43	6753,143	99,61106	2,34E-22
depth+pH	5	-3371,49	6753,266	99,73386	2,20E-22
edge.dist.+temp.	5	-3371,54	6753,368	99,836	2,09E-22
depth+temp.	5	-3371,55	6753,4	99,86732	2,06E-22
edge.dist.+pH	5	-3371,66	6753,603	100,0705	1,86E-22
pH+temp.	5	-3371,68	6753,651	100,119	1,82E-22
depth+edge.dist.	5	-3371,88	6754,056	100,5241	1,48E-22
diss.ox.+edge.dist.	5	-3371,92	6754,142	100,6099	1,42E-22
diss.ox.+pH	5	-3371,99	6754,263	100,7309	1,34E-22

depth+diss.ox.	5	-3372,02	6754,342	100,8093	1,29E-22
diss.ox.+temp.	4	-3384,39	6776,975	123,4427	1,57E-27
veget.	4	-3384,95	6778,101	124,5685	8,92E-28
edge.dist.	4	-3385	6778,187	124,6548	8,54E-28
pH	4	-3385,09	6778,37	124,8374	7,80E-28
depth	4	-3385,13	6778,447	124,9148	7,50E-28
temp.	4	-3385,44	6779,078	125,5452	5,47E-28
diss.ox.	3	-3398,51	6803,141	149,6089	3,26E-33

§13: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic redundancy in tadpole communities in ponds in the Summer (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	9	-362,788	753,0503	0	0,999987
depth+diss.ox.+edge.dist.+pH+temp.+veget.	8	-377,298	777,796	24,74568	4,23E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	-377,646	778,4924	25,44215	2,99E-06
depth+edge.dist.+pH+temp.+veget.	8	-378,08	779,3607	26,31036	1,94E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-378,213	779,6264	26,57614	1,69E-06
diss.ox.+edge.dist.+pH+temp.+veget.	8	-378,332	779,8633	26,81301	1,51E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-380,036	783,2716	30,22132	2,74E-07
depth+diss.ox.+pH+temp.+veget.	7	-391,927	803,1869	50,13666	1,30E-11
depth+edge.dist.+pH+temp.+	7	-392,573	804,4787	51,42841	6,80E-12
depth+diss.ox.+edge.dist.+temp.	7	-392,733	804,7998	51,74949	5,79E-12
depth+diss.ox.+edge.dist.+pH	7	-392,797	804,9279	51,87762	5,43E-12
depth+edge.dist.+pH+veget.	7	-392,932	805,1966	52,14635	4,75E-12
depth+edge.dist.+temp.+veget.	7	-393,166	805,6645	52,61417	3,76E-12
diss.ox.+edge.dist.+pH+temp.	7	-393,48	806,2939	53,24361	2,74E-12
diss.ox.+edge.dist.+pH+veget.	7	-393,486	806,3058	53,25549	2,73E-12
edge.dist.+pH+temp.+veget.	7	-393,518	806,3696	53,31935	2,64E-12
diss.ox.+edge.dist.+temp.+veget.	7	-393,632	806,5979	53,54759	2,36E-12
depth+diss.ox.+edge.dist.+veget.	7	-394,689	808,7114	55,66114	8,19E-13
depth+pH+temp.+veget.	7	-394,689	808,7121	55,66185	8,19E-13
depth+diss.ox.+pH+temp.	7	-394,846	809,0251	55,97481	7,00E-13
diss.ox.+pH+temp.+veget.	7	-395,359	810,0513	57,00104	4,19E-13
depth+diss.ox.+pH+veget.	7	-395,688	810,71	57,65968	3,02E-13
depth+diss.ox.+temp.+veget.	6	-407,067	829,9524	76,90215	2,00E-17
depth+edge.dist.+pH	6	-407,164	830,1459	77,09558	1,82E-17
		-			
depth+edge.dist.+temp.	6	408,002	831,8225	78,77219	7,85E-18
depth+diss.ox.+edge.dist.	6	-408,019	831,8554	78,80512	7,72E-18
edge.dist.+pH+temp.	6	-408,094	832,006	78,95568	7,16E-18
depth+edge.dist.+veget.	6	-408,127	832,0713	79,02104	6,93E-18
diss.ox.+edge.dist.+pH	6	-408,252	832,3229	79,27259	6,11E-18
edge.dist.+pH+veget.	6	-408,508	832,8334	79,78312	4,73E-18
diss.ox.+edge.dist.+temp.	6	-408,746	833,3102	80,25993	3,73E-18
diss.ox.+edge.dist.+veget.	6	-408,784	833,3869	80,33664	3,59E-18

edge.dist.+temp.+veget.	6	-409,114	834,0469	80,99665	2,58E-18
depth+pH+temp.	6	-409,568	834,9533	81,90299	1,64E-18
pH+temp.+veget.	6	-409,605	835,0275	81,97721	1,58E-18
diss.ox.+pH+temp.	6	-409,792	835,403	82,3527	1,31E-18
depth+pH+veget.	6	-409,885	835,5885	82,53825	1,19E-18
depth+diss.ox.+pH	6	-410,104	836,0266	82,97634	9,59E-19
diss.ox.+pH+veget.	6	-410,302	836,4224	83,37209	7,87E-19
depth+diss.ox.+temp.	6	-410,382	836,5827	83,53245	7,26E-19
diss.ox.+temp.+veget.	6	-410,456	836,7299	83,67956	6,75E-19
depth+temp.+veget.	6	-411,147	838,1128	85,06247	3,38E-19
depth+diss.ox.+veget.	5	-422,317	857,2437	104,1934	2,37E-23
depth+edge.dist.	5	-422,731	858,0701	105,0198	1,57E-23
edge.dist.+pH	5	-423,272	859,1517	106,1014	9,13E-24
edge.dist.+temp.	5	-423,376	859,3617	106,3114	8,22E-24
diss.ox.+edge.dist.	5	-423,529	859,6658	106,6155	7,06E-24
edge.dist.+veget.	5	-424,093	860,7942	107,7439	4,02E-24
pH+temp.	5	-424,189	860,9864	107,9361	3,65E-24
depth+pH	5	-424,454	861,5165	108,4662	2,80E-24
pH+veget.	5	-424,613	861,8349	108,7846	2,39E-24
diss.ox.+pH	5	-424,8	862,2088	109,1585	1,98E-24
depth+temp.	5	-424,979	862,5669	109,5166	1,65E-24
diss.ox.+temp.	5	-425,182	862,9733	109,923	1,35E-24
temp.+veget.	5	-425,622	863,8529	110,8026	8,70E-25
depth+diss.ox.	5	-425,633	863,8753	110,825	8,60E-25
depth+veget.	5	-425,804	864,2162	111,1659	7,25E-25
diss.ox.+veget.	4	-437,947	885,5602	132,5099	1,68E-29
edge.dist.	4	-438,887	887,4411	134,3908	6,57E-30
pH	4	-439,524	888,7141	135,6639	3,48E-30
temp.	4	-439,952	889,5704	136,5201	2,26E-30
veget.	4	-440,079	889,8256	136,7753	1,99E-30
diss.ox.	4	-440,156	889,9782	136,928	1,85E-30
veget.	3	-454,369	915,6979	162,6476	4,80E-36

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S14: Summary of adjusted models produced by GLMM analysis relating local descriptors and phylogenetic redundancy in tadpole communities in ponds in the Autumn (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	9	-319,557	667,7015	0	0,999976
depth+diss.ox.+edge.dist.+pH+temp.+veget.	8	-334,026	692,0525	24,35106	5,15E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	-334,137	692,2743	24,57287	4,61E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-334,192	692,3835	24,68209	4,37E-06
diss.ox.+edge.dist.+pH+temp.+veget.	8	-334,329	692,6579	24,95649	3,81E-06
depth+edge.dist.+pH+temp.+veget.	8	-334,345	692,6906	24,98917	3,75E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-334,726	693,451	25,74955	2,56E-06
depth+diss.ox.+pH+temp.+veget.	7	-348,424	716,7418	49,04038	2,24E-11
depth+diss.ox.+edge.dist.+veget.	7	-348,475	716,845	49,14353	2,13E-11
edge.dist.+pH+temp.+veget.	7	-348,603	717,1016	49,40019	1,87E-11
depth+diss.ox.+edge.dist.+temp.	7	-348,657	717,2078	49,50633	1,78E-11
diss.ox.+edge.dist.+pH+temp.	7	-348,744	717,3836	49,68216	1,63E-11
diss.ox.+edge.dist.+temp.+veget.	7	-348,79	717,4743	49,77281	1,56E-11

depth+edge.dist.+pH+temp.	7	-348,836	717,5665	49,86503	1,49E-11
depth+edge.dist.+temp.+veget.	7	-348,918	717,7317	50,0302	1,37E-11
depth+diss.ox.+edge.dist.+pH	7	-348,936	717,767	50,06558	1,34E-11
diss.ox.+edge.dist.+pH+veget.	7	-349,08	718,0551	50,35367	1,16E-11
depth+edge.dist.+pH+veget.	7	-349,358	718,6109	50,90942	8,81E-12
depth+diss.ox.+temp.+veget.	7	-349,423	718,74	51,03854	8,26E-12
diss.ox.+pH+temp.+veget.	7	-349,509	718,9118	51,21033	7,58E-12
depth+diss.ox.+temp.+veget.	7	-349,527	718,9494	51,24795	7,44E-12
depth+diss.ox.+pH+temp.	7	-349,564	719,0218	51,32036	7,18E-12
depth+pH+temp.+veget.	6	-362,888	741,9768	74,27532	7,44E-17
diss.ox.+edge.dist.+veget.	6	-362,93	742,0591	74,35769	7,14E-17
edge.dist.+temp.+veget.	6	-362,947	742,0931	74,39159	7,02E-17
edge.dist.+pH+veget.	6	-363,114	742,4278	74,72636	5,93E-17
depth+edge.dist.+veget.	6	-363,21	742,6206	74,91912	5,39E-17
diss.ox.+edge.dist.+temp.	6	-363,301	742,8024	75,10099	4,92E-17
edge.dist.+pH+temp.	6	-363,311	742,8216	75,12017	4,87E-17
depth+diss.ox.+edge.dist.	6	-363,316	742,8311	75,12961	4,85E-17
depth+edge.dist.+temp.	6	-363,494	743,1884	75,48698	4,06E-17
diss.ox.+edge.dist.+pH	6	-363,633	743,4653	75,76382	3,53E-17
depth+diss.ox.+veget.	6	-363,633	743,4664	75,76491	3,53E-17
depth+edge.dist.+pH	6	-363,657	743,5145	75,81308	3,45E-17
pH+temp.+veget.	6	-364,028	744,2551	76,55361	2,38E-17
diss.ox.+veget.+temp.	6	-364,108	744,4154	76,71391	2,20E-17
depth+temp.+veget.	6	-364,15	744,4998	76,79834	2,11E-17
depth+diss.ox.+temp.	6	-364,162	744,523	76,82157	2,08E-17
diss.ox.+pH+veget.	6	-364,179	744,5588	76,85731	2,04E-17
diss.ox.+pH+temp.	6	-364,321	744,8418	77,14034	1,77E-17
depth+pH+veget.	6	-364,366	744,9322	77,23077	1,70E-17
depth+pH+temp.	6	-364,379	744,9571	77,2556	1,68E-17
depth+diss.ox.+pH	5	-376,839	766,5358	98,83439	3,45E-22
edge.dist.+veget.	5	-377,809	768,4754	100,7739	1,31E-22
edge.dist.+pH	5	-377,831	768,5193	100,8178	1,28E-22
diss.ox.+edge.dist.	5	-377,935	768,727	101,0255	1,15E-22
edge.dist.+temp.	5	-378,108	769,073	101,3715	9,72E-23
diss.ox.+veget.	5	-378,124	769,1049	101,4035	9,56E-23
temp.+veget.	5	-378,145	769,1463	101,4449	9,37E-23
depth+edge.dist.	5	-378,178	769,2129	101,5114	9,06E-23
pH+veget.	5	-378,327	769,5113	101,8099	7,80E-23
depth+veget.	5	-378,435	769,727	102,0255	7,01E-23
depth+diss.ox.	5	-378,766	770,389	102,6875	5,03E-23
pH+temp.	5	-378,78	770,4162	102,7147	4,96E-23
diss.ox.+temp.	5	-378,927	770,7111	103,0096	4,28E-23
depth+temp.	5	-378,989	770,836	103,1345	4,02E-23
diss.ox.+pH	5	-379,171	771,1996	103,4982	3,35E-23
depth+pH	4	-392,058	793,9341	126,2326	3,88E-28
edge.dist.	4	-392,129	794,0763	126,3748	3,61E-28
veget.	4	-392,956	795,7309	128,0294	1,58E-28
diss.ox.	4	-393,267	796,3519	128,6505	1,16E-28
depth	4	-393,339	796,4972	128,7957	1,08E-28
pH	4	-393,346	796,5108	128,8093	1,07E-28
temp.	3	-407,251	821,5445	153,843	3,92E-34

§15: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional diversity in tadpole communities in ponds in the Winter (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	19,47235	-32,6114	0	0,540167
depth	4	19,67615	-30,7889	1,822444	0,230381
pH	4	18,03736	-27,5113	5,100023	0,042801
temp.	4	17,81358	-27,0638	5,54759	0,034219
diss.ox.	4	17,78358	-27,0038	5,60759	0,033208
depth+temp.	5	18,5956	-26,3341	6,27731	0,023758
depth+diss.ox.	5	18,3008	-25,7445	6,866907	0,017692
veget.	4	17,11535	-25,6673	6,944041	0,017023
edge.dist.	4	17,07823	-25,5931	7,018286	0,016403
depth+pH	5	17,91449	-24,9718	7,639518	0,012023
depth+veget.	5	17,33034	-23,8035	8,807818	0,006704
depth+edge.dist.	5	16,90686	-22,9566	9,654784	0,004389
pH+temp.	5	16,86829	-22,8794	9,731919	0,004223
depth+pH+temp.	6	17,23906	-21,2607	11,35062	0,00188
diss.ox.+pH	5	16,03882	-21,2205	11,39087	0,001843
diss.ox.+temp.	5	16,01317	-21,1692	11,44216	0,001796
depth+diss.ox.+temp.	6	17,17021	-21,123	11,48834	0,001755
temp.+veget.	5	15,93205	-21,007	11,6044	0,001656
edge.dist.+temp.	5	15,66839	-20,4796	12,13173	0,001272
depth+temp.+veget.	6	16,75658	-20,2958	12,3156	0,00116
pH+veget.	5	15,42347	-19,9898	12,62157	0,000996
edge.dist.+pH	5	15,42343	-19,9897	12,62165	0,000996
diss.ox.+edge.dist.	5	15,22067	-19,5842	13,02717	0,000813
diss.ox.+veget.	5	15,18125	-19,5054	13,106	0,000782
depth+diss.ox.+pH	6	16,12662	-19,0358	13,57552	0,000618
edge.dist.+veget.	5	14,87267	-18,8882	13,72317	0,000574
depth+edge.dist.+temp.	6	15,951	-18,6846	13,92675	0,000519
depth+diss.ox.+veget.	6	15,58109	-17,9448	14,66657	0,000358
depth+pH+veget.	6	15,38777	-17,5581	15,05321	0,000295
depth+diss.ox.+edge.dist.	6	15,3811	-17,5448	15,06655	0,000293
depth+edge.dist.+pH	6	15,05095	-16,8845	15,72684	0,000211
diss.ox.+pH+temp.	6	14,79322	-16,3691	16,24231	0,000163
depth+edge.dist.+veget.	6	14,70132	-16,1852	16,42612	0,000149
pH+temp.+veget.	6	14,52758	-15,8378	16,77359	0,000125
edge.dist.+pH+temp.	6	14,31518	-15,413	17,19839	0,000101
depth+diss.ox.+pH+temp.	7	15,50482	-15,3626	17,24878	9,85E-05
diss.ox.+temp.+veget.	6	13,88112	-14,5448	18,06651	6,54E-05
edge.dist.+temp.+veget.	6	13,85969	-14,502	18,10938	6,40E-05
depth+diss.ox.+temp.+veget.	7	15,00503	-14,363	18,24836	5,97E-05
depth+pH+temp.+veget.	7	14,95643	-14,2658	18,34556	5,69E-05
diss.ox.+edge.dist.+temp.	6	13,64041	-14,0634	18,54793	5,14E-05
diss.ox.+edge.dist.+pH	6	13,29169	-13,366	19,24537	3,63E-05
diss.ox.+pH+veget.	6	13,28852	-13,3597	19,25171	3,62E-05
depth+edge.dist.+pH+temp.	7	14,38047	-13,1139	19,49747	3,20E-05
depth+diss.ox.+edge.dist.+temp.	7	14,37055	-13,094	19,51733	3,17E-05
depth+edge.dist.+temp.+veget.	7	14,17706	-12,7071	19,9043	2,61E-05
edge.dist.+pH+veget.	6	12,94	-12,6626	19,94874	2,55E-05

diss.ox.+edge.dist.+veget.	6	12,63961	-12,0618	20,54952	1,89E-05
depth+diss.ox.+pH+veget.	7	13,38355	-11,12	21,49132	1,18E-05
depth+diss.ox.+edge.dist.+pH	7	13,15523	-10,6634	21,94795	9,40E-06
depth+diss.ox.+edge.dist.+veget.	7	12,7026	-9,75814	22,85322	5,98E-06
depth+edge.dist.+pH+veget.	7	12,63028	-9,61351	22,99785	5,56E-06
diss.ox.+pH+temp.+veget.	7	12,30073	-8,9544	23,65696	4,00E-06
diss.ox.+edge.dist.+pH+temp.	7	12,18229	-8,71752	23,89384	3,55E-06
edge.dist.+pH+temp.+veget.	7	12,05135	-8,45565	24,15571	3,12E-06
depth+diss.ox.+pH+temp.+veget.	8	13,02451	-7,89976	24,7116	2,36E-06
diss.ox.+edge.dist.+temp.+veget.	7	11,5723	-7,49754	25,11382	1,93E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	12,58544	-7,02162	25,58974	1,52E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	12,24789	-6,34653	26,26483	1,09E-06
depth+edge.dist.+pH+temp.+veget.	8	12,15362	-6,15799	26,45337	9,88E-07
diss.ox.+edge.dist.+pH+veget.	7	10,60374	-5,56043	27,05093	7,33E-07
depth+diss.ox.+edge.dist.+pH+veget.	8	10,47944	-2,80963	29,80173	1,85E-07
diss.ox.+edge.dist.+pH+temp.+veget.	8	9,754287	-1,35932	31,25204	8,97E-08
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	10,15102	0,425225	33,03659	3,67E-08

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§16: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional diversity in tadpole communities in ponds in the Spring (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	64,6937	-123,271	0	0,913888
depth	4	61,83114	-115,468	7,803368	0,018468
temp.	4	61,70451	-115,215	8,056619	0,016271
edge.dist.	4	61,57236	-114,951	8,320916	0,014257
diss.ox.	4	61,39148	-114,589	8,682675	0,011898
pH	4	61,38814	-114,582	8,689372	0,011858
veget.	4	61,24663	-114,299	8,972391	0,010294
depth+temp.	5	58,75363	-107,215	16,05689	0,000298
depth+pH	5	58,5701	-106,848	16,42396	0,000248
depth+edge.dist.	5	58,55884	-106,825	16,44648	0,000245
edge.dist.+temp.	5	58,5357	-106,779	16,49275	0,00024
depth+diss.ox.	5	58,50362	-106,715	16,55691	0,000232
pH+temp.	5	58,43383	-106,575	16,69649	0,000216
diss.ox.+temp.	5	58,37583	-106,459	16,81248	0,000204
depth+veget.	5	58,37188	-106,451	16,8204	0,000203
diss.ox.+edge.dist.	5	58,28601	-106,279	16,99214	0,000187
temp.+veget.	5	58,25123	-106,21	17,06169	0,00018
edge.dist.+pH	5	58,24209	-106,192	17,07996	0,000179
edge.dist.+veget.	5	58,12161	-105,951	17,32092	0,000158
diss.ox.+pH	5	58,08418	-105,876	17,39579	0,000153
diss.ox.+veget.	5	57,94573	-105,599	17,6727	0,000133
pH+veget.	5	57,94426	-105,596	17,67563	0,000133
depth+pH+temp.	6	55,51897	-98,6262	24,64529	4,07E-06
depth+edge.dist.+temp.	6	55,47095	-98,5301	24,74134	3,88E-06
depth+diss.ox.+temp.	6	55,41852	-98,4253	24,84619	3,68E-06
depth+temp.+veget.	6	55,29564	-98,1795	25,09196	3,25E-06
depth+pH+temp.	6	55,2759	-98,14	25,13143	3,19E-06
depth+diss.ox.+edge.dist.	6	55,24933	-	25,18456	3,11E-06

		98,0869			
depth+diss.ox.+pH	6	55,23947	-98,0672	25,20429	3,08E-06
			-		
edge.dist.+pH+temp.	6	55,23209	98,0524	25,21906	3,05E-06
diss.ox.+edge.dist.+temp.	6	55,22527	-98,0388	25,2327	3,03E-06
depth+pH+veget.	6	55,11278	-97,8138	25,45767	2,71E-06
depth+edge.dist.+veget.	6	55,10263	-97,7935	25,47797	2,68E-06
diss.ox.+pH+temp.	6	55,1025	-97,7932	25,47824	2,68E-06
edge.dist.+temp.+veget.	6	55,08099	-97,7502	25,52126	2,62E-06
depth+diss.ox.+veget.	6	55,0466	-97,6814	25,59003	2,54E-06
pH+temp.+veget.	6	54,98301	-97,5543	25,71721	2,38E-06
diss.ox.+edge.dist.+pH	6	54,95542	-97,4991	25,7724	2,31E-06
diss.ox.+temp.+veget.	6	54,92526	-97,4388	25,8327	2,25E-06
diss.ox.+edge.dist.+veget.	6	54,83646	-97,2611	26,01032	2,06E-06
edge.dist.+pH+veget.	6	54,79444	-97,1771	26,09434	1,97E-06
diss.ox.+pH+veget.	6	54,64162	-96,8715	26,4	1,69E-06
depth+edge.dist.+pH+temp.	7	52,21089	-89,87	33,40142	5,10E-08
depth+diss.ox.+pH+temp.	7	52,1805	-89,8093	33,46219	4,95E-08
depth+diss.ox.+edge.dist.+temp.	7	52,15247	-89,7532	33,51825	4,81E-08
depth+pH+temp.+veget.	7	52,06277	-89,5738	33,69765	4,40E-08
depth+edge.dist.+temp.+veget.	7	52,01586	-89,48	33,79147	4,20E-08
depth+diss.ox.+edge.dist.+pH	7	51,96365	-89,3756	33,89588	3,99E-08
depth+diss.ox.+temp.+veget.	7	51,96307	-89,3744	33,89706	3,98E-08
diss.ox.+edge.dist.+pH+temp.	7	51,92053	-89,2893	33,98213	3,82E-08
depth+edge.dist.+pH+veget.	7	51,82177	-89,0918	34,17966	3,46E-08
depth+diss.ox.+edge.dist.+veget.	7	51,79541	-89,0391	34,23238	3,37E-08
depth+diss.ox.+pH+veget.	7	51,78443	-89,0171	34,25433	3,33E-08
			-		
edge.dist.+pH+temp.+veget.	7	51,78007	89,0084	34,26305	3,32E-08
diss.ox.+edge.dist.+temp.+veget.	7	51,77318	-88,9946	34,27683	3,29E-08
diss.ox.+pH+temp.+veget.	7	51,65437	-88,757	34,51445	2,93E-08
diss.ox.+edge.dist.+pH+veget.	7	51,50893	-88,4661	34,80533	2,53E-08
depth+diss.ox.+edge.dist.+pH+temp.	8	48,8896	-81,0663	42,20514	6,25E-10
			-		
depth+edge.dist.+pH+temp.+veget.	8	48,75777	80,8027	42,46879	5,48E-10
			-		
depth+diss.ox.+pH+temp.+veget.	8	48,72687	80,7409	42,5306	5,31E-10
depth+diss.ox.+edge.dist.+temp.+veget.	8	48,70004	-80,6872	42,58426	5,17E-10
depth+diss.ox.+edge.dist.+pH+veget.	8	48,51184	-80,3108	42,96065	4,29E-10
			-		
diss.ox.+edge.dist.+pH+temp.+veget.	8	48,47112	80,2294	43,0421	4,12E-10
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	45,43918	-71,9828	51,28863	6,66E-12

§17: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional diversity in tadpole communities in ponds in the Summer (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	3,9439	-0,9278	0	0,6987
pH	4	2,8684	3,9298	4,8576	0,0616
temp.	4	2,7409	4,1849	5,1127	0,0542
diss.ox.	4	2,5344	4,5978	5,5256	0,0441
edge.dist.	4	2,374	4,9187	5,8465	0,0376

depth	4	2,1751	5,3164	6,2442	0,0308
veget.	4	2,0374	5,5918	6,5196	0,0268
edge.dist.+pH	5	2,1979	8,2128	9,1406	0,0072
pH+temp.	5	1,9258	8,7572	9,685	0,0055
depth+pH	5	1,5189	9,571	10,499	0,0037
diss.ox.+pH	5	1,5031	9,6025	10,53	0,0036
edge.dist.+temp.	5	1,1961	10,216	11,144	0,0027
temp.+veget.	5	1,1586	10,291	11,219	0,0026
depth+veget.	5	1,0257	10,557	11,485	0,0022
diss.ox.+temp.	5	1,0095	10,59	11,518	0,0022
diss.ox.+edge.dist.	5	0,9776	10,654	11,581	0,0021
edge.dist.+veget.	5	0,9435	10,722	11,649	0,0021
pH+veget.	5	0,9298	10,749	11,677	0,002
depth+temp.	5	0,8916	10,825	11,753	0,002
depth+edge.dist.	5	0,7936	11,022	11,949	0,0018
diss.ox.+veget.	5	0,6393	11,33	12,258	0,0015
depth+diss.ox.	5	0,6093	11,39	12,318	0,0015
edge.dist.+pH+temp.	6	0,8621	14,094	15,022	0,0004
diss.ox.+edge.dist.+pH	6	0,8075	14,203	15,131	0,0004
edge.dist.+pH+veget.	6	0,7172	14,384	15,312	0,0003
depth+edge.dist.+pH	6	0,5202	14,778	15,706	0,0003
depth+pH+veget.	6	0,3209	15,176	16,104	0,0002
depth+pH+temp.	6	0,2785	15,261	16,189	0,0002
pH+temp.+veget.	6	0,2152	15,388	16,316	0,0002
diss.ox.+pH+temp.	6	0,146	15,526	16,454	0,0002
depth+diss.ox.+pH	6	-0,1471	16,112	17,04	0,0001
edge.dist.+temp.+veget.	6	-0,2567	16,332	17,259	0,0001
depth+edge.dist.+veget.	6	-0,2846	16,387	17,315	0,0001
depth+temp.+veget.	6	-0,285	16,388	17,316	0,0001
diss.ox.+pH+veget.	6	-0,4389	16,696	17,624	0,0001
depth+edge.dist.+temp.	6	-0,4633	16,745	17,673	0,0001
diss.ox.+edge.dist.+veget.	6	-0,4788	16,776	17,704	0,0001
diss.ox.+edge.dist.+temp.	6	-0,5403	16,899	17,827	9,40E-05
diss.ox.+temp.+veget.	6	-0,6563	17,131	18,059	8,37E-05
depth+diss.ox.+veget.	6	-0,7258	17,27	18,198	7,81E-05
depth+diss.ox.+edge.dist.	6	-0,8045	17,427	18,355	7,22E-05
depth+diss.ox.+temp.	6	-0,8294	17,477	18,405	7,04E-05
edge.dist.+pH+temp.+veget.	7	-0,3495	20,032	20,96	1,96E-05
depth+edge.dist.+pH+veget.	7	-0,3837	20,101	21,029	1,90E-05
diss.ox.+edge.dist.+pH+temp.	7	-0,6897	20,713	21,64	1,40E-05
depth+edge.dist.+pH+temp.	7	-0,828	20,989	21,917	1,22E-05
diss.ox.+edge.dist.+pH+veget.	7	-0,8847	21,103	22,031	1,15E-05
depth+pH+temp.+veget.	7	-0,9541	21,242	22,169	1,07E-05
depth+diss.ox.+edge.dist.+pH	7	-0,9588	21,251	22,179	1,07E-05
depth+diss.ox.+pH+veget.	7	-1,4872	22,308	23,236	6,29E-06
depth+diss.ox.+pH+temp.	7	-1,53	22,393	23,321	6,03E-06
diss.ox.+pH+temp.+veget.	7	-1,6137	22,561	23,489	5,54E-06
depth+edge.dist.+temp.+veget.	7	-1,6812	22,696	23,623	5,18E-06
diss.ox.+edge.dist.+temp.+veget.	7	-1,9218	23,177	24,105	4,07E-06
depth+diss.ox.+edge.dist.+veget.	7	-1,9593	23,252	24,18	3,92E-06

depth+diss.ox.+temp.+veget.	7	-2,1269	23,587	24,515	3,32E-06
depth+diss.ox.+edge.dist.+temp.	7	-2,2294	23,792	24,72	3,00E-06
depth+edge.dist.+pH+temp.+veget.	8	-1,7001	26,6	27,528	7,36E-07
diss.ox.+edge.dist.+pH+temp.+veget.	8	-2,1648	27,53	28,457	4,62E-07
depth+diss.ox.+edge.dist.+pH+veget.	8	-2,2309	27,662	28,59	4,33E-07
depth+diss.ox.+edge.dist.+pH+temp.	8	-2,3903	27,981	28,908	3,69E-07
depth+diss.ox.+pH+temp.+veget.	8	-2,8304	28,861	29,789	2,38E-07
depth+diss.ox.+edge.dist.+temp.+veget.	8	-3,3944	29,989	30,917	1,35E-07
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-3,5618	34,597	35,525	1,35E-08

§18: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional diversity in tadpole communities in ponds in the Autumn (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	12,581	-18,119	0	0,7739
veget.	4	11,086	-12,353	5,766	0,0433
edge.dist.	4	11,085	-12,351	5,7676	0,0433
temp.	4	11,055	-12,291	5,828	0,042
pH	4	10,932	-12,045	6,0739	0,0371
depth	4	10,27	-10,723	7,3961	0,0192
diss.ox.	4	10,243	-10,668	7,451	0,0187
pH+temp.	5	9,7912	-6,7252	11,394	0,0026
edge.dist.+pH	5	9,7727	-6,6883	11,431	0,0026
pH+veget.	5	9,5371	-6,217	11,902	0,002
edge.dist.+veget.	5	9,4292	-6,0013	12,118	0,0018
temp.+veget.	5	9,4275	-5,9979	12,121	0,0018
edge.dist.+temp.	5	9,4108	-5,9645	12,154	0,0018
depth+diss.ox.	5	9,0416	-5,2261	12,893	0,0012
diss.ox.+temp.	5	9,0034	-5,1496	12,969	0,0012
depth+temp.	5	8,9394	-5,0216	13,097	0,0011
diss.ox.+veget.	5	8,7776	-4,698	13,421	0,0009
depth+pH	5	8,7712	-4,6853	13,434	0,0009
depth+edge.dist.	5	8,7408	-4,6245	13,494	0,0009
diss.ox.+edge.dist.	5	8,7335	-4,6099	13,509	0,0009
depth+veget.	5	8,6387	-4,4203	13,699	0,0008
diss.ox.+pH	5	8,6027	-4,3483	13,771	0,0008
edge.dist.+pH+temp.	6	8,423	-0,646	17,473	0,0001
edge.dist.+pH+veget.	6	8,2002	-0,2003	17,919	9,95E-05
pH+temp.+veget.	6	8,1276	-0,0551	18,064	9,25E-05
diss.ox.+pH+temp.	6	7,9795	0,241	18,36	7,98E-05
depth+diss.ox.+pH	6	7,855	0,49	18,609	7,04E-05
depth+pH+temp.	6	7,758	0,684	18,803	6,39E-05
edge.dist.+temp.+veget.	6	7,7172	0,7656	18,885	6,14E-05
depth+diss.ox.+temp.	6	7,6822	0,8356	18,955	5,93E-05
diss.ox.+temp.+veget.	6	7,652	0,8959	19,015	5,75E-05
depth+edge.dist.+pH	6	7,6446	0,9108	19,03	5,71E-05

					4,99E-
depth+diss.ox.+edge.dist.	6	7,5093	1,1814	19,3	05
depth+temp.+veget.	6	7,4567	1,2866	19,405	4,73E-05
					4,52E-
diss.ox.+edge.dist.+pH	6	7,4113	1,3775	19,496	05
					4,49E-
depth+edge.dist.+temp.	6	7,4044	1,3911	19,51	05
					4,47E-
depth+diss.ox.+veget.	6	7,3999	1,4003	19,519	05
diss.ox.+edge.dist.+temp.	6	7,3278	1,5445	19,663	4,16E-05
diss.ox.+pH+veget.	6	7,2126	1,7748	19,894	3,71E-05
					3,56E-
depth+pH+veget.	6	7,1717	1,8566	19,975	05
diss.ox.+edge.dist.+veget.	6	7,1221	1,9558	20,075	3,38E-05
					2,93E-
depth+edge.dist.+veget.	6	6,9788	2,2424	20,361	05
					4,43E-
depth+diss.ox.+edge.dist.+pH	7	6,9366	6,0215	24,14	06
					4,06E-
depth+diss.ox.+pH+temp.	7	6,8493	6,1962	24,315	06
					3,43E-
edge.dist.+pH+temp.+veget.	7	6,681	6,5327	24,652	06
					3,08E-
depth+edge.dist.+pH+temp.	7	6,5718	6,7511	24,87	06
					2,99E-
diss.ox.+pH+temp.+veget.	7	6,5413	6,8121	24,931	06
					2,86E-
diss.ox.+edge.dist.+pH+temp.	7	6,5	6,8947	25,014	06
					2,25E-
depth+diss.ox.+pH+veget.	7	6,2596	7,3755	25,494	06
depth+diss.ox.+temp.+veget.	7	6,199	7,4968	25,616	2,12E-06
					2,08E-
depth+pH+temp.+veget.	7	6,1814	7,5319	25,651	06
					2,04E-
depth+diss.ox.+edge.dist.+temp.	7	6,1594	7,576	25,695	06
depth+edge.dist.+pH+veget.	7	5,8528	8,1891	26,308	1,50E-06
diss.ox.+edge.dist.+pH+veget.	7	5,8474	8,1999	26,319	1,49E-06
diss.ox.+edge.dist.+temp.+veget.	7	5,8207	8,2534	26,372	1,45E-06
depth+diss.ox.+edge.dist.+veget.	7	5,7428	8,4091	26,528	1,34E-06
depth+edge.dist.+temp.+veget.	7	5,7349	8,4249	26,544	1,33E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	5,8964	12,207	30,326	2,01E-07
depth+diss.ox.+pH+temp.+veget.	8	5,2602	13,48	31,598	1,06E-07
depth+diss.ox.+edge.dist.+pH+veget.	8	5,1328	13,734	31,853	9,37E-08
diss.ox.+edge.dist.+pH+temp.+veget.	8	4,9029	14,194	32,313	7,45E-08
					6,66E-
depth+edge.dist.+pH+temp.+veget.	8	4,7905	14,419	32,538	08
					4,92E-
depth+diss.ox.+edge.dist.+temp.+veget.	8	4,4886	15,023	33,142	08
					3,36E-
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	4,0975	20,393	38,512	09

§19: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional redundancy in tadpole communities in ponds in the Winter (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	51,198	-96,062	0	0,5129
depth	4	51,645	-94,727	1,3351	0,2631

pH	4	50,584	-92,605	3,4572	0,0911
depth+pH	5	50,615	-90,373	5,6887	0,0298
edge.dist.	4	49,005	-89,447	6,6153	0,0188
diss.ox.	4	48,962	-89,36	6,7017	0,018
depth+diss.ox.	5	50,074	-89,291	6,7705	0,0174
temp.	4	48,546	-88,529	7,5331	0,0119
veget.	4	48,168	-87,772	8,2895	0,0081
depth+temp.	5	49,048	-87,24	8,8221	0,0062
depth+edge.dist.	5	48,804	-86,751	9,3114	0,0049
depth+veget.	5	48,58	-86,303	9,7586	0,0039
diss.ox.+pH	5	48,228	-85,599	10,463	0,0027
edge.dist.+pH	5	47,866	-84,875	11,187	0,0019
pH+temp.	5	47,842	-84,826	11,236	0,0019
depth+diss.ox.+pH	6	48,686	-84,154	11,908	0,0013
pH+veget.	5	47,389	-83,921	12,141	0,0012
depth+pH+temp.	6	48,067	-82,916	13,146	0,0007
diss.ox.+edge.dist.	5	46,563	-82,27	13,792	0,0005
edge.dist.+temp.	5	46,434	-82,011	14,051	0,0005
depth+edge.dist.+pH	6	47,472	-81,726	14,336	0,0004
depth+pH+veget.	6	47,379	-81,54	14,522	0,0004
diss.ox.+temp.	5	46,126	-81,394	14,668	0,0003
edge.dist.+veget.	5	45,995	-81,133	14,929	0,0003
depth+diss.ox.+temp.	6	47,174	-81,131	14,931	0,0003
diss.ox.+veget.	5	45,88	-80,903	15,159	0,0003
depth+diss.ox.+edge.dist.	6	47,053	-80,889	15,173	0,0003
depth+diss.ox.+veget.	6	46,882	-80,546	15,516	0,0002
temp.+veget.	5	45,533	-80,21	15,852	0,0002
depth+edge.dist.+temp.	6	46,283	-79,349	16,713	0,0001
depth+temp.+veget.	6	46,048	-78,879	17,183	9,52E-05
depth+edge.dist.+veget.	6	45,754	-78,29	17,772	7,10E-05
diss.ox.+pH+temp.	6	45,398	-77,578	18,484	4,97E-05
diss.ox.+edge.dist.+pH	6	45,374	-77,531	18,531	4,85E-05
edge.dist.+pH+temp.	6	45,206	-77,194	18,868	4,10E-05
diss.ox.+pH+veget.	6	45,01	-76,803	19,259	3,37E-05
depth+diss.ox.+pH+temp.	7	46,071	-76,495	19,567	2,89E-05
pH+temp.+veget.	6	44,696	-76,175	19,887	2,46E-05
edge.dist.+pH+veget.	6	44,688	-76,158	19,904	2,44E-05
depth+diss.ox.+edge.dist.+pH	7	45,439	-75,231	20,831	1,54E-05
depth+diss.ox.+pH+veget.	7	45,425	-75,203	20,859	1,52E-05
diss.ox.+edge.dist.+temp.	6	43,82	-74,423	21,639	1,03E-05
depth+edge.dist.+pH+temp.	7	44,979	-74,31	21,751	9,70E-06
depth+pH+temp.+veget.	7	44,901	-74,155	21,907	8,98E-06
diss.ox.+edge.dist.+veget.	6	43,478	-73,739	22,323	7,29E-06
edge.dist.+temp.+veget.	6	43,463	-73,709	22,353	7,18E-06
diss.ox.+temp.+veget.	6	43,074	-72,931	23,131	4,87E-06
depth+edge.dist.+pH+veget.	7	44,25	-72,854	23,208	4,68E-06

depth+diss.ox.+edge.dist.+temp.	7	44,22	-72,794	23,268	4,54E-06
depth+diss.ox.+temp.+veget.	7	44,142	-72,636	23,426	4,20E-06
depth+diss.ox.+edge.dist.+veget.	7	43,865	-72,083	23,979	3,19E-06
depth+edge.dist.+temp.+veget.	7	43,321	-70,995	25,067	1,85E-06
diss.ox.+edge.dist.+pH+temp.	7	42,614	-69,582	26,48	9,12E-07
diss.ox.+pH+temp.+veget.	7	42,226	-68,804	27,258	6,18E-07
diss.ox.+edge.dist.+pH+veget.	7	42,154	-68,66	27,402	5,75E-07
edge.dist.+pH+temp.+veget.	7	42,083	-68,519	27,543	5,36E-07
depth+diss.ox.+edge.dist.+pH+temp.	8	42,886	-67,623	28,439	3,42E-07
depth+diss.ox.+pH+temp.+veget.	8	42,853	-67,556	28,505	3,31E-07
depth+diss.ox.+edge.dist.+pH+veget.	8	42,179	-66,209	29,853	1,69E-07
diss.ox.+edge.dist.+temp.+veget.	7	40,795	-65,944	30,118	1,48E-07
depth+edge.dist.+pH+temp.+veget.	8	41,839	-65,53	30,532	1,20E-07
depth+diss.ox.+edge.dist.+temp.+veget.	8	41,218	-64,287	31,775	6,46E-08
diss.ox.+pH+edge.dist.+temp.+veget.	8	39,456	-60,764	35,298	1,11E-08
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	39,685	-58,642	37,42	3,84E-09

§20: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional redundancy in tadpole communities in ponds in the Spring (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	126,91	-247,7	0	0,9205
temp.	4	124,23	-240,26	7,4385	0,0223
diss.ox.	4	124,18	-240,17	7,5283	0,0213
depth	4	123,31	-238,42	9,2721	0,0089
pH	4	123,26	-238,34	9,361	0,0085
veget.	4	123,21	-238,22	9,4762	0,0081
edge.dist.	4	123,18	-238,17	9,5293	0,0078
diss.ox.+temp.	5	121,21	-232,12	15,573	0,0004
depth+temp.	5	120,6	-230,9	16,794	0,0002
pH+temp.	5	120,58	-230,86	16,837	0,0002
depth+diss.ox.	5	120,56	-230,83	16,866	0,0002
diss.ox.+pH	5	120,55	-230,8	16,897	0,0002
temp.+veget.	5	120,5	-230,7	16,995	0,0002
diss.ox.+veget.	5	120,48	-230,66	17,032	0,0002
diss.ox.+edge.dist.	5	120,47	-230,66	17,04	0,0002
edge.dist.+temp.	5	120,46	-230,64	17,061	0,0002
depth+pH	5	119,67	-229,05	18,644	8,23E-05
depth+veget.	5	119,61	-228,92	18,776	7,71E-05
depth+edge.dist.	5	119,6	-228,91	18,784	7,68E-05
edge.dist.+pH	5	119,57	-228,85	18,844	7,45E-05
pH+veget.	5	119,57	-228,84	18,854	7,41E-05
edge.dist.+veget.	5	119,48	-228,67	19,028	6,79E-05
depth+diss.ox.+temp.	6	117,58	-222,74	24,952	3,51E-06
diss.ox.+pH+temp.	6	117,56	-222,71	24,984	3,46E-06

diss.ox.+temp.+veget.	6	117,48	-222,55	25,143	3,19E-06
diss.ox.+edge.dist.+temp.	6	117,47	-222,52	25,174	3,14E-06
depth+pH+temp.	6	116,96	-221,5	26,198	1,88E-06
depth+diss.ox.+pH	6	116,93	-221,45	26,245	1,84E-06
depth+diss.ox.+edge.dist.	6	116,88	-221,35	26,347	1,75E-06
diss.ox.+edge.dist.+pH	6	116,88	-221,35	26,348	1,75E-06
depth+temp.+veget.	6	116,88	-221,34	26,352	1,74E-06
depth+edge.dist.+temp.	6	116,88	-221,34	26,357	1,74E-06
depth+diss.ox.+veget.	6	116,86	-221,31	26,389	1,71E-06
pH+temp.+veget.	6	116,85	-221,29	26,409	1,70E-06
diss.ox.+pH+veget.	6	116,84	-221,28	26,419	1,69E-06
edge.dist.+pH+temp.	6	116,84	-221,26	26,433	1,68E-06
diss.ox.+edge.dist.+veget.	6	116,77	-221,13	26,568	1,57E-06
edge.dist.+temp.+veget.	6	116,74	-221,06	26,636	1,51E-06
depth+edge.dist.+pH	6	116,01	-219,6	28,095	7,30E-07
depth+pH+veget.	6	115,97	-219,53	28,163	7,05E-07
depth+edge.dist.+veget.	6	115,9	-219,4	28,3	6,59E-07
edge.dist.+pH+veget.	6	115,87	-219,34	28,362	6,39E-07
depth+diss.ox.+pH+temp.	7	113,94	-213,33	34,369	3,17E-08
depth+diss.ox.+edge.dist.+temp.	7	113,88	-213,21	34,489	2,98E-08
depth+diss.ox.+temp.+veget.	7	113,86	-213,17	34,522	2,94E-08
diss.ox.+edge.dist.+pH+temp.	7	113,85	-213,15	34,544	2,90E-08
diss.ox.+pH+temp.+veget.	7	113,84	-213,13	34,57	2,87E-08
diss.ox.+edge.dist.+temp.+veget.	7	113,74	-212,93	34,764	2,60E-08
depth+diss.ox.+edge.dist.+pH	7	113,3	-212,05	35,646	1,67E-08
depth+pH+temp.edge.dist.	7	113,27	-211,98	35,717	1,61E-08
depth+pH+temp.+veget.	7	113,24	-211,92	35,772	1,57E-08
depth+diss.ox.+pH+veget.	7	113,23	-211,91	35,784	1,56E-08
depth+diss.ox.+edge.dist.+veget.	7	113,18	-211,82	35,881	1,49E-08
diss.ox.+edge.dist.+pH+veget.	7	113,18	-211,8	35,896	1,48E-08
depth+edge.dist.+temp.+veget.	7	113,16	-211,77	35,928	1,45E-08
edge.dist.+pH+temp.+veget.	7	113,11	-211,67	36,025	1,38E-08
depth+edge.dist.+pH+veget.	7	112,31	-210,07	37,625	6,22E-09
depth+diss.ox.+edge.dist.+pH+temp.	8	110,28	-203,85	43,845	2,77E-10
depth+diss.ox.+pH+temp.+veget.	8	110,23	-203,74	43,955	2,63E-10
depth+diss.ox.+edge.dist.+temp.+veget.	8	110,17	-203,63	44,071	2,48E-10
diss.ox.+edge.dist.+pH+temp.+veget.	8	110,13	-203,55	44,151	2,38E-10
depth+diss.ox.+edge.dist.+pH+veget.	8	109,61	-202,5	45,195	1,41E-10
depth+edge.dist.+pH+temp.+veget.	8	109,55	-202,39	45,303	1,34E-10
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	106,58	-194,25	53,442	2,29E-12

§21: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional redundancy in tadpole communities in ponds at Summer season (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
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null	3	19,913	-32,865	0	0,7573
diss.ox.	4	18,997	-28,328	4,5376	0,0783
pH	4	18,437	-27,208	5,6575	0,0447
temp.	4	18,236	-26,805	6,0606	0,0366
edge.dist.	4	17,771	-25,875	6,9904	0,023
depth	4	17,642	-25,617	7,2485	0,0202
veget.	4	17,32	-24,974	7,8914	0,0146
diss.ox.+pH	5	17,545	-22,481	10,384	0,0042
edge.dist.+pH	5	17,271	-21,934	10,931	0,0032
pH+temp.	5	17,133	-21,657	11,208	0,0028
diss.ox.+edge.dist.	5	16,814	-21,02	11,846	0,002
diss.ox.+temp.	5	16,792	-20,976	11,89	0,002
depth+pH	5	16,756	-20,903	11,962	0,0019
depth+diss.ox.	5	16,44	-20,272	12,593	0,0014
diss.ox.+veget.	5	16,342	-20,075	12,79	0,0013
edge.dist.+temp.	5	16,127	-19,646	13,22	0,001
temp.+veget.	5	15,93	-19,252	13,613	0,0008
depth+temp.	5	15,825	-19,042	13,824	0,0008
pH+veget.	5	15,796	-18,983	13,882	0,0007
depth+veget.	5	15,739	-18,87	13,996	0,0007
depth+edge.dist.	5	15,707	-18,806	14,059	0,0007
edge.dist.+veget.	5	15,47	-18,331	14,534	0,0005
diss.ox.+edge.dist.+pH	6	16,169	-16,52	16,345	0,0002
edge.dist.+pH+temp.	6	15,534	-15,249	17,616	0,0001
diss.ox.+pH+temp.	6	15,49	-15,163	17,703	0,0001
depth+diss.ox.+pH	6	15,276	-14,733	18,132	8,75E-05
depth+edge.dist.+pH	6	15,152	-14,486	18,379	7,73E-05
depth+pH+temp.	6	14,998	-14,178	18,687	6,63E-05
edge.dist.+pH+veget.	6	14,949	-14,08	18,785	6,31E-05
diss.ox.+pH+veget.	6	14,835	-13,851	19,014	5,63E-05
depth+pH+veget.	6	14,754	-13,689	19,176	5,19E-05
pH+temp.+veget.	6	14,664	-13,51	19,355	4,75E-05
diss.ox.+edge.dist.+temp.	6	14,644	-13,47	19,396	4,65E-05
depth+diss.ox.+edge.dist.	6	14,417	-13,016	19,849	3,71E-05
diss.ox.+edge.dist.+veget.	6	14,369	-12,919	19,946	3,53E-05
depth+diss.ox.+temp.	6	14,349	-12,88	19,985	3,46E-05
diss.ox.+pH+temp.	6	14,286	-12,754	20,111	3,25E-05
depth+diss.ox.+veget.	6	14,159	-12,5	20,365	2,86E-05
depth+edge.dist.+temp.	6	13,926	-12,034	20,831	2,27E-05
depth+temp.+veget.	6	13,898	-11,977	20,889	2,20E-05
edge.dist.+temp.+veget.	6	13,877	-11,935	20,931	2,16E-05
depth+edge.dist.+veget.	6	13,747	-11,677	21,189	1,90E-05
diss.ox.+edge.dist.+pH+temp.	7	14,031	-8,7294	24,136	4,35E-06
depth+diss.ox.+edge.dist.+pH	7	13,799	-8,264	24,601	3,44E-06
diss.ox.+edge.dist.+pH+veget.	7	13,596	-7,8579	25,007	2,81E-06
depth+edge.dist.+pH+veget.	7	13,41	-7,4867	25,379	2,34E-06
edge.dist.+pH+temp.+veget.	7	13,397	-7,4605	25,405	2,30E-06

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depth+edge.dist.+temp.+pH	7	13,309	-7,2852	25,58	2,11E-06
depth+diss.ox.+pH+temp.	7	13,223	-7,1117	25,754	1,94E-06
depth+pH+temp.+veget.	7	12,97	-6,6074	26,258	1,50E-06
depth+diss.ox.+pH+veget.	7	12,962	-6,5902	26,275	1,49E-06
diss.ox.+pH+temp.+veget.	7	12,9	-6,4669	26,398	1,40E-06
depth+diss.ox.+edge.dist.+temp.	7	12,343	-5,353	27,512	8,04E-07
diss.ox.+edge.dist.+temp.+veget.	7	12,288	-5,2428	27,623	7,60E-07
depth+diss.ox.+edge.dist.+veget.	7	12,202	-5,0709	27,795	6,98E-07
depth+diss.ox.+temp.+veget.	7	12,107	-4,8799	27,985	6,34E-07
depth+edge.dist.+temp.+veget.	7	11,902	-4,4699	28,395	5,17E-07
depth+diss.ox.+edge.dist.+pH+temp.	8	11,73	-0,2605	32,605	6,30E-08
diss.ox.+edge.dist.+pH+temp.+veget.	8	11,586	0,0284	32,894	5,45E-08
depth+diss.ox.+edge.dist.+pH+veget.	8	11,545	0,1092	32,975	5,24E-08
depth+edge.dist.+pH+temp.+veget.	8	11,534	0,1314	32,997	5,18E-08
depth+diss.ox.+pH+temp.+veget.	8	10,956	1,2889	34,154	2,90E-08
depth+diss.ox.+edge.dist.+temp.+veget.	8	10,159	2,8826	35,748	1,31E-08
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	9,5328	8,4081	41,274	8,26E-10

§22: Summary of adjusted models produced by GLMM analysis relating local descriptors and functional redundancy in tadpole communities in ponds in the Autumn (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	28,591	-50,138	0	0,8821
temp.	4	26,478	-43,138	6,9999	0,0266
depth	4	26,267	-42,715	7,4229	0,0216
pH	4	26,254	-42,689	7,4485	0,0213
veget.	4	25,937	-42,055	8,0826	0,0155
edge.dist.	4	25,748	-41,677	8,4605	0,0128
diss.ox.	4	25,659	-41,499	8,6385	0,0117
depth+diss.ox.	5	25,818	-38,779	11,359	0,003
depth+temp.	5	24,593	-36,33	13,808	0,0009
pH+temp.	5	24,222	-35,586	14,552	0,0006
depth+pH	5	23,868	-34,879	15,259	0,0004
diss.ox.+temp.	5	23,777	-34,696	15,442	0,0004
temp.+veget.	5	23,731	-34,605	15,533	0,0004
edge.dist.+temp.	5	23,674	-34,49	15,648	0,0004
pH+veget.	5	23,62	-34,383	15,755	0,0003
edge.dist.+pH	5	23,452	-34,046	16,092	0,0003
depth+edge.dist.	5	23,412	-33,967	16,171	0,0003
depth+veget.	5	23,36	-33,863	16,275	0,0003

diss.ox.+pH	5	23,335	-33,812	16,326	0,0003
edge.dist.+veget.	5	23,085	-33,312	16,826	0,0002
diss.ox.+veget.	5	22,994	-33,131	17,007	0,0002
diss.ox.+edge.dist.	5	22,835	-32,813	17,325	0,0002
depth+diss.ox.+temp.	6	24,242	-32,283	17,855	0,0001
depth+diss.ox.+pH	6	23,598	-30,996	19,142	6,15E-05
depth+diss.ox.+edge.dist.	6	22,916	-29,632	20,505	3,11E-05
depth+diss.ox.+veget.	6	22,911	-29,621	20,517	3,09E-05
depth+pH+temp.	6	22,34	-28,481	21,657	1,75E-05
depth+edge.dist.+temp.	6	21,854	-27,508	22,63	1,08E-05
depth+temp.+veget.	6	21,736	-27,272	22,866	9,56E-06
diss.ox.+pH+temp.	6	21,6	-27,001	23,137	8,34E-06
pH+temp.+veget.	6	21,516	-26,831	23,307	7,67E-06
edge.dist.+pH+temp.	6	21,448	-26,695	23,443	7,16E-06
diss.ox.+temp.+veget.	6	21,172	-26,143	23,995	5,43E-06
depth+edge.dist.+pH	6	21,057	-25,915	24,223	4,85E-06
depth+pH+veget.	6	21,014	-25,827	24,311	4,64E-06
diss.ox.+edge.dist.+temp.	6	21,001	-25,802	24,336	4,58E-06
edge.dist.+temp.+veget.	6	20,931	-25,662	24,476	4,27E-06
edge.dist.+pH+veget.	6	20,826	-25,452	24,686	3,85E-06
diss.ox.+pH+veget.	6	20,711	-25,221	24,917	3,43E-06
diss.ox.+edge.dist.+pH	6	20,553	-24,907	25,231	2,93E-06
depth+edge.dist.+veget.	6	20,513	-24,827	25,311	2,81E-06
depth+diss.ox.+pH+temp.	7	22,242	-24,59	25,548	2,50E-06
diss.ox.+pH+veget.	6	20,164	-24,128	26,01	1,98E-06
depth+diss.ox.+edge.dist.+temp.	7	21,491	-23,087	27,051	1,18E-06
depth+diss.ox.+temp.+veget.	7	21,385	-22,875	27,263	1,06E-06
depth+diss.ox.+edge.dist.+pH	7	20,752	-21,609	28,529	5,63E-07
depth+diss.ox.+pH+veget.	7	20,704	-21,513	28,625	5,37E-07
depth+diss.ox.+edge.dist.+veget.	7	20,013	-20,131	30,007	2,69E-07
depth+edge.dist.+pH+temp.	7	19,636	-19,378	30,76	1,85E-07
depth+pH+temp.+veget.	7	19,495	-19,096	31,042	1,60E-07
diss.ox.+pH+temp.+veget.	7	19,004	-18,114	32,024	9,81E-08
depth+edge.dist.+temp.+veget.	7	18,982	-18,068	32,069	9,59E-08
diss.ox.+edge.dist.+pH+temp.	7	18,852	-17,809	32,329	8,42E-08
edge.dist.+pH+temp.+veget.	7	18,757	-17,619	32,519	7,66E-08
diss.ox.+edge.dist.+temp.+veget.	7	18,422	-16,949	33,189	5,48E-08
depth+edge.dist.+pH+veget.	7	18,221	-16,547	33,59	4,48E-08
diss.ox.+edge.dist.+pH+veget.	7	17,94	-15,986	34,152	3,38E-08
depth+diss.ox.+edge.dist.+pH+temp.	8	19,674	-15,348	34,79	2,46E-08
depth+diss.ox.+pH+temp.+veget.	8	19,371	-14,742	35,396	1,82E-08
depth+diss.ox.+edge.dist.+temp.+veget.	8	18,603	-13,207	36,931	8,43E-08

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depth+diss.ox.+edge.dist.+pH+veget.	8	17,855	-11,711	38,427	09
depth+edge.dist.+pH+temp.+veget.	8	16,776	-9,5528	40,585	1,36E-09
diss.ox.+edge.dist.+pH+temp.+veget.	8	16,288	-8,5762	41,562	8,33E-10
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	16,742	-4,8964	45,241	1,32E-10

\$23: Summary of adjusted models produced by GLMM analysis relating local descriptors and taxonomic diversity in tadpole communities in ponds in the Winter (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
depth	4	-15,779	40,121	0	0,3197
null	3	-16,919	40,171	0,0498	0,3119
pH	4	-17,299	43,161	3,0397	0,0699
depth+diss.ox.	5	-16,453	43,763	3,6421	0,0517
depth+pH	5	-16,615	44,087	3,9659	0,044
diss.ox.	4	-18,025	44,614	4,4929	0,0338
depth+temp.	5	-16,934	44,725	4,6036	0,032
temp.	4	-18,424	45,412	5,2905	0,0227
edge.dist.	4	-18,549	45,661	5,5399	0,02
veget.	4	-18,846	46,256	6,1348	0,0149
depth+veget.	5	-17,787	46,431	6,3092	0,0136
depth+edge.dist.	5	-17,937	46,731	6,6095	0,0117
pH+temp.	5	-18,556	47,968	7,8471	0,0063
depth+pH+temp.	6	-17,431	48,079	7,9576	0,006
diss.ox.+pH	5	-18,724	48,306	8,1842	0,0053
depth+diss.ox.+pH	6	-17,706	48,63	8,5086	0,0045
depth+diss.ox.+temp.	6	-17,777	48,772	8,6504	0,0042
edge.dist.+pH	5	-19,306	49,47	9,3485	0,003
pH+veget.	5	-19,524	49,906	9,7845	0,0024
depth+temp.+veget.	6	-18,6	50,417	10,296	0,0019
diss.ox.+temp.	5	-19,781	50,419	10,298	0,0019
edge.dist.+temp.	5	-19,857	50,571	10,449	0,0017
diss.ox.+edge.dist.	5	-19,882	50,622	10,501	0,0017
depth+diss.ox.+veget.	6	-18,706	50,63	10,509	0,0017
depth+diss.ox.+edge.dist.	6	-18,775	50,767	10,645	0,0016
depth+pH+veget.	6	-18,845	50,908	10,787	0,0015
depth+edge.dist.+pH	6	-18,948	51,113	10,992	0,0013
depth+edge.dist.+temp.	6	-18,957	51,132	11,01	0,0013
temp.+veget.	5	-20,139	51,136	11,014	0,0013
diss.ox.+veget.	5	-20,151	51,158	11,037	0,0013
edge.dist.+veget.	5	-20,423	51,703	11,581	0,001
depth+diss.ox.+pH+temp.	7	-18,542	52,731	12,61	0,0006
depth+edge.dist.+veget.	6	-19,881	52,98	12,859	0,0005
diss.ox.+pH+temp.	6	-20,049	53,316	13,194	0,0004
edge.dist.+pH+temp.	6	-20,492	54,202	14,08	0,0003
pH+temp.+veget.	6	-20,594	54,405	14,284	0,0003
depth+pH+temp.+veget.	7	-19,442	54,531	14,41	0,0002
diss.ox.+edge.dist.+pH	6	-20,862	54,942	14,82	0,0002
depth+diss.ox.+temp.+veget.	7	-19,647	54,942	14,821	0,0002
depth+edge.dist.+pH+temp.	7	-19,73	55,107	14,986	0,0002

diss.ox.+pH+veget.	6	-21,02	55,257	15,136	0,0002
depth+diss.ox.+edge.dist.+temp.	7	-19,982	55,611	15,489	0,0001
depth+diss.ox.+pH+veget.	7	-20,049	55,745	15,623	0,0001
depth+diss.ox.+edge.dist.+pH	7	-20,154	55,956	15,835	0,0001
diss.ox.+edge.dist.+temp.	6	-21,449	56,116	15,995	0,0001
edge.dist.+pH+veget.	6	-21,466	56,15	16,029	0,0001
edge.dist.+temp.+veget.	6	-21,507	56,231	16,109	0,0001
diss.ox.+temp.+veget.	6	-21,606	56,429	16,308	9,20E-05
depth+edge.dist.+temp.+veget.	7	-20,575	56,797	16,676	7,65E-05
diss.ox.+edge.dist.+veget.	6	-22,008	57,233	17,112	6,15E-05
depth+diss.ox.+edge.dist.+veget.	7	-21,022	57,69	17,569	4,89E-05
depth+edge.dist.+pH+veget.	7	-21,123	57,893	17,772	4,42E-05
depth+diss.ox.+pH+temp.+veget.	8	-20,71	59,57	19,448	1,91E-05
diss.ox.+edge.dist.+pH+temp.	7	-22,062	59,772	19,65	1,73E-05
depth+diss.ox.+edge.dist.+pH+temp.	8	-20,913	59,976	19,854	1,56E-05
diss.ox.+pH+temp.+veget.	7	-22,202	60,052	19,931	1,50E-05
edge.dist.+pH+temp.+veget.	7	-22,47	60,586	20,465	1,15E-05
depth+edge.dist.+pH+temp.+veget.	8	-21,69	61,53	21,409	7,18E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-21,809	61,768	21,646	6,37E-06
diss.ox.+edge.dist.+pH+veget.	7	-23,147	61,94	21,819	5,85E-06
diss.ox.+edge.dist.+temp.+veget.	7	-23,242	62,13	22,009	5,32E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-22,487	63,124	23,003	3,23E-06
diss.ox.+edge.dist.+pH+temp.+veget.	8	-24,167	66,483	26,361	6,03E-07
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-23,043	66,813	26,691	5,11E-07

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\$24: Summary of adjusted models produced by GLMM analysis relating local descriptors and taxonomic diversity in tadpole communities in ponds in the Spring season (season with low hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	-42,998	92,112	0	0,8671
temp.	4	-45,28	98,754	6,642	0,0313
depth	4	-45,614	99,422	7,3094	0,0224
diss.ox.	4	-45,71	99,615	7,502	0,0204
pH	4	-45,833	99,86	7,7476	0,018
veget.	4	-45,854	99,902	7,7899	0,0176
edge.dist.	4	-45,973	100,14	8,0271	0,0157
depth+temp.	5	-47,975	106,24	14,13	0,0007
diss.ox.+temp.	5	-48,061	106,42	14,303	0,0007
pH+temp.	5	-48,087	106,47	14,355	0,0007
temp.+veget.	5	-48,161	106,61	14,502	0,0006
edge.dist.+temp.	5	-48,264	106,82	14,708	0,0006
depth+diss.ox.	5	-48,347	106,99	14,875	0,0005
depth+pH	5	-48,428	107,15	15,036	0,0005
depth+veget.	5	-48,498	107,29	15,177	0,0004
diss.ox.+pH	5	-48,546	107,38	15,271	0,0004

depth+edge.dist.	5	-48,564	107,42	15,308	0,0004
diss.ox.+veget.	5	-48,566	107,43	15,313	0,0004
diss.ox.+edge.dist.	5	-48,678	107,65	15,536	0,0004
pH+veget.	5	-48,686	107,66	15,552	0,0004
edge.dist.+pH	5	-48,794	107,88	15,769	0,0003
edge.dist.+veget.	5	-48,829	107,95	15,837	0,0003
depth+diss.ox.+temp.	6	-50,759	113,93	21,817	1,59E-05
depth+pH+temp.	6	-50,765	113,94	21,829	1,58E-05
depth+temp.+veget.	6	-50,869	114,15	22,037	1,42E-05
diss.ox.+pH+temp.	6	-50,87	114,15	22,04	1,42E-05
depth+edge.dist.+temp.	6	-50,923	114,26	22,146	1,35E-05
diss.ox.+temp.+veget.	6	-50,939	114,29	22,176	1,33E-05
pH+temp.+veget.	6	-50,966	114,34	22,23	1,29E-05
diss.ox.+edge.dist.+temp.	6	-51,038	114,49	22,376	1,20E-05
edge.dist.+pH+temp.	6	-51,055	114,52	22,409	1,18E-05
edge.dist.+temp.+veget.	6	-51,143	114,7	22,586	1,08E-05
depth+diss.ox.+pH	6	-51,163	114,74	22,626	1,06E-05
depth+diss.ox.+veget.	6	-51,229	114,87	22,758	9,91E-06
depth+diss.ox.+edge.dist.	6	-51,293	115	22,886	9,30E-06
depth+pH+veget.	6	-51,31	115,03	22,92	9,14E-06
depth+pH+edge.dist.	6	-51,349	115,11	22,998	8,79E-06
diss.ox.+pH+veget.	6	-51,399	115,21	23,097	8,37E-06
depth+edge.dist.+veget.	6	-51,446	115,3	23,191	7,98E-06
diss.ox.+edge.dist.+pH	6	-51,5	115,41	23,299	7,56E-06
diss.ox.+edge.dist.+veget.	6	-51,534	115,48	23,368	7,31E-06
edge.dist.+pH+veget.	6	-51,647	115,71	23,594	6,53E-06
depth+diss.ox.+pH+temp.	7	-53,552	121,65	29,542	3,33E-07
depth+diss.ox.+temp.+veget.	7	-53,649	121,85	29,738	3,02E-07
depth+pH+temp.+veget.	7	-53,657	121,87	29,754	3,00E-07
depth+edge.dist.+pH+temp.	7	-53,68	121,91	29,799	2,93E-07
depth+diss.ox.+edge.dist.+temp.	7	-53,703	121,96	29,845	2,87E-07
diss.ox.+pH+temp.+veget.	7	-53,745	122,04	29,93	2,75E-07
depth+edge.dist.+temp.+veget.	7	-53,815	122,18	30,069	2,56E-07
diss.ox.+edge.dist.+pH+temp.	7	-53,831	122,21	30,102	2,52E-07
diss.ox.+edge.dist.+temp.+veget.	7	-53,914	122,38	30,268	2,32E-07
edge.dist.+pH+temp.+veget.	7	-53,931	122,41	30,302	2,28E-07
depth+diss.ox.+pH+veget.	7	-54,044	122,64	30,526	2,04E-07
depth+diss.ox.+edge.dist.+pH	7	-54,081	122,71	30,602	1,96E-07
depth+diss.ox.+edge.dist.+veget.	7	-54,172	122,9	30,784	1,79E-07
depth+edge.dist.+pH+veget.	7	-54,23	123,01	30,898	1,69E-07
diss.ox.+edge.dist.+pH+veget.	7	-54,353	123,26	31,146	1,50E-07
depth+diss.ox.+pH+temp.+veget.	8	-56,441	129,59	37,482	6,30E-09
depth+diss.ox.+edge.dist.+pH+temp.	8	-56,463	129,64	37,527	6,15E-09
depth+edge.dist.+pH+temp.+veget.	8	-56,571	129,85	37,742	5,53E-09
depth+diss.ox.+edge.dist.+temp.+veget.	8	-56,591	129,89	37,782	5,42E-09

					09
					4,83E-
diss.ox.+edge.dist.+pH+temp.+veget.	8	-56,705	130,12	38,01	09
depth+diss.ox.+edge.dist.+pH+veget.	8	-56,959	130,63	38,518	3,75E-09
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-59,35	137,6	45,484	1,15E-10

§25: Summary of adjusted models produced by GLMM analysis relating local descriptors and taxonomic diversity in tadpole communities in ponds in the Summer (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	-8,4017	23,763	0	0,5478
pH	4	-8,9283	27,523	3,7599	0,0836
diss.ox.	4	-9,0618	27,79	4,0268	0,0731
temp.	4	-9,0763	27,819	4,0558	0,0721
edge.dist.	4	-9,547	28,761	4,9973	0,045
depth	4	-9,6803	29,027	5,2639	0,0394
veget.	4	-9,9412	29,549	5,7856	0,0304
edge.dist.+pH	5	-9,1674	30,943	7,18	0,0151
pH+temp.	5	-9,2639	31,136	7,373	0,0137
diss.ox.+pH	5	-9,546	31,701	7,9374	0,0104
depth+pH	5	-9,6715	31,952	8,1883	0,0091
edge.dist.+temp.	5	-10,158	32,924	9,161	0,0056
diss.ox.+temp.	5	-10,168	32,945	9,182	0,0056
diss.ox.+edge.dist.	5	-10,213	33,034	9,2711	0,0053
temp.+veget.	5	-10,305	33,22	9,4561	0,0048
depth+temp.	5	-10,483	33,574	9,8105	0,0041
depth+veget.	5	-10,496	33,6	9,8368	0,004
pH+veget.	5	-10,514	33,638	9,8741	0,0039
depth+diss.ox.	5	-10,559	33,727	9,9633	0,0038
depth+edge.dist.	5	-10,576	33,76	9,9968	0,0037
diss.ox.+veget.	5	-10,613	33,835	10,072	0,0036
edge.dist.+veget.	5	-10,776	34,161	10,397	0,003
diss.ox.+edge.dist.+pH	6	-9,8528	35,524	11,76	0,0015
edge.dist.+pH+temp.	6	-9,9393	35,697	11,933	0,0014
depth+edge.dist.+pH	6	-10,318	36,454	12,69	0,001
edge.dist.+pH+veget.	6	-10,354	36,527	12,763	0,0009
depth+pH+temp.	6	-10,42	36,658	12,895	0,0009
diss.ox.+pH+temp.	6	-10,459	36,736	12,972	0,0008
depth+pH+veget.	6	-10,565	36,949	13,185	0,0008
pH+temp.+veget.	6	-10,649	37,117	13,353	0,0007
depth+diss.ox.+pH	6	-10,723	37,264	13,5	0,0006
diss.ox.+pH+veget.	6	-11,157	38,132	14,369	0,0004
diss.ox.+edge.dist.+temp.	6	-11,292	38,403	14,639	0,0004
depth+temp.+veget.	6	-11,322	38,463	14,7	0,0004
depth+edge.dist.+temp.	6	-11,341	38,501	14,737	0,0003
edge.dist.+temp.+veget.	6	-11,354	38,526	14,763	0,0003
diss.ox.+edge.dist.+veget.	6	-11,474	38,766	15,003	0,0003
depth+edge.dist.+veget.	6	-11,48	38,778	15,015	0,0003
diss.ox.+temp.+veget.	6	-11,512	38,843	15,08	0,0003

depth+diss.ox.+edge.dist.	6	-11,553	38,925	15,161	0,0003
depth+diss.ox.+temp.	6	-11,576	38,971	15,207	0,0003
depth+diss.ox.+veget.	6	-11,62	39,058	15,295	0,0003
depth+edge.dist.+pH+veget.	7	-10,894	41,121	17,358	9,32E-05
edge.dist.+pH+temp.+veget.	7	-10,905	41,143	17,38	9,22E-05
diss.ox.+edge.dist.+pH+temp.	7	-10,919	41,171	17,407	9,09E-05
depth+edge.dist.+pH+temp.	7	-11,158	41,649	17,886	7,16E-05
depth+diss.ox.+edge.dist.+pH	7	-11,172	41,677	17,913	7,06E-05
diss.ox.+edge.dist.+pH+veget.	7	-11,26	41,854	18,091	6,46E-05
depth+edge.dist.+pH+temp.	7	-11,341	42,015	18,252	5,96E-05
depth+diss.ox.+pH+temp.	7	-11,68	42,694	18,931	4,24E-05
depth+diss.ox.+pH+veget.	7	-11,807	42,947	19,184	3,74E-05
diss.ox.+pH+temp.+veget.	7	-11,908	43,15	19,387	3,38E-05
depth+edge.dist.+temp.+veget.	7	-12,309	43,951	20,188	2,26E-05
diss.ox.+edge.dist.+temp.+veget.	7	-12,479	44,292	20,528	1,91E-05
depth+diss.ox.+edge.dist.+veget.	7	-12,526	44,385	20,622	1,82E-05
depth+diss.ox.+edge.dist.+temp.+	7	-12,546	44,426	20,662	1,79E-05
depth+diss.ox.+temp.+veget.	7	-12,594	44,522	20,758	1,70E-05
depth+edge.dist.+pH+temp.+veget.	8	-11,748	46,696	22,932	5,74E-06
diss.ox.+edge.dist.+pH+temp.+veget.	8	-12,133	47,467	23,703	3,90E-06
depth+diss.ox.+edge.dist.+pH+veget.	8	-12,166	47,532	23,769	3,78E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	-12,181	47,561	23,798	3,72E-06
depth+diss.ox.+pH+temp.+veget.	8	-12,713	48,627	24,863	2,19E-06
depth+diss.ox.+edge.dist.+temp.+veget.	8	-13,526	50,251	26,488	9,70E-07
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-13,085	53,644	29,881	07

§26: Summary of adjusted models produced by GLMM analysis relating local descriptors and taxonomic diversity in tadpole communities in ponds in the Autumn (season with high hydric stress). Local descriptors: Depth (water column depth); Diss.ox. (dissolved oxygen); edge.dist. (edge distance); temp (water temperature); veget (percentage of aquatic vegetation cover).

Model	df	logLik	AICc	Δ	weight
null	3	2,8556	1,3323	0	0,7088
temp.	4	1,7206	6,3771	5,0448	0,0569
veget.	4	1,6662	6,4858	5,1535	0,0539
pH	4	1,4785	6,8611	5,5288	0,0447
edge.dist.	4	1,3789	7,0605	5,7281	0,0404
depth	4	1,1022	7,6138	6,2815	0,0307
diss.ox.	4	0,894	8,0301	6,6978	0,0249
depth+diss.ox.	5	0,6535	11,55	10,218	0,0043
pH+temp.	5	0,6226	11,612	10,28	0,0042
temp.+veget.	5	0,3968	12,063	10,731	0,0033
pH+veget.	5	0,3355	12,186	10,854	0,0031
edge.dist.+temp.	5	0,1534	12,55	11,218	0,0026
edge.dist.+pH	5	0,1463	12,564	11,232	0,0026
depth+temp.	5	0,1399	12,577	11,245	0,0026
edge.dist.+veget.	5	0,0626	12,732	11,4	0,0024

diss.ox.+temp.	5	0,0363	12,785	11,452	0,0023
depth+pH	5	-0,1318	13,121	11,788	0,002
diss.ox.+veget.	5	-0,2885	13,434	12,102	0,0017
depth+veget.	5	-0,3208	13,499	12,166	0,0016
depth+edge.dist.	5	-0,4008	13,659	12,326	0,0015
diss.ox.+pH	5	-0,465	13,787	12,455	0,0014
diss.ox.+edge.dist.	5	-0,5823	14,022	12,689	0,0012
depth+diss.ox.+pH	6	-0,1791	16,558	15,226	0,0004
depth+diss.ox.+temp.	6	-0,3363	16,873	15,54	0,0003
pH+temp.+veget.	6	-0,7316	17,663	16,331	0,0002
depth+diss.ox.+veget.	6	-0,753	17,706	16,374	0,0002
edge.dist.+pH+temp.	6	-0,8216	17,843	16,511	0,0002
depth+diss.ox.+edge.dist.	6	-0,8493	17,899	16,566	0,0002
depth+pH+temp.	6	-0,8859	17,972	16,64	0,0002
diss.ox.+pH+temp.	6	-0,8975	17,995	16,663	0,0002
diss.ox.+temp.+veget.	6	-1,0761	18,352	17,02	0,0001
edge.dist.+pH+veget.	6	-1,1318	18,464	17,131	0,0001
depth+temp.+veget.	6	-1,2096	18,619	17,287	0,0001
depth+edge.dist.+temp.	6	-1,2224	18,645	17,312	0,0001
edge.dist.+temp.+veget.	6	-1,2277	18,655	17,323	0,0001
depth+edge.dist.+pH	6	-1,4288	19,058	17,725	0,0001
diss.ox.+edge.dist.+temp.	6	-1,5369	19,274	17,941	9,01E-05
depth+pH+veget.	6	-1,5397	19,279	17,947	8,98E-05
diss.ox.+pH+veget.	6	-1,6119	19,424	18,091	8,36E-05
diss.ox.+edge.dist.+pH	6	-1,8036	19,807	18,475	6,90E-05
diss.ox.+edge.dist.+veget.	6	-1,8804	19,961	18,629	6,39E-05
depth+edge.dist.+veget.	6	-1,9171	20,034	18,702	6,16E-05
depth+diss.ox.+pH+temp.	7	-0,9285	21,752	20,419	2,61E-05
depth+diss.ox.+edge.dist.+pH	7	-1,282	22,459	21,126	1,83E-05
depth+diss.ox.+pH+veget.	7	-1,572	23,039	21,706	1,37E-05
depth+diss.ox.+temp.+veget.	7	-1,6667	23,228	21,896	1,25E-05
depth+diss.ox.+edge.dist.+temp.	7	-1,6685	23,232	21,899	1,24E-05
depth+edge.dist.+pH+temp.	7	-2,013	23,921	22,588	8,82E-06
diss.ox.+pH+temp.+veget.	7	-2,073	24,041	22,709	8,31E-06
edge.dist.+pH+temp.+veget.	7	-2,2441	24,383	23,051	7,00E-06
depth+pH+temp.+veget.	7	-2,2764	24,448	23,115	6,78E-06
depth+diss.ox.+edge.dist.+veget.	7	-2,3499	24,595	23,262	6,30E-06
diss.ox.+edge.dist.+pH+temp.	7	-2,3811	24,657	23,325	6,10E-06
depth+edge.dist.+temp.+veget.	7	-2,6924	25,28	23,947	4,47E-06
diss.ox.+edge.dist.+temp.+veget.	7	-2,7505	25,396	24,063	4,22E-06
depth+edge.dist.+pH+veget.	7	-2,9661	25,827	24,495	3,40E-06
diss.ox.+edge.dist.+pH+veget.	7	-3,0797	26,054	24,722	3,04E-06
depth+diss.ox.+edge.dist.+pH+temp.	8	-1,7455	27,491	26,159	1,48E-06
depth+diss.ox.+pH+temp.+veget.	8	-2,307	28,614	27,282	8,44E-07
depth+diss.ox.+edge.dist.+pH+veget.	8	-2,8342	29,668	28,336	4,98E-07

depth+diss.ox.+edge.dist.+temp.+veget.	8	-3,1266	30,253	28,921	3,72E-07
depth+edge.dist.+pH+temp.+veget.	8	-3,549	31,098	29,766	2,44E-07
diss.ox.+edge.dist.+pH+temp.+veget.	8	-3,666	31,332	30	2,17E-07
depth+diss.ox.+edge.dist.+pH+temp.+veget.	9	-3,2986	35,185	33,853	3,16E-08

§27 - Reproductive phenology of adults and temporal distribution of tadpoles recorded in the present study. The spiked bars represent the pattern of adult activity, and numbers represent the abundance of tadpoles in each season of the year. The (*) represent the presence of tadpoles registered in our study area.

Species	Spring	Summer	Autumn	Winter	Reference
<i>Dendropsophus minutus</i>	*	*	*	*	Both et al., 2008; Santos et al., 2008
<i>Boana faber</i>	*	*	*	*	Both et al., 2008
<i>Boana pulchella</i>	*			*	Santos et al., 2008
<i>Leptodactylus fuscus</i>	*	*			Santos et al., 2008
<i>Leptodactylus gracilis</i>	*			*	Both et al., 2008; Santos et al., 2008
	*				Both et al., 2008
<i>Leptodactylus latrans</i>					
<i>Leptodactylus mystacinus</i>	*				Santos et al., 2008
<i>Odontophrynus americanus</i>	*				Santos et al., 2008

<i>Physalaemus biligonigerus</i>	*		*	Santos et al., 2008
<i>Physalaemus cuvieri</i>	*	*	*	Both et al., 2008; Santos et al., 2008
<i>Physalaemus gracilis</i>	*	*	*	Both et al., 2008
<i>Physalaemus henselii</i>	*		*	Santos et al., 2008
<i>Physalaemus lisei</i>	*		*	Maneyro & Carreira, 2012
<i>Pseudopaludicola falcipes</i>	*			Both et al., 2008; Santos et al., 2008
<i>Ololygon berthae</i>	*	*	*	Santos et al., 2008
<i>Scinax granulatus</i>	*	*	*	Both et al., 2008; Santos et al., 2008
<i>Scinax squalirostris</i>	*	*	*	Both et al., 2008; Santos et al., 2008
<i>Julianus uruguayus</i>	*			Maneyro & Carreira, 2012

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