PROVA DE SUFICIÊNCIA EM INGLÊS

CPF: ____ Data: ________________

Orientações:

Essa é uma prova que pretende avaliar a capacidade dos candidatos de fazer, a leitura compreender, interpretar e traduzir textos em inglês. Ela é dividida em duas partes. A questão 1 envolve a leitura, compreensão e interpretação de um texto científico. As questões 2 e 3 a tradução direta de pequenos textos.

Instruções:

1. Escreva seu CPF e a data da prova na parte superior de todas as folhas de respostas;
2. Use apenas caneta preta ou azul;
3. As respostas podem ser redigidas em português ou espanhol;
4. Todas as folhas, utilizadas ou não, de respostas ou rascunho, devem ser devolvidas ao aplicador ao final do exame;
5. A prova tem a duração de 3 horas.
6. O candidato pode utilizar dicionário durante a prova.

Inglês (I):

I1- ***Species concepts and species delimitation in mammals: Species and mammalian taxonomy***

The debate about species delimitation is of course a general one and not specific to mammalian taxonomy. However, the discussion within the mammalogical community has been centre-stage in the wider debate recently, and it goes back a long way: in the very first issue of the Journal of Mammalogy, there is a paper and a rejoinder to it on how to delimit species, subspecies, and genera (Merriam 1919, Taverner 1920). Mammals are regarded as well studied, and they certainly are compared to insects. New mammal species are described much less frequently than new insects, but there are nevertheless many new mammal species published each decade (Reeder et al. 2007, Burgin et al. 2018), and although the most authoritative taxonomic reference work comprises 5,416 species (Wilson and Reeder 2005), total numbers of about 7,300–9,000 species that will eventually be recognized have been suggested (Reeder et al. 2007, Burgin et al. 2018).

Although there is no doubt that there are many new species of mammals 'out there' (or in museum collections), mammalian taxonomy has seen a recent debate on what has been named 'taxonomic inflation'— the increase in species numbers due to the allegedly unwarranted splitting of formerly single species into two or more. The term was coined by Isaac et al. (2004) in reaction to the increase in recognized primate species which, after a period of stability up to the mid-1980s, doubled until the early 2000s from 150 to 200 species to more than 350 in Groves (2001). Yet, only about 30 new discoveries of primates were made during that time; the rest is due to splitting. The recent primate volume within the Handbook of the Mammals of the World even lists more than 480 species (Mittermeier et al. 2013), and Burgin et al. (2018) give a number of 518. The same trend holds for the Bovidae: an increase of almost 100% from the Wilson and Reeder reference (Grubb 2005, 143 species) to Groves and Grubb (2011, 279 species), the Handbook of the Mammals of the World (Groves and Leslie 2011, 279 species) and Burgin et al. (2018, 297 species). There have always been 'splitters' and 'lumpers' in taxonomy, but this recent trend is in large parts due to a shift from the biological species concept (BSC) to the phylogenetic species concept (PSC), particularly a version of the PSC based on diagnosability (dPSC), and this has obviously hit a nerve with many as can be seen from the multitude of recent publications, commentaries, and rejoinders on the topic (Meiri and Mace 2007, Frankham et al. 2012, Gippoliti and Groves 2012, Groves 2012, 2013, Gippoliti et al. 2013, 2018, Gutiérrez and Helgen 2013, Heller et al. 2013, 2014, Zachos and Lovari 2013, Zachos et al. 2013a,b, Cotterill et al. 2014, Zachos 2015, Groves et al. 2017). Such active debate should be viewed as a healthy discussion on the theoretical foundations of taxonomy. The term taxonomic inflation has been countered with 'taxonomic inertia' by the adherents of the dPSC (e.g., Gippoliti et al. 2018), but elsewhere I have argued that maybe both terms should be avoided due to their negative connotations, particularly since splitting and lumping are positions along a continuum that are equally right or wrong as a consequence of a grey area after lineage sundering where taxonomic decisions necessarily contain an element of arbitrariness (Zachos 2018).

The number of newly described mammal species considered valid since Linnaeus's 10th edition of his Systema Naturae in 1758 averages almost 250 per decade (Burgin et al. 2018). In the 14 years between July 1992 and June 2006, it was 341 (Reeder et al. 2007), and from 2000 to 2009, it was 359 (IISE 2011). As expected, these new species are not evenly or randomly distributed with respect to taxonomy, size, and geography; there are biases toward smaller species in diverse taxa (e.g., rodents and bats), species with restricted ranges, and toward islands and the tropics. One important factor, however, that also contributes to which species are newly described is the propensity of experts on the respective groups to 'lump' or to 'split', and that propensity results from the author's preferred species concept. In the following, I will give a short overview of the three species concepts most relevant to mammalian taxonomy as practiced today: the BSC, the genetic species concept (GSC), and the PSC (Tab. 1.1). None of the three is a primary or ontological concept in the sense described above. All three of them function as operational delimitation criteria.

Species concept	Species definition	Reference
Evolutionary species concept	"a lineage of ancestral descendant populations which maintains its identity from other such lineages and which has its own evolutionary tendencies and historical fate"	Wiley (1978)
	"an entity composed of organisms that maintains its identity from other such entities through time and over space and that has its own independent evolutionary fate and historical tendencies"*	Wiley and Mayden (2000a)
Biological species concept	"a group of individuals fully fertile inter se, but barred from interbreeding with other similar groups by its physiological properties (producing either incompatibility of parents, or sterility of the hybrids, or both)"	Dobhzansky (1935)
	"groups of interbreeding natural populations that are reproductively isolated from other such groups. Alternatively, one can say that a biological species is a reproductively cohesive assemblage of populations"	Mayr (2000)
Genetic species concept	"a group of genetically compatible interbreeding natural populations that is genetically isolated from other such groups"	Baker and Bradley (2006)
Phylogenetic species concept (diagnosability version)	"the smallest diagnosable cluster of individual organisms within which there is a parental pattern of ancestry and descent"	Cracraft (1983)
	"the smallest aggregation of (sexual) populations or (asexual) lineages diagnosable by a unique combination of character states"	Wheeler and Platnick (2000a)
Phylogenetic species concept (monophyly version)	"the smallest monophyletic groups deemed worthy of formal recognition, because of the amount of support for their monophyly and/or because of their importance in biological processes operating on the lineage in question"	Mishler and Theriot (2000a)

Fonte: Handbook of Zoology, Mammalian Evolution, Diversity and Systematics. 2018. Edited by Frank E. Zachos.

I1a- No texto o autor apresenta o termo "inflação taxonômica". Qual a problemática envolvida na ocorrência desse fenômeno do ponto de vista zoológico? (1 ponto)

I1b- O autor atribui a ocorrência de "inflação taxonômica" a uma mudança de conceitos. Quais conceitos são esses? (1 ponto)

I1c- Com base nas definições apresentadas pelo autor, quais são as diferenças entre os diferentes conceitos (evolucionário, biológico e genético)? (2 pontos)

I2- Traduza o texto abaixo (3 pontos).

Developmental plasticity and the origin of tetrapods (Nature, 2014)

The origin of tetrapods from their fish antecedents, approximately 400 million years ago, was coupled with the origin of terrestrial locomotion and the evolution of supporting limbs. *Polypterus* is a member of the basal-most group of ray-finned fish (actinopterygians) and has many plesiomorphic morphologies that are comparable to elpistostegid fishes, which are stem tetrapods. *Polypterus* therefore serves as an extant analogue of stem tetrapods, allowing us to examine how developmental plasticity affects the 'terrestrialization' of fish. We measured the developmental plasticity of anatomical and biomechanical responses in *Polypterus* reared on land. Here we show the remarkable correspondence between the environmentally induced phenotypes of terrestrialized *Polypterus* and the ancient anatomical changes in stem tetrapods, and we provide insight into stem tetrapod behavioural evolution. Our results raise the possibility that environmentally induced developmental plasticity facilitated the origin of the terrestrial traits that led to tetrapods.

I3- Traduza o texto abaixo (3 pontos).

New Perspectives on the Ecology and Evolution of Siboglinid Tubeworms (Plos One, 2014).

Siboglinids are tube-dwelling annelids that are important members of deep-sea chemosynthetic communities, which include hydrothermal vents, cold seeps, whale falls and reduced sediments. As adults, they lack a functional digestive system and rely on microbial endosymbionts for their energetic needs. Recent years have seen a revolution in our understanding of these fascinating worms. Molecular systematic methods now place these animals, formerly known as the phyla Pogonophora and Vestimentifera, within the polychaete clade Siboglinidae. Furthermore, an entirely new radiation of siboglinids, *Osedax*, has recently been discovered living on whale bones. The unique and intricate evolutionary association of siboglinids with both geology, in the formation of spreading centres and seeps, and biology with the evolution of large whales, offers opportunities for studies of vicariant evolution and calibration of molecular clocks. Moreover, new advances in our knowledge of siboglinid anatomy coupled with the molecular characterization of microbial symbiont communities are revolutionizing our knowledge of host-symbiont relationships in the Metazoa. Despite these advances, considerable debate persists concerning the evolutionary history of siboglinids. Here we review the morphological, molecular, ecological and fossil data in order to address when and how siboglinids evolved. We discuss the role of ecological conditions in the evolution of siboglinids and present possible scenarios of the evolutionary origin of the symbiotic relationships between siboglinids and their endosymbiotic bacteria.