

PROGRAMA DE PÓS-GRADUAÇÃO EM ZOOLOGIA

EDITAL n. 01/2025

SELEÇÃO DE CANDIDATAS(OS) ÀS VAGAS DO PROGRAMA DE PÓS-GRADUAÇÃO EM ZOOLOGIA PARA OS CURSOS DE MESTRADO E DOUTORADO ACADÊMICOS PARA O PRIMEIRO PERÍODO LETIVO DE 2025

PROVA DE INTERPRETAÇÃO DE TEXTO EM LÍNGUA ESTRANGEIRA

A prova escrita abaixo deve ser respondida individualmente pelas(os) candidatas(o)s em folha pautada anexa, à caneta esferográfica. Apenas o número de inscrição deve ser informado tanto no caderno de questões quanto na folha de respostas, de forma que nenhum outro tipo de identificação deve ser colocado. A prova tem tempo previsto máximo de duas (2) horas para resolução. Não podem ser consultados nenhum tipo de material nem outras pessoas. Tanto o caderno de questões quanto a folha de respostas devem ser entregues. As(os) candidatas(os) podem usar uma folha de rascunho. As respostas devem ser em língua portuguesa. É permitido o uso de dicionário impresso. A pontuação é apresentada para cada questão.

Boa prova.

Número de inscrição: _____

Avalie o texto 1 e responda (em português) as questões 1 a 3.

TEXTO 1

The paradigm of vicariant biogeography postulates that general distribution patterns demand general explanations, usually by associating lineage splitting with the origin of wide-ranging geographical barriers. Despite such conceptual clarity, in practice, the association of biogeographical patterns with geographical barriers that contributed to taxonomic diversification is difficult because of factors such as dispersal across existing barriers, area coalescence (obliteration of preexisting barriers and resulting biotic dispersal), extinction, and others that make the detection and delimitation of historically cohesive areas (biogeographical units) a complex process. In this work we provide a general compilation of the diversity and geographical distribution of Amazonian fishes, updated to the end of 2018. Our database includes documented distributions of 4214 species (both Amazonian and from surrounding basins), compiled from published information plus original data from ichthyological collections. Our results show that the Amazon basin comprises the most diverse regional assemblage of freshwater fishes in the world, with 2716 valid species (1696 of which are endemic) representing 529 genera, 60 families, and 18 orders. These data permit a view of the diversity and distribution of Amazonian fishes on a basinwide scale, which in turn allows the identification of congruent biogeographical patterns, here defined as the overlapping distributions of two or more lineages (species or monophyletic groups). We recognize 20 distinct distributional patterns of Amazonian fishes, which are herein individually delimited, named, and diagnosed. Not all these patterns are associated with identifiable geographical barriers, and some may result from ecological constraints. All the major Amazonian subdrainages fit into more than one biogeographical

pattern. This fact reveals the complex history of hydrographical basins and shows that modern basin-defined units contribute relatively little as explanatory factors for the present distributions of Amazonian fishes. An understanding of geomorphological processes and associated paleographic landscape changes provides a far better background for interpreting observed patterns. Our results are expected to provide a framework for future studies on the diversification and historical biogeography of the Amazonian aquatic biota.

Dagosta, F. C., & De Pinna, M. (2019). *The fishes of the Amazon: distribution and biogeographical patterns, with a comprehensive list of species*. *Bulletin of the American Museum of Natural History*, 2019(431), 1-163.

1. Segundo os autores, no que consistem os padrões biogeográficos congruentes?
2. As bacias e sub-bacias hidrográficas amazônicas, como são reconhecidas hoje em dia, correspondem a unidades de padrões biogeográficos? Justifique sua resposta com base no texto apresentado.
3. Por que a delimitação de unidades biogeográficas é difícil dentro do paradigma da biogeografia vicariante?

Avalie o texto 2 e responda (em português) as questões 4 e 5.

TEXTO 2

Descriptions and diagnoses are alternative choices in all Codes of Nomenclature because Linnaeus relied on diagnoses, not descriptions, to name ca. 13,400 animals, plants, and fungi. A diagnosis names characters in which a new taxon differs from the most similar known taxon; a description mixes taxonomically informative and uninformative features, usually without indicating which is which. The first formal diagnoses of new taxa that included DNA-based characters came out in 2001, and by November 2015, at least 98 names of species of acoels, lichens, angiosperms, annelids, alveolates, arachnids, centipedes, turtles, fishes, butterflies, mollusks, nematodes, and pathogenic fungi have been published based on diagnostic mitochondrial, plastid, or nuclear DNA substitutions, indels, or rarely genetic distances, with or without additional morphological features. Authors have found diverse ways to specify the diagnostic traits (all published studies are here tabulated). While descriptions try to "cover" within-species variation, a goal rarely accomplished because of (i) the stochastic nature of specimen availability (thousands of species are known from single collections) and (ii) the subjective circumscription of species, the purpose of diagnoses was and is speedy identification. Linnaeus tried to achieve this by citing images, geographic occurrence, and previous literature. The renewed attention to sharp diagnosis now coincides with worldwide barcoding efforts, may speed up formal naming, and matches the increasing reliance on DNA for both classification and identification. I argue for DNA-based diagnoses of new species becoming a recommendation in all Codes, not just the bacterial code.

Renner, S. S. (2016). A return to Linnaeus's focus on diagnosis, not description: the use of DNA characters in the formal naming of species. *Systematic biology*, 65(6), 1085-1095.

4. Segundo a autora, por que as diagnoses são preferíveis às descrições? Por que e qual a relação com o DNA na diagnose das espécies?

5. Segundo a autora, por que as descrições falham no reconhecimento das espécies e são menos úteis?

Avalie o texto 3 e responda (em português) as questões 6, 7 e 8.

TEXTO 3

As it has presently become evident, reproductive isolation can no longer be considered as the leading criterion for estimating the species limits, but it is still used for determining the status of the majority of morphs. The presence/absence of hybridization between individuals is not directly related to the degree of their evolutionary insularity. Hybridization can result in the origin of new morphs including those that have species status. The application of phylogenetic methods is justified in reconstructing the relation links within complex groups including the morphs of various evolutionary levels (from geographical races to “good” species), the relationships between which are exacerbated by hybridogenous polymorphism and/or the hybridization origins of their populations. Taking into account both new data and new conceptions, we suggest genuine interrelated definitions of concepts such as species, subspecies, and semispecies in birds. The definitions are based on two main criteria: biological, i.e., an evaluation of the reproductive relations of the particular morphs with each other, and phylogenetic, i.e., an evaluation of their evolutionary age and kinship. The main feature of a species as an evolutionary entity should be considered through its stability in time even when its reproductive isolation is periodically broken. Geographic intraspecies races show sustainable variations of different degrees, but they have no reproductive isolation; they breed upon contact and form intergradation zones. They are taxonomically denoted as subspecies. Descriptions of new subspecies are viable to the limits that reflect the species’ natural geographic structure to the fullest extent. For the young morphs that have reached the level of species insularity in the course of evolution, it seems appropriate to restore a semispecies category. Semispecies show significant morphological differences and distinguished ecological particularities, as a rule, but they are connected to closely related morphs by gene flows in contact zones. Distinguishing this category is not regulated by the International Code of Zoological Nomenclature and, as splitter tendencies prevail in modern systematics, semispecies are more often equated to species; i.e., they have binominal names.

Koblik, E. A., Red’kin, Ya. A., Volkov, S. V., & Mosalov, A. A. (2020). *The concept of bird species: Theory and practice. Biology Bulletin of the Russian Academy of Sciences*, 47(7), 707–723. <https://doi.org/10.1134/S1062359020070079> drabruzzi.com+5

6. Segundo os autores, porque o isolamento reprodutivo não pode mais ser considerado o principal critério para estimar os limites entre espécies.
7. Ainda segundo os autores, qual é a definição de semi-espécie?
8. Segundo os autores, quais os principais critérios que devem ser utilizados nas definições de espécies, subespécies e semi-espécies?