Understanding sources of variation in advertisement call attributes in spring peepers (Pseudacris crucifer)

Abstract
The mate recognition system is the foundation of biological speciation in frogs and toads. Sexual selection has been suggested to cause male call evolution, population divergence, and ultimately reproductive isolation. It is generally assumed that a significant fraction of variation in male call has an underlying genetic basis and that there is a link between call attributes and fitness. Yet these are largely unproved assertions in anurans, with many other factors contributing to diversity of calls within a male chorus. Anuran advertisement calls are important in studies of sexual selection, speciation, community acoustic partitioning, as well as phenological studies. In all of these, understanding heritability of calls is prerequisite to understanding evolutionary patterns and potential responses to selection. However, few studies have examined the heritability of advertisement calls in anurans. In general, we know that key aspects of anuran calls, including both temporal and spatial attributes, vary with body size, age, abiotic factors such as temperature and habitat type, and social context, including inter-male competition. In my thesis, I attempt to estimate the heritability of call attributes within a calling assemblage of a temperate treefrog, Pseudacris crucifer, and to quantify the relative contributions of different factors: body size, age, calling temperature and genetics. I used sonographic analysis to assess call variation, skeletochronology to estimate age, and a dataset comprising single nucleotide polymorphisms (SNPs) to estimate the relatedness of calling males. I used the animal model to evaluate those factors that may affect call variation. I found that body temperature to be the most important factor, influencing all six call attributes, and that body size predicted variation in some call attributes. I had insufficient power to derive robust estimates of heritability. By investigating the genetic basis as well as environmental components of variation in advertisement calls, I gained insights on within-population variation and how selection might impact the evolution of anuran calls.

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The spring peeper (Pseudacris crucifer) is a widespread Nearctic chorus frog with six divergent mitochondrial DNA (mtDNA) lineages, many of which came into secondary contact during the Holocene. We examined genetics, morphology, advertisement calls and female preference for two lineages that began diverging in allopatry in the Pliocene and now overlap in southwestern Ontario, Canada. We found non-coincident clines in mtDNA and nuclear DNA, mirroring directionality of premating isolation barriers. We also found divergence in a range of traits between these two lineages, displacement in male cal...
Spring Peepers are named for their signature high-pitched calls. This species is native to eastern North America and can be found from Manitoba, Canada to Florida. It is a woodland species that lives in areas with heavy plant growth near ponds, streams, or swamps. Peepers are typically found on the ground within leaf litter where they are well camouflaged. Within the forest ecosystem, these frogs have a role in controlling insect populations. Appearance: Peepers are gray, tan or light brown in color with a light belly. They can be identified by the dark “X” on their backs and bands on the legs. Spring Peeper (Pseudacris crucifer). Enjoy the videos and music you love, upload original content, and share it all with friends, family, and the world on YouTube. Beautiful Creatures Animals Beautiful Fun Facts For Kids Very Cold Frog And Toad Reptiles And Amphibians Spring Is Here Animal Kingdom Drake. Discover Life's page about the biology, natural history, ecology, identification and distribution of Pseudacris crucifer - Southern spring peeper - Discover Life. Natural History Ecology Southern Nature Animals Animales Naturaleza Animaux Animal Memes. Pseudacris crucifer - Southern spring peeper. Discover Life's page about the biology, natural history, ecology, identification and distribution of Pseudacris crucifer - Southern spring peeper - Discover Life. More ideas.