

# Interspecific combat in anurans: a case of *Hypsiboas faber* (Wied-Neuwied, 1821) (Hylidae) and *Rhinella pombali* (Baldissera-Jr, Caramaschi & Haddad, 2004) (Bufonidae)

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## Resumo

**Combate interespecífico em anuros: um caso entre *Hypsiboas faber* (Wied-Neuwied, 1821) (Hylidae) e *Rhinella pombali* (Baldissera-Jr, Caramaschi & Haddad, 2004) (Bufonidae).** Nós reportamos um combate interespecífico envolvendo a perereca *Hypsiboas faber* e o sapo *Rhinella pombali* no sudeste do Brasil. Uma vez que a observação ocorreu após o início da interação, ambas as espécies podem ter iniciado a luta. Em geral, combates intra-específicos são mais comuns em espécies nas quais o macho é tão grande quanto ou maior que a fêmea, como observado em *Hypsiboas faber*. Dessa forma, o macho da perereca pode ter confundido o sapo com um oponente coespecífico. Por outro lado, machos de bufonídeos podem empregar a busca ativa por fêmeas, às vezes amplexando outros machos. Assim, o sapo pode ter amplexado a perereca e iniciado a luta.

**Unitermos:** interações interespecíficas, luta, território

## Abstract

We report an interspecific combat involving the tree frog *Hypsiboas faber* and the toad *Rhinella pombali* in southeastern Brazil. Since the observation occurred after the beginning of the interaction, either one of the species may have started the fight. In general, intra-specific combats are more common for species in which the male is as large, as or larger than, the female, as observed in *Hypsiboas faber*. Thus, the male tree frog might have confused the toad with a conspecific opponent. On the other hand, bufonid males can use active searching for females, sometimes clasping other males or objects. Therefore, the toad might have clasped the male tree frog and it was this that provoked the subsequent wrestling.

**Key words:** fight, interspecific interactions, territory

In areas where several species of frogs breed simultaneously, interspecific interactions may occur, varying from shifts in acoustic signals to aggressive encounters (Schwartz and Wells, 1984). However, the occurrence of interspecific combats in anurans has been rarely reported, being more common among closely related species (Schwartz and Wells, 1984). In general, aggressive interactions among heterospecific males occur by the use of aggressive calls in the defense of calling sites (Wells, 2007).

During an anuran survey on September 9<sup>th</sup> 2009 at around 19:30, we witnessed an interspecific combat between the tree frog *Hypsiboas faber* and the toad *Rhinella pombali* (Figure 1). The observation took place in a small temporary pond in the municipality of Viçosa, state of Minas Gerais, southeastern Brazil (20°48'01.4"S, 42°51'45.6"W, elev. 711m). An adult male of *H. faber* was observed holding the body of an adult male of *R. pombali*, on the water surface near the edge of the pond. The male of *H. faber* remained clinging to its opponent, fighting at all times, while the bufonid struck with its forelimbs, also rolling the *H. faber* throughout the fight, apparently trying to keep the tree frog underwater. After about one minute, the opponents separated, distancing themselves about one meter away from each other. We did not hear any acoustic signals being emitted during the combat.

The abundance of the resource is expected to modify the intensity of the competition among individuals (Wells, 1977; Duellman and Trueb, 1986). In anurans, such resources are almost always oviposition sites or calling sites, which are disputed mainly by males (Wells, 2007). Territorial defense of oviposition sites is particularly common in males of *H. faber* who frequently defend nests and the area around them, which represents simultaneously a calling, a courtship, and an oviposition site (Martins and Haddad, 1988). As a result, the wrestling in *H. faber* is more frequent in high density choruses, varying from a few seconds to more than 10 minutes (Martins et al., 1998). Another feature that can stimulate competition is the availability of females (Wells, 2007). Males of several Brazilian bufonids engage in active searching during situations of very dense choruses, sometimes clasp other males or objects (Pombal-Jr. and Haddad, 2007). On the same

night and at the same pond where we observed the reported event, at least another ten males of *H. faber* were calling together with a similar or superior number of males of *R. pombali*. Since the observation was made after the beginning of the combat, it is difficult to know which individual started the wrestling, both being possible scenarios.



FIGURE 1: Adult males of *Hypsiboas faber* and *Rhinella pombali* wrestling in pond shallows (Viçosa, Minas Gerais, Brazil). Note the forelimbs of the *H. faber* clinging (white arrow) to the body of the *R. pombali*. Photo: M. R. Moura.

Evidence for *H. faber* as the starter of the combat is provided by the several territorial and aggressive behaviors described for this species (Lutz, 1960; 1973), including an escalated aggressive behavior among males, which can vary from territorial calls to physical fights (Martins et al., 1998). Since the available area for nest building was limited, the high number of males calling on that night might have influenced the beginning of the interspecific battle. In the case reported here, the male of *R. pombali* might have entered the territory of the male *H. faber*, and the latter could have confused the toad with another co-specific calling male, jumping toward the *R. pombali* and then beginning the combat. The male of *R. pombali* almost certainly moved in response to aggression as a defensive tactic, whereas the opponent was still clinging to its body. On the other

hand, the possibility of *R. pombali* starting the combat cannot be rejected. Although the behavior of active search has not yet been reported for *R. pombali*, it is known for closely related species, such as *R. ornata* and *R. henseli* (Pombal-Jr. and Haddad, 2007). Thus, in the situation reported here, the male *R. pombali* could have confused the *H. faber* male with a co-specific female while searching for a mate, and attempted to amplex the latter by wrestling.

In the anuran species that present male combat, the males are as large as, or larger than, females in almost half of these combative forms, while in non-combative species the males are rarely as large as the females (Shine, 1979). This aspect of sexual dimorphism is observed in *H. faber*, a species in which males are as large as females (Martins, 1993) and is not verified in most *Rhinella* species, in which females are larger than males (e.g. Caramaschi and Niemeyer, 2003; Baldisserra-Júnior et al., 2004; Brandão et al., 2007; Chaparro et al., 2007; Fouquet et al., 2007; Lehr et al., 2007; Maciel, 2008; Narvaes and Trefaut, 2009). Although reports of aggressive behavior for the *Rhinella* species has been only rarely reported (e.g. Haddad et al., 2008), we have already observed males of *R. pombali* exhibiting territorial behaviors, such as territorial call and attempts to move a neighboring male, indicating that these interactions may not be uncommon for these toads. The occurrence of territorial behavior in males of *R. pombali* is another piece of evidence for the toad as the starter of the combat described here, although it was not observed in this reported event.

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