

Foot webbing coloration signifies visual signals of maturation in frogs

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Color and pattern change upon maturation is not uncommon among numerous animals. These changes tend to signify sexual development within the species and also increased male–male competition in searching for mates. Among frogs, color and pattern changes are quite common. Although vocal signals are normally used as a mode of communication, some frog and toad species use visual cues as well.

The article "Ontogenetic Change of Signal Brightness in the Foot-flagging Frog Species *Staurois parvus* and *Staurois guttatus*," in the new issue of *Herpetologica*, examines Bornean [foot](#)-flagging frogs and analyzes differences in body color and changes in foot webbings. Working at the Vienna Zoo, the authors studied variations in the colors of the foot webbings and bodies of different age classes of *Staurois parvus* and *S. guttatus*. They also compared their findings to color data from wild populations, and discuss the color variation in relation to diet, signaling behavior, and habitat.

The authors determined that the foot webbing coloration of both the *S. parvus* and *S. guttatus* changed with age. Out of the three parameters tested (brightness, hue, and UV Blue chroma), brightness was the one that most affected the [color](#) change. There was a difference between the brightness of the foot when compared with size and mass, as the feet of larger frogs were far brighter even though differences in body coloration were absent. The authors hypothesize that the brightness of the foot webbings are visual indicators of the age and maturity level of the frog, showing that visual as well as aural cues are important to these species.

Because this study was completed at a zoological park, it does not fully encompass the biology of *S. parvus* and *S. guttatus* in the wild. The authors suggest that future research delve further into whether foot webbings brighten even more with age or if mating has an effect on brightness. This type of research is important as continuing to learn specifics on behavior, habitat, and reproduction will help in the future conservation of these frogs.

More information: Judith Stangel, Doris Preininger, Marc Sztatecsny, and Walter Hödl (2015) "Ontogenetic Change of Signal Brightness in the Foot-Flagging Frog Species *Staurois parvus* and *Staurois guttatus*." *Herpetologica*: March 2015, Vol. 71, No. 1, pp. 1-7. doi: [dx.doi.org/10.1655/HERPETOLOGICA-D-14-00014](https://doi.org/10.1655/HERPETOLOGICA-D-14-00014)

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