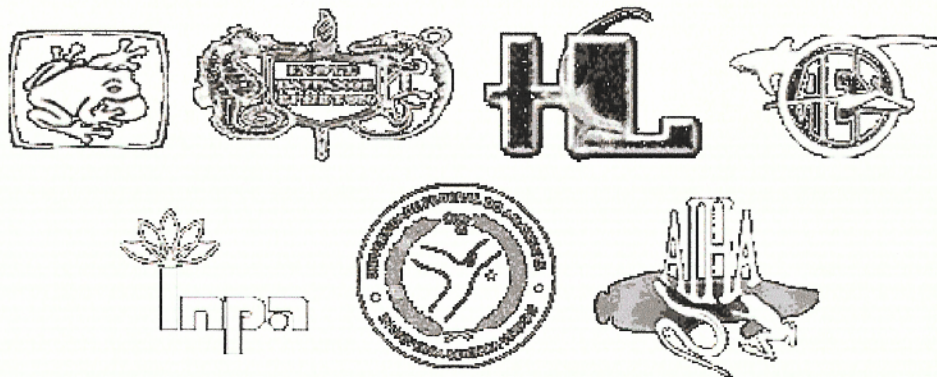


2003 JOINT MEETING of
 ICHTHYOLOGISTS and HERPETOLOGISTS
 June 26 - July 01



The Tropical Hotel Conference Center in Manaus, Amazonas, Brazil

American Elasmobranch Society (AES)
 American Society of Ichthyologists and Herpetologists (ASIH)
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Cave fish with induced eyes and retinotectal projections do not respond to light

One of the most intriguing questions in evolutionary biology is the degree to which behavior is a necessary consequence of morphology. We explore this issue by examining phototactic behavior in epigeal (eyed surface-dwelling) and troglomorphic (blind cave) forms of the teleost *Astyanax fasciatus* whose eyes were modified during embryogenesis by removing one or both lens vesicles from the epigeal form or by transplanting the lens vesicle from an epigeal fish into the optic cup of a blind cave form. Lens removal results in eye degeneration and blindness in adult epigeal fish, whereas lens transplantation stimulates growth of the eye, inducing the development of optic tissues in the normally eyeless adult cavefish. Despite lacking functional eyes cavefish develop retinotectal projections and the latter are enhanced after an eye is induced by embryonic lens transplantation. Photoresponsiveness was examined by placing fish in an aquarium with one half illuminated and the other half dark and scoring their presence in the illuminated or dark half. Both the eyeless epigeal fish and cave fish with induced eyes are indifferent to the illumination whereas the surface forms are scotophilic, suggesting that optic development and phototactic behavior are decoupled.