1. Record Nr. UNINA9910455044303321

Titolo	Sensory evolution on the threshold [[electronic resource]] : adaptations in secondarily aquatic vertebrates / / edited by J.G.M. Thewissen and Sirpa Nummela
Pubbl/distr/stampa	Berkeley, : University of California Press, c2008
ISBN	1-282-35932-0 9786612359323 0-520-93412-1
Descrizione fisica	1 online resource (360 p.)
Altri autori (Persone)	ThewissenJ. G. M NummelaSirpa
Disciplina	591.4
Soggetti	Aquatic animals - Sense organs Aquatic animals - Adaptation Sense organs - Evolution Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Frontmatter -- Contents -- Contributors -- 1 • Introduction: On Becoming Aquatic -- 2 • The Physics and Biology of Olfaction and Taste -- 3 • The Chemical Stimulus and Its Detection -- 4 • Comparative Anatomy and Physiology of Chemical Senses in Amphibians -- 5 • Comparative Anatomy and Physiology of Chemical Senses in Nonavian Aquatic Reptiles -- 6 • Comparative Anatomy and Physiology of Chemical Senses in Aquatic Birds -- 7 • Comparative Anatomy and Physiology of Chemical Senses in Aquatic Mammals -- 8 • The Physics of Light in Air and Water -- 9 • Comparative Anatomy and Physiology of Vision in Aquatic Tetrapods -- 10 • Structure and Function of the Retina in Aquatic Tetrapods -- 11 • The Physics of Sound in Air and Water -- 12 • Comparative Anatomy and Function of Hearing in Aquatic Amphibians, Reptiles, and Birds -- 13. Hearing in Aquatic Mammals -- 14 • The Physics and Physiology of Balance -- 15 • Comparative and Functional Anatomy of Balance in Aquatic Reptiles and Birds -- 16 • Comparative and Functional Anatomy of Balance in

Aquatic Mammals -- 17 • The Physics and Physiology of Mechanoreception -- 18 • Mechanoreception in Secondarily Aquatic Vertebrates -- 19 • Magnetoreception -- 20 • Electroreception -- 21 • Toward an Integrative Approach -- Index

Sommario/riassunto

From crocodiles and penguins to seals and whales, this comprehensive and authoritative synthesis explores the function and evolution of sensory systems in animals whose ancestors lived on land. Together, the contributors explore the dramatic transformation of smell, taste, sight, hearing, balance, mechanoreception, magnetoreception, and electroreception that occurred as lineages of amphibians, reptiles, birds, and mammals returned to aquatic environments. Each chapter integrates data from fields including sensory physiology, anatomy, paleontology, and neurobiology. A one-stop source for information on the sense organs of secondarily aquatic tetrapods, Sensory Evolution on the Threshold sheds new light on both the evolution of aquatic vertebrates and the sensory biology of their astonishing transition.