

exists between the presence and absence of wings and ears in crickets. In the common form of this species, anterior tympana are missing. If there is a genetic link between the presence and absence of wings and ears, as suggested by Otte (1990), we might expect the ears and wings to always appear or disappear together. In fact, neither of the first two form *supplicans* females which developed in our laboratory have anterior tympana. However, if the presence or absence of wings and ears are both under developmental control (Toms 1992), the reappearance of organs would require the genetic potential to produce the organ, and the correct environmental conditions. When the genetic potential to produce ears or wings is missing, environmental conditions would not be capable of producing both. Also, if the genetic potential is present, fully developed wings and ears may never develop unless the environmental conditions are suitable.

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References

- CHOPARD, L. 1967. Gryllides. In: Orthopterorum Catalogus, (ed.) M. Beier. Pars 10. W. Junk, 's-Gravenhage.
- CHOPARD, L. 1969. Grylloidea. In: Fauna of India and adjacent countries. Orthoptera. Vol. 2. Zoological Survey of India, Baptist Mission Press, Calcutta.
- GHOURI, A.K.S. & McFARLANE, J.E. 1958. Occurrence of a macropterous form of *Grylodes sigillatus* (Walker) (Orthoptera: Gryllidae) in laboratory culture. *Can. J. Zool.* 36: 837-839.
- JAGO, N.D. 1985. The evolutionary interrelationships of phase attributes and mobility in the Acridoidea. *Proc. 3rd Triennial Mtg. Pan Amer. Acrid. Soc.* pp. 65-91.
- KEVAN, D.K. McE. 1980. The Orthopteroid insects of the Bermudas. *Mem. Lyman ent. Mus. Res. Lab.* 8: 1-182.
- MASAKI, S. & WALKER, T.J. 1987. Cricket life cycles. *Evol. Biol.* 21: 349-423.
- MASAKI, S. & OYAMA, N. 1963. Photoperiodic control of growth and wingform in *Nemobius yezonensis* Shiraki (Orthoptera: Gryllidae). *Kontyû* 31: 16-26.
- MATHAD, S.B. & McFARLANE, J.E. 1968. Two effects of photoperiod on wing development in *Grylodes sigillatus* (Walk.) *Can. J. Zool.* 46: 57-60.
- McFARLANE, J.E. 1964. Factors affecting growth and wing polymorphism in *Grylodes sigillatus* (Walk.): Dietary protein level and a possible effect of photoperiod. *Can. J. Zool.* 42: 767-771.
- OTTE, D. 1987. Nomenclatural tail shakes systematic dog. Reply to Dr. Kevan. *Metaleptea* 9(1): 16-18.
- OTTE, D. 1990. The relation between hearing and flying in crickets. *Ent. News* 101: 29-34.
- ROFF, D.A. 1990. The evolution of flightlessness in insects. *Ecol. Monographs* 60(4): 389-421.
- TOMS, R.B. 1992. Correlations between hearing, singing and flying in crickets and other insects. *S. Afr. J. Sci.* 88: 304-307.

On the misidentification of a common sandy beach crab belonging to the genus *Ovalipes* Rathbun, 1898

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The three-spot swimming crab, a common intertidal resident of sandy beaches in southern Africa, has previously been misidentified as *Ovalipes punctatus* (De Haan, 1833). Inspection of local specimens indicates that the valid name for this species is *O. trimaculatus* (De Haan, 1833).

Die driekolswemkrap, 'n bekende intergetybewoner van sandrige strande in suider Afrika, is vantevore verkeerd as *Ovalipes punctatus* (De Haan, 1833) geïdentifiseer. Nadat plaaslike monsters ondersoek is, blyk dit dat hierdie spesie *O. trimaculatus* (De Haan, 1833) is.

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One of the most common crabs inhabiting intertidal and sub-tidal zones of southern African sandy beaches is the three-spot swimming crab, a member of the genus *Ovalipes* Rathbun, 1898. Members of this genus are common in coastal and estuarine waters of temperate oceans and are especially associated with sandy and muddy sediments (Caine 1974; Du Preez 1984; Davidson 1986). With the exception of *O. molleri*, which occurs in relatively deep (300-450 m) oceanic waters off eastern Australasia (Dawson & Yaldwyn 1974) and *O. iridescens*, an Indo-West-Pacific species, all *Ovalipes* species are limited to fairly shallow waters (Stephenson & Rees 1968).

Until the late 1960s only five *Ovalipes* species were commonly recognized, among them *O. punctatus* (De Haan, 1833), the species to which the southern African three-spot swimming crab was assigned by Barnard (1950). However, in their review of the genus, Stephenson & Rees (1968) realized that at least five species had regularly been confused under this name: *O. punctatus* (De Haan, 1833); *O. trimaculatus* (De Haan, 1833); *O. catharus* (White, 1843); *O. australiensis* Stephenson, 1968 and *O. elongatus* Stephenson, 1968. This high degree of synonymy was explained on the basis of species groups and sub-groups. It was proposed that extremely close phylogenetic relationships between members within each sub-group of *Ovalipes* species were responsible for their remarkable degree of morphological similarity (Stephenson & Rees 1968).

Stephenson & Rees (1968) suggested that the distribution of *O. punctatus* was limited to the coastal waters of China and Japan, where commercial fishing pressure has recently prompted some preliminary investigation into its reproductive biology (Sasaki & Kawasaki 1980). By comparison, the sole *Ovalipes* species positively identified by Stephenson &

Rees (1968) from shallow southern African coastal waters, *O. trimaculatus*, has a circum-Southern Hemisphere distribution, being absent only from Australasia (Stephenson & Rees 1968). It is therefore likely that Barnard (1950) misidentified the southern African *Ovalipes* species and that the valid name of this crab is *O. trimaculatus* not *O. punctatus*.

Although Stephenson & Rees (1968) were able to separate these species on the basis of a number of subtle meristic features, these can only be used reliably to distinguish between *O. punctatus* and *O. trimaculatus* when specimens of both species are available for inspection. However, one feature seems to distinguish adequately between the two taxa — the number of ridges, or striae, on the under surface of the cheliped hand: *O. punctatus* having 13–20 coarse, deep striae; while *O. trimaculatus* has 26–31 fine striae (Stephenson & Rees 1968).

Specimens of three-spot swimming crabs personally inspected from both the south coast (in the region of Port Elizabeth) and west coast (in the region of Cape Town) of South Africa always had more than 26 of these striae, normally around 30. This feature is also common to specimens collected from the Transkei coast (Emmerson, pers comm. 1991), confirming that the southern African *Ovalipes* species is indeed *O. trimaculatus*.

Despite this change, the name *O. punctatus* has remained in common usage in local scientific literature owing to the abundance of these crabs in the inter- and sub-tidal zones of local sandy beaches, and their importance as predators of resident molluscs in these environments (Du Preez 1984). Some of the more significant literature includes: Day (1974); Stuart (1975); Williams (1976); Branch & Branch (1981); Du Preez (1981, 1983, 1984); Kensley (1981); and Du Preez & McLachlan (1983, 1984a, b, c, d).

It is likely that the synonymy within the *O. punctatus* sub-group has also resulted in confusion in other parts of the world, especially in South America where it is thought that only *O. trimaculatus* occurs (Stephenson & Rees 1968). It thus appears likely that the first stage zoea larvae described by Fagetti (1960) under the name *O. punctatus* are, in fact, *O. trimaculatus*. Whereas Retamal (1977) reported on the economic importance of this crab in Chile under the name *O. catharus*, Fenucci & Boschi (1975) identified it correctly from the Province of Buenos Aires, Argentina.

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References

- BARNARD, K.H. 1950. Descriptive catalogue of South African decapod Crustacea (crabs and shrimps). *Ann. S. Afr. Mus.* 38: 1–837.
- BRANCH, G. & BRANCH, M. 1981. The Living Shores of Southern Africa. Struik Publishers, Cape Town. 272 pp.
- CAINE, E.A. 1974. Feeding of *Ovalipes guadulpensis* (Sassure) (Decapoda: Brachyura: Portunidae), and morphological adaptations to a burrowing existence. *Biol. Bull.* 147: 550–559.
- DAVIDSON, R.J. 1986. Mussel selection by the paddle crab *Ovalipes catharus* (White): evidence of flexible foraging behaviour. *J. Exp. mar. Biol. Ecol.* 102: 281–299.
- DAWSON, E.W. & YALDWYN, J.C. 1974. *Ovalipes molleri* (Ward), a portunid swimming crab new to New Zealand: Occurrence and distinguishing features. *N. Z. O. I. Rec.* 2: 46–48.
- DAY, J.H. 1974. Crustacea: Decapoda: Brachyura (true crabs). In: A Guide to Marine Life on South African Shores. p. 112. Balkema, Cape Town.
- DU PREEZ, H.H. 1981. The biology of the three-spot swimming crab, *Ovalipes punctatus* (De Haan) (Brachyura: Portunidae) with special reference to feeding. Unpublished M.Sc. Thesis, University of Port Elizabeth.
- DU PREEZ, H.H. 1983. Consumption, assimilation and energy balance in the three-spot swimming crab, *Ovalipes punctatus* (De Haan) (Crustacea: Brachyura). In: Developments in Hydrobiology. Sandy Beaches as Ecosystems. (Eds) McLachlan, A. & Erasmus, T., Vol. 19, pp. 637–642. Dr. W. Junk Publishers, The Hague.
- DU PREEZ, H.H. 1984. Molluscan predation by *Ovalipes punctatus* (De Haan) (Crustacea: Brachyura: Portunidae). *J. Exp. mar. Biol. Ecol.* 84: 55–71.
- DU PREEZ, H.H. & MCLACHLAN, A. 1983. Seasonal changes in biochemical composition and energy content of the three-spot swimming crab *Ovalipes punctatus* (De Haan) (Crustacea: Brachyura). *J. Exp. mar. Biol. Ecol.* 72: 189–198.
- DU PREEZ, H.H. & MCLACHLAN, A. 1984a. Distribution of the portunid crab *Ovalipes punctatus* (De Haan) in Algoa Bay and salinity and temperature tolerances of its zoeae. *S. Afr. J. Zool.* 19: 302–304.
- DU PREEZ, H.H. & MCLACHLAN, A. 1984b. Biology of the three-spot swimming crab, *Ovalipes punctatus* (De Haan) I. Morphometrics and relative growth (Decapoda, Portunidae). *Crustaceana.* 47: 72–82.
- DU PREEZ, H.H. & MCLACHLAN, A. 1984c. Biology of the three-spot swimming crab, *Ovalipes punctatus* (De Haan) II. Growth and moulting. *Crustaceana.* 47: 113–120.
- DU PREEZ, H.H. & MCLACHLAN, A. 1984d. Biology of the three-spot swimming crab, *Ovalipes punctatus* (De Haan) III. Reproduction, fecundity and egg development. *Crustaceana.* 47: 285–297.
- FAGETTI, E.G. 1960. Primer estadio larval de cuatro crustáceos braquiuros de la Bahía de Valpariso. *Revta. Biol. Mar.* 10: 143–154.
- FENUCCI, J.L. & BOSCHI, E.E. 1975. Contribution to the biological knowledge of the commercial crab of the coastal waters of the Province of Buenos Aires, *Ovalipes trimaculatus* (De Haan) (Crustacea, Decapoda, Portunidae). *Physis. Secc. A. Oceanos Org.* 34: 291–308.
- KENSLEY, B. 1981. On the zoogeography of southern African decapod Crustacea, with distributional checklist of species. *Smithsonian Contrib. Zool.* (338): 1–64.
- RETAMAL, M.A. 1977. Los crustáceos decapodos Chilenos de importancia económica. *Zoologia.* 39: 3–51.
- SASAKI, G.C. & KAWASAKI, T. 1980. Some aspects of the reproductive biology of the swimming crab, *Ovalipes punctatus* (De Haan), in Sendai Bay and its adjacent waters. *Tohoku J. Agric. Res.* 30: 183–194.
- STEPHENSON, W. & REES, M. 1968. A revision of the genus *Ovalipes* Rathbun, 1898 (Crustacea, Decapoda, Portunidae). *Rec. Aust. Mus.* 27: 213–261.
- STUART, C.T. 1975. Marine fauna collected at Sandwich Harbour, Namib Desert Park, South West Africa. *Modoqua Ser. II.* 4: 101–102.
- WILLIAMS, A.B. 1976. Distinction between a Gulf of Mexico and a Carolinian Atlantic species of the swimming crab *Ovalipes* (Decapoda: Portunidae). *Proc. Biol. Soc. Wash.* 89: 205–214.