

Studies of tiger beetles. CLXVIII.
Two interesting examples of
Mediterranean-southern African disjunct
geographical distributions: the *Cicindela* of the
subgenus *Austrocicindela* and the genus *Platydelia*
(Coleoptera, Cicindelidae)

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SUMMARY

The cases are instanced of two remarkable Mediterranean-southern African distributions among the Tiger Beetles (Coleoptera, Cicindelidae), *i.e.* the subgenus *Austrocicindela* Rivalier, 1963, which includes four species in southern Africa of the otherwise primarily Holarctic genus *Cicindela* Linné, 1758, and the genus *Platydelia* Rivalier, 1950, which occurs with two species in Morocco and one species in the Cape region.

Tiger Beetles (Coleoptera, Cicindelidae) constitute one of the most characteristic elements of many Mediterranean habitats. The genus *Cicindela* Linné, 1758, in particular, remarkably shows a consistent Holarctic geographical distribution, with many species both in Europe and the Palaearctic as well as in North America (Wiesner, 1992). Its generotype is *Cicindela campestris* Linné, 1758, which was the very first tiger beetle species to be described and thus the one which gave this beetle family its name (Pearson & Cassola 2005). Unlike in Linnaeus' time, this genus has been subdivided by modern taxonomy, based on perfectly valid external morphology as well on male genitalic structures, into over fifty genera worldwide (Rivalier 1950, 1954, 1957, 1961, 1963). These genera appear to be more or less species-rich and more or less distinct as to their morphology, ecology and geographical distributions. Rivalier's system is remarkably well-founded and homogeneous, and, even if some minor

points could well be questionable, it certainly represents a major contribution to the study of the family. Rivalier's generic subdivision is presently accepted by the great majority of modern students (especially in Europe), but other specialists (for example most Americans) don't yet accept Rivalier's system and still prefer to treat his genera as merely subgenera of *Cicindela*. If, however, the genus *Cicindela* is considered to be the valid name for all the Cicindeline species of the world, it has to be said that it would consequently become sub-cosmopolitan and thus devoid of any biogeographical meaning.

The genus *Cicindela sensu stricto*, anyway, appears to be very well defined by various characters, such as the stout body shape, the short legs, the tridentate labrum, the reduced elytral markings, the glabrous genae, the rather developed underside pubescence, and especially the very simple inner sac of male aedeagus, which is exactly of the type "*Cicindela*" (Rivalier 1950). Present-day taxonomy considers the genus *Cicindela* (*sensu* Rivalier) to consist of 36 Palaearctic species and 32 Nearctic ones, and moreover seven other Nearctic species of the subgenera *Pachydela* and *Tribonia*, three species belonging to the subgenus *Sophiodela* (from China, Japan and Nepal), ten species from the Indian subcontinent (subgenera *Pancallia* and *Ancylia*) and, exactly, four South African species (of which one is still to be described) belonging to *Austrocicindela*. This latter subgenus was formally proposed by Rivalier in 1963 and revised by me several years ago (Cassola 1993). As rightly stated by Rivalier (1957), these South African species "offrent des caractères tellement superposables à ceux de nos *Cicindela* paléarctiques et néarctiques qu'il m'a paru impossible de les en séparer [...] L'énorme éloignement géographique m'a fait d'abord hésiter à cette assimilation mais il ne saurait constituer un obstacle valable car il existe d'autres genres d'insectes holarctiques parfaitement caractérisés qui manquent dans toute la région intertropicale et reparaissent en Afrique du Sud". In contrast, some other South African species, which show a remarkable convergent similarity with *Austrocicindela* as to their general aspect but exhibit a completely different structure of the inner sac of the aedeagus, were more correctly placed in the genus *Lophyra* by Rivalier (1957) or by me (Cassola 1993).

In fact the *Austrocicindela* species, apart from the huge geographic gap which separates them from all other *Cicindela* of the world, present just minor differences in the smaller body size and in the elytral markings (which form a complete uninterrupted elytral border) but the structure of the inner sac of their aedeagus is absolutely the same as in *Cicindela*. Some colour pictures of the South African species were published by Werner (2000, figs. 284 & 285). Their affinity with the Holarctic *Cicindela* is definitely surprising and apparently it cannot be just accidental, indicating the high probability of ancient

relationships. The less distant *Cicindela* s. str. species (*C. campestris* and *C. maroccana*) inhabit the Maghreb in Northern Africa, between Morocco and Tunisia. I guess that the lonely occurrence of four *Austrocicindela* species in southern Africa has probably to be explained by a former territorial continuity (when the African continent was not yet in its present intertropical position and presented climatic conditions by far cooler and less dry than today), followed by a territorial isolation in the southern part of the African continent when these conditions have historically changed.

The Cicindelid family, however, presents one further interesting example of intriguing affinity (more probably actually relationship) between two North African species, *Platydelia coquereli* (Fairmaire, 1867) and *P. segonzaci* (Bedel, 1899) (Cassola 1973; colour pictures in Werner 1992, figs. 261 & 262), and a Cape species of the very same genus, *P. quadriguttata* (Wiedemann, 1821) (colour pictures in Werner 2000, figs. 291), all three being green as *Cicindela campestris* and in fact looking very similar to it [in such a way that Bedel (1895) even thought *coquereli* to be “une forme extrême” of *campestris*] but with an inner sac of aedeagus of the *Lophyra*-type instead (Rivalier 1957). *Platydelia* is certainly a small, poorly important genus, which apparently includes the three mentioned species only, whose strange geographical distributions, however, were first pinpointed by Horn in 1924. The occurrence of one species (*quadriguttata*) in the Cape province, quite apart from the two other congeners, can probably be explained by the same climatic story which was above instanced for the species of subgenus *Austrocicindela*.

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