

RESEARCH COMMUNICATION

SPREAD IN SOUTH AFRICA OF THE ORIENTAL LATRINE FLY *CHRYSOMYA MEGACEPHALA*. (FABRICIUS) (DIPTERA: CALLIPHORIDAE), AN INTRODUCED SPECIES CLOSELY RESEMBLING *CHRYSOMYA BEZZIANA* VILLENEUVE

L. E. O. BRAACK, Research Department, National Parks Board, Skukuza 1350

ABSTRACT

BRAACK, L. E. O., 1991. Spread in South Africa of the Oriental latrine fly *Chrysomya megacephala* (Fabricius) (Diptera: Calliphoridae), an introduced species closely resembling *Chrysomya bezziana* Villeneuve. *Onderstepoort Journal of Veterinary Research*, 58, 311–312 (1991)

Chrysomya megacephala, also known as the Oriental latrine fly, is indigenous to south-east Asia. During the 1970's it successfully invaded Africa and South America, and more recently during the 1980's also established itself in the United States of America. Although the first specimens from South Africa were collected from the south-western Cape Province in 1978, no published data appears to exist on its subsequent spread or status in southern Africa. During May 1991 a specimen of *C. megacephala* was incidentally captured near Beaufort West, Cape Province, South Africa, which prompted re-examination of blow-flies captured in the Kruger National Park during 1984. In this way it was found that *C. megacephala* was already well established in the south-eastern Transvaal by mid-1984. Adult *C. megacephala* can easily be confused with *C. bezziana* and medical/veterinary entomologists and veterinarians should take note of the existence of this species and the fact that it is probably widespread throughout southern Africa at this state.

During random collections of blow-flies attracted to fresh meat in the Karoo National Park, Beaufort West district, Cape Province, in early May 1991, I found amongst several hundred *Chrysomya albiceps*, *C. chloropyga*, *C. marginalis* and *Lucilia*, a single female calliphorid which appeared to be either *C. bezziana* or *C. megacephala*. The presence of either of these species in the Karoo would be significant as the 1st and only report of the introduced *C. megacephala* was from the south-western Cape coast (Prins, 1979), while *C. bezziana* has a more tropical distribution and in South Africa has been recorded from the Transvaal, Zululand and parts of the eastern Cape (Zumpt, 1965; Baker, McHardy, Thorburn & Thompson, 1968).

The 2 species of flies, although markedly different in breeding habits, are very similar in external appearance and only distinguishable microscopically. The key to subsaharan calliphorids provided by Zumpt (1956) leads to the misidentification of *C. megacephala* as *C. bezziana*. Since *C. megacephala* is an Oriental species and a relatively recent introduction into Africa (Kurahashi, 1978), Zumpt did not make provision for separating these 2 species when compiling his 1956 key. In his 1965 book Zumpt deals with a narrow range of calliphorid species but does include characters which separate the 2 above-mentioned species. The easiest distinguishing features are the darkened thoracic squimae in *C. megacephala* (white in *C. bezziana*) and the sharply defined line of separation between the upper large facets and lower small facets in the eyes of male *C. megacephala*. James (1971) and Kurahashi (1982) provide keys to separate *C. megacephala* from similar calliphorids which occur mainly in the Oriental and Australasian Regions.

Recognising the potential for misidentifying such introduced calliphorids when using Zumpt's 1956 key, I re-examined specimens of blow-flies caught in the Skukuza area of the Kruger National Park during surveys in 1984. All specimens (several hundred stored in Petri dishes) identified at the time as *C. bezziana* now proved to be *C. megacephala*, examination of dissected male genitalia confirming this identity beyond doubt.

The finding that *C. megacephala* was already well established in the Skukuza area of the Kruger National Park in 1984—relatively soon after its initial discovery in the south-western Cape by Prins in 1978—raises the interesting question: When and where did this species in fact enter South Africa? Several possibilities exist, amongst them being the following:

- * *C. megacephala* did make its initial entry in the southern Cape, possibly from boats docking at Cape Town international harbour. Finding conditions suitable the species spread rapidly northwards. Laurence (1986) and Greenberg (1988) traced the initial establishment and subsequent spread of *C. megacephala* in Brazil and provide evidence that this species has considerable potential for rapid invasion. Braack & Retief (1986) give quantitative data on the dispersal rate of congeners of *C. megacephala* which supports the notion that blow-flies can spread rapidly. Assuming an initial entry by *C. megacephala* at the southern Cape in 1978, its spread to an establishment in the eastern Transvaal by 1984 is not implausible.
- * *C. megacephala* may also have infiltrated South Africa via a northerly route. Kurahashi (1978) reported the discovery of this species in West Africa and Wells (1991) speculates rather interestingly that *C. megacephala* may have invaded Brazil with the arrival of Angolan refugees in 1975–1976, in which case this fly would have reached Brazil from southern Africa even before its discovery in southern Africa. Although it is possible that *C. megacephala* may have entered South Africa from the north, there is evidence rendering this unlikely. During the course of intensive field-work on carrion-frequenting blow-flies in the northern part of the Kruger National Park during the period 1978 to 1984, not a single specimen of this species was collected (Braack, 1981; 1986; 1987; Braack & De Vos, 1987; 1990). Similarly, Meskin (1986) fails to make any mention of encountering this species during the course of research on carrion blow-flies in the Transvaal Highveld.
- * Yet another possibility, which to me is the most satisfying, is that there were in fact two separate

and independent routes of entry into South Africa. The first was in the southern Cape during the latter half of the 1970's as discussed above. The other, possibly also in the late 1970's or early 1980's, was through the Mozambican port of Maputo which is a relatively short distance (ca 140 km) from Skukuza where *C. megacephala* has established itself by at least 1984. The distribution of this species in the Transvaal at that time appears to have been restricted, as it is not mentioned by Ellison (1990) during studies made in mid-1985 on carrion insects in the Klaserie Nature Reserve some 100 km north-west of Skukuza, and its already-mentioned absence in the northern Kruger Park and Transvaal Highveld. If the species was indeed absent north and west of Skukuza then the most logical route of entry would have been via Maputo.

C. megacephala is known to oviposit on carcasses, faeces and other decomposing organic matter. Adults can become very abundant and a great nuisance in places where meat and fish are slaughtered or sold. Wells (1991) states that, following the invasion in the late 1980's of southern California by this species, dense aggregations of adults on dog faeces, garbage and vegetation have led to complaints by the public. Greenberg (1973) lists this species as important in the transmission of a range of disease-producing bacteria, protozoans and helminths. In contrast with *C. bezziana* which it closely resembles, *C. megacephala* is not an obligatory wound-frequenting parasite in its larval stages, although it may occasionally be responsible for facultative myiasis. Wild-caught females of *C. megacephala* I captured in Skukuza during 1991 and kept in rearing cages readily oviposited on 200 g portions of fresh, lean meat and this species should therefore not present problems in being maintained in laboratory colonies.

To conclude, most entomological keys are of a regional nature and therefore easier to use by non-specialists and veterinarians who would otherwise have to laboriously plod through lengthy keys incorporating all known species throughout the world. This report highlights the risk of relying solely upon such regional keys.

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