

# CULICOIDES TRAP COMPARISON IN SOUTH AFRICA

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The primary monitoring tools for collecting *Culicoides* midges (Diptera: Ceratopogonidae) are various models of light traps. To facilitate data comparison, four downdraught light traps were used in summer under South African conditions. These were the Onderstepoort trap [220 V, ultraviolet (UV)], the Rieb trap (12 V, UV) from France, the mini-CDC trap (6 V, UV) from the USA, and the Pirbright trap (220 V, white light) from the United Kingdom. Traps were deployed in three replicates of a 4x4 randomized Latin square design, so that treatment means were independent of any effects caused by the site or the occasion. Trapping was conducted during 12 nights in January 2008 (summer) and comprised 48 collections with 643,374 *Culicoides* midges collected. Eighteen different *Culicoides* species, of which only six were found in all four traps, were collected. All four traps indicated *Culicoides imicola* to be the most abundant species. Its abundance ranged from 91.8% (Rieb) to 95.0% (Onderstepoort). Statistically significant differences were found in the total number of *Culicoides* collected by each of these traps. The Onderstepoort trap (407,411) collected statistically

significantly more midges than the CDC (167,794), Pirbright (39,128) or Rieb trap (32,041). Significant differences were also found between the traps in the parous rate, sex ratio and number of *Culicoides* midges compared to those of other insects. When comparisons were repeated in winter, when *Culicoides* numbers were relatively low compared to summer, the Onderstepoort trap still performed significantly better. All four traps, however, still captured *Culicoides* midges. In addition, the BG-sentinel mosquito trap, from Germany, was compared with the other four traps in two replicates of a 5x5 Latin square. These comparisons, which were done in spring, showed that the number of *Culicoides* midges collected with the BG-sentinel was not significantly different from that collected with the CDC trap. Although the Onderstepoort trap increased monitoring sensitivity in areas where vector abundances were low, results highlighted the notion that biases in trapping methods need to be evaluated and measured.

**KEYWORDS:** *CULICOIDES* – LIGHT TRAP – SOUTH AFRICA.

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