

## Behaviour & Communication

# SOUND EMISSION IN THE NON-SINGING GRASSHOPPER *NETROSOMA RUBRICORNE* ROBERTS, 1947 (ACRIDIDAE: MELANOPLINAE)

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The genus *Netrosoma* Scudder, 1897 is currently assigned to the subfamily Melanopliina and the tribe Melanopliini. This genus is endemic to Central America and contains four brachypterous species: *N. fusiforme* Scudder, 1897, *N. nigropleura* Scudder, 1897, *N. rubricorne* Roberts, 1947 (Fig. 1), and *N. xanthops* Roberts, 1947.



Figure 1. *Netrosoma rubricorne* male, Puebla, Acatlán, Mexico, October 2004 (photo P. Fontana).

Melanopliinae are also known as *non-singing grasshoppers*, which is why it is extraordinary that some *Netrosoma* species produce clear and audible chants. The production of these sounds is clearly related to the presence of anatomical structures evidently attributable to those of the singing species of the subfamily Gomphocerinae Fieber, 1853. Sound emissions have been clearly observed and recorded for at least three species: *N. fusiforme*, *N. xanthops*, and *N. rubricorne*. In these species, a pars stridens composed of denticles on the inner side of the posterior femora and of a thickened vein on the extremely reduced elytra are recognizable.

For *N. rubricorne*, a peculiar mating behaviour has also been observed and filmed. During mating, *N. rubricorne* males have been observed hanging

from females (being hooked to them in some way with the apex of the abdomen), similar to what has been observed in species of the genus *Proctolabus* Saussure, 1859 (subfamily Proctolabinae).

Sound emission of males of *N. rubricorne* as well as the peculiar mating behavior are described here for the first time. The sound is a sequence of clicks of various length and intensity. After sound analysis, the sonogram is similar in general structure to that of some species of the family Pamphagidae. The song and stridulatory apparatus of *N. xanthops* are also described. More audio recordings and filming are needed to understand the exact roles of males and females in sound emission and reception, plus the complete sequence of mating behavior, which may be linked in some way. Additionally, molecular analyses are underway to verify the correct phylogenetic position of the genus *Netrosoma*.

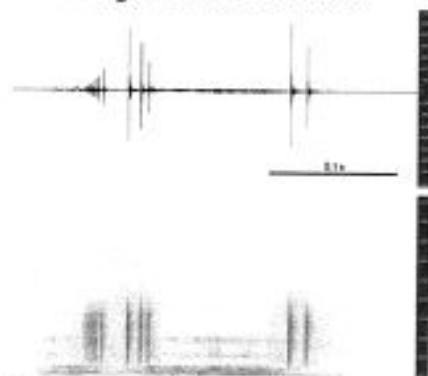


Figure 2. *Netrosoma rubricorne* sonogram and spectrogram.

**Key Words:** *Netrosoma*, Melanopliinae, Proctolabinae, Bioacoustic, Mating Behaviour, Pars Stridens, Sonogram.

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