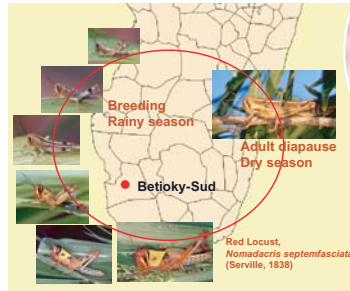


Population dynamics and migration of the Red locust *Nomadacris septemfasciata* in the South-West of Madagascar

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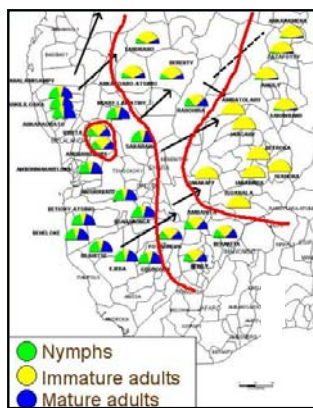


The Red Locust, *Nomadacris septemfasciata* (Serville, 1838).



Biological cycle of the Red Locust.

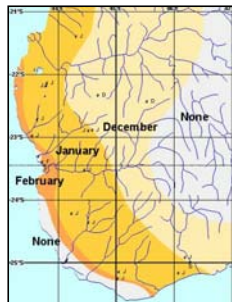
The Red Locust is a recurring problem for crop protection in Madagascar. The past few years have seen the problem worsen, probably due to intensive deforestation. In Madagascar this species remain little known, unlike in Africa.



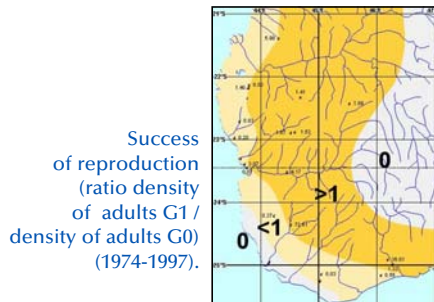
Results of rural population investigations: seasonal occurrence of nymphs, immature adults and mature adults in the South-West of Madagascar.

In order to establish the cause of recent outbreaks and to implement a locust control strategy, several studies have been carried out in the South-West of the Island, where locust damage is regularly reported: rural population investigations, in the field studies of locust population dynamics, and the analysis of over 25 years of archive data at the National Locust Control Centre.

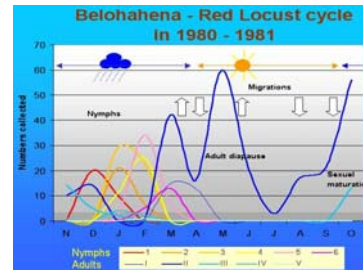
A study of this information shows several zones between which the Red Locust, a single generation and imaginal diapause species, makes seasonal migration, from the North-East to the South-West and back, depending on rain and wind alternance.



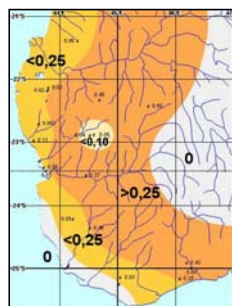
Month of first hatchings (1974-1997).



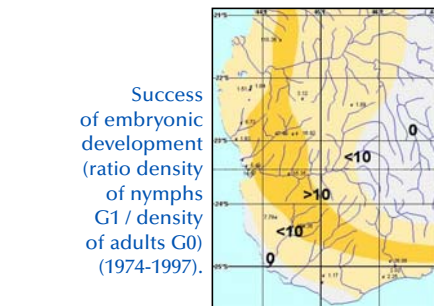
Success of reproduction (ratio density of adults G1 / density of adults G0) (1974-1997).



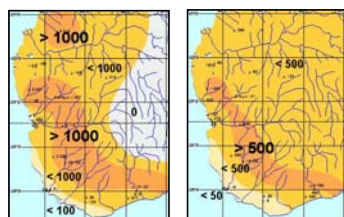
Example of biological cycle of the Red Locust in 1980-1981 in a locality of the South-West of Madagascar.



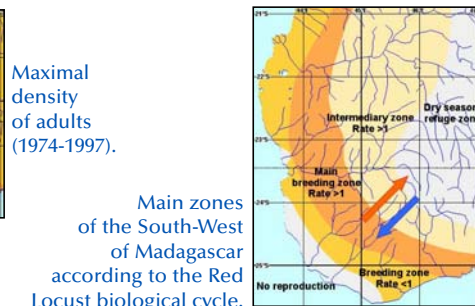
Success of nymphal development (ratio density of adults G1 / density of nymphs G1) (1974-1997).



Success of embryonic development (ratio density of nymphs G1 / density of adults G0) (1974-1997).

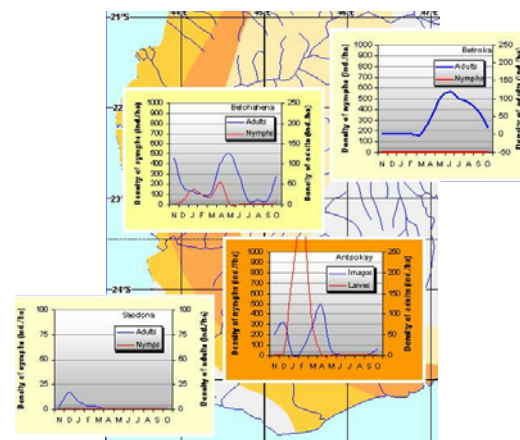


Maximal density of nymphs (1974-1997).



Maximal density of adults (1974-1997).

Main zones of the South-West of Madagascar according to the Red Locust biological cycle.



Mean biological cycle of the Red Locust in different localities of the South-West of Madagascar (1974-1997).

We note: 1) refuge zones where only immature imagoes are present during the dry season, 2) breeding zones during the rainy season with massive arrival of maturing imagoes at the beginning of the rainy season, abundant hopper populations and emigration of new generation imagoes in early dry season, 3) intermediary passage zones for maturing imaginal populations in the early rainy season and immature populations in early dry season, 4) a limit zone to the extreme south, populated late in the rainy season by old imagoes which do not reproduce. The dynamics of their movements and inter-annual particularities linked to the irregularity of rainfall are certainly one cause of recurring outbreaks in this species.

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