

**Annex 7. ECORAT Project - Dr Frikkie Kirsten**







### Partners

-  NRI – lead institute  
*Natural Resources Institute, University of Greenwich, UK*
-  NMN  
*National Museum of Namibia, Namibia*
-  PPRI-ARC  
*Plant Protection Research Institute, Agricultural Research Council, South Africa*
-  DNSM  
*Durban Natural Science Museum, South Africa*
-  UNISWA  
*University of Swaziland, Swaziland*
-  SUA  
*Sokoine University of Agriculture, Tanzania*



### Rationale

-  The impact of rodents on people's livelihoods is particularly high in developing countries.
-  Rodent control continues to rely on the use of acute poisons.
-  Poison application methods are often poor, minimising efficacy and maximising danger.



### Rationale

-  Improved delivery of knowledge and tools to **End Users** for controlling rodent pests can result in major livelihood improvements.

**But**






-  Ecological knowledge about rodents and their damage in African countries is poorly understood.




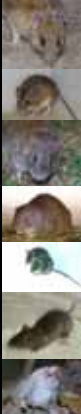
### Aim

To strengthen the generation of appropriate, cost-effective and sustainable rodent pest management technologies and strategies for small-scale farming communities in the SADC region

**How?**



-  Carry out ecological research on rodent habitat use and population dynamics
-  Understand the damage rodents cause
-  Understand socio-economic constraints of End Users
-  Develop and trial a cost-beneficial rodent management strategy
-  Monitor and communicate results






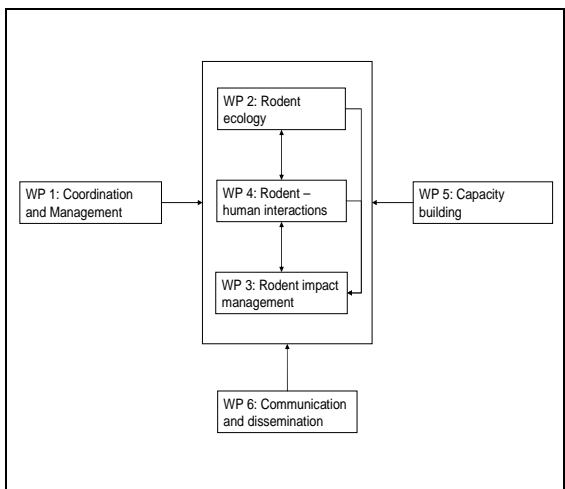

## Outputs

- Improve knowledge about rodents in Africa
  - Potential to spread disease
  - Population dynamics
  - Habitat utilisation
  - Impact on livelihoods and environment
- Train African scientists to continue this work beyond the lifetime of the project through capacity building & formal training
- Enable farmers and scientists to understand and more effectively manage rodent pest problems



## Activities

- Three thematic and three cross-cutting workpackages (WP)


## Activities

- Strong interdependency between WPs, each refers back to the programme priorities
- Each project partner technically coordinates a WP

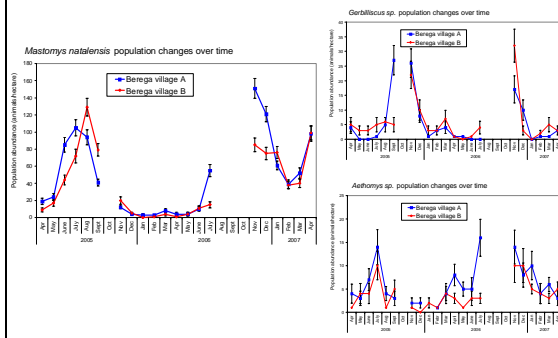



## Rodent Ecology

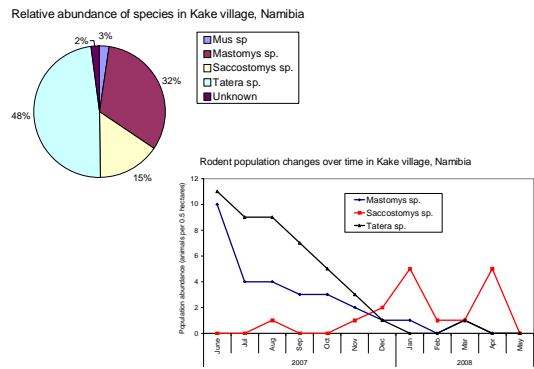
- Ecological studies aim at developing models that can be used to target the right time and place for rodent pest management
- Seasonal variations in rodent density are often observed for many rodent species
- Rodent community structure and species richness are related to variables such as habitat structure and productivity
- Population dynamics of many rodent species are linked to breeding, growth and survival rates and are influenced by variables such as rainfall patterns and abundance




## Examples from Tanzania



## Examples from Namibia

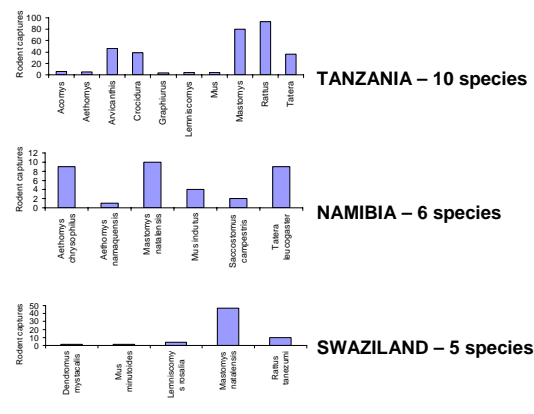


## Rodent Taxonomy

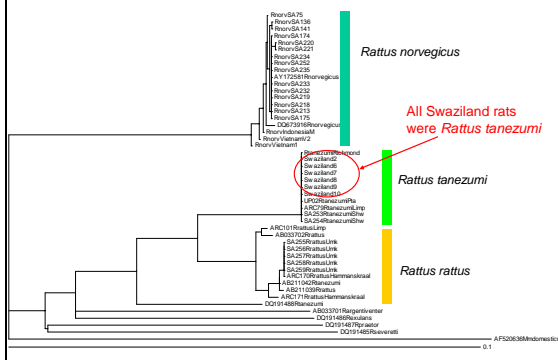


- Rodents make up 42% of the world's mammal species (> 2,200 species)
- Few rodent species are pests
- Different species can have very different behaviours and lifestyles that, in turn, affect the type of damage caused and how people can sustainably control them.

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## DNA bar-coding: Rattus relationships

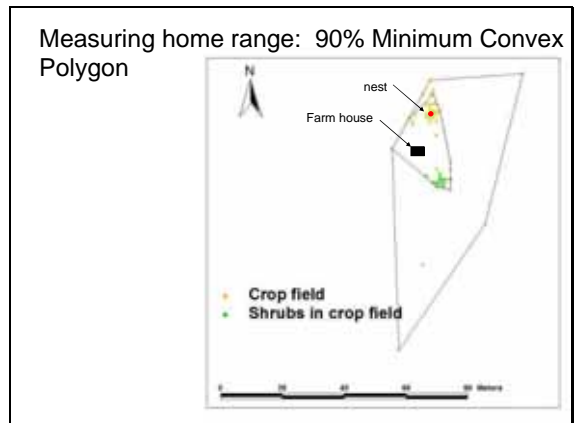
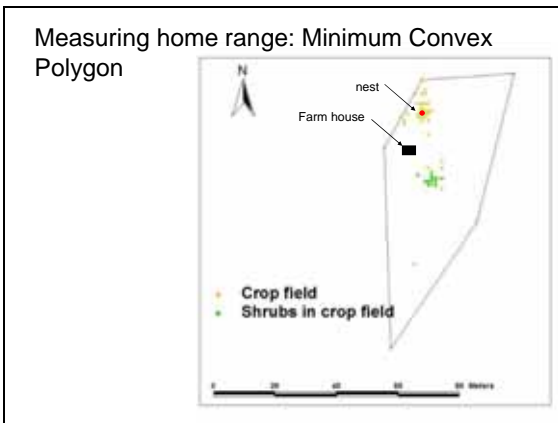
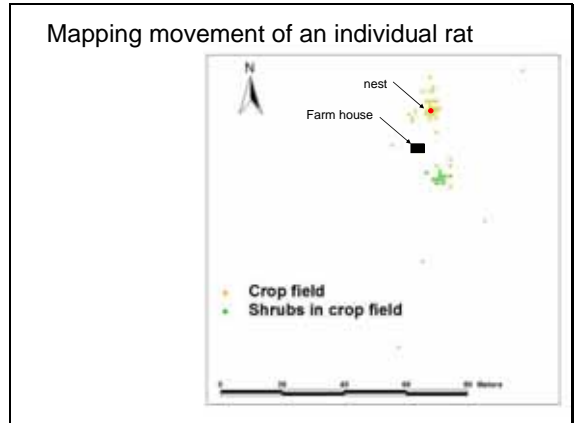


## Rodent-Human Interactions




- To assess habitat utilization and overlapping resource use between rodents and humans
- Requires quantifying movement of rodents
- This can be achieved by attaching a transmitter to the rat and following it with a receiver

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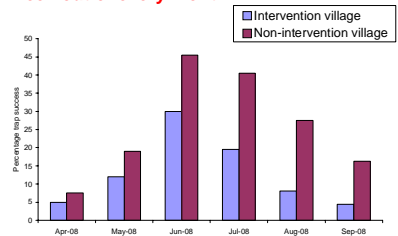
## Rodent Impact Management

- Knowledge, attitude and practice surveys
- Assessing pre- & post-harvest crop damage
- Community-based intensive trapping
- Environmental management
- Monitoring and evaluation


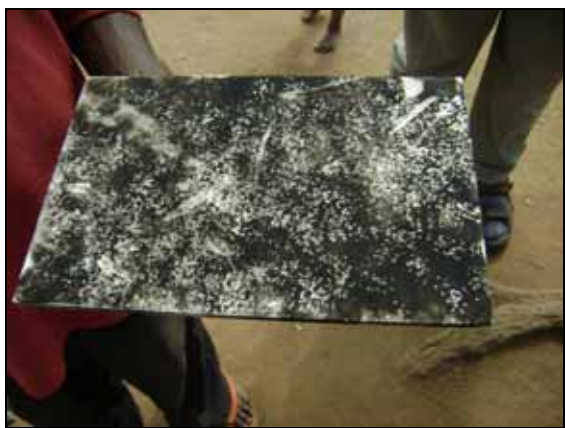



## Community-based trapping

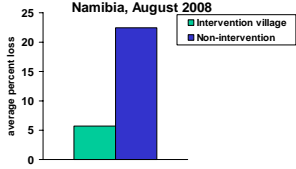
Swaziland data shows communities have seen a 75% reduction in the rodent population around their households after five months of intensive trapping. Each household in a target community traps every day for one week out of every month.



Month	Intervention village (%)	Non-intervention village (%)
Apr-08	~5	~8
May-08	~12	~18
Jun-08	~28	~45
Jul-08	~18	~40
Aug-08	~8	~25
Sep-08	~5	~15

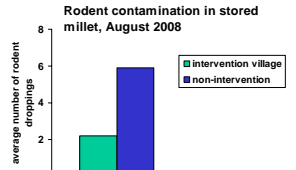



### Stored millet lost to rodents in Namibia, August 2008




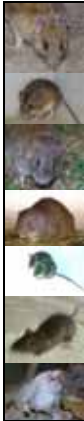
Village Type	Average percent loss
Intervention village	~5
Non-intervention	~22

### Rodent contamination in stored millet, August 2008





Village Type	Average number of rodent droppings
Intervention village	~2
non-intervention	~6






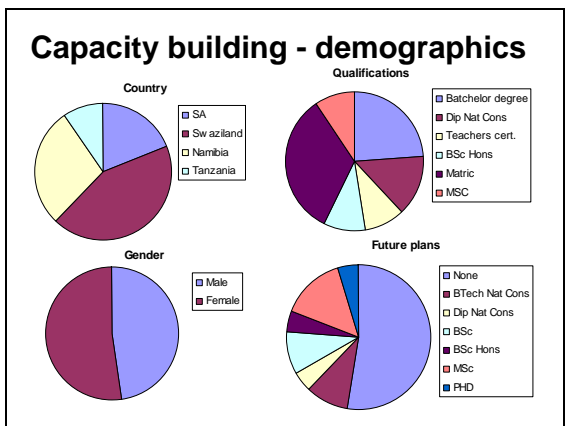
## Capacity building

- Ensure that SADC research on rodents is improved and informed by the rodent pest management constraints experienced in small-scale agriculture
- Integrate rodent researchers and raise the awareness of the importance of rodent research among SADC agricultural research institutions
- Form effective collaborative alliances among rodent researchers in the SADC

## Capacity building

- 21 SADC citizens employed by Ecorat & trained in variety of relevant skills
- All but two come from historically - disadvantaged backgrounds
- Most plan to use their experience to further their qualifications
- Training workshops & on-job training provide skills including rodent trapping, identification and sample preparation, radio tracking, KAP surveys, crop damage assessment


## Communication

Awareness raising of the general public and scientific & extension experts via:

- [Http://www.nri.org/ecorat](http://www.nri.org/ecorat)
- More than ten popular press articles in newspapers, radio programmes, TV and newsletters
- Science publications and conferences
- Community meetings



ECORAT website visitors over last 12 months



## Beneficiaries

- 👤 3000 people living in small-scale farming communities across three SADC countries directly benefiting
- 👤 Five key scientific institutions in four SADC countries directly benefiting
- 👤 Potential benefits for all rural farming communities and NARS across the SADC region

