

## Rabies Outbreak 2008 in SV Nelspruit Area

Presented by:  
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 State Veterinarian: Nelspruit  
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## Rabies Outbreak 2008 SV Nst Rabies Virus

Enveloped RNA virus  
*Rhabdoviridae* family  
*Lyssavirus* genus  
 Classical rabies :genotype 1\*, distributed globally  
 mongoose and **canid biotype** (maintained in *Herpestidae* and *Canidae* families respectively)

**“Rabies has the highest case fatality rate of any known infectious disease”**; encephalitic disease

RSA: Controlled Animal Disease (Animal Diseases Act, 35 of 1984)

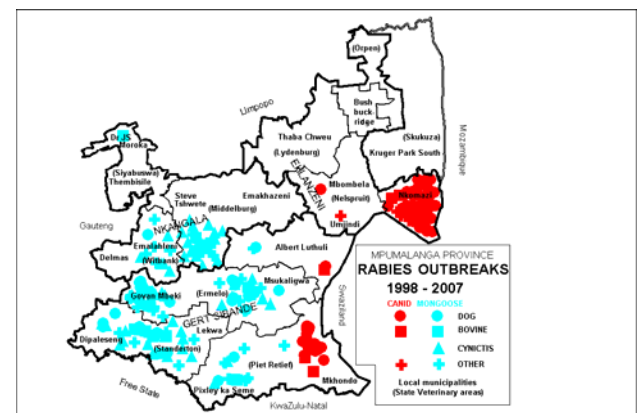
\*other genotypes :  
 Lagos bat virus (LBV, gt2), (Bougler and Porterfield, 1958)  
 Mokola virus (MOKV, gt3) (Shope *et al.*, 1970)  
 Duvenhage virus (DUVV, gt4) (Meredith 1971)  
 European bat lyssavirus type-1 and 2 (gts 5 & 6 respectively) (Bourhy *et al.*, 1993)  
 Australian bat lyssavirus (ABLV, gt7) (Gould *et al.*, 1998).

## Rabies Outbreak 2008 SV Nst Truly trans-boundary Disease

- Geographical (anthropogenic) boundaries
- Inter-specific boundaries (zoonosis)

Therefore need for trans-boundary approach and measures with regards to:  
 Regions, countries, disciplines  
 (human, animal and environmental health)

## Rabies Outbreak 2008 SV Nst



## Rabies Outbreak 2008 SV Nst History of Rabies in SV Nst Area

- **1995:** one isolated case in dog in Brooklands (moved from KZN)
  - **1997:** one case each in a dog and a bovine near Low's Creek
  - **2002:** black-backed jackal in Barberton area/Umjindini (Jerusalemkop)
  - **2003:** dog illegally imported from Mozambique to Kaapsehoop
- Sum.: Isolated cases, anthropogenic movements, spill-over from Swaziland (?); No evidence of endemic situation
- **2008:.....**

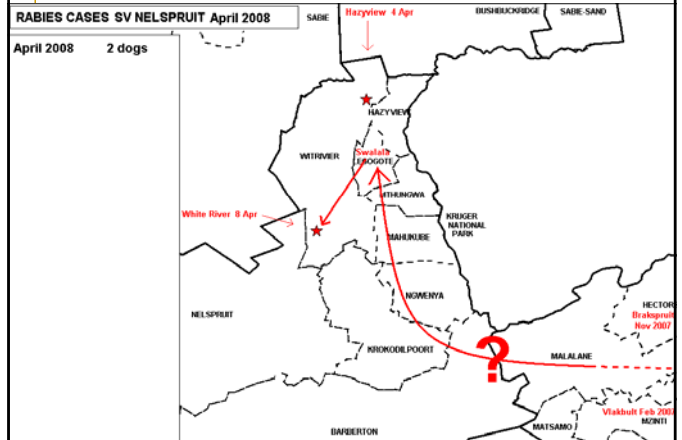
## Rabies Outbreak 2008 SV Nst- Geographical overview

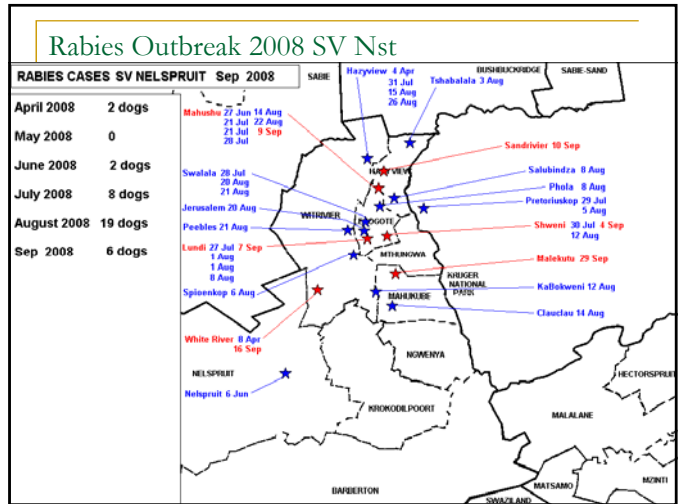
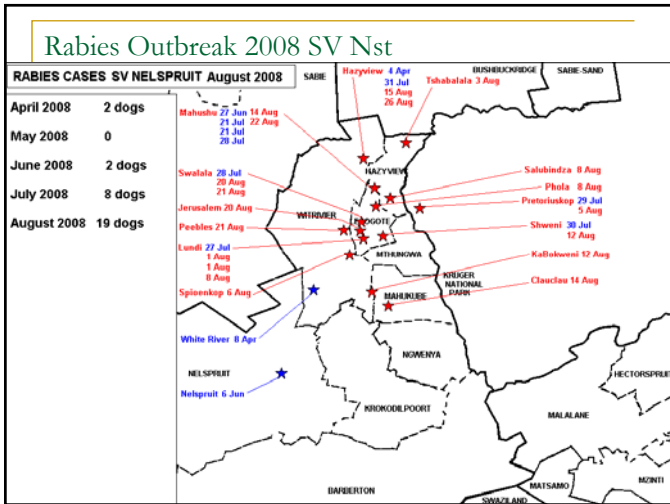
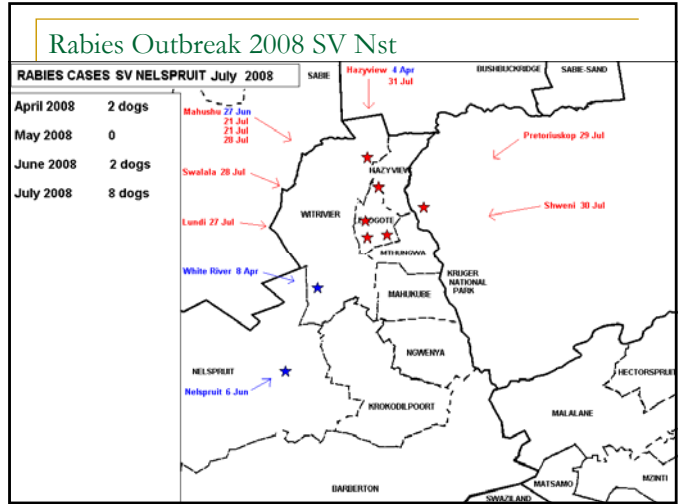
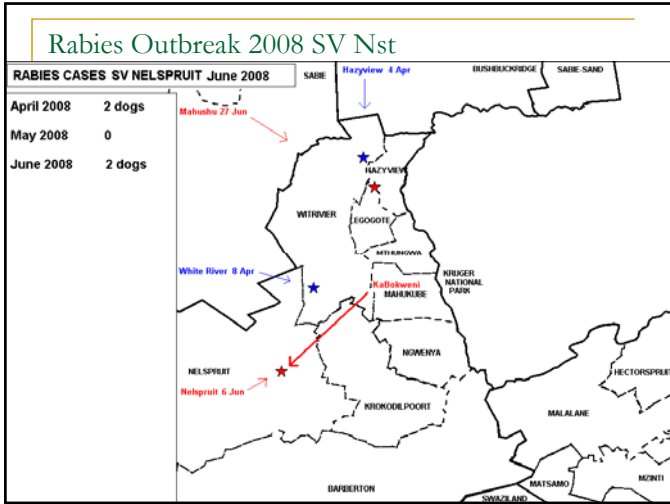


## Rabies Outbreak 2008 SV Nst- Population Statistics, Nsikazi (incompl., e.g. Ngw. excluded); Source: ex aquifer, 2003

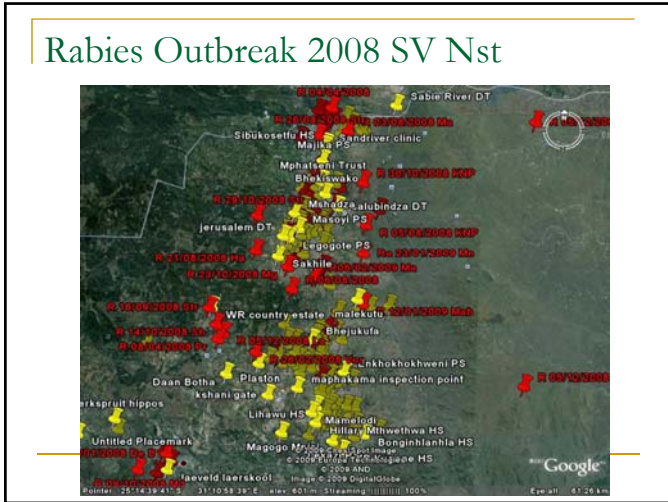
Community	Population
Nyongane & Tshabalala	16,500
Majika	8,800
Numbi	7,700
Mahushu & Bhekiswayo	25,300
Phola	11,000
Salubindza	6,600
Swalala	34,100
Legogote	38,600
Chweni	9,900
Mngcobaneni, Phameni & Makoko	15,400
Malekutu, Khumbula & Mjejane	20,900
Luphisi	6,070
Gutshwakop	28,700
Siphelanyane	4,300
Gutshwa	7,730
Dwaleni	6,680
<b>Total</b>	<b>248,280</b>

## Rabies Outbreak 2008 SV Nst

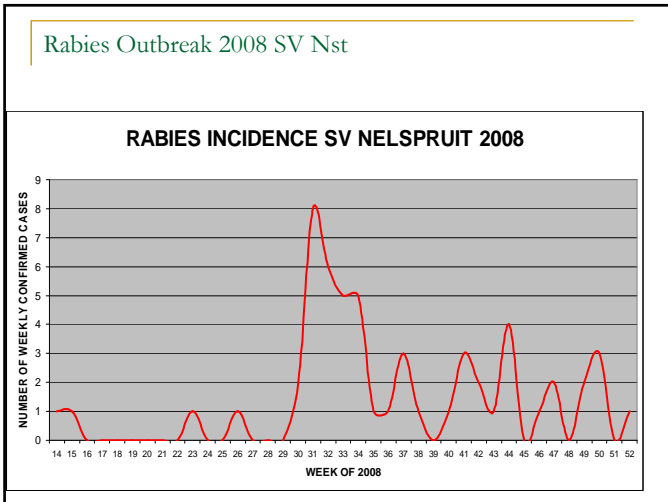
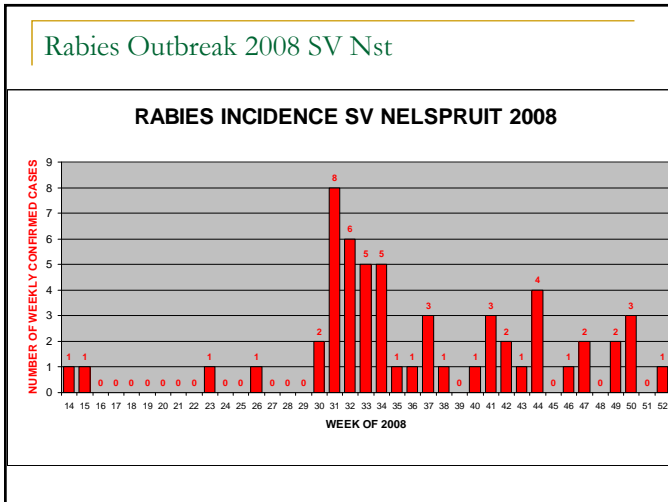


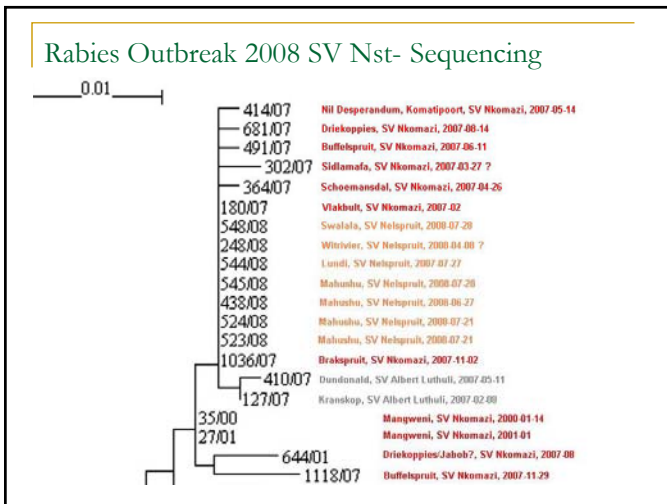
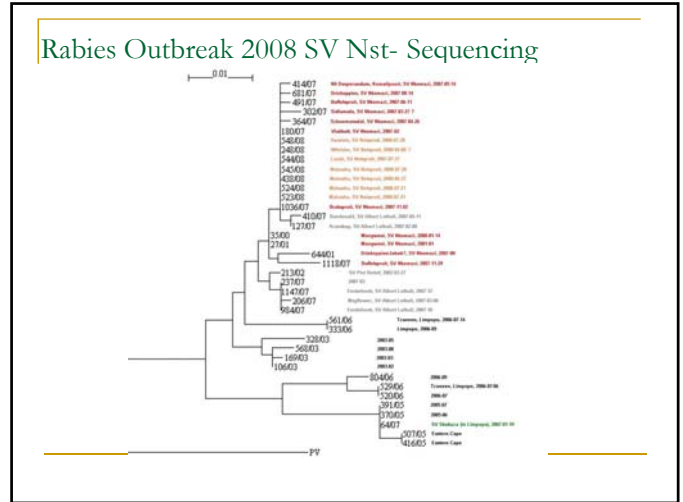
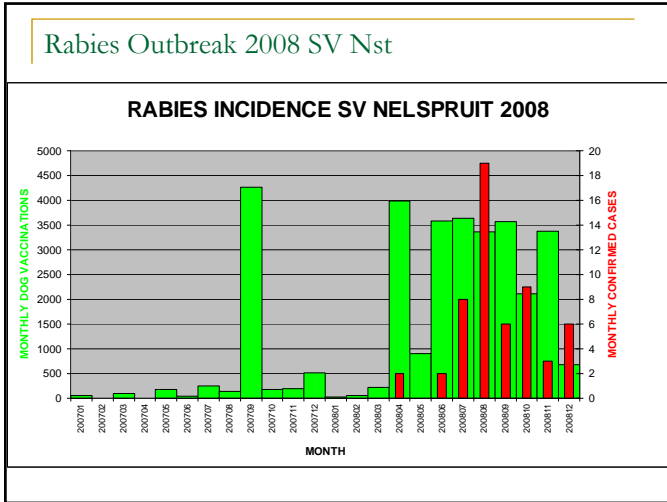






- ### Rabies Outbreak 2008 SV Nst
- #### Some observations
- Areal clustering reflects previous vaccination coverage, (human population densities)
  - Residential areas mainly spill-overs
  - Reporting and diagnosing facilitated by available private veterinary and welfare infrastructure
  - Transmission without evidence of bite contacts (dog-dog)





- ### Rabies Outbreak 2008 SV Nst- Handling of Positive Cases
- Investigation of contacts (humans and animals)
  - Report, referral of and advise on human cases
  - Destruction and/or retrieval of clinical pos. and or susp. animals
  - Destruction and or quarantine of contact animals
  - Combined vaccination, extension and (further) disease investigation around location of positive case

**VETERINARY SERVICES**  
**RABIES SPECIMEN SUBMISSION FORM**

Please complete all sections. If any of the information is not relevant, mark on the back of the form.  
Submit specimens on ice or in RN2 depending on the type of animal. Marked specimens must be kept cool.  
Please do NOT use Penicillin.

**FOR LABORATORY USE ONLY**

Specimen ID No.	Date received	Time received	Initial of rec.	Initial of sub.
Species	From what	Signature	Phone 1	Phone 2
SENDER	Name	Address	City	Province
OWNER (OR STRAY)	Address	City	Province	Postal code
FARMS	Name	Address	City	Province
LOCATION OF CASE	Closest reference (R24 code)	Geographical location	East	South
SPECIES	Local name	Scientific name	Age	Sex
AGE (IF DOGS)	Puppy (0-6 months)	Adult (7-12 months)	Older (13+ months)	Other
CLINICAL HISTORY	Onset of clinical signs	Date of death	Other	Other
VACCINATION HISTORY (DOGS ONLY)	Vaccinated	State unknown	Other	Other
PREVIOUS CONTACTS (NUMBER OF)	Unknown	Other	Other	Other

No | 029

**DOG BITE / SCRATCH REPORT FORM (RABIES CONTROL)**

**Mpumalanga Veterinary Services**

**Contact persons:** National Institute of Communicable Diseases - 082 883 9920  
to report suspect animal cases: State Vet Office Nelspruit - 013 763 3247- 084 88 26133

**HEALTH REPORT**

NAME OF PATIENT: \_\_\_\_\_ AGE: \_\_\_\_\_ GENDER: \_\_\_\_\_

NAME OF GUARDIAN: \_\_\_\_\_

CONTACT NO OF PATIENT/GUARDIAN: \_\_\_\_\_

NAME OF AREA: \_\_\_\_\_

HOUSE NUMBER: \_\_\_\_\_

NEAREST SCHOOL: \_\_\_\_\_

NEAREST SHOP: \_\_\_\_\_

SCHOOL/FARM/DETAILS & CONTACT NO: \_\_\_\_\_

NATURE OF INJURY: \_\_\_\_\_

DATE OF INJURY: \_\_\_\_\_

SPECIES OF ANIMAL: \_\_\_\_\_

NAME OF ANIMAL OWNER & CONTACT NO: \_\_\_\_\_

NAME OF AREA: \_\_\_\_\_

STREET NAME & HOUSE NUMBER: \_\_\_\_\_

NAME OF ANIMAL: \_\_\_\_\_

DESCRIPTION OF ANIMAL: \_\_\_\_\_

WAS ANIMAL VACCINATED AGAINST RABIES? \_\_\_\_\_

DESCRIPTION OF ANIMAL BEHAVIOUR: \_\_\_\_\_

DATE ANTI RABIES STARTED: \_\_\_\_\_

IS PATIENT ADMITTED? \_\_\_\_\_

WARD NUMBER: \_\_\_\_\_

NAME OF HEALTH OFFICIAL: \_\_\_\_\_

CONTACT DETAILS OF HEALTH OFFICIAL: \_\_\_\_\_

NAME OF DOCTOR: \_\_\_\_\_

DATE: \_\_\_\_\_

**VETERINARY REPORT**

DATE RECEIVED: \_\_\_\_\_

ANIMAL LOCATION: \_\_\_\_\_

GEOGRAPHICAL LOCATION: \_\_\_\_\_

VACCINATION STATUS OF ANIMAL: \_\_\_\_\_

CLINICAL CONDITION OF ANIMAL: \_\_\_\_\_

NAME OF VETERINARY OFFICIAL: \_\_\_\_\_

CONTACT DETAILS OF VETERINARY OFFICIAL: \_\_\_\_\_

FINDING: \_\_\_\_\_

STATE VETERINARIAN: \_\_\_\_\_

DATE: \_\_\_\_\_

**MPUMALANGA VETERINARY SERVICES**

**RABIES VACCINATION CERTIFICATE 07701**

NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

**MPUMALANGA VETERINARY SERVICES**

**RABIES VACCINATION CERTIFICATE 07702**

NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

**MPUMALANGA VETERINARY SERVICES**

**RABIES VACCINATION CERTIFICATE 07703**

NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

**MPUMALANGA VETERINARY SERVICES**

**RABIES VACCINATION CERTIFICATE 07704**

NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

**REPUBLIC OF SOUTH AFRICA**  
**VETERINARY SERVICES**

**IDENTIFY, RABIES VACCINATION AND TREATMENT CERTIFICATE FOR DOGS AND CATS MOVING BETWEEN PROVINCES IN THE REPUBLIC OF SOUTH AFRICA**

**KEEP THIS CERTIFICATE AS PROOF OF VACCINATION. TAKE IT WITH YOU FOR SUBSIDIARIES AND WHEN YOUR DOG OR CAT MOVES BETWEEN PROVINCES.**

41. Identification and description of animal

Sex:  Male  Female  Other

Age of animal: \_\_\_\_\_

Identifying number: \_\_\_\_\_

42. Owner's name: \_\_\_\_\_

Owner's address: \_\_\_\_\_

43. This certificate serves as an official vaccination certificate for inter-provincial and international movements as outlined here:

1. It is valid for 12 months.

2. It is valid for 12 months from the date of vaccination.

3. It is valid for 12 months from the date of vaccination.

4. It is valid for 12 months from the date of vaccination.

44. Identification of animal

Province	Name of animal	Mark No.	Signature and address of veterinarian/official

45. General information on rabies vaccination of dogs and cats in South Africa:

46. Dogs of any breed, colour and age must be vaccinated against rabies in 3 yearly periods, unless otherwise specified in writing by the relevant provincial government.

47. Cats of any breed, colour and age must be vaccinated against rabies in 3 yearly periods, unless otherwise specified in writing by the relevant provincial government.



48. Rabies vaccination of dogs and cats is compulsory in the following provinces:

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## Rabies Outbreak 2008 SV Nst

### Handling of Contact Animals- Documentation

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## Rabies Outbreak 2008 SV Nst

### Handling of Contact Animals- Decision making- Risk Assessment

#### Factors:

- Nature (bite; licking, sharing environment) and duration of contact
- (Proof of) Vaccination history
- Influence of non-veterinary factors (emotional attributes of owners; logistical capabilities etc.)

## Rabies Outbreak 2008 SV Nst

### Handling of Contact Animals- Euthanasia



## Rabies Outbreak 2008 SV Nst

### Quarantine

- High Risk (cage structure)
- Lower Risk (chained/ movement restrictions)
- Emotional components
- Safety (guard dogs)
- Practicalities (available infrastructure, time for inspection)



## Rabies Outbreak 2008 SV Nst

### Quarantine





### Rabies Outbreak 2008 SV Nst

#### Logistics

- Sampling Courier
- Disposal



### Rabies Outbreak 2008 SV Nst

#### Overview (Case) Control Mechanisms

Month	Samples	Lab confirmed	Destroyed contact animals	Quarant. contact animals	Human Bite contacts
Jan- Mar	4	0	0	0	0
Apr	11	2	6	27	2
May	0	0	0	0	0
Jun	9	2	18	7	2
Jul	65	8	34	13	3
Aug	67	19	87	21	6
Sep	15	6	15	8	6
Oct	48	9	29	29	11
<b>Total</b>	<b>219</b>	<b>46</b>	<b>189</b>	<b>105</b>	<b>28</b>

### Rabies Campaign 2008 SV Nst Area Vaccination split-up- areas

Ward	Apr	May	Jun	Jul	Aug	Sep	Oct	TOT
Sabie	1786	398	52	177	192	763	31	3399
Leg	502	410		1615	1961	22	143	4653
Mth	9	123	29	443		15	4	623
Mah		153	394	1268	448	547	179	2989
Ngw					628	1678	1271	3577
WR	1659	63	428	111	216	523	119	3119
KP					27	38		65
Nst	29		2752	170	5	1103	749	4808
B'ton			48			486	46	580
								23813

### Rabies Campaign 2008 SV Nst Area Vaccination split-ups- Inoculators (April-Oct)

	Apr	May	Jun	Jul	Aug	Sep	Oct	TOT
SV Nst	3083	1149	2036	1964	1160	996	989	11377
Other CDVS MP	80			1821	2328	2629	1560	8418
SV Sk	330							330
Priv. Vets	500		1600			1550		3650

### Rabies Campaign 2008 SV Nst Area

#### Approach - Residential Areas:

- Announcements via Radio, Newspaper articles, Posters, Flyers (also distributed in post boxes)
- Supply of private veterinarians with vaccines
- Advertised fixed spots
- SV Office as continuous fixed spot
- Local visits where possible and necessary

### Rabies Campaign 2008 SV Nst Area

#### Approach - Communal Areas:

- Announcements via Radio, Newspaper articles, Posters, Flyers (also distributed in post boxes)
- **Local announcements**
- Weekly/ and monthly plans with geographical ID (e.g. via schools) for press release
- Fixed spots: mainly schools
- Emphasis on street to street/ house to house
- Awareness and extension on individual base on grass route level (one house- one flyer)

### Rabies Campaign 2008 SV Nst Area

#### Fixed spot- Manzini Primary School



### Rabies Campaign 2008 SV Nst Area

#### Planning and Announcement of areal coverage

- Demarcation of area details with google earth together with CAHT
- Monthly program in table format (using "areas around...school" to demarcate area and facilitate fixed spot)
- Extended table format for internal usage (staff and vehicle availability)
- Usage of data for incorporation into press release and flyers/notification with schedule over two week period (English and Siswati)
- [..\Diseases\Rabies\Rabies June 2008\weekly schedule Rab vacc June 2008 11062008.doc](#)

Rabies Outbreak 2008 SV Nst  
Geographical identification- Maps

- Usage of Google Earth
- Demarcation of locations, public places (especially schools)
- Ward Overview; DT entity (4km h); Vaccination Blocks (2.3km h)
- As handout to CAHTs
- Compilation of ward map (hardcopy) for briefings and review

Rabies Outbreak 2008 SV Nst  
Geographical identification- Google Earth Overview Ward

Rabies Outbreak 2008 SV Nst  
Geographical identification- Google Earth DT Area(4km)

Rabies Outbreak 2008 SV Nst  
Geographical identification- Google Earth (2.3km)

### Rabies Campaign 2008 SV Nst Area Provincial campaign – external staff recruitment

- Two week rotation
- Briefing sessions on start/orientation  
Maps (google earth), campaign protocol, materials;  
orientation in area
- Warrant human rabies vaccinations
- Logistics: Accommodation, Transport etc.
- Focusing on extension and follow-ups in mornings (schools); joining local staff after prescribed activities (animal inspections)
- Working hours, alignment with peak awareness and vaccination output

### Rabies Campaign 2008 SV Nst Area Extended campaign since July – external staff

- Benefits:  
“Fresh” officials, motivation for local staff
- Backdraws:  
Costs, increased logistics, time loss on first and last day for orientation

### Rabies Campaign 2008 SV Nst Area Mobile Rabies Vaccination Teams- Protocol 1

- **preset and distributed schedule** ;one or more vaccination venues/areas per given day, each to be covered by a team of at least one car/mobile unit
- **mobile unit:** two-three officials, sharing the respective duties between each other (driving, hailing, vaccinating, writing vaccination certificates, issuing information materials/flyers).
- meet before targeting the allocated area, familiarise with such by the help of maps and knowledge of local officials and coordinate their approach
- **Timesheet** kept by the **teamleader**
- coverage of the area discussed after the respective venue and documented
- **Local announcements:** areas for the upcoming/next day(s) targeted with announcements/hailing, putting up posters at strategic points, distribution of flyers etc.,

### Rabies Campaign 2008 SV Nst Area Mobile Rabies Vaccination Teams- Protocol 2

- listing of schools should also used to integrate **awareness** on group level
- All dogs and cats encountered to be vaccinated.
- Marking of vaccinated animals with **spraypaint**
- Re-cycling of used needles after sterilisation
- **Daily documentation** of covered areas by teamleaders
- **Troubleshooting** protocol  
(owner not there, can't hold dogs, refuses vaccination etc.)
- **Associated activities** (census, primary animal health procedures)
- **Liaison and Cooperating sections:**  
(Liaison and cooperation with other sections and rolepayers (on level of SV Office Management and of CAHTs locally in respective wards)

### Rabies Campaign 2008 SV Nst Area Challenges (some)

- Area-specific approach needed, due to e.g. lacking Infrastructure
- Dog population associated with human demographics (rapid growing settlements etc.)
- Unsupportive husbandry scenarios
- Reproductive dynamics of dog population
- Facilitating involvement of other sections and roleplayers
- Safeguarding reporting of suspicious cases, detecting/diagnosing (unspecific/"dumb" rabies) cases
- Ignorance about disease/resistance against vaccinations
- Emerging new foci of work demands for field personnel (map reading, team coordination, conflict management, animal behavior etc.)
- Adequate supervision and leading of vaccination team(s) directly in field
- Keeping morale of team despite ongoing (strenuous) and even increasing demands; emotional conflicts etc.

### Rabies Outbreak 2008 SV Nst Rabies control- Associated fields- Associated roleplayers

- Human Health
- Animal professionals and enthusiasts
- Communication and awareness
- Logistical components
- Nature Conservation

### Rabies Outbreak 2008 SV Nst Associated roleplayers (selection)

- Human health services
- Private Veterinarians
- Animal welfare societies
- Local print and broadcasting media
- Tribal authorities
- Local municipalities
- Nature conservation authorities
- Departmental components: Extension services, Communication section
- Farmers
- Private Nature/Game Reserves, Lodges
- Schools, (Churches)
- SAPS
- SADF
- Transport companies
- SA Post
- (Veterinary) Industry
- Other sections of Vet Services
- Courier Services
- Laboratory, Researchers
- Veterinary Students, Interns, Volunteers

### Rabies Outbreak 2008 SV Nst Way forward: Considerations

- Continuous vacc and extension campaign
- Further incorporation of other role-players and activities (e.g. cooperative approach with outreach activities)
- Exploration and usage of additional tools with value to the control of the disease (e.g. bait vaccines)
- Addressing dog population growth and control (e.g. sterilization campaigns, contraceptives, promote donation of unwanted animals)
- Improving general husbandry and handling
- Strengthening legal components of animal disease control and law enforcement
- General: Move to more holistic approach

## Rabies Outbreak 2008 SV Nst

- Acknowledgements (a.o.):  
Dr BJA DU Plessis for helping with maps and graphs  
Dr C Sabeta (OIE Rabies Ref Lab) for providing DNA- sequencing data of positive cases

Thanks for Your Attention !

