

**DOES RVFV HAVE A TRUE RESERVOIR
AMONG VERTEBRATE ANIMALS?**

What would you expect?

- ◆ Epidemiological linkage in time, space
- ◆ Plausible mechanism of initiating epidemics
- ◆ Numbers go up and/or virus activated by rain?
- ◆ Chronic infections of most natural reservoirs (and indeed vertebrate amplifiers) are not lethal and usually not symptomatic
 - Examples, pseudorabies, arenavirus, yellow fever mosquito
 - Exception FMD
- ◆ Virus in secretions and organs / blood for months or years
 - Nipah?

SEARCH FOR VERTEBRATE MAINTENANCE HOSTS OF RIFT VALLEY FEVER VIRUS

(Entebbe Virus Research Institute & Others)

- ◆ Domestic ruminants
- ◆ Wild ungulates
- ◆ Hippopotami, etc
- ◆ Rodents
- ◆ Birds
- ◆ Reptiles

RODENTS AS RESERVOIR

- ◆ Several studies demonstrated antibodies in wild caught rodents and, in some cases, viremia in experimental rodents that might or might not infect mosquitoes – but no evidence of persistent infection
 - Mims, Uganda, 1956
 - Weinbren and Mason, Uganda, 1957
 - McIntosh, et al, South Africa, 196??
 - Swanepoel, et al, Zimbabwe, 1978
 - Keogh and Isaacson, South Africa, 1978
 - Anderson and Peters, lab, 1978
 - Pretorius, et al, South Africa, 1997
 - Gora, et al, Senegal, 2000
- ◆ Some noteworthy studies
 - Scott found rodent die-off but no virus isolation attempts
 - Swanepoel, et al, Zimbabwe, 1978 (vide supra) had substantial attempts to isolate during season of transmission with negative results
 - Pretorius, et al, South Africa, 1997 (vide supra) found *Aethomys namaquensis* to have substantial viremias in lab

DOMESTIC ANIMALS AS RESERVOIR

- ◆ Recent arrival (~5000 yrs) more consistent with target than reservoir
- ◆ No evidence from field
- ◆ Experimental inoculation shows transient viremia with some weeks persistence in lymph nodes and spleen but not long term
- ◆ Virus excretion low-titered and short-lived

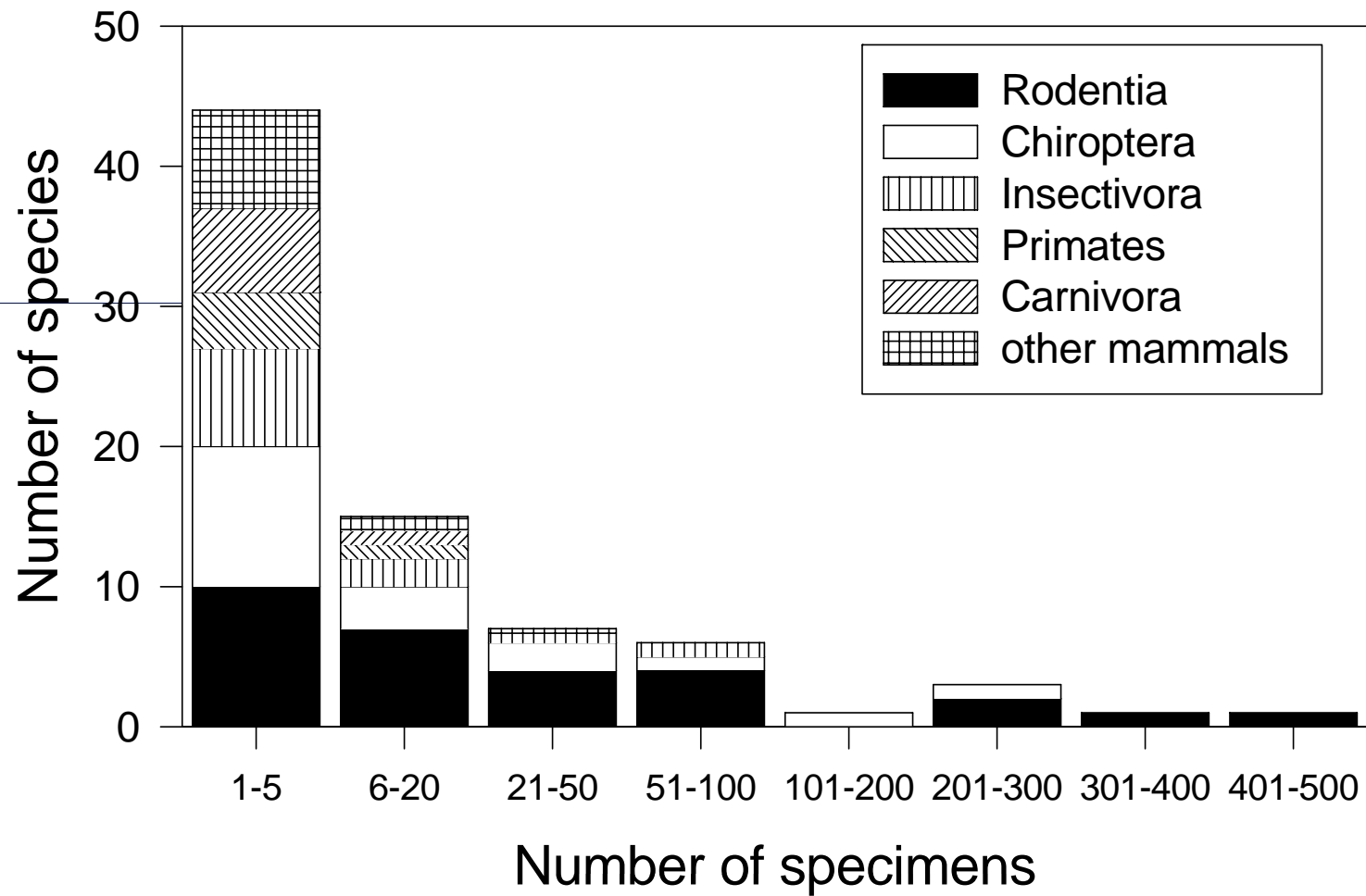
SOME VIRUSES THAT PERSIST IN A MAMMALIAN RESERVOIR

- ◆ Arenaviruses shedding and sometimes viremia
- ◆ Hantaviruses only shedding
- ◆ Henipaviruses unknown
- ◆ Filoviruses chronic in tissues, shedding?

Role of interferon sensitivity?

Antibody tests not sufficient to detect in many arenaviruses

Animals Captured, Kikwit, 1995



SOME OF THE PERSONS WHO HAVE LOOKED (AND PROBABLY SHOULD BE GIVING THIS TALK)

COMMENTS SOUGHT

- ◆ Swanepoel
- ◆ Davies (Linthicum)
- ◆ Everyone with data and opinions



DOES RVFV HAVE A TRUE RESERVOIR AMONG VERTEBRATE ANIMALS?

- ◆ Antibody prevalence low or nil among poikilotherms
- ◆ Cells from frogs and lizards are not productively infected
- ◆ Avians have low or nil antibody prevalence and no viremia
- ◆ Mammals have not been observed to show latency