2   INSTITUTIONAL ARRANGEMENTS FOR REGIONAL RHINO CONSERVATION

2.1   *Presentation: The value of rhino status reporting (Martin Brooks, AfRSG Chair)*

The Rhino Management Group (RMG) model
The primary aims of the RMG are to:
- Conserve Populations
- Maximise Population Performance

Apart from country representatives (RSA, Namibia, Swaziland, Zimbabwe), membership includes representatives from each of the RSA provincial bodies. Each organisation is requested to report annually on each population, with common statistics on their rhino populations. These are analysed for evaluation and understanding of underlying factors, and the results are used for guidance in improving monitoring and management. Every 2 to 3 years, a summary report is produced, containing comparative information, and information on individual populations. The report is aimed at improved management (and can be provocative, this also being a good result).

The Contents/Headings of RMG Status report are as follows:
- Population estimation
- Sex and Structure
- Female breeding performance
- Mortalities
- Introductions
- Translocations
- Behaviour
- Security
- Neighbours programmes
- Research
- Black rhino reports
- General

Population Performance
Data accumulated over five years gives good growth rate estimates (rolling estimates). The aim is to maximise growth rate of each populations in order to:
- act as a buffer against poaching
- provide surplus animals to create new populations
- Minimise loss of genetic diversity in rapidly expanding small populations.

There is a target of 5% intrinsic growth rate. IGR is divided into 3 Categories: (a), 6-17% for good performers in RMG region comparison (n=9); (b),

AVERAGE ANNUAL GROWTH RATES
South African Black Rhino Areas (Apr94- Dec98)

Growth should be higher than the
minimum acceptable level of 5%

2-3% (5), and (c) -1-6% (negative) (7). It is useful for individual managers to compare their population against others, which can lead to understanding of the reasons for poor populations performance (and at least begs the question of why performance is poor).
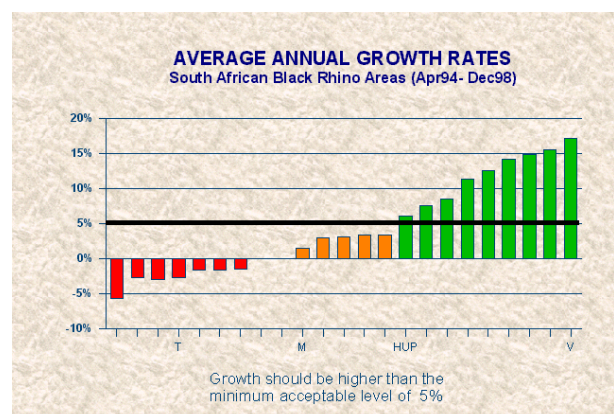
Examples in the graph (above):
V = Vaalbos (17%)
HUP = Hluhluwe-Umfolozi Park (6%)
M = Mkuze (2%)
T = Tembe (-2.5%)

Adult Sex Ratio

There is a confounding factor: differential mortality of males, leading to female biased sex ratios. Most populations are female biased, including Vaalbos (highly so). Better comparison between populations might be made if performance indicators were recalculated as if the sex ratio was 1:1. However, individual cow performance is independent of this relationship. A standardised and consistent ageing system/criteria is always required.
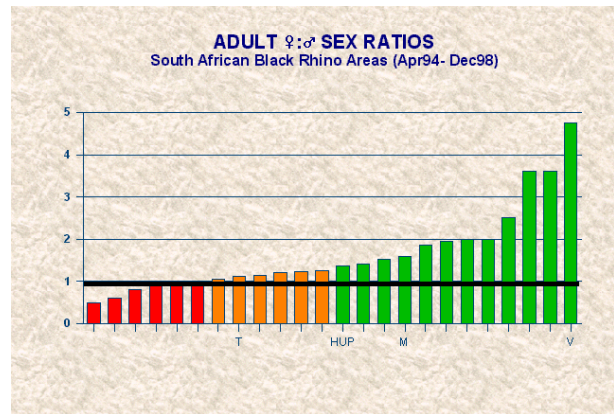

Female breeding performance

This can be measured by the proportion of adult females that have a calf of that year (0-25% = Very Poor; 25-33% = Average; 33-50% = Excellent). 50% is equivalent to an inter-calving interval (ICI) of 2 years, 33% = ICI of 3 years, 25% = ICI of 4 years. In the period 1994-98, breeding performance has been very poor for Tembe (9%), HUP (19%), Mkuze (24%) vs. Vaalbos (50%). Poor performance may be due to loss of calves or no calving, and may highlight a carrying capacity problem. Age at first calving is another useful breeding performance indicator (e.g. At Great Fish River, females are first calving at 6 years on average).
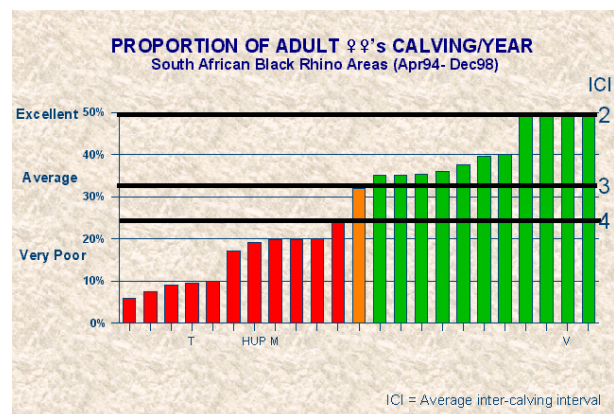
Average Mortality Rate per Year

For the period examined, mortality was 4% on average, including all age classes. There are possible problems with low detection of calf mortality in large populations. Less than 3% is low population mortality. All top performing populations in RSA have low mortality rate. If carcasses are found, it is important to establish the cause of death (see table below), and PM reports are requested by RMG. The detection rate of carcasses gives some indication of the quality of monitoring in a rhino population area.
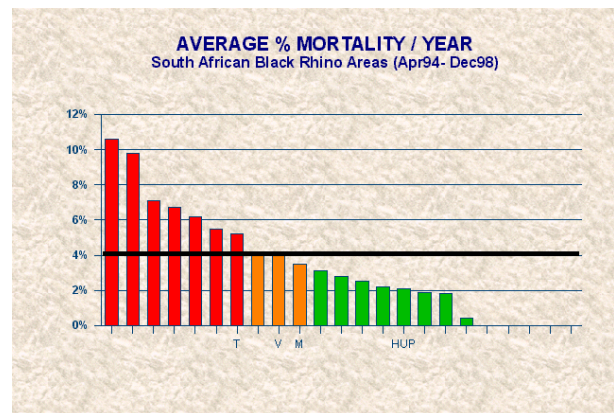

Causes of mortality (RMG: April 89-December 98)

|	Causes	No	Percentage
NATURAL	Diseases	8	3.4
	Fighting	58	24.5
	Nutrition	9	3.8
	Accidents	20	8.4
	Killed by other species	15	6.3
	Other	36	15.2
UN-NATURAL	Capture, Translocation	27	11.4
	Poaching	61	25.7
	Other	1	0.4
TOTAL		**237**	

Population Growth Rates: influence of sex ratio, calving and mortality rates

It can be seen that female-biased sex ratios, high breeding female performance and low mortality are all associated with high population growth rates.

RELATIONSHIP BETWEEN GROWTH RATES AND OTHER DATA
South African Black Rhino Areas (Apr94- Dec98)
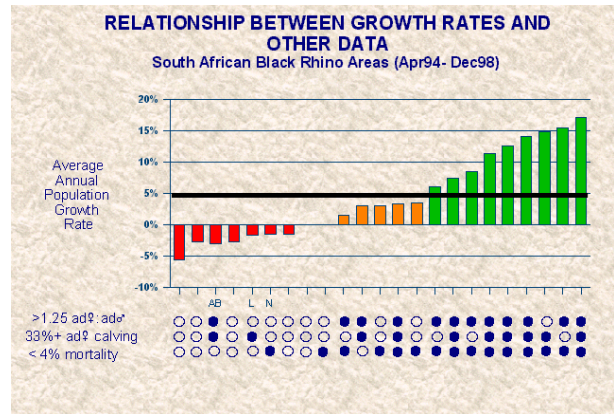
Individual Population Performance

Comparing the performance of two populations, and potential carrying capacity effects, Reserve A population appears to have reached a limit after 8-9 years, while Reserve B has reached K after 6 years. Effective removals (man-induced) or deaths may also be used to indicate carrying capacity effects.

Trends in two populations
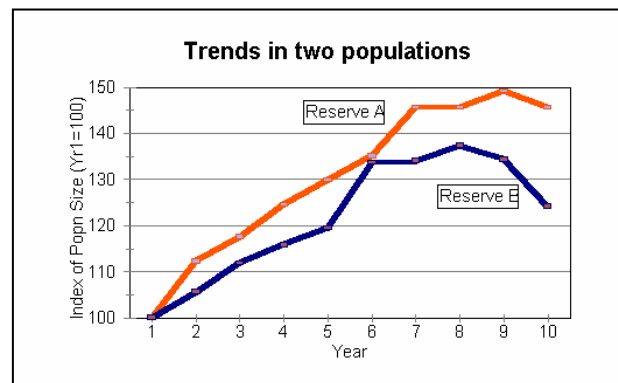
Summary on the Value of Status Reporting

1. It promotes effective monitoring
   - Population size
   - Sex and Age
   - Life history
   - Mortality

2. It objectively assesses population performance and understanding of contributing factors

3. It promotes implementation of effective management programmes

Effective status reporting operates through soliciting appropriate population statistics on all rhino populations, and analysing these to determine population performance, and hence recommended management responses. Standardised interpretation is required from a range of populations under various management regimes. There are also spin-off benefits in terms of motivation of members of monitoring teams. For other SADC rhino range states (e.g. outside the current RMG), other information may be more appropriate (e.g. for newly established populations).

Discussion

Mr du Toit emphasised that it was crucial that population performance is calculated correctly (compound over five years). Mr Chafota suggested a roving standards checker for SADC region. Dr Knight highlighted the complications of RMG-type reporting for big rhino populations (e.g. Kruger NP), and the difficulty of providing these indicators. Mr du Toit said that the Zimbabwe conservancies have individual 'cells' with their own modular monitoring, and this answers the question of how to monitor rhinos over large areas. Limited numbers of rhinos are known and monitored in constituent areas. Dr Cumming added that is was useful to involve staff on the ground in the results, as this was enormously important in motivating and maintaining high standards in field data collection.