

Spotlight on Agriculture

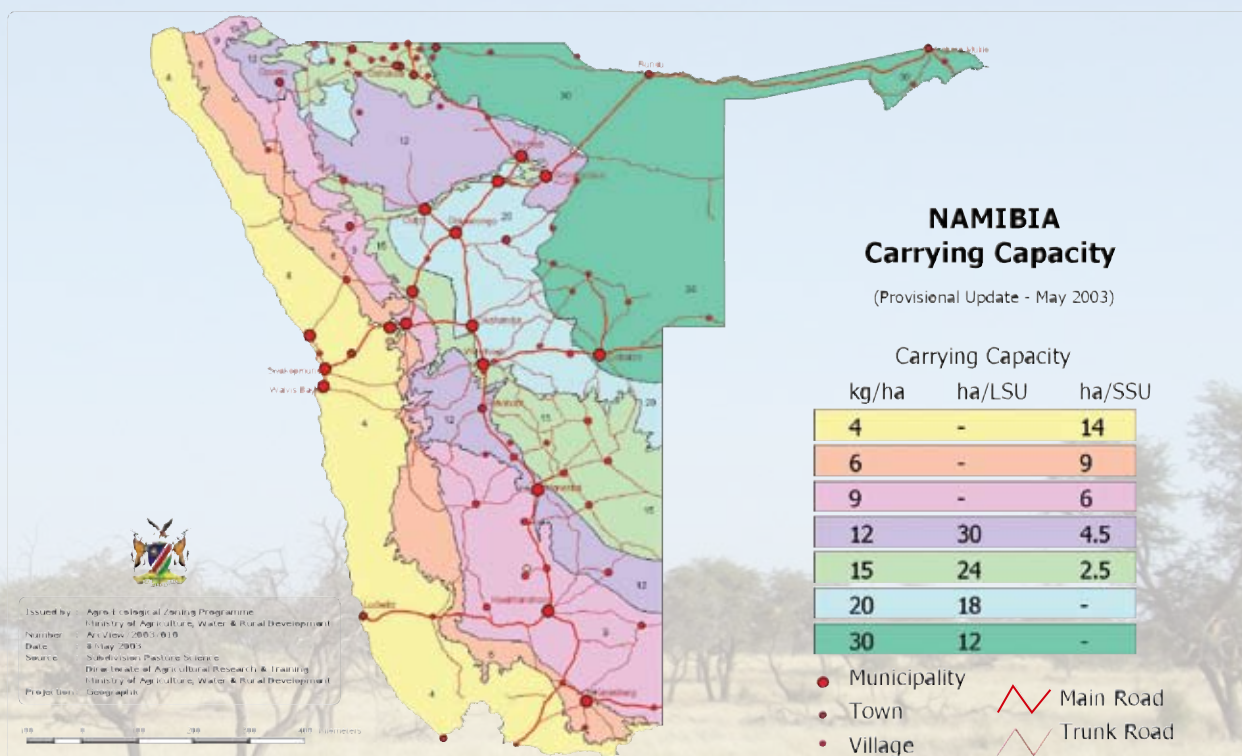
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AN ACCURATE GRAZING CAPACITY MAP FOR NAMIBIA – MYTH OR REALITY?

INTRODUCTION

An accurate grazing capacity map for Namibia will be an invaluable tool in the quest for sustainable rangeland utilization. It can also play a major role in aiding policy makers towards informed and responsible decisions regarding land reform issues. Although such a map is available, it does not take a rocket scientist to understand that huge differences will occur in the grazing capacity between farms within any of the seven demarcated grazing capacity areas as per map below.

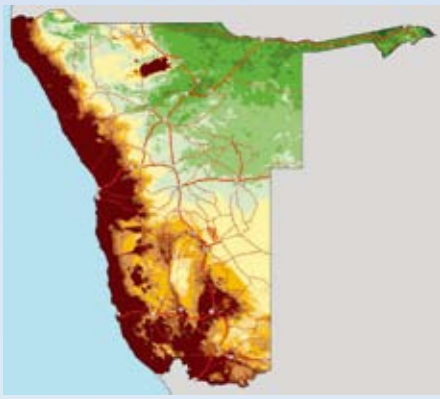


“Unofficial” grazing capacity map for Namibia

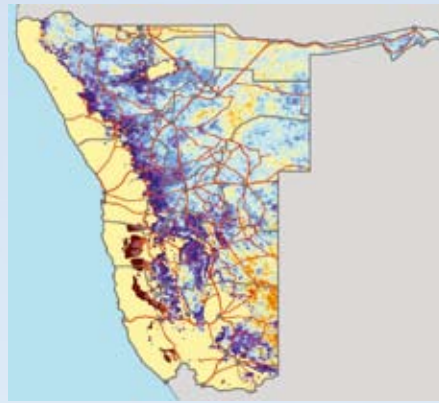
Differences in grazing capacity within any area are due to a number of factors such as the degree of bush encroachment that may occur on a farm, the rainfall variation from farm to farm, the rangeland management practices being followed by the various farm owners, the type of animal being farmed with and a number of other factors. If the number of variables influencing grazing capacity is considered, the question arises as to whether the generation of an accurate grazing capacity map is at all possible. Methodologies currently used to determine grazing capacities in Namibia have been reviewed by Lubbe (2005). The above map is not to be regarded as the “official” map, since it is based on the expert (but subjective) opinions of farmers, agricultural extension workers and pasture scientists.

THE EFFECT OF RAINFALL ON PLANT BIOMASS PRODUCTION

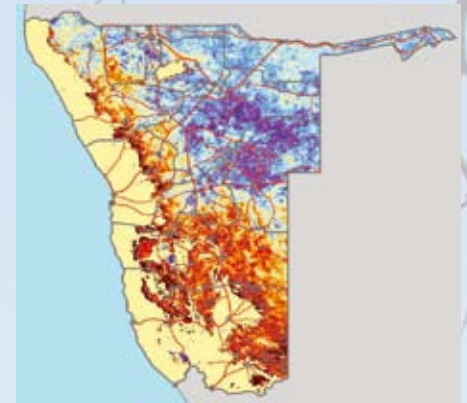
The amount and distribution of annual rainfall in Namibia remain the major determinant of the amount of plant biomass produced during the rainy season of a year and consequently what the grazing capacity for that year is. The effect of rainfall is clearly illustrated in the difference between the estimated Total Seasonal Biomass Production (TSBP) satellite images for the growing seasons 2005/6 (very good rainy season) and 2006/7 (very poor rainy season). The mean TSBP image, based on 22 years of data is included for comparative purposes.



Mean Total Seasonal Biomass Production (based on 22 years of data)

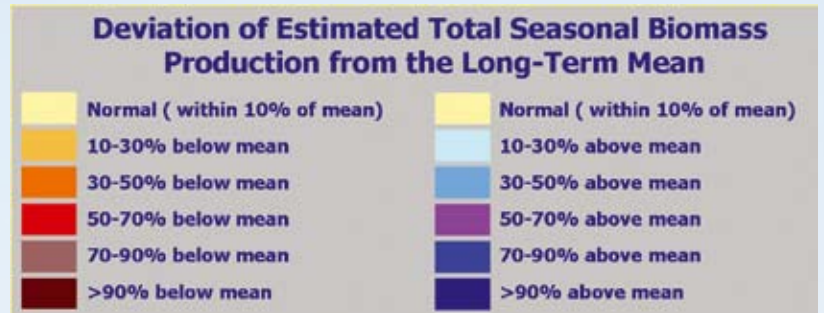


Total Seasonal Biomass Production 2005/6



Total Seasonal Biomass Production 2006/7

The effect of rainfall is perhaps even more graphically illustrated in the photographs below. Calculated grazing capacity for the camp in the first picture was 5 ha/LSU at the end of the 2005/6 growing season. By the end of the 2006/7 growing season, grazing capacity was down to 528ha/LSU for the same camp!



Grazing capacity (2005/6): 5 ha/LSU



Grazing Capacity (2006/7): 528 ha/LSU

CONCLUSION

The influence of rainfall on biomass production is obvious. The variation in grazing capacity based on only one variable, namely rainfall, for only two successive growing seasons have been illustrated above. One can imagine what the variation over time will be. Will it ever be possible to generate an accurate grazing capacity map if this capacity varies so tremendously over time? The answer is obvious: If sufficient time is allowed to adequately capture this variation, then it might be possible to generate a map based on more objective data. What is to be understood under “sufficient time” and will such a map be more accurate than the current subjectively generated map? Hopefully these questions can be answered in time.

References: Lubbe, L.G., 2005. Towards an updated carrying capacity map for Namibia: A review of the methodologies currently used to determine carrying capacity in Namibia. *Agricola* 15 pp 33–39.

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