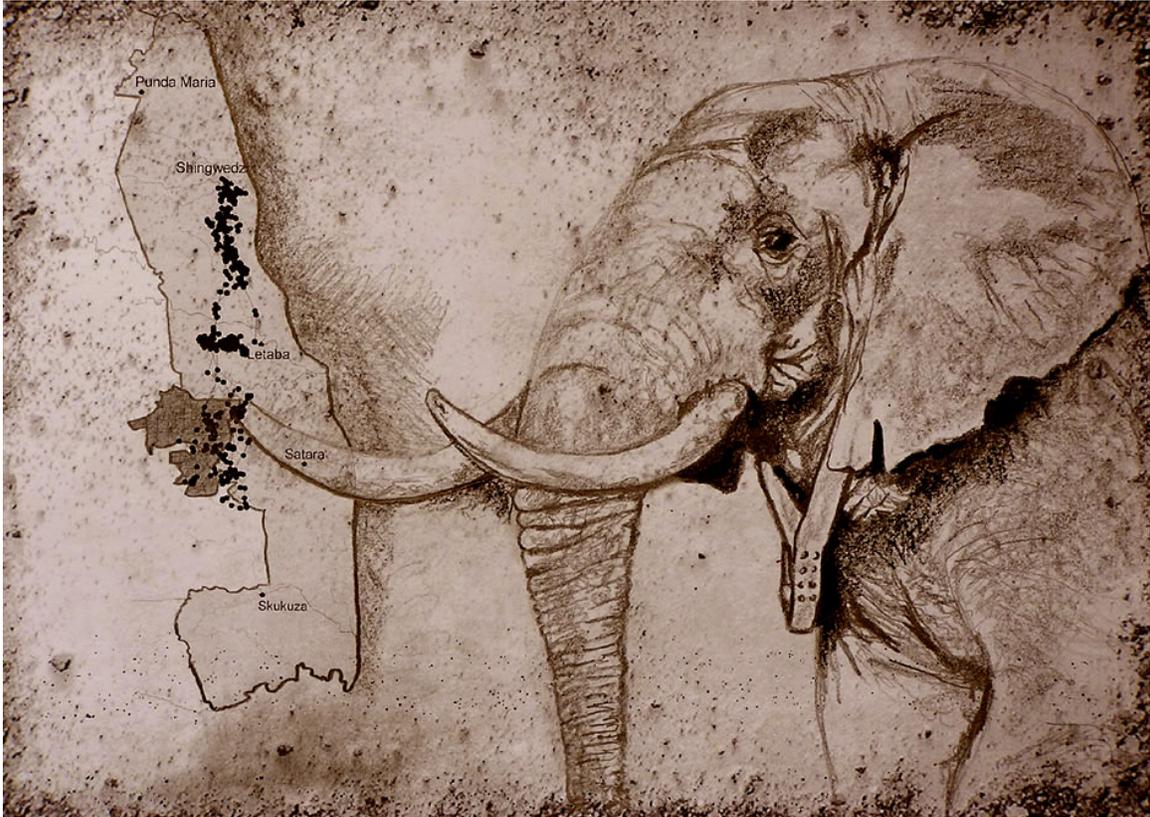


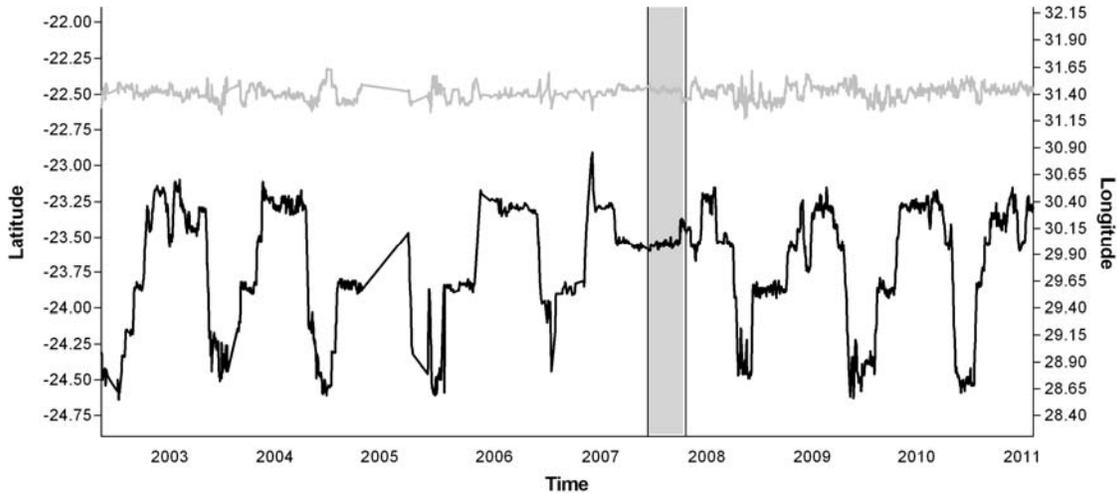
# The 10<sup>th</sup> Anniversary of Following Mac's Movements

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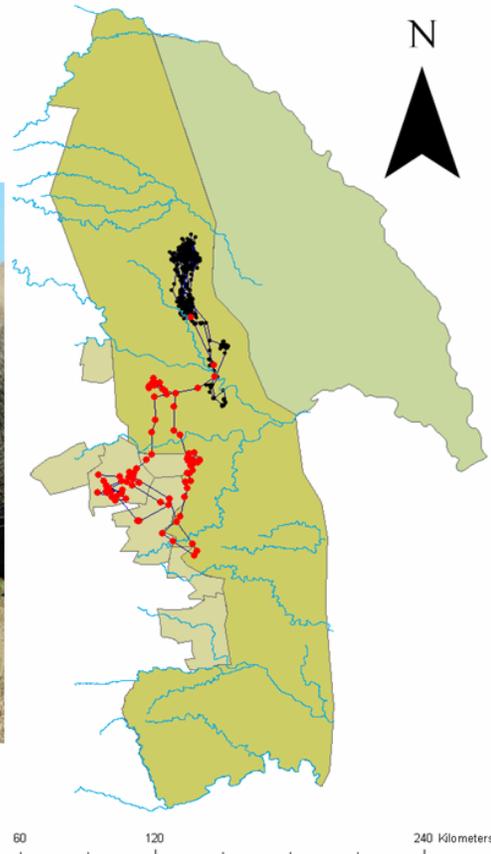


It was during Mac's musth period in May of 2002 that he was first collared as part of a Green Hunt. His first collar was kindly sponsored by Tony McClellan and hence the origin of his name. For the past ten years we have had the rewarding experience of following Mac's annual musth journeys from the northern regions of the Kruger National Park (KNP) to the Associated Private Nature Reserves (APNR). What have we learnt over the past decade?

With remarkable consistency Mac has experienced annual musth cycles between April and July each year. His movements south when in musth and then north after dropping out of musth has led to temporal traces of movements marked by large changes in latitude with relatively small changes in longitude. Overall, the temporal trace of the past decade reads like the electrocardiogram (ECG) pattern of a healthy individual in his breeding prime! The only 'abnormal blip' in his usual routine is easily detectable in 2007 when he failed to come into musth because of a severe case of ulcerative pedodermatitis which limited his movements for more than four months (refer to the shaded area in the figure below).



We have watched with amazement how Mac's tusks have increased in size over time. Measurements of his tusks during collaring operations have indicated that Mac's tusks have increased in weight by at least 3 lbs per year per side. In August 2010, when we fitted Mac's latest collar, we also had the opportunity to take a molar impression to estimate Mac's age. From the tooth mould, we estimated him to be  $55 \pm 4$  years old. Although Mac can now be considered a fairly old gentleman, he nevertheless graced us with his presence this year when he again came to visit the APNR in full musth. We have observed that initially when Mac first started visiting the APNR for his annual musth cycle, he kept his movements to the Timbavati and Umbabat Private Nature Reserves. Over time he gradually started moving into the Klaserie Private Nature Reserve. During this year's musth cycle, he spent most of his time in the Klaserie. We are left to wonder whether Mac has learnt to slowly start using new potential breeding grounds over time. Did it take him a number of years to shake off his memory of where the fences were that were separating the Klaserie from the Umbabat and Timbavati Private Nature Reserves when he first started exploring these regions? We have seen from Classic's movements (another large tusked individual that we have been following for eight years) that it took him a number of years to realise that he can cross into Kruger from within the APNR. Classic seems to have retained a memory of the fences dividing the APNR from Kruger even though they have now been removed for almost 20 years. We are left to conclude that unlike Mac, Classic was born in the APNR and is slowly starting to expand his range eastward when in musth while Mac is slowly expanding his breeding effort westward (refer to the figure below for Mac's 2012 musth movements highlighted in red).



We are grateful for the glimpse into Mac's world which his collar has afforded us. We are proud to announce that he is known as one of the longest and largest tusked, continually monitored elephants in Africa today. As a Klaserie owner, you have the privilege of a chance encounter of this beautiful bull! The next time you see him you can think to yourself that he has rewritten the textbooks with his home range of over 5000km<sup>2</sup>. Mac has provided us with insights into how bulls tusks increase over time, how injuries and the loss of body condition can influence musth cycles and how breeding ranges can shift over time. Mac, we salute you for all that you have taught us. Thank you!

**For interest**

GANSWINDT, A., MÜNSCHER, S., HENLEY, M.D., PALME, R., THOMPSON, P. & BERTSCHINGER, H. 2010. Concentrations of faecal glucocorticoid metabolites in physically injured free-ranging African elephants (*Loxodonta africana*). *Wildlife Biology* 16: 323-332.