

HOW TO COUNT RHINOS

SARAH BORCHERT GETS THE LOWDOWN ON RHINO POPULATION ESTIMATES.

When *Africa Geographic's* April issue went on sale earlier this year, we expected a big response. But we were sideswiped by the vitriolic reception to a statement we made regarding rhino populations, namely that they were still increasing despite the current poaching crisis. What ensued, mostly via Facebook, was a questioning of the methods used to assess rhino populations and whether such statements could be justified. I went back to Mike Knight and Richard Emslie, chair and scientific officer respectively for the IUCN SSC African Rhino Specialist Group (AfRSG), the body mandated by CITES to report on African rhinos – and whose figures we quoted – to ask how they compiled them.

'Every two years, estimates for individual rhino populations are submitted to the AfRSG,' explained Emslie. 'After reviewing these figures critically, the AfRSG consolidates that information into one of three categories, depending upon the type of survey undertaken, how recently it was done and the reliability of the data.' These figures are then collated into a total, which is published. (Individual population counts are routinely updated, but are not publicly available for security reasons.)

Estimates of the numbers of rhinos on state land in South Africa were provided by the provincial and conservation authorities using various methods (see box 'Counting methods'). All of these figures were taken from reasonably recent surveys and ongoing monitoring programmes. The quality of population estimates of rhinos on private land was more variable and was based largely on a survey done in 2008 along with information from provincial representatives and landowners.

'It's also worth noting,' added Emslie, 'that whereas the numbers of rhinos in many smaller populations are correct to within one or two animals, the larger populations have what we call a "confidence level", which is expressed as a percentage. Managers usually strive to get estimates to between five and 10 per cent of the true number of rhinos.'

At the end of 2010, then, South Africa's white rhino total was 18796, made up of 16 692 from recent surveys and censuses (good quality counts) and 2 104 in the 'probable' (slightly less reliable) category. Another survey of privately owned rhinos is currently under way to try to improve the accuracy of those figures.

Since 1989, managers of the country's black rhino populations have supplied detailed annual reports to the SADC Rhino Management Group, data that have been recognised as amongst the best for any endangered species. At the end of 2010, black rhinos in South Africa numbered 1 915.

When asked about suspicions, again voiced by Facebook users, that the Kruger National Park was overestimating its population, Knight responded unequivocally: 'The idea that SANParks is inflating its figures is nonsense,' he said.

'In fact, the number we used was conservative and based on a less precise survey done in 2010,' Emslie confirmed before explaining how distance sampling as well as thorough helicopter block counts in 2008 both resulted in higher estimates. However, Knight did mention, 'Given the current threats posed to white

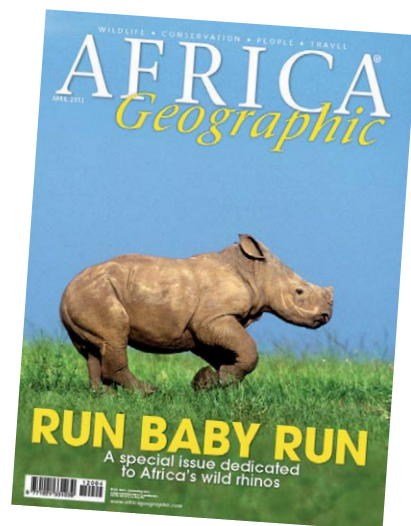
rhinos and the need to regularly update figures, SANParks will be undertaking block counts later this year.'

'It's important to emphasise too how difficult it is to count every animal,' said Emslie, 'especially if you have large numbers over a very big area. People tend to think that you just hop into a helicopter and count them, but tree canopies and thick bush make it easy to miss individuals when doing simple aerial strip counts.'

With regard to the idea that populations are still growing despite the poaching, Knight was equally clear. 'We know that the white and black rhino populations in South Africa had a net growth of 6.9 per cent per year from 1991 to 2010, despite the 2.2 per cent loss to poaching. So the current wave of poaching is eating into our "profit",' he explained.

In other words, at the start of 2011, South Africa had a total of 20700 rhinos. An average growth rate of 6.9 per cent would produce 1428 calves, but with the loss of 448 rhinos (or 2.2 per cent) in 2011 to poaching, we are left with an increase of 980. 'The crisis,' concluded Emslie, 'is happening because rhino poaching has escalated at such an alarming rate. If the current rate of increase continues, populations could go into decline by 2018.'

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COUNTING METHODS

There are many ways to count rhinos. Here are just a few that contributed to the estimates published by the AfRSG.

Individual identification The best way to monitor most rhino populations. Many individual rhinos are identifiable to rangers by their ear-notch patterns or by the marks made during captures. Ongoing sighting information provided by rangers is then used to produce population estimates.

Aerial counts (Used to count white rhinos.) Strips of a set width are defined and individual animals within a strip are counted. A technique called 'distance sampling' produces the best results (it allows for the increasing number of rhinos that are missed when you penetrate further into the strip). The estimated densities are then extrapolated to gain a population estimate.

Foot-based line and point transect distance estimation Distance sampling-based foot surveys are used to estimate the size of South Africa's second-largest white rhino population (in Hluhluwe-Imfolozi Park).

Helicopter block counts The best technique for surveying large populations or very large protected areas that have fewer rangers (rendering ID-based methods impractical). The study area is divided into a grid and a number of squares are chosen at random and studied. Using a helicopter and flying in concentric circles, all the rhinos are counted. This produces very good data, which are then employed to estimate a total figure for the entire study area.