

***Chromolaena odorata* in South Africa's Hluhluwe-Imfolozi Park**



The threat of invasion by *Chromolaena odorata* in the third-oldest National Park in the world, and efforts to control it using labour-intensive clearing, fire management and biological control,.

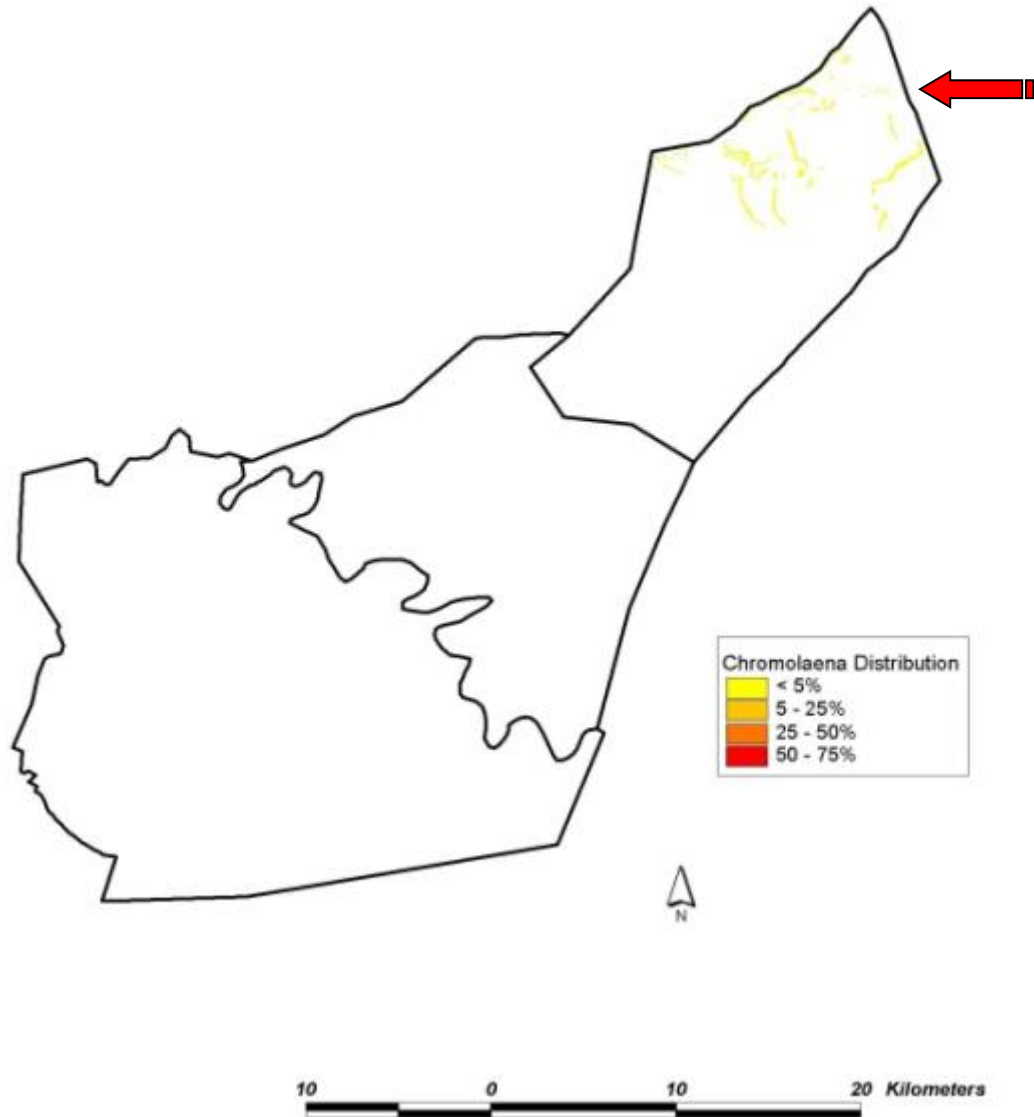
***Chromolaena odorata* (triffid weed), from Central and South America, is invading the Hluhluwe-Imfolozi Park. Our wild (and domestic) animals will not eat *Chromolaena*.**





In South Africa's Hluhluwe-Imfolozi Park, what looks like land with a high carrying capacity for game, is land increasingly invaded by *Chromolaena odorata*.

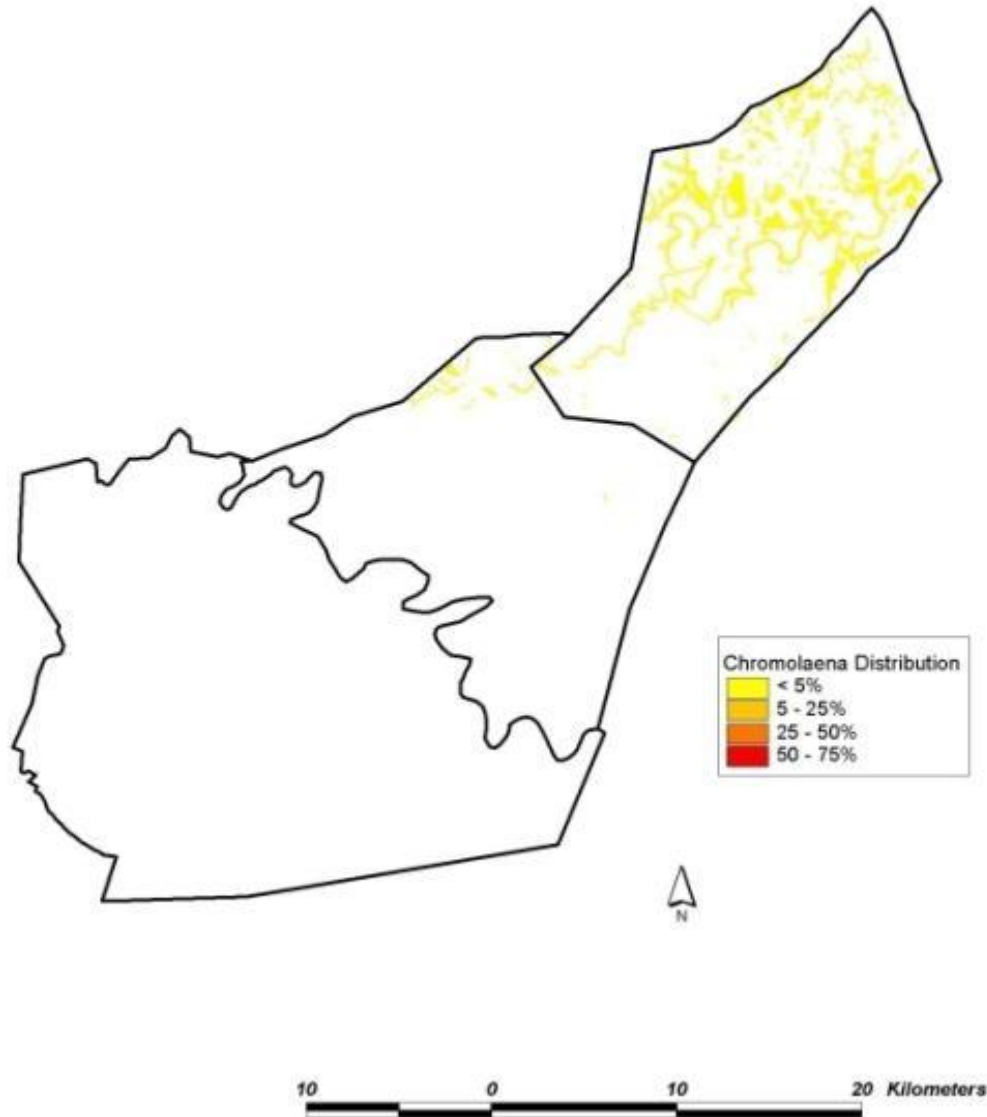
Distribution of *Chromolaena odorata*
in HIP in 1985



***Chromolaena* was mapped when invading the north-east section of the Hluhluwe-Imfolozi Park in 1985.**



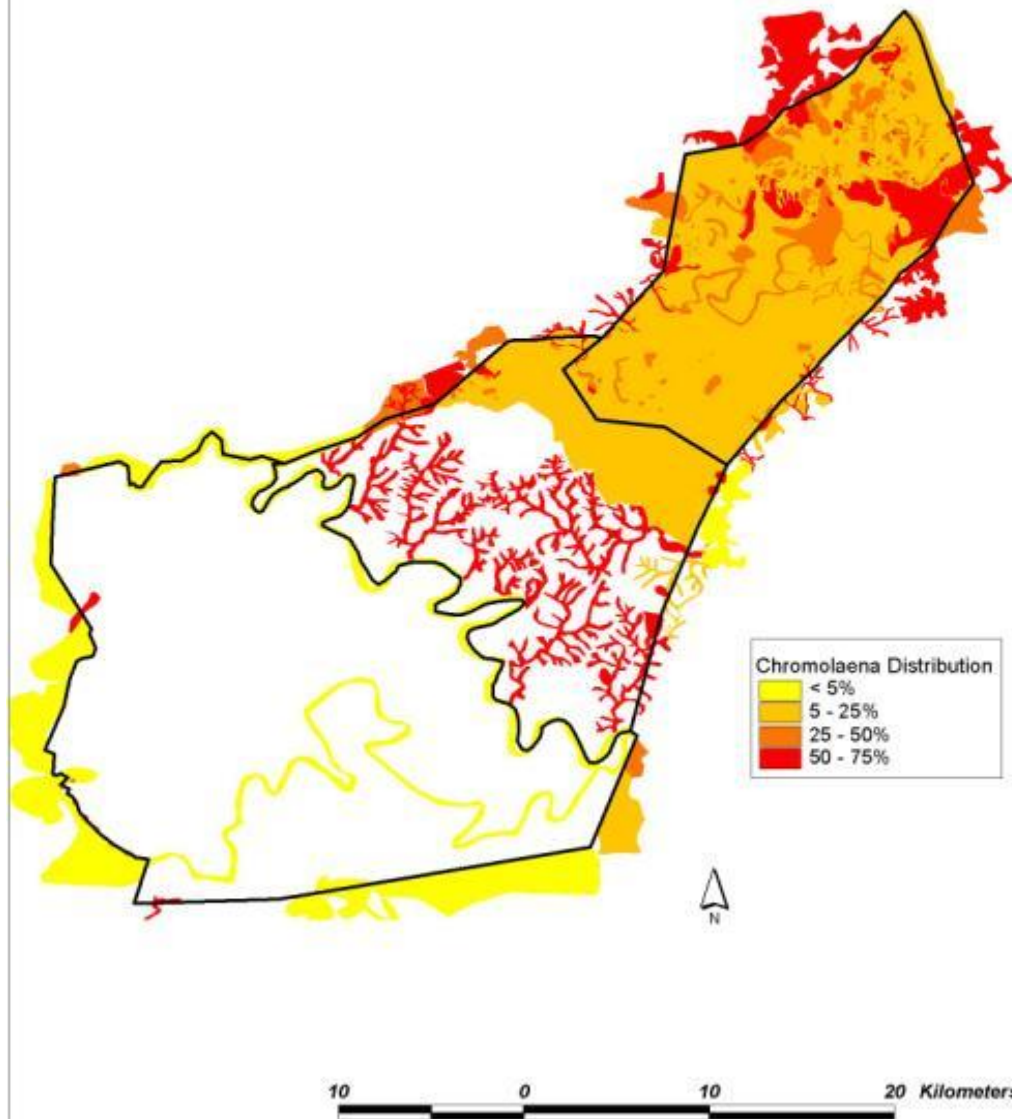
Distribution of *Chromolaena odorata*
in HIP in 1998



By 1998, the *Chromolaena* was far more widespread in the Park, although still at low densities.



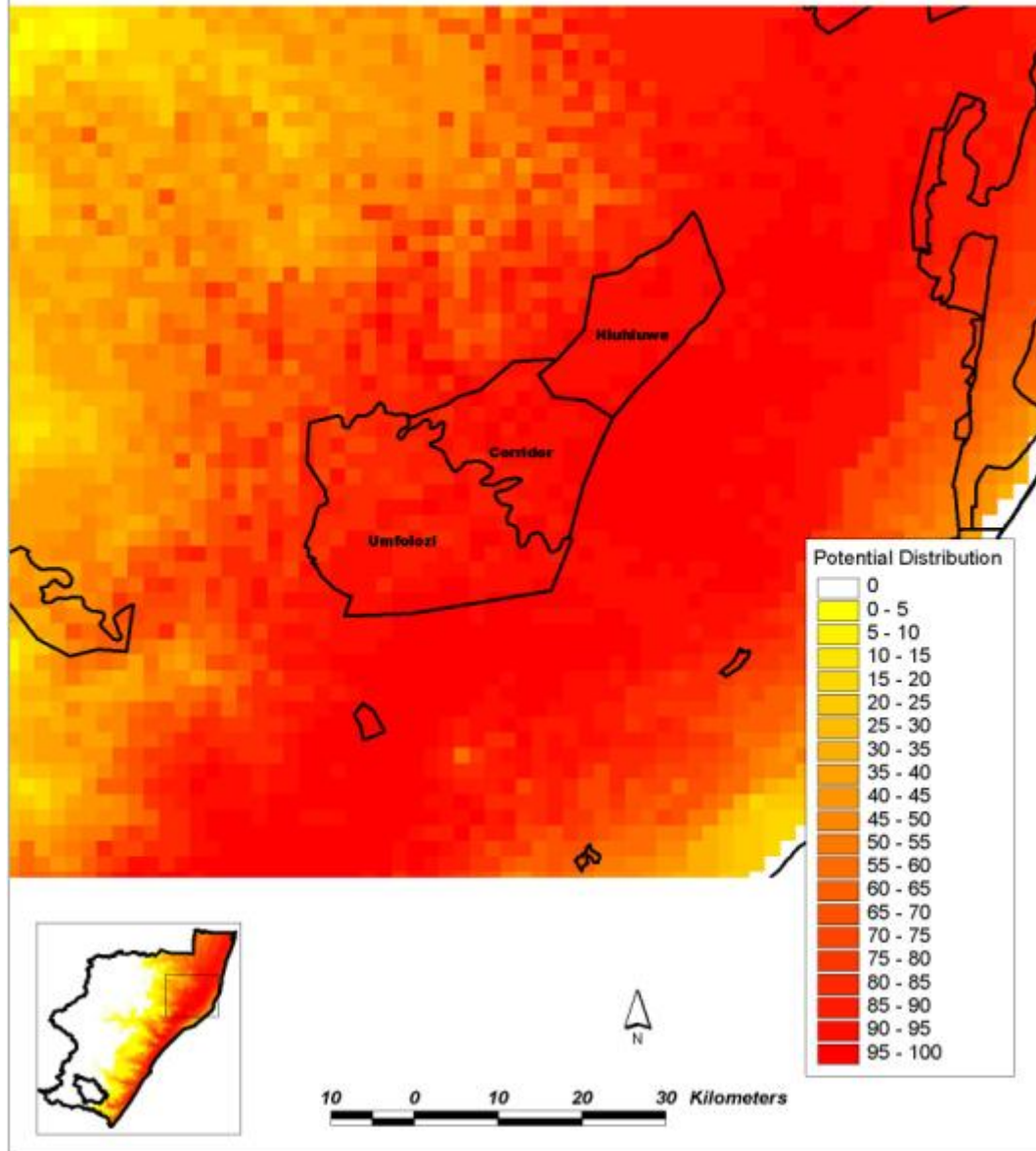
Distribution of *Chromolaena odorata*
in HIP in 2002



However, by 2002 (just four years' later) the level of invasion had changed dramatically. The *Chromolaena* had spread and grown across much of the Park, and the densities had become far greater as well.



Potential Distribution of *Chromolaena odorata* in HIP



Our 2005 assessment of the invasion by *Chromolaena* was that it could engulf Hluhluwe-Imfolozi Park within ten years. If that was allowed to happen, then the impacts would be predictable:

- ▶ Little for animals to eat.
- ▶ No animals, no tourists.
- ▶ No tourists, no jobs.
(Loss of 3,000 jobs.)
- ▶ Loss of R100 million p.a. revenue.
- ▶ Devastating impact on local economy, in an impoverished part of the country.
- ▶ A further financial impact would, however, be felt by the broad support industries that benefit from the tourism in the Hluhluwe-Imfolozi Park – and all of the other Parks that would inevitably face the same fate.

1. Hluhluwe-Imfolozi Park has the largest population of white rhinos (1,600) in the world.
2. *Operation Rhino* saw the rhino population go from 20 in the 1950s to 10,000+ today.
3. Trade in rhino horn is banned. Cites regulates the movement of live specimens.
4. The plight of the white (below) and black rhinos is front-page news.
5. Opposition to the poaching of rhino is - rightfully - widespread and heart-felt.
YET
6. Rhinos do not eat *Chromolaena*. If the Park is invaded, they will have nothing to eat.
7. Unless *Chromolaena* is contained, there will be no rhinos in the Park.
8. Without effective bio-control (natural enemies), it will need control for centuries.
AND
9. This is but one example of what invasive plants, animals and microbes can do.
10. It's also only one aspect – there are impacts on water, fires, erosion, other species, ...

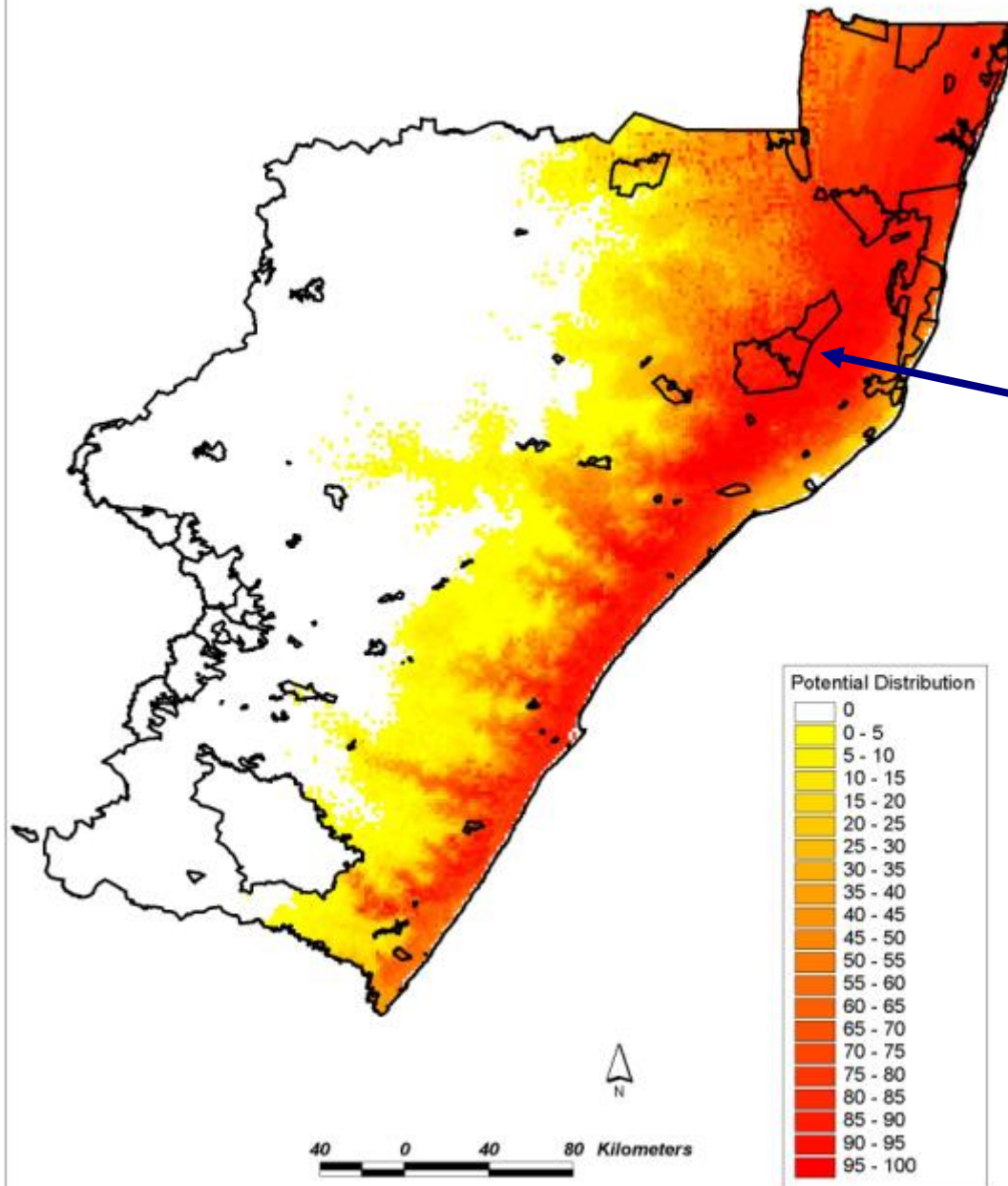


Chromolaena and Crocodiles – Unfortunate Bedfellows

Research by A.J. Leslie and J.P. Spotila, published in *Biological Conservation* 98 (2001) revealed that the shading and root mats of *Chromolaena odorata* was causing a shortage of suitable nesting sites for the Nile crocodile. Moreover, it was also found to alter the sex ratio of males to females. They concluded, "This alien plant is posing a very serious threat to the survival of the Nile crocodile in Greater St. Lucia Wetland Park, and unless immediate action is taken, a female-biased sex ratio will result in eventual extirpation of the species from this recently established World Heritage Site."

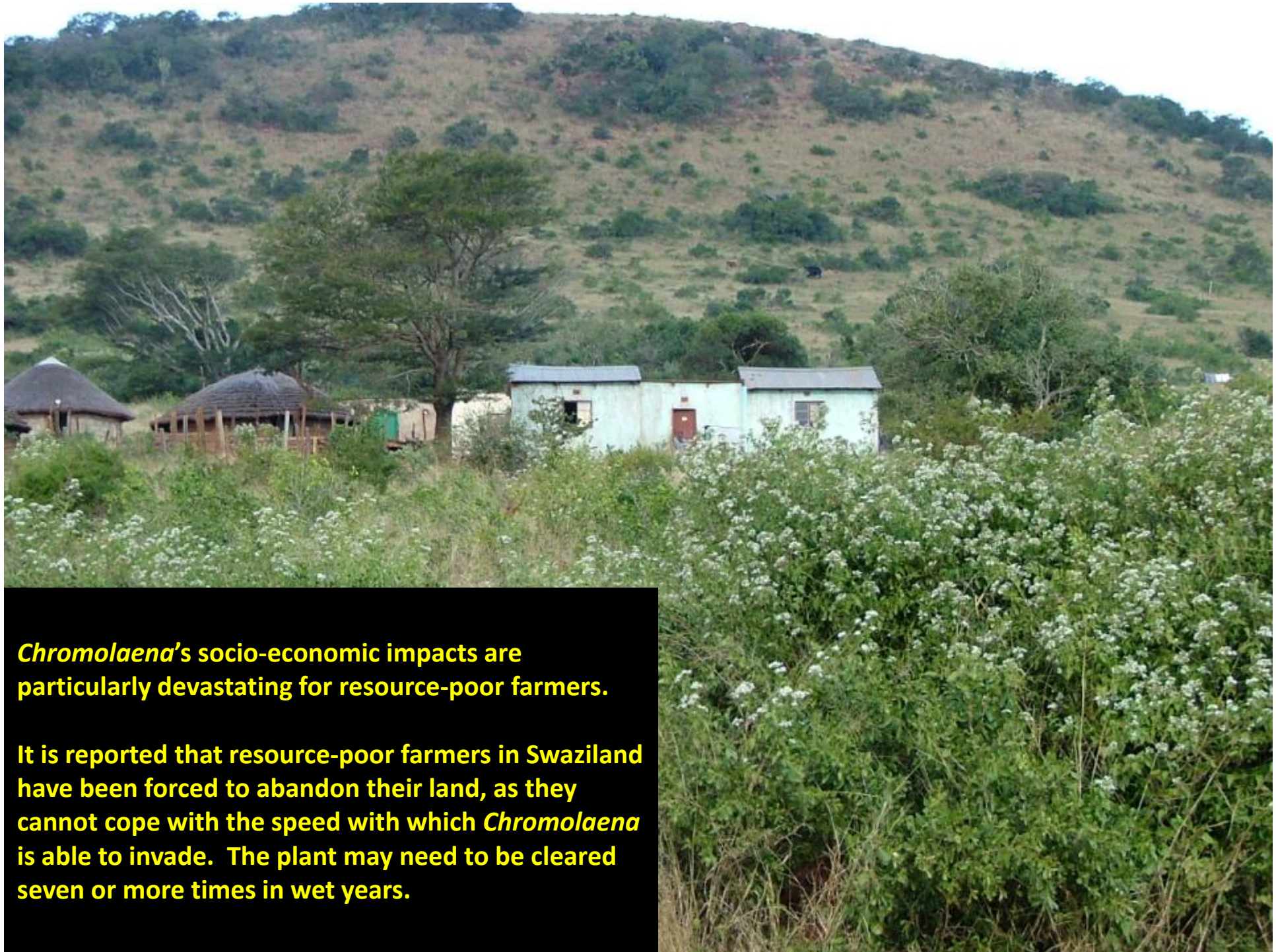


Potential Distribution of *Chromolaena odorata* in KZN and Protected Areas



It's not just the Hluhluwe-Imfolozi Park that is being threatened by *Chromolaena*, but all lower-lying areas of KwaZulu-Natal and adjacent provinces in South Africa, as well as Swaziland and Mozambique. This shows the potential spread of the invasive alien plant in KZN.

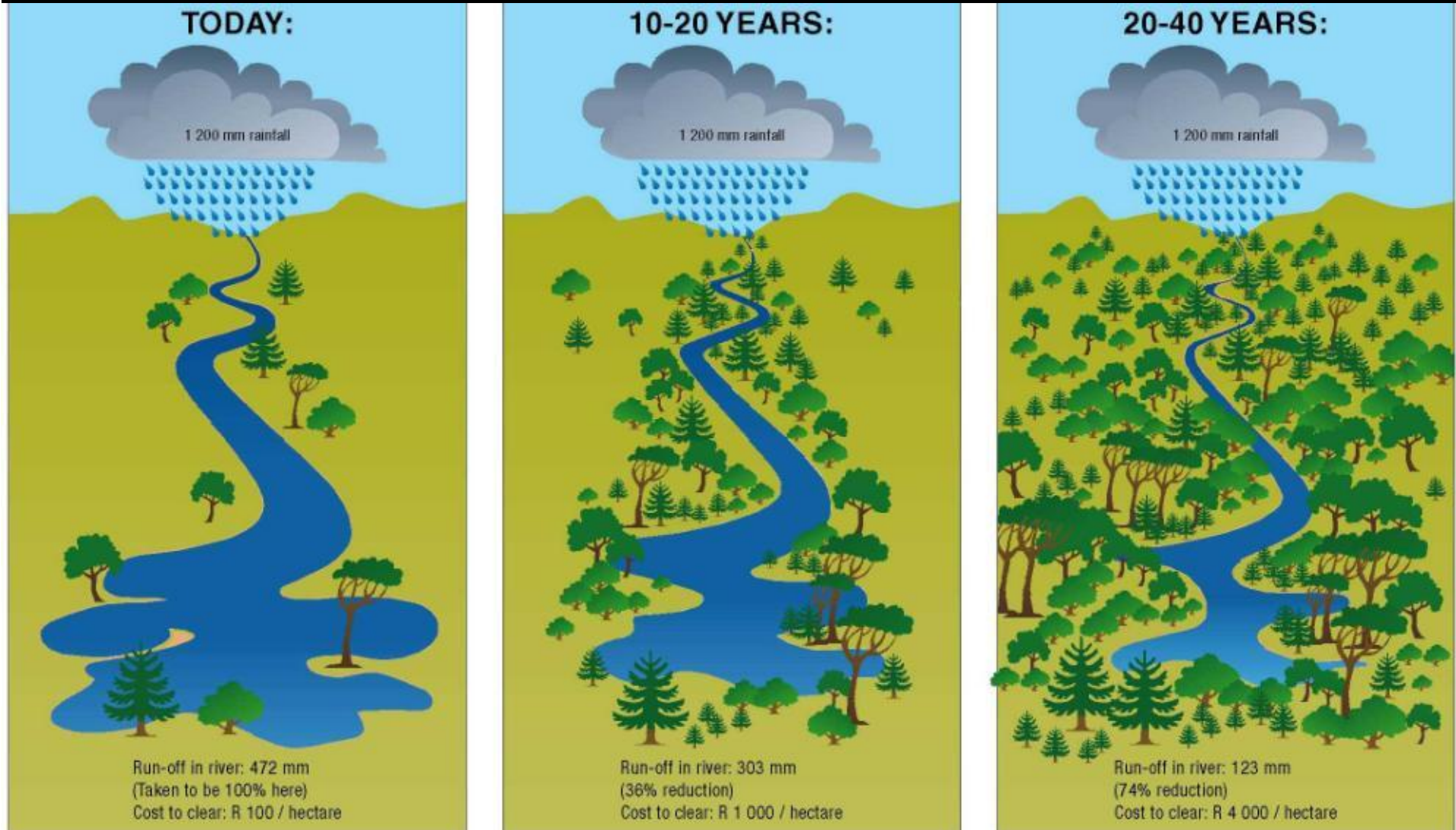




***Chromolaena's* socio-economic impacts are particularly devastating for resource-poor farmers.**

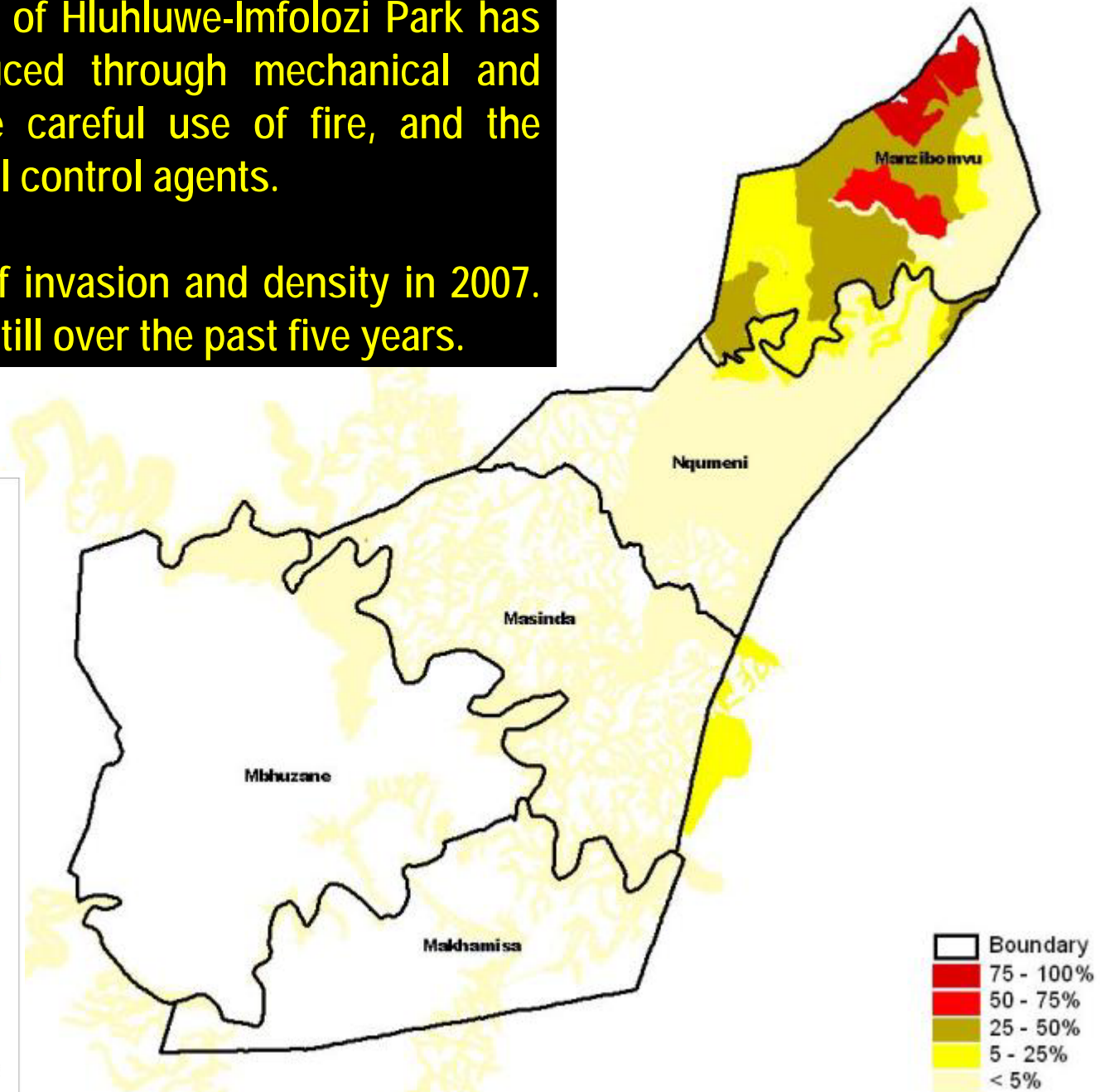
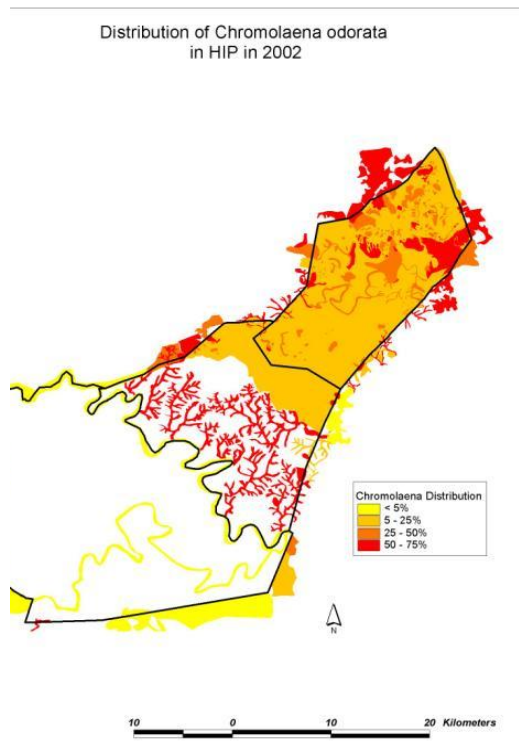
It is reported that resource-poor farmers in Swaziland have been forced to abandon their land, as they cannot cope with the speed with which *Chromolaena* is able to invade. The plant may need to be cleared seven or more times in wet years.

Had there not been the control of invasive alien plants, the impact for South Africa was estimated by Drs Brian van Wilgen and Willem de Lange of the CSIR to be R400 billion for the value of water alone. Recent research is suggesting that *Chromolaena odorata* may have similar negative impacts on water as those of large invasive trees like gums, pines and wattles used by the CSIR. [*Chromolaena* is also known as the "paraffin bush", for the intensity with which it burns.]



Chromolaena's invasion of Hluhluwe-Imfolozi Park has been significantly reduced through mechanical and chemical control, some careful use of fire, and the introduction of biological control agents.

This shows the levels of invasion and density in 2007. It has improved further still over the past five years.



Unless an effective biological control agent is found to combat *Chromolaena odorata*, it will need continuous clearing for centuries – or it will cause billions of Rands of damage (and to other countries), and widespread ecological devastation and loss of livelihoods.

If we do manage to control it, we shall still have to combat the other invasive species that will seek to take advantage of the resultant ecological disturbance, including *Parthenium hysterophorus*, which has many of the negative properties of *Chromolaena*, but also causes respiratory problems in humans.

And many, many other species.

And climate change will exacerbate these problems.

Worth preventing further invasives?