

## Accepted Manuscript

Title: System-level Causal Modelling of Widescale Resource Plundering: Acting on the Rhino Poaching Catastrophe

Author: Hildegard Koen Henk Roodt JP de Villiers

PII: S0016-3287(16)30093-3

DOI: <http://dx.doi.org/doi:10.1016/j.futures.2017.05.006>

Reference: JFTR 2222



To appear in:

Received date: 29-3-2016

Revised date: 4-4-2017

Accepted date: 9-5-2017

Please cite this article as: Hildegard Koen, Henk Roodt, JP de Villiers, System-level Causal Modelling of Widescale Resource Plundering: Acting on the Rhino Poaching Catastrophe, *Futures* (2017), <http://dx.doi.org/10.1016/j.futures.2017.05.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# System-level Causal Modelling of Widescale Resource Plundering: Acting on the Rhino Poaching Catastrophe

Hildegard Koen<sup>\*a,b</sup>, Henk Roodt<sup>c</sup>, JP de Villiers<sup>a,b</sup>

<sup>a</sup>*Defence Peace Safety and Security (DPSS), Council for Scientific and Industrial Research (CSIR), PO Box 395, Pretoria 0001, South Africa, hkoen@csir.co.za, jdvilliers1@csir.co.za*

<sup>b</sup>*Department of Electrical, Electronic and Computer Engineering University of Pretoria, Private Bag X20, Hatfield, 0028, Pretoria, South Africa*

<sup>c</sup>*Centre For Transdisciplinary Research and Innovation, Waikato Institute of Technology, Hamilton, New Zealand, henk.roodt@wintec.ac.nz*

---

## Abstract

The initial goal of this study was to develop a predictive model that could serve as a pre-emptive method for curbing rhino poaching. During the development of the predictive model it became evident that only the tip of the iceberg, so to speak, has been uncovered. The rhino poaching problem is even more complex than was initially thought and this paper serves as a reflective piece on how the research methodology for the complex and poorly understood rhino poaching problem was shifted towards developing a common understanding of major drivers and interactions, to allow for pre-emptive action on a variety of fronts. The global drivers dictating the rhino horn supply chain such as human trafficking and other socio-economic factors cannot easily be captured in a model of causal certainties. This is in spite of the fact that the motivation of the individual poachers may reduce to greed or the need to provide for their families. Although the authors initially thought that it would be possible to model these causalities it became clear that the system is highly reflexive and adaptive. The system has feedback and recursive causal internals that self-regulate by changing in response to the environment. As interventions are introduced, the system will try to respond to mitigate the effects or impact of the change which

---

\*Corresponding author

Download English Version:

<https://daneshyari.com/en/article/5109060>

Download Persian Version:

<https://daneshyari.com/article/5109060>

[Daneshyari.com](https://daneshyari.com)