

## ABSTRACT GUIDELINES

McDowell Sonoran Preserve Research Symposium  
McDowell Sonoran Conservancy  
Scottsdale Community College



Each abstract submitted should follow this format. Please see page 2 for an example abstract.

### **Presentation type**

*Oral or poster presentation. Use bold type.*

### **PRESENTATION TITLE**

*Use bold type and all capital letters.*

### **Author name(s)**

*The main author's name should be in all capital letters.*

### **Author affiliations(s)**

*If there is more than one author, please indicate affiliations in superscript. If your project was affiliated with the McDowell Sonoran Field Institute, please use: McDowell Sonoran Field Institute, McDowell Sonoran Conservancy, 16435 N. Scottsdale Road Suite 110, Scottsdale, AZ 85254.*

### **Abstract body**

*The abstract body should be brief and include: 1) importance of the research 2) overview of methods used 3) management implications.*

Please send your abstracts to: [mspresearch@mcdowellsonoran.org](mailto:mspresearch@mcdowellsonoran.org). Contact Melanie Tluczek at [Melanie@mcdowellsonoran.org](mailto:Melanie@mcdowellsonoran.org) with any questions about format or how to submit an abstract.

Credit for example abstract: Tchuenche, J. M. and C. Chiyaka (editors). 2009. *In Infectious Disease Modelling Research Progress* - pp. 133-150 Nova Science Publishers, Inc.

## EXAMPLE ABSTRACT

### Oral Presentation

#### WHEN ZOMBIES ATTACK!: MATHEMATICAL MODELLING OF AN OUTBREAK OF ZOMBIE INFECTION

PHILIP MUNZ<sup>1</sup>, Ioan Hudea<sup>1</sup>, Joe Imad<sup>2</sup>, Robert J. Smith<sup>3</sup>

<sup>1</sup>School of Mathematics and Statistics, Carleton University, 1125 Colonel By Drive, Ottawa, ON K1S 5B6, Canada

<sup>2</sup>Department of Mathematics, The University of Ottawa, 585 King Edward Ave, Ottawa ON K1N 6N5, Canada

<sup>3</sup>Department of Mathematics and Faculty of Medicine, The University of Ottawa, 585 King Edward Ave, Ottawa ON K1N 6N5, Canada

Zombies are a popular figure in pop culture/entertainment and they are usually portrayed as being brought about through an outbreak or epidemic. Consequently, we model a zombie attack, using biological assumptions based on popular zombie movies. We introduce a basic model for zombie infection, determine equilibria and their stability, and illustrate the outcome with numerical solutions. We then refine the model to introduce a latent period of zombification, whereby humans are infected, but not infectious, before becoming undead. We then modify the model to include the effects of possible quarantine or a cure. Finally, we examine the impact of regular, impulsive reductions in the number of zombies and derive conditions under which eradication can occur. We show that only quick, aggressive attacks can stave off the doomsday scenario: the collapse of society as zombies overtake us all.