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A sample article title

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Abstract

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bmcbluewhite**Keywords:** sample; article; author

Content

Text and results for this section, as per the individual journal's instructions for authors.

Section title

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Sub-heading for section

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Sub-sub-sub heading for section Text for this sub-sub-sub-heading ... In this section we examine the growth rate of the mean of Z_0, Z_1 and Z_2. In addition, we examine a common modeling assumption and note the importance of considering the tails of the extinction time T_x in studies of escape dynamics. We will first consider the expected resistant population at vT_x for some $v > 0$, (and temporarily assume $\alpha = 0$)

$$E\big[Z_1(vT_x)\big] = E\bigg[\mu T_x \int_0^{v\wedge 1} Z_0(uT_x)\exp\big(\lambda_1 T_x(v-u)\big)\,du\bigg].$$

If we assume that sensitive cells follow a deterministic decay $Z_0(t) = xe^{\lambda_0 t}$ and approximate their extinction time as $T_x \approx -\frac{1}{\lambda_0}\log x$, then we can heuristically estimate the expected value as

$$\begin{aligned} E\big[Z_1(vT_x)\big] &= \frac{\mu}{r}\log x \int_0^{v\wedge 1} x^{1-u}x^{(\lambda_1/r)(v-u)}\,du \\ &= \frac{\mu}{r}x^{1-\lambda_1/\lambda_0 v}\log x \int_0^{v\wedge 1} x^{-u(1+\lambda_1/r)}\,du \\ &= \frac{\mu}{\lambda_1-\lambda_0}x^{1+\lambda_1/rv}\bigg(1-\exp\bigg[-(v\wedge 1)\bigg(1+\frac{\lambda_1}{r}\bigg)\log x\bigg]\bigg). \quad (1) \end{aligned}$$

Thus we observe that this expected value is finite for all $v > 0$ (also see [**?**, **?**, **?**, **?**, **?**]).

Competing interests
The authors declare that they have no competing interests.

Author's contributions
Text for this section ...

Figures

Figure 1 Sample figure title. A short description of the figure content should go here.

Figure 2 Sample figure title. Figure legend text.

Tables

Table 1 Sample table title. This is where the description of the table should go.

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A1	0.1	0.2	0.3
A2	...	..	.
A3	..	.	.

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Additional file descriptions text (including details of how to view the file, if it is in a non-standard format or the file extension). This might refer to a multi-page table or a figure.

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Additional file descriptions text.