

Re: A simple model exhibiting Haldane's limit

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"Perplexed in Peoria" <jimmenegay@xxxxxxxxxxxxxx> wrote in [news:e939uh\\$2men\\$1@xxxxxxxxxxxxxx](mailto:news:e939uh$2men$1@xxxxxxxxxxxxxx):

I will also observe that reducing generation time does not directly increase fitness (and would definitely not do so for a species with a fixed number of offspring, like my slime mold cell. In fact, shortening the generation time is a mistake in a situation in which adaptation is not keeping up with a deterioration in the environment and populations are decreasing. Even for my slime mold, decreasing the generation time is a good idea only for those cells that are already so fit that they almost never die while growing to reproductive size.

Well, in that case would decreasing the generation time help when the population is rapidly increasing? The situation I am thinking of is after an extinction event. The remaining organisms might in this case be engaged in a Haldane limit rate race. It has been observed that the species in a family that survive an extinction event tend to be those with the smallest individuals. I have attributed this to a tendency for species with small individuals to have larger populations, and so be more likely to survive the crash phase of an extinction event. But perhaps it is in fact due to species with small individuals being more easily able to reduce their generation time, and thus being able to outcompete species with large individuals in a Haldane limit rate race to invade new niches during the rebound phase following an extinction event.

Yours,

Bill Morse

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