

How to Kill a Million Species (with apologies to Edwin Brock)

First you'll need persistence. You'll have to wait a very long time, more than eight billion years from the Big Bang. That's because your best chance of exterminating a million species is to start many more than a million. For that you're going to need a galaxy. Well, there's no shortage of those, but you'll want one with a well-behaved middleweight star situated in a relatively uneventful region of that galaxy. There are plenty of those as well, but yours will need a good sprinkling of cosmic detritus, such as carbon, oxygen, nitrogen, silicon and iron, to be spilled out into rocky planets while it forms. That requires waiting till a steady supply of supernovae have blasted such stuff into space before your star gets born. Not forgetting a sprinkling of radioactive elements, because your planet will need a nice hot core that doesn't cool down too fast. Hence the long wait.

And the wait doesn't end there. You're going to have to find a planet that keeps liquid water on its surface for several billion years, give or take a couple of snowball eras when the water has to lurk under a planet-wide ice sheet. That means your planet will need lots of methane and carbon dioxide in the atmosphere at first, while its young sun is working towards full brightness, plus a way of extracting the methane after about a billion years and then drawing down most of the carbon dioxide fairly smoothly starting after about another billion years, as that sun heats up.

By that time simple life should have got started. The odds against that aren't extreme. But you'll still need to check an awful lot of worlds or have an awful lot of luck to find a planet where multicellular life-forms arise, and an awful lot of patience, because even then it will take nearly four billion years, during which time your planet could cope with a few serious asteroid impacts, but not a massive planetary collision.

Even if your planet gets that far unscathed, there is no guarantee that a conscious life-form will arise that knows how to control fire, construct wheels, invent writing, make weapons and of course come up with the idea of limited-liability corporations. To find a planet with such creatures you'll need another extraordinary slice of luck, or an incredibly arduous search effort. But if you do chance on such a freakish planet, your wait will be almost over. The only other thing you'll need then is lots of those conscious creatures, billions of them -- people like us, in other words, who think that an adversarial party system is an admirable form of government, and who take it for granted that corporations have the right to own other corporations and, above all, the duty to pursue profit ahead of everything else. Then at last, in a matter of mere decades, you'll be able to achieve the extermination of at least a million living species. Including us.

[Richard Forsyth, June 2019.]