**Has the Earth’s sixth mass extinction already arrived?**

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The authors of this article were attempting to quantify some aspects of the proposed sixth mass extinction. They described the magnitude and rates of the Big Five mass extinctions represented in the fossil record and how these relate to the current predicament. They noted that although the fossil record is incomplete and therefore may not encompass the full magnitude of an extinction, our current knowledge of species on earth is also incomplete and even fewer of those species have been evaluated for their risk of extinction. Their results show that, for mammals, birds, and amphibians, the extinction rates of the last 500 years are faster than those that would have produced the Big Five extinctions over hundreds of thousands to millions of years. They tested several different scenarios and found that if all of the threatened species in these groups went extinct over the next century then an extinction on par with the Big Five would occur in 240-540 years, but if those same species all went extinct in 500 years it would take about 1200-2,690 years to reach that level. This is assuming all of the threatened species went extinct which is not necessarily going to be the case. Other important factors in considering extinction are ecological stressors. In rare cases, mass extinctions are primarily the result of a single catastrophic event, but there are more often accompanying factors that exacerbate the situation. Within the last few million years glacial-interglacial cycles have caused turnover in ecosystems, and this stress coupled with many other ecological stressors introduced by humans are affecting modern ecosystems in harmful ways.

I like that this article attempted to quantify the rates of extinction and used the fossil record as an indicator of what is a mass extinction. I found it interesting to compare the incompleteness of the fossil record with incomplete sampling of species today and realized that maybe the incompleteness of the fossil record is not such an important variable in this study. I liked to see that they calculated the current rates of extinction in well-known species and compared those to the estimates of extinction during the Big Five. It seems difficult to think of something that I like about this article when the implications of it are so dire.

I did not really like that they used hypothetical scenarios that seemed quite catastrophic like all of the threatened species going extinct within 100 years. This seems very unrealistic to me. I feel like the estimates from this calculation are just to give a shock factor to this article, and that might be the reason it got into Nature. The more conserved estimates seem far more reliable, but honestly, no less alarming. It also felt like there was far more that could be covered, but due to the nature of Nature articles, it was kept fairly short. I also feel like this was a lot to take in for the end of the semester, but it was worth the read.

I did not look very closely at the figures and tables while reading through this article. Upon closer examination of the two tables, I found a concise description of the Big Five in Table 1, and a great summary of their methods in Table 2. Figure 1 was a bit of a different story. I have never seen a caption like that in any paper. It feels like they were trying to show way too much data in this particular graph. Figure 2 is like a visual representation of their hypothetical scenarios. The white icons show what has actually happened, and the black icons show what may happen if nothing changes. This shows there is more potential for extinction than actual extinction occurring, at least in these somewhat well documented taxa. Figure 3 is a better representation of these hypothetical scenarios. This feels more like a “what if” paper than a paper showing any very hard evidence that the extinction rates will reach Big Five levels in the next few millennia, but it does bring up some great points that there is an alarming percentage of species at risk for extinction, and their risk is only increased by factors like pollution, rapid climate change, and fragmenting habitats.