## EMP Answers

#### No real threat of EMPs, and the impact would be containable

**Weinberger 2-17-11** [Sharon, Foreign Policy writer, “The Boogeyman Bomb” <http://www.foreignpolicy.com/articles/2010/02/17/the_boogeyman_bomb?page=0,0>]

**If the primary threat is from a crudely constructed EMP weapon launched from a Scud-type missile, that sort of weapon wouldn't have nearly the capabilities needed to take out U.S. infrastructure**, he argues. Butt estimates that such a device, with a one-kiloton yield, would have to be launched much lower in the atmosphere, and thus would have more localized effects. **"Serious long-lasting consequences of a one-kiloton EMP strike would likely be limited to a state-sized region of the country**," he writes. True, an EMP that affected even a single state would be, no doubt, traumatic and disruptive, but **it would** also **be recoverable, and more importantly, fall far short of a "continental-scale time machine." In the end, advocates for EMP preparation could end up being their own worst enemy. The unlikely scenarios they peddle lend themselves to caricature**. And though there are certainly some intellectual heavyweights among those who have warned about the effects of EMP -- like Johnny Foster, the former head of Lawrence Livermore National Laboratory -- **critics have derided EMP defense supporters for relying on the likes of science fiction writer William R. Forstchen to help bolster their case. By talking about "time machines" and turning the EMP bomb into something that goes bump in the night, those advocating for better defenses risk pushing the issue further into the margins of science fiction**.

#### No EMP threat- not even the most well-equipped rogues can make them

**Butt 2-1-11** [Yousef, writer for The Space Review, “The EMP threat: fact, fiction, and response (part 2)” <http://www.thespacereview.com/article/1553/1>]

**What appears to be of particular concern to the EMP commission is the scepter of terrorist groups or so-called “rogue” nations carrying out such an attack**. As outlined by Dr. Pry, one of the commissioners, before a 2005 Senate Subcommittee on Terrorism, Technology and Homeland Security, “[a] nuclear missile concealed in the hold of a freighter would give Iran, or terrorists, the capability to perform an EMP attack against the United States homeland, without developing an ICBM, and with some prospect of remaining anonymous. Iran’s Shahab-3 medium-range missile… is a mobile missile, and small enough to be transported in the hold of a freighter.” **However, as mentioned above, such missiles have a payload capacity of approximately 1,000 kilograms** corresponding to a crude U-based warhead of ~1 kiloton yield [22]—if, and when, the Iranians eventually develop nuclear weapons. **Even the North Koreans, who are much further along in their weapons program, have had great difficulty reaching even a ~5 kiloton yield** from their Pu-based devices in carefully orchestrated ground-tests, and their 2009 test was likely a fizzle. Thus, **it is not at all a simple matter, even for countries with considerable resources and focused decades-long effort, to build such weapons, let alone pair them to reliable delivery systems**. As carefully argued by John Mueller in his new book, Atomic Obsession, it is virtually impossible for a terrorist cell to obtain the raw materials needed for a nuclear device and assemble it correctly themselves [Ref 22, p. 172–198]. **Even a “crude” U-type device is not all that “crude” and requires the concerted effort of skilled scientists and engineers. Any weapon produced by a terrorist cell would likely be a one of a kind and would have to remain untested. For a terrorist group to then mate this weapon to a ballistic missile and successfully carry out an EMP strike beggars belief**. As John Pike, director of GlobalSecurity.org has said, **“It is just very difficult to imagine how terrorists are going to be able to lay hands on a nuclear-tipped missile, and launch it and reprogram it in such a way that it would be a high-altitude burst like that.”**

#### And, any EMP attack won’t be big enough to matter

**Butt 2-1-11** [Yousef, writer for The Space Review, “The EMP threat: fact, fiction, and response (part 2)” <http://www.thespacereview.com/article/1553/1>]

**If a terrorist cell miraculously built such a weapon, they are likely to explode their “crown jewel” in a simple spectacular ground-burst that will destroy a large part of a city, and not risk the complications**—and likely failure—**of a lofted EMP strike that will**, if all goes according to their plan, **cause casualties** via unpredictable secondary effects upon a limited part of some of the nation’s infrastructure. **The risk versus reward calculation for both terrorists cells and so-called “rogue” states would almost certainly force their hand to a spectacular and direct ground burst in preference to a unreliable and uncertain EMP strike. A weapon of mass destruction is preferable to a weapon of mass disruption.**

#### No one will launch an EMP- it’s too risky

**Butt 2-1-11** [Yousef, writer for The Space Review, “The EMP threat: fact, fiction, and response (part 2)” <http://www.thespacereview.com/article/1553/1>]

**A state would be highly unlikely to launch an EMP strike from their own territory because the rocket could be traced** to the country of origin and would probably result in nuclear or massive conventional retaliation by the US. The EMP commission also considers adversarial nations carrying out a shipborne EMP attack that would be less traceable. However, even so, **there would some small risk of trace-back that would give the leadership in such nations pause**. **While nuclear forensics are not well enough developed to assuredly ascribe the origin** of a nuclear explosion, **even their current state of development would, in some measure, dissuade the leaders of a nation from seriously contemplating such an attack**. Furthermore, **the US certainly has data, via its DSP satellites**, on the infrared (IR) signatures of the rocket exhausts from the missiles of various countries. Though these signatures are probably virtually identical for the Scud/Shahab/No-dong family of missiles, the nations which may entertain such attacks do not necessarily know whether, e.g., the DSP data can discriminate between a NK Nodong versus an Iranian Shahabs, perhaps due to differences in fuel and/or subtle design idiosyncrasies. **This is data only the US has, and it has an inherent deterrent value to nations thinking about launching an EMP strike** via a ship-launched ballistic missile. This is almost certainly the case if, say, Iran were to use its solid rocket motor technology to launch such a strike—if and when Iran obtains nuclear weapons, of course. In such a case, the burn time-profile and solid-motor IR signatures could probably be used to tie the missile to a nation. Furthermore, **the leaders of a nation contemplating such an attack would have to carefully consider what would happen in case the warhead was not delivered properly. If it fell short and/or did not explode, it may be possible for US engineers and scientists to ascribe a national origin given the forensic material. For the leadership of any nation to chance such an attack they must be almost suicidally optimistic**: they would have to presume that everything would go perfectly. Even so, **it may still be possible to identify the country of origin, which would invite massive US retribution.**

#### And, no major nation will launch EMPs- there’s too much to lose

**Butt 2-1-11** [Yousef, writer for The Space Review, “The EMP threat: fact, fiction, and response (part 2)” <http://www.thespacereview.com/article/1553/1>]

**Though they possess the technological know-how to fabricate a powerful EMP device, the possibility of China or Russia carrying out such an attack is virtually nil. Not only for the regular military deterrent reasons but also, post-Cold War, our economies are intimately linked, which amounts to an inherent economic deterrent**. The latter is likely the more relevant deterrent [Ref. 22, p. 65]. **We owe China tremendous sums of money, they need us as a market, and both the US and China require Russian oil via intertwined world markets**. Although the EMP commissioners have offered a Chinese-language PowerPoint presentation outlining the effects of EMP devices as evidence that China has an interest in such weapons, this presentation is actually of Taiwanese origin [“Electromagnetic Pulse Attack and Defense”, by Dr. Chien Chung], and it is not pertinent to any official Chinese military doctrine.

## Development Answers

#### The environment is resilient:

Bruce **Tonn**, 11/1/20**07** (<http://www.accessmylibrary.com/coms2/summary_0286-33265107_ITM>)

Theoretically, pursuing this goal could also be counter-productive in the long run. Presumably, through the process of evolution, collections of species evolve to create even more resilient ecosystems. Preventing evolution through maintenance of the status quo, then, would restrict earth-life's ability to adapt to new conditions and situations. Given that it is certain that conditions on earth will change--for instance, we know that the continents will continue to drift and alter ocean currents, which, in turn, could lead to devastating global climate change--preventing the evolution in the composition of the totality of earth-life could actually lower the probability that earth-life will be able to survive into the distant future under normal circumstances. Thus, futures sustainability requires the maintenance of functioning bioregions, not the biological status quo.

#### Environmental collapse is empirically denied and there are tons of alternate causes

**Bruno ‘10** [John F., associate professor UNC Chapel Hill, May 3, “[Biodiversity Loss Continues Unabated Despite International Efforts](http://www.huffingtonpost.com/john-f-bruno/biodiversity-loss-continu_b_561699.html)”, <http://www.huffingtonpost.com/john-f-bruno/biodiversity-loss-continu_b_561699.html>]

Betting on biodiversity loss is a pretty sure thing. The earth's plant and animal species are disappearing at a sobering rate due to pressures including habitat loss, climate change, pollution and over-harvesting. Despite a few success stories and steps in the right direction, we are falling far short of stemming these losses. [Biodiversity](http://www.unep.org/iyb/about_iyb.asp#biodiv) is the entire range of biological variety in the world, including the diversity of genotypes, species and ecosystems. It can be measured on levels from DNA molecules all the way up to broad taxonomic categories such as families and phyla. Monitoring the fate of any of these aspects of biodiversity at a global scale is a daunting task. Thus, we know little about the rates and patterns of biodiversity loss or the effectiveness of global mitigation plans such as the [2002 Convention on Biological Diversity.](http://www.iucn.org/iyb/iucn/convention_on_biological_diversity/)   [Dr. Stuart Butchart](http://www.unep-wcmc.org/latenews/PressRelease.htm) of the [UNEP World Conservation Monitoring Centre](http://www.unep-wcmc.org/) and [BirdLife International](http://www.birdlife.org/) tackled the problem by assembling an international team of conservation scientists (that I was part of) to calculate trends in global biodiversity. The idea was to assemble several dozen indices that we had sound, long term data for including population trends for birds and other vertebrates and the loss of habitats such as forests, seagrass beds and coral reefs. As we recently reported in *Science* magazine, our analysis indicates that **biodiversity has continued to decline over the past four decades** with no detectable abatement for most indices. This is largely due to increased pressures resulting from human population growth, economic development and globalization but it also seems clear that our international response to the biodiversity crisis has been inadequate. Every aspect of biodiversity on earth is unique. The species that we have already driven extinct, from the [Dodo](http://en.wikipedia.org/wiki/Dodo) to the [Tasmanian Tiger](http://en.wikipedia.org/wiki/Thylacine), can never be resurrected or replaced. As a field ecologist, I have been lucky to experience and work on some truly wondrous examples of the earth's biodiversity from the tide pools of the Pacific Northwest to rainforests in Costa Rica to alpine habitats in the Rocky Mountains. The downside of my otherwise fantastic job is that I witness the degradation of nature firsthand. The coral reefs of the Florida Keys of today bear little resemblance to the underwater jungles patrolled by large sharks that I snorkeled over as a kid 35 years ago. Over the last two decades I have observed and documented striking biodiversity losses even on isolated and seemingly untouched reefs.

#### Best studies prove there are tons of alternate causes to environmental collapse

**Green, 10** [Cool, Mother Nature Network, April, “New study: Biodiversity continues to decline worldwide”, http://www.mnn.com/earth-matters/wilderness-resources/stories/new-study-biodiversity-continues-to-decline-worldwide]

Species continue to be lost at steady rates across nearly every habitat type on Earth — this despite an international commitment eight years ago to significantly reduce the rate of such losses by 2010, according to a new study coauthored by a Nature Conservancy scientist. The study, [published today in Science magazine](http://www.sciencemag.org/cgi/content/abstract/science.1187512), is the first to comprehensively measure progress toward achieving the goals of the [Convention on Biological Diversity](http://www.cbd.int/) (CBD), a treaty that pledged to significantly reduce 2002 rates of biodiversity loss by this year toward the end of alleviating global poverty. The study’s authors found that virtually all of the indicators of the state of biodiversity — everything from species’ population trends to extinction risk to habitat conditions — have declined since 2002. Alarmingly, these declines have continued despite increases in policies and funds to promote biodiversity, write the authors. The drivers for these declines include invasive alien species, the impacts of climate change and aggregate human consumption of Earth’s ecological assets. To go deeper into the numbers, Cool Green Science talked with two of the study’s authors — Dr. Stuart H. M. Butchart of the United Nations Environment Programme and BirdLife International, and Dr. Carmen Revenga, a senior scientist with [The Nature Conservancy’s Global Marine Team](http://www.nature.org/initiatives/marine/), who contributed the indicator on river fragmentation: Cool Green Science: We’ve been hearing for a while that biodiversity worldwide is in decline. What’s new in this study? Butchart: Although the findings are no surprise to those of us who work in the field, I often find that the general public are surprised to discover this. Decision-makers and politicians are also insufficiently aware of the issue, I suspect. What is new here is that governments in 2002 made a specific commitment to address the issue and meet a milestone by 2010. We have shown for the first time that they failed. Further, we found that the gap between the intensifying pressures and the responses put in place is widening. Among the declines in biodiversity indicators cited in the study, which are the most dramatic and indicative? Or is the totality of the declines that should catch our attention? Butchart: There are dramatic declines in animal populations (which have declined by one-third since 1970) and coral reef condition (by 40 percent since 1980), but it is the consistency of the results that is most alarming. Humanity is destroying nature in all corners of the planet. Carmen Revenga: For me, the aggregated indices of species and population trends give a clear signal that we have not made progress reducing the rate of biodiversity loss. And it’s very worrisome that pressures on resources are increasing at the same time — these trends should really raise people’s eyebrows, because the conservation community has spent a lot of energy and resources trying to reverse these trends and calling attention to them. How much do these rates of loss have to get before we take them seriously? Can we afford those rates of loss getting higher, especially given the uncertainties of climate change impacts and the capacity for ecosystems to recover or adapt? Some of the indicators are for Europe alone. Can we extrapolate from these indicators to a global portrait of, say, bird population responses to climate change? Butchart: There is one indicator which is based only on European bird populations (climate impacts) and another based only on North American and European data (the Wild Bird Index), but the others are global in coverage. While there are no other groups or regions yet in which it is possible to show an indicator testing the impacts of climate change on the population trends of a whole suite of organisms, there is plenty of other evidence that climate change is having severe impacts on organisms across the planet.