

# Credo for the Third Millennium

Michael C. McGoodwin, April and June 2015

This is a short personal statement of beliefs regarding how we humans must prioritize our goals and modify our behaviors, based on current scientific understanding of the adverse impacts we are having on our Earth's fragile and precious ecosystems. My concern is with our biosphere, which I take to be all zones that can harbor life—terrestrial, aquatic, and atmospheric—along with the diverse life forms that inhabit these regions. Although I speak of ethics and morality, the contributions of science cannot be ignored and are integral to this credo. This brief document does not attempt to explain *why* loss of species should matter, nor *how* we will implement the needed changes politically.

## Previous Mass Extinctions in Earth History

We have found compelling evidence in the geologic fossil record<sup>1</sup> of multiple previous mass extinctions, of which the “Big Five” have had the greatest impact, rising well above the background continuum levels of ongoing extinctions. Postulated causes of these have included: large impactors such as asteroids or comets; intense volcanic activity with toxic emissions (H<sub>2</sub>S, SO<sub>x</sub>, etc.); Climate Change causing massive Glaciations and Sea level falls; Geomagnetic Reversals; Supernovas; Gamma Ray Bursts, etc. The timing of these events follows, along with a summary of the estimated losses of families, genera, and species which occurred:<sup>2</sup>

- The Ordovician-Silurian (End-Ordovician) extinction occurred about 439 million years ago, causing loss of 25% of marine families, 60% of marine genera<sup>3</sup>, and 85% of marine species.<sup>4</sup>
- The Late Devonian mass extinction occurred around 364 million years ago, killed 22% of marine families and 57% of marine genera, and 70% of all species.<sup>5</sup>
- The Permian-Triassic (End-Permian) extinction happened about 251 million years ago causing loss of 53% of marine families, 84% of marine genera, up to 96% of all species, including an estimated 70% loss of land species such as plants, insects and vertebrate animals.<sup>6</sup>
- The End-Triassic mass extinction, roughly 199 million to 214 million years ago, caused loss of 22% of marine families, 52% of marine genera, and up to 75% of all species.<sup>7</sup>
- The Cretaceous-Paleogene K-Pg [Cretaceous-Tertiary K-T] mass extinction occurred about 66 million years ago, with loss of 16% of marine families, 50% of marine genera, 75% of total species, and 18% of land vertebrate families, including the dinosaurs.<sup>8</sup>

Humans were not around for any of these, and they were not human-caused, but our current human-caused mass extinction must be viewed in light of this history.

## The Anthropogenic Sixth Mass Extinction

Anthropogenic means human-caused. We live now in the Holocene Epoch (the last 11,700 years). During this epoch, humans became dominant and transformed the biosphere, and it has been suggested that this epoch might instead be termed the Anthropocene.

The background extinction rate formerly seen with mammals was estimated at 0.25 species per million species per year, thus about 1 mammal extinction in every 700 years.<sup>9</sup> Yet, “The IUCN [International Union for Conservation of Nature and Natural Resources] estimates that almost 50 percent of the world's primate species are at risk of extinction. Overall, the IUCN estimates that half the globe's 5,491 known mammals [i.e., mammalian species] are declining in population and a fifth are clearly at risk of disappearing forever with no less than 1,131 mammals across the globe classified as endangered, threatened, or vulnerable.... Scientists estimate that a third or more of all the roughly 6,300 known species of amphibians are at risk of extinction.... Of the more than 300,000 known species of plants, the IUCN has evaluated only 12,914 species, finding that about 68 percent of evaluated plant species are threatened with extinction.”<sup>10</sup>

Notable extinctions in prehistorical Holocene times (which were almost certainly human-caused) have included: mammoths, mastodons, giant ground sloth (Megatherium), Glyptodonts, and certain lemurs.<sup>11</sup>

Recent anthropogenic extinctions (occurring since 1500 CE)<sup>12</sup> have included: the dodo, passenger pigeon, moas, great auk, Carolina parakeet, Labrador duck, Steller's sea cow, Caribbean monk seal, Baiji (Yangtze River dolphin), Tasmanian tiger, auroch, Atlas bear, and bluebuck. Amphibians are now the most threatened class of animals, with a current extinction rate as much as 45,000 times the background rate.<sup>13</sup>

Although most of us are relatively unaware currently of its personal impact, this extinction will eventually impact all humans. Certainly it will have a serious effect on our quality of life, our food supply, and the world economy. It may ultimately threaten the very survival of the human race.

## **Causes of the Anthropogenic Sixth Mass Extinction**

There are many adverse factors which have contributed or are contributing to the anthropogenic mass extinction. Most of these are painfully familiar (and efforts are underway to improve them), some have only recently been worked out, some are based on future projections, others are probably not yet understood. These include (in no special order, and with intentional overlap):

- Human overpopulation with excessive demand on natural resources (and per capita demand generally rises with the degree of technological development)
- Habitat destruction and fragmentation; Disruption of ecological networks and minimum ranges for viability; Deforestation; river diversion and damming; Other environmental transformations that reduce the flourishing of diverse life.
- Pollution of land, water, and air, including with pesticides, herbicides, fertilizer runoff (causing eutrophication of water bodies with oxygen depletion), CO<sub>2</sub>, methane, oxides of sulfur and nitrogen, acid rain, mercury and other heavy metals, photochemical smog, blocking sediments (on coral), etc.
- Global warming by release of anthropogenic greenhouse gases.<sup>14</sup> Adverse consequences include:  
Ocean acidification (destroying corals and shellfish); Desynchronization affecting co-adapted species, migrations and other seasonal behaviors; Heat stress and intolerance; Drought, storms, and lowland flooding; Ice habitat loss (polar bears), Enhanced disease spread; Diminished crop yields; Positive feedbacks due to release of natural reservoirs of methane and CO<sub>2</sub>; etc.
- Depletion of non-renewable resources (including fossil water and soils), for instance from logging, mining, and farming.
- Over-harvesting of economically valued or edible species by hunting, fishing and gathering, disrupting food chains. (This includes prehistoric overkill of many megafauna.)
- Wanton slaughter of fauna (such as many of the recent extinctions like the passenger pigeon and great auk) and of flora (generally less well documented)
- Accidental or intentional dissemination of invasive and alien species causing: Excess predation (such as the Burmese python in South Florida, the brown tree snake in Guam, and the mongoose in Hawaii); Excess competition (purple loosestrife in Washington, kudzu in SE US); and Disease spread (such as the amphibian chytrid fungus Bd in frogs and the Geomyces fungus in bats).
- Ignorance, indifference, greed, and negligence; Beliefs in the primacy and dominion of humans; Lack of prioritization; and certainly Warfare and sectarian strife.

## **Traditional Religious and Secular Moral or Ethical Tenets**

Though no expert, I appreciate and honor the moral and ethical precepts that our traditional ancient religions have handed down to us. I am most familiar with Christianity and its roots in Judaism, but acknowledge that great wisdom is surely also to be found in Buddhism, Islam and other great world religions.<sup>15</sup> These religions have helped to guide human behavior during the past 2,000 to 3,000 years, by giving us such time-honored precepts as the Ten Commandments and above all the Golden Rule.<sup>16</sup>

But our ancient religions (at least the dominant Abrahamic ones) do not appear to have prepared us very well for our evolving role in the Third Millennium. We are told in Genesis of our dominion over wild animals: "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish in

the sea and the birds in the sky and over every living creature that moves on the ground.”<sup>17</sup> This is a profoundly influential tenet. However, a quick search finds only scattered voices on the Web advocating the view that our Biblical role includes environmental stewardship with reduction of overpopulation.<sup>18</sup>

Our species has multiplied explosively and beyond all possible justification, very much analogous to a cancer spreading across the Earth.<sup>19</sup> Our numbers have increased exponentially, from 1 billion in 1804 to 3 billion in 1960 and 7.3 billion in 2015, and we are projected to reach more than 9 billion by 2050.<sup>20</sup> During the time we have exerted our rule over all life, we have outstripped resources and are wreaking havoc on the Earth’s environments and inhabitants. If a caring God and Creator truly existed—which I doubt—He<sup>21</sup> would be deeply disappointed and full of wrath at what we are doing to His grand creation. Isaiah’s threat might apply here: “See, the Lord is coming out of his dwelling to punish the people of the earth for their sins. The earth will disclose the blood shed on it; the earth will conceal its slain no longer.”<sup>22</sup> Will this prophecy now be expanded to apply to all the species wantonly slain?

## Humanism Is Necessary but Not Sufficient

As an agnostic atheist,<sup>23</sup> I am devout in my religious beliefs and firm in my convictions just like any other devoutly religious person. Our pluralistic religious society and democracy cannot allow itself to be dominated by any single religion, certainly not by one claiming divine privilege solely for its adherents. Of necessity, we gravitate in governance to a kind of secular humanism,<sup>24</sup> while holding our individual religious views largely out of the public arena. In this regard, I favor Matthew’s approach: “But when you pray, go into your room, close the door and pray to your Father, who is unseen. Then your Father, who sees what is done in secret, will reward you.”<sup>25</sup>

But our secular humanism has simply become inadequate for the Third Millennium. A moral/ethical paradigm shift is needed. Just as the traditional religions and religious leaders have rarely shown adequate concern about the degradation of our environment or the destruction of non-human species, so our guiding moral/ethical principle of secular humanism has failed in its guidance. Serving the needs of disadvantaged humans will always be essential, and I do not in any way minimize or diminish this desirable goal. But we need to go well beyond mere humanism and compassionate treatment of those humans who are less fortunate. It is sheer arrogance for us to believe that we humans must always come first above all others in the realm of living species—there is no objective scientific justification for this long held religious principle. Instead, we must also give prime and urgent consideration—not just as an afterthought or subordinate effort—to rapidly identifying what our adverse environmental impacts are, and what we must do to alleviate them. We must take effective and immediate actions to protect our environment, and most assuredly to protect other species from extinction. The intrinsic value of other species should be emphasized in our policies, whether or not the motivations are expressed in religious or secular terms, and we must integrate this emphasis into our highest moral and ethical teachings.

If the International Court of Justice were expanded to adjudicate disputes between and among competing species (a sort of World Court for Interspecies Conflicts, humans included), the humans would surely in many instances be found guilty of Intentional or Negligent Biocide. This crime would be the non-human equivalent of genocide.<sup>26</sup>

I am not promoting vegetarianism or suggesting that I am ready to stop eating all animals and plants! My opposition is to human behaviors and practices which have led to or will lead to extinction of whole species. Extinction is forever. But I do not oppose human exploitation of individual organisms—harvesting, hunting, fishing, etc.—where such use can be unequivocally regarded as sustainable.

These are matters of fervent, deeply felt, and quasi-religious concern to me. Lacking an existing and fully applicable term, I proposed, several years ago, that we might refer to this integrated broadening of moral human concern and emphasis as *suprahumanism*.<sup>27</sup> This term should be regarded as describing a superset or expansion of secular humanism. In my view, what it adds to traditional secular humanism/humanitarianism is a profound concern for all living species, one which should occupy the very apex of human endeavors. This should not merely be a goal of radical

environmentalists or specialized biologists. We need to treat our biosphere and our non-human co-inhabitants of Earth far better than we have and with the deepest respect. This is an inescapable moral and ethical imperative.

The gradual destruction of our biosphere is the defining issue of our age.

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- <sup>1</sup> **Geologic Timescale and Layers:** These are presented at <http://www.stratigraphy.org/index.php/ics-chart-timescale>
- <sup>2</sup> **Taxonomy:** In classical taxonomy, a *family* is a group of *genera* (genuses), and a *genus* is a group of *species*. For example, the bird family Anatidae has about 146 species in 40 genera, and comprises the ducks, geese, and swans. Numerical loss estimates are fossil-based, approximate, and tentative.
- <sup>3</sup> <http://www.endangeredspeciesinternational.org/overview.html>
- <sup>4</sup> Kolbert, Elizabeth, *The Sixth Extinction: An Unnatural History*, 2014, Henry Holt & Co, p. 96
- <sup>5</sup> <http://www.endangeredspeciesinternational.org/overview.html> and [http://en.wikipedia.org/wiki/Extinction\\_event](http://en.wikipedia.org/wiki/Extinction_event)
- <sup>6</sup> *ibid.*
- <sup>7</sup> *ibid.*
- <sup>8</sup> <http://www.endangeredspeciesinternational.org/overview.html> and [http://en.wikipedia.org/wiki/Cretaceous%E2%80%93Paleogene\\_extinction\\_event](http://en.wikipedia.org/wiki/Cretaceous%E2%80%93Paleogene_extinction_event)
- <sup>9</sup> Kolbert, *op. cit.*, p. 15.
- <sup>10</sup> [http://www.biologicaldiversity.org/programs/biodiversity/elements\\_of\\_biodiversity/extinction\\_crisis/](http://www.biologicaldiversity.org/programs/biodiversity/elements_of_biodiversity/extinction_crisis/)
- <sup>11</sup> [http://en.wikipedia.org/wiki/Timeline\\_of\\_extinctions](http://en.wikipedia.org/wiki/Timeline_of_extinctions)
- <sup>12</sup> [http://www.endangeredspeciesinternational.org/extinct\\_list.htm](http://www.endangeredspeciesinternational.org/extinct_list.htm)
- <sup>13</sup> Kolbert, *op. cit.* p. 17
- <sup>14</sup> **Global Warming:** I am aware of ongoing controversies regarding global warming, but accept the overall conclusions of the Fifth Assessment Report of the IPCC:  
<http://www.ipcc.ch/index.htm>  
[http://www.ipcc.ch/news\\_and\\_events/docs/COP19/COP19\\_final\\_presentation.pdf](http://www.ipcc.ch/news_and_events/docs/COP19/COP19_final_presentation.pdf) and  
[http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5\\_SYR\\_FINAL\\_SPM.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf)
- <sup>15</sup> **Eastern Religions and Simpler Societies:** My anthropologist brother James R. McGoodwin PhD reminds me: "... Eastern religions, emphasizing humanity as only a small part of the larger cosmic whole, have much to teach us about humanity and how it should live on this planet. Ethnographic accounts of simpler societies that emphasize harmonious integration with the ecosystems they depend on have things to teach us too."  
<sup>16</sup> <http://www.iep.utm.edu/goldrule/>  
(Unfortunately, our ancient religions have also led to centuries of violent warfare and repression.)
- <sup>17</sup> Genesis 1:28, New International Version.
- <sup>18</sup> <http://www.christianecology.org/Stewardship.html> and <http://www.acton.org/public-policy/environmental-stewardship/theology-e/biblical-perspective-environmental-stewardship>
- <sup>19</sup> <http://www.drhern.com/pdfs/humancancerplanet.pdf>
- <sup>20</sup> <http://esa.un.org/unpd/wpp/index.htm> and <http://www.worldometers.info/world-population/>
- <sup>21</sup> **God as He or She:** I do not presume to know God's gender if any, but will observe the traditional use of the masculine pronoun.
- <sup>22</sup> Isaiah 26:21, New International Version.
- <sup>23</sup> **Agnostic atheist:** Though I feel and believe there is no caring God (thus atheism), I cannot know this with certainty (thus agnosticism).
- <sup>24</sup> **Humanism:** I use this term in the expanded sense to include humanitarianism.
- <sup>25</sup> Matthew 6:6, New International Version.
- <sup>26</sup> **World Court for Interspecies Conflicts:** I offer this judicial fantasy only as an emphatic and provocative illustration. However desirable, it is unlikely to happen anytime soon.
- <sup>27</sup> **Suprahumanism:** I have used this neologism for at least 5 to 7 years. *Supra-* in medicine means *on top of*—the suprarenal glands lie on top of the kidneys; the supraspinatus muscle lies on top of the spine of the scapula. My use of the word implies something added to and layered on top of humanism. It does not mean *superhumanism* and does not have anything to do with supermen, Wagner, Nietzsche, fascism, or the recent books on *suprahumanism* by Kurwenal (2013) or Forrest (2014). However, because of the possibilities of ambiguity and confusion that they have introduced, a unique and therefore better word might be chosen to represent this important principle.