

Reprogramming the Biosphere

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DARWINIAN LIFE

Life preys upon life. This
is biology's most
fundamental fact.

MARTIN H. FISCHER

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"Nature, red in tooth and claw"

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DARWINIAN LIFE

The total amount of suffering per year in the natural world is beyond all decent contemplation. During the minute that it takes me to compose this sentence, thousands of animals are being eaten alive, others are running for their lives, whimpering with fear, others are being slowly devoured from within by rasping parasites, thousands of all kinds are dying of starvation, thirst and disease. It must be so.

RICHARD DAWKINS, RIVER OUT OF EDEN (1995)

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Four Different Long-Term Policy Options for the Biosphere:

- 1 "Pleistocene rewilding" - restoring much of the planet to its state before the human impact.
- 2 Conservation biology - preserving the status quo. More wildlife parks, minimal intervention, conservation with no regard to the subjective well-being of individual animals, just the abstract health of species and ecosystems, i.e. an extension of traditional conservation biology.
- 3 Compassionate biology - ultimately extending to all free-living sentients. Genome editing; cross-species fertility-regulation via immunocontraception and tunable gene drives; GPS-tracking and monitoring; genetic tweaking and/or cultured meat for obligate carnivores; a pan-species welfare state in tomorrow's Nature reserves: "high-tech Jainism".
- 4 Phasing out free-living non-human sentients altogether.
"Why improve Nature when destroying it is so much easier?" by Robert Wiblin (2011)

Compassionate Biology

What is the most ethical way to achieve ecologically sustainable population sizes in human and non-human animals?

(1) Starvation, predation, parasitism and disease?

or

(2) Cross-species fertility-regulation?

Tools of cross-species fertility-regulation range from family planning in humans to immunocontraception in large terrestrial vertebrates to CRISPR-based synthetic gene drives for small fast-breeders. The CRISPR system can be used as a programmable genome-editor offering a high level of control over the genomes of all living species. Nuclease-based synthetic gene drives permit the super-Mendelian spread of any desired genetic element through any sexually reproducing species of free-living organism. Thus male/female sex ratios can be biased to reduce or amplify population sizes. Programmable, tunable drive systems of varying efficiencies can be used remotely to regulate population sizes of billions of sentient beings. Population sizes – and levels of suffering – throughout the living world will soon be adjustable parameters.

Compassionate Biology

Gene Drives defy the "laws" of Mendelian inheritance. A synthetic gene drive is a gene-editing technology that propagates a particular suite of genes throughout an entire species or population. A gene drive alters the probability that a specific allele will be transmitted to offspring from the natural 50% probability.

OPTION: Fix the pain-sensitivity (etc) of members of entire free-living species by propagating benign alleles of SCN9A or its homologs via gene drives, i.e. engineering via CRISPR-mediated gene-editing not a (currently utopian) "no pain" biosphere, but a "low pain" biosphere.

A Pan-Species Welfare State?

Towards the well-being of all sentience

HEALTH: "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (1948 WHO definition of health)



POST-DARWINIAN LIFE

"May all that have life be delivered from suffering." – Gautama Buddha



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