Marriage Equality:

Jumping to a Conclusion?

How strange it is that the topics of 'same-sex marriage' and 'marriage equality' are invariably presented as moral issues, yet the diagnostic terms 'homosexual' and 'heterosexual' are essentially biological and have nothing to do with culture, morality or religious belief. More important still, these two biological terms are defined by gene-directed behaviours that are POLAR OPPOSITES in an evolutionary sense . . . the only sense that ultimately matters.

LIFE’S SOLITARY IMPERATIVE

- **All life has a single imperative: to survive by reproducing itself. And since genetic material is the sole recipe for organic existence, replicating is the only thing that genetic material does.**
- **Behaviour is the strategy that life uses to achieve this imperative. Consequently, ALL behaviour is genetically directed and implicitly reproductive, either directly or indirectly.**

We humans are one of life’s 20—100 million genetic variants, and although all our behaviour is essentially animal, its detailed expression is highly flexible and is influenced by our contemporary environment via epigenetics (see p.4).

Among our evolutionary assets is a capacity to believe the patently unbelievable, provided that such belief contributes to the survival of our genes or their alleles. Those peculiar assets include the ability to believe that we are fundamentally distinct from all other animals. So, despite odds of at least 20 million to one ranged against such a bet, we are then able to believe that civilisation and culture are not genetic artefacts but products of rational ‘free will’ and reason.

This unsupported belief then validates the claim that reproduction too, is a matter of choice, and that homosexuality and heterosexuality are equivalent options. In fact of course, nothing could be further from the evolutionary truth. . . .

It’s ALL in our Genes

The primal imperative of all organisms is to preserve their genetic line via reproduction. Among mammals, another crucial imperative arises: the offspring must be nurtured long enough for that reproductive process to occur with some degree of safety.

In a slow-maturing, highly social species like ours, the ancient ritual of ‘marriage’ adds a layer of social myths, mores and customs that help to reinforce the pair-bond and stabilise the nurturing process. Allied to our species’ high fertility potential, these cultural reinforcements collaborate to grow the population, expand the gene pool and secure the genetic line.

Homosexuality represents an opposite evolutionary strategy. Since the same-sex pair bond is biologically unproductive, such unions constitute an implicit brake on reproduction and population growth. The epigenetic switch that turns off normal heterosexual chemistry generally appears to be triggered by an increase in the level of testosterone in the amniotic fluid that envelops an embryo during its early development. This testosterone switch can be flipped by generating high levels of fear in the mother during her pregnancy. Homosexuality therefore surfaces more strongly during ‘plague’ events, when excessive reproduction overpopulates a habitat and aggression and fear become commonplace. (See Appendix A, note 3)

This safety mechanism is present in most social species, and is one of a number of epigenetic switches that automatically cut in to curb population growth before the plague species totally destroys its own habitat and decimates the biota that shares it.

DNA's Mastercode

It has only recently become clear that all DNA is subject to an overriding 'epigenetic' code in the form of hydrogen-loaded carbon 'tags' that are attached at various points along the side rails of the double helix. These carbon tags determine whether or not particular genes or groups of genes are available for transcription. The pattern of their attachment determines which genes are expressed and which are 'switched off'.

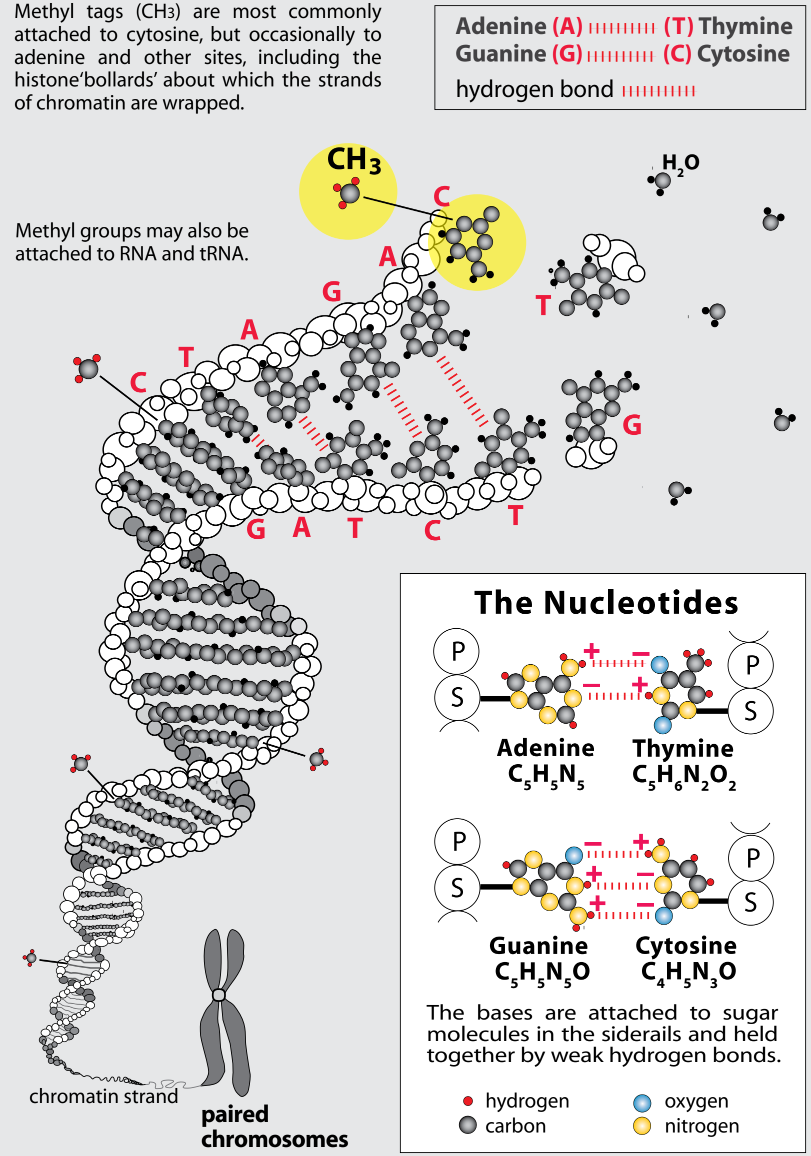
The DNA present in each of our cells is almost 3 meters (10 feet) long, so DNA must be folded up and compressed to fit inside the cell nucleus. Genes in tightly compressed DNA are not readily expressed, while DNA that is more loosely packed is more accessible to the machinery involved in transcribing its genes into protein. Appropriate DNA methylation is essential for protein production and for the appropriate development and functioning of an organism.

This mastercode is highly flexible in that there are both internal and external factors that are able to interfere with the sequence of its methyl tags. Some viruses, bacteria and chemical pollutants are able to disturb an organism's basic patterns of methylation, as does the body's immune system, its hormonal response to stress, and the process of aging. Such factors are thereby able to produce small changes in the structure and behaviour of an organism in response to changes in its environment.

Our species offers no exception to this rule. So although our genes determine our fundamental structure and behaviour, our overriding epigenetic code orchestrates all the finer details of our mental and physical existence. And it oversees our reproductive behaviour. . . .

DNA Methylation

Methyl tags (CH_3) are most commonly attached to cytosine, but occasionally to adenine and other sites, including the histone 'bollards' about which the strands of chromatin are wrapped.



By regulating the folding pattern of DNA's chromatin strands its methyl tags determine which genes can be transcribed and which are 'switched off'. DNA's epigenetic code thereby constitutes a highly flexible gene-management system that is sensitive to external and internal interference initiated by environmental factors.

Reg Morrison, 2009

SEXUAL IMPRINTING

Sexual imprinting was first discovered in corn in 1910. It was later discovered that corn kernels are dark purple if a 'Red' gene is inherited from the egg (female), but they are blotchy lavender if the expressed gene has been transmitted via the male sperm (delivered via pollen).

During the maturation process, however, the methyl tags are progressively removed from the 'Red' gene, allowing the kernel to reach its full genetic potential.

At least two million years of highly selective human evolution have fine-tuned our gender-specific methylation patterns to the point where children who are raised by their biological parents have a significant advantage over children who lack that parental imprinting.

Children who grow up with their biological parents not only share their parents' genes they, like corn, also share some of their parent's epigenetic methylation patterns via sexual imprinting.

Where the child has been adopted by a heterosexual couple the biologically appropriate parental imprinting is missing and the children are thereby slightly disadvantaged in dealing with the world outside.

If a child is adopted by a homosexual couple, one of whom is the child's biological parent, then the imprinting pattern is only partly confused. But if the child is not related to either homosexual 'parent', then the he or she will not only lack its parents' imprinting it will also lack the methylation pattern of the missing gender in the homosexual union.

Sexual imprinting also plays a major evolutionary role in the biota by contributing some of the genetic machinery that helps to bring plague events to a halt. . . .

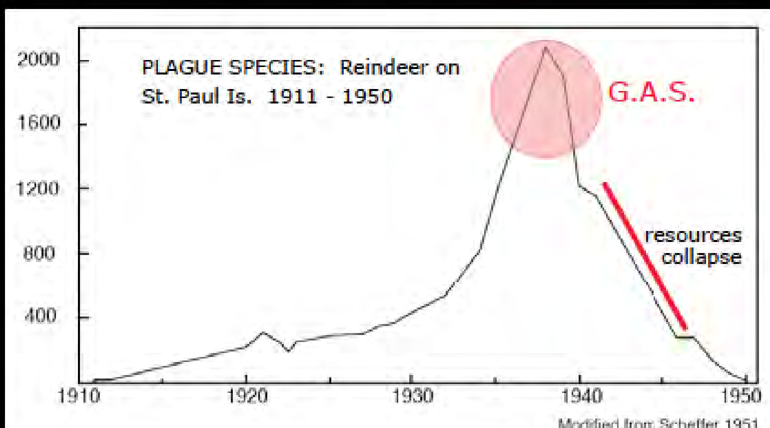
ABOVE: Some strains of ornamental corn still display this progressive demethylation via its strong colour variation.

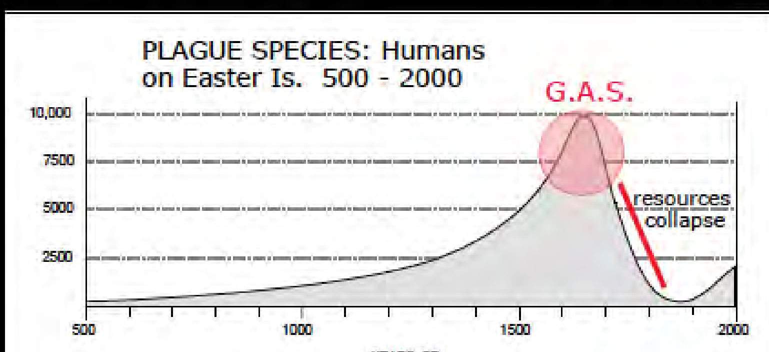
EVOLUTION'S AUTOMATIC PLAGUE LIMITER

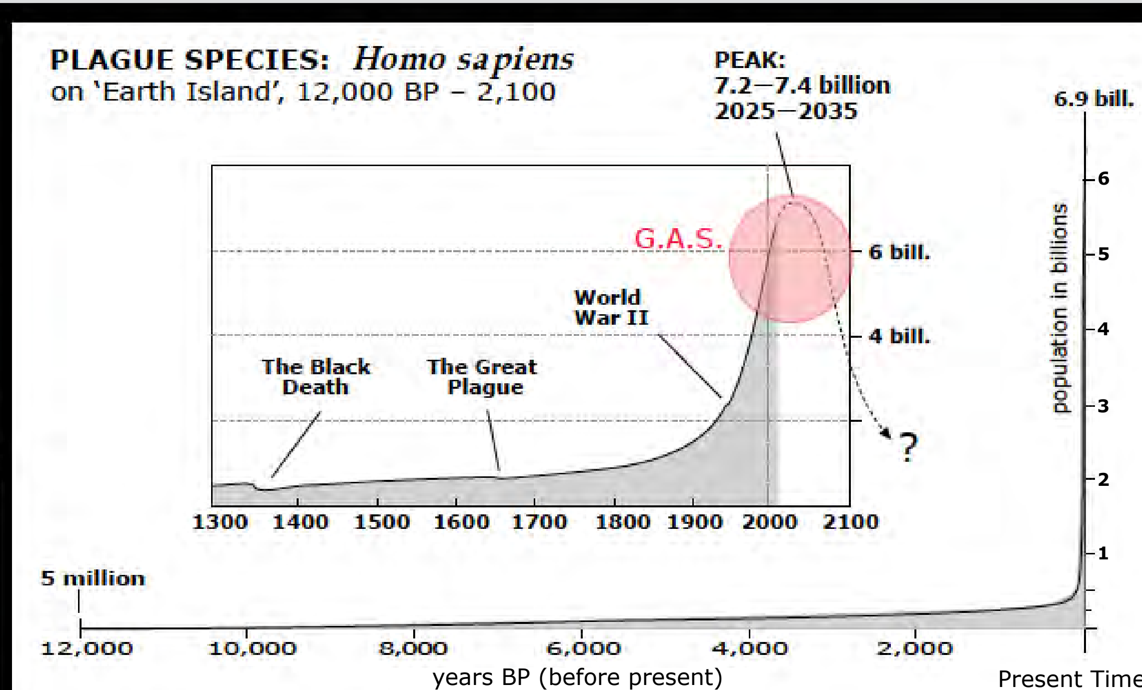
Exponential population growth by a highly successful species threatens the survival of other species that share its habitat and compete for its energy resources. Inevitably, an automatic plague-limiting device has evolved. It consists of a combination of hormones, enzymes and epigenetic switches that interact to bring exponential growth to a halt and reduce the fecundity rate below replacement level.

This little-known brake cuts in well before the environment collapses and food shortages launch the the final culling process. Known as the General Adaptation Syndrome, this evolutionary safeguard was first detect in rodents and defined by Canadian endocrinologist Hans Selye in 1936. He realised that this was stress-related response to exponential population growth, and his data showed that it occurred regularly in rodents, both in the wild and in laboratory populations. It later became clear to him that it also applied to many other species, especially humans.

By applying an automatic brake to exponential population growth during an animal plague the General Adaptation Syndrome (GAS) imposes a crucial upper limit to the degree of damage that such events might otherwise inflict on the regional biota.*



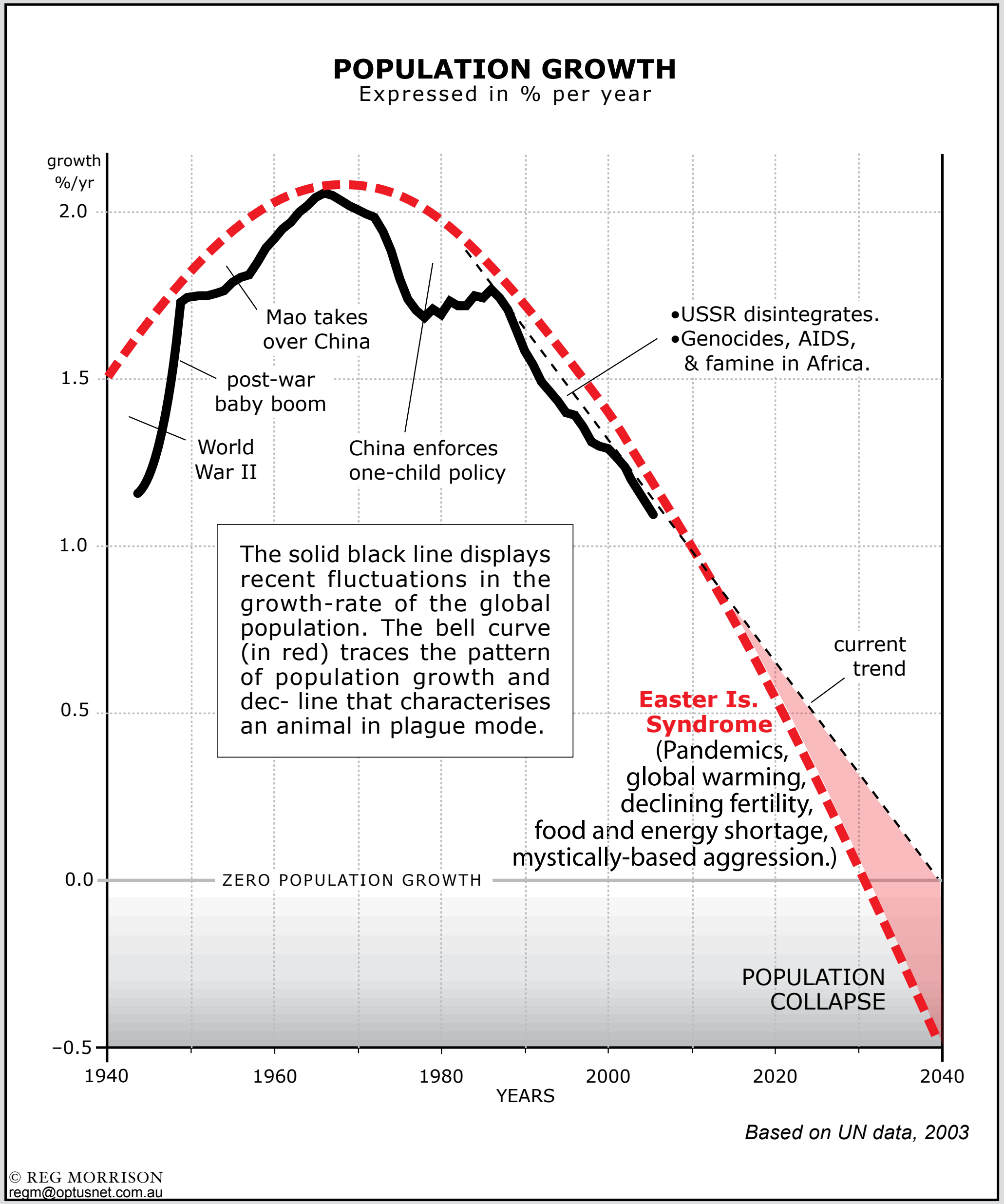




Since our species is a typical byproduct of genetic and Darwinian evolution this is the kind of graph we should expect to see. The explosive population growth that occurred during the past 200 years makes the label 'Plague Species' unavoidable.

* For further information on Selye's General Adaptation Syndrome **see Appendix**

OUR 'UNACCOUNTABLE' FECUNDITY DECLINE



This graph is based on annual growth-rate figures that the UN's Population Division used to publish until 2003. Perturbed perhaps, by the abrupt decline that first appeared during the 1970s and then reappeared in the 1990s, UN demographers subsequently published only five-year 'forecasts' of global population growth.

The initial collapse in the growth rate that occurred between 1967 and 1978 was generally attributed to the introduction of China's 'One-child' policy. But when the same rate of decline reappeared in the 1990s its unprecedented nature and global scale became impossible to ignore, and many demographers felt impelled to label it an 'unaccountable demographic transition'.

Women around the world now tend to have half as many children as their mothers, and judging by current birth rates, this trend seems likely to continue. There has been no other global fecundity decline of this magnitude since civilization began, yet amid the clamour of cultural explanations, the biological and evolutionary significance of this global trend has been universally ignored.

NOTE: The basic shape of the black line shown in this graph was verified by UN demographers in 2004. I added the bell curve and its Easter Island reference in red in order to provide a graphic reminder of the real explanation for our species declining growth rate. *

* See also: http://www.nytimes.com/2012/03/13/opinion/brooks-the-fertility-implosion.html?_r=1&emc=eta1&pagewanted=print

HUMANITY'S ECOLOGICAL FOOTPRINT

(our per capita impact on the planet's biosphere)

The Earth has a surface area of 51 billion hectares (510 million square km). About 71% of this surface is covered by seas, and of the rest, only 8.9 billion hectares (each the size of an average soccer field) are biologically productive. In other words, the productivity of each of these hectares matches or exceeds the world average.

The other 5.6 billion hectares are either marginally productive or wholly unproductive. The biologically productive hectares are called 'Global hectares' (Gha).

On average, it takes 2.1 Gha to support each of the 6.9 billion people that now inhabit the planet. So 2.1 Gha is the average 'Footprint' of a single human. The total population therefore requires almost 14.5 billion Gha to support it, whereas the planet has only 8.9 billion Gha available. These 8.9 billion hectares represent the Earth's current carrying-capacity for modern humans.

It would therefore take about 1.6 Earth's to meet our present energy and resource requirements, and our species has over-shot Earth's carrying capacity by more than 55%. These excess consumers have been added since 1980 when the global population was about 5 billion and barely sustainable at their average rate of consumption.

Meanwhile, the global population is still growing, our per-capita consumption levels continue to increase, and our planet's girth remains uncharitably constant.

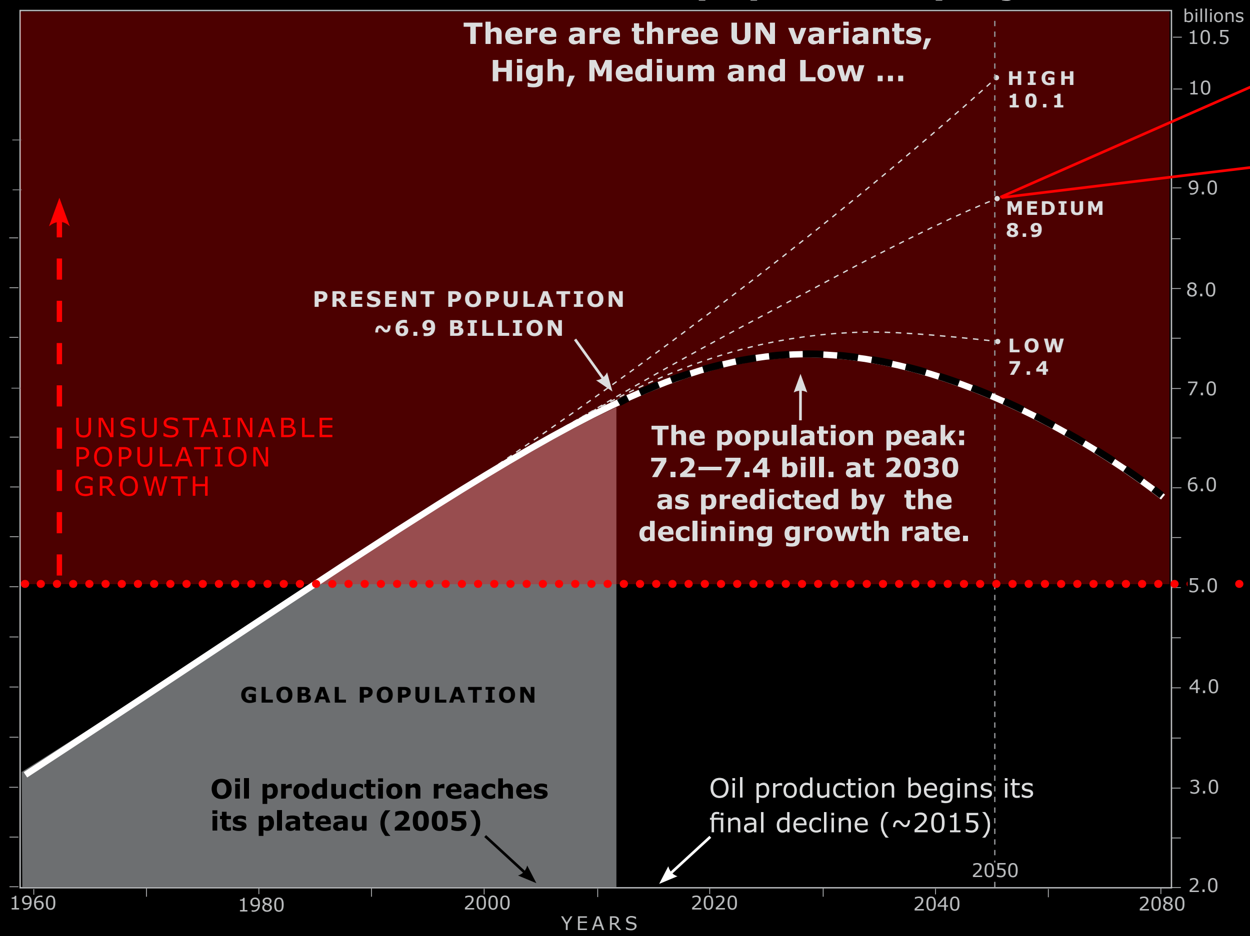
*ENERGY EXTRACTION ALWAYS ENTAILS A FAUSTIAN PENALTY**

Since the energy and resources consumed by our species already amounts to more than 1.6 times the bio-capacity of the entire planet, it means that we are consuming its resources 1.6 times faster than the Earth can replenish them. In economic terms, we are asset-stripping our cosmic home and shrinking its carrying capacity on a daily basis. If this growth in population and energy consumption continues, by 2050 we will need the resources of two Earths, just to sustain our population at its present level of consumption. Our species will then be ecologically bankrupt and primed for a swift extinction.

* **See Appendix**

GLOBAL POPULATION GROWTH*

United Nations' population projections



If the global population keeps growing at the rate predicted by the UN's Medium variant our species will need the resources of two Earth-like planets by 2050, just to maintain our current life styles.

Our species was barely sustainable by the mid 1980s when the global population reached five billion. Beyond that point we began systematically asset-stripping the planet.

*In 1961 the Earth's productive regions could have supported double the global population of three billion. Since then, accelerating urban sprawl, rapacious over-harvesting of the ocean, escalating pollution, the loss of forests and the erosion and impoverishment of soils caused by the Green Revolution have reduced Earth's human-carrying capacity by about one billion.**

* See also: ***The Population Debate***

SUMMARY

Sexual reproduction adds to our gross overpopulation of the planet and thereby threatens our species with imminent collapse.

By contrast, homosexuality inhibits our species fecundity and consequently represents a valuable preservative factor that helps to prolong our species' existence on the planet.

GIVEN THESE CIRCUMSTANCES . . .

- **Heterosexual reproduction should *NOT* be promoted.**
  (Via baby bonuses and other social and governmental inducements.)
- **Homosexuality should be valued and protected, both legally and socially.**

HOWEVER . . .

Same-sex adoptive 'parenting', enabled by surrogacy, IVF, or surgical implantation, helps to facilitate population growth by artificial means. It follows that these practises too, should be discouraged socially and limited by legislation where possible.

Since homosexuality and heterosexuality are clearly opposed in an evolutionary sense, the traditional word 'marriage' cannot logically be applied to both forms of pair-bond. This would conceal the evolutionary truth and would encourage adoptive or artificial 'parenting' by same-sex couples. ❇

THE GENERAL ADAPTATION SYNDROME

1. Hans Hugo Bruno Selye (1907-1982).

Hans Selye, a European-trained physician and endocrinologist, was the first to identify this syndrome while studying rodent populations in Canada. He outlined elements of the syndrome in a 1936 paper entitled, "A Syndrome Produced by Diverse Nocuous Agents." (*Nature* 138, No.32)., and he expanded on this proposition 10 years later in a paper entitled "The General Adaptation Syndrome and Diseases of Adaptation" (*Journal of Clinical Endocrinology and Metabolism*, No. 6, 1946).

Having explored the effects of social stress in overcrowded rodent populations, both in the laboratory and in the field, Selye then extended his research to other species, especially humans. His research into human endocrinal disorders during the 1950's, 60's and 70's also showed how social and environmental stress tended to produce hormonal aberrations which could lead to physical and behaviour aberrations, and especially to sexual dysfunctions that were characteristic of 20th century Western culture. His theories have had a major impact on modern medicine.

2. Samuel Anthony Barnett (1915–?).

A noted Australian biologist, ethologist and author, and a former head of Zoology at Australia's National University in Canberra, Barnett specialised in rodent behaviour under population stress, both in the laboratory and in the field. He documented the accelerating fertility decline that commonly occurred in laboratory populations of rats that became stressed due to overcrowding, even when there was no shortage of food. In a 1975 book entitled "*The Rat: A Study in Behaviour*" Barnett noted that wild populations invariably entered a similar auto-collapse phase long before the deteriorating habitat had begun to impactsignificantly on the plague population. He also noted that this auto-collapse mechanism often continued long after the population had crashed and the environment had recovered, leading to regional extinction of the species in some cases.

3. Günter Dörner (1929–?).

A noted neuroendocrinologist and a former professor at the Humboldt University in Berlin. Dörner explored the impact of extreme stress on pregnant women during and after World War II. He confirmed that his data showed Selye's conclusions on rodents applied equally to humans, especially in respect to the level of unproductive sexual behaviour that appeared among offspring who had been subjected to high levels of testosterone during early stages of their development in the womb.

Selye's original findings have also been echoed in varying degree by many other researchers, perhaps most notably by John J. Christian, Vagn Flyger and David E. Davis in their paper entitled "Factors in the Mass Mortality of a Herd of Sika Deer, *Cervus Nippon*" (*Chesapeake Science* 1, June 1960, pp.79-95). The remarkable feature in the collapse of the Sika deer population on James Island, Maryland, was that they were well-nourished, safe from predators, and parasite free at the time of their collapse.

Selye's findings have also been echoed by Dennis Chitty, in "*Do Lemmings Commit Suicide? Beautiful Hypotheses and Ugly Facts*" (1996). Corroboration of various aspects of Selye's Syndrome also comes from Scutch (1949, 1967), Brown (1953), Kalela (1954), Southwick (1955), Wynne-Edwards (1962), Christian (1961), Christian and Davis (1964), (Christian et al., 1965), and Dörner (1980). Christian and Davis were specifically testing Selye's GAS hypothesis and reported corroboration across a wide spectrum of their research.

 from p.6

TURNING ON THE G.A.S.

Selye's General Adaptation Syndrome inserts itself into the evolutionary process during plague events, largely by resetting a complex array of hormonal switches so that they effectively reduce a plague species' fertility rate below its replacement level.

In our species this is achieved by adjusting a wide variety of developmental and behavioural patterns so that they produce dysfunctional organs and unproductive sexual behaviours.

Social stress is the key factor in reducing our species' fecundity. An increase in social stress not only generates higher levels of dysfunction and aggression within society, it also tends to decrease the fertility rate in succeeding generations.

In humans as in other mammals, these dysfunctions include genetically unproductive forms of sexuality, malformed genitalia, lowered sperm counts, and a rising incidence of testicular, ovarian and other cancers.

An adrenal steroid, cortisol, is also known to play a direct role in fertility regulation. Not only is it a by-product of the kind of stress that prepares the body for 'fight or flight', it seems peculiarly able to interfere with the expression of genes that orchestrate the development of the reproductive organs, and it also interferes with the reproductive process itself.

This direct hormonal link between stress and reproductive malfunction, both male and female, represents a significant evolutionary asset during plague events in that it tends to curb reproduction when social and environmental circumstances deteriorate to the point where the burden of feeding and nurturing more offspring threatens the survival of the whole tribal group.

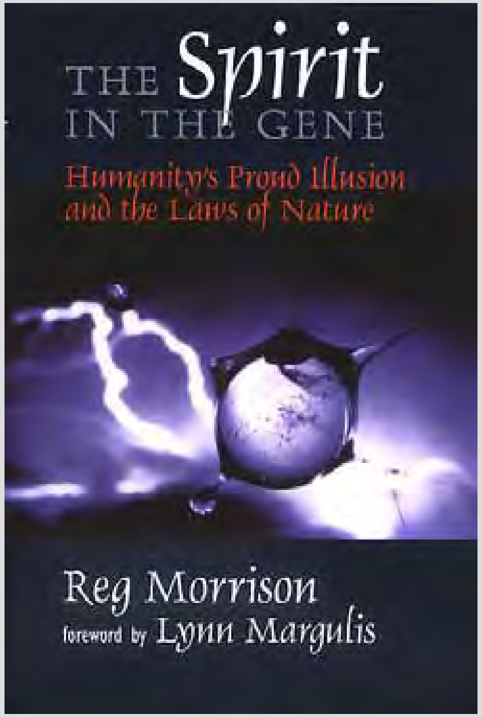
Some environmentally induced changes in methylation have also been shown to persist for many generations in several mammal species. In humans for example, the average age of initial menstruation in girls (menarche) has fallen from 17 to 12.5 in just the past 150 years.

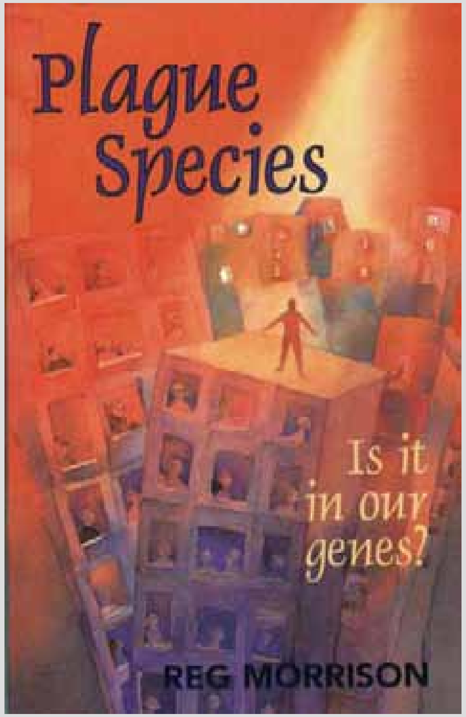
It now appears that the adrenal threat-hormone, cortisol, is also implicated in triggering this response. At least two million years of evolutionary experience has prepared female methylation to switch into reproductive readiness somewhat earlier than normal whenever the extended family environment comes under threat or is otherwise disrupted.

This advanced menarche now enables children to have babies, and this promises higher rates of infant mortality due to birthing problems, increased infanticide, inadequate parenting, and higher rates of dysfunctional behaviour in those offspring as they mature.

Another major fecundity brake that is enhanced by social stress is the increasing rate of depression, suicide, and drug addiction among the youth of all nations. The World Health Organisation reports that, according to recent figures, close to a million people successfully commit suicide every year, and a large proportion of those who die by suicide are in their sexually reproductive years. This represents a 60% increase in the global suicide rate, and this increase has appeared in just the past 45 years.

Here then, are the direct hormonal links between overpopulation and the unprecedented reduction in fecundity that first appeared in our species in the late 1960s and has accelerated in the past two decades (Cf the 'unaccountable' graph on p.7).





Reg Morrison's major book on human evolution, ***The Spirit in the Gene,*** was originally published in 1999 by Cornell University Press, New York. It was republished in 2003 by New Holland, Sydney, under the title ***Plague Species: Is it in our Genes?.***

In it he summarises the massive impact that humans have had on the biosphere, and then explores the evolutionary origins of the behaviour that produced this extraordinary impact. He delves into the many advantages that the development of mystically reinforced tribalism bestowed on our under-endowed species and warns that mysticism now has a second, much darker evolutionary role to play.

Other books on evolutionary topics by the same author:

The Voyage of the Great Southern Ark (Lansdowne Press, Sydney, 1988). A diary of Australia's evolution.
This was released in America under the title: ***Australia, The Four-Billion Year Journey of a Continent***.
A revised edition was published in 2003 by Reed-New Holland Sydney as ***Australia, Land Beyond Time.***
and this was released in America under the same title by Cornell University Press.

For Australian High Schools (years 11 and 12):

The Diary of You (Biology). Publisher: Sainty & Associates, Sydney, 2008.
Australia's Four-Billion-Year Diary (Earth Science). Publisher: Sainty & Associates, Sydney, 2005.