

**Teilhard de Chardin Scholarship Essay:
Integral Ecology and my Research**

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Pierre Teilhard de Chardin, a Jesuit priest and scientist, maintained a lifelong commitment to the compatibility of his faith and his scientific endeavours. He reconciled both the teachings of the Church and the evidence that his work presented him through his beliefs in evolution and the fundamental interconnectedness of the universe. Faith in the latter, that all things are part of a universal whole, comes to the fore in the in-depth consideration of the environment that Pope Francis's recent encyclical letter, *Laudato Si*, delivers. In response to the recognition that the environment and society are inseparable, and the necessary fact that the problems of each are therefore equally indivisible, *Laudato Si* presents integral ecology, a holistic approach to addressing the myriad issues facing humanity and the natural world today. Integral ecology demands that no problem, environmental or societal, be addressed in isolation of the other, as to do so offers no genuine solution at all. Rather, it ensures that environment and society are seen as one, so that any endeavour to resolve a problem considers everyone and everything affected. The relevance and effectiveness of this method is seen today in the successful application of innovative participative approaches to environmental planning and management. Such approaches take into account not only the landscapes and ecosystems that provide the initial focus for action, but also the local and global communities, cultures and economies that depend upon, and are affected by, that environment. Through an exploration of the philosophy upon which de Chardin's beliefs and the concept of integral ecology rest, I will consider not only the wider field of environmentalism but also my own field of research – rewilding as an approach to nature conservation – in the context of integral ecology. In so doing I shall highlight specific examples that demonstrate the use of such approaches and identify how and why integral ecology is important to the science and practice of rewilding.

Faith and Science for de Chardin and the Church

To keep up a constant pressure on the surface of the real, is not that the supreme gesture of faith in Being, and therefore the highest form of adoration?

Pierre Teilhard de Chardin (1965)

When Pierre Teilhard de Chardin wrote of “a constant pressure on the surface of the real” he was referring to research – scientific endeavour. This statement reflects well the two vocations that de Chardin dedicated himself to: the role of a priest of the Society of Jesus, and that of a scientist intent on expanding mankind’s understanding of the Earth and the life that has evolved upon it.

Pierre Teilhard de Chardin was born in 1881, into an age of dramatic scientific advances and paradigm shifts in mankind’s view of the natural world. Charles Darwin’s *On the Origin of Species* had been published in 1859, a mere 22 years prior to Chardin’s birth, amid a proliferation of theories surrounding the mechanisms of evolution. This burgeoning field of investigation set in motion much discussion across faiths as to the genesis of life on Earth and, whilst much has been written elsewhere about the response of the Catholic Church to these shifts in scientific thinking, it is of interest to note that at no point has the Church adopted an official position against evolutionary theory. Rather, the Church has consistently recognised that evolution and faith are not incompatible (Pius XII, 1950). It is this point that brings us back Pierre Teilhard de Chardin who, as both scientist and Jesuit priest, dedicated much of his life to examining and demonstrating the compatibility of evolution with his faith.

Through his research as a palaeontologist, de Chardin developed a deep understanding of the fossil record and a clear personal vision of evolution. de Chardin adopted an undoubtedly scientific approach to his consideration of evolution and the process of change borne out by the evidence he examined, believing that evolution was intended to culminate in humans and the conscious reason that is mankind’s alone (de Chardin, 1965). He therefore espoused a theory of directional evolution, orthogenesis, that accepted the evidence before him whilst also refuting evolution by chance (de Chardin, 1959). de Chardin considered that “*God does not make things but makes them make themselves*” (de Chardin, 1996), and with this statement harmonises the weight of evolutionary evidence with his belief in a guiding hand.

de Chardin’s position as both Jesuit priest and scientist is not altogether uncommon; there is an extensive history of the Society of Jesus contributing to the sciences. It would also be fair to say that the Catholic Church as a whole has long recognised that faith and science are compatible. Whilst the Church’s history of bringing together religion and science has at times been controversial, its members have contributed greatly to our understanding of Earth and the universe. This legacy continues to this day; for example, Brother Guy Consolmagno of the Society of Jesus won the Carl Sagan Medal from the American Astronomical Society in 2014 for Excellence in Public Communication in Planetary Science (jesuits.org, 2014). Indeed, this compatibility between science and religion is embedded within the very teachings of the Church as laid out in the *Catechism of the Catholic Church*, which states that there can be no conflict between science and faith, since they are both derived from the same God (1994, para 159). It is within this context of unity between faith and science that matters of the environment have arisen as an issue for great consideration and counsel by the Church.

A Deeper Environmental Focus

Recognition by Christianity of the need to care for the environment is age-old, but has come increasingly to the fore in the last few decades, as the detrimental impacts of industrialisation and wealth-creation on the environment have become increasingly apparent. In 1986, a multi-faith collaboration between leaders of the five major world religions (Buddhism, Christianity, Hinduism, Islam and Judaism) resulted in the Assisi Declarations, which make clear each religion's position on the environment. The Christian declaration "*repudiates all ill considered exploitation of nature which threatens to destroy it and, in turn, to make man the victim of degradation*", and in this we see a clear inference that man and the environment are inextricably linked. Subsequently, the Alliance of Religions and Conservation was formed in 1995 to help the major world religions form environmental programmes (arcworld.org, n.d.), further demonstrating the increasing recognition of the role the Church can play in advocating for environmental protection and, importantly, sustainable development policies.

Within the Catholic Church, the connectedness of man and the environment is highlighted once more with Pope Benedict XVI's 2007 comment that "*care of water resources and attention to climate change are matters of grave importance for the entire human family*". In the context of Pierre Teilhard de Chardin's belief that life on Earth has occurred, and can occur, only once, this appeal for respect for, and protection of, the environment is of significant consequence (1959).

The Papacy of Francis has seen substantial development in how the Church views and communicates about environmental issues, with far greater attention devoted to them than ever before. The Church is seen to be increasingly active in advocating for a sustainable future for all; the Holy See attended the 21st Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC), held in Paris during November and December 2015, as an observer state, with His Eminence Cardinal Pietro Parolin delivering a statement at the opening of the Conference that referred to the adoption of sustainable lifestyles as being a vital factor of success. This statement reflected the messages within, and indeed directly referred to, the most comprehensive expression of the Catholic Church's position on the environment to date, Pope Francis's encyclical letter *Laudato Si* (Francis, 2015).

Laudato Si is often referred to as the environmental encyclical, devoted as it is to considering the myriad environmental problems we currently face, the repercussions of these for mankind and how they may be approached and dealt with. In this respect, both the encyclical and Pope Francis are set apart from those that precede them. With this focus on the science and philosophy of the environment it may be considered that Pope Francis, as the first Jesuit pope, is himself adding to the significant contributions to science seen from the Jesuit community throughout the ages.

Through *Laudato Si*, Pope Francis calls for a renewed and unified dedication to addressing the multitude of environmental crises faced around the world. This appeal is based on a philosophy of holism; an integral ecology that encompasses not just specific environmental problems, nor the natural world in isolation, but the rights and needs of all people and societies in conjunction with matters of the environment. It recognises that the environment is not separate to society, nor merely a setting for society, but that the two are fundamentally entwined and indivisible.

Specifically, integral ecology is an approach for the safeguarding of the environment alongside the safeguarding of the individual, groups, societies and cultures, and the accompanying inalienable rights of all.

Integral ecology does not seek to benefit one to the detriment of the other. Rather, by recognising that the environmental and social problems faced around the world today are inextricably linked, integral ecology places equal importance on both, because one cannot exist without the other. Pope Francis clearly recognises that to address any environmental problem, as with any social problem, one must address the root cause of that problem, but that to do so also requires that the complexities of society, culture, morality and economics must be recognised and considered. This philosophy is exemplified in the following statement:

It is essential to seek comprehensive solutions which consider the interactions within natural systems themselves and with social systems. We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental (Francis, 2015).

The need for an integral ecology is reflected in the *Catechism*, which specifically requires that man respect “every creature” to ensure avoidance of “*disastrous consequences for human beings and their environment*” (*Catechism of the Catholic Church*, 1994, para 349). The implication of this being that even seemingly limited actions that cause damage to the natural world can have a wider impact, and thus a holistic respect for nature is demanded.

This concept of integral ecology reflects some of the fundamental concepts within Pierre Teilhard de Chardin's philosophy. de Chardin believed that whilst life may not have evolved to a specific plan, it had evolved with an overall direction and purpose. He considered all organisms to be a part of this directional evolution and thus to be interconnected and worthy of consideration as a whole. In his treatise *The Phenomenon of Man* (1959), de Chardin's statement “*Man is unable to see himself entirely unrelated to mankind, neither is he able to see mankind unrelated to life, nor life unrelated to the universe*” more explicitly points to a fundamental belief that all should be considered as part of the same whole; a basic tenet of integral ecology.

It is clear how closely aligned the philosophies of Pope Francis and Pierre Teilhard de Chardin are, and how deeply this belief in the universe being indivisible lies within each. In *Laudato Si*, Pope Francis states “*Time and space are not independent of one another, and not even atoms or subatomic particles can be considered in isolation*” (2015), whilst in *The Phenomenon of Man*, de Chardin suggests that “*Each element of the cosmos is positively woven from all others...All around us, as far as the eye can see, the universe holds together, and only one way of considering it is really possible, that is, to take it as a whole, in one piece*” (1959). In these two statements the fundamental similarities in beliefs and approaches to the nature of life on Earth are apparent.

That being said, the significance of *Laudato Si* and its communication of the concept of integral ecology should also be considered. *Laudato Si* goes far beyond a simple acknowledgement by the Catholic Church of the environmental problems facing the world and humanity. It communicates an entire approach to how these problems may be most suitably addressed, and to a vast audience, with the Catholic Church comprising 1.27 billion members worldwide, i.e. 17.8% of the global population (Holy See Press Office, 2016). *Laudato Si* therefore introduces a global readership to a concept of ecology that not only conveys the messages of Christianity but also describes the best practice approaches to environmental protection and conservation being adopted around the world today.

Integral Ecology: From Philosophy to Practice

Integral ecology, *i.e.* taking consideration of everyone who has a stake in, or is affected by, a given environment, is already being seen as an effective means for successfully addressing environmental issues. This stems to a great extent from an understanding of the complex nature of many environmental problems. In any course of action, be it a source of environmental degradation or conservation, there are likely to be those who benefit and those who lose out. For example, a company exploiting a natural resource for profit will benefit economically from its action, whilst the environment and those living close by are likely to be negatively affected to some extent. Efforts to limit the resource extraction would therefore benefit the environment and those suffering the consequences of the activity, but would also have a negative economic impact on the company and, therefore, any local communities who rely on the company for employment. This simple example illustrates why it is necessary to engage multiple stakeholder groups in any environmental decision making, demonstrating as it does that society and the environment cannot be separated.

Multi-stakeholder participation in environmental management has increased consistently over the past decades, since the publication of Arnstein's Ladder of Participation in 1969. More recently, the United Nations Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters was adopted in 1998, entering into force in 2001. This convention rests upon principles laid out in the Declaration of the United Nations Conference on the Human Environment (United Nations, 1972) and the 1992 Rio Declaration (United Nations) to demand that each signatory party facilitates appropriate public participation. Whilst such participation varies, a truly collaborative approach, one that aligns with the philosophy of integral ecology, must consider every stakeholder, taking into account what each perceives to be the benefit that they receive from a given environment or activity within that environment.

Such an approach is exemplified by the development of an ecological management plan for the Great Bear Rainforest in British Columbia, Canada. The forest is of international importance, representing one quarter of all remaining ancient coastal temperate rainforest (McGee, 2010). Facing increasing pressure from logging to support an international timber trade, the forest became the focus of international environmental efforts to protect it (Riddell, 2005). The subsequent proposed environmental plan was dismissed by many as failing to take into account the views of the many and varied people deemed to be stakeholders in the forest. In response, the British Columbia government instigated an innovative, highly collaborative approach to the development of a new management plan. In so doing, the views of a multitude of groups were considered, including those of local communities, local governments, First Nation communities, the forestry industry (both large- and small-scale), the tourist industry and various environmental groups, to list but a small number (McGee, 2010). Through this comprehensive collaboration, an agreement by consensus was reached that truly conforms with the philosophy of integral ecology, *i.e.* not only meeting the environmental needs of a globally important landscape but also addressing the needs and concerns of individuals, societies and cultures. The Great Bear Rainforest planning process is considered to be the first of its kind, offering a new way forward in environmental planning that could precipitate a wholesale shift towards an environmentalism

that supports the natural world and mankind in the manner envisioned by Pope Francis and described within *Laudato Si*.

Through an examination of integral ecology, both in theory and in practice, we therefore see the emergence of an idea across multiple time points and societies. The reoccurrence of this holistic philosophy over time adds further weight, were any needed, to its validity as an approach to the environment and a sustainable future. I shall now consider how integral ecology integrates with my chosen field of research.

Integral Ecology and Rewilding

Ecology is pulling up a dandelion and finding everything else is attached

John Muir

The focus of my research is an examination of an approach to nature conservation termed ‘rewilding’. A relatively new conservation approach, rewilding was introduced as a concept only in 1998 (Soulé and Noss). At this time, rewilding was defined as restoration of large areas of wilderness to a self-regulating state based upon the regulatory roles of large predators (Soulé and Noss, 1998). Since that time there have arisen a number of definitions of rewilding, ranging from the release of captive-bred animals into the wild, to abandonment of previously productive land (Jorgensen, 2015). Most definitions of rewilding display clear commonalities, which has led to my preferred definition: rewilding is an approach to conservation that requires minimal, if any, initial management beyond protection to enable an environment or landscape to develop and evolve naturally into a self-regulating ecosystem without ongoing human intervention, and often with no specific human-defined goal.

Through my thesis I intend to critically appraise the concept of rewilding as an approach to nature conservation, its overall applicability in the real world, and the opportunities and challenges it raises. I will examine the theories behind rewilding, and analyse specific examples from around the world to assess its effectiveness, the outcomes of rewilding in terms of changes in biodiversity and ecosystem self-regulation, and in what instances rewilding may or may not be an appropriate approach to landscape conservation.

An oft-cited example of rewilding is the reintroduction of wolves to Yellowstone National Park in the United States of America in 1995 (Yellowstone National Park, n.d.). Through the simple and limited intervention of returning a previously extirpated top carnivore to this landscape, the damage caused through overgrazing by elk in the absence of wolves was undone. The re-balancing of the park’s ecosystem was such that species that had been missing from the park for decades returned and even erosion of the rivers within the park was halted and their courses stabilised.

In a broader context rewilding offers a number of opportunities. As societies around the world become increasingly urbanised (United Nations, 2014), large areas of agricultural land are being abandoned, a phenomenon that can be seen both across Europe and in Japan (Osawa et al, 2013; Navarro and Pereira, 2015). Rewilding offers an opportunity for the expansion of wilderness into these abandoned areas, or to create pockets of wild land where previously agricultural activity has kept nature at bay. In addition, increasing vegetation cover can deliver increased amounts of carbon sequestration, a recognised approach to mitigate against carbon-dioxide-induced climate change. For example, conversion of agricultural land to forest within the UK is estimated to increase carbon sequestration by approximately 0.3 tons of carbon per

hectare per year in the soil, and approximately 0.5 tons of carbon per hectare per year in above-ground vegetation (Dawson and Smith, 2007).

Increasing wild lands through rewilding can have positive economic impacts too, by providing areas that become recreation destinations. This type of nature economy can be seen in the UK's National Forest, a project designed to deliver large-scale afforestation with the intent of integrating nature conservation, ecosystem development and economic development for the adjacent communities (The National Forest, 2015). This project is expected to generate £4.47m in gross value added for the local economy by 2030 (National Forest Company, 2014).

In terms of the potential societal benefits of rewilding, it is well understood that nature, and exposure to it, has a beneficial impact on human health and well-being (Sandifer, 2015), as well as delivering cultural ecosystem services, as defined by the United Nations Millennium Ecosystem Assessment (2005).

Upon initial consideration rewilding, a concept predicated on the exclusion of human intervention, may seem entirely at odds with an integral ecology approach. However, from the previously stated information alone it can immediately be seen that an innate alliance exists between the two. Rewilding delivers clear environmental benefits such as the safeguarding of ecosystems, wildlife protection and increases in natural diversity, yet it also provides numerous ecosystem services important to specific communities and society as a whole, such as the provision of clean water, air quality regulation and the potential for supporting both human health and economic stability.

However, the relevance of integral ecology to rewilding, and therefore my research, does not lie only in the potential outcomes that such activity can offer. Rather, integral ecology concerns itself with a holistic approach to environmental problems and decision making from the outset. It therefore has a clear role in any consideration of rewilding, either as a concept or a planned activity.

Through my critical appraisal of rewilding and exploration of examples of rewilding I will not only look at the impacts of these activities on the environment and for the various stakeholders in each environment or landscape, but also to what level the stakeholders were consulted with about, or participated in, the activity itself. A useful example of consultation in rewilding is the Wild Ennerdale project in the northwest of England. This project is designed to re-establish natural processes in an area of land that had been given over to coniferous plantation forests since the 1920s. Through initial human management to allow the re-establishment of natural succession where dense plantations previously stood, the intent is to allow nature to re-shape the landscape and the ecosystems within it in the long term, without ongoing human intervention or any specific end goal (Wild Ennerdale, n.d.a).

Wild Ennerdale is primarily overseen by three major stakeholders, who are also the main landowners (Wild Ennerdale, n.d.b). However, from the outset of the project local landowners and communities have been consulted and invited to participate in decision making about the future of the landscape. This participation has taken the form of consultation at local community group meetings, specific project meetings with the local community and meetings with individual local landowners, all to identify what the local communities considered to be important about the landscape, and what those stakeholders considered to be positive and negative aspects of the area as a whole (Wild Ennerdale, 2006). The purpose of this engagement was to develop the project in as collaborative a manner as possible, as the project's intent is to include and encompass people, not exclude them. This recognises the economic and social needs of the

residents of the area as being as important as, if not more important than, the desire to diversify the environment and deliver improved ecosystem services. This consultation has been ongoing throughout the life of the project, and continues today.

Wild Ennerdale therefore provides not only an example of a participative approach to rewilding, but also exemplifies how and why rewilding as an approach to nature conservation naturally aligns with the integral ecology approach described in *Laudato Si*.

Summary

The beliefs of Pierre Teilhard de Chardin act as a lens to Christianity, reflecting both the compatibility of religion and science and the belief that the universe, Earth, mankind and the environments that we live in are fundamentally inseparable. Upon these foundations *Laudato Si* offers a strong message of direction in humanity's approach to the complex problems facing society and the environment in the modern world through the concept of integral ecology. This approach clearly requires that no element of society or the environment be addressed in isolation, as all are inexorably linked and influenced, one by the other. Examining the practicalities of integral ecology it is apparent how clearly it is reflected in the latest approaches to environmental management, encouraging comprehensive participation and consensus in planning. Considering integral ecology in the context of my research into the concept and practice of rewilding further emphasises the applicability of this approach across the spectrum of environmental endeavours. It is therefore evident that integral ecology provides not only a method for addressing issues of both the environment and society, but a potential path to a sustainable future.

Science (which means all forms of human activity) and Religion have always been for me one and the same thing; both have been, so far as I have been concerned, the pursuit of the same Object.

Pierre Teilhard de Chardin (1978)

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