Developing Confidence in the Creator God in the University Classroom: Teaching Ecology in a World of Death

Lee Spencer Ph.D.
Southern Adventist University, leespencer@southern.edu

Follow this and additional works at: https://knowledge.e.southern.edu/jbffl

Recommended Citation
Available at: https://knowledge.e.southern.edu/jbffl/vol2/iss1/20
Abstract

In addition to starting each class with a worship oriented towards that day’s topic, faith building concepts can be integrated into almost every lecture in an ecology course. Topics that deal with the structure of the earth and God's way of conserving nutrients through cycles show evidence of design and demonstrate His love and care for the world He created. Complex issues such as the role of death, competition, and food webs are governed by divine law. The realization that death, predation, and natural disaster recovery are actually governed by divine law may show the student that sin did not catch God by surprise. Rather, in the event that sin would occur, the processes that would keep life from going extinct were planned in advance. God shows that He cares about what happens to this world, even when it is in rebellion. Ecology illustrates God's love in spite of the "fang and claw" of sin.

Keywords: ecology, earth structure, role of death, food webs, divine law, predation, natural disaster recovery

Teaching Ecology in a World of Death

“I am instructed that we are to carry the minds of our students higher than it is now thought possible. Heart and mind are to be trained to preserve their purity by receiving daily supplies from the fountain of eternal truths.... The divine Mind and Hand have preserved through the ages the record of creation in its purity. It is the Word of God alone the gives us an authentic account of the creation of our world. This Word is to be the chief study in our schools (White, 1913, p. 13) (Emphasis added).

Introduction

A number of studies have shown that the Bible must be taken literally and used as the definitive standard, or anchor, in issues relating to the interface of science and religion (Fowler 1988, Brand 2000, and Zinke 2004). Additional studies have more specifically looked at understanding the Bible as an anchor in relation to specific areas of science such as biology, geology, and paleontology (Brand 2000, Kennedy 2000, Chadwick 2000).

It is not enough to simply recognize that the Bible is the ultimate authority in understanding science. For the Christ-centered Christian university, trust in the Bible needs to be emphasized in the science classroom during every class period. In addition, the design of the entire ecology course should be centered on increasing the faith and trust of the student in God, in His daily care and love for His creation, and in the Bible as His infallible word. This means integrating faith into the entire learning process.

The biological sciences, no matter what the particular discipline, all lend themselves well to the integration of faith into the classroom. But integrating faith into the classroom means more than simply having worship at the beginning of class, even though this is very important. Disciplines such as anatomy and physiology, genetics, and cellular and molecular biology illustrate very well that we are “fearfully and wonderfully made” by an intelligent Engineer – Designer (Psalm 139:14). They also can demonstrate how sin has caused our wonderful, marvelous machine to frequently break down.

However, “ecology” is another biological discipline that is not often discussed from the context of faith and science. Ecology is the study of the relationship of plants and animals to their environment. Ecology also includes understanding how the relationships of different forms of life change as the environment changes and how death can influence these changes (Molles, 2005).

Methods and Philosophical Considerations

The purpose of this paper is to show how faith building concepts can be integrated into most of the major topics of a college level course in general ecology. There are very few biblically neutral topics in ecology. Most ecology topics fall into one of two categories: They either show evidence for design and a Designer or teach how death and competition function in our world by following natural, God-given laws. Even the laws dealing with death can be used as illustrations to help strengthen the faith of the student in his Creator. The fact that laws govern different aspects of biological interactions that ultimately lead to death demonstrates that death came as no surprise to God when sin entered the world. God was prepared for life to continue, even under the oppression of sin.
Developing Confidence in the Creator God

We will take a cursory look at the topics covered in most college ecology textbooks and show how they can be understood as evidence for a loving and wise Creator.

Evidence of Design: Fearfully and Wonderfully Made

Physical Parameters of the Earth

There are a number of factors about our earth that are either extremely lucky or that represent evidence of design. One of these is the distance of the earth from the sun. Mars is only about 52% further from the sun than the earth, yet the average temperature is 80° below zero, with temperatures ranging from 195° below zero near the poles to 70° Fahrenheit near the equator (Choi, 2014). Venus is on the other side of the earth toward the sun. It is just 28% closer to the sun than the earth, but its temperature reaches 870° Fahrenheit (Choi, 2014). Our earth is so precisely placed that even a one percent variation closer to or further from the sun would make life difficult.

There are number of other physical and biological parameters of the earth that make life possible but yet are so well integrated that it seems impossible to conceive of them as having happened by chance alone. The sun is the source of energy for almost all life on earth (Molles, 2005). But not all of the energy produced by the sun is beneficial for life. High frequency photons in the gamma and X-ray bandwidth will destroy life. The ultraviolet bandwidth, while less deadly than gamma or X-rays, also damages life (Molles, 2005). On the other end of the spectrum, radio waves have such a long wavelength that living things are unable to utilize their energy.

The sun also pours out large quantities of charged particles that would quickly ionize any living cells. However, the earth’s magnetic field diverts the charged particles away from the earth, preventing them from damaging life (see figure 1). Amazingly, the earth is the only one of the rocky planets (Mercury, Venus, Earth and Mars) that has an active magnetic field.

The Earth’s atmosphere adds another layer of protection (Molles, 2005). Most of the primary cosmic rays that do penetrate the magnetosphere are captured or changed to less damaging secondary cosmic rays by the atmosphere. The ozone layer in the atmosphere also absorbs high-energy, harmful ultraviolet radiation (Molles, 2005). Consequently, most of the light energy from the sun that actually reaches the earth is useful for life. This is called the visible light spectrum and includes those frequencies that are perceived by the vertebrate eye and that stimulate the production of necessary molecules such as vitamin D (Molles, 2005). These frequencies are also used by plant life to manufacture food and are termed "Photosynthetically Active Radiation" or PAR (see figure 2). In addition, the atmosphere delivers the earth’s moisture, which is necessary for life, and protects the earth from most damaging space debris such as meteors. It also moderates the temperature of the earth so that in most places, except the poles, earth’s surface temperature is maintained in the very narrow temperature range that can support life (Molles, 2005).
Cycles and Recycling

Another evidence of design is the conservation of the materials necessary for life. Most of the basic necessities for life on earth are conserved through a myriad of different cycles of use. Some of the more basic cycles include the water and carbon cycles and various nutritional cycles such as nitrogen and phosphorus. Many of these cycles are integrated with each other.

Cycles illustrate some important aspects of the character of God. God is a God of order. Furthermore, everything about the structure and function of earth systems shows attention to minute detail. Each aspect has been carefully thought of; nothing has been omitted. Cycles also tell us that God does not waste materials or energy.

The Water Cycle

The water cycle was first described by Solomon five-hundred years before the Greeks were doing science:

"The wind blows to the south and turns to the north; round and round it goes, ever returning on its course. [Low and high pressure cells that clash and cause precipitation.] All streams flow into the sea, yet the sea is never full. To the place the streams come from, there they return again" (Ecclesiastes 1:6-7, NIV).

It is really an amazing observation by Solomon that, "all of the streams flow into the sea yet the sea is never full." How many of us, standing beside a river flowing into the ocean, ever realize that the sea level remains approximately the same year after year after year, in spite of all of the water flowing into it. We would probably not even think about all of the other rivers in the world also dumping water into the sea. Yet Solomon included this in his words of wisdom.

Figure 3 The Earth’s water cycle (Molles, 2005, p. 54)
Our current water cycle is powered by the sun. The sun’s energy causes water to evaporate. As it rises, it cools and condenses, forming droplets. The droplets fall as rain and as rain water collects it runs off the land into streams. The streams flow into rivers, which then flow into the ocean—and the cycle starts over again. But this is a post-flood phenomenon (Molles, 2005). Here is an opportunity to show students how science, and especially ecology, can help us understand the Bible better. In this way we may give them greater confidence in the Word of God.

Now no shrub had yet appeared on the earth[a] and no plant had yet sprung up, for the LORD God had not sent rain on the earth and there was no one to work the ground, [6] but streams[b] came up from the earth and watered the whole surface of the ground.... [10] A river watering the garden flowed from Eden; from there it was separated into four headwaters. [11] The name of the first is the Pishon; it winds through the entire land of Havilah, where there is gold. [12] (The gold of that land is good; aromatic resin[d] and onyx are also there.) [13] The name of the second river is the Gihon; it winds through the entire land of Cush. [e] [14] The name of the third river is the Tigris; it runs along the east side of Ashur. And the fourth river is the Euphrates (Genesis 2:1-6, 10-14, NIV).

Before the flood, there was no rain, yet streams came up from the ground and there were four rivers that flowed out of Eden. If it did not rain, how long would the streams and rivers flow?

The hydrological cycle had to have been completely different before the flood. The cycle probably had to occur below ground (the fountains of the deep) rather than through the atmosphere. It still takes energy to lift water. In the atmospheric water cycle that we have today, the sun provides the energy. Sunlight would not have much effect on underground water. Therefore, we must look for another source of energy. That energy could have come from the heat generated by radioactivity under the earth’s crust (a molten mantle) plus the gravitational energy of the moon and sun.

The point to be made here is that if we come to science from the point of view of believing in God’s Word rather than in trying to test God’s Word by scientific observation, we can come to an even greater understanding of earth history than we could by observation alone.

The Carbon Cycle

The carbon cycle contains two different levels. The first cycle occurs within life and the second occurs after living organisms have died. We all generally understand the carbon cycle within life. Carbon dioxide in the atmosphere is taken up by plants where it is combined with water to make sugars, using energy from the sun. Animals then consume the plant material and digest the sugars, giving off carbon dioxide and water to the atmosphere. The sugars contain the energy that animals use for life (Molles, 2005).
The cycle of carbon from dead organisms is altogether different. Some of it is released by decomposers into carbon dioxide and water (Molles, 2005). Some of it remains in the soil as a carbon reservoir while some is released directly from the burning of plants by fire and lava.

Some of this carbon is trapped in modern ocean sediments. The Flood removed a tremendous amount of carbon from the carbon cycle and preserved it in the rock layers as coal and oil. By burning fossil fuels, we are releasing carbon back into the atmospheric carbon cycle that has not been there since before the Flood.

Here is an excellent opportunity to show students how a belief in the Bible will yield a completely different understanding of the modern issue of "global warming." A scientist cannot predict the present day consequences of adding carbon to the atmospheric cycle even if global warming can indeed be demonstrated. From the naturalistic worldview, the secular scientist cannot tell whether the warming trend is from the burning of fossil fuels or whether it is simply part of the natural warming and cooling cycles which have occurred on earth over millions of years. The Bible student will understand that there have never been cycles over millions of years—because life has not been present on earth for millions of years. We would believe that all of our fossil fuels were formed during the year of Noah's Flood and have not been part of the carbon cycle ever since. We would, therefore, model the effect of fossil carbon on climate in a completely different way.

**The Nitrogen Cycle**

Approximately 79% of the Earth's atmosphere is composed of nitrogen, mostly in the form of N₂ (Smith & Smith, 2001). Atmospheric nitrogen is not useful for most life. It needs to have oxygen added to it to make nitrite (NO₂) or nitrate (NO₃) ions. Most of the nitrogen used in this cycle is produced through the action of bacteria.

Many of these bacteria live in nodules on the roots of certain plants, such as legumes, where they convert atmospheric nitrogen into usable nitrate ions. This is called nitrogen fixation (Molles, 2005). Nitrate ions may then be taken up by plants and function as fertilizer. There are other bacteria that convert animal wastes, such as urea, into nitrite and then nitrate ions (Smith & Smith, 2001).

Some bacterial species may, under anaerobic conditions, use the oxygen from the nitrate ion and convert the nitrate back into atmospheric nitrogen. Some nitrogen is carried by rain runoff into rivers and lakes or finally the ocean and where it becomes trapped in sediments. This trapped nitrogen is effectively removed from the nitrogen cycle (Molles, 2005).

![Nitrogen Cycle Diagram](Molles_2005_p.465)

**Figure 5.** The nitrogen cycle (Molles, 2005, p. 465).

**The Phosphorus Cycle**

The main reservoirs of phosphorus in the biosphere are rock and natural phosphate deposits from which
Developing Confidence in the Creator God

the element is released by weathering or by mining for agricultural use. Biologically, phosphorus is part of the structural backbone of DNA and also makes up the bony tissues of vertebrates. Plants extract phosphorus from the soil where it either comes from decaying organisms or from weathering of the bedrock (Smith & Smith, 2001). Vertebrates eat the plants and utilize the phosphorus in making bone tissue.

Vertebrates eat the plants and utilize the phosphorus in making bone tissue. Inorganic phosphorus is also mined and converted into plant fertilizer. Excessive fertilizer often washes into rivers, lakes, and oceans where it causes algal blooms and other catastrophic effects. Marine algae absorb some of the phosphorus, which is then incorporated into the food chain, harvested from the sea by man and returned to the land cycle as human waste. Marine birds also excrete excess phosphorus in their feces, which is returned to land.

Law, Reproduction, Sin, and Death

The previous examples show how “fearfully and wonderfully made” we are. Much of the earth shows the signature of God, the Designer and Engineer, in the form of the perfection of natural law. But sin, and along with sin death, introduced processes that were never intended for the perfect world that God had created.

However, we will see that even under the dominion of sin and death, God’s sovereign hand may still be seen. God foresaw the need and designed natural laws to govern the ecological processes that include death, even though He never wanted these laws to have to take effect.

As we see how even natural laws relating to death blend with the perfection of design we can still have confidence in a loving, all-knowing Creator God. Once sin entered the world, life would not have survived at all without laws guiding what was to happen.

Laws of Population Growth

According to Scripture, life was created with the ability for reproduction. Reproduction was part of the pre-
Developing Confidence in the Creator God

sin, perfect world. One of the first commands God gave this world was the command to "be fruitful and multiply."

Reproduction without death is termed "geometric growth" (Molles, 2005). Geometric growth is essentially exponential growth with discrete points only based upon actual time intervals such as years and actual numbers of individuals. It can be represented by the equation shown in the above figure. The population at any time in the future is represented by \( N_t \). This future population size will be determined by the starting population (\( N_0 \)) multiplied by the average number of offspring left at the end of one breeding interval (\( \lambda \) [minutes to years]) to the power of the number of time intervals (\( t \)). Because the growth is exponential, the population will become infinitely large given enough time.

Figure 8 is a plot of geometric growth in the plant *Phlox*. You can see that during the first six years the population climbs to just under 200,000. But in the next two years the population increases to over 1 million individuals. In the next year the population size would be over 10 million. Given just a few decades more, if conditions do not change, this plant species would cover the whole world.

Clearly, there have to be limits to population growth, even in a perfect world. There will always be a limited environmental carrying capacity (K) for each species population that God made. How population growth would have been limited so as not to outstrip the food supply, we have no idea. Perhaps as populations reached their carrying capacity, reproduction would slow down and stop because of social pressures or some other non-death cause. We can only guess at what might have occurred. But it is clear that population growth follows natural law. The law governing the rate of reproduction for a species is: 
\[
R_o = \sum X \times l_x \times m_x \text{, where } R_o = \text{Net reproductive rate, } X = \text{Age interval in days or years, etc., } l_x = \% \text{ of the population surviving to each age (x) and } m_x = \text{Average number of offspring produced by each individual in each age category.}
\]

Continuous population growth in an unlimited environment can be modeled exponentially: 
\[
dN \, / \, dt = r_{\text{max}} \, N
\]
As population size (N) increases, the rate of population increase (dN/dt) gets larger. We do not live in a world with unlimited environmental resources. There is no evidence available today about how God intended to limit populations without death in order to avoid stripping the world of its resources. But after sin entered this world, death has taken the role of suppressing population growth.

The Death Before Sin Issue

\[ \text{Therefore, just as sin entered the world through one man, and death through sin, and in this way death came to all people, because all sinned….} \]
\[ \text{For the creation waits in eager expectation for the children of God to be revealed.} \]
\[ \text{For the creation was subjected to frustration, not by its own choice, but by the will of the one who subjected it, in hope} \]
\[ \text{that the creation itself will be liberated from its bondage to decay and brought into the freedom and glory of the children of God (Romans 5:12, 8:19-21, NIV).} \]

With the entrance of sin came death and the never ending round of birth, aging and dying that continues through to this day. There has been considerable debate regarding to which group or groups of life these texts in Romans would apply. There is a general consensus that they clearly apply to mankind, but their application to non-human life remains controversial.

While some restrict the above texts to mankind, with no application to any plant or animal life form, Brand (2003) makes the argument that at least some animals did not experience death before sin. He argues that texts in Isaiah imply that in the new earth, mammals will not prey on other mammals, like the lion preys on the lamb. By implication, the same would apply to the old earth prior to sin. He also suggests that other higher vertebrates such as birds and reptiles were not subject to death before sin. However, there had to be cellular death of some forms of life or Adam could not have digested the fruit that he ate. Brand argues that there may have been death in organisms including invertebrates and the lower vertebrates such as fish.

Figure 9 Table of population growth in the mud turtle (Molles, 2005, p. 264).
Part of the problem with establishing the limits of death before sin is the very detailed apparent design for predation and death. Some examples include the pit vipers that have heat sensors able to detect minute variations in air temperature, thus allowing them to find their warm-blooded prey. They also have long, hollow fangs for the delivery of poisons (digestive enzymes) into their prey.

Another example of a design for death is the Turkey vulture. Through the sense of smell, this scavenger can detect even single molecules of a decaying organism. They can actually track the odor molecules, enabling them to find the dead organisms to scavenge.

In addition, all members of the mammalian order Carnivora have a special set of slicing teeth; the upper 4th pre-molar over the lower 1st molar (the carnassial teeth). All of the mammals that have this tooth design eat meat.

None of the species of mammals that have a battery of flat-topped, grinding teeth eat meat (the Perissodactyla and Artiodactyla: horses and cows). In other words, after sin it was not hunger that dictated which species would eat meat and which would not. Rather it was the design of their dental battery combined with specializations of the digestive tract that determined who would eat what after sin. Carnivory and predation had to be designed. Scavenging must also have been designed.

Death Rates and Survivorship

Predation is probably the largest contributor to death in our world. By studying the ages at which death occurs, laws of survivorship can be determined. Below (figure 10), is a survivorship table for Dall sheep. From the table below you can see that the highest number of deaths is from birth to one year of age and again from the eighth year on. Once a Dall sheep reaches maturity it has a high probability of survival until it reaches old age.

The data presented in the survivorship table can be plotted to form a survivorship curve. Survivorship curves show us that some groups of species survive differently from year-to-year than other groups. These can be characterized as Class I, II and III types of survivorship curves. The different types of survivorship curves are illustrated above in Figure 11. The Dall sheep survivorship derived from Table 1 creates a Class I curve.

![Figure 10 A survivorship table for Dall sheep.](image-url)
Under the regime of death, there are laws that govern population dynamics. If a population exceeds the carrying capacity, it will run out of resources and death rates will increase rapidly until most of the population dies. An application of this law can be seen in what happened after the introduction of reindeer on St. Paul Island, one of the Pribilof chain in Alaska, in 1910. The introduction of four males and twenty-two females grew exponentially to a herd of 2000 in only thirty years. This exceeded the ability of the range to support the population, which then crashed, also in an exponential fashion. Clearly, God designed that populations should not exceed the carrying capacity.

Figure 11 Three different classes of survivorship curves (Molles, 2005, p. 258).

Figure 12. Population growth and decline after the introduction of reindeer to St. Paul Island, Alaska.
The Law of Population Growth and Carrying Capacity

The law of population growth related to carrying capacity is an expansion of the population growth function from above, \( \frac{dN}{dt} = r_{\text{max}} N \), but adding for the effect of the carrying capacity (K):

\[
\frac{dN}{dt} = r_{\text{max}} N \left(1 - \frac{N}{K}\right)
\]

It represents the rate of the reproductive increase \((r_{\text{max}})\) times the population size \((N)\) times \([one minus the population size \((N)\) divided by the carrying capacity \((1-N/K)\)]\). As the population size approaches the carrying capacity, \(N\) divided by \(K\) will approach one. One minus one equals zero and any number times zero equals zero so there will be no population growth past the carrying capacity.

The Laws of Competition

What happens to population growth if two or more individuals (intraspecific competition) or if two or more species (interspecific competition) are competing for the same resources? This, too, is governed by natural law.

The niche is the summary of environmental factors that influence the growth, survival, and reproduction of a species. One of the laws of competition is that two species with identical niches cannot exist indefinitely. One will be a better competitor and thus have higher fitness and will eventually exclude the other. This will result in either the extinction of the poorer competitor or in subdividing the niche; one species using one part of the niche while the other species uses a different part of the niche. This is called niche partitioning (Molles, 2005).

But species may compete with each other even though they do not have identical niches. There is another law of competition that may be understood mathematically. It is the effect of interspecific competition on the population growth of each of the two competing species (Molles, 2005). The law of competitive population growth is an expansion of the earlier equation governing population growth without competition, but with the carrying capacity included: \( \left[ \frac{dn}{dt} = r_{\text{max}} N \left(1 - \frac{N}{K}\right) \right] \)

The expanded law includes the effect of competition on population growth of species one from competition with species two and vice versa. The equations that govern population growth where two species are competing with each other are as follows:

\[
\begin{align*}
\frac{dN_1}{dt} &= r_{\text{max}1} N_1 \left(\frac{K_1 - N_1 - \alpha_{21} N_2}{K_1}\right) \\
\frac{dN_2}{dt} &= r_{\text{max}2} N_2 \left(\frac{K_2 - N_2 - \alpha_{12} N_1}{K_2}\right)
\end{align*}
\]

Where:

\(\alpha_{21}\): is the effect of individuals of species 2 on rate of population growth of species 1; and

\(\alpha_{12}\): the effect of individuals of species 1 on rate of population growth of species 2.

In general, competitive exclusion predicts the coexistence of both competing species only when, for
both species, interspecific competition is weaker than intraspecific competition; otherwise one of the species will exclude the other. The equations above also predict the point at which population growth for the two species will stop, which is: 

\[ N_1 = K_1 - \alpha_{12} N_2 \quad \text{and} \quad N_2 = K_2 - \alpha_{21} N_1. \]

This is the point at which species populations are neither growing nor declining is termed the Zero Growth Isocline. Above the line the population is decreasing. Below the line the population is increasing. The coexistence of two species is only possible when isoclines cross. In other words, where the isoclines cross, competitive exclusion does not occur and both species can coexist.

**Laws of Predation and Parasitism**

There are also laws that govern population growth or decline with predation and parasitism. Predator and prey populations may never reach carrying capacity because they limit each other’s population growth. These equations assume that a host population grows exponentially and population size is limited by parasites, pathogens, and predators. The host population growth is determined by the equation: 

\[ \frac{dN_h}{dt} = r_h N_h - p N_h N_p. \]

\( r_h = \) Exponential growth by host population. The growth rate of the host population will be limited by \( (-) \): \( p N_h N_p = \) the rate at which exploiters destroy hosts.

- \( p = \) rate of predation/parasitism;
- \( N_h = \) Number of hosts; and
- \( N_p = \) Number of parasites/predators.

The equations assume that predator/parasite growth rate is determined by the rate of conversion of food into offspring minus the mortality rate of the predator/parasite population: 

\[ \frac{dN_p}{dt} = cpN_h N_p - d_p N_p. \]

- \( cpN_h N_p = \) Conversion rate of turning hosts into offspring (increase population).
- \( -d_p N_p = \) The death rate of the predators times the predator population (decrease population).

You can see that even death by predation is governed by the natural laws created by God. Death was not a surprise to God.

**Laws of Disturbance**

Presumably, before the flood, there would have been few natural disasters. Earthquakes and volcanoes would probably have been initiated at the time of the flood. Severe storms in the temperate regions are caused by clashing cold and warm air masses. The cold air masses come from areas of polar ice, which are remnants of the Ice Ages and would not have existed before the flood. After the flood, all of these processes and others, such as
Developing Confidence in the Creator God

drought, have created frequent natural disasters that disturb the environment (Smith & Smith, 2001). These disturbances do not allow any opportunity for populations to reach an equilibrium.

Ecologically, a disturbance is any relatively discrete event in time that disrupts an ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment.

Some species are designed to exploit disturbances. Their life history strategy is to produce lots of young in hopes that as they disperse they will encounter new areas of disturbance where they can thrive. These species are driven by reproduction and are termed “r strategists” (Molles, 2005).

Alternatively, other species are designed for stable environments. They produce fewer young that are more highly developed at birth. These are termed “K strategists” (Molles, 2005). You may recognize the terms r and K from our population equations that reference reproductive rates (r) and carrying capacity (K).

The important conclusion from this observation is that since disturbances would not have occurred before sin and death, and in fact may not have occurred much before the flood, the fact that there are species designed to exploit disturbances means that God foresaw the future need of this even as He saw the need for predation and carnivory before there was sin.

Summary of Faith Issues

Through the biblical understanding of earth’s history, we know that in addition to the disturbances that we see around our lives almost daily, there have been other environmental changes at a number of different scales. At the global scale there have been changes that are the result of sin or of Noah’s flood, while at the local level there have been disturbances such as earthquakes, volcanoes, fires, floods and other disasters. Our understanding of ecology includes the realization that God knew that these things would occur and had already established natural laws to govern how death and disasters could occur, while making provision for life on earth to survive.

The abundant evidence of design, as seen in the various cycles and in the construction of the earth, give us confidence that we have an all-knowing God. They speak of a God of love, who cares about the survival of His creation. And even though man brought sin into the world, God has set limits to the evil that came as a result. This confirns what the Bible writers have repeatedly stated: God loves us individually and He loves the world that He created. Paul tells us that even though all creation groans under sin like a woman during childbirth, God plans to return this earth to the pre-sin state where the laws of competition and death will no longer apply.

In summary, the study of ecology should give us greater confidence in God. It should be taught in such a way that by studying the world He has given we may find an even greater faith in His Word.

References