

**How many are your works,**

**O LORD!**

**In wisdom you made them all;**

**the earth is full of your creatures...**

**teeming with creatures beyond number.**

**May the glory of the LORD**

**endure forever;**

**may the LORD rejoice in his works.**

**from Psalm 104:24,25,31**



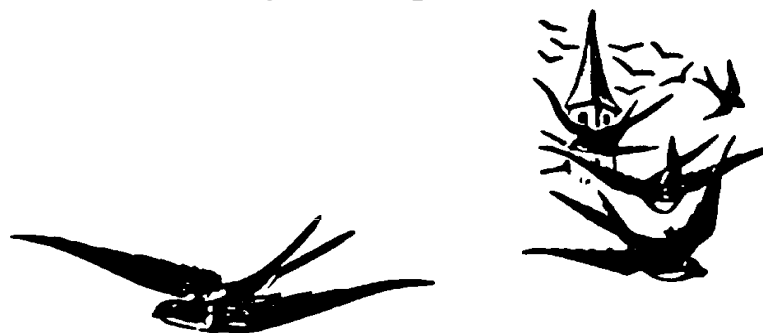
**Some Biblical and Scientific Perspectives  
on  
SPECIES PROTECTION**

## *Introduction*

Taking care of endangered species engenders heated debate. Do animals come before humans? Is it worth the expense? Should government be involved?

However, biblical people need to think biblically about these issues? How can Scripture inform our discussion? What would be a biblical response to the endangered species debate? What might God think of endangered species? Here are some guidelines for reflection on how we might follow Christ and respond with godliness to the needs of his creatures.

### *Biblical and Theological Perspectives*



► **Goodness of creation.** Scripture expresses God’s delight at the myriad of species. Gen. 1 pronounces them “good” (vv. 21, 25). The creation story also repeats the word “kinds” (seven times in five verses, Gn. 1:20-25) showing that God gave special attention to variety. The Creator also commissioned Adam to name each specie: Gn. 2:19-20. Scripture also affirms the goodness of the human creation: Gn. 1:26-28, Ps. 8:3-8, Mt. 10:31. Despite the grandeur of creation, humans must be careful to worship God alone: Is. 42:8, Rm. 1:18-25.

► **God’s Joy.** Throughout Scripture, we find the Creator rejoicing in his works (Ps.104:24-25, 31, etc.) and paying attention to even the most insignificant (Mt. 10:29). God describes his creatures with awe, admiration and pleasure. Dare we diminish the joy God finds with his handiwork?

► **God’s concern.** Matt. 10:29-31. Not a sparrow falls to the ground apart from the will of the Father. This reveals an intense involvement in the daily, seemingly inconsequential affairs of creation. It reveals a God who is not a scientist collecting cold data, but a Creator intimately leading creation toward the accomplishment of his will. Also revealed is the supreme value of the human creation: If God so esteems slugs and salamanders, what does this imply about me? It could be said that advocating for the protection of species elevates the stature of the human as well. When we know what is out there, it makes the human all the more valuable. Could it be said that a contributing factor to the demeaning of human existence is a loss of contact with the Creator God and his splendid creation?

► **Human responsibility toward creation.** Humans have a very special and exalted place within creation (Gn. 1:26-28, Ps. 8:3-8, Mt. 10:31). However, Scripture provides us with no mandate or

calling to destroy; our commission is to serve as stewards of creation: Gn. 1:28, 2:15. Genesis 1:28 is a strong passage that refers to ruling over creation. The ancient Hebrew word is *redah* and it generally is used to describe the righteous and loving rule of a good and kindly king. Genesis 2:15 describes how this rule is to be carried out. The two key words in Genesis 2:15 are “till” (*abad* in Hebrew) and “keep” (*shamar*). In other texts, *abad* is translated to “serve.” Joshua 24:15 says “we will serve (*abad*) the Lord.” What kind of service would our God require of us? Responsible or destructive? How would our God have us serve (*abad*) creation? *Shamar*, on the other hand, describes the type of keeping that is illustrated in Numbers 6:24 where the Lord through the prophet Aaron speaks of his keeping of the Israelites. “The Lord bless you and keep (*shamar*) you.” Certainly, God keeps his people in such a way as to demonstrate his great love and care. His keeping would cause his people to thrive. In a similar fashion, we are charged with the “keeping” of creation. Creation deserves our love and our labors that contribute to its health and vitality.

► **Human Concerns.** Most Scripture would seem to lend support for preserving species for their own sake. Scripture also teaches that humans can enjoy the benefits of creation: Gn. 1:29-30. It would be difficult to enjoy the benefits of something which no longer exists. Also, all creation is to enjoy these benefits as well: Gn. 1:30.

► **Fruitfulness.** Scripture commands us to tend creation so that it can be preserved and regenerate itself. Dt. 22:6-7.

► **God Sustains.** The Bible says that God sustains his creation: Ps. 145:15-16, Mt. 6:26,30. By what calling do humans override God’s involvement with what he has made?

► **Covenant.** God made a very specific covenant with all life: Gn. 9:8-17; it is not to be destroyed.

► **God’s Will.** In the Noah story, God has revealed his will that all life be preserved, Gn. 6:19-20, 7:1-3, 7:14-16, 8:17, and in such a way that it may regenerate itself: Gn. 6:19b, 20b, 7:3b, 8:17c. Natural extinctions will sometimes occur as a part of God’s will, but this is not a human prerogative.

► **God’s Witness.** “For since the creation of the world God’s invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that men are without excuse.” (Romans 1:20). Who are we, through our actions, to degrade the witness to God’s power and divinity? Who will face him on the Judgment Day and give an explanation for our actions? What will we say to him?

► **Worship.** The Bible says that all creation praises God: Ps. 96:11-13, Rev. 5:13. Silenced voices of praise are a great tragedy, a symphony “finished” in an untimely manner.

► **Human Worship.** Can one read Psalm 104 or Job 38-41 without experiencing awe and wonder as the Lord describes the creatures of His creation? To know what God has made is to know him better and to be better equipped to worship him.

► **Human Responsibility.** God gave to Noah and to Adam specific responsibilities regarding the care of creation. Are we called to be any less responsible than Adam and Noah? If we claim to know

the Creator and to have a personal relationship with him, then how can we not be grieved at the destruction of the cherished gift that has been placed in our hands?

► **Ethical questions.** It would be easy to consider some species as more important than others. Most of us are far more appreciative of butterflies than slugs. But can we really make such decisions? Who are we to determine which species are more important than others? Could we call this “playing God?” Are we given a scriptural mandate to destroy? That is the prerogative of the Creator, not the steward. Our responsibility is to tend the garden.

► **Judgment.** “Your wrath has come. The time has come for judging the dead . . . and for destroying those who destroy the earth.” Rev.11:18. Our destruction of species is most often rooted in sin and for this we will be judged. Environmental degradation results from forms of idolatry, greed and pride: our technological pursuits lead us to forget about and be ignorant of God’s work in creation; we presume the importance of our work and needs, to the point of destroying God’s work; the powerful among us ignore the needs of the weak, destroying what provides subsistence for the poor or forcing them to marginal frontiers where they must live destructively in order to survive. In contrast to God’s knowledge, our ignorance is such that we don’t know all the different species that exist, how they interrelate, or how they might be useful or even necessary to us. Species extinction is symptomatic: it is a problem reflecting the sinfulness and unsustainability of lifestyles and our economy. “The sins of the father are visited on the sons,” says the Lord in Deut. 5:8-10. We now see that the sins of humanity are visited on other species as well.

► **Evangelism.** The unbelieving world is waiting for Christians to take a relevant stand on a variety of issues, including species protection. Ultimately, Christian involvement in species protection will be undertaken for its own sake as a way to honor God. Nonetheless, we can expect some in the unbelieving world to respond positively. Our work in species protection will speak powerfully about the very character of our God.

### *Scientific Perspectives*



► **Introduction.** The branch of science which focuses on the protection of the world’s species is referred to as conservation biology. In scientific circles it is known as a “crisis discipline”—often called upon to act or advise with little or no warning, with a limited knowledge base, and frequently dealing with emergency situations. In many ways it is similar to a medical emergency room; only the patients are not humans, but rather the other creatures of our Lord’s magnificent creation. Each is a Mona Lisa in its own right—painted into existence by the Lord’s own hand. The very fact that conservation biology exists is reason for concern, especially for Christians: it is testimony to our failure to properly steward creation.

► **What do we know about species?** Science tells us that there are between 5 and 40 million species alive today. Approximately 1.7 million have been identified and catalogued. We know that millions

of unidentified species exist. How many we are not sure. The temperate areas where the great majority of scientists work and reside are relatively well known, but our knowledge of the species of the tropics and the deep oceans where the majority of the world's species reside remains largely a mystery. But the point is not the sheer number of species. The crisis involves what is happening to known species as well as to the myriad unknown.

► **What are the primary causes of extinction?** Many factors contribute to the loss of species including the impact of introduced species, pollution, disease, and excess hunting and other forms of harvesting which exploit species at a rate that exceeds their reproductive potential. But the single largest and expanding threat is habitat destruction caused by human actions. No species can continue to exist when its ecosystem, its very home is destroyed.

► **What species are going extinct?** The best known groups of organisms are birds and mammals. Since the year 1600, a total of 83 known mammal species (2.1%) and 113 birds (1.3%) have become extinct. This number is expected to rise rapidly as the breeding populations of many species continue to decline. But even before the advent of modern technology, humanity took a heavy toll on creation. Approximately 70% of the known bird species have become extinct in the Hawaiian Islands since humans first arrived. Indeed, large-scale extinctions of Pacific island birds apparently was widespread. Recent evidence points to a loss from these islands in excess of 2,000 species following human habitation—a 20% reduction in the world's bird species. Evidence also links the colonization of Australia and North America with the disappearance of many species of large mammals (over 100 pounds). More than 50 mammal species have become extinct since the arrival of humans in North America. Fossils of extinct species have been found with spear and arrowheads imbedded in their bones. A few thousand years ago, western grasslands rivaled the great savannas of Africa in terms of the enormous numbers of animals. Both large grazing mammals and their predators were in abundance. Where are they today?

Determining present extinction rates and even the status of most species is difficult for all but a few well-known groups. For example, we know that 17 of the 22 crocodile and alligator species are threatened with extinction from habitat destruction and overhunting. But what about the world's plants or its insects? Peter Raven, perhaps the world's leading specialist on tropical botany has stated that 25% of the world's plant species are seriously threatened. And what about beetles which represent approximately 25% of all known species? You may be wondering why we should be concerned about beetles at all. After all, a bird or mammal must be far more important than a species of insect! Not necessarily. Each species plays a unique role in creation. The loss of any species has ripple effects across the fabric of creation. In recent studies of Central and South America, more than 90% of the beetles collected were from unknown species. A single tree may have as many as 1200 species of beetles of which 20% (160) are specialist feeders that occur only on that species of tree. There are approximately 50,000 species of tropical trees—each with its specialist beetle population. If the tree becomes extinct, so will the other species associated with it. And there are many other specialists on tropical trees besides beetles!

► **How are scientists able to estimate the numbers of animals going extinct?** There is a direct relationship between the size of an area and the number of species that it contains. A square yard of temperate forest habitat may have 10 species of plants while an acre will often number in the hundreds. The larger the area, the more species encountered -- up to a point. Of equal importance is the size of the area occupied by each species. Species that are restricted to small geographic areas are

much more likely to go extinct than are those with widespread distributions. Also the smaller the population, the higher the probability of extinction. And here lies a disturbing fact. It is thought that tropical species commonly have smaller populations and much more restricted distributions. Thus destroying an acre of tropical forest will likely have a much higher extinction impact than the loss of an acre of temperate forest.

With this limited information, it is possible to explain how estimates of species extinction rates are obtained. In a major tropical forest research study, scientists found that if 50% of the habitat was destroyed then approximately 10% of the species disappeared. When habitat destruction reached 90%, then 50% of the species were lost. At least 12 African and eight Asian countries have lost more than 50% of their wildlife habitat. In some cases (Hong Kong and Bangladesh), habitat destruction exceeds 90%. Using this logic, Dr. Edward Wilson of Harvard University estimates that if 1% of the world's tropical rain forests are destroyed each year (a conservative estimate based on current rates of deforestation), then 0.2 to 0.3% of all species would become extinct **per year**. Over 100 years, this would be a loss of at least 20% of all species, **if** extinction rates remain constant. Based on a total of 10 million species, the current annual loss is calculated to be 20,000 to 30,000 species. A horrendous toll on the creation! Whatever estimating technique scientists use today, the same general consensus is reached. Unless we reduce the rate at which we are destroying the world's ecological systems, hundreds of thousands of species will become extinct in the next 50 years.

► **What about those animals, like the dinosaurs, that would go extinct anyway?** Isn't it true that many species have become extinct in the past due to natural events? If so, why should we be concerned about more extinctions today? Yes, it is true that extinctions have taken place in the past. Indeed, scientists have identified at least five major periods of extinction in the fossil record when large numbers of species disappeared during a "short" (geologically speaking) period of time. Various explanations have been proposed to account for these sudden losses. Perhaps the most well-known is the asteroid-impact hypothesis. But even if extinctions have taken place in the past, is this sufficient reason to cause more today? Indeed, I think not. Peter Raven, director of the Missouri Botanical Garden, describes the present crisis as one of the greatest extinction episodes in the history of the Earth. What we are facing today is a catastrophic loss of the species that God placed here to share Creation with us. They are the species that God entrusted to humanity to name and to care for. We also have been given the privilege to use this special trust to meet our own needs—but it must be done in a sustainable fashion. We may take from the fruitfulness (the "interest") of creation, but must not destroy its "principal." This is clearly illustrated in Deuteronomy 22:6-7 where the Lord instructs the Israelites that "If you come across a bird's nest beside the road, either in a tree or on the ground, and the mother is sitting on the young or on the eggs, do not take the mother with the young. You may take the young, but be sure to let the mother go, so that it may go well with you and you may have a long life."

► **What good are many of these species anyway?** "When it comes to a snail darter or a dam, I vote for the dam! After all—what use is a snail darter?" More and more frequently we find ourselves forced to make a choice between human activities and species protection. Rarely (if ever) is the choice between the life of humans and the life of a non-human species. When conflicts arise they typically involve economic restrictions, projected or actual loss of jobs, and inconvenience. In response to these conflicts some are suggesting that the Endangered Species Act should be weakened and that all proposed listings under the act be examined through the eyes of a cost-benefit analysis. What is the value of the project vs. the value of the species? This raises a difficult question. How

does one actually determine the value of the species? What constitutes value? Can a monetary value be established for a species in the same way that we can measure the monetary value of a dam or the lumber cut from a tree? Let's briefly look at the question of establishing value.

There are many types of value that are recognized. Some are easy to associate with monetary value, others are perhaps impossible. A species that can be harvested and sold in the open market has **economic value** that is relatively easy to determine. Clothing (wool, cotton, silk), building materials (lumber), and medicinal products extracted from plants (taxol to cure cancer) provide obvious examples. But what about **values not yet discovered**? Wild plant species provide the primary source for new medicines and genes for new agricultural strains. Does a species whose use has not yet been discovered have a value? How is it to be determined? What if the species becomes extinct before its use is discovered? Another value is **ecosystem value**. Plants produce oxygen and remove pollutants from the air. Marshes are biological filtering systems. All species remove energy through food chains and are involved in the cycling of materials. Can one determine the value of the oxygen produced by a single tree? Or the amount of toxic air pollution that it removes? These are values that benefit the entire ecosystem. In most cases we will never know the ecosystem value of a species. Each plays a unique role in the functioning of Creation. If there is no obvious value directly to humans, does that mean the species is worthless? Another form of value involves **esthetics**. Can we reduce the beauty of a monarch butterfly, a zebra, or a mountain goat as it bounds across a snowfield in the high Rockies to a monetary cash value? Is it even right to try? Perhaps most difficult is the concept of **intrinsic value**. Do species have an intrinsic right to exist? Are humans the measure of all value or is God? When we read in Genesis 1:12 and 1:21 that God declared that the plants and animals of Creation are good, what does it mean? Can the value of goodness be reduced to cold, hard cash? Perhaps there is a higher value that we often ignore. This value is related to our responsibility as stewards. We are not asked to care for our Lord's creatures because of their economic or even intrinsic value to us. We are asked to be stewards because of Creation's value to the One who painted it into existence.



## *Conclusion*

When thinking about endangered species, it is easy to get caught up in political and economic agendas. Certainly, these many issues must be debated. However, the faithful disciple of Jesus Christ must first ask the question, "is there anything spiritual about this debate? How would my faith inform my own position on this matter?" These questions have rarely been asked by evangelicals. It is time to ask such questions.

In the opinion of a growing number of evangelicals, the protection of species is easily supported by Scripture and therefore, should be the concern of all God's people everywhere.

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