

Environmental Ethics: Municipal solid waste disposal verses the protection of the critically endangered *Leptotilawellsi*.

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Abstract— For decades, municipal solid waste (MSW) management in Grenada has strongly relied on the use of the Perseverance dumpsite as the country's main area for disposal. The establishment of a sanitary landfill in 2001 was meant to mitigate against the environmental impacts caused by the dumpsite's use, however, its abrupt operational failure led to MSW disposal operations being reverted to the dumpsite. The habitat of the endangered *Leptotilawellsi* (Grenada dove) is centered between these sites and has directly felt the negative impacts of the environmental degradation and the increased presence of its predators. This paper aims at providing an ethical analysis that prioritizes the protection of this endemic species, and makes a plea for the stop of such activities within the vicinity of its habitat. Arguments were made in defense of the species' protection and were based on the taxonomy of values in wildlands, moral obligations and various religious/biblical viewpoints. The results indicated that the MSW disposal operations in its current state and location failed to meet many basic environmentally ethical requirements and therefore justified the prioritized protection of the vulnerable species.

Keywords— Endangered Species, Endemism, Environmental Ethics, *Leptotilawellsi*, Taxonomy of values

1 INTRODUCTION

Environmental ethics is the philosophical discipline that studies the moral relationship, values and status of human beings to, and also of, the environment and its non-human contents [1]. It requires that we are more biologically objective (non-anthropocentric), and seeks to escape the ethical relativism that exists, so that a way past the culturally based ethics we are accustomed to may be discovered [2].

Ever since the beginning of life on earth, there has always been the extinction of countless creatures resulting from naturally changing physical and biological conditions [3]. Despite the fact that extinction occurs naturally, scientific evidence strongly indicates that there has been an increase in the current rate of its occurrence way beyond that of the natural rate of the past. The main driving force for this increase being the heightened rate at which habitats are lost. This is often associated with over-exploitation of wildlife for commercial purposes, the introduction of harmful exotic (non-native) organisms, environmental pollution, and the spread of diseases which pose serious threats to our world's biological heritage [3]. The shutdown of any life stream is the most destructive event imaginable. However, the wrong that we human beings do, or allow to happen through our carelessness, is stopping the historical vitality of life and the flow of natural kinds. Every species extinction influenced by man's actions, is essentially a kind of

super-kill that goes far beyond mere individuals, leaving nothing of the kind behind; neither life nor death [2].

The *Leptotilawellsi* (Grenada Dove) is an endemic species unique to the island of Grenada located in the Lesser Antilles [4]. It is one of the country's most unique possessions, featured on stamps and being the focus of environmental education in schools and ecotourism worldwide. It is described as being a plump, bi-colored bird around 31 cm in size, with a distinctive white breast and forehead, plain dark wings, white tipped tail and pale eyes [4].



Image 1
Leptotilawellsi, Mt. Hartman NP,
Grenada (Angie Cederlund)

The species may have already been rare[5], and is historically known to be confined to the dry woodlands of south-west Grenada and on the west coast region (around Perseverance). Although seasonal factors may have contributed to the decline in the species' population, this has been further exacerbated by large reductions in both the quantity and quality of suitable habitat, due to the deterioration caused by human activities. Consequently, this has led to the species' current critically endangered status[6], [7].

In order to mitigate against the full extinction of the species, dove sanctuaries were established. The Perseverance Dove Sanctuary being one of the only two protection areas for the critically endangered species [8], is located in the heart of Grenada's main municipal solid waste (MSW) disposal sites. Unconfirmed reports suggest that the sanitary landfill covers a portion of the 50% of Perseverance lands that were originally clear-cut for a planned quarry in the 1990's. Given the close proximity of these lands to the Perseverance dove sanctuary, it becomes safe to assume that these lands could have been part of the dove's habitat as well, thus having an effect on its population. Moreover, the continued MSW disposal activities at the nearby dumpsite, remains a main contributor to the degradation of the habitat and the harboring of predators such as mongooses and other potential predators which

are a direct threat to the species[8].

2 OBJECTIVE

The purpose of this paper is to build a case that supports the maximized protection of the endemic and critically endangered Grenada dove, by calling for the prevention of human activities that are directly or indirectly capable of having adverse effects on its habitat and ultimately, its fight for survival. In this case, the human activity in question is that of the ongoing MSW disposal operations which fail to provide pollution control measures to mitigate against the environmental impacts it produces. This paper also aims to highlight the factors that influence people's behavior and the reasoning behind their actions. It is therefore expected that the arguments raised, would be applicable to other cases similar in nature so that more ethical approaches can be taken in the management of the environment.

3 DISCUSSION

In building a case in favor of the prioritized protection of the vulnerable species, arguments were categorized and defined from three main perspectives: 1. Taxonomy of values, 2. Moral obligations and 3. Religious/ biblical views. These were based on the standpoints and literature of several renowned philosophers including Rolston Holmes, Immanuel Kant, and Aldo Leopold among others, as well as extracts from the teachings of the scriptures of the Holy Bible.

3.1. Taxonomy of values

Taxonomy of values as described by Rolston Holmes' in "Valuing wildlands" is firstly utilized within this case so that the various challenges that exist could be captured in a general sense. The seven meaning levels of value to be discussed includes individual preference (**Value-ip**), market price (**Value-mp**), individual good (**Value-ig**), social preference (**Value-sp**), social good (**Value-sg**), organismic (**Value-og**), and eco-systemic (**Value-es**) [9]. The various relationships that exist among each value were considered, and the arguments were developed around them as discussed below.

a. Individual preference (Value-ip)

Generally speaking, in this argument between the endangered species and MSW disposal, there are essentially two types of individual preferences (**Value-ip**) that can be expressed. Let's call these preferences **V(ip)1** and **V(ip)2**. **V(ip)1** represents



Image 2

The location of the Perseverance Dove Sanctuary in relation to the MSW disposal

the preferences of those who are perfectly fine with the current state of the MSW disposal operations for whatever reasons they may provide. On the other hand, **V (ip) 2** represents the preference of those individuals that place high value on the protection of the species and wish for adjustments in the current disposal operations. Both sides may have valid reasons in support of their choices, however, these preferences that they express remain subjective. One useful way out of the subjectivity of individual preference (**Value-ip**) is to look to the market price (**Value-mp**), which, although is produced by individual preference (**Value-ip**), has empirical objectivity [9].

b. Market price (Value-mp)

The market price (**Value-mp**) in this case is a comparison between the degree of usefulness that each of the two individual preference (**Value-ip**) options outlined in "a)" offers. In principle, these can be traded instrumentally to satisfy human interests, with their prices reflecting preferences. Table 1 below represents the market price (**Value-mp**) of both individual preference (**Value-ip**) options in accordance to the twelve types of wildland values as defined by Holmes. The range chosen to define the criteria of the market price (**Value-mp**), vary from Low, Medium and High and were objectively selected and described in the argument points' column. From the table, it can be seen that the market price (**Value-mp**) that the **V(mp)2** option possesses is practically greater than that of **V(ip)2** in each of the criteria considered. This judgement is of course based on the argument points provided, that clearly and truthfully represents the benefits and disadvantages of both options. Consequently, it can be established, that in an overall sense, **V(ip)2** trumps **V(ip)1** and should therefore be seen as the preferred option.

c. Individual good (Value-ig)

Individual good (Value-ig) can be seen as that which is in a person's interest, whether or not the individual chooses it. For instance, the Individual good (Value-ig) of those that seek the protection of the endangered Grenada dove through the discontinued state and/or location of MSW disposal operations, are in fact unknowingly seeking ecological stability and 'the balance of nature'. This is entailed within the land mechanics employed in ecology that applies to the biotic pyramid, and can ultimately lead to the protected lines of dependency for food and other services (food chain) within the ecological system [10].

d. Social preference (Value-sp) and Social good (Value-sg)

Some social preferences (Value-sp) appear to serve society at large, beyond the fact that, or regardless of whether, the satisfaction of individual interests are met. As long as these social preferences are not oppressive, they appear to command more importance than particular individual preferences [9]. In terms of social good (Value-sg), part of its worth is whether it has the ability to keep society functioning smoothly, regardless of whether or not it agrees with the corporate will [9]. This is where the weight of government and mass media (among other agencies), through wide scale awareness campaigns and educational programmes may sometimes be used to exceed the cumulative effects of individual preferences. As a result, the Social preference (Value-sp) may be influenced by such bodies so that social welfare, health and prosperity can be maximised for the nation's majority (Value-sg). This in essence reflects the principles of utilitarianism which speaks towards taking the stance/ action that maximizes the overall good within a particular circumstance.

In this case, the premises that may cause one to believe that the continued MSW disposal operations (in its current state and/or location) outweigh the need for the doves' survival would be disoriented. The reality of the situation is that the current MSW disposal operations take place at a dumpsite that does not carry any effective pollution control measures. This essentially results in the uncontrolled release of landfill gases and other air pollutants as well as the infiltration and surface runoff of the toxic leachate substances into surrounding water bodies and lands that support the livelihood of every living organism or species within its surroundings, including human beings [12]. Based on these grounds, it is safe to deduce that the effects of the toxic accumulation in the water bodies and lands, together with the fishes or crops consumed by the people or other species, will ultimately have a negative impact on their health which may ultimately add strain to the country's healthcare system and have potential to harm the tourism industry and economy. From a utilitarian standpoint, this therefore point towards the discontinued use of the current MSW disposal operations, as it does not conform to principles of meeting the overall good (the maximized Value-sg is not achieved).

TABLE 1
THE USE OF MARKET PRICE (VALUE-MP) TO COMPARE INDIVIDUAL PREFERENCE (VALUE-IP)

Value-mp Criteria	Value-ip	Value-mp	Argument points
Economic	V (ip) 1	Low - Med.	Avoids the cost of relocation (Negative: results in high remediation costs in the future)
	V (ip) 2	Med. - High	Tourism (foreign exchange, jobs..), cost recovery etc. improved
Life support	V (ip) 1	Low	Negatively affects health, agriculture, fisheries etc.
	V (ip) 2	High	Agriculture, fisheries, healthcare improved
Recreational	V (ip) 1	Low	Recreational activities reduced
	V (ip) 2	Med. - High	Recreational activities improved (birdwatching, swimming, hiking etc.)
Scientific	V (ip) 1	Low - Med.	Reduced potential for ecological research
	V (ip) 2	Med. - High	Ecology research benefits
Genetic diversity	V (ip) 1	-	No significant contribution
	V (ip) 2	High	The species cannot be protected ex situ nor can it be genetically substituted.
Aesthetics	V (ip) 1	Low - Med.	Destroys the beauty of nature; Pollutes the current surroundings (Positive: avoids destruction of alternative sites).
	V (ip) 2	Med. - High	The beauty of Nature is preserved; Species and environmental integrity protected (Negative: integrity of alternative sites may also be affected).
Cultural symbolization	V (ip) 1	Low	Contributes to the possible extinction of the national symbol (species)
	V (ip) 2	High	Symbolizes the national images of beauty, hope and pride
Historical	V (ip) 1	Low	Destroys historical integrity
	V (ip) 2	High	Provides future generations with a true image of what was (relic).
Character building	V (ip) 1	-	No significant contribution
	V (ip) 2	High	Teaches respect for nature
Therapeutic	V (ip) 1	-	No significant contribution
	V (ip) 2	High	Inspires various art forms (music, art etc.); it provides a mental escape from our chaotic world
Religious	V (ip) 1	-	No significant contribution
	V (ip) 2	High	Stewardship, Creation Spirituality; All things created by God should be taken care of.
Intrinsic	V (ip) 1	Low	Reduced intrinsic value will ultimately lead to limited instrumental value
	V (ip) 2	High	Intrinsic value maintained; the species is selected blindly, but nevertheless effectively as good fit in its environment

V (ip) 1: Individual preference value 1; the continuation of current MSW disposal operations as is;

V (ip) 2: Individual preference value 2; the protection of the Grenada dove by discontinuing the current state and/or location of MSW disposal operations.

e. Organismic (Value-og) and Eco-systemic (Value-es)

Although it may not always be distinctively clear, we must recognize that organisms also have ends that must be satisfied [2]. The species too has its integrity, its individuality, its right to life; and it is more important to protect this vitality than to protect individual integrity. From a biological standpoint, the right to life, is an adaptive fit that is right for life, which survives over millennia. This idea generates at least a presumption that the species in its niche are good right where they are, and that it is the right of us humans to let them be so that they can evolve in due time [2]. After all, they form part of the food chains of the biotic pyramid that appear so complex that it may appear disorderly, yet proving to be a stable and highly organized structure. The functioning of the system therefore depends on the co-operation and competition of its diverse parts [10]. Any change that occurs within this circuit, results in the need for adjustments in many other parts. These evolutionary changes, however, are usually slow and local [10].

The lack of proper financial investments in the infrastructure and technologies to mitigate against the environmental degradation of the current MSW disposal operations, is the reflection of a system of conservation based solely on economic self-interest. It therefore tends to ignore, and thus eventually eliminate, the many elements in the land community (such as the rare species) that lack commercial value, without firstly considering that perhaps they are essential to its healthy functioning [10].

3.2. Moral obligation

Deontology teaches us that it is our moral duty to prevent the endangerment of the species as it is the right thing to do. The direct or indirect effects of our current MSW disposal operations at the dumpsite, has contributed to critical endangerment and potential extinction (killing) of the rare species. It is therefore immoral and should be stopped or adjusted merely for that reason. The potential extinction results in weakened ecological sustainability, which robs future generations the opportunity to witness this rare treasure. If we choose only to react when the consequences of our actions are at a level that adversely affects our own well-being, then our decision is not only immoral, but also display signs of speciesism. For these reasons, the current disposal operations are immoral and should be reviewed and improved to prevent these undesirables from occurring.

3.3. Religious / biblical views

While some may be driven by the messages captured in the scripture of Genesis 1 which projects a somewhat anthropocentric interpretation, there are alternative scriptures that can be used to persuade otherwise. The religious argument in the defense of the species' protection can therefore be considered from at least three different religious/ biblical standpoints, including: 1) Stewardship, 2) Creation Spirituality and 3) Consequences of sin.

a. Stewardship

When the LORD God made the heavens and the earth, he took man and placed him in the Garden of Eden 'to work it and take care of it' [14]. The level of understanding that mankind possesses of the natural world he inhabits, allows him the predictive power to foresee the intended and unintended results of his actions and the power to reverse the undesirable consequences. However, human beings have become so focused on maximizing the interests of its own species that it has overlooked the principled responsibility it owes to the Earth [2]. The scripture of Ezekiel 34 speaks to this, showing that we, the assigned shepherds of the lands, have fallen short in fulfilling our duties. This is expressed in the quote: "you eat the curds, clothe yourselves with the wool and slaughter the choice animals, but you do not take care of the flock. You have not strengthened the weak or healed the sick or bound up the injured. You have not brought back the strays or searched for the lost. You have ruled them harshly and brutally" [15]. As it relates to the debate on the protection of the vulnerable Grenada dove species, we as good shepherds are obligated to ensure that its interests are safeguarded.

b. Creation Spirituality

In the words of St. Francis of Assisi: "If you have men who will exclude any of God's creatures from the shelter of compassion and pity, you will have men who deal, likewise, with their fellow men. All creatures have the same source as we have. Like us, they derive the life of thought, love, and will from the Creator. Not to hurt our humble brethren is our first duty to them; but to stop there is a complete misapprehension of the intentions of Providence. We have a higher mission. God wishes that we should succor them whenever they require it". According to St. Francis, all creatures, being made from God, carry the same degree on intrinsic value as we do and should therefore not be seen merely as having instrumental value. For

this reason, Saint Francis was a true steward, a caretaker of God's precious creation, a brother to the animals and treated all animals without discrimination [17]. Similarly, we must appreciate the intrinsic value of the vulnerable species and should not prioritize our interests over their need to survive.

c. Consequences of sin

"The earth is defiled by its people; they have disobeyed the laws, violated the statutes and broken the everlasting covenant. Therefore a curse consumes the earth; its people must bear their guilt. Therefore earth's inhabitants are burned up, and very few are left" [18]. From this scripture we can gather that the actions of man that result in the pollution/ destruction of the earth he inhabits, is a violation of the everlasting covenant between himself and God. Mankind is therefore expected to cherish and protect the lands he occupies, or else his actions become punishable. By maintaining the operations of a MSW disposal facility incapable of protecting against the devastation of the environment, the covenant is broken and we become subjected to the punishment of God.

4 SUMMARY

The arguments that were raised, covered various viewpoints that ranged from the taxonomy of values, moral obligations and religious/ biblical views. After serious consideration, it was found that each of the arguments appeared strongly in favor of the prioritized protection of the endemic and critically endangered *Leptotila wellsi* species. While it is acknowledged that the need for MSW disposal cannot be avoided, its current state certainly falls short of what is ethically acceptable. In making decisions regarding the environment, we must not only consider what is economically convenient or beneficial, but we must also recognize, that we the keepers of the lands (and everything in it), are spiritually and morally bounded to ensure that the integrity,

stability, and beauty of the biotic community is maintained. After all, we are members of that community and not the conquerors. Our loyalties, affections and intellectual emphasis must therefore reflect such.

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