

# On the Edge

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## Research Question

How can contemporary art work express an understanding of the plight of endangered species?

## Abstract

Many artists have contributed through their artwork to the understanding of the need for a vigorous biodiversity, which is a vital element to the health of the planet and is essential for the survival of all species including humans. Factors such as understanding of loss of habitat through deforestation, climate change, agriculture and introduction of exotic species impinge on biodiversity. This awareness is central to this project, and has generated the concerns embedded in this ceramic practice. By considering how art can contribute to the plight of endangered species this research initially examined the data which underpins the theories of the demise of biodiversity resulting in vulnerable, endangered and critically endangered species. Intensive case studies focussed on selected animals, which were to become the models for this ceramic work, which has built on the practice of other concerned artists. Finally, several aspects of environmental philosophy, such as animal rights, formed the basis for this work.

## Introduction

My exegesis examines the importance of biodiversity and the current status of selected vulnerable, endangered and critically endangered species, in order to inform my art practice. My work expresses the consequences for each animal when biodiversity is lost, due to human activity. Human activity has pushed some species into extinction which interrupts the life cycles of biodiversity. I have selected particular threatened animals because they are essentially voiceless and are caught in circumstances which have been created by human activity. Their dramatic decline in numbers and quality of life is indicative of humanity's self-centredness. Humans are at the top of the food chain and the effects of biodiversity loss may not be obvious. Short-sighted greed and ignorance need to be countered before it is too late.

I describe the many different impacts on each of these threatened animals due to human activity. Deforestation, the introduction of exotic species, poaching and exploitation are all *direct* impacts on the survival of vulnerable, endangered and critically endangered animals. Climate change and pollution are *indirect* impacts that lead to destructive and sometimes irreversible changes to the animals' habitats and populations. I discuss these issues as well as those artists, organisations and individuals that are working to curb the effects of human activity on these threatened species.

Initially I researched source material through worldwide organisations to ascertain the status of each selected animal. The International Union of Conservation of Nature (IUCN) which monitor animals in danger compile and maintain a list called the Red List which provides the current status of threatened animals. From this Red List I chose seven animals suffering from these *direct* and *indirect* impacts of human activity. I have also sourced information from The World Fund for Nature website (formerly World Wildlife fund), the International Panel on Climate Change (IPCC) and the United National Environmental Programme (UNEP) which monitors climate change and habitat degradation.



Later I refined my investigations to more specific conservation groups and their projects and how effective they are. For example, The Australian Orang-utan Project which rescue and rehabilitate injured and orphaned Sumatran Orang-utans.

Consequently my art work focuses on the loss of these animals and their habitats, through the impact of human activity. I have researched theories, philosophical opinions, scientific evidence and specifically artists and their art work to support my understanding of this threat to biodiversity and the efforts to address these issues.

The results of my research are central in providing the status of each animal, so I can express my concerns through my art work. The ceramic materials that I use are versatile and allow me to construct the figures in postures to demonstrate the circumstances of each animal due to human activity.

Chapter One explains the importance of a robust biodiversity and what happens when it is lost. Chapter Two describes each of the selected animals, their role in the ecosystem, the decline of their habitats and quality of life. Chapter Three discusses artists, conservation organisations and individuals working to protect these vulnerable species from extinction. I also describe contemporary artists' contribution to public awareness and understanding of the endangered species through their artwork. Chapter Four considers the philosophical views regarding the inter relationships of wildlife and humans. Chapter Five describes my previous and current art practice, motivation and the aims of my exhibition, *On the Edge*.



## Biodiversity



## Chapter One: Biodiversity and why we need it

**B**iodiversity, or biological diversity, is the variety of life in the ecosystem ranging from simple microscopic organisms to more highly developed species. In this chapter I will explain why humans need to maintain biodiversity and investigate how ecosystems work by examining how important each component is to the overall health of the ecosystem. Human beings are inextricably tied into the ecosystems around them and suffer the effects of non-functioning ecosystems. Through my research I have discovered scientific evidence that shows the decline of many ecosystems. This evidence motivates me and many artists to express their concerns through their art practice for the natural environment which supports diversity of non-human life.

I have reviewed the literature on the theories that indicate the importance of biodiversity and its management particularly that of rare or threatened species. I looked at the development of theories around ecology beginning with the early work of G.Evelyn Hutchinson and H.T.Odum and E.P.Odem together with the controversial theories of Stephen Hubbell. I was then able to focus on the *direct* and *indirect* impact of human activity on animal populations and their habitats.

Unfortunately, human beings often contribute to the destruction of ecosystems and consequently I will examine the outcomes of unhealthy ecosystems in terms of species loss through human intervention.

### Biodiversity

Biodiversity is not a simple characteristic of nature, but has several components and aspects, which I briefly explore in order to consider the complexity of the systems surrounding the selected endangered animals.

Fragile variations of ecosystems cover the planet, from the deepest ocean to the highest peak, in rainforests, jungles, deserts, lakes and coral reefs. Within ecosystems there is a variety of life, each doing its job and at the same time

supporting life. The ecosystem, if allowed, will evolve with climatic and geological changes in the environment. Within each ecosystem there is biological diversity ranging from simple microscopic organisms both flora and fauna and the genes they contain, to the more highly developed species. There are many ways of describing the three key levels of biodiversity and here I have chosen the terms genetic diversity, species diversity and ecological diversity.

*Genetic diversity* is the term to describe the gene variation of individuals in and between populations.<sup>1</sup> That is, the range of genetic variation within one species in one community and then the relationship of that community to another community of the same species.<sup>2</sup> Genetic diversity is often affected by the reproductive behaviour of individuals in a community. Their genes are responsible for the characteristics of the species. For example, Northern Hairy-nosed Wombats mate and produce Northern Hairy Nosed Wombats as offspring. Each species will mate with its own kind, but not necessarily from the same population and this may produce stronger offspring.

The total array of genes within a population is referred to as the *gene pool*. Small gene pools may allow inbreeding resulting in genetic defects; however, in larger gene pools the odds are that some of the individuals will be more adaptable and thrive under new conditions.<sup>3</sup> Each community of a species will adapt to the specific habitat in which it dwells. When two individuals from separate populations mate, they may produce offspring adapted to both environments, thus creating a more robust individual.

*Species (Organismal) diversity*, describes the variety of species in a selected ecosystem within a given area. For example, a coral reef and a rain forest are different ecosystems each supporting a specific, complex array of organisms. In addition this term describes the hierarchical structure and its components

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<sup>1</sup> Kevin J., Gaston, and J.I., Spicer, *Biodiversity: An introduction*. (Carlton: Blackwell Publishing, 2004), 5.

<sup>2</sup> Richard B. Primack, *A Primer of Conservation Biology*. (Sunderland: Sinauer Associates, Inc., 2000), 11.

<sup>3</sup> Michael J. Novacek, (ed), *The biodiversity crisis: losing what counts*. (New York: The New Press, 2001), 46.

from micro-organisms to mega fauna and how they support one another in the life cycle.<sup>4</sup>

*Ecological diversity*, describes the multiplicity of ecosystems within a given area.<sup>5</sup> This includes large and small areas which cover landscapes, microscopic habitats and niche populations and how each ecosystem supports the diversity in wider terms.<sup>6</sup> The climatic conditions, such as droughts, floods and bushfires affect the breeding pattern of its inhabitants. For example, Red Kangaroo females do not breed during droughts; however when feed is plentiful breeding commences.<sup>7</sup>

The three levels of diversity described support life on this planet at the fundamental level. Each level is intimately linked and relies on the other to complete its life cycle. Human beings are inextricably tied into the ecosystems and suffer the effects of non-functioning ecosystems. We are products of the natural richness of biodiversity and rely on its bounty to live.

Biodiversity is important in supplying nutrients in soil and water for micro-organisms, which is the start of the food chain as ecosystems provide natural sustainability for all life forms. Consequently, biodiversity supports and builds strong ecosystems as “*Healthy ecosystems can better withstand and recover from a variety of natural disasters*”.<sup>8</sup> Healthy ecosystems are able to supply fresh water, oxygen rich air and fertile soil, which are the fundamental building blocks to life on earth. Economic costs would be astronomical if we had to supplement natural resources such as water, soil and air.

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<sup>4</sup> Kevin J., Gaston, and J.I., Spicer, *Biodiversity: An introduction*. (Carlton: Blackwell Publishing, 2004), 5.

<sup>5</sup> Australian Museum Board of Trustees. “What is biodiversity.” Australian Museum, <http://australianmuseum.net.au/What-is-biodiversity>

<sup>6</sup> Kevin J., Gaston, and J.I., Spicer, *Biodiversity: An introduction*. (Carlton: Blackwell Publishing, 2004), 5.

<sup>7</sup> Maryland Wilson. “Drought and Kangaroos”, Australian Wildlife Protection Council: A voice for wildlife, <http://www.awpc.org.au/kangaroos/drought.htm>

<sup>8</sup> Anup Shah, “Biodiversity,” *Global Issues*, <http://www.globalissues.org/article/170/why-is-biodiversity-important-who-cares>

Fresh water is produced by evaporation from lakes, rivers, oceans and tropical rain forests. Tropical rain forests are the one biome (a large area dominated by a certain type of plant community)<sup>9</sup> which contributes heavily to the Earth's fresh water supply. Tropical rain forests produce their own climate, through heat created from decomposing organic matter which carries moisture to and beyond the tree canopy. Microscopic organisms, which live in the soil, contribute to the fresh water cycle by filtering harmful bacteria from ground water rendering it safe. This process also assists bacteria to convert organic matter into healthy soils.

Nutrient rich soil is another essential component to life. Vigorous ecosystems produce compost which subsequently becomes nitrogen rich soil as bacteria and algae break down organic matter. Soil also acts as moisture and nutrient depository which is an incubator for seeds to germinate. Spiders and insects contribute to the richness of the soil, by grinding the soil surface. Earthworms aerate and fertilised the soil with nutrient rich droppings through this process.<sup>10</sup> The fresh water and nutrient rich soil are necessary for plant growth, which provides nourishment to a large range of animal and insect life, which includes humans.

Plant life provides oxygen and carbon dioxide, the latter in small amounts. This process is photosynthesis, which absorbs sunlight and carbon dioxide and converts it to oxygen, which is expelled from the plant through moisture. Plants are a carbon sink which converts carbon dioxide into plant fibre. Photosynthesis only happens in green leafed plants and is the only process that naturally makes oxygen. In addition, Phytoplankton, which is a microscopic plant comprising of algae, lives near the surface of the ocean and absorbs carbon dioxide produced by human activity.

Water, soil and air are the basic elements and without them life on earth would not exist. As Novacek points out that;

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<sup>9</sup>Michael J. Novacek, (ed), *The biodiversity crisis: losing what counts.* ( New York: The New Press, 2001), 218.

<sup>10</sup>Anup Shah, "Biodiversity." *Global Issues*,  
<http://www.globalissues.org/article/170/why-is-biodiversity-important-who-cares>

*“We depend on working ecosystems to cleanse our water, enrich our soil, and create the very air we breathe, biodiversity is clearly not something to be discarded carelessly.”<sup>11</sup>*

Biodiversity in all ecosystems can be defined as having three values. There is a *direct value* in terms of food supply and medicines, and *indirect value* in terms of social and cultural values and finally, *bequest value*, which provides resources such as; forests, healthy rivers and oceans for coming generations.

### Direct Value

Biodiversity provides direct value in terms of food supply. In order for the ecosystem to operate effectively, plant and animal species need their habitats to have optimum temperature, clean water, sunlight and nutrients. However, over time human intervention has affected the genetic structure of some plants, so that approximately two hundred plant species have been domesticated for human consumption.<sup>12</sup> The domestication of plants and animals has been practiced for generations in the developed world. Domesticated plants do not have the same nutritional value as the traditional crops. In parts of the developing world nutritional deficiencies and associated illnesses are on the rise as traditional crops are abandoned for “Western” crops such as wheat.<sup>13</sup> Some plants and animals have been manipulated by way of genetic breeding to create a more disease resistant and palatable species for the marketplace. There is no clear view that these genetic strains are beneficial or otherwise to human health.

Another direct value, which affects our food supply, is natural pest control and pollination, which is called biological control. The use of natural enemies to control species is another advantage of biodiversity. Chinese farmers, under

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<sup>11</sup> Michael J. Novacek, (ed), *The biodiversity crisis: losing what counts.* ( New York: The New Press, 2001), 18.

<sup>12</sup> Kevin J., Gaston, and J.I., Spicer, *Biodiversity: An introduction.* (Carlton: Blackwell Publishing, 2004), 92.

<sup>13</sup> Sally Woollett, ed., “Biodiversity is back on the menu: will traditional crops return to the dinner table ?” *Issues* 93 (2010): 11.

Mao's direction discovered the over-whelming disadvantages when sparrows were targeted for extermination. The farmers were instructed to create a loud hostile environment to force the birds feeding on their crops, into the air. This process was kept up long enough for the birds to fall from the sky dead from exhaustion. The crops were safe from the birds, but were then destroyed by insects which decimated the fields and left the farmers with no harvest<sup>14</sup>. The farmers learnt the direct value of natural biological control offered by the insect eating birds.

The economic savings and food gains from crops under control of natural species are immense. Allowing birds, spiders and insects to conduct their natural processes is also beneficial to humans. Birds, spiders and bees all contribute to the cultivation of crops through pollination. The bird or insect moves in and out of the centre of the flower collecting nectar, at the same time it carries pollen from the male part of the flower to the female part, thus pollinating the plant. Bees are the most efficient pollinators and are responsible for one out of every three pieces of food we eat.<sup>15</sup> They are so efficient that farmers hire colonies of bees to pollinate their crops. The decline of bee species is of growing concern worldwide. Over a third of our food supply comes from plants which need to be pollinated. Birds and bug eating insects are replaced by pesticides to reduce bug infestations on crops. These may have adverse effects on the soil, animal species and ultimately humans.

Medicinal qualities that plants offer are important to human health. Historically, plants, fungi and micro-organisms have been exploited for their medicinal properties and are used in traditional medicine and modern pharmaceuticals. The Greek physician, Hippocrates used herbal treatments from over six hundred plant species. Currently, many plants still provide remedies, for example, aspirin is a derivative of Willow tree bark<sup>16</sup> and Quinine used to treat

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<sup>14</sup> Judith Shapiro, *Mao's War on Nature: Politics and the Environment in Revolutionary China*. (Cambridge: University Press, 2001), 225.

<sup>15</sup> Michigan State University Board of Trustees. "Native Plants and Ecosystem Services: Pollination." <http://nativeplants.msu.edu/pollinators.htm>

<sup>16</sup> No author, University of Texas, "Medicinal Plants" <http://www.sbs.utexas.edu/mbierner/bio305e/lectures,%20etc/medicinal%20plants%20i.pdf>



Malaria, is derived from the bark of the Cinchona tree.<sup>17</sup> In addition to the natural derivatives, synthetic compounds have been developed to mimic the natural product. Gaston and Spicer indicate that “More than sixty percent of the world’s human population relies almost entirely on plant medicine for primary health care”.<sup>18</sup>

Animals also have not escaped exploitation for their medicinal value. Some practitioners of traditional medicine believe the qualities of indigenous animals have direct medicinal value for remedies and cures. The exploitation of the native animals, directly affects biodiversity to the point of species collapse in some countries. Rhinoceros horns are used in traditional Asian medicine to reduce fever or control convulsions. However, it is not used as an aphrodisiac, which is a common misconception and has resulted in wholesale slaughter. Parts of tigers are also reputed to have medicinal qualities. Their eyeballs are used for the treatment of epilepsy and malaria, the claws are used to treat insomnia, and the bones are used to treat arthritis, headaches and more. The tiger penis is sought after, as it is reputed to act as an aphrodisiac. Bears also do not escape exploitation. Seven out of eight bear species in Asia are farmed for *bear bile*. Bear bile is extracted from the gall bladder. The bear’s gall bladder is punched by a tube and then the live bear, is squeezed to release the bile. After several years of this treatment the bears die from liver failure. The bile is used in traditional Chinese medicine for asthma and general pain relief.

This cruel treatment of animals can be avoided as Western medicine has developed alternatives through synthetic copies, which achieve the same results and are readily available.

In terms of pharmaceuticals, only a small proportion of the benefits which can be derived from the natural world have possibly been discovered. Biodiversity is rapidly being destroyed before further discoveries can be made. For example, current research is being conducted to find a remedy for osteoporosis through

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<sup>17</sup> Michael.J.Novacek, (ed), *The biodiversity crisis: losing what count* .( New York: The New Press, 2001) ,42.

<sup>18</sup> Kevin J Gaston, and John I Spicer, *Biodiversity: An introduction* (Carlton: Blackwell Publishing, 2004), 93.

the study of black bears. Hibernating bears in particular have the unique ability to maintain healthy muscle tissue and bone density after three to seven months of hibernation, despite delivering off-spring and not eating or hydrating during that time. By contrast, humans need to exercise to maintain muscle condition and bones.<sup>19</sup>

A complex, vigorous biodiversity has direct value to the tourism industry. As growing numbers of travellers want to visit wilderness locations, ecotourism has emerged. Bush walking, camping, whale watching, bird watching, recreation, amateur fishing and hunting help humans to relax. A vigorous biodiversity creates a natural environment.

Biodiversity assists ecosystems to operate effectively, which gives rise to the aesthetic character of the landscape and endows it with beauty. Ecotourism encourages environmental awareness and contributes to conservation of the wilderness. Australia has unique wildlife unlike anywhere else in the world, which attracts large numbers of visitors, thus providing income to local communities. The Koala is one individual species that is estimated to attract one billion dollars annually to the Australian tourism industry<sup>20</sup>. Whale watching is another attraction for domestic and overseas tourists. Numbers are estimated at one million six hundred visitors in 2008 and is worth thirty-one million dollars to the industry (As noted in the “The Australian” newspaper article, World’s whale watching \$2 billion a year, and growing, on June 25, 2010).

As more people want to visit sensitive environments, they “love” it to death. Infrastructure such as roads, toilets, off road vehicle access is built; in addition waste disposal, noise and pollution degrade the habitats and in some cases destroy the biodiversity. The Koala’s habitat is quickly being destroyed and it is listed as “vulnerable” in Queensland and New South Wales.<sup>21</sup>

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<sup>19</sup> Michael J. Novacek, (ed), *The biodiversity crisis: losing what counts.* ( New York: The New Press, 2001), 42.

<sup>20</sup> Will Steffen, et. al., *Australia’s Biodiversity and Climate Change*, (Collingwood: CSIRO Publishing, 2009), 18.

<sup>21</sup> Consequently access to the Koala by tourists is usually in a controlled environment in a wildlife park.

Utilitarian products, such as paper, building products, leather, cotton, wool, rubber, oils, waxes and fuel are directly obtained from nature. These primary industries support associated industries and trade. For example, the interests of multi-national logging corporations and the potential economic gain for agriculture and local industry is a direct threat to biodiversity and ecotourism.<sup>22</sup>

### Indirect Value

Water, soil and air are elements of indirect value to humans, which are essential to human health and life on earth and these are maintained by biodiversity at no financial cost to humans. Humans use fifty-four percent of the available fresh water, with projected use to increase to seventy percent by 2050.<sup>23</sup> In addition, humans need fresh water for livestock and for irrigation to grow crops. Humans need rich, healthy soil to propagate crops for human consumption and to grow feed for livestock. Healthy soil also provides the environment necessary for plant life to make oxygen and assist with climate control.

Cultural and heritage values and national identity are indirect values of biodiversity. Cultural and spiritual beliefs originated in nature with indigenous and first nation peoples. The spiritual connection and respect for the land and its inhabitants are fundamental to the heritage and beliefs of indigenous people. Even now indigenous people value the characteristics of animals. National emblems originate from the natural environment unique to each country. For example, Australia's coat of arms has the Emu and Kangaroo, the United States of America has the Bald Eagle and the United Kingdom has the Lion. Sporting teams also use animal names and imagery to represent their teams.

The natural environment supplies food, air and water which are the essential ingredients for life to thrive and also provides spiritual and philosophical values for many cultures.

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<sup>22</sup> Ralf Buckley, *Environmental impacts of Ecotourism*, (Oxfordshire: CABI Publishing, 2004), 9.

<sup>23</sup> Stuart F Chaplin, et al. "Consequences of changing biodiversity." *Nature* 405(2000): 234.

### Bequest Value

A strong, functioning biodiversity will be self-sustaining and provide its riches for future generations. Current human populations need to conserve and protect biodiversity for their children and grandchildren. Short sighted actions of the existing generation can do irreversible damage. Biologist and philosopher, David Suzuki states:

*“Even if our species is able to survive the spasm of mass extinction that is now consuming the planet’s biodiversity, we would be bereft of the companionship of other species, a loss that cannot be calculated in economic terms.”<sup>24</sup>*

### What will the loss of biodiversity mean

Biodiversity loss effects food supply for humans and the other estimated hundred million species we share the planet with. Loss of biodiversity means the loss of natural pest control and a natural cleaning service. The natural service provided by nature can not be replaced by machines or humans.

Humanity and nature need biodiversity because it cleans the air, soil and water. We also need biodiversity for climate control. Plants convert carbon dioxide into oxygen and at the same time cool and humidify the air. Micro-organisms and bacteria detoxify unclean water and soil. Loss of biodiversity by modified landscapes can provide ideal conditions for pathogens and insects to flourish which normally would not thrive. For example, stagnant water, which would normally be taken up by undergrowth or trees encourages prolific insect reproduction which promotes the spread of infectious diseases.<sup>25</sup> Modified landscapes can also promote erosion. For example, clearing rainforests for cultivation can cause land-slides. This is when nutrient rich soil which is normally held to the hill side with undergrowth and trees is carried down rivers inundating villages, silting up water reservoirs and smothering crops resulting in land degradation and human hardship.

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<sup>24</sup> David Suzuki, *Earth Time: essays*, (Toronto: Stoddart Publishing Co. Limited, 1998),106.

<sup>25</sup> Colfer C.J. Pierce, *Human Health and Forests: A Global Overview of Issues, Practice and Policy* (London: Earthscan, 2008) ,23.

## Conclusion

Biodiversity is important in terms of genetic, species and ecological diversity. The direct, indirect and bequest value of biodiversity provides clean air, water, healthy soil, food, pest control and areas for relaxation for humans. In the following chapter I will explain the status of a selected number of threatened species. In addition I will describe the role they play in their ecosystems to support biodiversity and the impact of human intervention.

## Chapter Two: Case Studies

In the previous chapter I explained the importance of biodiversity. In this chapter I will investigate the interrelationships of animals and humans in the natural environment through seven case studies. All of the animals I have chosen have suffered negative changes to their habitats through various human interventions. The impacts which will be discussed in this chapter are:

1. The expansion of agriculture causing fragmentation of the Northern Hairy-nosed Wombat's territory.
2. The introduction of exotic species, such as foxes, rabbits, and domestic livestock on the Greater Bilby.
3. Deforestation of rain forests which directly affect the Sumatran Orang-utan.
4. The impact of climate change on the Polar Bear.
5. The exploitation and poaching of the Black Rhinoceros' for medicines.
6. Poaching, hunting and loss of habitat of the Mountain Gorilla.
7. The effect of pollution of marine debris on the Hawaiian Monk Seal.

These animal case studies will demonstrate the importance of biodiversity and show the circumstances in which each animal suffers through human intervention. This material has informed the development of my studio practice.



Figure 1. **Northern Hairy-nosed Wombat**

## Northern Hairy-nosed Wombat

**Scientific Name:** *Lasiorhinus krefftii*.

**Animal Category:** Marsupial.

**Current status according the IUCN Red List:** Critically Endangered.

**Country:** Australia.

**Habitat:** Flat grasslands and eucalypt forests.

**Food:** Native grasses, seeds, bulbs and insects.

**Place in the ecosystem:** Disperses seeds through its faeces. Swamp Wallabies and Goannas use the Northern Hairy-nosed wombat's burrows for shelter during hot weather.<sup>26</sup>

### The impact of human activity that affects the Northern Hairy-nosed Wombat

The introduction of agriculture and livestock has transformed and degraded the natural habitat of the Northern Hairy-nosed Wombat. Cattle and sheep, eating the native grasses became major competitors for feed and their overgrazing left the land barren. However, the livestock suffered poor condition due to the low nutrition in the native grasses. Consequently, Buffel grass, imported from Africa, was planted to replace the native grasses. The tall thick clumps of Buffel grass spread over vast areas and choked the native grasses leaving no suitable feed for the Northern Hairy-nosed Wombats.<sup>27</sup> This forced them to move further north limiting their range to the Epping Forest National Park near Clermont, central Queensland. Their range previously stretched from Deniliquin in central NSW to central Queensland.

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<sup>26</sup> Alan Horsup, "*Recovery plan for the Northern Hairy-nosed Wombat Lasiorhinus krefftii 2004-2008.*" (Brisbane: Environmental Protection Agency, 2004). 6

<sup>27</sup> Taggart, D., Martin, R., & Horsup, A., 2008 *Lasiorhinus krefftii*. In. IUCN 2012. IUCN Red List of Threatened Species.

<http://www.iucnredlist.org/details/11343/0>



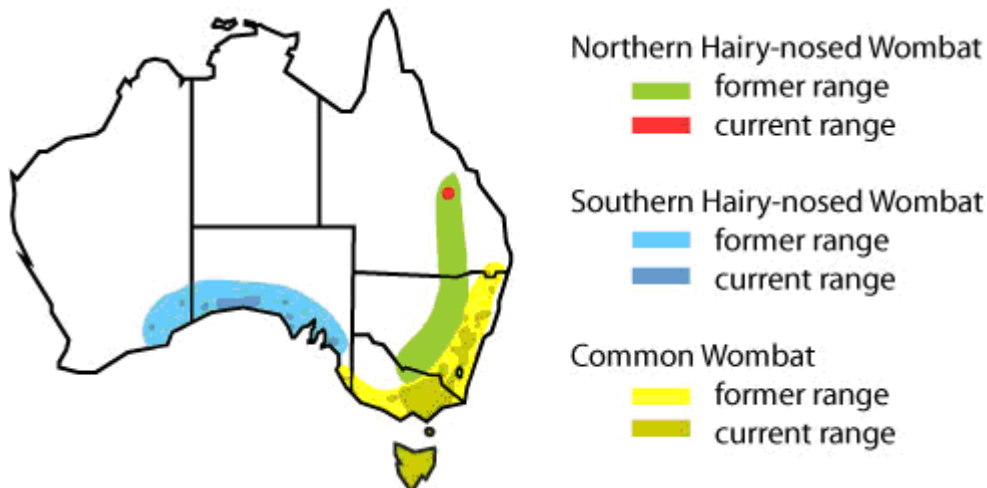


Figure 2 Wombat Distribution Map

### Impact of other factors

The Northern Hairy-nosed Wombats' native competitors for food are the Eastern grey kangaroos, Swamp wallabies and Rufous bettongs. Introduced species left to go wild, such as the European rabbit and the feral pig, compete for food and at the same time destroy the habitat. All these animals live within the protected area in the Epping Forest National Park which is the only remaining habitat of the Northern Hairy-nosed Wombat. Plans are in place to control and monitor the Northern Hairy-nosed Wombats' competitors for food.

A further impact on the Northern Hairy-nosed Wombats is predator attack. The natural predator, the Dingo killed nearly ten percent of the population between 2000 and 2001 in the confines of the Epping Forest National Park reducing the population to a dangerously low level.<sup>28</sup> Introduced species such as cats and dogs that have gone feral also pose a serious threat, as they can enter the burrows where the wombats are usually safe and attack in the confined space.

Natural events, such as bushfires, drought and flood also impact on the Northern Hairy-nosed Wombat. The risk of bushfire is always imminent in arid areas. While the impact of bushfire itself does not affect the Northern Hairy-nosed Wombat because they take refuge in their deep burrows, the loss of vegetation impacts directly on them and can alter their breeding frequency. The

<sup>28</sup>No Author, "Northern Hairy-nosed Wombat", Queensland Department of Environment and Heritage Protection, [http://www.ehp.qld.gov.au/wildlife/threatened-species/endangered/northern\\_hairynosed\\_wombat/index.html](http://www.ehp.qld.gov.au/wildlife/threatened-species/endangered/northern_hairynosed_wombat/index.html)

disturbance of natural events and food availability will cause breeding rates to drop which adds to the slow recovery.

The low numbers and breeding rate are important factors in the recovery of the Northern Hairy-nosed Wombat. Low numbers increase the risk of inbreeding and the loss of genetic diversity. A small number breeding females in the population disproportionate to the number of males is a contributing factor to slow improvement in the population. In addition, the female becomes sexually mature at two and half to three years old and will give birth at best, to only one offspring per year. The female carries the offspring in her pouch for six to nine months and won't necessarily give birth every year. The offspring are usually weaned by twelve months.<sup>29</sup>

#### **Prognosis for the future – Uncertain**

Recovery of the only wild population in the world of Northern Hairy-nosed Wombats is slow. Attempts to breed them in captivity have failed as most captive animals have died in a very short time. If the impacts stated in the previous paragraphs continue, it is likely that the Northern Hairy-nosed Wombat will become extinct.

The prognosis is grim for the Northern Hairy-nosed Wombat which has been pushed out of its natural habit and is clinging to edge of existence. The evidence inspired my art work *Vulnerable*. The porcelain figurative piece represents a frail, starving wombat, supported only by an intravenous device. The intravenous device represents the efforts to save the Northern Hairy-nosed Wombat from extinction.

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<sup>29</sup> Alan Horsup, "Recovery plan for the Northern Hairy-nosed Wombat *Lasiiorhinus krefftii* 2004-2008." (Brisbane: Environmental Protection Agency, 2004), 7.



Figure 3. **Greater Bilby**

## Greater Bilby

**Scientific Name:** *Macrotis lagotis*.

**Animal Category:** Mammal.

**Current status according to the IUCN Red List:** Vulnerable.

**Country:** Australia.

**Habitat:** Acacia shrub-land and hummock grassland.

**Food:** Bulbs, seeds, native grasses, termites, spiders and flying insects.

**Place in the ecosystem:** Greater Bilbies are ecosystem engineers. They forage deep into the soil and the depressions they create become depositories for seeds, other organic matter and water. This action facilitates seed germination and supports the micro-organisms necessary for healthy soil, thus maintaining plant life.<sup>30</sup> In addition they eat insects which keep insect species at a sustainable level which also assists plant growth.<sup>31</sup>

### **The impact of human activity that affects the Greater Bilby**

The Greater Bilby has lost eight-percent of its habitat due to the introduction of exotic species such as the European rabbit, European red fox, domestic cats that have turned feral and domestic livestock. *“Most cases of island extinctions have been precipitated by human arrival, most likely due to habitat destruction and the introduction of exotic species”*.<sup>32</sup>

The European rabbit and domestic livestock are competitors for food and degrade the habitat. The European rabbit eats native grasses down to and including the roots, which inhibits the spread of native grasses. The range of the European rabbit is vast, it lives in all areas except monsoonal tropics.<sup>33</sup> Livestock compound the effect of the rabbits by eating the native grasses and

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<sup>30</sup>Lesley A Gibson, “Seasonal changes in the diet, food availability and food preference of the greater bilby (*macrotis lagotis*) in south-western Queensland.” *Wildlife Research* 28 (2001): 121.

<sup>31</sup>Janet Newell, “The role of the reintroduction of Greater Bilbies (*Macrotis lagotis*) and Burrowing Bettongs (*Bettongia Lesueur*) in the ecological restoration of an arid ecosystem: foraging diggings, diet and soil seed banks” ( PhD diss., University of Adelaide, 2008), 4.

<sup>32</sup>Chris D Thomas, et.al., “ Extinction risk from climate change” *Nature* 427 (2004): 146.

<sup>33</sup>Peter Menkhorst, & Frank Knight, *A field guide to the mammals of Australia*, 3rd Edition, Melbourne: Oxford University Press, 2001), 214.

damaging the land. Their hooves compact the soil which reduces the capacity of the soil to accept water and bear seeds. Consequently, native grasses are at the point of total eradication in some areas.<sup>34</sup>



Figure 4 European fox with a Greater Bilby in its mouth

Introduced species such as the European red fox and domestic cat came with European settlement.<sup>35</sup> They have adapted well to the habitat of the Greater Bilby and have become major predators. The feral cat's range covers all of Australia, as it can survive in all habitats from desert to rainforest and cities.<sup>36</sup> Desert ground-dwelling species weighing less than five kilos, such as the Greater Bilby are highly vulnerable to predation from foxes and cats.<sup>37</sup>

### **Impact of other factors**

The lack of critical habitat is compounded by the risks attributed to the lack of genetic diversity which occurs in fragmented, isolated colonies. Fragmented habitats began after the introduction of agriculture and now mining is impacting on the remaining wild habitats of the Greater Bilby. The mining industry clears native vegetation and diverts water for mining operations. The altered landscape degrades the natural habitats and changes the natural fire regimes, thus, changing the reproductive cycle of native plants and the availability of

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<sup>34</sup> No author, *Management Program for the Greater Bilby (Mascrotis lagotis) in the Northern Territory of Australia*, Parks and Wildlife commission of the Northern Territory, 15

<sup>35</sup> Peter Menkhorst, & Frank Knight, *A field guide to the mammals of Australia*, 3rd Edition, Melbourne: Oxford University Press, 2001), 212.

<sup>36</sup> *ibid.*

<sup>37</sup> Lindsey T., *Mammals of Australia* (Frenchs Forest (NSW): New Holland Press (Australia), 1998):80.

suitable food for the Greater Bilby.<sup>38</sup> They can live in recently burnt out areas because part of their diet comes from plants that depend on fire to germinate.

Contamination of the natural water source, noise, pollution from machinery, truck and rail traffic all impact on all indigenous animals.<sup>39</sup>

Road mortality is another significant impact on the Greater Bilby. Mining vehicle movements operate through the night in locations adjacent to the Greater Bilbies' habitat.<sup>40</sup> Greater Bilbies are nocturnal which means it is at night when the Greater Bilby is most active.

### **Prognosis for the future - Uncertain**

Habitat restoration is on-going in designated areas, which aids in the success of reintroduction programmes. However, the protection of these vulnerable mammal species is costly. Some of the critical habitat is highly valued for resources. The Dampier Peninsular is the only wild area which is ideal for the Greater Bilby and is currently fox and rabbit free.<sup>41</sup> However, this area is also being considered as a site for Browse Liquefied Natural Gas (LNG) precinct.<sup>42</sup>

There are many pressures on the Greater Bilby populations, which negatively impact the survival of the species. I created *Bad Bunny* to express the struggle the Greater Bilby has with introduced species. Rabbits do not eat bilbies however, as I stated in previously, they destroy the habitat without contributing to the eco system.

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<sup>38</sup> Friend, T., Morris, K., & van Weenan, J. 2008. *Macrotis lagotis*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012. 2  
<http://www.iucnredlist.org/details/12650/0>

<sup>39</sup> Paul Vogel, "Report and recommendations of the Environmental Protection Authority: Cloudbreak Life of Mine Project, Fortescue metals Group Ltd," Report No. 1429, The Government of Western Australia, 2012. iii

<sup>40</sup> Pavey, C., *National recovery Plan for the Greater Bilby Macrotis lagotis*. Northern Territory Department of Natural Resources, Environment and Arts. 2006, 32.

<sup>41</sup> Lindsay, M., *Evidence of the Greater Bilby, Macrotis lagotis, at the site of the proposed James Price Point Browse LNG Precinct* ( Report prepared for the Goolarabooloo and Broome No Gas Community, October, 2011, 4.

<sup>42</sup> *ibid.*



Figure 5. **Sumatran Orang-utan**



## Sumatran Orang-utan

**Scientific Name:** Pongo abelii.

**Animal Category:** Terrestrial Mammal – Primate.

**Current status according to the IUCN Red List:** Critically endangered.

**Countries:** Indonesia, West coast of North Sumatra.

**Habitat:** Jungle – Arboreal.

**Food:** Herbivore, fruit, flowers, leaves and insects and ants.

**Place in the ecosystem:** Orang-utans eat large amounts fruit and flowers. They disperse seeds through their faeces as they move through the tree canopy. Orang-utans can travel great distances, swinging through the jungle canopy using branches to swing from and breaking twigs and foliage as they go. They also use the foliage to make night nests. Consequently, their actions thin the foliage which allows sunlight to reach the jungle floor which supports the habitat.<sup>43</sup>

### The impact of human activity that affects the Sumatran Orang-utan

The loss of habitat due to illegal logging and the expansion of agriculture, primarily palm oil have had a devastating impact on the Sumatran Orang-utan. Eighty-five percent of the world's palm oil is exported from South-east Asia. Australia imports approximately one hundred and thirty thousand tonnes annually. It used in fifty percent of products available in supermarkets such as, chips, chocolates and cosmetics.<sup>44</sup>

The dramatic decline in habitat is illustrated in photographic images taken in December 2011 of the Tripa forest Aceh, Indonesia. The images show approximately twelve thousand hectares of the original sixty thousand hectares of forest remaining (As noted in a Guardian UK article on March 29, 2012). The

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<sup>43</sup>Paula, Wildlife direct: Orang-utan Foundation “Part 3: Protectors of the rainforest ecosystem, <http://orangutanfoundation.wildlifedirect.org/2008/04/24/part-3-protectors-of-the-rainforest-ecosystem/>

<sup>44</sup>No author, World Wide Fund for Nature, “ What is palm oil”, [http://www.wwf.org.au/our\\_work/saving\\_the\\_natural\\_world/forests/palm\\_oil/?gclid=CNOz5Myh37ICFbBUpodyl8ASw](http://www.wwf.org.au/our_work/saving_the_natural_world/forests/palm_oil/?gclid=CNOz5Myh37ICFbBUpodyl8ASw)



Tripa forest Aceh is a protected Orang-utan habitat. However, vast areas of the Sumatran Orang-utans' habitat has been flattened to retrieve the timber, after which, the remaining foliage is burnt to discourage native plant regrowth in preparation for palm oil planting. The surviving Sumatran Organ-utans, have to forage on the degraded land, which is often the palm oil seedlings. Farmers kill the adult Sumatran Orang-utans either by beating or burning them, to protect their crops. The orphaned infants are taken to be sold as pets.

*"Hardi Baktiantoro, director of Indonesia's Centre for Orang-utan Protection (COP), said at least 1,500 Orang-utans perished in 2006, most as a result of deliberate attacks but also due to their habitat disappearing to make way for palm oil plantations." Orang-utans have become the victims of torture by plantation workers as they wander and eat palm oil seedlings for survival," Baktiantoro told reporters.*<sup>45</sup>

### **Impact of other factors**

Fires have a devastating impact on the tree dwelling Sumatran Orang-utans. Recently, in the Tripa forest Aceh, Indonesia fires have been an additional threat the surviving populations. Palm oil companies have drained the swamp, in addition to a prolonged drought, has made this area vulnerable to fire (As Oliver Milman noted in a Guardian UK article June 30, 2012). These actions severely limit their habitat (figure 6).

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<sup>45</sup>No author, Cosmos Magazine," Palm oil workers killing organ-utans"  
<http://www.cosmosmagazine.com/news/palm-oil-workers-killing-orangutans/>

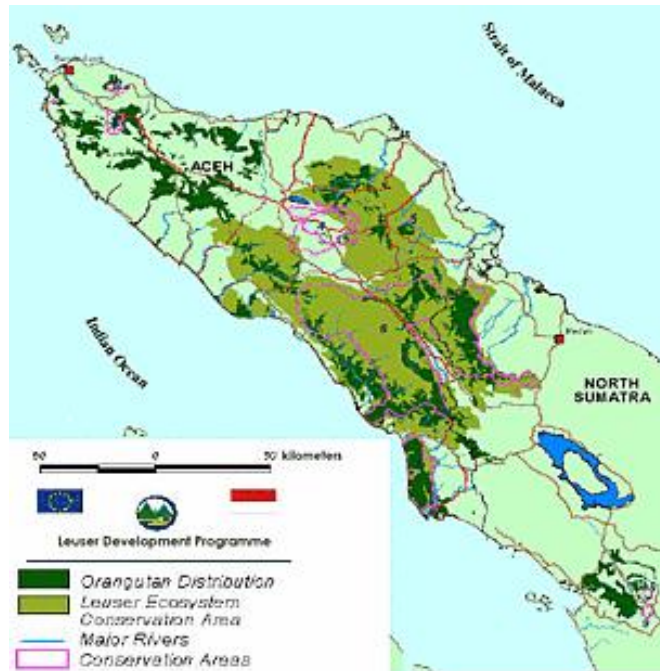


Figure 6 Sumatran Orang-utan distribution map

Another impact is the threat of attack by the Sumatran Organ-utans' natural predators such as the tigers, clouded leopards, and crocodiles. The Sumatran tiger is the major common threat and this may account for why the Sumatran Orang-utan rarely steps onto the jungle floor. The Sumatran Tiger's habitat has been reduced as well, pushing them more into the Sumatran Orang-utan's area.

A low birth rate is another factor that affects the population. As with other primates the birthing frequency and gestation periods are lengthy. Females are sexually mature at fifteen years and older and only give birth every eight to nine years. The offspring are dependent on their mother's for six to seven years.<sup>46</sup>

### **Prognosis for the future – Possible extinction**

Rehabilitation and reintroduction of the Sumatran Orang-utan can only be successful if the habitat is intact. Grossens states, "current trends suggest that

<sup>46</sup> Ian Singleton, S.A Wich, & M. Griffiths, 2008. *Pongo abelii*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.  
<http://www.iucnredlist.org/apps/redlist/details/39780/0>

extinction is imminent for the Sumatran species in the wild.”<sup>47</sup> Indonesia is the third largest producer of palm oil and Sumatra aims to be the largest palm oil producer in the world.

Conserving the Sumatran Orang-utan habitat is imperative for the species to survive. Protecting their habitat will help other critically endangered species, such as the Sumatran Tiger, Sumatran Rhinoceros and the Sumatran Elephant.<sup>48</sup> However, I chose the Sumatran Orang-utan as my subject to express my concerns for the conversion of the rain forests by humans for the planting of palm oil. The eradication of the Sumatran Orang-utan is directly linked to the global demand for palm oil. *Banished* is my response to this link, as it depicts the orang-utan trying to pull itself out of a barrel of palm oil.

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<sup>47</sup> Benoit Goossens, et al., “Patterns of genetic diversity and migration in increasingly fragmented and declining orang-utan (*Pongo pygmaeus*) populations from Sabah, Malaysia.” *Molecular Ecology* 14(2005): 441.

<sup>48</sup> No author, The Sumatran Orang-utan Conservation Programme, <http://www.orangutan.com/projects/socp>



Figure 7 **Polar Bear**

## Polar Bear

**Scientific Name:** Ursus maritimus.

**Animal Category:** World's largest Terrestrial Carnivore.

**Current status according to the IUCN Red List:** Vulnerable.

**Countries:** The territory of the Polar Bear in Russia, Greenland, Norway, Canada and USA – Arctic Circle.

**Habitat:** Pack Sea Ice and Sea Ice floes.

**Food:** The primary food source is Ringed, Harp and Bearded Seals, Walrus, Belunga Whale, Narhwal, fish, seabirds and their eggs.

**Place in the ecosystem:** The Polar Bear is the world's large terrestrial carnivore and provides food for other species such as the Arctic Fox and various birds. After stripping a carcass of what it needs, the Polar Bear leaves the remains to be cleaned up by birds and foxes. Arctic Foxes are known to follow Polar Bears during the migration to the ice packs.

### The impact of human activity that affects the Polar Bear

Historically, hunting was the major reason for the decline of the population of Polar Bears up to 1965, when the first Polar Bear Scientific Group was established to coordinate research and management of the Polar Bears. Now, Polar Bears are vulnerable to several other threats, such as climate change which leads to starvation and, also pollution which can trigger reduced fertility.

As the climate grows warmer the ice breaks up earlier, reducing the time the Polar Bear has to hunt.<sup>49</sup> "The summer minimum thickness of arctic sea ice has decreased by forty percent over the past thirty years. Also the extent of arctic sea ice has decreased by three percent a decade between 1978 and 1996."<sup>50</sup> Polar bears prefer the shore line where the ice is thicker and shallow water

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<sup>49</sup> Ian Stirling, et.al., "Terrestrial foraging by Polar Bears during ice-free periods in Western Hudson Bay" *Arctic* 46.3 (1993): 242.

<sup>50</sup>No author, World Wildlife Fund, "Climate change threats"  
<http://www.worldwildlife.org/climate/Publications/WWFBinaryitem4928.pdf>

where the sea current is more productive.<sup>51</sup> Longer ice free periods force the Polar Bear to swim longer distances across open water, which is particularly difficult for infant cubs. In recent years in the Beaufort Sea region there have been more drowned, emaciated and cannibalized Polar Bears<sup>52</sup> which highlights the difficulty in finding food.

The Polar Bear hunts seals on the ice and builds up fat reserves for winter. Pregnant females need the fat reserves to support hibernation, which includes giving birth and suckling offspring for up to three months before emerging from the dens. Dr Ian Stirling, a Canadian Polar bear scientist stated:-

*“For every week earlier that break-up occurs in the Hudson Bay, bears will come ashore roughly ten kilos lighter and thus in poorer condition. With reproductive success tied closely to body condition, if temperatures continue to rise in response to increases in greenhouse gas emissions and the sea ice melts for longer periods, polar bear numbers will be reduced in the southern portions of their range and may even become locally extinct.”<sup>53</sup>*

Seals are the major food source of the Polar Bear, but each year fewer seals are born. There were no recorded births for the Harp seal in 1967, 1981, 2000, 2001 and 2002 because there was little or no sea ice in the Gulf of St Lawrence.<sup>54</sup> Climate change has influenced the breeding behaviour of seals. The breaking up of the ice is a trigger to the mothers that the seal pups are old enough to be left while they hunt for food. Consequently many seal pups die prematurely and don't reach breeding age. The early melt directly impacts the Polar Bear's litter sizes also.<sup>55</sup> The warmer climate is producing rain instead of

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<sup>51</sup> George A., Feldhamer et al., *Wild Mammals of North America: Biology, Management and Conservation*. (Baltimore: The John Hopkins University Press, 2003) 587.

<sup>52</sup> Christine M. Hunter, et.al., “Climate change threatens polar bear populations: a stochastic demographic analysis.” *Ecology* 91.10 (2010): 2884.

<sup>53</sup> Ian Stirling, et.al., “Long-term trends in the population ecology of Polar Bears in Western Hudson Bay in relation to climate change.” *Arctic* 52.3 (1999):302.

<sup>54</sup> Timothy Flannery, *We are the weather makers: The story of global warming*. (Melbourne: Text Publishing, 2006). 93.

<sup>55</sup> Peter K Molnar, et.al. “Predicting climate change impacts on polar bear litter size.” *Nature Communications*, 186. 2 (2011) 1.

snow, thus causing birthing dens to collapse, leaving the mother and her offspring vulnerable to the elements and predators, if they have not already suffocated in the collapse.<sup>56</sup>

### **Impact of other factors**

Pollution, namely persistent organic pollutants (POP's) make their way into the food chain and are known to cause birth defects and weaken the immune system of the Polar bear.<sup>57</sup> POPs encompass a wide range of human made substances that have made their way into the marine environment.

Another threat is the expansion of oil exploration in the Arctic National Wildlife Refuge in Alaska, which could affect denning areas.

### **Prognosis for the future - Uncertain**

Even though hunting or harvesting as it is called by some, is now on a quota system for all countries involved, the population continues to decline. Climate change is still the major long term threat to the survival of the species. My artwork *Flux* conveys the perilous circumstance the Polar Bear is suffering from due to climate change. A thin, exhausted Polar Bear sits on a piece of its melting habitat (which is represented by slumped glass).

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<sup>56</sup> No author, World Wildlife fund,  
<http://www.worldwildlife.org/climate/Publications/WWFBinaryitem4928.pdf>

<sup>57</sup> No author, World Wildlife fund,  
<http://www.worldwildlife.org/climate/Publications/WWFBinaryitem4927.pdf>



Figure 8. **Black Rhinoceros**



## Black Rhinoceros

**Scientific Name:** *Diceros bicornis bicornis*.

**Animal Category:** Mammal.

**Current status according the IUCN Red List:** Critically Endangered.

**Countries:** Namibia, Angola, Kenya, Mozambique, Tanzania, South Africa and The Republic of Zimbabwe.

**Habitat:** Wide range of habitat from desert to wet forest, but mostly savannahs.

**Food:** Sour grass, small Acacias, palatable woody shrubs, herbs and succulents.

**Place in the ecosystem:** As with many vegetarian species, the Black Rhinoceros is an eco-engineer. Their ancient gut can process low nutritional sour grass in large quantities which passes through the animal partly digested and rich in nitrogen. The manure then aids the growth of sweet grass that is consumed by many other vegetarians. They also aerate the soil as they uproot plants. Also they prune shrubs and small trees when foraging, which encourages new foliage.

### The impact of human activity that affects the Black Rhinoceros

The major threat is poaching for the international horn trade.<sup>58</sup> Between 1970 and 1992, ninety-six percent of Africa's free Black Rhinoceros population was lost to poaching.<sup>59</sup> Rhinoceros horn is used for traditional Asian medicine and more recently for ornamental use.<sup>60</sup> The horn is made of keratin and is ground down to a powder and compressed into tablets, which are used to treat strokes, convulsions, nosebleeds and fevers. However, there is no scientific evidence that prove that there is any medicinal value in the Rhinoceros' horns.<sup>61</sup> Western

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<sup>58</sup>R. Emslie, 2012. *Diceros bicornis*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.

<http://www.iucnredlist.org/details/6557/0>

<sup>59</sup>No author, World Wide Fund for Nature, "African Black Rhinoceros"

[http://wwf.panda.org/what\\_we\\_do/endangered\\_species/rhinoceros/african\\_rhinos/black\\_rhinoceros/](http://wwf.panda.org/what_we_do/endangered_species/rhinoceros/african_rhinos/black_rhinoceros/)

<sup>60</sup>ibid.

<sup>61</sup>No author, World Wide fund for Nature, "Poaching of the African Rhinoceros"

[http://wwf.panda.org/what\\_we\\_do/endangered\\_species/rhinoceros/african\\_rhinos/poaching\\_crisis\\_african\\_rhinos/](http://wwf.panda.org/what_we_do/endangered_species/rhinoceros/african_rhinos/poaching_crisis_african_rhinos/)

medicine has replaced traditional medicines to treat these conditions and has proven medical evidence to back this claim.

Rhinoceros horns and in particular the Black Rhinoceros horns are highly valued as carved, ornamental handle for the “Jambiya” a traditional Yemeni dagger, which is the main reason for the illegal trade in the middle-east. In contrast to the traditional uses of the horns, new technology has enhanced the ability of the poachers. Poachers are well equipped with modern tracking equipment and high powered rifles which have been provided from the income of the illegal trade in Rhinoceros horns. Consequently conservationists have to equal the poachers’ capabilities to stay ahead of them. The cost of operating conservation efforts is high and funding is limited, this inhibits the ability of the conservationists to protect the habitat and the critically endangered Black Rhinoceros.

### **Impact of other factors**

Genetic diversity is an important factor in the survival of the species. As with other large species their genetic makeup impacts on its survival rate. Larger mammals have longer gestation periods and lower reproductive rates.<sup>62</sup> The gestation period of the Black Rhinoceros is fifteen to sixteen months and they will have a single calf every two and half to four years. The calf will remain with its mother for two to four years.<sup>63</sup> The amount of genetic diversity in the herd is important. Reduced genetic diversity within the population can have long-term effects on the animals’ birth weight, infant survival, reproduction robustness and resistance to disease.<sup>64</sup> Genetic diversity is impaired by the fragmented native habitat.

Fragmented areas have had a significant impact on the ability of the Black Rhinoceros to mate with other herds, migrate or move from fallow pastures to new pastures. Fragmentation occurs in modified landscapes which have been

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<sup>62</sup>M.Cardillo, et.al. “Multiple causes of high extinction risk in large mammal species.” *Science* 309 (2005): 1239.

<sup>63</sup>No author, The African Guide, “Rhinoceros”  
<http://www.africaguide.com/wildlife/rhino.htm>

<sup>64</sup>Lukas F., Keller and Donald M., Waller, “Inbreeding effects in wild populations” *Trends in Ecology and Evolution* 17. 5 (2002): 241.

transformed to support the human population, such as roads, fences, dams, and agriculture.

### **Prognosis for the future - Uncertain**

Recovery efforts of the Black Rhinoceros in some protected areas are still affected by poaching. There was a substantial increase in the number lost to poaching in South Africa, 388 animals have been killed so far in 2012, compared with 122 Rhinoceros' killed in 2009.<sup>65</sup> However, in the Kunene region of north-western Namibia the last poaching took place in 1994.<sup>66</sup> Conservation efforts to save the Black Rhinoceros from extinction are expressed in two of my art works. *Hanging by a thread* represents the rescue of a wild Black Rhinoceros being airlifted to a sanctuary and *Defenceless* represents a dehorned Black Rhinoceros.

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<sup>65</sup>No author, World Wide fund for Nature, "Poaching of African Rhinoceros." [http://wwf.panda.org/what\\_we\\_do/endangered\\_species/rhinoceros/african\\_rhinos/poaching\\_crisis\\_african\\_rhinos/](http://wwf.panda.org/what_we_do/endangered_species/rhinoceros/african_rhinos/poaching_crisis_african_rhinos/)

<sup>66</sup>J.F. Brodie, et.al., "Population recovery of black rhinoceros in north-west Namibia following poaching," *Animal Conservation*. 14( 2011): 355

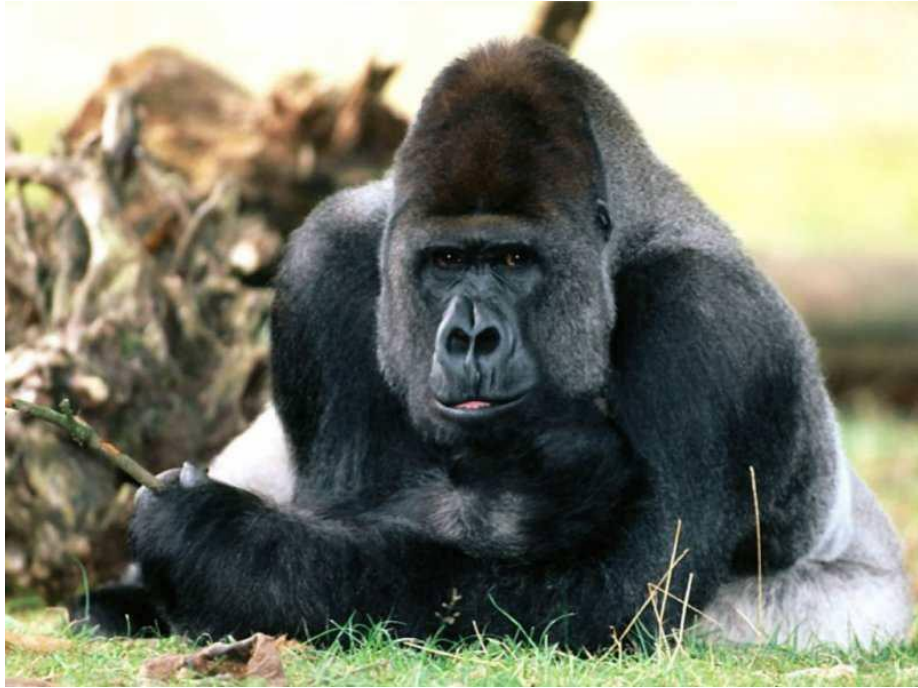


Figure 9. **Mountain Gorilla**

## Mountain Gorilla

**Scientific Name:** *Gorilla beringei beringei* – subspecies of the Eastern Gorilla

**Animal Category:** Primate

**Current status according the IUCN Red List:** Endangered

**Country:** Bwindi National Park, Uganda and Virgunda Volcanoes, Rwanda, Democratic Republic of the Congo, Central Africa (Figure ).

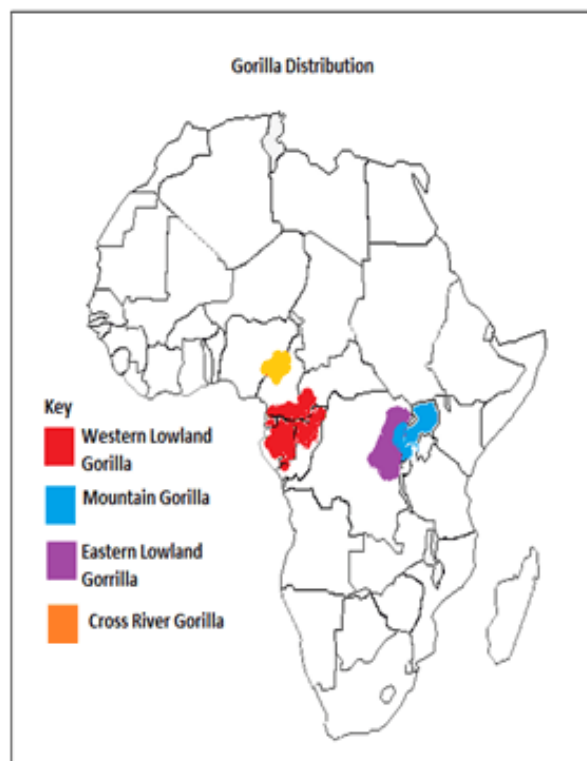


Figure 10 Gorilla distribution map

**Habitat:** Dense forest mountain terrain.

**Food:** One hundred and forty-two different plant species, one percent of their diet includes insects and ants.<sup>67</sup>

**Place in the ecosystem:** They are eco-engineers. Pruning vegetation as they forage creates light gaps and keeps pathways open on the jungle floor. They

<sup>67</sup>Rwego B Innocent., et.al. “Gastrointestinal bacterial transmission among humans, Mountain Gorillas and livestock in Bwindi Impenetrable National Park Uganda” *Conservation Biology* 22.6(2008):1601

also spread plant seeds through-out the jungle through their faeces and fertilize the jungle floor.<sup>68</sup>

### **The impact of human activity that affects the Mountain Gorilla**

Habitat loss and hunting are the major impacts due to the rapidly increasing human population. The Mountain Gorilla habitat has been encroached by agricultural expansion and mining. Mining operations have eroded the edges of the national parks and have cut roads through the Mountain Gorilla habitat. This provides easy access to the Mountain Gorillas for poachers. Mining of the ore columbite-tantalite, commonly known as Coltan is a major threat to the Mountain Gorilla's survival. Poorly paid miners and villagers poach the Mountain Gorilla for bush meat (figure 11) and trophies to supplement their income. The ore Coltan is an essential component for the capacitors for mobile phones, DVD players, video game systems and computers. The technology boom in the late 1990's made a direct impact on the Mountain Gorilla's population as the demand grew for Coltan. "At least five percent of the population was known to have died from poaching during the 1990's and early 2000's."<sup>69</sup>



Figure 11 Gorilla "bush meat" being sold

Photograph by Franck Makoundi @ Endangered Species International

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<sup>68</sup> No author , African Wildlife Fund,  
<http://www.awf.org/content/wildlife/detail/mountaingorilla>

<sup>69</sup> Jose' Kalpers, et.al., "Gorillas in the crossfire:population dynamics of the Virunga mountain gorillas over the past three decades" *Oryx* 37.3( 2003): 330.

### Impact of other factors

Human diseases are responsible for thousands of gorilla deaths. The Ebola virus, which causes multiple organ failure, killed 5,500 gorillas between 2001 and 2005 in the Republic of Congo.<sup>70</sup> The Ebola virus, malaria and other parasites are transmitted to the gorilla communities.<sup>71</sup> The Gorillas have not developed immunity to these viruses that have been brought in by human populations. Gorilla – human contact has increased due to the expansion of agricultural land into the jungle. In addition to this, the fact that Gorillas share ninety-eight percent of the same DNA makes Gorillas particularly vulnerable to human diseases.<sup>72</sup>

Political unrest and military activity in the areas that surround the Mountain Gorillas' habitat make it dangerous for conservationists and scientists to carry out necessary studies on the Mountain Gorilla. *"The full impact of the war, political instability and recent poaching events was unknown, due to insecurity in this region."*<sup>73</sup> War also negatively affects the developing eco-tourism industry which is set up for visitors to observe the Mountain Gorillas in their natural habitat and acts as an alternate source of income.

The guides are trained to render as little disruption as possible to the Mountain Gorillas. Any disturbance causes stress and this can affect the social interaction of the troop. Healthy social interaction is an important factor that influences the breeding rate. The rate of reproduction is slow. Females are sexually mature at seven to eight years old but generally will not breed for another few years and will only have two to six offspring in their lifetime. The prolonged period of maternal care and a long gestation period of eight and half months reduce the breeding capacity of the individual. In addition sexually mature females will leave the birth group to find a mate. This means travelling through the fragmented jungle which leaves her vulnerable to capture.

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<sup>70</sup> Carol Rizkalla, et.al., "Modelling the impact of Ebola and bushmeat hunting on Western Lowland Gorillas" *EcoHealth* 4 (2007):152

<sup>71</sup> *ibid.*

<sup>72</sup> No author, Endangered species International, "Gorilla"  
<http://www.endangeredspeciesinternational.org/gorillas.html>

<sup>73</sup> Maryke Graye, et.al., Censuring the mountain gorillas in the Virunga Volcanoes: complete sweep method versus monitoring." *African Journal of Ecology* 48 (2009):589

### **Prognosis for the future - Uncertain**

Efforts have slowed the population decline, however, have not stopped it. Prosperity for local people which lowers human poverty may help to curb the necessity to hunt for bush meat.

Education can improve farming methods to reduce unnecessary Gorilla habitat destruction and improved instruction regarding the importance of the Mountain Gorilla as an integral part of the forest community may also help their survival. However, while Illegal mining, logging and civil war continue, conservation efforts are difficult and dangerous.

I created two art works in response to the research and information I uncovered. Firstly *Trophy*, which represents a Mountain Gorilla missing its left hand, due to trophy hunting. The second piece, *Vengeance* represents an infant Mountain Gorilla taking its revenge on the human made devices that have caused destruction of their habitat leaving them vulnerable to hunting.





Figure 12. **Hawaiian Monk Seal**

## Hawaiian Monk Seal

**Scientific Name:** *Monachus schauinslandi*.

**Animal Category:** Marine mammal.

**Current status according the IUCN Red List:** Critically Endangered.

**Country:** Hawaiian Islands USA.

**Habitat:** North eastern Pacific Ocean.

**Food:** Variety of fish, eels, molluscs and crustaceans.

**Place in the ecosystem:** They are predators and prey.

### **The impact of human activity that affects the Hawaiian Monk Seal**

A major impact of human activity is marine pollution. Discarded drag nets and fishing lines are a direct impact on the Hawaiian Monk Seals. Competition for food with commercial fisheries that operate in the Main Hawaiian Islands renders the Hawaiian Monk Seal vulnerable to net entanglement both discarded and in use, plus hooks and fishing lines.<sup>74</sup> The impact of derelict nets and fishing lines can also be seen in the inaccessible North-Western Hawaiian Islands' region. This area has less commercial fishing activity, however; the Hawaiian Monk Seal populations still suffer from net entanglements from old discarded nets and fishing lines. A large-scale operation commenced in 1999 by the Coral reef Ecosystem Division of the National Marine Fisheries Service, to clean up marine waste from the North-Western Hawaiian Islands. This clean up resulted in 440 metric tons of marine debris being removed from the marine environment.<sup>75</sup>

### **Impact of other factors**

There are two regions that are defined as the Hawaiian Monk Seals habitat. The largest population is located in the isolated North-Western Hawaiian Islands and

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<sup>74</sup> Lloyd F. Lowry, & A. Aguilar, (IUCN SSC Pinniped Specialist Group) 2008. *Monachus schauinslandi*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <http://www.iucnredlist.org/details/13654/0>

<sup>75</sup> Raymond Boland, et.al., "Dynamics of debris densities and removal at the Northwestern Hawaiian Island coral reefs." *Atoll research Bulletin*, 543( 2006): 461.

another emerging population is located in the densely occupied Main Hawaiian Islands (figure 13 ). The two regions suffer a variety of threats.

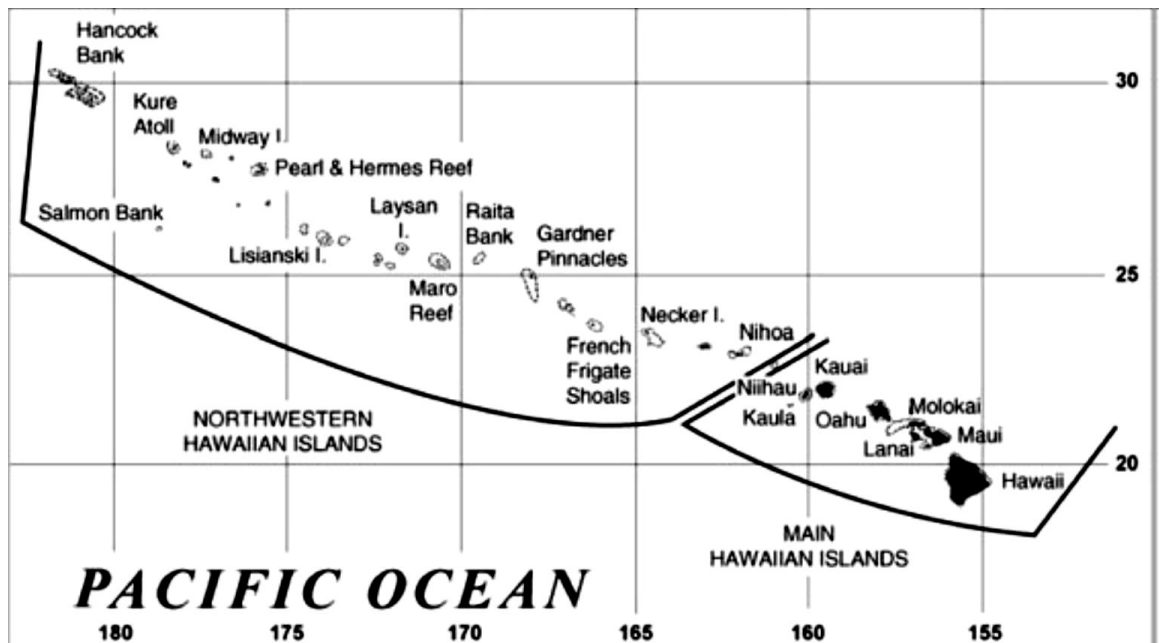


Figure 13. The Hawaiian Archipelago, indicating the main Hawaiian Islands and the primary North-Western Hawaiian Islands subpopulations of monk seals at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Atoll.<sup>76</sup>

In the Main Hawaiian Islands the Hawaiian Monk Seals suffer impacts from human activity through commercial fishing, intentional killing, degraded habitat, loss of haul out areas and pollution from chemicals.<sup>77</sup> However, the small number of Hawaiian Monk Seals in this area is increasing. This increase could be due to the reduction of their natural predators such as jacks, sharks and competitors for food which have been lessened by commercial fishing.<sup>78</sup> In contrast, in the North-Western Hawaiian Islands, their natural competitors for food and predators are abundant.

The additional threats to the seal colonies in the North-Western Hawaiian Islands are from their natural predators and competitors for food, which directly

<sup>76</sup>Jessica Lopez, et al., “Persistent organic pollutants in the endangered Hawaiian monk seal (*Monachus schauinslandi*) from the main Hawaiian Islands”. *Marine Pollution Bulletin*. 64.11(2012): 2589.

<sup>77</sup>Jason D Baker et.al., “Dramatic shifts in Hawaiian monk seal distribution predicted from divergent regional trends. *Marine Mammal Science* 27. 1(2011): 80.

<sup>78</sup> *ibid*.

impacts on the population and in particular the juvenile members. Juvenile pups are vulnerable to starvation due to the scarcity of accessible food.<sup>79</sup> Juvenile mortality is related to girth measurements. Consequently, larger girth measurements reflect better health and strength which enables the juvenile to escape predation and have increased foraging success.<sup>80</sup> Shark predation, particularly on juvenile pups is high which slows population growth. Thus starvation, shark predation and net entanglements all contribute to low juvenile seal survival.<sup>81</sup> "Poor juvenile survival is the greatest influence on the population growth rate in the North-Western Hawaiian Islands."<sup>82</sup> The survival of the seal colonies is heavily influenced by the survival of juvenile seals to adulthood.

A further impact on the Hawaiian Monk Seal populations in both regions is terrestrial habitat loss. In the North-Western Hawaiian Islands habitat the sea has claimed haul-out areas due to sea level rise and erosion. A part of this region, the French Frigate Shoals, has diminished in size by at least fifty percent between 1963 and 2004.<sup>83</sup> This lack of haul-out areas is linked to the decline in abundance of seals in the French Frigate Shoals.

The haul-out areas in the Main Hawaiian Islands habitat has been claimed by human occupation. As a result the animals are harassed and in some cases killed. To avoid disturbance from humans the Hawaiian Monk seals are forced to move to unfamiliar areas, which puts them at the further risk of predation, starvation and net entanglement.

### **Prognosis for the future - Uncertain**

Conservation efforts have not yet stopped the decline of the species. It has, however slowed it down. If regulations that have been put in place are not honoured, the numbers of Hawaiian Monk Seals will continue to decline. In

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<sup>79</sup> Jason D. Baker, "Variation in the relationship between offspring size and survival provides insight into causes of mortality in Hawaiian monk seals." *Endangered Species Research* 5 (2008) 56.

<sup>80</sup> *ibid.* 55.

<sup>81</sup> George A. Antonelis, et.al., "Hawaiian Monk Seal (*Monachus schauinsland*): Status and conservation issues." *Atoll Research Bulletin*. 543( 2006): 75.

<sup>82</sup> A.L Harting, "Stochastic simulation model for the Hawaiian monk seal" (PhD diss., Montana State University, 2002) 328.

<sup>83</sup> *ibid.* 87.

1958 a beach count disclosed that only nine hundred and sixteen animals existed. Another count in 2007 showed that only two hundred and ninety three animals remain, this is a decline in population of sixty-eight percent (68%) in forty-nine years.<sup>84</sup> Like its cousin, the Caribbean Monk Seals which was forced into extinction by 1922, the Hawaiian Monk Seals are likely to become extinct if current circumstances do not improve.<sup>85</sup> The threat of pollution namely, a discarded fishing net is featured in my art piece titled *Ensnared*. A Hawaiian Monk Seal is tightly entangled in a net and struggles to free itself.

## Conclusion

In this chapter I explained the inter relationships of these particular animals and humans in the natural environment and the negative consequences that have resulted with these species' survival becoming endangered. The consequences of each animal are demonstrated in an art work for the final exhibition. Through my investigations I discovered that each of these animals - Northern Hairy-nosed Wombat, Greater Bilby, Sumatran Orang-utan, Polar Bear, Black Rhinoceros, Mountain Gorilla, Hawaiian Monk seal, have one mutual threat – habitat loss due to human activity. Habitat loss is attributed to agriculture, introduced species, climate change, mining and growth of the human population.

As biodiversity breaks down and habitats are lost - pollution, disease and exploitation contribute to the vulnerability of these animals. In addition to habitat loss, I have discussed other relevant factors that influence their vulnerability to extinction. Mammals are particularly at risk because of their genetic makeup such as, size, reproductive rate, gestation, nursing lengths and infant mortality. All these factors influence the size of the population and contribute to their already threatened survival.

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<sup>84</sup> Lloyd F. Lowry, & A. Aguilar, (IUCN SSC Pinniped Specialist Group) 2008. *Monachus schauinslandi*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <http://www.iucnredlist.org/details/13654/0>

<sup>88</sup> Lloyd F. Lowry, et al., "Recovery of the Hawaiian Monk Seal (*Monachus schauinslandi*): a review of conservation efforts, 1972 to 2010, and thoughts for the future. *Aquatic Mammals* 37. 3(2011): 397.

## Chapter Three: Contemporary Art/Science and the conservation of species.

In previous chapters I have examined the factors which have degraded the natural environment and are leading to the extinction of some species. This is of concern to many artists as well as to other individuals and organisations. These artists are aware of the current challenges and strategies to strengthen ecosystems, build species diversity and conserve animals in danger of extinction. They incorporate their concern in many types of art works designed to highlight these issues and draw public attention to environmental concerns.

### Artists and Biodiversity

Through my investigation, habitat loss appears to be the greatest threat to the survival of other animal species. Habitat loss effects the fundamental operation of an eco-system, thus disrupting the life cycle of organisms that live in that eco system. Only healthy eco-systems can provide the necessary building blocks for biodiversity to function. This means species in the eco-system that co-habitat, inadvertently support one another and preserve the natural habitat. Humans can help to preserve healthy habitats or rejuvenate degraded land through effective land management.

Land management starts with the soil. When the essential elements are missing from the soil the environment for bacteria and other microbes becomes hostile. The World Wildlife Fund recently stated that at least seventeen pesticides registered for use in Australian agriculture are suspected carcinogens, and forty-eight are potential hormone disruptors.<sup>86</sup> Using these chemicals eventually degrades the soil, making it toxic for bacteria and other microbes to flourish; fertilizers are then needed to boost the soil quality so plant production can continue. So the cycle of chemical use begins.

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<sup>86</sup>No author, World Wide Fund for Nature,  
[http://support.wwf.org.au/review-needed-for-dangerous-pesticides-in-australia.html?utm\\_source=Email&utm\\_medium=Email&utm\\_campaign=Futuremakers](http://support.wwf.org.au/review-needed-for-dangerous-pesticides-in-australia.html?utm_source=Email&utm_medium=Email&utm_campaign=Futuremakers)

The use of chemicals in agriculture is a subject that Japanese born Australian sculptor, Ken Yonetani's expresses in his art practice. His sculpture translates his concern for the health of the natural environment. Yonetani uses a variety of mediums including ceramic, sugar and salt which play a conceptual role in his artwork. Two artworks focus on the indirect effects of agriculture on the natural environment. Firstly, *Sweet Reef* (figure 14) is an artwork representing the Great Barrier Reef. The white coral towers have been formed from icing sugar set in a sea of crystal sugar. Yonetani highlights the destruction of the coral colonies that make up the Great Barrier Reef, through pollution from herbicides and fertiliser rich waste water from sugar plantations which turns them white.



Figure 14 *Sweet Barrier Reef* 2006  
Ken Yonetani  
Icing sugar and crystal sugar

The second artwork of Yonetani's *Still Life: The Food Bowl* (figure 15) is a three dimensional collaborate artwork consisting of objects made from Murray River Salt representing produce grown in the Murray River Basin. This artwork highlights the rising salinity of the dying Murray River system which nourishes the "food bowl" of New South Wales. The Murray Cod and the Common Yabby are represented and lay in the foreground of the artwork on a bed of salt. The



Murray Cod is the largest freshwater fish in Australia and one of the largest in the world and is listed as critically endangered on the IUCN Red List.<sup>87</sup> The Common Yabby is also listed on the IUCN Red List as vulnerable.<sup>88</sup> The decline in the health of the Murray River is due to habitat degradation from lack of water flow, overfishing and the introduction of European Carp.



Figure 15 *Still Life: The Food Bowl 2011*  
Ken and Julia Yonetani  
Murray River Salt

Yonetani's artworks are visual narratives describing the introduction of exotic species brought here by European settlement, with destructive results. The use of herbicides and fertilizers escalated as farmers tried to emulate the European farm environment and this proved to be unsustainable.

A more sustainable practice is the Biological Farming method, which includes science, biology and common-sense. It is a concept recognising that a rich

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<sup>87</sup>R. Wager, 1996. *Maccullochella peelii*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.

<http://www.iucnredlist.org/apps/redlist/details/12576/0>

<sup>88</sup>K.A. Crandall, 1996. *Cherax destructor*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.

<http://www.iucnredlist.org/apps/redlist/details/4622/0>



diversity of microbes and a mineral balanced soil encourages worms for aeration and increases water holding capacity. This increases root health and produces more robust, nutritious crops. Dr Maarten Stapper is a farming systems agronomist, who aims to help farmers improve the performance of their crops by using natural soil processes rather than industrial chemicals.<sup>89</sup> One method of achieving this is to process farm animal effluent along with certain minerals to maintain a healthy ph level. This “compost tea” is tested before being sprayed onto the soil. Another recommended method is to compost crop and grass clippings, and other green organic waste material. De Bortoli Wines adopted this approach in 2008. In an interview with Tim Lee of ABC’s Landline programme regarding biological farming methods, Rod Sutherland of De Bortoli Wines states, that he believes the soil is healthier and has produced healthier vines, which means more flavoursome wines. Biological farming rejuvenates degraded land and supports the biodiversity in the soil. Dr Steve Scheuerell from the Department of Horticulture at Oregon State University, states that tests have shown plant diseases can be suppressed with the use of water based compost tea.<sup>90</sup>

Rejuvenating and conserving marine habitats are of particular interest to English photographer and sculptor, Jason de Caires Taylor, who uses his love of diving and the environment to conserve underwater habitats that are dying due to human intervention. Taylor has designed and created sculptures to establish an underwater playground for divers. He believes the art works will draw divers away from sensitive areas and allow the reefs to regenerate. The sculptures have been installed on the sea bed to provide a foundation for new coral communities. Once these communities are established, marine life will return thus enriching the biodiversity of the area. The concrete used to make the forms is a non-toxic compound which has been formulated to encourage organic growth to settle on the pieces.

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<sup>89</sup>No author, Landcare North East, “Dr Maarten Stapper – Soil Management”  
<http://northeast.landcarevic.net.au/wooragee/events/dr-maarten-stapper-soil-health-managment>

<sup>90</sup>S Scheuerell, “What we know and what we need to know: Understanding compost tea.” *BioCycle*. 4. 2 (2003): 20.



Figure 16 *La Jardinera de la Esperanza (The Gardener of Hope)* 2009  
Jason deCaires Taylor  
Concrete, ceramic tiles and live coral

*La Jardinera de la Esperanza (the Gardener of Hope)* (figure 16) depicts a young girl lying on a patio surrounded by pot plants. A piece of coral has been planted in the pot in hope that a new reef will form.

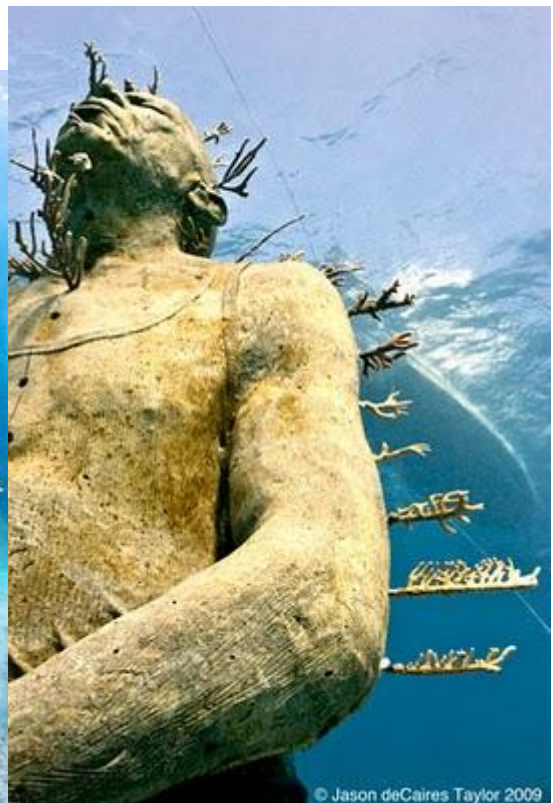


Figure 17 *Man on Fire* 2009  
Jason deCaires Taylor  
Concrete and live coral

*Man on Fire* (figure 17) is a one ton cement body cast of a Mexican fisherman named Joachim. Taylor drilled seventy-five holes in the cement sculpture to accommodate live coral implants. The yellow, red and brown coral, *Millipora alcicorni* is fast growing and will give a painful sting if touched. Long fingers of coral implants stretch out from the figure resembling fire under water. Taylor says it represents the predicament that humans have created for themselves. He believes humanity is destined for destruction, because the global environment's decline is slow and most of us have not noticed it.



Figure 18 *Vicissitudes* 2009  
Jason deCaires Taylor  
Concrete

Depth 4.5 meters, 25 life size sculptures, 5 meters in diameter, Grenada, West Indies.

*Vicissitudes* (figure 18) is another art work of Taylor's and consists of twenty-five cement life size casts of children from a variety of cultures. The figures are joined at the hands forming a circle, which is a representation the life cycles that function in the natural environment. Over time the artwork will eventually become a part of the marine environment. The art work serves to remind us that we too contribute to the environment.

Indigenous people have a strong relationship with the natural environment and have developed effective land management practices that have sustained them for centuries. The Australian aborigines developed the *fire stick* technique over thousands of years of experience. Selected seasonal burning of dead

undergrowth clears out vermin, encourages new growth and forces the germination of seeds that require high temperatures to sprout. This co-habitual practise assists the improvement of native flora and fauna and supplies food for the aborigines.

Australian contemporary artist, Julie Bartholomew has created two artworks *Swift Parrott* (figure 19) and *Coxen Fig Parrott* (figure 20) to express her concerns regarding the loss of habitat. The art works embody two beautifully coloured Australian native birds which rest on snapped and torn branches which represent their degraded habitat.



Figure 19 *Swift Parrott* 2010  
Julie Bartholomew  
Porcelain, decals and glaze



Figure 20 *Coxen Fig Parrot* 2010  
Julie Bartholomew  
Porcelain, decals and glaze

A habitat conservation project is underway in central Victoria Australia to encourage bird life to return to this area. It is called the Kara Kara conservation project which runs along the spine of the St Arnaud Range National Park and stretches eastward towards the Grampian Mountains to create a green corridor. The ten year old project needs a corridor to cross private land and co-operation from farmers and landholders is essential for the success of the project. As they will need to fence off a portion of their land and plant box-ironbark trees and native grasses. The project is aimed to conserve bird and plant species which include two rare orchids. As the land regenerates, animal and bird species are expected to return (as Tom Arup noted in an Age article on December 23, 2011).

In order to support biodiversity we need to conserve and rejuvenate the land. In turn this supports the habitat for all native species – large and small. Recognising the value of healthy habitats and the riches they provide is important. However, giving nature “rights” is another step.

In the South American country of Bolivia, the indigenous Andean spiritual philosophy believes “Pachamama” (goddess of earth and nature) is a living identity which requires care and respect. The law of Mother Nature, which is a part of a restructuring of the Bolivian constitution will grant “Pachamama” eleven new rights, including the right to exist, the right for clean air and water, the right



to continue vital cycles and process free of human alteration, the right not to be polluted and the right to balance the relationship between man and nature in a way that allows the latter to regenerate” (As John Vidal noted in a Guardian UK article on April 11, 2011). The Bolivian government will appoint an ombudsman to officiate over the new law. Ecuador has changed its constitution to grant Nature rights as well, however this has not stopped oil companies destroying areas of the Amazon (As John Vidal noted in a Guardian UK article on April 11, 2011).

In this next section I consider the efforts by artists and organisations to conserve the seven threatened species discussed in the previous chapter.

### **Northern Hairy-nosed wombat and the Greater Bilby**

Many active organisations recognise the right of nature to exist and to thrive. Global organisations, such as The World Wildlife Fund (WWF), International Union of Conservation of Nature (IUCN) and International Union on Climate Change (IUCC) monitor and collect data to assist with recovery efforts. Local organisations work on the frontline, rejuvenating habitats. In Queensland, the government department, Queensland Parks and Wildlife Service is currently operating recovery programmes for the critically endangered Northern Hairy-nosed Wombat. The conservation of the endangered Greater Bilby is being assisted by the non-government organisation, Australian Wildlife Conservancy which established The Yookamurra Sanctuary, South Australia, the Scotia Sanctuary in the Murray Darling basin in New South Wales. In addition, Arid Recovery is working in the Mount Lofty ranges, South Australia to conserve the habitat of the Greater Bilby. Land care with the help of Conservation Volunteers supports these organisations to curb the alarming decline in mammal species.

Biologists work directly with the endangered species and their habitats, by collecting, analysing and compiling data over years. Data collection is important as it enhances existing knowledge, which assists focused programmes for endangered species. Focused programmes for breeding, translocation, reintroduction and habitat rejuvenation are important if we want to save the

Northern Hairy-nosed wombat and the Greater Bilby. Australia has the unenviable status of having the worst mammal extinction rate in the world.<sup>91</sup> *“Twenty percent of our remaining mammal species are threatened with extinction.”*<sup>92</sup> Only one hundred and thirty-five Northern Hairy-nosed wombats now exist. The Greater Bilby now only inhabits small fragmented pockets in the Northern Territory and Western Australia. Their habitat has dwindled to less than seventy percent of its original range. To increase numbers of both animal populations, one strategy is to fence suitable habitat and clear it of introduced fauna and flora, then reintroduce healthy animals to establish new populations.

*“Reintroduction of threatened species is an increasingly popular goal of conservation, and is seen as a viable means of restoring population size and preventing extinction, with the ultimate goal being the re-establishment of wild populations of the reintroduced species.”*<sup>93</sup>

### Northern Hairy-nosed wombat

In the case of the Northern Hairy-nosed wombat the initial breeding colony was established with only thirty individuals in the Epping Forest National Park, near Clermont, central Queensland in 1971.<sup>94</sup> It was fenced with twenty kilometres of predator proof fencing and cleared of predators and livestock by 1982. This area is suitable habitat and provides native grasses which have been eradicated by agriculture in previous wombat habitats. The population of Northern Hairy-nosed Wombats increased to one hundred and thirty-eight by 2007. To hinder inbreeding and minimise exposure to disease, another breeding colony was established at Yarran Downs near St George, southern central Queensland in 2008. The Richard Underwood Nature Refuge is suitable habitat and between 2009 and 2010 fifteen animals were translocated to the

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<sup>91</sup> No author, Australian Wildlife Conservancy, “Australia’s Biodiversity Crisis” <http://www.australianwildlife.org/Wildlife-and-Ecosystems/Australias-Biodiversity-Crisis.aspx>

<sup>92</sup> *ibid.*

<sup>93</sup> H.I. Griffiths, et.al. “Species reintroductions.” *Conservation Biology* 10(1996): 923.

<sup>94</sup> *ibid.*

refuge.<sup>95</sup> Dr Alan Horsup, the Senior Conservation Officer for the Queensland Parks and Wildlife and his research team monitor the habitat and the progress of the Northern Hairy-nosed Wombat. Dr Horsup states in an interview with the ABC's programme- Catalyst, on the 3rd July, 2003, that he is determined to bring them back from the edge of extinction. However, it will take decades for this unique animal to recover its population to a safe level. Dr Horsup believes that the husbandry techniques developed for the Southern Hairy-nosed wombat and Common wombat are fundamental in the development of techniques to save the Northern Hairy-nosed wombat.<sup>96</sup>

Australian artist, Patricia Piccinini responded to the concept of human intervention to save the Northern Hairy-nosed wombat with her artwork "*Nature's little helpers – Surrogate (for the Northern Hairy-nosed Wombat)*" (figure 21).

The surreal figure is the artist's response to the concept of what could be born from genetic engineering. Piccinini questions the role of humans not only in the decline of the species, but humanity's role in fixing the problem through technology and creating a completely alien species to be surrogate for a critically endangered native species. Humanity is represented in this art work. The human like biological features; skin, hair, eyes nipples and navel engages and repulses the viewer. To house this genetically altered being is a tent and a platform embossed with images of oak leaves and acorns. This highlights introduced flora, which is a major factor in the decline of the Northern Hairy-nosed wombat. The art work speaks of biotechnology, anthropomorphism and the environment. It evokes sympathy and revulsion at the same time, leaving the viewer with a disturbing sense regarding human interference into the natural world.<sup>97</sup>

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<sup>95</sup>No author, Queensland government, Department of Environment and Heritage Protection, [http://www.derm.qld.gov.au/wildlifeecosystems/wildlife/threatened\\_plants\\_and\\_animals/endorsed/northern\\_hairynosed\\_wombat](http://www.derm.qld.gov.au/wildlifeecosystems/wildlife/threatened_plants_and_animals/endorsed/northern_hairynosed_wombat)

<sup>96</sup> Alan Horsup, 2004. *Recovery plan for the Northern Hairy-nosed wombat Lasiorhinus krefftii* 2004-2008. Report to the Department of Environment and Heritage, Canberra. Environmental Protection Agency/ Queensland Parks and Wildlife Service, Brisbane, 10

<sup>97</sup> J. Messenger., *Patricia Piccinini : Once upon a time*, Art Gallery of South Australia, Australian Book Collection, 2011,20.





Figure 21 *Nature's little helpers – Surrogate (for the Northern Hairy-nosed Wombat) 2004*  
Patricia Piccinini  
120 x 350 x 350 installation: silicon, fibreglass, leather, plywood, hair

### Greater Bilby

Habitat loss is a major factor affecting the decline of the Greater Bilby. In addition to habitat loss, predation from foxes, feral cats and dingoes affect their population. However, reintroduction programmes are currently in progress in The Yookamurra Sanctuary, South Australia and the Scotia Sanctuary in the Murray Darling depression in New South Wales. These sites were set up by the Australian Wildlife Conservancy, which is a non-government enterprise. Another organisation, Arid Recovery is working in the Mount Lofty ranges, South Australia to establish protected habitats for the reintroduction of the Greater Bilby.<sup>98</sup> These organisations clear fenced areas of feral animals, livestock and exotic plant species and replant native grasses before they reintroduce the

<sup>98</sup> No author, Australian Wildlife Conservancy, "Australia Wildlife Conservancy Sanctuaries"  
<http://www.australianwildlife.org/AWC-Sanctuaries.aspx>

native animals.<sup>99</sup> The protected areas provide safe habitat for flora and fauna to thrive which allows the eco system to recover. This rejuvenates the biodiversity and allows natural life cycles to function. The Department of Conservation and Land Management of Western Australia runs Project Eden, which has a captive breeding and release programme underway. Between 2000 and 2005 one hundred and fifty-one Greater Bilbies were reintroduced into the Francois Peron National Park. In 2007 surveys of the area proved the reintroduction a success and plans for further releases to new sites are in progress.<sup>100</sup> However, the Francois Peron National Park is not fenced, which leaves small ground dwelling mammals vulnerable to predator attack, namely feral cats and foxes.

Australian artist Rod McRae's artwork *Operation Foxtrot* 2010 (figure 22) responds to the threat of introduced species to small Australian ground dwelling animals. The European fox is an introduced species and has adapted easily to the Australian landscape. The vast variety of Australian ground dwelling animals, in particular the Greater Bilby are easy prey for the fox and feral cats. There are three elements to *Operation Foxtrot*. One is the installation of a shopping trolley which indicates the ease through which the fox can kill native animals. They can pick and choose as easy as filling a shopping trolley in the supermarket. Secondly, the foxes represent the hostile alien in the native environment. Finally the fact that McRae uses foxes which have been created using taxidermy means that these foxes will not naturally decompose. All these elements oppose the natural order of nature in the Australian landscape and disrupt the behaviour of the eco systems. McRae believes that humans have not considered their role in nature, as "he states that, in his work humans are not harmonious with nature."<sup>101</sup>

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<sup>99</sup> Janet Newell, "The role of the reintroduction of Greater Bilbies (*Macrotis lagotis*) and Burrowing Bettongs (*Bettongia Lesueur*) in the ecological restoration of an arid ecosystem: foraging diggings, diet and soil seed banks" PhD diss., University of Adelaide, 2008, 2.

<sup>100</sup> No author, Project Eden, Shark Bay World Heritage Area. "Reintroductions" [http://www.sharkbay.org/PE\\_reintroductions.aspx](http://www.sharkbay.org/PE_reintroductions.aspx) 3/3/2013

<sup>101</sup> Williams, Court, "Heart of the Matter" <http://www.rodmcrae.com.au/images/gallerybrochure.pdf>



Figure 22 *Operation Foxtrot* 2010  
Rod McRae  
Shopping Trolley and taxidermy foxes.

Australian artist, Anna Culliton is challenging our perception of the ideal pet with her art work *Pocket full of Bilby* (figure 23) in her recent exhibition at a Chippendale art space NG Gallery. This ceramic artwork embodies the endangered Bilby in a shirt pocket that might have been reserved for an exotic species such as a pet mouse or kitten. Culliton's piece reminds us of Australia's unique species that need our attention and protection and are just as beautiful as an introduced species.



Figure 23 *Pocket full of Bilby* 2013  
Anna Culliton  
Ceramic

### Sumatran Orang-utan

Habitat loss is a major factor in the decline of the Sumatran Orang-utan. However, the cruelty and reckless disregard for the surviving animals is also a major factor. Several organisations are playing various roles to curb the destruction to the animal's habitat and demonstrate the value of the Sumatran Orang-utan existing in the wild. One focal point is education of the local people. The Orang-utan Republik Foundation is conducting educational programmes and provides scholarships for local students for tertiary education in biology, veterinary sciences and forestry to encourage interest in the riches of a healthy eco system for all inhabitants.<sup>102</sup> Another focal point is rehabilitation and reintroduction of sick and injured Sumatran Orang-utans. The Sumatran Orang-utan Conservation Programme (SOCP), The Australian Orang-utan Foundation, The Orang-utan Conservancy, retrieves injured, dislocated Orang-utans after

<sup>102</sup>No author, Orang-utan Republik Foundation, "saving a species through education initiatives & innovative collaborative projects."  
<http://www.orangutanrepublik.org/>

the bulldozers have gone through the forest. The teams provide a safe environment to heal both mentally and physically. During this time, the Sumatran Orang-utans are quarantined to ensure the animals carry no diseases that could infect the existing wild population.<sup>103</sup> The Sumatran Organ-utan Conservation Programme (SOCP) is conducting reintroduction programmes of rehabilitated animals into the Bukit Tigapuluh National Park.

The Orang-utan Repulik Foundation is running educational programmes to inform communities, government offices and school children of the issues facing the survival of the Sumatran Orang-utan. The organisation runs the Orang-utan Caring Scholarship programme, which funds promising, needy students to attend University in the fields of forestry, biology and veterinary science with particular focus on Sumatran Orang-utan conservation.

The global organisations that continue to research and monitor the natural environment are Worldwide fund for Nature (WWF), International Union for the Conservation of Nature (IUCN), Natural Resources Defence Council and Conservation International.

The Sumatran Orang-utan plays role of an eco engineer in the forest. This role is embodied in Caz Haigh's art work *Haiti*.

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<sup>103</sup>No author, The Orang-utan Project.  
<http://www.sumatranorangutan.org/content-n48-sE.html>



Figure 24 *Haiti 2011*  
Caz Haigh  
Fibreglass and paint

English graphic artist and illustrator, Caz Haigh illustrated a fibreglass figurative model of an Orang-utan with images of forest flora and fauna. Caz Haigh's *Haiti* was part of the *Jungle City* exhibition in the Edinburgh Botanic Gardens in July 2011. The Sumatran Orang-utan was one endangered animal featured to heighten awareness of endangered species.<sup>104</sup> The elephant, crocodile, horn bill and tiger also featured in the exhibition. Haigh states that her concern for the natural world starting fifteen years ago when diving revealed the negative impact humans have on the world's oceans.<sup>105</sup>

### Polar Bear

A further impact on the world oceans is climate change. The Polar bear's diminishing habitat is directly linked to climate change. The Polar bear's initial threat to its decline was localised hunting. Now the threat of starvation due to the reduction of ice and early melting of existing ice floes affects the existence of the Polar Bear.

<sup>104</sup> Each art work was auctioned off, which raised four hundred thousand pound sterling to support the organisations that conserve endangered species and their habitats.

<sup>105</sup> Caz Haigh  
<http://cazhaigh.co.uk/about/>

The efforts of conservation groups, indigenous organisations, researchers and government bodies have worked to curb the decline in Polar Bear populations. By 1973 Polar Bear Specialist Group (PBSG) had identified the factors affecting the Polar Bear. Five countries, Russia, Greenland, Norway, Canada and USA finalized the “Agreement on the conservation of Polar Bears”, which came into force in 1976. The agreement allowed the species to recover slightly. World Wide Fund for Nature (WWF), International Union for the Conservation of Nature (IUCN), Natural Resources Defence Council and Conservation International are some of the many organisations constantly researching and monitoring the Polar Bear and the natural environment.

Australian photographer, Emma Rowan Kelly visited the Polar Bear habitat and captured images to convey the Polar Bears circumstances. Conservation of the Polar Bear is a major concern to Kelly. Her recent art work *Innocent Arctic*, is a series of photographs taken in the Arctic, primarily of Polar Bears. The images are large format colour photographs capturing intimate images of the daily activities of the Polar Bear highlighting their vulnerability and their struggle to survive. Climate change has eroded the ice landscape leaving Polar Bears stranded or having to risk drowning by swimming long distances between ice floes to find food. Kelly wants to draw attention to the right for life of this unwilling victim in climate change. The images I have chosen are of Polar bears in an emaciated state which emphasise the struggle to survive in the frozen wilderness. One of the images is of a mother and her cub searching for food. The cub watches as its mother has to enter the water to swim to the next ice floe (figure 25) and the second image is of two Polar Bears fighting over the bones of a whale which have emerged as the ice has melted (figure 26).





Figure 25 *Innocent Arctic Series (1)* 2011  
Emma Rowan Kelly  
Photograph



Figure 26 *Innocent Arctic Series (2)* 2011  
Emma Rowan Kelly  
Photograph

Kelly is so passionate about the future of the Polar Bear she donated a percentage of the proceeds of her show to World Wildlife Fund's Adopt a Polar Bear programme. Rod McRae also uses the Polar Bear to communicate his concern for global warming and the melting arctic ice with his art work *Crying out loud in the age of stupid* (figure 27).



McRae states:-

*“the very mechanism human communities use to make ice (a refrigerator) depletes natural ice formation through decades of CFC release and ozone damage. The Polar Bear teeters on the edge of catastrophe as its habitat melts, its prey diminishes and starvation ensues.”*<sup>106</sup>



Figure 27 *Crying out loud in the age of stupid* 2010

Rod McRae

Taxidermy sub adult Polar bear, MDF and 2 pack high gloss paint

The art work consists of a taxidermy sub adult Polar bear that balances precariously on the edge of the partly submerged floating refrigerator. This art work was accepted for exhibition in the Wynne Prize 2010 and draws attention to the circumstances of the Polar bear due to human activity.

### Black Rhinoceros

Human activity threatens the existence of the Black Rhinoceros. They are hunted for their horns and their habitat has been reduced, fragmented and degraded making them more vulnerable to poaching. The United Nations Convention on International Trade in Endangered Species of wild fauna and

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<sup>106</sup>Rod McRae,  
<http://www.rodmcrae.com.au/polarbear.html>

flora (CITES) banned the trade in Rhinoceros horns in 1992.<sup>107</sup> Currently the World Wildlife Fund (WWF) are running the African Rhino Protection programme which expands existing protected reserves and creates new reserves to conserve and protect the existing Black Rhinoceros population. These reserves are populated by translocated individuals that are transported by helicopter from unprotected regions.<sup>108</sup> These animals are vet checked and their details recorded before they are transported. The new animals are introduced into areas of low genetic diversity to reduce the risk of inbreeding and increase the fitness and robustness of a growing population. The Lowvel Rhino Trust, in Zimbabwe dehorned forty-eight Black Rhinoceros' to reduce the incentive to kill them.<sup>109</sup> The horns are then sold to the government and the income supports conservation efforts.

Scientists and conservationists have provided governments and local communities with the data on the status of the Black Rhinoceros, which supports the educational programmes and urges conservation efforts. Educating the consumer of the true medicinal value of the Black Rhinoceros horns may reduce their use in traditional Asian medicines. The poaching of Black Rhinoceros for their horns also often leave infant Rhinoceros' for dead. Orphans are left defenceless and vulnerable to predator attack.

The trade in Black Rhinoceros horns is banned internationally by the United Nations Convention on International Trade in Endangered Species of wild fauna and Flora (CITES).<sup>110</sup> Swaziland has introduced zero tolerance policies, which initially reduced the poaching significantly.<sup>111</sup> The World Wildlife Fund (WWF) has been running the African Rhino Protection programme since 1997. The programme includes expanding existing protected reserves and creating new

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<sup>107</sup> Peter J. Van Coeverden, et.al., "Conservation genetics of the black rhinoceros, *Diceros bicornis* bicornis, in Namibia" *Conservation Genetics* 12 (2011):783.

<sup>108</sup> No author, World Wildlife Fund, "WWF African Rhino Programme."

[http://wwf.panda.org/what\\_we\\_do/endangered\\_species/rhinoceros/african\\_rhinos/the\\_african\\_rhino\\_programme/](http://wwf.panda.org/what_we_do/endangered_species/rhinoceros/african_rhinos/the_african_rhino_programme/)

<sup>109</sup> No author, International Rhino Foundation, "Zimbabwe Lowveld Rhino Programme."

<http://www.rhinos.org/zimbabwe-lowveld-rhino-program>

<sup>110</sup> *ibid.* 783.

<sup>111</sup> No author, CITES, "CITES Conservation of and trade in African and Asian Rhinoceros" Swaziland Country Report, May 2004.

<http://www.cites.org/common/cop/13/inf/E13i-22.pdf>

reserves which are guarded 24 hours a day against poachers. The protection extends to other species, such as lions and elephants, which has also helped their dwindling populations.<sup>112</sup>

Conservationists, scientists and veterinarians track, monitor and translocate individuals from the free population to protected reserves by helicopter and trucks.<sup>113</sup> It is important to introduce new animals to fragmented, small populations of Black Rhinoceros' because of the low levels of genetic diversity. The infant Rhinoceros' are left for dead when their parents are killed for their horns. August, 2010 in Zimbabwe the Lowveld Rhino Trust successfully released four orphans back into the wild after hand rearing them. In some cases, game reserves dehorn the Rhinoceros' to make them less attractive for poachers.

The games reserves rely on Ecotourism which provides employment for trackers, people working in hospitality and provides jobs in associated industries. Game reserves allow tourists to observe the Rhinoceros in their natural habitat which provides an educational experience for the visitors and income for the local community, thus informing the local people of the value of the Rhinoceros. Increased nature tourism in Namibia has been encouraged by government and local communities.<sup>114</sup>

Educating the local communities (who rely on the illegal trade in Rhinoceros horns) of the benefits of the Black Rhinoceros is important to the survival of this species. The World Wildlife Fund's African Rhino Protection Programme is running educational courses for the local communities to show them the value of the Black Rhinoceros in terms of biodiversity and eco-tourism.<sup>115</sup>

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<sup>112</sup> No author, CITES, "CITES Conservation of and trade in African and Asian Rhinoceros" Swaziland Country Report, May 2004.

<http://www.cites.org/common/cop/13/inf/E13i-22.pdf>

<sup>113</sup> No author, World Wildlife Fund, "African Rhinoceros"

[http://wwf.panda.org/what\\_we\\_do/endangered\\_species/rhinoceros/african\\_rhinos/the\\_african\\_rhino\\_programme/](http://wwf.panda.org/what_we_do/endangered_species/rhinoceros/african_rhinos/the_african_rhino_programme/)

<sup>114</sup> J.F. Brodie, et.al. "Population recovery of black rhinoceros in north-west Namibia following poaching." *Animal Conservation* 14 (2011): 355

<sup>115</sup> *ibid.*

German artist Carsten Holler's *Rhinoceros* (figure 28) is a figurative artwork that embodies the characteristics of a new born Rhinoceros which engages the viewer in a conflict of emotions, from empathy to revulsion. He confronts our perceptions of how animals should appear and feel to the touch. The *Rhinoceros* is one of a series of infant animals constructed of polyurethane, polyester and glass. The choice of materials make the figures shocking and yet vulnerable. The artificial materials draw the subject into the contemporary domain and the distinction of the prehistoric origins of the *Rhinoceros* and the use of contemporary material causes conflict. The skin (yellow polyester) hangs loosely over a fragile frame which highlights the vulnerability of the species. Conservation of animals are not his priority, his interests are in the inter-relationships of humans and animals, perception and communication of living beings.



Figure 28 *Rhinoceros* 2008  
Carsten Holler  
Polyurethane, glass eyes

### Mountain Gorilla

The Mountain Gorilla is another vulnerable species on the African continent. The loss of habitat due to mining, poaching for bush meat and trophies plus human diseases has decimated the only wild population of Mountain Gorillas worldwide.

Conservation organisations - The African Wildlife Fund, Endangered Species International, International Gorilla Conservation Programme, World Wildlife Funds African Great Apes Programme, The Dian Fossey Gorilla Fund (DFGF) and Ape Alliance. DFGF support the human communities near the Mountain Gorilla habitats, by conducting community outreach programmes, supporting primary, secondary and tertiary education and operating community health programmes.<sup>116</sup> These programmes cover hygiene and responsible waste disposal to help prevent the spread of human disease, in particular Ebola virus. Scientists working in the field of Mountain Gorilla conservation are developing an Ebola vaccine to help protect the gorilla communities. Some have assisted former poachers to earn a living from making wooden carvings of the gorillas for tourists.

Outreach education programmes are being conducted by various conservation groups that highlight the value of the Mountain Gorilla to the jungle and the human communities. The Endangered Species International (ESI) is one conservation group that has implemented programmes that target a wide range of ethnic groups and cultures with particular focus on school children.<sup>117</sup>

Wildlife conservationist groups promote eco-tourism as a way to bring much needed money into the area, using trackers to locate the Mountain Gorilla for viewing. Visitors are also educated in the need to protect the Mountain Gorilla and their habitat.

Melbourne born artist Lisa Roet has great respect for the primate species and their place in the wild after twelve years research into the interrelationship of apes and humans. Roet's artwork *White ape* (figure 29) is large Roman type bust modelled from a chimpanzee. The art work was modelled off a death

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<sup>116</sup>No author, The Diane Fossey Gorilla Fund International, "Supporting higher education in Africa." <http://gorillafund.org/page.aspx?pid=243>

<sup>117</sup>No author, Endangered Species International, "Great Apes education and public awareness in the Republic of Congo." <http://www.endangeredspeciesinternational.org/apeseducation.html>

mask of a chimpanzee she had based a series of work on in the Antwerp Zoo in Belgium.



Figure 29 *White Ape*  
Lisa Roet  
Coated fibreglass

Scottish born artist David Mach created *Gorilla* (figure 30) from three thousand coat hangers. The hook on the hanger acts as a soft edge to the figure which creates the illusion of movement. This powerful figurative sculpture demonstrates the size, strength and independence. Mach's work is influenced by the area in which he grew up. He grew up in Fife Scotland surrounded by industry. The shipyard near his house was of particular interest to Mach. The large metal structures built in the shipyard influenced his work and are reflected in his sculpture *Gorilla*.



Figure 30 *Gorilla* 2011  
David Mach  
Metal coat handlers

### Hawaiian Monk Seal

The two regions that cover the Hawaiian Monk Seals' habitat have a range of threats to their survival. The threats are marine debris, habitat loss, human intervention, food supply and natural predators.

To address the problem of marine debris, the National Marine Fisheries Service (NMFS) implemented the Marine Mammal Research Program (MMRP) which commenced in 1982. Their aim was to remove marine debris from haul-out in the North-Western Hawaiian Islands. From 1982 to 2003 they reported that a total of two hundred and thirty-eight Hawaiian Monk Seals were freed from marine debris.<sup>118</sup> This programme is ongoing to keep haul-out areas and coral reefs free of dangerous marine debris.

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<sup>118</sup> George A. Antonelis, et.al. "Hawaiian monk seal (*Monachus schauinslandi*): Status and conservation issues." *Atoll Research Bulletin* 543 (2006): 85



Critical habitat protection is an important factor in the survival of the Hawaiian Monk seal. In 2006, the President of the United States, George W. Bush designated all of the North-western Hawaiian Islands (NWHI) and surrounding waters as the Papahānaumokuākea Marine National Monument. However, due to poor management fishing continued until recently. At this time, fishing was suspended in the NWHI and any human activity directly affecting Hawaiian Monk seals is under strict control.<sup>119</sup>

Anna Culliton suggests that we adopt native animals as pets rather than exotic species. Culliton's artwork *Girl with seals* (figure 31) embodies a young girl with two young seal pups draped around her and on her lap.



Figure 31 *Girl with seals* 2013  
Anna Culliton  
Ceramic

While it has been depressing understanding the problems in maintaining biodiversity and examining the situation of threatened species, I have become

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<sup>119</sup> Lloyd F. Lowry, et al. "Recovery of the Hawaiian Monk Seal (*Monachus schauinslandi*): A review of conservation efforts, 1972 to 2010, and thoughts for the future." *Aquatic Mammals*. 37. 3 (2011): 404.



more committed hopefully to giving a *voice* to these creatures. Many other artists share this commitment as indeed do many ordinary citizens.

## Chapter Four: Art as a catalyst for change

Previously I have discussed the importance of the loss of biodiversity and the effects on seven endangered species and now I intend to consider the ethical reasons that support the retention of biodiversity.

In the first section of this chapter I will consider aspects of environmental ethics. In the early 1970s period environmental ethics was developed as a new sub-discipline of philosophy. It questioned the way that human beings were seen to be morally superior to any other creatures and argued that there might be arguments for the intrinsic value of the environment and its nonhuman species. This challenged the viewpoints that humans were the only things that mattered, a perspective held by early Christian writers and the Bible where Genesis 1:27-8 (check your bible reference) states humans' 'have dominion over ... every living thing that moveth upon the earth.'

However, writers such as Tom Regan in his article 'The Nature and Possibilities of an Environmental Ethic' points out that an environmental ethic requires that nonhuman beings can have value in their own right, independently of any human interests and questioned the moral of human dominance over other species. Ideas such as this, coming from contemporary writers have influenced many artists.<sup>120</sup>

In the final section of this chapter I consider how these ideas around the sustaining of the environment have created new narratives in art and how artists have responded to these ideas. Linda Weintraub in her book "To Life ! Eco art in pursuit of a sustainable planet", states that responses to the current environmental challenges, artists are problem solvers and have the capacity and skills to convey strategies for reform and preservation.<sup>121</sup>

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<sup>120</sup> Tom Regan, "The Nature and Possibilities of an Environmental Ethic." *Environmental Ethics*. 3.1(1981):19-34.

<sup>121</sup> Linda Weintraub, *To Life!: Eco art in pursuit of a sustainable planet*, University of California Press, California, 2012., introduction, xiv

## Environmental Ethics

A conventional view of ecology considers that humans should only do something if it is considered for their own interests. This is an anthropocentric approach and while this also allows that aspects of the natural world are connected, human interests become paramount. Consequently forests can be cleared or industrial nets used for more effective fishing for the benefit of humans.

An alternative view is that all living things, not just human beings have value in their own right. This has been presented by theorists such as Sigmund Kvalov and Nils Faarland.<sup>122</sup> For them the right of all living things to live and flourish exists even when there is no known direct or even indirect benefit to humans. They argue that in every environment there is a subtle balance of inter-relationships for the continued existence of all organisms. Without respect and regard for the continued existence of *all* organisms within the natural world, the destruction of environment or some human actions becomes a possible threat not only to particular species but may also be detrimental to human life. This view is called deep ecology and its core principal is that the living environment as a whole must be considered. They consider that the customary viewing of ecology as part of biology should be replaced by a more searching examination of the reality human relationships have with the environment. However this approach can become more vexed in the third world when human interventions may involve traditional social, cultural and economic issues such as hunting or agricultural practices.<sup>123</sup>

Val Plumwood suggests that the failure to value human relationships with the environment can be traced to seeing the other as radically separate and inferior to humans who remain central. She locates this in dualist thinking where human is seen as superior to nature and considers that this should be replaced with an ecological ethic based on empathy for the other.<sup>124</sup>

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<sup>122</sup> A. Naess, "The Shallow and the Deep, Long-Range Ecology Movement," *Inquiry* 16, reprinted Sessions (1995):151-5.

<sup>123</sup> Ramachandra Guha, "Radical American Environmentalism and Wilderness Preservation: A third world critique." *Environmental Ethics* 11(1989):71-83.

<sup>124</sup> Val Plumwood, *Feminism and the Mastery of Nature*, (London: Routledge, 1993), 167.

The animal rights philosophy maintains the view that individual animals have the right to live and thrive without human intervention. It advocates that all animals deserve equal protection whether the animal is common or rare. It rejects methods of wildlife management such as species control, through feral animal eradication and hunting for cultural and non-cultural purposes and scientific based data collection. Animal rights' philosophy views that any individual animal has the right not to be disturbed, harmed or displaced from its habitat.<sup>125</sup>

In contrast wildlife management takes a holistic approach, which considers the inter-relationship of the conservation of wildlife, eco-systems and the role humans play. It considers the condition of the ecosystem, such as over population of one species, feral species habitation and performs scientific research. Consequently the individualistic view of animal rights philosophy is incompatible with science based conservation and wildlife management.<sup>126</sup>

Through its emphasis on individual animal rights this view can be seen as reductionist in that it ignores the inter-relatedness of wildlife communities that exists in functioning ecosystems. However, when human intervention destroys eco systems and places particular animals in danger of extinction it is important to reiterate their right to continuing existence.

The desire to preserve species can be seen as either a function of respect for nature or as an act of caring or love. Paul Taylor considers that animal rights require moral respect. He says that

“It is not that respect for nature *precludes* (his italics) feelings of care and concern for living things. One may, as a matter of simple kindness, not want to harm them. But the fact that one is so motivated does not itself indicate the presence of a moral attitude of respect.”<sup>127</sup>

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<sup>125</sup>No author, The Wildlife Society, “Final Position Statement – Animal rights philosophy and wildlife conservation” [http://joomla.wildlife.org/documents/positionstatements/animal\\_rights\\_8.30.2011.pdf](http://joomla.wildlife.org/documents/positionstatements/animal_rights_8.30.2011.pdf) 18/12/13

<sup>126</sup>No author, The Wildlife Society, “Final Position Statement – Animal rights philosophy and wildlife conservation” [http://joomla.wildlife.org/documents/positionstatements/animal\\_rights\\_8.30.2011.pdf](http://joomla.wildlife.org/documents/positionstatements/animal_rights_8.30.2011.pdf) 18/12/13

<sup>127</sup> Paul Taylor, *Respect for Nature: a Theory of Environment Ethics*. (Princeton: Princeton University Press, 1986), 85-86.

However, Plumwood points out that while

“There is good reason to reject as self-indulgent the ‘kindness’ approach which reduces respect and morality in the protection of animals to the satisfaction of the carer’s own feelings. Respect for others involves treating them as worthy consideration for their own sake and not just as an instrument to the carer’s satisfaction.”<sup>128</sup>

However, she sees no reason to separate reason and emotion and making caring and love as “merely ‘personal’ and ‘particular’ as opposed to the universality and impartiality of understanding.”<sup>129</sup> This is a position that has underpinned my ceramic practice and that of other artists.

### Artists as catalysts for change

The view that art has little capacity to make real change in society is challenged by Felicity Fenner who considers that

“Artists and designers are traditionally at the vanguard of shifting perceptions of the world, even effecting change in society. Today, much of the world’s best art and design practice seeks to redress the disconnection from nature that has underscored modern western society’s rampant consumption of the planet’s resources.”<sup>130</sup>

Artists have had a long history of engaging with the environment. Through painting onsite, artists such as Constable or Monet closely observed the surrounding environment. However, during the 1960’s and 1970’s some artists developed forms of art that explored the landscape and their relationship to it by locating their work in the landscape using on site materials or by exploiting the elements. These Land artists’ were the vanguard of the group called Eco artists but their use of the land has been criticised as not always in the best interests of the environment. An example is Walter De Maria’s artwork *Lightning Field* 1977, where De Maria exploited nature only to demonstrate an anthropocentric

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<sup>128</sup> Val Plumwood, *Feminism and the Mastery of Nature*, (London: Routledge, 1993), 167

<sup>129</sup> Val Plumwood, *Feminism and the Mastery of Nature*, (London: Routledge, 1993), 167

<sup>130</sup> Felicity Fenner, “Catalyst for Change” *Artlink*. 30.4 (2010 ):30.

perspective or where conservationists criticised Christo for wrapping the coast at Little Bay, Sydney.

However, other environmental artists such as Andy Goldsworthy and Richard Long were seen to be sensitive to environmental issues and showed respect for native habitat. Alan Sonfist who created *Greenwich Village time Landscape* 1965 recreated an ancient biological site using historical flora that existed four hundred years ago on an urban block of land in Manhattan. Sonfist's aim was to install an ancient natural ecosystem, which would engage the public's awareness of the importance of biodiversity. Consequently, Sonfist was commissioned to create further similar work such as *Time Enclosures of the Southeast* 1979.<sup>131</sup>

Artists have increasingly addressed issues of sustainability, regeneration, climate change and threatened species in the content of their art. As Eco art developed, its links with science, conservation and preservation have become stronger, particularly in the work of contemporary artists.<sup>132</sup>

Australian born artist Natalie Jeremijenko used her scientific expertise to manipulate nature in the creation of her artwork *One Tree(s)* 1998 - ongoing. Jeremijenko took a tissue sample from an advanced Walnut tree and cloned one thousand seedlings. Her aim was to encourage the public to act as observers on the cloning project and to invite them to form conclusions about the importance of nurturing the environment, as opposed to letting it go to "wild".<sup>133</sup> Jeremijenko, aimed to bridge science and art and to engage public awareness of the manipulation of nature.

Other artists have used the development of animal rights as a basis for their artwork. Britton Clouse's area of concern is the welfare and treatment of chickens. Clouse considers chickens are the underdogs of all agricultural

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<sup>131</sup>Linda Weintraub, *To Life!: Eco art in pursuit of a sustainable planet*, (Berkeley: University of California Press, California, 2012), 114.

<sup>132</sup> Linda Weintraub, *To Life!: Eco art in pursuit of a sustainable planet*, (Berkeley: University of California Press, California, 2012), 210.

<sup>133</sup>Linda Weintraub, *To Life!: Eco art in pursuit of a sustainable planet*, (Berkeley: University of California Press, California, 2012), 210.

animals and suffer cruel treatment. The artist's aim is to portray chickens as individuals, deserving of respect and states:

"Human portraits have always held an esteemed place in the history of visual arts, but animal portraits, unless sanitised into metaphor or decoration, are marginalised as sentimental and not serious art. I think this marginalisation is intellectual bias - new knowledge in biological and behavioural sciences expands evidence of animal sentience every day. That double standard says more about anthropocentricity of the critic than the art."<sup>134</sup>

Britton Clouse opposes the use of live animals in art works and believes these artists' ignore the ethical and philosophical values in order to express their concept.

Angela Singer also questions the violence to animals and the failure to perceive the suffering that is inflicted on them. Her artwork challenges the viewer to consider the moral and ethical issues of killing animals either for food or recreation and questions the injustice of speciesism, prizing one species, humans, above all others. Through recycled taxidermy art works, the artist aimed to reveal how the animal died by reversing the repairs the taxidermist performed, exposing scars, bullet wounds etc. This process unveiled the fact that human hands have caused the demise of the animal.<sup>135</sup>

In his installation *Fumie Tiles*, Ken Yonetani used the fragility of ceramic material to express his concern for the precarious situation of endangered butterflies. These are short lived due to the impact of human intervention. Yonetani's aim was for people to engage with his work in a way that would echo the tenuous existence of these creatures.<sup>136</sup>

Another artist who focusses on endangered species because of human intervention is Julie Bartholomew. Her porcelain installation, *Rarely Seen* is

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<sup>134</sup> Annie Potts, "Framed: Vegan artists for animal rights" *Vegan Voice*. 36(2009)  
<http://www.upc-online.org/thinking/framed-clouse.html>

<sup>135</sup> No author, [http://www.angelasinger.com/?page\\_id=7](http://www.angelasinger.com/?page_id=7)

<sup>136</sup> Jeff Doyle., "Fumie Tiles" *The Journal of Australian Ceramics*. 43.1(2004)  
[http://www.australianceramics.com/March04/index\\_fum.html?fumie.html~main](http://www.australianceramics.com/March04/index_fum.html?fumie.html~main)

concerned with the vast range of endangered Australian flora. Her flowers are modelled in white porcelain and represent the vanishing flora.

Some artists prefer to work with recycled or discarded resources to comply with their concern for the environment. This Detritus art is created from discarded objects and materials. The notion of art objects constructed from humble reclaimed material with its own history emerged in the 1980's.

Contemporary artist, Sayaka Ganz constructs animal figures from discarded plastic and metal. The artist's aim is to suggest energy and motion into her art works and to show that beauty can be created from waste materials. Ganz believes if we value our resources we will use less and thus reduce environmental damage.

On the other hand, contemporary artist Fiona Murphy explores the human/nature inter-relationships and the impact of human activity on eco systems, with particular focus on the condition of the oceans. Murphy *Reef Lab* 2013 is a mixed media installation designed to engage and educate the viewer of the destruction of the ocean environment to articulate her ecological concerns.<sup>137</sup>

## Conclusion

I have considered how philosophers and artists have explored ways to articulate their ethical concerns about the environment and the loss of bio-diversity. I share their concerns and in the following chapter I discuss the impact of these ideas on the development of my ceramic practice.

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<sup>137</sup> Fiona Murphy, "Base Processes". *The Journal of Australian Ceramics* 52.3 (2013):92.



## Chapter Five: My Work

In this chapter I explain my concept, motivation and methodology that underpin my art practice. My art practice like many other artists is a journey of discovery into oneself.

As a child I spent a lot of time in my bedroom alone. There I exercised my creative ability, making my room my world. Instead of posters of pop groups lining the walls of my bedroom, I had posters of Tigers, Elephants and other exotic animals. Their fragility and complexity fascinated me and it comforted me to know that they live their lives free. Now as an adult, through my research, I have discovered the true circumstances that other species suffer due to human intervention through no fault of their own. Furthermore, I truly believe that each species has the right to exist and has value. David Suzuki suggests in his book, *Earth Time*, that humans are affected spiritually and emotionally by the loss of other species. We have a great deal to lose.

### My previous work

Initially, to develop the skills necessary to embody my work with the anxiety and despair that I feel for these animals, I sculpted a generic version of the domestic dog. The dog is loosely modelled on the Weimaraner breed. I achieved the emotion in my work by using human expressions of sadness and anguish in the face of the dogs. My aim was to translate this sentiment across to other animal species.

The first two years of my master's candidature I worked with various clays as a part of my process to develop the necessary skills to achieve the desired result. I experimented with several different methods. The first method produced *Skulker* (figure 32 ) where I used raku clay and fired the piece using raku techniques. My aim with *Skulker* was to embody human characteristics through the posture. I endeavoured to evoke sympathy by creating an art work that represented a dog with its tail between its legs, hunched up and cowering.

*Skulker* was highly commended in the University of Newcastle Acquisitive Art Prize, 2006.



Figure 32 *Skulker* 2006  
Vicki Hamilton  
Raku clay, raku fired

The second piece, *Nature's bound* (figure 33 ) was constructed of earthenware clay and was wrapped in muslin that had been dipped in earthenware slip. It embodies a dog tightly bound, whilst howling. My aim was to convey the restrictions on nature by human activity and how these binds contort and modify nature.



Figure 33 *Nature's bound* 2006  
Vicki Hamilton  
Earthenware and muslin

Finally, I created *Natural Justice?* (figure 34) as a porcelain figurative piece in response to my concerns regarding nature being constrained and blinded by human activity. Is this fair and just? This piece won the University of Newcastle Student Art Prize, 2009.



Figure 34 *Natural Justice ?* 2009  
Vicki Hamilton  
Porcelain, muslin and porcelain slip

Finally, *Muzzled* (figure 35), sculptured from porcelain and muslin dipped in porcelain slip. I continued my theme of bound animals. This piece has the dog's muzzle bound to suggest how voiceless animals have become due to human intervention. *Muzzled* was highly commended in the University of Newcastle Student Art Prize, 2010.



Figure 35 *Muzzled* 2010  
Vicki Hamilton  
Porcelain and muslin

During the first two years as I was developing my skills with porcelain construction, my research uncovered undesirable attitudes towards animals by humans. In particular the animals that we do not see, but still have profound and destructive effects on.

Through my research, over the following two years, I identified several animals that are threatened with extinction and wanted to develop a means of making people aware of these problems. I chose seven animals from my research to highlight the multiple threats to their survival.

The research into each animal provided clear evidence that humanities impact was vast and disturbingly so, ignored by people. I wanted to move from just representing these animals and their predicaments to shocking viewers through

the performances in the exhibition. The performance pieces grew from a previous exhibition *Stamped Out* where handmade tiles were crushed underfoot. I will explain more about the tiles in the following paragraphs.

### Stamped Out

My honours work had the same concept of human beings' careless destruction of other species. The body of work *Stamped Out* (figure 36) was an installation of over five hundred and eighty hand-made tiles, a paper banner, sixteen porcelain animal heads and one porcelain sculpture.



Figure 36 *Stamped Out* Installation 2007

Vicki Hamilton

Hand-made earthenware tiles, paper banner, porcelain animal heads and sculpture

Each tile represented an endangered animal, reptile or bird. As viewers entered the space each footstep would cause a tile to crush under foot. The viewers had to enter the space in order to read the banner and to observe the sculptures. Most viewers found this action distressing and some people would not enter. However, after a number of tiles were crushed people entered the space with less hesitation. The sound of the fragile ceramic material cracking and the noises people made as the tiles gave way under foot, filled the space



(figure 37 & 38). The viewers' response was mixed, some were very moved whilst others enjoyed the interaction and breaking the tiles. I felt that the physical interaction of my work symbolised the impact of human activity on endangered species. This part of the installation echoes Ken Yonetani's installation *Fumie Tiles* 2004. Each tile represented ten of the eleven endangered Australian butterfly species. Yonetani states that each person was faced with an obligation to step on and break his work.<sup>138</sup>



Figure 37 Earthenware tiles at the beginning of the exhibition 2007  
Stamped Out exhibition



Figure 38 Crushed tiles during the exhibition 2007  
Stamped Out exhibition

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<sup>138</sup>J. Humphry, "Ken Yonetani's *Fumie Tiles*: The Art of Destruction," *Ceramics: Art and Perception*, 57(2004):21.

After the opening night was over I entered the space. I felt an eerie quietness, much like the calm after a destructive storm (figure 39). The atmosphere was in stark contrast to the opening night. The destruction had passed and all that remained was the stillness representing death after land is cleared of life. This feeling of stillness remained until I pulled the exhibition down, three weeks later.



Figure 39 Close up of the few remaining tiles  
Stamped Out exhibition

Three walls were lined with a paper banner (figure 40) listing an additional one hundred endangered species.

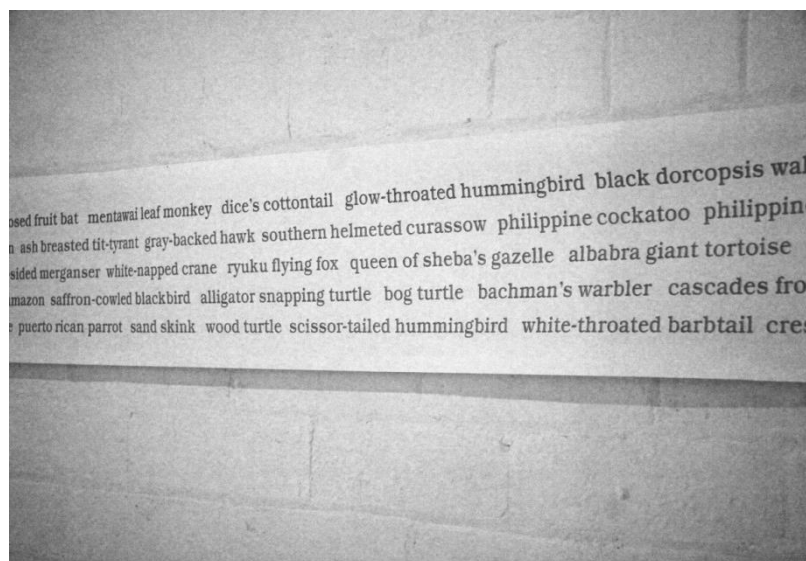


Figure 40 Paper banner 2007  
Stamped Out exhibition



Figure 41 Northern Hairy-nosed Wombat 2007  
Vicki Hamilton  
Porcelain

The fourth wall had sixteen porcelain animal heads (figure 41) representing a range of endangered animals. The wall was set up to represent a trophy wall, but the difference was each animal had its eyes closed and trophy animals heads have their eyes open.



Figure 42 Australian Mountain Pygmy Possum 2007  
Vicki Hamilton  
Porcelain

My first attempt at sculpting a complete animal form (figure 42) embodied an Australian Pygmy Possum which is impacted by climate change in the alpine region of New South Wales and Victoria. This life size piece (15cm x 17cm x 6cm) reflected the Australian Pygmy Possum's beauty and vulnerability which evoked an emotional response from the observers. Most of the people viewing



this piece did not know of the existence of this tiny, endangered Australian Pygmy Possum or its circumstances.

I was invited to participate in an exhibition named *The making of our Nation* at the John Paynter Gallery in 2010. European settlement bought exotic plants, domestic livestock and pets into Australia. The two introduced species I focused on were The European Fox and the European Rabbit. I designed a new Australian “coat of arms” and named it *Consequence of our actions* (figure 43). Every state of Australia is represented by a native animal and flower. I sculpted porcelain heads of each state animal emblem. These heads were fixed to a porcelain shield and the fox and rabbit replaced the kangaroo and emu. Each of the native animals depicted on the shield were listed according the UNCI as either vulnerable or endangered, the fox and the rabbit are the only animals in this art work that are flourishing.



Figure 43 Consequences of our actions 2010  
Vicki Hamilton  
Porcelain

### On the Edge Exhibition

I chose Back to Back Gallery because of its size, structure and location. The size of the space was important because my major pieces are small and the impact is stronger in an intimate space. The exposure of the exhibition to public viewing was a significant factor when selecting the gallery. The gallery's location in Newcastle has regular foot traffic passing the door and when the gallery is closed the exhibition is clearly visible from the street because of the

large glass windows. An added bonus was the willingness of the gallery committee to allow me to paint the walls dark industrial grey for my exhibition. The white walls of the gallery are unsuitable to demonstrate my concept. However, dark walls act as a back drop and absorb light flooding into the gallery highlighting my white porcelain artwork. I have painted the walls dark grey, a metaphor of industry which is in stark contrast to the natural environment needed for these animals to survive.

I have produced one hundred animal earthenware clay moulded animals, seven small porcelain sculptures and one large porcelain covered white raku sculpture. Each of the moulded pieces and sculptures represent one of the endangered animals that I have been researching. The earthenware moulded animals are fired to 650 degrees Celsius (figure 44) so the sound of them hitting the floor was clear and sharp, however the shards of ceramic material were dull. Each animal, the Mountain Gorilla, Sumatran Tiger, Northern Hairy-nosed Wombat and Black Rhinoceros is placed on the conveyor belt (*Pathway to Extinction*) which will then ride to the end and fall to the floor and smash. The conveyor belt is a metaphor for technology which has created the divide between humans and nature and has been a means by which humans have intentionally or unintentionally destroyed habitats and their animal populations. The conveyor belt, *Pathway to Extinction* was designed to shock, to jolt the viewer visually and audibly.



Figure 44 Eighty earthenware animals ready for firing at 650 degrees Celsius  
Vicki Hamilton

Another component to the installation will represent indirect impact of human activity by way of degraded habitats, pollution (which is represented by the plastic components) and climate change. Three greenware animals, Polar Bear, Wandering Albatross and Hawaiian Monk Seal sit in non-recyclable plastic dishes which are attached to the wall. One litre plastic milk bottles with taps sit in recycled holsters which are attached to the wall. The plastic components are significant with their indirect impact on the ocean environment. As they break down in the ocean they become a persistent organic pollutant (POP) which is known to affect the immune system and lower the fertility of marine animals. Also they represent the huge amount of plastics that end up in the stomachs of birds, turtles, whales and seals.<sup>139</sup> A controlled flow of water drips slowly onto the greenware animal moulds breaking them down until all the features of the animals become unrecognisable. This represents human activity

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<sup>139</sup> Chris Jordan, an American photographer recently released a short film which shows Albatross' on Midway Atoll, part of the Hawaiian Islands. This region is close to the North eastern garbage dump. The Albatross use this area for breeding and nursing their offspring. However the parent birds are feeding their young small pieces of plastic that mimic food. The birds die an agonising death by starvation filled with waste plastic.

that slowly erodes the quality of life for other species, until finally these species populations diminish as they slide into extinction.

My aim with each of the porcelain sculptures is to demonstrate the circumstances each of the animals is suffering from due to human intervention.

*Vengeance* (figure 45) is a large figurative piece constructed of white raku clay and sprayed with cool ice porcelain slip. It is a retaliatory piece which embodies an infant gorilla with the only tool available (a rock) destroying the human made device that is eroding its habitat. Coltan is an important component for the communication industry and is used in mobile phones and commuters DVDs and video games systems. I have made over fifty moulded pieces for this art work, which represent the millions of electrical devices that are sold each day. Mining has eroded and fragmented the Mountain Gorilla's habitat and has made the population more vulnerable to poaching for bushmeat and trophies.



Figure 45 *Vengeance* 2013  
Vicki Hamilton  
White paper raku and cool ice porcelain slip

*Trophy* (figure 46) is my response to this additional threat to the Mountain Gorilla. It is a small porcelain figurative piece embodying a Mountain Gorilla with its left hand removed.



Figure 46 *Trophy* 2009  
Vicki Hamilton  
Porcelain

*Flux* (figure 47) is my response to the circumstances that the Polar Bear endures due to indirect impact from human activity, namely climate change. The porcelain figurative art work sits on fused glass which sits precariously on a cylindrical plinth. The edges of the glass hang over the top of the plinth. This is to highlight the fact their range has been restricted by human settlements and the ice floes they hunt on are melting quicker and in some regions not forming at all. The animal sculpture exemplifies a weak and starved Polar Bear. The impact of global climate change due to increased carbon dioxide in our atmosphere has profoundly affected the Polar Bear's ability to survive.



Figure 47 *Flux* 2013  
Vicki Hamilton  
Porcelain and slumped glass

The Northern Hairy-nosed Wombat is a strong example of the devastating effects of the expansion of agriculture in Australia. Wombats evolved over millions of years eating native grasses. The native grasses have been suffocated by “Buffel” grass, which was planted for domestic livestock. My artwork *Vulnerable* (figure 48) demonstrates the animal slipping into extinction. The porcelain figurative piece embodies an exhausted, thin and starving animal hooked up to an intravenous drip. The bags and life line connected to the animal represent the efforts of Dr Alan Horsup and his team of volunteers and scientist to save the animal. This life line is the only chance this species has of survival, because this project is the only one of its kind.





Figure 48 *Vulnerable* 2011  
Vicki Hamilton  
Porcelain, steel, plastic tubing

*Ensnared* (figure 49) embodies a Hawaiian Monk seal which is my response to the dangerous garbage that floats in our oceans, namely discarded fishing nets or “ghost nets”. The seal is wrapped tightly in a discarded net, struggling to free itself.



Figure 49 *Ensnared* 2012  
Vicki Hamilton  
Porcelain, cotton twine, porcelain slip

*Bad Bunny* (figure 50) symbolises the danger of introduced species such as the rabbit, fox, domestic cat and domestic dog which have turned feral and pushed the Greater Bilby in Australia to the brink of extinction. The rabbit holds the infant Bilby in its mouth. Rabbits do not eat Bilbies, however they destroy the natural habitat by consuming the food the Bilbies would normally eat. The rabbits also will occupy their burrows.



Figure 50 *Bad Bunny* 2011  
Vicki Hamilton  
Porcelain

To represent the Black Rhinoceros I have created a narrative with two artworks. The first piece *Defenceless* (figure 51) represents a dehorned Black Rhinoceros struggling to its feet after the horns have been removed. Without its horns the animal may not be vulnerable to poaching, however it is now unable to defend itself and its offspring or forage efficiently. The Black Rhinoceros is a vegetarian and grazes on grasses, scrubs and small trees. They use their horns to uproot plants when foraging and this action is beneficial to the eco-system by aerating the soil which encourages moisture retention.





Figure 51 *Defenceless* 2009  
Vicki Hamilton  
Porcelain

The second artwork *Hanging by a thread* (figure 52) represents a Black Rhinoceros being air lifted by helicopter, unconscious, by its feet to a protected area. This is one method that conservation groups have had to use in order to rescue animals at risk of poaching. The animal dangles at the end of a long, thin rope at the mercy of humanity. This piece won the ceramic prize in the 42<sup>nd</sup> Muswellbrook Art Prize, March, 2013.



Figure 52 Hanging by a thread 2013  
Vicki Hamilton  
Porcelain, muslin, porcelain slip, plastic, fishing line, metal clips and nylon rope.

*Banished* (figure 53) is a result of my desire to communicate the tragic and dire circumstances the Sumatran Orang-utan suffers due to human intervention. The destruction of their habitat is due to clearing for the planting of palm oil. In addition to this the Sumatran Orang-utans are killed for foraging on the new palm oil seedlings. So I have created an art work which embodies a Sumatran Orang-utan pulling itself out of a drum of palm oil. Inside the drum another hand grasps the side of the drum.

The Orang-utan species is the only red haired ape on earth and often their hair can reach lengths of one metre. In order to portray this feature of the Sumatran Orang-utan, I have used frayed cotton material and cotton strands that were

dipped in slip and applied to the surface of the sculptured porcelain to represent this unique characteristic hair.



Figure 53 *Banished* 2013  
Vicki Hamilton  
Porcelain, cotton and porcelain slip

Clay is a combination of natural minerals, which can be reconstituted and reused and this concept appeals to my nature. I can create without guilt.<sup>140</sup>

I have used three types of clay, raku paper, earthenware and porcelain for this exhibition. Earthenware and porcelain are fine clays which enable the use of fine detail and raku is coarse clay which is used for building large bulky pieces.

I chose earthenware slip to make the animal moulds for two reasons. Firstly, the material is non-toxic and the process produces minimal waste. Secondly, the debris resulting from the exhibition can be recycled. The pieces that travel on the conveyor belt are low fired (650 degrees Celsius) which leaves the moulded animal soft and fragile. Consequently, this powdery debris will break down

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<sup>140</sup> However, I am aware of the industrial processes used to provide clay and the use of energy for firing my artwork could be detrimental to the environment.

quickly and eventually can be mixed with soil. The material left from the disintegrated pieces is basically watery earthenware slip and will be reused.

I used porcelain to sculpt the figurative work because of its preciousness, fine quality and its ability to sustain very, fine detail. The surface of unglazed porcelain appears soft and attracts light rather than reflecting it. Working with porcelain is a sensuous experience. I feel an emotional connection with the animal as I form the features and posture of each unique individual. As I am modelling my pieces, I feel the animals emerging from the clay right there in front of me and I am moved every time.

## CONCLUSION

My exegesis has considered how art can contribute to the plight of endangered species and has examined the importance of biodiversity to humans. These ideas are embodied in the accompanying ceramic exhibition.

By using case studies I have described the current status of selected threatened species, their role in the ecosystem and the impacts of human activity on them. A robust biodiversity is fundamental for the existence of life. This supports the healthy functioning of life cycles in a myriad of ecosystems on earth. Each of the animals discussed in the seven case studies, contribute to the health of their ecosystem at this fundamental level. However, due to human activity, these animals' circumstances have changed. Habitat loss, pollution, exploitation and climate change are all factors that have altered their environment and have put them at risk of extinction.

Ecosystems provide a range of *direct*, *indirect* and *bequest* values to humans. Healthy, functioning ecosystems provide the necessary elements for life on earth. Natural services produced from the ecosystem provide our air, water and nutrient rich soil. The insects, spiders and birds, which are a part of the ecosystems, provide natural pest control and pollination. The loss of biodiversity means the loss of natural services which provide humans with the means to live.

I have discussed the artists, organisations and individuals working to curb the impact on these threatened species and how my work contributes to the understanding of the status of threatened species through contemporary art practice. Many have conveyed their concerns for animals through their art work. Some artists feel so strongly that they have donated funds from their exhibitions to support organisations that work to conserve animals. I also discussed the many organisations and individuals that are working towards increasing the populations of threatened species, by way of eradicating exotic species, replanting, rejuvenating habitats and conducting breeding programmes in protected environments.

The aim of my exhibition was to highlight the circumstances of seven threatened species, through my art work and to create awareness of humanity's impacts on them. The theories that underpin my art work have been derived from environmental philosophy such as the need for animal rights and the interrelatedness of species. These ideas have also been the impetus for many contemporary artists as there is a vital contribution art can make to understanding the world around us.

The journey of discovery that I have undertaken has been a fulfilling and satisfying one. However, the concept was depressing and at times felt hopeless. The information I compiled to write my exegesis has been a valuable resource which has informed my art practice and deepened the integrity of my art work. It has also acted as a catalyst and motivated me more, to find ways to draw people's awareness of threatened species.

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