

# **ENVIRONMENTAL IMPACT REPORT**

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## AGE – Commitment to the Environment

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*At Alpheius Global Enterprises we are committed to minimising the impact that our methods have on the environment. Research into the practices currently in place have shown that there are a number of vulnerable species existing within these environments, and it is the intention of AGE to ensure that the effects of operating businesses in these areas are not detrimental to the welfare of this local fauna.*

*In particular, there are three Classes of animal that require further and close evaluation: **Arachnids**, **Amphibians** and **Reptiles**. As these animals are readily susceptible to the smallest changes in the quality of air and water, AGE have recognised the importance of the animals within these classes, as a potential early warning mechanism of detrimental effects of business.*

### ARACHNIDS

Arachnids are easily recognisable by the fact that they have eight legs. Many species are poisonous and all are able to inflict pain with their pincer-like fangs. There are several features which are used to identify arachnids. These include the presence of eight legs and spinnerets that enable them to create silk thread.

Arachnids are a wide spread, solitary creature and prefer warm to hot, arid and tropical or subtropical areas of the world. They primarily live on land, in just about any habitat available, but a few species of spider do live in water.

Arachnids are a small creature and, as such, are susceptible to minute changes in the quality of their environment. Any changes to the number or diversity of their prey will also result in the rapid decline of the arachnids. By assessing arachnid numbers and diversity, it will become obvious very quickly if environmental changes have occurred.

### SPIDERS

In this country, these include the harmless Daddy Long Legs spiders to the aggressive and potentially fatal Funnel Web spider. In tropical areas of the world very large spiders exist (e.g. Bird Eating spider) in areas of AGE interests.

In the South East region in Australia, large numbers of the Trapdoor spider exist in the location of several AGE businesses and these will be looked at very closely. The Trapdoor is reliant on the condition of the ground, in particular the soil. AGE will investigate the possible effects of run-off and soil erosion, caused by local businesses, on populations of the spider. AGE will communicate closely with the Goring's Plateau Environmental Alliance in this matter.

## **SCORPIONS**

Scorpions primarily live in arid regions of the world such as deserts, particularly in the United States. Examples include the Striped scorpion and Giant Whip scorpion. Prefer to live in burrows or under rotting logs etc. These animals are considered dangerous, although not all species are able to cause death in humans.

There are two businesses sharing habitat space with the Striped scorpion in the United States. As the scorpion is reliant upon rotting vegetation for shelter, AGE is working together with the Texas Centre for Wildlife to ensure that the local habitat is unaffected by AGE businesses in the area.

## **TICKS & MITES**

These parasitic arachnids are renowned for carrying disease. They obtain their nutrition from the bodily fluids of mammals and are hence able to transmit disease to their unsuspecting host. Once engorged, the tick or mite will typically drop off the host, hide in soil cracks or vegetation and later find another.

Ticks and mites typically live in bushy or shrubby vegetation. This aspect enables them to easily drop or latch onto a passing host. They will feed on a host during the warmer months of the year and become dormant in the colder months, hiding in the soil.

Their mouth parts enable the tick or mite to penetrate the skin of the host and secretions anchor them securely.

Although decreased numbers of ticks and mites is not a huge concern, they are nonetheless able to provide a clear indication of environmental change. Much research is already underway with respect to illnesses caused by tick and mite infestation, so in alliance with the research group South East Centre for Parasite Control, AGE is able to receive feedback and thereby monitor the impact of local business practices on the environment.

## **AMPHIBIANS**

Amphibians cover a broad spectrum of animals, including the frogs and toads, salamanders and newts. Due to their moist skins, these animals typically dwell in habitats that have a warm, moist climate. Because of their reliance on the quality of the water, amphibian numbers and diversity are able to provide us with an insight into the condition of the environment.

## **FROGS**

Except for the very cold regions of the world (e.g. Antarctic, Arctic, Greenland etc), frogs are distributed broadly around the globe. Typically they are not found in high altitudes, preferring low to mid range elevations. The largest numbers and diversity of frogs are found in the neo-tropical environments of Central and South America and the West

Indies. The diversity of frogs in these regions is almost five times that in the Australo-Papuan region.

Frogs are reliant upon moist conditions as they lose much of their own moisture through their thin, permeable skins. Their skin is also a medium through which they are able to respire. During dry times of the year, frogs will become partially or totally dormant, being able to hibernate underground for periods of time and conserve water.

Living in warm, wet and tropical environments, frogs are afforded the luxury of a diverse diet. Their food, typically consisting of a broad range of insects, is readily accessible. Due to their reliance on moisture, most frogs are primarily active at dawn, dusk and all through the night. This is also the moment in which frogs will communicate to each other using vocalisation. Each species has its own unique call, varying in pattern and pitch, thus enabling females of a species (who do not vocalise) to locate a mate.

Research is currently underway in the South East region, in alliance with the environmental monitoring group Environmental Equilibrium for Earth (EEE). Together with this group, AGE is investigating frog populations in the South East region, as an indicator of environmental health – particularly that of the local waterways.

## **TOADS**

Toads are primarily the same as frogs, except they typically exhibit a broader habitat and are not able to jump as effectively as frogs (some frogs are able to jump up to 30 times their body length!).

Some toads, such as the Cane Toad, are rapidly occupying large tracts of Australia and have become recognised as a pest species in this country. The poisonous glands on the back of their neck manage to kill any unsuspecting predator looking for an easy meal. In this way, they are resisting any natural means of controlling their numbers.

## **SALAMANDERS**

Salamanders are an unusual amphibian that demonstrates a wide variety of shapes and forms. Some are terrestrial, some display life stages in water or on land, while others are purely aquatic – for example, there are the aquatic giant salamanders of eastern Asia which may exceed 150 cm in length, while other permanently larval salamanders are only found in subterranean water courses in Southern Europe and are only up to 3.5cm long.

The fully aquatic forms of the Salamanders have feathery external gills and a strong tail.

As is the case with frogs, the dependence of salamanders on water provides a clear indicator of problems in the environment. Population studies of salamanders is being conducted all over the world by a variety of organisations and AGE is working closely

with many of these groups to draw on the results, enabling us to monitor any possible detrimental effects of business in the area.

## **REPTILES**

Whereas amphibians and arachnids can be elusive and thereby difficult to investigate, the larger reptiles provide a more visible indicator to environmental health. Additionally, reptiles are dependent on the other two classes of animals for prey, so they are directly affected by any changes in their populations.

### **TURTLES & TORTOISES**

Turtles and tortoises exist on all of the continents except Antarctica.

#### ***Turtles***

Turtles are heavily dependent on water for their survival. Turtles are acutely susceptible to habitat destruction or deterioration associated with the expansion of human activities. This is exacerbated by the fact that turtles experience late maturity, extreme longevity and low adult mortality. In fact, nearly 50% of living species are listed as endangered or vulnerable.

The Central American River Turtle is a legally protected species, but many indigenous people view the meat of the turtle as a delicacy. This behaviour sees thousands of these turtles devoured every year. AGE is preparing a funding plan to assist the Society for Threatened Species in educating local populations and starting breeding programmes to assist the Central American River Turtle and other local threatened species. This programme is expected to begin early in the new year.

#### ***Tortoises***

Tortoises are basically terrestrial turtles that only go to the water to drink. They are slow to move and slow growing and are critically endangered. They eat mostly plant matter and it is imperative that any commercial interests of AGE does not interfere in any way with populations of these animals.

The South American Yellow-Footed tortoise cohabits in areas where AGE has a number of business interests. Although the local populations are known to eat the tortoise, AGE is respectful of the fact that the quality of the environment must not be diminished by any of the business interests in this area, potentially impacting upon population numbers.

The South American Yellow-Footed tortoise is a herbivore that feeds primarily on fallen fruit and leaves, supplementing its diet with fresh vegetation and even termites. Working with the Habitat Protection Society, AGE has been able to ascertain that tortoise populations have stabilised in the last 5 years and that no local businesses are compromising the health of the tortoise habitat.

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