Virtual Reality to Save Endangered Animals: Many Eyes on the Wild

June Kim∗
UNSW Art & Design

Tomasz Bednarz†
QUT and CSIRO Data61

ABSTRACT

Immersive technologies and particularly the Virtual Reality (VR) provide new exciting ways to see the world. Today, we introduce our research that successfully employed VR to the biodiversity conservation sciences. Jaguars are one of the endangered animals. It is certainly critical and compelling to preserve ecosystem for endangered animals. With the awareness of this, we endeavoured to establish a multidisciplinary VR project that implemented data from indigenous villagers (jaguar experts group A), the conventional knowledge of the field of jaguar ecosystem (from jaguar experts group B), and mathematical and statistical models. Our fascination lies in these questions: can we effectively bring together VR and analytical capabilities? Can VR be used to make this world a better place for living beings? Please enjoy our 360-degree images of jaguar habitats taken in the Peruvian Amazon.

Index Terms: H.5.1 [Multimedia Interfaces and Presentation (e.g., HCI)]: Artificial, Augmented, and Virtual Realities—Video; I.2.3 [Inference Engines]: Knowledge Acquisition—Uncertainty

1 VENTURE TO THE AMAZON IN PERU

In 2015, a group of scientists had a trip to the Peruvian Amazon to capture diverse data sets of the presence and absence of jaguars. A primary goal of this trip was to capture images and videos based on the interview of experts group A then construct a VR environment that jaguar experts group B can study, and elicit information that they gathered about jaguar habitats from the Peruvian Amazon. The results enable scientists to bring the Amazonian jungle to a broader extent of experts and to gain reliable figures to preserve jaguar corridors in the Peruvian Amazon.

2 TECHNOLOGY USED

In order to collect the images and video data successfully, specialised hardware was used including stereo cameras built with two GoPro cameras, a 360-degree camera rig built with six GoPro cameras, ambisonic microphone to capture 360-degree sound, two Ricoh Theta M cameras, and Kodak SP360 cameras as a backup recording methods. Team also carried Virtual Reality gear: Samsung GearVR with Samsung Galaxy S6, and plastic Google Cardboard.

Figure 1: Lake in Camito village.

Figure 2: Technology used during venture to jungle.

3 VIDEO STORYBOARD

Jaguar hold a special place in the Amazon rainforest. Our teams are bringing VR technology to the jungle so scientists and people around the world can join the conservation effort:

#0 Intro: sung by Shipibo tribe lady.
#1 On the way to a jungle.
#2 Camito Village
#3 Resaca: When the flood water recede the ends of the tributaries dry up to become meadows or paddocks of grassland called Resaca. These sites are often home to large numbers of grazing animals such as deer, tapirs and pigs. Jaguars are attracted to the abundance of food.
#4 Aguajale: The aguaje fruit is the backbone of the Amazon ecosystem. The swamps are inundated with water for months at a time and the fruits are eaten by animals ranging from pigs, tapirs and pacas to a variety of fish.
#5 Quebrada: From the larger Amazonian rivers, small creeks, or quebradas, snake their way into the surrounding jungle.
#6 Lupuna (Tree bad): the giant trees of the Amazon, like this mighty lupuna, make it one of the beautiful places on earth. They support all of the life of the jungle, from monkeys and toucans to sloths and jaguars.
#7 Passage to the Turtle beach.
#8 Turtle beach: The banks of the Pacaya and Samiria rivers are nesting sites for the taracaya and giant charapa turtles which can grow up to 100kg and 1 metre in length. The jaguars are so powerful that they can drag a giant turtle into the jungle and remove its flesh without breaking the shell.
#9 Primary Jungle: Without primary jungle, there would be no jaguars. Without the Amazon, the ecosystem of the planet would be irreparably damaged.
#10 Outro: sung by Shipibo tribe lady.

Please enjoy our 360-degree images of jaguar habitats taken in the Peruvian Amazon.

ACKNOWLEDGEMENTS

The 360-degree VR video producers wish to thank Professor Kerrie Mengersen of QUT, and the ACEMS for the support.