University of North Carolina Asheville
Journal of Undergraduate Research
Asheville, North Carolina
December 2021

The Art of Conservation

Maya Stansbury
Art Ceramics
University of North Carolina Asheville
One University Heights
Asheville North Carolina 28804 USA

Faculty Advisor: Megan Wolfe

Abstract

The endangered species project educates through the sentimentalization of the beauty vanishing from our natural world. Scientific journals and conservation outreaches connect with broad audiences, but dry scientific jargon often makes the information intimating. The mode of communication commonly used is often not captivating enough to secure the viewers' attention. Art as a tool in activism acts as a visual transmission which communicates complex information in a simple, engaging, and memorable way. Art invokes a uniquely enticing presence, which not only builds intrigue but also seeds questions within the viewer: ideally what, how and why. This is what makes this project effective in bridging the gap between the scientific community and the general populace. The artist creates beautiful objects that aestheticizes endangered species as a more accessible and inviting platform for environmental education. Each piece produced reflects a high time commitment and a passion for the work, exemplified in the whimsically intricate detail which animate the sculpture. The thrown vessels are used as a canvas upon which sculptural and painterly techniques are used to document the essence of the at-risk biodiversity through an artistic lense. In order to "bring the animal to life", vibrant colors and textures are layered to mimic the unique characteristics of each selected endangered species. By presenting this environmental issue of the ongoing Anthropocene extinction event by cultivating an appreciation for beauty, the conversations on conservation become more alluring.

1. Introduction

We are living during a period of mass extinction, and our planet's ecosystems are at risk. According to the writings of Ron Wagler in "*The Sixth Great Mass Extinction*", anthropogenic impact has a direct correlation to the severity of recent climate change and the extent of ecological damage. The main driving forces of these extinction events are: the spread of invasive species and genes; overexploitation of species; habitat modification; pollution; and climate change. Wagler notes that now approximately 75% of all temperate forests, mediterranean forests, and temperate grasslands have been" with recent species extinction rates leveling one hundred to a thousand times higher than ever before[1]. The process of evolution through natural selection takes time, since adaptations to changes in the environment are inherited generationally. The development of evolutionary adaptations requires gradualism, due to the fact that mutations take place within the population, not the individual. The exponential growth and speed of destructive human development hasn't allowed enough time for species to adapt, resulting in massive die offs. This is putting the biosphere at great risk due to the interconnectivity of community structure. The extinction of one species can create a chain reaction down the food web, often endangering the survival of other life forms. This rapid loss of biodiversity can easily lead to catastrophic consequences for humans as well.

Artists like Nick Mackman (see *Figure. 20*) and Julia Galloway (see *Figure. 19*) use their captivating ceramic artwork as a way to showcase the unique forms, textures and colors in the animal kingdom. Galloway's endangered species project uses her medium as a platform to inform audiences on vanishing species, thus creating a learning environment that can reach a wide audience through an enticing and exciting format. This combination of passions and interests is the driving force behind this endangered species project. To heighten the element of conservation

within this body of work, a donation design was integrated into the project. For each species-specific artwork sold, a percentage of the proceeds are designated to be donated to contribute towards the conservation efforts of that particular species. This structure allows the audience the ability to appreciate an endangered species in an intimate way through individual one of a kind artwork while simultaneously aiding in their conservation.

2. Art and Education

The humans of the modern world can be so removed from the natural environment, they often remain unaware of the dire necessity for the diversity on this planet to be saved. Environmental education focuses on ecology, and the interaction between humans and our environment. Successful environmental education would result in the individual fully grasping the concepts and issues being discussed and understanding how the situation is to be prevented, improved, or solved. This artwork aims to inspire within the individual a passion for the topic, enough to grow "the determination which will enable them to act individually and collectively to solve present and future environmental problems." According to Martin Branagan's research[2], many studies and sources have shown that art can be an exceptionally engaging educational tool which engages multiple senses, helps increase the ability to understand challenging concepts, improves concentration, and adds a component of enjoyment during learning. This spark created by the incorporation of artistic aids for learning, improves memory retention, and engages with the student so that the information is absorbed through visual, emotional, tangible, and more deeply impressionable mental pathways, resulting in improved absorption and understanding of information. (Branagan, 2005)

In this body of work, the ceramic vessels act as artistic documentation of endangered species as a form of environmental education. I hope to draw in the viewer through the intricacy, delicacy, and beauty of my colorful creations, and to open their captivated minds to the important messages behind the works. The work is intended to excite the viewer to cultivate an interest in understanding the purpose of the work. The power of using art as a tool for environmental activism, is that it seeds questions within the viewer; ideally what, how and why. Once captivated by the sculptural artworks, the viewer is then navigated towards the accompanying study drawings and concisely constructed information boards. These information boards are integral to understanding the artworks themselves, while also providing information regarding the species IUCN status, species background, history, and the conservation efforts in place. This method uses the audience's desire to understand creative process and meaning, while incorporating educational material. The drawings are packed full of small details and textures; some so small that one must nearly touch their nose to the paper in order to see them. By displaying the informational text alongside such detailed drawings, the viewer is placed in a position where acknowledging the text is nearly unavoidable. The realistic style of the study drawing renderings further acts as a segway into the realism of the environmental issue. This is shown below in *figures 1*, *2* and *3* of the Rusty Patched Bumble Bee Project.
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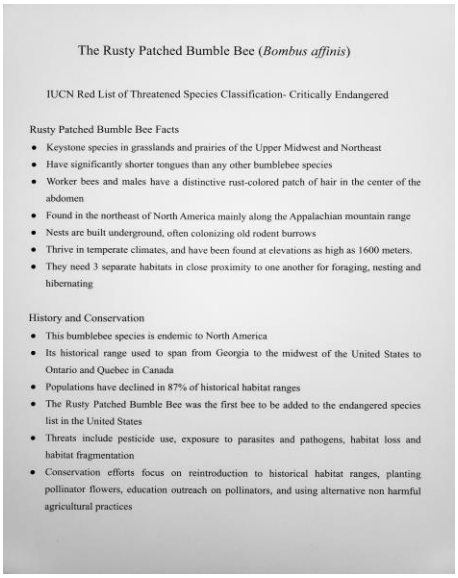
Figure 1. Rusty Patched Bumble Bee Pot with Lid Ceramics 14.5"x15"x31"



The Rusty Patched Bumble Bee (*Bombus affinis*)

IUCN Red List of Threatened Species Classification- Critically Endangered

Rusty Patched Bumble Bee Facts

- Keystone species in grasslands and prairies of the Upper Midwest and Northeast
- Have significantly shorter tongues than any other bumblebee species
- Worker bees and males have a distinctive rust-colored patch of hair in the center of the abdomen
- Found in the northeast of North America mainly along the Appalachian mountain range
- Nests are built underground, often colonizing old rodent burrows
- Thrive in temperate climates, and have been found at elevations as high as 1600 meters.
- They need 3 separate habitats in close proximity to one another for foraging, nesting and hibernating

History and Conservation

- This bumblebee species is endemic to North America
- Its historical range used to span from Georgia to the midwest of the United States to Ontario and Quebec in Canada
- Populations have declined in 87% of historical habitat ranges
- The Rusty Patched Bumble Bee was the first bee to be added to the endangered species list in the United States
- Threats include pesticide use, exposure to parasites and pathogens, habitat loss and habitat fragmentation
- Conservation efforts focus on reintroduction to historical habitat ranges, planting pollinator flowers, education outreach on pollinators, and using alternative non harmful agricultural practices

Figure 2. Study Drawing Micron Pen 11”x14”
Figure 3. Information Board Bumble

The experience of viewing the art will not only make the viewer aware of the existence of the particular species, but will hopefully also inspire the individual to further share this gained information, and to look into their own possible means of environmental activism.

To ensure the continuation of the message of this body of work beyond a gallery setting, a series of species-specific functional ware was created to accompany the sculptural artwork and study drawing (see *Figure. 4*). By creating a functional art piece that is brought into the home and daily life, the conversations involving that particular endangered species and conservation become integrated into the daily practice. The human ritual of using vessels to drink from is deeply rooted in ceremony and community, thus by creating vessels with a purpose and meaning, the message of this project can be reverberated through satellite communities.

3. Relevance of Work

This planet’s biodiversity is running short on time. As a powerful key element to the concept of extinction, time is visibly displayed through sheer intricacy of technique. Time is seen in the layers of mediums built up, in the level of detail worked into each of the layers of texture, and within the complexity of vessel design. Seen in the example of the “*Amazon Rainforest*” pot, (*Figure 4),* layers of sculptural, grooved vines were sculpted onto an elegant stacked form to create a dynamic web of organic line work, carved negative spaces, and delicately painted tropical flora. This intricacy and energy of detail aim to reflect the true feeling of this environment, while highlighting and elevating the beauty in the rendering.

The Amazon rainforest is a biome of great significance to environmentalists for its richness in biodiversity and tropical vibrance. I chose to document this biome in February of 2019 after reflecting on the rarity and vulnerability of such a lush spanse of rainforest. The Amazon has been steadily vanishing for decades in the advancement of slash-and-burn methods of deforestation to make way for hungry agrarian development. I was inspired to capture its beauty before it disappeared. During the summer of 2019, Nasa satellite images noticed fires spreading at an alarming rate. Reports of smoke billowing from the Amazon started pouring in, as agrarian communities throughout Brazil, Bolivia, Paraguay and Peru went unchecked in their expansion of agriculture. This environmental issue ties into the importance behind this body of work, because it acts as a perfect example of how a precious environment can be destroyed so extremely within a matter of a few months. This art piece was begun while the Amazon still stood strong, and now, as this piece is being finished, the Amazon rainforest which inspired the artwork, is left in ashes.

Figure 4. “Amazon Rainforest Pot and Mug” 2020, Ceramics 9”x9”x18”

3.1 Donation Project

To further tie conservation into this body of work, a percentage of proceeds from each species specific artwork sold are used to donate towards their conservation and protection. For the large scale sculptural ceramic vessels 50% of proceeds are donated, for the ceramic functional ware 25% of proceeds are donated, and 15% of the proceeds from the drawings are donated. The conservation groups chosen to receive donations focus on habitat protection, captive breeding programs, rescue, rehabilitation and reintroduction of each focus species. The chosen organisations are: WWF, NatureServe, North Carolina wildlife resources commission, The Wild Camel Protection Foundation, U.S. Fish and Wildlife Service, The Southern Appalachian Spruce Restoration Initiative, The Aspinall Foundation, Rewilding Europe, International Reptile Conservation Foundation, South Carolina Aquarium Sea Turtle Release Program, The National Wildlife Federation, FAME, Edge of Existence, The Kakapo Recovery Programme, Coral Reef Alliance, and the Save Pangolins group.

3.2 Documentation

Documentation is a valuable resource to understanding history, evolution, and the natural world at any point of time. Charles Darwin set off in 1831 on a five-year expedition on the HMS Beagle as the voyage’s naturalist. Over the course of the journey, Darwin explored a multitude of environments and species, while documenting their variance, adaptations, and observations on phylogenetic tree correlation which allowed for him to develop his theory of natural selection and evolution. Darwin kept immaculate notes and journals, while also taking live samples to study and sketch. In Duncan M. Porter’s journal "Charles Darwin's Notes on Plants of the Beagle Voyage[3]", Porter discusses the detail in Darwin’s notes on all the classes and varieties of species he sampled and encountered. Porter discusses the wide distribution of these notes amongst the collections of colleges and museums around the world, highlighting their importance to science to this day. His work brought an abundance of then newly discovered species and speculation of their origins to light. Unfortunately Darwin’s methods were disruptive and harmful to these delicate ecosystems and the species inhabiting them, which is why the research and resulting artworks on these endangered species were conducted using observational non invasive methods.

3.3 Studies and Thumbnails

In this body of work, each sculptural work acts as a study of the focal species. The design includes detailed documentation of the animal's distinctive textures, colors, and unique characteristics. Through the vitrification of the clay during the firing process, this fabricated representational embodiment of the animal becomes timelessly preserved within a beautiful, pristine environment. Unlike Charles Darwin, the artist does not extract or cause harm to live specimens, but rather view them through sanctuaries, photography, and film. Information on the species is additionally gathered from official IUCN wildlife websites and conservation sites to learn about and gather inspiration from the habitat, species history, and history of conservation work. Wildlife documentaries and videos of sightings are studied to grasp the movements, behaviors and mannerisms of the animal in its natural environment.

During this period of research, a study reference is laid out, consisting of condensed notes on the endangered status, habitat, and conservation information, a species study drawing, and a blueprint design idea for the final composition of the artwork, seen below in the *"Amur Leopard Study Reference", Figure 5*. These studies are used as references for rendering textures, proper scale, close ups of features and details, and overall layout and plan for the artwork in progress. This acts as a reference for the following stages of the creative process, but the references are intentionally simple in order to capture the essential characteristics of the focal animal while allowing the final interpretative rendering the originality needed to stand apart from the images and videos watched during the research stage.

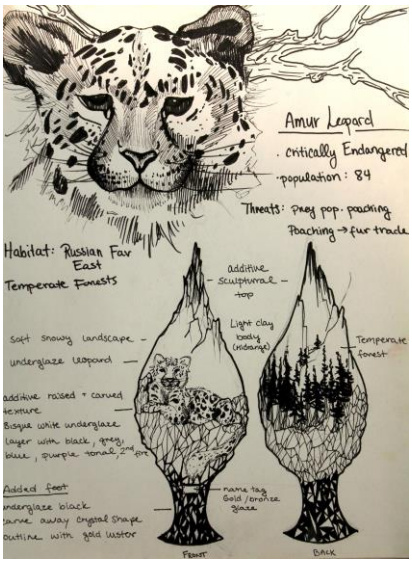


Figure 5. Amur Leopard Study Reference, including research notes, and artwork blueprint

This groundwork allows for the beautiful qualities in the species which originally caught the artist's eye, to be amplified within the final artwork. The textures captured in the study reference are magnified and exaggerated within the ceramic process, elevated by layering expressive mark making in the clay surface.

4. Process

Each aspect of the work is developed in layers and built up through the different stages of clay's elasticity and dryness, allowing for a variety of processes and techniques to build on one another through the life stages of each pot. From the box of clay to the wheel, to sculpture, to a carved, textured form which is then fired and underglaze painted, each pot undergoes a life cycle of developmental stages. Through each stage the process builds up a sense of depth and complexity which helps steadily evolve the pot into a captivatingly beautiful rendering.

While in the process of being created, each of these artworks become instilled with my heart and soul. The magic that is birthed from the love and passion that is poured into each element of this body of work in a way breathes life into the artwork. Although they are inanimate objects, the passion which brought them into fruition instilled them with

an energetic presence of their very own. This aspect of the work is essential as experiencing wildlife first hand is a rare opportunity, and yet in person impressions are often the most powerful. While witnessing the audience view the body of work in a gallery setting, the artistic techniques successfully drew the viewer closer, but it was this vicarious experience of passion that captivated them and held their attention. Below are images showing the stages of the process which went into the creation of the Amur Leopard piece, seen in figures 6 through 17. The images paired with the figure numbers and descriptions go in order from left to right in each row.

Figure 6. The wheel thrown stacked ceramic form with early sculptural alterations
Figure 7. Stage of additive sculptural elements to form the environment scene
Figure 8. The profile of the leopard is sculpted to establish the scale of the animal renderings

Figure 9. The leopard body is sculpted to form into the sculpted environment of the attachment site
Figure 10. The leopard features and anatomy are established, accentuated and defined

Figure 11. The leopard sculpture is hollowed out and compressed
Figure 12. The leopard sculpture is set into the attachment site

Figure 13. Detail image of the texture focused carving process
Figure 14. The woodland habitat is carved out of the remaining smooth surfaces of the thrown vessel to create a textured 3 dimensional environment for the leopard to “inhabit”

Figure 15. Underglaze is applied by brush and underglaze pencil to capture the surface quality and patterning of the leopard coat

Figure 16. Glaze finish, “Amur Leopard” Ceramics, 14”x8”x23”

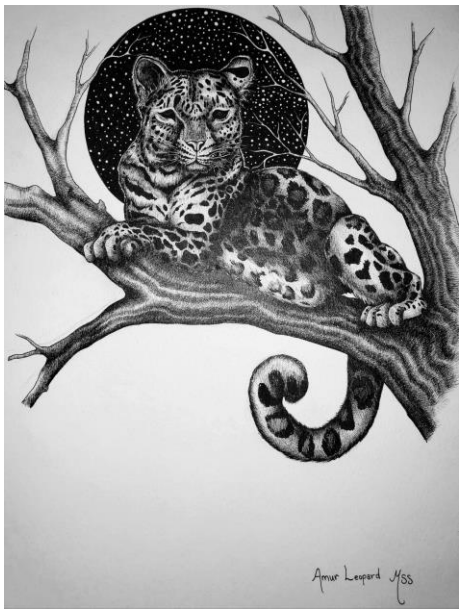


Figure 17. “Amur Leopard Drawing”, Micron pen, 11”x14”- Highly detailed portrait of the leopard is drawn to capture a realistic depiction in a less stylized approach to accompany the information board

4.1 Building a Vessel

The study references act as a guide for the development of the coinciding artwork. The process begins with the construction of the core structure. Large vessels are thrown in several sections, stacked, and then sculpted onto. To remove moisture and improve structural stability, each section is properly torched, inside and out. Each section has to be thrown between 1 and ½ inches, with some extra thickness towards the base section to improve the structural integrity. At the joining end of each section, a grooved locking joint on the joint of each section to improve accuracy for centeredness during stacking, and to ensure a proper seal. To increase the size of the pot, the base and lid of the

pots are often thrown separately and attached later on. For sculptural forms, a raw version of the form is constructed out of foam, paper, tape, and other materials, then clay is laid overtop like an exoskeleton. The clay is built up in layers and compressed to prevent cracking and to improve structural integrity. Once the foundational elements are complete, handbuilt sculptural elements are formed individually, and added one by one to the clay canvas surface, slowly building up the textural landscapes. Carving tools are then used to create aesthetic negative spaces, improve depth, and add texture. Each cut is then rounded with a finishing sponge to produce a finished effect and to prevent cracking.

By slowly cutting out more and more of the foundation of the thrown pot, the model environment created becomes increasingly fragile and delicate, to the point of appearing prone to collapse. This subtractive carving technique and focus on negative space reflects a commentary on the core idea of these species and environments vanishing from existence.

4.2 Surface Design

To begin, a color scheme of the pot is chosen, then pools of chosen colors are laid out, using the table as a pallet to allow for heavy color bending to build up unique color combinations of more interest (seen in the painterly quality of *Figure 18)*. The base coat is applied heavily onto the completed greenware pot, using a sponging technique for a soft textural effect or brushed on using a large fluffy brush for smoother surface design. The sgraffito technique is used to then carve away sections of underglaze greenware to create color contrasting detail between the underglaze color and color of the clay body. This approach adds yet another layer to the textures and surface quality of the work. The work is then bisqued in order to vitrify or secure the pigments from this first layer of underglaze into the clay body. This allows for the next layers of underglaze to be applied without blending with the colors from preceding layers. For small areas that need controlled fill-ins, an underglaze trailer, and a variety of paint brushes are used for line work or surface coverage. Next, the final touches of ornamentation and outlines are added using darker pigments.

Figure 18. Kakapo Mugs, Underglaze Detail

These layers and stages of the process reflect the complexity and interconnectivity of ecosystems. Each sculpted form, carved texture, and painterly mark is essential to the final composition, the same way each organism is integral to the homeostasis and health of a biome. Without the sculptural elements the surfaces of the thrown vessels would be barren and without the variation in color and line the artwork would be dull, monochromatic and lacking in individuality. Losing diversity within the natural world leaves communities more vulnerable during times of high competition and threatened survival. Since extinction events work like a chain reaction, preserving species diversity is integral to the survival potential of the associated ecosystem. Each organism plays a vital role in the health of their community, meaning that the abundance of one species affects the population size of others closely linked within the food web. Just as each stage of surface design plays an invaluable role in the success of the final artwork, each species plays a crucial ecological role in the balance of the ecosystem.

5. Influences

This project aims to document at-risk biodiversity through an artistic lens, capturing the beauty and impression of the subject matter through a personal stylized perspective. Following, are a few artists whose processes, technique, and embodiment of subject matter helped challenge the goals of this body of work.

5.1 Julia Galloway

The lidded urns made by New England ceramicist Julia Galloway, seen in *"Appalachian Cottontail Study 1", Figure 19*, is an example of the artwork created in her ongoing "Endangered Species Project". Galloway's project is inspired by the remorse regarding the negative impact humans have had on the natural world. Choosing the form of an urn as the canvas for the portraits of endangered species of North America, Gallaway uses our association with death and cremation to build a powerful and relatable statement about species extinction. Galloway uses the surfaces of the urns to conduct studies of the focus species, resulting in a series of renderings where underglazing, slip inlay, and glazing techniques are experimented with in order to achieve the desired likeness to the animal.

Galloway's drive and intention behind her work are foundations which resonate strongly with my creative motivation and purpose. The determination behind her Endangered Species Project held great inspiration for the development of my own synonymous project. Furthermore, Galloway's approach to surface design and underglaze exploration shares many similarities to my own creative process.

Figure 19. "Appalachian Cottontail Study 1" Ceramics with underglaze and slip inlay

5.2 Nick Mackman

Nick Mackman is an award winning sculptor who works with ceramics and bronze out of her studio in the UK. Mackman creates realistic sculptures often focused on endangered species like in the example of the White rhino sculpture depicted in figure 20. Mackman actively supports the work of animal and nature conservation charities while using her artwork as a platform to reach wider audiences and educate them on the issue of species endangerment. Her work is renowned around the world, and she has received many awards for her work including the David Shepherd Wildlife Foundation Wildlife Artist of the Year award in 2015. Mackman sculpts her subject matter in a way which portrays movement and characterizes her figures with a lifelike presence. The attention to detail, color, and texture in these artworks accurately capture the animal's essence, while the technical mastery of Mackman's artwork captivates her audiences. Mackman's body of work not only inspired the inclusion and importance of conservation within my

own work, but also challenged my own creative style and technical skills to mature. The realism captured in these artworks leaves me permanently impressed and motivated to continue refining my practice.

Figure 20. “Rhino Sculpture” Raku-fired Ceramics

5.3 Ellen Jewett

The artwork made by sculptor Ellen Jewett, (*Figure 21*) truly captivates the audience through awe and wonder. The Canadian artist creates sculptural work which combines her background in biology, exotic animal care, and fine art to produce fantastically whimsical pieces. Her subject matter consists of sculptural realistic portrayals of animal figures and botanical elements which are altered through extensive subtractive carving to produce gravity defying surreal sculptures. These works reflect the themes of natural beauty, curiosity, domestication, death, and growth, while capturing the essence of serene nostalgia and unearthly wildness. Jewett’s work shows an appreciation for beauty, while finding aesthetic pleasure in natural forms. This results in magical artworks that titillate the mind through the visual experience of her passion. In my own body of work, I also strive to create stylized, whimsically intricate sculptures which push the expectations of clay as a medium. Each of the pieces in my Endangered Species Project is adorned with textures and fragile details to as a challenge to create the most impressive and complex artwork possible.

Figure 21. ‘Dapple Kirin’ Clay, Acrylic paint, Oil Pigments

5.4 Eric Seritella

Eric Serritella's work, seen left in (*Figure 22)* dove into an exploration in Trompe l'oeil, capturing hyper-realistic textures and surface designs which mimic Birch trees or charred, weathered logs. Each piece undergoes layers of intricate small sculptural elements, tiny carving detail work, and precise underglazing in order to accurately capture the visual effect of real natural wood. The surface textures seem paper-like, almost lifting off the surface of the pot identical to the characteristics of surface layer Birch tree bark. This effect is mostly successful due to the amount of attention and detail given to every centimeter of surface.

Figure 22. "Charred Birch Stein", Ceramics, 15"x7"x4"

These artist's techniques helped inspire the intricacy and complexity of each aspect of the work to be pushed further, carved away more, and painted more vibrantly. Their patience and respect for their craft is displayed within their work, a quality which was strived for throughout the endangered species body of work.

6. Undergraduate Research Grant

After receiving the Undergraduate Research Grant, I was able to visit a variety of local animal sanctuaries and connect with groups focused on conservation. The most impactful visit was with the Sea Turtle Care Center at the South Carolina Aquarium, a program focused on the rescue, rehabilitation and release of sea turtles in our area. Their exhibits were highly engaging and interactive with life sized models and scales for visitors to interact with. The realistic life sized models allowed for the visitors to interact with and touch the animals without impeding on the recovery of the sea turtles that were on site. This inspired this body of work a deepened focus on endemic endangered species. The grant funds allowed for the ambition behind these artworks to advance. The funding was used to purchase the materials and tools needed to shift towards large scale sculptural work. The educational models viewed at the animal sanctuaries inspired the work to be rendered on a larger more striking scale with an elevated focus on realism. This increased scale allowed for the artworks to hold a more impressionable presence to the viewer while simulating a real life in person interaction with these vanishing species more closely.

7. Conclusion

Using artwork to stimulate environmental education elevates interest, comprehension and memory retention within the viewer, making it an ideal tool for reaching wider audiences and improving community involvement in conservation work. Bringing an element of attraction to the conversations surrounding conservation into daily life through the platform of fine arts assures an audience beyond the scientific community. This body of work appeals to the consumer, while simultaneously contributing to this important environmental issue. The processes behind creating each ceramic artwork further resonate with the concepts driving this body of work. Each of these processes must be fulfilled with care and patience due to each stage of the pots life cycle being very delicate, difficult to handle, and easy to destroy until the final firing that seals and preserves the work. This delicate fragile life cycle that the artwork transitions through is representative of the dire fragility of endangered ecosystems and their inhabitants. Each species is represented in clay then through the process of kiln firing, the vessel is exposed to thousands of degrees of heat, which hardens, seals, and preserves the essence of the species within the clay. This process of preservation ensures that these studies and documentations of the species are made permanent, no longer vulnerable to extinction. If conservation efforts are unsuccessful, these artistic documentations will remain as preserved portraits for the world to enjoy and learn from, even after the subject matter ceases to exist.

8. Acknowledgements

I'd like to thank all the professors of the UNCA arts department who have helped me through the years to bring this body of work into fruition. Megan Wolfe and John Cummings of the ceramics department aided me in bringing focus to my writing and also supported me through the challenges of creating successful ceramic forms. I received invaluable sculptural advice and assistance from Professors Matthew West and Brent Skidmore, and lots of encouragement and support from my professors at the UNCA Biology department, including Dr. Graham Reynolds and Dr. Rebecca Helm. I'd also like to acknowledge my gratitude for all my family, friends and peers who helped support me in making this dream come true.

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