The AC Brooks Legacy: A Historical Narrative Told Through the Cowan Tetrapod Collection

Report Prepared at the request of the Beaty Biodiversity Museum in partial fulfillment of UBC Geography 429: Research in Historical Geography, for Dr. David Brownstein.

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May 20th, 2015
The AC Brooks Legacy

Abstract: This report traces the historical narrative of the two highly acclaimed naturalist biologists, Allan Cyril Brooks (1896-1946) and his son Allan Cecil Brooks (1929-2000) through the 697 species that the men themselves have awarded to the Cowan Tetrapod Collection housed within the Beaty Biodiversity Museum at UBC. The report contains information about the establishment of the museum itself, the history of the Cowan Tetrapod Collection, and chronicles the lives of these two extremely adventurous men. The analysis performed in the scope of this report corresponds with the Beaty Museum’s core value of promoting collection-based research in which the user interacts with the exhibit at a very intimate level to learn. The ‘Brooks Legacy’ that is left behind by these two naturalist collectors enhances the museum’s ability to convey messages that reflect the core values of collection-based research. ‘The Legacy’ is a valuable teaching and learning collection that the museum has benefitted from greatly. The scope of this report will illustrate the lives of these two men, and how their donations enrich the museum to an elite standard of education.
The AC Brooks Legacy

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I: Introduction:

The Beaty Biodiversity Museum (BBM) is a multi-faceted, informative and valuable educational tool that enriches a number of educational disciplines at the University of British Columbia. The museum is composed of six collections and contains over 500 exhibits that use collection-based research to ‘inspire an understanding of biodiversity, its origins, and importance to humans.’ The Cowan Tetrapod Collection (CTC) is one of these six valuable collections, containing over 40,000 specimens and representing roughly 2,500 species. The CTC is composed of amphibians, reptiles, birds and mammals. The specimens donated by AC Brooks that are located in this collection will be essential to uncovering the historical narrative within this project. ‘The Legacy’ is a valuable scientific and historical entity, and its specimens unveil an interesting history that has deep roots in evolution, exploration, science, and the two adventurous Brooks Collectors themselves.

The ‘AC Brooks Legacy’ is a collection that teaches about biodiversity and evolution through interactive collection-based research. The legacy covers a broad range of species and habitats on a temporal scale ranging from Allan Cyril Brooks’ earliest contributions in 1930, to his son’s Allan Cecil Brooks 1960 contributions from Africa and North America. Their legacy serves to teach about biodiversity and evolution by allowing visitors of the museum to physically interact with specimens outside of the field, and in controlled, laboratory-like settings.

It is apparent that the AC Brooks collectors were interested in the research of biodiversity and evolution. Evolutionary and environmental themes are central to the narrative of the Legacy through comparative analysis based on a number of different factors and scales. This project highlights the intelligence of the Brooks collectors through their legacy within the CTC and proves that the Brooks

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indeed contribute to the Beaty Biodiversity Museum (BBM) success in providing learning opportunity in an interactive space.

II: The origins of the Museum and Scientific Inquiry

The mass movement of people from rural countryside to bustling urban cities was a defining factor of the Industrial Revolution in Europe at the turn of the 18th century. This physical movement shifted human’s sole purpose in life away from utilizing the earth to provide sustenance and rooted human identity in production, education and intellectual inquiry. As the world became more urban, academics sought out to understand nature in new capacities to support the demands of consumption and reproductions that drew from the environment. The Enlightenment was largely a secular movement and revolutionary naturalists such as Charles Darwin developed theories of evolution and natural selection to rationalize all life on earth. Scientific knowledge accumulated, and scientists increased the precision at which they analyzed the world around them. Carl Linnaeus ‘1735 Systema Naturae of Classification’ classification became widely accepted by the public as the viable standpoint to launch further inquiry.

European societies ‘cultures of curiosity’ created a demand for a physical space to observe and consume rationalized knowledge of the natural world. This was essential to the formation of a modern identity in what Tony Bennet calls the ‘Exhibitioner Complex’ in that a human can be self-assured by observing and consuming information in a displayed space. The blind acceptance of ‘facts’ that occurred in the museum exhibit were manufactured to effectively display evidence in a viable manor. The museum became a place where humans could ‘easily accept objects that mediate the experience of nature’ through display because of the proof and evidence of scientific theories that were seen in the exhibit. It is in the grand museums of Europe and within the collections of social elite that the very first collection-based research was conducted and aided in the creation of many modern scientific theories. This creation of knowledge in the museum laboratory continued to progress, and scientific inquiry continued to expand and evolve on top of older theories. The increased precision and dissection of the natural world in the laboratory led naturalists to divide and dissect, paving the way to the specialization of scientific fields such as zoology, botany, geology, and astrology. As colonial

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5 Prince, Introduction, 2
8 Prince, Introduction, 4
9 Pyenson, S.S., *Cathedrals of Science*, 282
expansion continued, users were able to access specimens from all over the world and place them on display in museum spaces. The ‘cultures of curiosity’ created the modern scientific world as a way to rationalize the world through interactions in the museum, laboratory, and natural world.

III: The history of the Cowan Tetrapod Collection and the Beaty Biodiversity Museum

“The Beaty Biodiversity Museum will enrich our local society, Canadian society, and global society by carrying out biodiversity research and displaying plants and animals from around the world. The museum will teach existing and future generations – our children – the wonders and fragility of many of the species with whom we share the Earth.” – Ross J. Beaty

The ‘Blue Whale Skeleton’ is an unmistakable landmark of the campus and serves as a scientific mascot for the Museum. The BBM did not officially open until 2010 but the many collections in the museum have a much longer history at UBC and have contributed greatly to the strong presence of notable teachers, donors, and students which have used the collections to enhance their studies. The six collections present at the museum have provided physical evidence to support research and teaching since the university was first established in 1908. The Cowan Tetrapod (CTC) collection was first created in 1943 before zoology was even a recognized faculty on campus. This attracted many researchers and students who were specifically drawn to the collection because of its notable reputation.

There was a large surge in university enrollment in 1945 as WWII came to an end, and new buildings were being constructed on campus to accommodate this rapid growth. The CTC was originally housed at the Biological Sciences and Pharmacy building in ‘The Museum of Zoology’ in 1943. In 1951, the ‘Vertebrate Museum’ was created, and rapid expansion of the collection. The museum collection was then moved to the fourth floor of the south wing addition to the Biological Sciences in 1959, where the Spencer Entomological Museum was also located. The growing collection was rapidly gaining a positive reputation and the university sought out to establish positive, mutually beneficial relationships with researchers and donors to assist with funding further on campus developments.

The earliest specimens present in the CTC were mainly marine species due to the relationship with the Institute of Fisheries that provided funding to support collection-based research of marine

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11 How the Beaty Came to be’, Beaty Biodiversity Museum Website.
13 Logan, H.T., Tuum Est, 189
14 ‘The History of the Cowan Tetrapod Collection’, Beaty Biodiversity Museum Website
15 Logan, H.T., Tuum Est, 190
tetrapods. The university had to accommodate donor requests because of financial needs to assist in expansion. As time progressed, the CTC became increasingly well known in the academic world. People regarded UBC to be ‘the logical center for study of the problems arising from such conditions and for instruction in the methods of dealing with them’

The university quickly became known for its innovative research methods and attracted many donors from a variety of scientific fields. The science faculty began a positive relationship with companies such as the BC Big Game and Hunting committee, and famous professors such as naturalist founder of the CTC himself, Ian McTaggart-Cowan, began teaching at the university. By 1958, more than $60,000 was given to the Pure Sciences for research annually. Slowly, zoological research began to incorporate birds and mammals, and collections such as the Racey Collection (a component of the CTC) were used for research and study.

The incorporation of mammalian and bird studies in research promoted further growth of the museum’s collection accumulation at UBC as the university reputation attracted elite collectors of various specialties to donate their specimens to UBC over other universities.

IV. Collection-based Research as a discipline

Collection-based research teaches about biodiversity and theories of evolution in the laboratory using the species themselves as evidence. This type of research creates a mutually beneficial relationship between the museum and the researcher, one relying on the other for its survival. As a collector donates their collected specimens, the collection of the museum grows and the researchers are able to access all other species in the lab removed from their natural habitats and compare various species while controlling a wide variety of factors. Collection-based research served the Brooks as scientists, researchers and teachers to promote learning about the physical changes species undergo as a result of habitat, evolution, and many other variations that occur across nature. This method of scientific study allowed for Brooks’ to compare species differences based on their traits, environments, sex, and temporal and geographic scales.

The museum as a laboratory is a very useful and malleable learning apparatus. Displaying specimens in an exhibit versus the natural environment allows for the world’s large range of biodiversity to be apparent to the observer on a much smaller scale, and permits the user to control certain biological factors to produce results. De-contextualization of species allows for themes and similarities to be seen easier than by field analysis, and also allows for comparisons across habitats. Species are organized and categorized by their biological traits, and upkeep is a constant and ongoing process. The avian species within the CTC are organized based off the Clements Classification system and are

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16 Logan, H.T. *Tuum Est*, 192
17 Logan, H.T. *Tuum Est*, 194
18 Logan, H.T. *Tuum Est*, 221
organized taxonomically by order, family, genus, species and sub-species. Standardized organization allows for the collection to speak for itself, engaging the user on a very interactive level versus traditional lecture style learning. Curators of this type of museum seek to organize the specimens in a way that the biological traits of the species are the main feature of the exhibition instead of a chosen theme. This enables the user to draw personal conclusions that are free of pre-disposed assumption. One of the most monumental scientific apparatus that has come from collection-based research is the method of classification. Classification requires the collection as the centerfold subject of study, and places the collection at the heart of research and teaching. By placing species within standardized sets of families and groups, the capacity for comparative analysis within the lab is immense. The classification system rapidly became adopted by all research universities who sought out a way to correspond within the sphere of academia and further enabled the circulation of biological information globally. The use of a standardized classification system allows museums to exchange and compare specimens that are vastly different from one another, yet the plateau at which standardization systems holds all animal life is a necessary foothold for scientists to compare the world's vast biodiversity.

V: Allan Cyril Brooks (1869-1946)

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19 Chris Stinson, Oral Interview, February 25th, 2015
Allan Cyril Brooks was born February 15th, 1989 in Etawah, India. The natural environment always fascinated Allan; from a young age he studied birds and plants with his naturalist father William Edwin Brooks. Allan was sent to England to study from 1873-1881, and in his schooling Allan became infatuated with biology, egg blowing and butterfly collecting, taking lessons from notable naturalists such as John Handcock. At the age of 12, Allan Brooks moved with his family to Ontario where he began working hands on with skinning his first Passenger Pigeons, developing his keen rifle shot, and painting the natural environment. When Allan was 18, his family moved to British Columbia and he began hunting and collecting all along the coast region. His father returned to Ontario, but Brooks remained in British Columbia to pursue his interests in hunting, bird collecting, and exploring nature.

In 1894 Allan Brooks was already a well-established naturalist artist, and soon added ‘officialzoological collector’ to his list of recognized titles. Brooks travelled to the Cariboo and collected specimens in the CTC collection such as the Barrow’s Goldeneye, and the Bonaparte Gull, he travelled the many lakes, mountains and coastal regions of British Columbia, often embarking on trips for months at a time in the most remote wilderness. He spent time collecting in Arizona, and well into the Chiricahua Mountains where he added ‘Merriam’s Kangaroo Rat’, and the ‘Cave Myotis’ to the CTC. Brooks reputation in the big game hunting community was notable, and he was able to maintain a prosperous life filled with family travels, animal collecting, and self-motivated academic research from his earnings.

Allan Cyril Brooks was a multi-talented naturalist; along with his big-game hunting, species collection, and biological research, Brooks was a great artist. His first illustrations are seen from 1897 onwards, first appearing in ‘Recreation’ magazine. Brooks later received commission to illustrate many books such as ‘Birds of Washington’ and the 1927 ‘Birds of Massachusetts’. It was apparent from his earliest illustrations that Brooks had a natural artistic talent, he paid extremely close attention to detail and his bird illustrations were described as ‘evocative’ and ‘wonderfully vivid’. Brooks published many illustrations and received financial success from his artwork, but critics have also condemned his work. It has been noted that his paintings reflect the biological aesthetics of animals and forfeits artistic
methods for creating a lifelike image. However, this was his style, Brooks prided himself to be an illustrator and not an impressionist, and strove to convey biological accuracy in his paintings as well as aesthetic qualities.  

Brooks served as a sniper in WWI, and was discharged with Lieutenant Colonel ranking. Brooks married his wife Marjorie in 1926, and had their only son Allan Cecil Brooks that same year. Age did not hinder his passion for adventure or science. Brooks continued to travel, study and collect as far south as New Mexico well into his later years. Allan Brooks and his wife lived in Okanagan Landing and in 1928 built their family home in Comox, Vancouver Island where they lived comfortably and happily. His interest in hunting and rifle shooting helped him through the tough war years, and he lived a long and active life fuelled by his passion for biology and curiosity in nature. Brooks passed away in the midst of his work in 1945. His last commission was three paintings of Waders and Waterfowls for the University of Washington, and he made his final submission only days before he was submitted to the hospital. Brooks was a passionate and adventurous man fuelled by his curiosity and infatuation with nature, and his commitment to the pursuit of science lives on in the AC Brooks legacy. Students are able to access the lessons Brooks produced through his collection, and continue to learn from his contributions. Although Allan Brooks is gone, the lessons he teaches within the specimens of the AC Brooks Legacy lives on endlessly.

‘It was in the field that Brooks was most truly in his element. He was never happier than when setting out with gun and collection bag to tramp the ‘commonage’ above his Okanagan home, or to invade some new field afar. Equipped by Nature with the sharpest of eyes and ears and the general physique to apply them, he prowled endlessly.’

VI: Allan Cecil Brooks (1926-2000)

Allan Cecil Brooks was born in 1926 in British Columbia to father, Allan Brooks, and his mother Marjorie Brooks. Brooks was a third generation naturalist, and a brave explorer. Motivated to pursue a career like his father's, Allan earned an honors degree in Zoology at UBC, and a master’s degree at the University of Toronto. He would spend his summers researching and living in the laboratory of nature in many of Ontario and British Columbia provincial parks, working with many professors and colleagues with whom he maintained close friendships with his entire life. The younger Brooks inherited a passion for adventure, yet he also desired independence from his father’s reputation. This motivated Allan to seek out a way to mark his own contributions to the naturalist world beyond the shadow of his father which led Brooks to Africa as his new laboratory.

Allan first travelled to Africa in 1952 conduct his own research, taking the lessons he learned from his studies, experience, and lessons from home to study evolution and biodiversity in a far-fetched

27 Laing, H.M., Allan Brooks 1869-1946, 438
28 Laing, H.M., Allan Brooks 1869-1946, 435
29 Betty Brooks, Email correspondence, February-March, 2015
and undiscovered territory. The idea to travel to Africa was first proposed in 1950 by his colleague B.A. Buxton, with whom he maintained a relationship with as mentor and friend. Inspired by his fieldwork in Canada’s parks, the idea of travelling to Africa to conduct research was very appealing. Allan first travelled to Uganda and became enamored with the culture, life and environment of the African frontier. He returned to Africa again in 1956 to study and collect in the Serengeti Game Reserve, where he worked as the chief Game Biologist. Allan was also very involved with the local community in Africa. He spoke Swahili, and there are endless photos of Allan spending his free time with the local community.

As any good biologist, Allan took very detailed notes. His journals are filled with diagrams, field notes, with immense attention to the intricacies of each species. Allan became involved in conservation in Africa, especially concerned with the White Rhino status in the Massai district in Kenya. Allan’s research on population distribution contributed to the regulations implemented by the game reserve, which served to restrict Rhino poaching in the area, while also permitting the Massai warriors to continue their traditional land-use practices. Allan also conducted many studies on the Thomson ‘Tommy’ Gazelle, the most common gazelle in Africa. Allan’s field notes contain endless diagrams and notes about this mammal, and its many neighboring species and subspecies. It is likely that Allan was studying the biodiversity and anatomy of gazelles in Africa, but also using the Tommy Gazelle as a comparison species to evaluate evolution of species in Africa. [Figures 3-6] Brooks later published a book titled ‘A Study of the Thomson’s Gazelle’, which was solely dedicated to the Gazelle species and its various evolutionary differences across the plains of Africa. Unfortunately funding for his research ran low and his work on the Serengeti game reserve was cut. This did not stop Allan from attempting to further his work in Africa; he briefly travelled to Sudan during times of political unrest and turmoil before returning home to Canada. Allan’s work on the Thompson Gazelle remains a valuable entity in studying the biodiversity of species within Africa due to the continents wide variation in habitats. It is because of Allan Brook’s detailed notes about the Gazelle species that we are able to grasp the knowledge of Africa’s biodiversity and environment in a place as distance as Vancouver, Canada.

Allan met his wife Betty Brooks in 1964 while they were both working as naturalist interpreters at Miracle Beach Provincial Park in British Columbia under Yorke Edwards. They were married in August 1969 and had two children. He continued studying and collecting species well into his later years and also passed on his keen naturalist instinct to his children. Allan and his family lived a life filled with adventure and exploring the beauty of nature. Allan and Betty spent many years travelling to foreign frontiers such as Argentina, while also starting a field naturalist club on Pender Island where they had a family home. Visitors to Pender Island can venture to Brooks Point Regional Park, a park

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31 Thorn, E. ‘Allan in Africa’
32 Betty Brooks, Email correspondence, February-March, 2015
that Brooks himself established as protected natural land, which remains development-free today. Allan is remembered for his deep yearning of the maintenance of nature and its beauty and his love of everything natural. Allan not only greatly contributed to biodiversity studies of exotic animals within the CTC, but also to conservation of Elephant and Rhino species in Africa, and is hugely responsible for the conservation of the local ecology of Pender Island. Those who knew Allan always commented on his obvious compassion and care for others, and the environment. The Legacy left at the Museum of Biodiversity displays Allan’s dedication and precision in his studies. Allan greatly enhanced both the physical and scientific world by highlighting the importance of all animals to benefit the world as a whole. Allan used his scientific evidence to support conservation, and his numerous legacies left around the world speak to his dedication and obvious passion for the maintenance of sustainable life.

VII. The ‘AC Brooks Legacy’

The ‘AC Brooks’ Legacy is a crucial component of the Cowan Tetrapod Collection and the rich education that it offers. The entire collection holds over 40,000 specimens and represents over 2,500 species, making it the second-largest scientific collection of tetrapod species in BC. The collection is used to provide interpretive learning to volunteers, students, artists, and members of the community who regularly use the museum. The types of learning that occurs within the collection is vast and varies depending on what the users wish to get out of their unique experience with the specimens; volunteers are largely made up of students who are using the collection to enhance their research ability, students of all ages will visit the museum to observe biodiversity and perform experiments, and the general public can visit to feed all their curiosities. Under the supervision of professors and museum curators, volunteers will perform experiments with the specimens, learn about preserving techniques, and analyze the scientific characteristics of evolution and biodiversity. The large majority of research-based evolutionary studies today use phylogenetics to analyze evolutionary changes at a microscopic level and the CTC is still actively used in these types of research.

The Legacy covers a wide range of global geographies and conveys clear messages of species variation, migration, habitat variation, and competition across several boundaries. The physical distribution of the collection covers large parts of British Columbia; the Cariboo, Kootenay regions, Thompson-Nicola lakes and flats, Okanagan Landing, Vancouver Island, Vancouver, the Gulf Islands, and many more. The collection also contains species from Ontario, California, and Arizona. Allan Cecil Brooks, seeking recognition separate from his father's work, conducted large amounts of his research in Africa, and the

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33 ‘Brooks Point Regional Park’ Capital Regional District, DOI: https://www.crd.bc.ca/parks-recreation-culture/parks-trails/find-park-trail/brooks-point
35 Chris Stinson, Oral Interview, February 25th, 2015
collection also holds valuable specimens from Uganda, Kenya, and the Serengeti region where he spent much of his career.  

The Brooks also returned to the physical sites of collection many times over passing years to study the impacts of environmental change on species. The collection contains many of the same species, but collected years apart. This displays the Brooks interest in the temporal scales of evolution as well as the geographic. The importance of looking back in evolution is essential as science continues to evolve. Collection-based research allows for the very same species to be compared across a wide temporal range to see how evolution has changed species composure over the years. They also collected widely within species; the ‘AC Brooks’ legacy contains males, females, juveniles and seniors, and contains a variety of sizes of each species. This enhances collection-based research in the museum because it gives ample physical proof to back up taught theories. The ‘AC Brooks Legacy’ specimens enable species comparison on temporal scales, geographic scales, and seasonal scales. The two collectors were very thorough in their work, and their legacy is clear proof. The sheer volume of species within the Legacy supports theories of biodiversity strongly, and biological proof is very clear to researchers who wish to perform analysis with these specimens.

The importance of exhibit upkeep and maintenance is immense in collection-based research, for the education lies in its proof. Researchers and professors who seek to engage with the collection are constantly borrowing specimens of the CTC, therefore upkeep and maintenance of a collection is ongoing. Science is constantly evolving, and new theories and forms of rationalizing the natural world require constant interaction with exhibits to ensure their information remains viable. Collection-based research has provided the world with physical proof of many biological phenomena of the world. Some of these include ‘transition zones’ where species ecotones displays the gradual ecosystem shifts by slight differences in a certain species characteristics due to habitat. Collection-based research enhances the theories of the classroom, and allows for the individual to validate theories through experimentation. The range of experimentation that occurs within a collection is immense. The rich inter- and intra- specific variation of an entire collection can enhance theories by discovering differentiations of species through analysis. The benefits are obvious, and the collection speaks for itself in its ability to enable scientific learning and inspire interest in the evolutionary traits of each specimen.

IIX: Conclusion and Acknowledgements

The ‘AC Brooks Legacy’ present within the CTC at the Museum of Biodiversity at UBC serves to enhance the museum’s ability to deliver teach about biodiversity, evolution and life on earth. The Legacy not only displays the diversity of species across North America and Africa, but also enriches

36 Thorne, E. ‘Allan In Africa’ (2012)
37 Chris Stinson, Oral Interview, February 25th, 2015
our understanding of habitats and environments and how they influence and affect different species evolution. While this legacy contains rich scientific information, its importance does not end there. The Legacy traces the lives of two extraordinary men who were dedicated to exploration and adventure in the pursuit of science. The importance of the Legacy in narrating the lives of these two men is immense; the species convey the curiosities of these men and their studies, and the CTC’s role in preserving the species allows for the Brooks to live on through their contributions. The collection continues to serve museum users today and enhances human’s understanding of the capacity of the natural world to new limits. The AC Brooks collectors may not be with us any more, but the knowledge they have given us is still appreciated, and their spirit lives on within the legacy. The Legacy extends beyond the Beaty Biodiversity Museum. The knowledge they delivered through their teaching and collecting is forever present within the scientific community by all those who have gained an understanding of biodiversity through the collection. The Brooks collection keen desire to understand the richness of life inspires museum users to enhance their own knowledge of the natural world, and take that knowledge outside the laboratory to continue to enhance the cultures of curiosities of the world. We are lucky to be able to connect so closely with the Brooks collectors through their legacy, and the specimens will continue to enhance our understandings of biology and evolution for years to come.

Further research with respect to the AC Brooks collectors and ‘The Legacy’ would involve drawing more connection between the Beaty Biodiversity Museum, and the Belkin Art Gallery where I was able to locate some of Allan Cyril Brooks naturalist paintings. I would also suggest linking UBC’s past biological studies surrounding biodiversity and evolution to the AC Brooks themselves. It is well known that the two naturalists studied and taught with a number of people associated with UBC, and much more could be discovered by looking into the actual research that these men conducted using their Legacy located at the Beaty Biodiversity Museum.

Thank you to all who were involved in making this project possible, and to the AC Brooks collectors for inspiring an interest in biodiversity in me.

Glossary:

Biodiversity: variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.

Evolution: the process by which different kinds of living organisms are thought to have developed and diversified from earlier forms during the history of the earth

Ecosystem: the complex of a community of organisms and its environment functioning as an ecological unit
Endemic species: ecological state of a species being unique to a defined geographic location, such as an island, nation, country or other defined zone, or habitat type; organisms that are indigenous to a place are not endemic to it if they are also found elsewhere.

Species Variation: a modification in structure, form or function in an organism, deviating from other organisms within the same species

Intraspecific competition: form of competition between members of the same species

Interspecific competition: form of competition between members of different species in the same ecological area

Inheritance: The acquisition of traits genetically transmitted from parents to offspring

Migration: relatively long-distance movement of individuals, usually on seasonal bases from one space to another.

Appendix:
Figure 3:

Figure 4:

Figure 5:
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