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Public education program for the Seneca Park Zoo

Liana R. Colón Badillo

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ROCHESTER INSTITUTE OF TECHNOLOGY

A Thesis Submitted to the Faculty of
The College of Fine and Applied Arts
in Candidacy for the Degree of
MASTER OF FINE ARTS

PUBLIC EDUCATION PROGRAM
FOR THE SENECA PARK ZOO

By

Liana R. Colón Badillo

May 18, 1989
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Introduction

The focus of this thesis project was to create a program of educational materials for the Seneca Park Zoo in Rochester, NY. Its purpose is to promote community participation at the zoo and, as a result, to promote animal preservation. The primary goal is to communicate with and remind parents that the zoo is a major resource where they and their children can learn about animals and nature.

The program includes:
1. The creation of an identity element for the zoo. This will appear or be used with the other applications. Conservation and education through recreation will be the key philosophy in its development.

Some of the applications for the identity element are:
   a. letterhead
   b. envelope
   c. business card
   d. banner

2. An educational booklet-poster that will focus or deal with a specific group of animals. It will be informative and is meant to be used for display purposes.

3. A series of three posters, each one presenting one of the three animals depicted in the new identity element (monkey, bird and elephant). Each poster describes some of the animal's characteristic traits. The posters will contribute in creating public awareness of the zoo.
About the Seneca Park Zoo and the Seneca Zoological Society

The Monroe County Seneca Park Zoo has served as an important cultural and educational resource since 1894. It is visited by approximately 300,000 people each year. Having over 500 exotic animals, the zoo is accredited by the American Association of Zoological Parks and Aquariums (AAZPA). Among their special tasks is the exhibition and breeding of endangered species. The zoo is open 365 days a year and is accessible to the handicapped. Apart from a small, paid staff, the Seneca Zoo Society operates with extensive volunteer support. Founded in 1957, they are a group of concerned and enthusiastic citizens from this community. Their efforts complement those of Monroe County Parks Department which operates the zoo. This affiliated non-profit group is dedicated to the improvement of the zoo from the standpoint of the animals as well as the zoo-going public. The Society contributes to animal acquisitions, conducts the guided tours and other educational programs, supports the zoo library, and provides funds for animal habitat improvements. It operates the popular Children's Zoo as well as the refreshment and gift concessions.

Initial Research

The interest in creating this project began during the summer of 1988, when I started looking at examples of zoo graphics programs done by other designers and firms. I became more involved with the idea and started by making an outline for an educational program in which applications would be developed. The proposal for the project was finally brought to my professor, Roger Remington, who suggested a visit to the Seneca Park Zoo located in Rochester, N.Y. A list of questions
was prepared and narrowed down to give priority to the following: Who is the zoo visitor? What does he want to know? What are some of the zoo's needs in terms of graphic material? The meeting with Mr. Thomas LaRock, Executive Director of the Seneca Zoo Society, the zoo's supporting organization (September 1988), brought some positive feedback. He mentioned the need for a new identification mark (something that I had considered previously). Though it was not the focus of this project, it would reinforce the "visual appeal" of the program. If it were implemented by the zoo, the symbol would be incorporated in literature and educational materials, thus enhancing them and the zoo image itself. The present logo, which is a combination of a stylized bear paw and the word zoo in aqua, did not seem to be a strong or effective visual mark. The zoo staff felt that the color was too decorative. LaRock added the need of posters or a booklet that would talk about a specific group of animals. The meeting was the first step where the real research and planning of this project began.

Defining the Objectives of the Seneca Park Zoo

An evaluation of the existing graphics and interviews with members of the zoo community was conducted, distributing a standard marketing/communication analysis that would help to find key words that would best describe the nature or function of their organization, their personality, their mission, their key audiences, and how the zoo is perceived. This would simplify the design process of translating a verbal concept into visual form. The results show that the zoo staff sees the organization as one that educates; it is interested in supporting and conserving its animals,
bringing to the zoo visitor family-oriented, recreational activities, such as the Zoofest. Fundraising was also mentioned but seemed to be a secondary goal. A list of these and other words was prepared on a verbal and visual matrix chart based on a Semiotics approach.

Semiotics, according to Dr. Richard Zakia, is "a discipline that provides a structure for studying and analyzing how signs function within a particular environment. In the field of marketing one could ask what signs are used to represent which product or service, to which audience they are directed and with what purpose in mind." 1

The words listed were:

- conservation
- natural history
- entertainment
- science/research
- habitat
- educational
- animal
- family/children
- recreation
- dedication

Collected pictures that would represent these words were divided into iconic (a likeness), indexic (those that leave a print, for ex.: a footprint in the snow) and symbolic (agreed upon meaning) images. Instead of an advertisement, the word Seneca Park Zoo would be deconstructed into word and image associations (see appendix 1).

During the following meeting with Mr. LaRock (November 22, 1988), we discussed the chart and agreed that conservation and education through recreation are the fundamental objectives of the zoo and the Society and the last two, education and recreation, are the main reasons why people visit the Zoo.
These are results of a research done by a private firm, which will be explained later. The three words are the basis for the creation of the new identity element.

**Defining the Audience**

To have a clearer idea of Seneca Park Zoo's target audience, a zoo study report of findings produced during the Summer of 1987 by a private research firm from Rochester was reviewed. It surveyed the zoo visitors and their reactions to hundreds of variables affecting them during their stay in the Park. A summary of attitudes, expectations and behavior yielded a general visitor profile. A number of points from this profile were particularly interesting for me regarding who these people are, their curiosities, needs and interests:

- most people are accompanied by children
- they come to have fun, to enjoy the surroundings, to be entertained
- they share a love for animals
- visitors think the animals do not have enough space, that they should have natural settings and a less restricted environment
- they want a greater variety of animals to make the zoo more interesting, fun and educational
- they think the primary purpose of the zoo is educational

Other important and more specific points about the zoo visitor are:

- The average visitor to the Seneca Park Zoo has a medium income of approximately $35,000
The visitor's level of education is the equivalency of a high school diploma.

The visitor has children in the household.

Aside from the survey I went to the Park myself, specifically to observe interactions between visitors and exhibits. Emily B. Rudin said: "Spending time with visitors also helps us develop an affinity for the whole Zoo experience." In this case, it was helpful to have an understanding of what is happening around the Zoo.

After analyzing results and arriving at my own conclusions, I decided that the family, with children ages eight and up in the household, would be the most appropriate key audience for the project. The survey demonstrated that people often go to the zoo with someone else, generally children. Parents and children together seem to go through a more enjoyable learning process about the animals of the zoo.

**Animal Selection**

Before any design concepts were developed, a review of the classification system for graphic symbols designed by professor Robert O. Swinehart, of Carnegie-Mellon University was done, using it as a guide to compare my ideas against his criteria list (see appendix 1). The chart helps to develop an understanding of the design process with an emphasis on idea generation, visual decision making and refinement of a chosen idea. Also, to develop a good identity element, some general points had to be kept in mind:
A good identity element should personify the organization's appropriate image.

- It should be distinctive, easily recognized and remembered
- It should avoid fads and imitations
- It should not restrict the organization as it grows
- It should offer excellent advertising and promotional possibilities
- It should be able to be easily reproduced in any medium — print, outdoor or vehicle graphics, for example.

Prioritizing and evaluating each one of Swinehart's categories helped to determine what type of graphic symbol would best communicate the zoo's needs:

6. Abstract Forms- Marks that are designed from non-representational forms. These are clean, simple, modern and easy to reproduce. Usually they do not have animal orientation.

5. Letterforms (alpha/numeric)- Marks that are designed from one or more letterforms and/or numbers. When combined as initials they can form an acronym. They are easy to reproduce, but might be difficult to identify or to make an impact for the zoo visitor. They would not appeal to the family or create an impression on a child of an animal oriented place.

4. Symbolic Forms- Marks that are designed to graphically portray, by clear association, particular attributes that identify the specific nature of a company or organization. This could have animal orientation, but also can be confusing and nebulous, since a symbolic form often represents an immaterial concept.
The word Seneca (in Seneca Park Zoo) appeals to Indians, and a symbolic form based on this name could give the symbol a different meaning that is not associated with the zoo.

3. Wordforms (logotypes)- The distinctive manner in which a whole name or word(s) is visualized in a specific letterform(s) or typeface. A logotype would have the advantage of denoting the Zoo, would be easy to reproduce, but it is dependent on letterforms and would not cause the same impact on a child as on an adult. It also does not have animal orientation.

2. Pictograms (representational): Marks that are designed with a high degree of visual information to clearly depict a particular image. This idea seemed attractive, for it can have animal orientation; it is more illustrative, would cause impact on both parent and child, and can be easily reproduced.

1. Combinations, a category composed from the five preceding categories, seemed to be the best solution. A pictogram and a logotype together would have both the representation of an animal and typography, which seemed a powerful combination, although it is a common approach. It would become “a visual expression understood through a combination with verbal expression.”

During the dialogues with Mr. LaRock, which continued throughout some of the stages of the project, we discussed the possibility of integrating more than one animal in the symbol. The results of the research done by the private firm demonstrated that polar bears, monkeys, elephants, lions and birds were listed among the first five favorite animals and exhibits by Seneca Park Zoo visitors. From these I chose the polar bear, the bird and the monkey, which are known for being friendly animals, and began a series of developmental sketches (see appendix 1).
In the first stages of sketches the polar bear form appeared too heavy, creating a figure-ground problem and too much of a massive shape beside the other two animal forms. An elephant was tried instead of a bear, using its outline. Alterations and changes were made, trying to simplify the animals into geometric circular lines and shapes with the use of a compass. Different line weights were tried, the elephant and bird ending with progressive lineweights. The bird’s feathers went from a progression of size and weight to a space progression between them. The head of the monkey had figure-ground problems. The negative space was confusing; it was creating the illusion of a snake. Of the three animals, the monkey’s head is the only one that faces front and has more solid shape and weight. The other two animals appear in profile. A curved shape which created a second hump was added to the top of the elephant’s profile and made it look less stylized. A horizontal section at the left of the monkey, the only straight line in this design, served as an anchor or base that kept the identity element from looking like a floating object. This was one of the last refinements. The mark was prepared to be tested by adding a typographic component (the words Seneca Park Zoo).

Type Selection

Different typefaces were tested with the symbol, having in mind some important characteristics such as ease of reproduction, and legibility from a distance. The typefaces included New Century Schoolbook, Times Roman, Bookman Demi and Optima. Type arrangements were tried with New Century Schoolbook, Times Roman and Optima, (see appendix 1) selecting the latter as the most appropriate for the symbol. This sans serif
type has a modern, clean, contemporary appearance. Weight, upper and lower case letters, spacings, overlapping and other variables were tried. The flush right type alignment seemed very appropriate at the left of the element with the three animals, making a harmonious combination. Optima's modern appearance integrates with the geometric circles and curves of the identity element.

**Color for the Identity Element**

The color for the identity element was selected from a range of bright, warm hues. The color was incorporated to the program as an identity element. "Color acts as another means of visually identifying a design system." I selected bright colors that would identify with nature, fun and recreation. The intent was also to make the identification program less businesslike and to give the zoo an image or feeling of a more easygoing, recreational and accessible organization. Bright green, warm red and warm orange were some of the choices. The preferred color was the warm orange (the ink reference number is PMS 158U). Orange was used on the formal applications of business card, letterhead and envelope. The color of the typeface is a warm gray, (PMS 444U) and was also used for the applications previously mentioned (see appendix 1).

To summarize, the lines and shapes combined in the representational part of the identity element and aligned on a grid, work to create a balanced image. Legibility of form, readability of content, adaptability, timelessness, distinctiveness, were also primary concerns. • The verbal concept of conservation is suggested in the design through the synthesis of the three animals into one strong representation. The
elephant and the bird seem to be taking care of the monkey.

- Showing three of the favorite animals among zoo visitors implies the interest that the public has in learning about them, thus, alluding to the educational objective of the zoo and the Society. In her book Animal Gardens, Emily Hahn said: "A zoo's cultural value is much greater if education can enter into the recreation. The exhibition of rare animals is only justified when it does not take place merely to be spectacular, but above all for scientific and educational purposes." 6

- The animals chosen are some of the ones that man domesticates or trains for entertainment in circus or animal shows. This, along with the color, reinforces the concept of recreation. Recreation facilitates the process of learning by making it more enjoyable. The retention of new material and acquiring new knowledge by the visitor become more effective if recreation enters into education.

**Letterhead, Envelope and Business Card**

The relationship maintained for the applications of letterhead, envelope and business card is consistent (see appendix1). The name of the zoo always appears at the left of the identity element, flushed right. This relationship of name and symbol should not be changed, for it strengthens the concept of both as one and single element. The word Zoo is aligned with the horizontal section of the symbol. Three different sizes are used to permit variation in the degree of emphasis according to the sizes of each application. In each case, the distance between the identity element and the name (Seneca Park Zoo) is the minimum amount of space allowable.
In the letterhead and envelope the identity element, in its respective sizes, appears at the top left. The name Seneca Park Zoo, flush right to the symbol, serves as an axis in the alignment of the address, which is at the bottom left of the stationery and envelope, also flush right. The address has a wide line spacing. The space between the identity element and address on the envelope and their alignments are effective in establishing a margin at the left side for typing purposes.

The business card is used in a vertical direction. The identity element appears on the right side. The address follows a similar relationship to that in the stationery and envelope.

**Banner**

The banner is another application that introduces the new identity element (see appendix1). Its purpose is to create an impact, by means of the large size of the new symbol, and to demonstrate its adaptability by variations in size and color. It challenges the viewer to take notice of the message and to give support by attracting the visitor to go to the zoo. It cannot simply be ignored, considering the circumstances under which the banner will be seen and the effective choice of color. The colors chosen for the banner were warm red and black for the type. To make the logo impressive and effective, the image was enlarged to a size of approximately 2 1/2' x 2' and silkscreened on a 3' x 4 1/2' canvas. The type was enlarged on the Mac II computer at 500% using the Quark Xpress program.
Objectives and Development of Booklet-Poster: Six Cold Weather Animals from the North

In my conversations with Mr. La Rock he suggested the idea of having a booklet that would include some information about a specific group of animals—from colder climates, for example—or tropical forests. The idea of the cold weather animals seemed practical for the zoo. Mr. LaRock saw in this idea the possibility of a series of booklet-posters featuring different kinds of groups of animals.

A booklet-poster that could be distributed at the zoo for the family to take home and use as an informative and visual reference, could also be used by the zoo for display purposes. Since I was also going to do the copy, I consulted books, journals, keepers and zoo volunteers, among others. Mrs. Lynn Harris, a zoo volunteer, offered her cooperation. She is in charge of the educational material at the zoo. She also directs the zoo docents, the people who assume a major role in the amount and type of learning that occurs during a tour, talk or presentation. My meetings with Mrs. Harris gave me a direction for writing the booklet. She suggested some themes and questions about animals to use as a guide. There are three ways of writing about animal subjects: by observation, knowledge or question and explanation. Knowledge questions are best used with children 8 and up. By the time children enter the intermediate grades, "they have acquired enough knowledge and ability to process information at a higher level although concrete experiences are still important." Keeping in mind the audience, my task was to use language that could be understood by children 8 years and older. We know by the survey results that most of the zoo visitors are family groups, with the older ones assumed to be reading and interpreting for the young). However, becoming too elementary was a
danger. Consequently, my approach was to provide enough verbal substance to give the visitor and the repeat visitor concise information but not to overwhelm or make him learn something without expending much effort. I asked myself two important questions: How much information can the visitor take in? How much does he want to take in? The information written had to be kept simple, remembering that the visitor's learning experience must be smooth and not require him to spend as much conscious effort as he might in a classroom. As a fact, people come to the zoo to see animals, not to spend time reading.

Aspects of the Material Presented

One of the objectives of this booklet-poster is to bring the parent and the child together. The child will ask questions – the parent and child will find a solution together. The material was written using basic words in short and crisp sentences, in light of the parent's average cognitive level and previous general knowledge about animals. Writing for children (8 and up in this case) requires specific considerations, for which I did further research and exploration on the characteristics and expected behavior of such children in order to apply it in my writings. The information was extracted from A Reference for the Preparation and Presentation of Live-Animal Programs.8

The eight-year old child begins to:
- handle abstractions
- understand time, money and
- the relation of past and present
Nine and ten-year-old children:

- think abstractly
- make decisions
- worry about others and
- think about the world situation
- details, classifications and numbers start interesting them (they outgrow make-believe and fairy tales)
- have sense of humor

Nine and ten-year-old children should be able to discuss and understand the value of one animal versus another, habitat destruction, extinction, or any other concept that allows the children to express opinions or try to solve problems of an ethical nature.

Eleven-year-old children:

- nonchalance directs everything they do
- they dare the world around them to make them react
- are awkward, disorganized and self-conscious

After examining the audience's behavior and interests and the main philosophy of the Society on education and conservation, the objectives are summed up as follows:

- To strengthen or broaden the knowledge previously acquired of animals
- To explain through clear and simple information the importance to man of wild and domesticated animals.
- To explain, with the help of descriptions and illustrations, each one of the six cold weather animals, including the importance of their
conservation and that of natural resources, as a secondary goal, throughout the world.

- To familiarize them with the idea of conservation, especially of fauna

- Ultimately, to create public awareness of the zoo

Having already selected the theme of cold weather animals and the animals themselves – Canada lynx, Japanese macaque, Polar bear, Siberian tiger, Reindeer and Snow leopard – I made use of a list of concepts as a guide. The topics to be covered included the general characteristics of these mammals:

1. Physical adaptations- Pointing out paws, feet, ears, color, coat, etc. used in each habitat, camouflage adaptations if present, or other skin characteristics.

2. Animal behavior- Behavior in family groups, which animals are solitary, how they mark territory, how they defend themselves, etc.

3. Species status- Regarding an endangered specie, try to give an idea of how few are left in the wild today and why this has happened.

4. Animal nutrition and predation- Mentioning food sources and how they are obtained in the wild.

The next step after collecting the necessary information, facts, ideas, pictures, was to write, not forgetting the need for diversity and variety in subject matter to provide a fresh perspective.

The booklet starts with an introductory page showing the title, the new identity element, and a short explanation that would clarify the reason and goals for it. Facts about each animal follow; at the end, a short conclusion reemphasizes the importance of conservation.
Design Specifications

The format used was that of a six-panel booklet, 9 1/2" x 11 1/2" each page, having one animal per page and its respective information: the silhouette of the animal, followed by a small and more detailed illustration of it; both the common name of the animal and its scientific name in Latin; the text or information, and the animal track or paw print. Thus, evincing communication on different levels—the more levels of communication, the more fun in the process of discovery. The animal illustrations were obtained from copyright-free illustration books. The typeface used was Optima, with the exception of the Latin names, which were done with Times Roman Italic. Reference for the paw print illustrations was obtained through The Audubon Society Field Guide to Animal Tracks.9 The use of big animal silhouettes as a means of identification serve to attract the viewer to the information, and as a deductive method of teaching, move from the general to the particular. The silhouettes also carry the weight of the "visual appeal" of the design. The booklet-poster, printed with the Chromalin process (see appendix 2), was done in cyan blue and black. Most of the animal figures appear in profile in blue with white background, and every other page is reversed, showing the animal in white with blue background. Blue is the predominant color throughout the booklet, because it relates to the colors of winter and cold. Each of the animals comes from cold regions of the planet or high and cold, treeless mountains. Blue, not a natural animal color (brown would be closer to reality), adds the element of fun and another meaning to the piece. It also serves as an element of unity throughout the 6 pages.
Objectives and Development of the Posters

The need for some promotional material for the zoo was also pointed out by Mr. LaRock. He mentioned the idea of having posters given at the zoo for the family to take home. Another possibility would be to distribute these posters at schools. They could serve as an educational tool in the classroom. The interaction between teacher and student will be similar to that of the parent and child.

Because of its educational purpose, the posters and the booklet-poster were focused on exposure to as many of the audience as possible. The objective of creating public awareness of the zoo and its animals is primary. Raising money could become a secondary goal. The materials would be given free of charge.

The idea of the series of three posters is to present one of the animals on each poster depicted in the new identity element. A colorful animal figure appears with text that includes some of its characteristic traits (see appendix 3).

"Visitors at zoos come to look, touch and interact with the visual things on display."10 Judging from the principle that their experience at the zoo is more visual and sensory, the posters were designed having a visual image as the first strong element that would attract the visitor to read the information or summary of visual data (second). Variety of color was also considered.

To write down the information or copy for the posters, similar criteria to that for the booklet was employed. The information starts with a leading question to involve the viewer. "Questions may be used to encourage looking, to draw attention, to help viewers notice distinctions or similarities, and to help visitors discover for themselves important conclusions, generalizations, principles, etc. Question formats also
have been used in self-test exhibit games that challenge viewers to test their "expertise" on the topics presented. For example: "Who are the most successful primates after man?"

Design of the Posters

The three posters were designed to maintain a unity and consistency throughout them. A small design system was created, in which complementary colors were used. The bird poster has the smallest animal, the one with the monkeys has the medium size and the elephant has the largest mass figure. There is a progression on the size of the animal, number of animals (from more than one animal in the bird and monkey posters, to a single elephant) and amount of text information (birds poster includes more facts).

The typeface, Optima Bold, color and point sizes were kept consistent for the three posters.

The treatment of the animal figures in the posters is very similar to the ones in the booklet-poster (simplified form silhouettes), but the posters show the animals in different positions other than in profile. Simplicity of form was the basis of the development of contour lines and shapes of each animal, although these are more refined and detailed than the ones on the booklet-poster. The intention is to provide more visual information. The colors are not realistic for each animal, which adds enough variety and flavor to invite the visitor to read the information (see appendix 3):

- birds poster- animal: purple (PMS 273U); background: yellow ochre (PMS 129U)
- monkeys poster- animal: red (PMS 485U); background: green (PMS 359U)
• elephant poster- animal: process blue; background: orange (PMS164U)

The colors in the background of the posters are less saturated, while the animals' colors are brighter in order to create visual prominence.
Conclusion

Through this project the intention was to create an interaction that would cause personal involvement and motivation on the part of the Monroe community families to visit the Seneca Park Zoo and to assist in the efforts of the Seneca Zoo Society to awaken the love and conservation of its animals. This interaction is the prerequisite for learning. Through these applications, it is the purpose that the visitor comes away enriched with new knowledge about the animal kingdom. "Let the animals convey their own quiet power without much celebratory human intervention." I am glad to have been involved in the technical process as well as in the creative ones; from the conception of the idea to the mechanical execution of it. As a result, I was able to monitor the project through all stages and ensure some sense of continuity.
ENDNOTES


8Ibid.


11Ibid.

12Rudin, p. 12.
SELECTED BIBLIOGRAPHY


Appendix 1

Mark and logotype- Developmental sequence of sketches

Identity element in color

Letterhead, envelope and business card

banner
<table>
<thead>
<tr>
<th>Iconic</th>
<th>conservation</th>
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<th>recreation</th>
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Seneca Park Zoo
Appendix 2

Booklet-poster—Six Cold Weather Animals from the North
The Canada Lynx, Japanese Macaque, Polar Bear, Reindeer, Siberian Tiger and Snow Leopard live in the cold, high and treeless mountains around the world. Among them, the Siberian Tiger and the Snow Leopard are in danger of extinction. By educating ourselves and letting our children know about it, we will help in the difficult task of animal conservation.
Canada Lynx
*Lynx canadensis*

Small mammals should watch out for the sly Lynx, an expert hunter, swimmer and tree climber. Most active after dark, the Lynx hunts by sight and smell. It is also useful to farmers because it helps to eliminate rodents. This animal is also a powerful fighter who uses its teeth and claws as weapons. Lynx are very much like the bobcat, a close cousin, but they have more prominent ear tufts and a black tipped tail. They live in Alaska, Canada and North of the United States. Their long, soft fur, especially on their cheeks, protects them from the cold.

Japanese Macaque
*Macaca fuscata*

Japanese Macaques may seem to be hungry all the time, because they often have a habit of cramming food into their cheekpouches. Their main diet consists of all kinds of vegetation: fruits, leaves, etc. and insects. These primates are found in hilly forested areas, but also visit the ocean shores of the Northern Islands of Japan. They like water and seem to enjoy swimming. Their fur is long, silky and thick, making them well-adapted to the cold climate. They usually give birth to one offspring at a time but twins are born occasionally. Japanese Macaques may have an intensely red face and become less friendly as they get older.
It is a well-known Eskimo legend that the Polar Bear has a spirit that is wise and strong. When a hunter killed a Polar Bear, he would honor its spirit by placing its skull on his window. This shows the great respect that Eskimos had for this animal's intelligence. The swimmer of the bear family, Polar bears roam the cold northern land of ice and snow known as the Arctic. Polar Bears travel great distances to hunt seals, their favorite food. Would you believe that these white coated animals cover their prominent black noses with snow while hunting for seals? Their fur coat keeps the cold water away from the bear's skin. The skin, which is black, absorbs heat, while a thick layer of fat under the skin also helps to protect the bear from the cold.
Siberian Tiger
*Panthera tigris altaica*

Centuries ago, the Siberian Tiger was worshipped by many early people as a symbol of power and strength. The Asian people call it the "King of beasts". Despite its reputation, this massive, heavily muscled animal can fail to catch its prey, and may go for several days without eating. Roars of attack can turn into moaning over its failure. This is why they sometimes eat almost any food they can find.

Siberian Tigers are native to the Asiatic highlands, primarily in Russia and Northern China, where temperatures can drop as low as -40°Fahrenheit! This member of the cat family likes water but does not tolerate excessive heat. Its beautiful fur, which gets very heavy in winter, has stripes like shadow marks that serve as effective camouflage. And no two tigers are marked exactly alike.

Today more Siberian tigers live in captivity than in the wild, because thousands of them were hunted or killed over the years for their beautiful coats.
Also known as the caribou, reindeer historically come from Northern Europe and Greenland. Around 1900, they were introduced into Alaska. These shy and curious animals are protected from the cold by a heavy coat of woolly underfur.

One thing that distinguishes the reindeer are antlers, present in both male and female. Made of solid bone, antlers grow from the reindeer's skull, like the branches of a tree. The animals are careful not to knock them against any object because they break or can be easily disfigured.

The purpose of the male reindeer's antlers is to attract the females as a status symbol, and also for protection. Man uses them as remedies to heal the human body and as tools.
The Snow Leopard is considered by many to have the most beautiful fur in the cat family. Even though it belongs to the division of large cats, it cannot roar and shows characteristics of small cats. Inhabiting the high, cold and treeless mountain regions of Central Asia and Siberia, this cat has a coat that gets very thick in the winter and cushioned paws that prevent the animal from sinking into the snow.

An agile and strong climber, the Snow Leopard's diet consists of wild sheep, goats, rodents and birds, among other animals. It is mainly because of its beautiful fur that the Snow Leopard has become an endangered species today. Sport hunting and a reputation as a raider of domestic stock to be shot on sight also caused this cat species to decline.

Preservation and breeding of these species, all of which have a home at the Seneca Park Zoo, is important to them and to the Seneca Zoo Society, their supporting organization. They provide refuge for the animals, especially those in danger of extinction.

Extinction is forever. This booklet intends to create and reinforce this concern to help save our precious wildlife.
Appendix 3

Posters: What is a Bird?

Who are the Most Successful Primates After Man?

Did You Know These Ele-phacts?
What is a bird?

Of all animals, only birds have feathers.

Birds are warm-blooded. Their constant body temperature of 106-114 degrees F is higher than humans' 98.6 degree F temperature.

They have some hollow bones and air sacs to lighten their bodies for flight. The air sacs also serve as a cooling system.

Birds have three eyelids and constantly blink the third lid to keep the eye surface moist.

Birds contribute to the ecological balance of nature such as eating insects and rodents, eating weeds and scattering them to other locations, being food for other animals.
Who are the most successful primates after man?

Second only to man, monkeys are the most successful of primates, because they exist in vast numbers. Some are timid, while others will defy a hungry cheetah and rude it turn somewhere else to look for a meal.

Monkeys are traditionally tropical animals. There are more than 10 genera of monkeys, divided into about 110 species. By contrast, man, though they have spread farther than monkeys across the earth, all belong to one single species.
Did you know these ele-phacts?

An adult elephant in the wild eats about 300 pounds of food a day in the form of grasses, leaves, roots, bark and fruit.

An adult elephant's trunk contains 40,000 muscles and muscles grow to be about 6 feet long and can weigh 300 pounds.

Male African elephants stand about 14 feet tall and weigh 6-7 tons. Females are somewhat shorter and weigh 4-5 tons.

At birth, elephant calves stand 3 feet tall and weigh about 200 pounds.