



# OPERATION SURVIVAL 21

## GLOSSARY OF TERMS:

**Exotic Cats** - All members of the cat family except for the house cat. Exotic cats are usually found living in the wild or in zoos.

**Extinction** - The permanent loss of a species when the last member dies.

**Natural Changes** - Changes in plant life, animal life or the weather that are not caused by human activities.

**Rate of Extinction** - The number of species becoming extinct over a certain period of time, such as a year.

**Species** - A group of living things that can interact to produce offspring like themselves. Tigers do not have lion cubs, and an eagle and owl cannot interact to produce offspring like themselves.

**Unnatural Changes** - Changes in plant life, animal life or the weather that are caused by human activities.



**Powerful, quiet and swift, the tiger is the top predator in his part of the world. But he has less control over his future than you do. If he is to survive, he will have to rely on your good judgment and sense of values as you inherit the world from your parents and pass it on to your children. Will tigers survive the 21st Century? It's up to you.**

tolerance of human neighbors. The bigger the cat is, the bigger its problems are, and some of the largest cats are among the most endangered. "Operation Survival 21" looks at the challenges facing exotic cats, and how those challenges can be overcome by concerned people like you.

**WHAT YOU CAN DO:** Which species will become extinct during your lifetime? Wouldn't you like to think *none* of them will? It is unlikely you can solve the problem by yourself, but you can make a big difference. Learn about the issues facing endangered species and then adopt a lifestyle that values all life on Earth. People like you can make Operation Survival 21 a success, making our world a safe place not just for exotic cats but all living things. The goal of Operation Survival 21 is to make sure all species of exotic cats can survive the 21st century.

**Changing attitudes toward endangered species have come too late for the Caspian Tiger. Sadly, this race of tiger has already become extinct and can only be found in old photographs.**



**EXTINCTION IS FOREVER:** When the last members of a **species** die, that species becomes **extinct**. Dinosaurs became extinct because the world changed too much for them to survive. **Natural changes** have reshaped the Earth many times before, removing some old species and replacing them with new ones. **Unnatural changes** caused by humans have sped up the **rate of extinction** by nearly 1000 times. Each day about 137 different species of animal and plant are lost forever, and these species are not replaced by new ones. We must slow down the rate of extinction if we want tigers and other wonderful animals to go on living in our world. **Exotic cats** run a high risk of becoming extinct because they need to hunt in order to survive. Hunting is a lifestyle that needs lots of natural land, the right kinds of prey animals, and the



# CAT PROFILES



**TIGER - The Striped Magician:** How do you hide a cat that weighs over 600 pounds? The tiger is the world's largest cat, yet he can glide through delicate reeds, rustling leaves, and patchwork shadows, then freeze rock still. Where did he go? That's what the tiger's prey asks themselves. Most of the time the prey wins this game of hide-and-seek but sometimes the tiger wins.



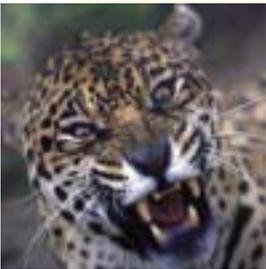
**MARGAY - Cat of the Treetops:** Most cats live on a surface—margays live in a volume. They don't just walk around, they also move up, over, and down with effortless grace. The branches are their highways, and they eat, sleep, hunt, and raise their young in the leafy canopy of the rain forest. Sometimes they nap upside down, hanging by their hind claws. Drinking from the stream they may be timid as a kitten, but back in the tree tops they are bold as a tiger.



**CHEETAH - The Need for Speed:** Leave hiding to the tigers. The cheetah chases his prey with a burst of speed, sometimes reaching 75 miles per hour. Sometimes he overtakes his prey, but if he doesn't he'll be panting for 15 minutes before he dares run again. With a long tail to act as a balance beam, long legs, and a whip-like spine, he's built for speed.



**LION - The Politician of Beasts:** Lions live in groups called prides, the only living species of cat to do so. (Sabretoothed cats probably had prides). One or more males protect the pride and father the cubs. Several females do the hunting and share the task of raising their offspring. Lions have well developed social skills to help them live in close company, and are not just the kings—but the politicians—of beasts.



**LEOPARD - The Vertical Athlete:** The average cat can pull five times per pound what a trained human athlete can. In tug of war, a 600 pound tiger could match 3000 combined pounds of human strength. A leopard can pull seven times per pound what we can, and often displays this power in a heart stopping rush up the side of a tree with a full-grown antelope in his jaws. He hides his prey in the branches where he can eat in peace.



**JAGUAR - Lord of the Amazon:** He looks like a leopard at first, but he is bigger and he lives on the other side of the Atlantic. The jaguar is equally at home on the ground, in the water, or in the trees. The native peoples called him "yaguara," the one who kills with a single jump, but they didn't blindly fear him. To them, the jaguar was the protector of the sun by night and the bringer of good fortune. Kings wore jaguar fur as a symbol of their authority.



**JAGUARONDI - The Weasel Cat:** This little known cat doesn't look like a cat at all. Most sightings of jaguarondis—and there are few—are written off as weasels or otters. Their long, slim body and short legs, dark grayish or brown coat, and unusual face add to the illusion. Like otters, they also spend an unusual amount of time in the water. They hunt mainly birds and small mammals, though they have been known to catch young deer.



**COUGAR - Cat of Many Names:** Call them pumas, mountain lions, painters, American lions, or just cougars. Whatever you call them, the dust-colored cats of North America are versatile hunters, chasing rabbits or jumping out of snow-covered trees on elk and deer. Like African lions, mountain lions are born spotted and get their solid coat as they mature. Sometimes cougars utter a piercing cry in the night that sounds like a woman's scream.



**IRIOMOTE CAT - The Island Ghost:** Lions may seem to pose for the camera. The Iriomote Cat looks up at the least disturbance. His drab gray and brown fur is hard to spot at the best of times, but he makes a quick, silent exit into the brush of the small Japanese island he calls home, and there he seems to vanish like a ghost. It wasn't till 1965 that he was discovered by man, and he's given up few of his secrets since.



**SNOW LEOPARD - The Icy Hunter:** The steep, frigid slopes of the Himalayas welcome only the hardest creatures. Snow leopards walk treacherous mountain trails with confidence, protected from the cold by a luxurious coat. When the blizzards come and the sky and ground blend into one white blur, he curls up and puts his long, thickly furred tail around his face like a muff. He can sleep through a storm that would freeze a man's blood.



# CONFLICTS WITH MAN

## GLOSSARY OF TERMS:

**Aggressive Attack** - An attack resulting from making an animal angry.

**Animal Husbandry** - The techniques used by man to raise, protect, and harvest animals.

**Bounty** - A payment made to someone for killing animals of a certain kind.

**Conflict** - A situation where two opponents want something, and they can't both have what they want.

**Control** - Keeping the population of a species down to a certain level.

**Reparations** - Payments made to someone for animals they own which are killed by predators. Sometimes called "damages."

**Defensive Attack** - An attack resulting from making an animal afraid for its own safety or the safety of its companions.

**Extermination** - The complete removal of a species from an area.

**Mauling** - An attack resulting in serious injuries. A victim of a mauling is said to be *mauled*.

**Predatory Attack** - An attack by a predator against a prey animal to secure a source of food.

**Predators** - Animals that eat other animals to survive. Hawks, leopards, and sharks are examples of predators.

**Prey** - Animals eaten by predators. Deer, crows, and salmon are examples of prey.

**Scavenger** - An animal that eats the meat of animals it did not kill itself. Hyenas, jackals and vultures are three well known scavengers.

**Selective Control** - The removal of animals coming into direct conflict with man by capturing or killing them.



**These days the cougar finds less and less natural prey and is confronted with more and more livestock.**

in predation to a degree, but do not rely on it. All wild cats rely on meat for their diet, even though they may eat small amounts of grass and other plants. Conflict happens when man's livestock is killed by predators. This type of conflict happens more often when natural prey becomes scarce.

## (2.3) ATTACKS:

There are several predators easily capable of overpowering an unarmed human. To some degree the potential of harm adds to the thrill of spotting a tiger, lion, or grizzly bear in the wild. It is an experience that reminds us of a vanished age when the noises of the night signaled real danger. There are three basic types of attack: aggressive, defensive, and predatory. **Aggressive attacks** happen when animals are made angry. When disturbed, harassed or teased, a predator may lash out. **Defensive attacks** happen when animals are afraid for themselves or their young. A mother tigress or bear will take fewer chances with her offspring than she might take with her own safety. **Predatory attacks** happen when humans are seen as food. It was once believed that only old, sick, or injured predators that could not find their regular prey would turn to man-eating. It was also believed until recently that humans did not taste as well as regular prey. Man-eating may happen for a number of reasons, although whatever the reason, it is not common.

## (2.4) MAN'S RESPONSE:

Historically there have been three periods in man's relationship with predators. At first, predators dominated the world, and man was in a defensive position. Predators were almost universally respected and because of their strength and similarities to

## (2.1) INTRODUCTION:

**Predators** often come into **conflict** with man. This is because they hunt other animals as **prey**, and because they are potentially dangerous. The way these conflicts have been handled has changed over time as our knowledge and attitudes have matured. However there is plenty of room—and an urgent need—for more change in our relationship with predators if they are to survive.

## (2.2) PREDATION:

Predators are animals that take the life of other animals so that they and their offspring can survive. Humans engage



Man can live in harmony with nature with a little caution and a lot of respect. These hikers travel together for safety.

ancient human lifestyle, they were often appeased rather than hunted. The development of guns opened a second, bloody period in our relationship with predators, in which the goal was more often **extermination** than **control**. The old respect was tainted with—or replaced by—contempt. Predators were often seen as murderers of other animals, inherently fierce and bloodthirsty. **Bounties** were often placed on predators to encourage people to kill them for money. The third period was started not by a new invention but by a shift in attitudes, the belief that all forms of life have a right to exist and should be treated as fellow travelers rather than rivals. The attitude has not yet spread everywhere or equally affected our relationship with all species, but it is growing and having a significant impact on our culture.

### (2.5) SEPARATION AND CONFLICT:

Large predators prefer not to enter cities and suburbs, and that separation has reduced the number of fatal conflicts. However that very separation has pressured many people to travel to wilderness areas in search of a primitive experience. Also many people taking advantage of affordable transportation escape urban pressures by building homes in traditionally wild areas. This increases the risk of conflict. Often **mauling** incidents happen during hiking or hunting trips, or occur with people living close to wilderness

areas. The risk can be reduced by proper training, safety rules, and increased awareness of one's surroundings.

### (2.6) GOOD HUSBANDRY:

**Animal Husbandry** is a term for all the things people do that affect livestock from the way they are bred, to the way they are protected, transported, and harvested. A variety of different animal husbandry practices have been used over the centuries to protect livestock from predators. Some of these ways have been more effective than others, and some of these ways have been more wantonly destructive of wildlife than others. Poisoned meat not only killed predators but the animals that ate their bodies and innocent **scavengers**. Bounties encouraged people to kill as many members of a species as possible, whether the individual predators actually hunted livestock or not. These methods are not selective—a term that means killing only the animals that come directly into conflict. Better animal husbandry practices have been discovered that can reduce conflict while minimizing impact on the environment and sparing non-offending predators from a death sentence. In addition, rather than paying bounties for dead predators, some local governments pay ranchers **reparations** for their livestock losses.

### (2.7) GOOD NEIGHBORS:

Finally, we as humans must understand that all wildlife needs a place to live. We must balance our needs to enjoy nature with the needs of animals to live and raise families unmolested. Man can live in harmony with nature with a little caution and a lot of respect. Achieving that workable balance is not easy but it becomes more important each year as the threat of extinction looms over some of the world's most fascinating animals. Learn how to be a good neighbor with nature.



## GLOSSARY OF TERMS:

**Barren** - Land that is unsuitable for most human or animal use.

**Extinction** - The permanent loss of a species when the last member dies.

**Fossil Fuels** - Substances such as oil, coal, and natural gas that are formed underground by the slow breakdown of organic matter.

**Habitat** - The part of an environment that supplies the needs of a particular species. Beetles living under a rotting log, hawks living in trees, and deer living in open grasslands may all share a woodland ecosystem but have separate habitats. A habitat is sometimes called a "niche."

**Habitat Loss** - What happens when an area no longer meets the needs of a particular species. Also what is said to happen to an area that is no longer able to support its original community of species.

**Reclaimed** - Returning land that was damaged to its natural state so that it once again becomes a suitable habitat.

**Short Term Management** - The use of land in a way that removes its resources and leaves it useless.

**Sustainable Management** - The use of land in a way that can continue indefinitely.

**Urban Sprawl** - The result of uncontrolled expansion of cities and communities.



**If some thought is not put into the way we construct and manage our human habitat, we may destroy our world.**

trouble for others.

### (3.2) THE SILENT KILLER:

The forest of summer was full of life. Birds sang in the leaf decked boughs of oak and ash, and squirrels hurried by on endless errands. Quail and rabbits clung to the hedgerow that ran along a long forgotten fence, vigilant against the foraging foxes and their hungry new family. None of them paid much heed to the fresh sign tacked on a fencepost. "Private Property: Horizon Development." The next summer was scored by unsightly muddy roads, marred by gravel piles, and scented with a faint trace of diesel fuel. And before much longer where foxes hunted rabbits and otters played in the stream had become a community of houses, each like the other. What few trees grew there were brought in by landscapers, relying on stakes and wires to stand against the unchecked wind. No one trapped the foxes or shot the rabbits. No one drove the otters from the stream which still ran through large gray concrete fixtures. One day they were there, and the next they were gone never to return. Habitat loss is the silent killer.

### (3.3) HABITAT LOSS IS A BIG PROBLEM:

Every second an area the size of two football fields ceases to become natural habitat. In a day that adds up to an area larger than New York City. This results in an average of 137 species of living things being driven into extinction every day. There are several causes of habitat loss.

### (3.4) URBAN SPRAWL:

Humans are a part of nature. We have a right to a suitable habitat where we can live and work. Yet if some thought is not put into the way we construct and manage our habitat, we will destroy our world and perhaps ourselves. **Urban sprawl** is the

### (3.1) INTRODUCTION:

Where do tigers live? In a zoo? In the forests of Asia? All tigers live in a **habitat**. The jungles of India and the compound at the local zoo are both tiger habitats—places with the right conditions for tigers to live. **Habitat loss** is what happens when an area becomes unsuitable for a species to live. Your back yard may no longer be habitat for cougars and wolves, yet still be habitat for squirrels and robins as it has been for centuries. Because species depend on each other to survive, habitat loss for one species can mean

uncontrolled expansion of cities and communities that happens when growth is not planned.

### **(3.5) SHORT TERM MANAGEMENT:**

This category is a “catch all” for a number of human activities that extract some resources and then abandon lands that are left unsuitable for other uses. When wildlife habitat is mined for minerals and **fossil fuels** and not properly **reclaimed**, it becomes **barren**. When forests are cut and new trees are not planted, or jungles are burned, cropped, and abandoned, they become barren. Careful choice of land and appropriate sustainable management techniques can produce more timber and crops, and do so year after year, than **short term management**. If our world is to survive, it will be due to **sustainable management**.

### **(3.6) A WORTHWHILE GOAL:**

If we learn to live within our means, we can provide a good living for mankind while preserving the wild places of the Earth for future generations. This may involve making some tough choices, but the end result is well worth the price. Some of the ways you can help preserve wild habitat might not be obvious. Using your community recycling programs reduces the need to obtain materials from the wild and reduces the burden at already-overcrowded landfills. Using caution with fire prevents the tragic loss of habitat and perhaps life. Proper disposal of litter, pesticides, batteries and used oil prevents contamination of the environment. Local “cleanup days” for rivers, creeks and parks can always use willing hands. You can even create instant habitat in your back yard for migratory birds by putting up bird feeders and bird houses. In return, you get to enjoy their colorful presence and possibly a drop in insect pests such as mosquitoes. Find out what other ways you may be able to help prevent habitat loss in your neighborhood. With a little help from anyone, the world can become a better place for everyone.



The bobcats, lynx and cougars that used to hunt here to support their families will have to go elsewhere. A moment of carelessness with a campfire can take years to repair. It is better to be careful now than sorry later.



Land is being replanted with trees and will soon be a restored habitat for wildlife. Reclamation can't return an area to virgin wilderness, but it can turn barren land back into productive habitat. More enlightened forestry techniques emphasize the replanting of trees for “sustainable yield” so that the same area continues to produce new timber for man's use while providing food and cover for wildlife as it grows. This allows virgin wilderness to remain untouched for future generations to enjoy while providing the products man needs to construct a suitable human habitat.

# GENETIC DIVERSITY

## GLOSSARY OF TERMS:

**Captive Management** - The keeping of animals in a manmade environment where decisions on how they live are made by man. Squirrels in your back yard are in a manmade environment but are not captive managed.

**Dispersal** - The movement of offspring to new homes once they become mature.

**DNA** - Molecules made only in living things that store genes. They work like your computer's hard disk.

**Dominant** - A trait that is "expressed." One that "wins" over a recessive trait in determining how the offspring will develop.

**Expression** - When a trait has an effect on how the offspring forms, it is said to be expressed.

**Genetic Diversity** - The amount of inherited differences there are in a group of related individuals.

**Endangered Species** - Species in immediate danger of extinction.

**Inbreeding** - When closely related animals have offspring together. The offspring are usually not healthy.

**Recessive** - A trait that is not "expressed" in the presence of a dominant trait and only determines how the offspring will develop if it is paired with another recessive trait.

**Species** - A group of living things that can interact to produce offspring like themselves. Tigers do not have lion cubs, and an eagle and owl cannot produce offspring like themselves.

**Threatened Species** - Those species whose populations are falling and need to be watched.

**Trait** - The smallest difference in a living thing that can be inherited. Eye color is a trait, but height is a complex thing affected by several different traits and the living thing's environment.



The cheetah is the poster child for poor genetic diversity. All cheetahs are very closely related.

## (4.1) INTRODUCTION:

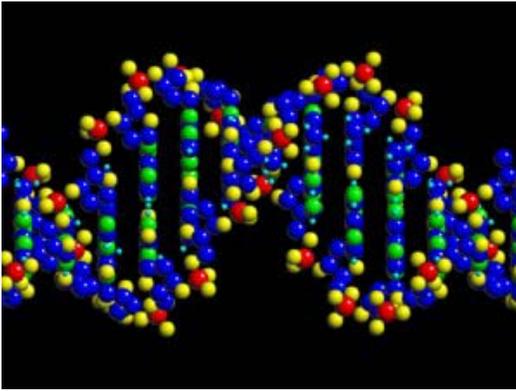
**Genetic diversity** is a measure of how different a group of living things are. It can refer to how different the puppies in the same litter are, or how different all the world's lions are. The science behind genetic diversity is complex, but the basic ideas are simple. Knowing something about genetic diversity will help you understand how important it is.

## (4.2) TRAITS:

Imagine that a tiger and tigress meet in the jungle to play with a game with collector's cards. The tiger puts a card down with a **trait** on it..."Fur Color." The tigress has to put down a card with the same trait. The difference is, the male's card was for orange fur and was marked "D" for **Dominant**. The female's card was for white fur and was marked "R" for **Recessive**. A dominant trait card takes a recessive trait card so the tiger scores that point. In genetics, the trait that "scores" is said to be **expressed**. The outcome of dominant orange fur against recessive white fur would be orange (not some sort of whitish orange—winner takes all). Traits are the smallest details in the instructions to build an animal or plant. How tall you are or how smart you are depends on many different things, including the way you are raised, so those are not really traits. Your eye color, skin color and any allergies you may have are traits. The tiger and tigress put down pair after pair of traits, covering every detail from nose to tail tip until they go through the whole deck. If this were a real card game it would take a very long time to play. There are nearly 30,000 distinct traits, quite a hard deck to shuffle!

## (4.3) NEW COMBINATIONS:

The game looks pointless because the tiger and tigress don't keep the cards they won. They both put their winnings in the same pile, which ends up with two cards for every trait. This stack of cards becomes their offspring, whose appearance will depend on which card of each trait is the dominant one. In fact, the tiger and tigress also started out that way, so their deck also has two cards for each trait. When they play a hand, they have to choose one of each trait pair at random to put down. And since there are tens of thousands of different traits in the deck, the chance that any tiger and tigress could pick the exact same choices twice is nearly impossible. Though this cub will be similar enough to its parents that it will definitely be a tiger—specifically a Bengal tiger—it will also be different from all other tigers in the world. But just how different is what genetic diversity is all about. Good genetic diversity is the key to survival.



Most people think of DNA as a crime-solving tool, but it is the medium that stores traits.

#### (4.4) INBREEDING:

Under normal circumstances, when a tiger cub gets to be an adult, he or she wanders far away from home and makes a new life somewhere else. That keeps the game fresh and the tigers genetically diverse. **Inbreeding** occurs when **dispersal** is not possible, and closely related tigers have offspring. For trait after trait, it becomes more likely that neither parent will play a dominant card. Recessive cards from both parents match up more frequently, and rarely seen traits—some of them very unhealthy—become common. Many inbred cubs die before they are born, and those who live may be weak or ill. The problem is so serious that a zoo in Kansas may send their tiger to California and their tigress to Florida to find mates rather than let them breed with each other. If a large number of tigers is broken into small groups, or the total number of tigers goes down, inbreeding happens more

often. Both problems are happening now to tigers and many other endangered species.

#### (4.5) THE ONE STRIKE RULE:

If genetic diversity drops dangerously low, all members of the same species are prone to the same health problems. One disease could wipe out most—or all—of the **species**. It has happened before and it can happen again.

#### (4.6) DEGREES OF DANGER:

People are used to hearing the term “endangered species” used a lot, sometimes incorrectly. There are actually two different degrees of concern for species. **Threatened species** are those whose populations are falling steadily and need to be watched closely. **Endangered species** are those in immediate danger of becoming extinct. Sometimes the terms refer to how the species is doing in a certain place. The gray wolf is threatened in Minnesota but endangered in Wyoming. Black Footed Ferrets are endangered everywhere.

#### (4.7) HOW TO HELP:

New traits appear at a very slow rate. For all practical purposes the traits that exist today are all we have to work with if we are to preserve genetic diversity. Protecting tigers and their habitat, reducing barriers to dispersal that cut habitat into small segments (roads, fields, fences), and careful management of captive animals can all help preserve genetic diversity.



For some animals that are at extreme risk, **captive management** may be their best—or only—hope of survival. That makes learning the needs of captive endangered animals a high priority for researchers. Cheetahs, for instance, do not breed well in captivity. Certain conditions must be met beyond food and shelter for cheetahs to form a self-sustaining population. Making a life for these animals—one that both safe and truly worth living—is a difficult challenge but one we must meet.

Forestalling extinction is a lot more complicated than saving one male and one female of every species. This sign in the Potter Park Zoo announces their participation in the AZA's Species Survival Plan (SSP) for several endangered animals. That does not mean we can stop worrying about genetic diversity, since the SSP is only a treatment, not a full cure.



## GLOSSARY OF TERMS:

**Agriculture** - Activities that harness the energy of the sun for man's use through the growing of plants or the raising of animals.

**Ecosystem** - A self-sustaining community of living things. A forest or large lake can host an ecosystem. Urban areas and agricultural areas are not ecosystems. They will change into something else if left alone.

**Environment** - All of the conditions that affect living things in an area. The Serengeti Plains is a jackal's environment. Your home town is your environment.

**Extinction** - The permanent loss of a species.

**Habitat** - The part of an environment that supplies the needs of a particular species. Beetles living under a rotting log, hawks living in trees, and deer living in open grasslands may all share an environment but have separate habitats.

**Predators** - Animals that eat other animals in order to survive.

**Prey** - Animals which are eaten by predators. Deer and salmon are examples of prey.

**Species** - A group of living things that can interact to produce offspring like themselves.

**Species Diversity** - The number of different species living in a certain place. This does not refer to the number of individuals of a species. Two thousand cattle in a pasture may show very low species diversity. Two cows, two sheep, and two goats in the same pasture triple its species diversity.

**Tasmanian Wolf** - A large, striped predator from Australia that is not related to a real wolf.

**Urban Area** - A place developed for humans to live or work. The changes are usually great enough that many species once found in the area can no longer live there.



Several subspecies of lions and tigers have become extinct within written history. Unless we take immediate and effective measures to prevent it, it will be only a matter of time till entire species begin to disappear.

## (5.1) INTRODUCTION:

**Extinction** is the permanent loss of a species. It has happened often throughout the history of life on Earth as new **species** out compete older ones and as **environmental** changes rewrite the rules of survival. Many interesting species, such as Tyrannosaurus rex, have gone extinct and we might regret only knowing them by their fossil records. Yet the truly regrettable extinctions are those which are not part of natural order. The passenger pigeon and Tasmanian tiger did not give up their place for better species. They were driven out by **habitat** destruction and man's uncontrolled use or abuse.

## (5.2) NATURAL SELECTION AND EXTINCTION:

A special relationship exists among the "three p's," **predators, prey,** and plants. A sudden change in one of these things affects the other two. The emergence of a faster prey species reduces the success rates of predators. Fewer predators survive, the population of prey increases, and the supply of plants decreases. Into this situation, the emergence of a faster predator is welcomed by an abundant supply of prey and the natural order is quickly restored. There are a certain number of jobs in a given **ecosystem**. The arrival of better equipped species usually results in another species becoming extinct.

## (5.3) ENVIRONMENT AND EXTINCTION:

Changes in temperature or rainfall may turn jungles into open grasslands or deserts into swamps. Some animals are more open to change than others. One type of bat found in Africa only gets its food from one particular species of flower. If conditions were too poor for that flower to exist, the bat would die. Coyotes use a large number of food sources. They are less likely to suffer from the loss of a single prey species.

## (5.4) UNNATURAL EXTINCTION:

This is the type of extinction you frequently hear about in the news. Unnatural extinction is not part of a process of gradual improvement. It is the result of habitat destruction and mankind's misguided attempts to use or exterminate other species. The rate of

extinction is now 1000 times faster than it used to be, but the emergence of new species goes on at the same rate. This causes an imbalance resulting in a reduction of the total number of species, something we call a lack of **species diversity**. An ecosystem that lacks species diversity is less able to handle changes. A large number of jobs are being performed by a few species, and a single natural disaster could crash the entire order.

#### **(5.5) WHY MAN CAUSES EXTINCTION:**

Some animals are harvested for their fur, feathers, or other parts. Other animals are killed because they conflict with human uses of land. Yet a large number of species disappear simply because their homes disappear as land is changed from its natural state for urban and **agricultural** use. Unless man balances his own need with the needs of other species, the rate of extinction will continue to rise.

#### **(5.6) UNNATURAL EXTINCTION CAN BE STOPPED:**

It is not beyond our power to stop the dramatic loss of species, but it will take some work and a change in our attitude toward nature. When the welfare of other species is important to us, slowing the extinction rate will be mostly common sense. Wildlife and habitat values will become part of our decision making and turn human “progress” into the good thing it was meant to be rather than just another term for “exploitation.” It is a matter of changing our lifestyle to make room for all living things.

#### **(5.7) WHY WE MUST STOP UNNATURAL EXTINCTION:**

There are many of reasons why. You may not agree with all of them, but there are enough reasons to convince anyone who is willing to take the problem seriously. First there is the moral reason—that destroying a species for man’s pleasure or convenience breaks rules that we are meant to follow. Then there is the practical reason—that an entire world whose species diversity is as poor as it is in your back yard cannot sustain life as we know it. Without the contributions to our global environment made by truly wild areas, our **urban** and agricultural areas cannot sustain the demands we place on our limited planet. Some people may argue that this is not so, but there is only one way to find out. By the time you could prove the planet is dying, it would be too late to save it. And if it were possible to live in a world without tigers, without rainforests, without lions and giraffes and pronghorns, we must confront the last reason: would you be happy there? Would your children be content with movies of lions and photos of antelopes?

#### **(5.8) CAN WE UNDO THE EFFECTS OF EXTINCTION?**

No. Currently there are scientists trying to bring back the **Tasmanian Wolf** from samples of its DNA. Even if they succeed, there will be no parents to pass on skills to these offspring, so bringing back living animals will not completely repay the loss of a species. It is wrong to think technology by itself can bring back what we have lost. The only rational course of action is to change our behavior and shift our priorities. We spend millions of dollars each year trying to find other life in the universe. Meanwhile every year sees the disappearance of several species, some of which we never knew existed. Learn what you can do to bring about change and take care of your world. Explore the great universe that is Planet Earth and protect its wonders for future generations to enjoy.

The **Sabretoothed Cat** (*Smilodon fatalis*) is more commonly known as the “Sabretooth Tiger” though it is less closely related to the Tiger than the African Leopard. Sabretooths died out at the end of the last ice age, almost within our modern period. Their striking set of canine teeth makes them the most easily recognized extinct species of cat.





# YOUR MISSION



**This is a Flat Headed Cat. There are many exotic species out there, and all have the same desire to succeed that you have. What a shame it would be to lose something and not even know it existed.**

## **(6.1) A CALL TO ACTION:**

Now that you've been briefed on Survival 21, you're being sent into battle. This is not a battle between people, but a battle within people pitting short term gain against long term stewardship, convenience against compassion. Here are some winning strategies:

## **(6.2) EDUCATION:**

We appreciate what we understand, and save what we appreciate. Education makes people aware of how beautiful and diverse nature is. Education makes the challenges facing endangered species widely known. Learn more about endangered species and pass this information on to others. Consider using the plight of endangered species, or a favorite endangered animal, as the subject of a class paper or report. Identify a favorite animal and read books on their habits. Create a website, or add information to your website about your favorite species.

## **(6.3) ASSISTANCE:**

Look for ways to help organizations that believe the way you do. Many can be found on the web if you search for "Animal Welfare" or "Endangered Species." Our own website is [www.tigertouch.org](http://www.tigertouch.org). Encourage people in your class to do a project to raise money for a charity you believe in. Wash cars, collect cans, or see if your class can sponsor or "adopt" an animal in a sanctuary.

## **(6.4) ADVOCACY:**

Write letters to your senators and congressmen. Write people in decision making positions and express your view that wildlife is important to you. And when you get the opportunity to vote, find out what the candidates think about wildlife and endangered species.

## **(6.5) SUMMARY:**

In this day of rapid extinction, the most dangerous thing you can possibly do is "nothing." It sends a message to other people that wildlife and habitat are not important. Arm yourself with knowledge and settle for nothing less than "Survival 21" for the Earth's special treasures.