



NEWSLETTER

SPECIAL EDITIONONCILLAS, ONCILLAS, ETC.

LONG ISLAND OCELOT CLUB
1454 Fleetwood Dr.E.
Mobile, Al. 36605

Volume 25 - Number 5
September-October 1981

LONG ISLAND OCELOT CLUB



PATRICIA NELL WARREN



Published bi-monthly by the LONG ISLAND OCELOT CLUB
1454 Fleetwood Dr. E., Mobile, Ala. 36605. The Long
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Fl. 33325, (305) 472-7276
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36605 (205) 478-8962 (Emergencies - days
(205) 433-5418)

STAFF

EDITOR: Shirley Treanor, 1454 Fleetwood Dr.E.,
Mobile, Al. 36605
MEMBERSHIP SECRETARY: Barbara Wilton, 7800 S.E.
Luther Rd., Portland, Ore 97206 (503) 774-1657
REGISTRAR: Rebecca Morgan, P.O.Box 144, Carrollton,
TX 75006 (214) 241-6440

BRANCH REPRESENTATIVES

FLORIDA: Danny Treanor, 5151 Glasgow, Orlando, Fl.
32805 (305) 351-3058
SOUTHERN CALIFORNIA: Pat Quillen, P.O.Box 7535, San
Diego, CA 92107 (714) 224-4261
OREGON EDUCATIONAL EXOTIC FELINE CLUB: Herb Wilton,
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EXOTICS UNLTD: 3033 Harding Ave., Santa Clara, CA 95051
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Help Wanted

REPORTERS

The Long Island Ocelot Club urgently needs
material for its Newsletter publication. We
can only share those experiences, funny, happy,
sad or tragic, which are sent to us. This
sharing is a part of the enjoyment of owning
an exotic.

WRITING EXPERIENCE: None whatsoever

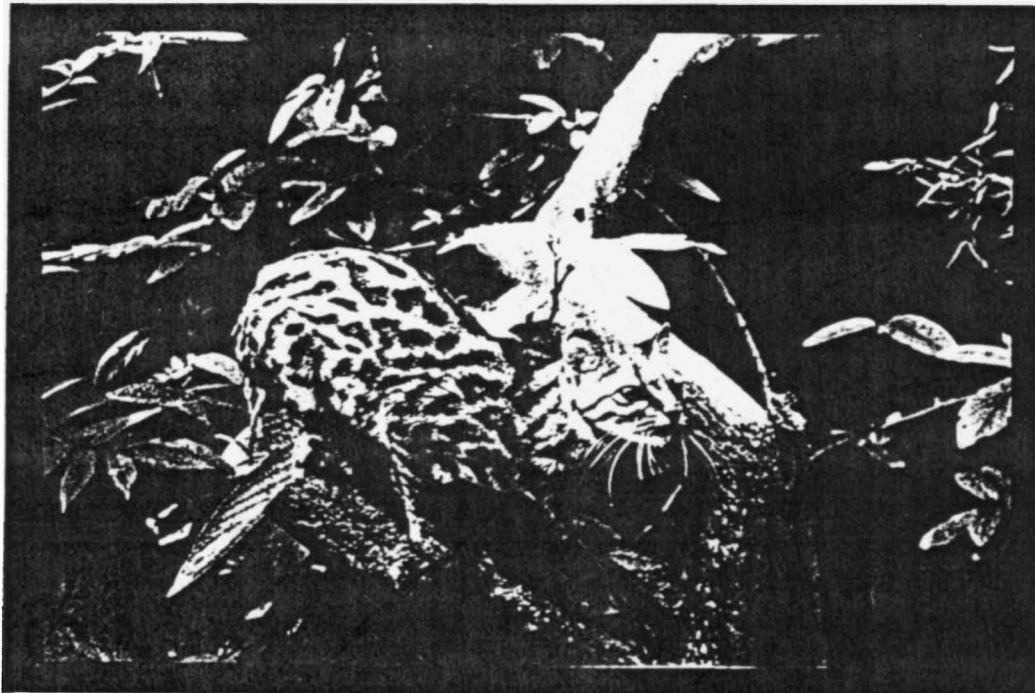
PREREQUISITES: Love of exotic cats

TYPE OF MATERIAL Articles of happy and
sad experiences;
technical articles; opinions of any and all
exotic cat related subjects (including LIOC)
all short and long items - also day to day
experiences; announcements of: adoptions,
pregnancies, births, deaths (with autopsy
report if one was done) all subjects of
interest; all questions - give other members
a chance to help.

SALARY: The love and gratitude of all exotics,
their owners: and the Newsletter Editor.

STARTING TIME: IMMEDIATELY!! The Newsletter
is waiting on You.

A CAT AND A FOREST



The Oncilla (*Leopardus tigrinus*) in the Rain Forest of Central and South America

By
Patricia Nell Warren

◀ *Overleaf: Arrowhead markings, with points facing the tail, are very typical of the leopard cat (*Prionailurus bengalensis*) of Southeast Asia. Here, however, arrowheads are an unusual pattern for an oncilla. The cat is Stubby, an oncilla bred in Germany by wildcat authority Heidi Fahrenholz.*
(Fahrenholz Photo)

Millions of years ago, a geographic event gently shook the earth, and helped give birth to a little wildcat.

Fiery stresses in the earth's crust slowly broke apart a vast continental mass. Two big chunks of land were left isolated between widening oceans. The northern chunk, later to be known as North America, was connected to another continent, Eurasia, by a land bridge. It was also connected to the southern chunk, South America, by another land bridge.

As life evolved on the new Americas, animals occasionally drifted back and forth across the land bridges. For instance, early horses appeared in North America, and wandered over the Bering land bridge into Eurasia, where they were domesticated by man. Meanwhile, the felines may have moved in the opposite direction, from Eurasia to North America, then drifted along the Central American land bridge into South America.

But in South America itself, the plants and animals that appeared there followed their own lonely road of evolution.

Thousands more species of birds appeared there than anywhere else in the world. In fact, fully one fourth of the known animals in South America would be birds. Insects, bats and rodents also proliferated. Monkeys evolved differently there than they did elsewhere.

Even plants multiplied madly there. South American orchids alone number over 15,000 known species. A little plot of rain forest might yield nearly 300 species of trees, compared to the scanty two dozen species that might be found in the richest acres of Appalachian woods in North America.

This spawning of species was possibly helped along by the climate of the tropical rain forest that lay across much of South and Central America. Unlike the temperate zone, this area was never covered by glaciers. Humid, fertile, with up to 400 inches of rainfall a year and little temperature variation year round, the forest was like a vast greenhouse where nature worked on daring new genetic experiments. Butterflies, snakes, rodents, sloths and ant-eaters grew to a giant size, straight out of science fiction.

The felines, along with all other carnivores, apparently trace back to a type of tiny meat-eater called a miacid. Sometime in the prehistoric era, a few million years ago, while a variety of cats were evolving elsewhere in the world, a distinct group of small cats appeared in South America.

Exactly when, where, how and why they appeared is still a mystery. Perhaps they developed from an early branch of felines that just happened to exist in South America when that chunk of continent was set adrift. Or perhaps this cat family is the mutant result of some shattering prehistoric trauma — say, a blast of cosmic rays from outer space. Or perhaps it is the result of simple evolutionary change.

At any rate, two of their smaller chromosomes fused into one. This aberrant cat

family now has only 18 pairs of chromosomes, while other cats on earth have a count of 19.

Despite the loss of an autosome, however, there was no actual loss of genetic material. These animals were true felines. They specialized into at least five species, and dozens of subspecies.

The biggest member of the family was the 30-to-45 pound ocelot (*Leopardus pardalis*). Next in size was the 15-to-20 pound margay (*L. wiedii*), and perhaps also the still-unstudied Andean mountain cat (*Oreailurus jacobita*). The next to smallest were the 6-to-12-pound Geoffroy's cat (*L. geoffroyi*), and the pampas cat (*Lynxchaillus colocolo*). Smallest of all, weighing in at between 4 and 8 pounds, were the kodkod (*L. guigna*) and the oncilla (*L. tigrinus*).

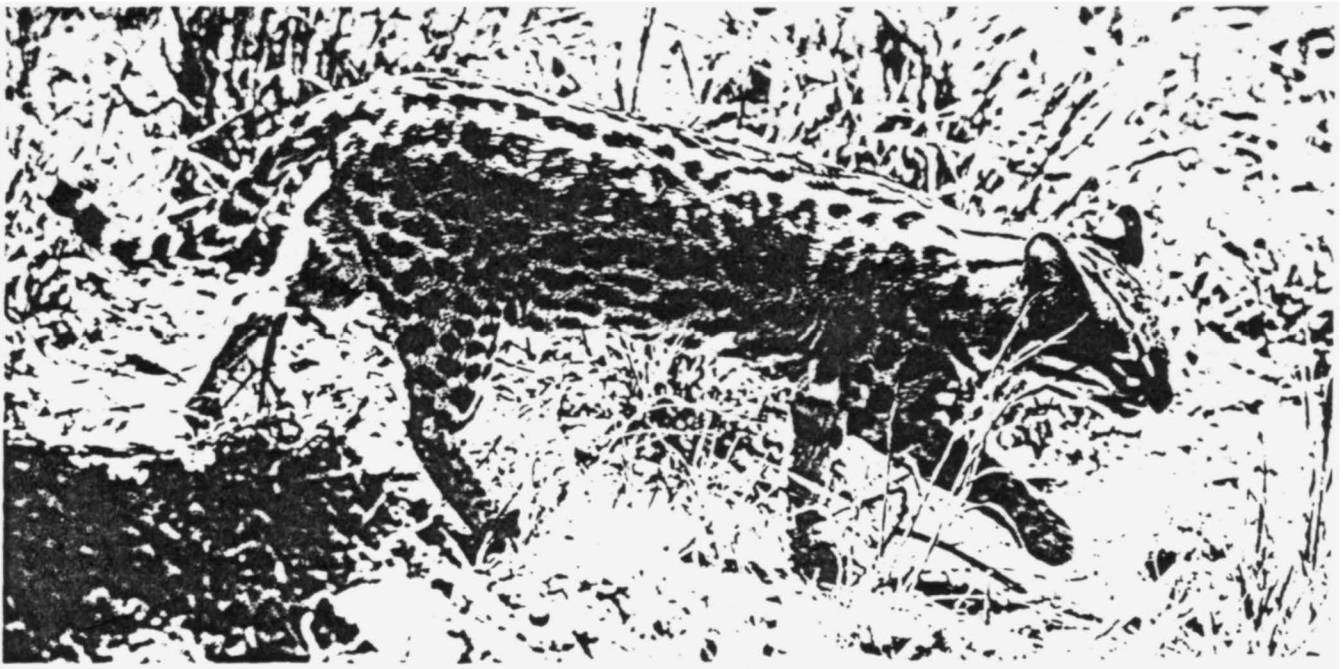
The 18-chromosome cats may have evolved originally in the equatorial rain forest. According to Paul Leyhausen, an authority on these cats, many have a peculiar behavioural trait that sets them apart from other cats on earth. They never bury their scats, and they bolt away from their toilet area right afterward, suggesting that they developed in an environment where there was little open space. To us, watching a domestic cat build a veritable Great Pyramid in his litter pan, this toilet trait is amazing indeed. But it is even more amazing that the big 19-chromosome wildcats, like the jaguar and lion, apparently share this sanitary construction habit with our little house-pets.

If the 18-chromosome cats did evolve in the rain forest, some of them were adaptable enough to move out of it. For instance, the tough ocelot filtered north along the Central American land bridge, into Mexico and the deserts of the American Southwest. The margay also drifted north into Texas, though this tree-loving cat was always apparently rare there.

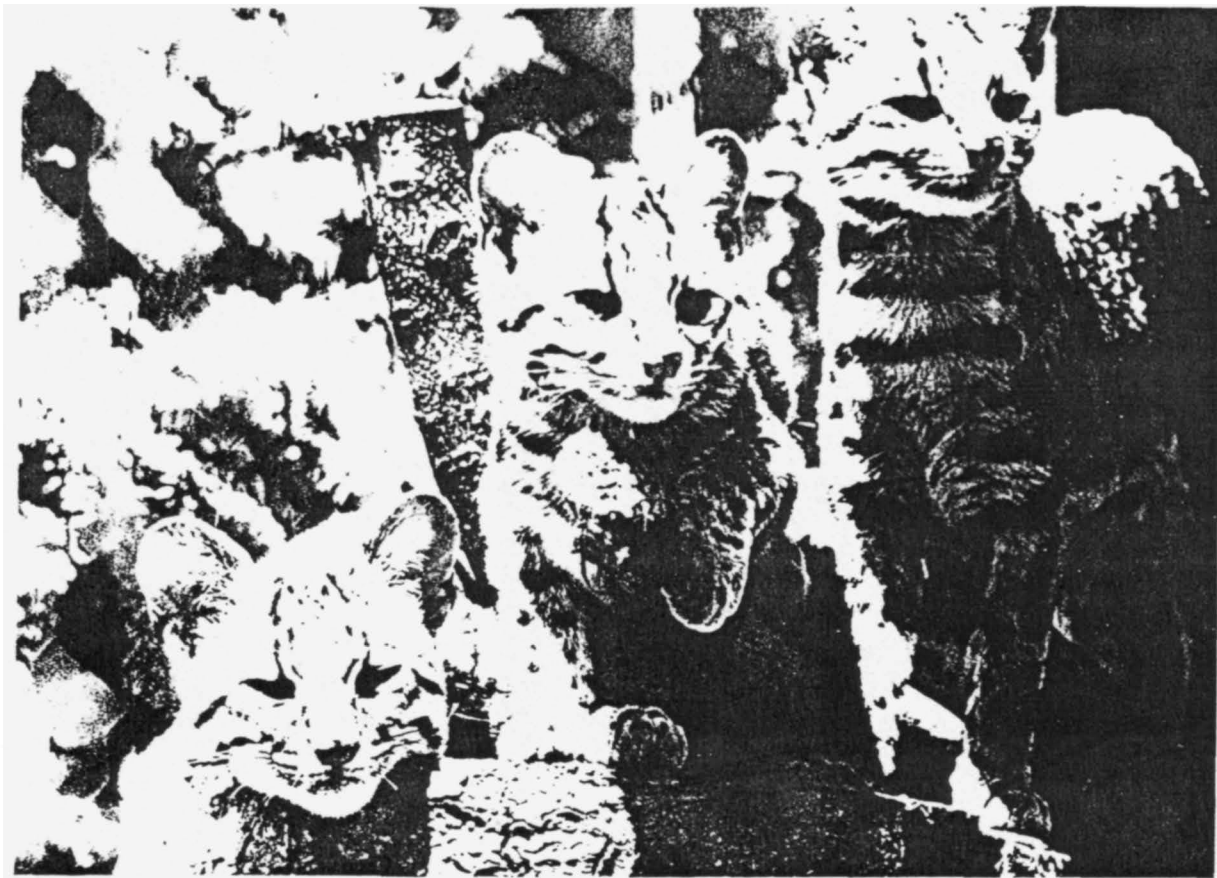
By contrast, the tough Geoffroy's cat may have forged south, into the swamps and salt flats and the rolling bush of the Gran Chaco, and the cold deserts and prairies of Patagonia. There, it became mainly a terrestrial cat. The little kodkod is found mainly in the mountain lake area of central and southern Chile, and some reports indicate that it too spends a lot of time in trees. Yet the pampas cat loves the vast treeless grasslands that are its namesake, and is now terrestrial.

But the oncilla stayed in the timeless world of the great equatorial forest, where it may have been born. As far as I know, no oncillas have been recorded at any significant distance from this habitat.

Later, scientists would have a hard time explaining the existence of the oncilla and its aberrant relatives. Students of human paleontology had a similar puzzle with Neanderthal man, who seemed at first to be an aberrant offshoot of *Homo sapiens*. But today, as more Neanderthal remains are found and examined, the experts have begun to feel that the Neanderthals were not all that different from the mainstream of evolving humans.



Reg Riedel's wild-born male, Rio, at age 3. This beautiful oncilla is big — 8 pounds. He has the plushy coat of an oncilla that might live at a higher elevation. His coat is marked with the most classic oncilla pattern — oval black rosettes with red centers. Note the white ear spots, as well as the distinctive black spot on the scrotum.



These three young ocellas, drowsing in the sun in Reg Riedel's compound in Las Vegas, may have been the largest ocella litter ever to be born in captivity. Captive ocella litters usually number one or two kittens.

Today, the ocella and its relatives still stand as something like the Neanderthals of the cat world — remarkably similar to other felines, yet different enough to fuel controversy.

The glaciation of North America, and the resultant cold climate of much of Central America, made the equatorial belt into what is possibly the cradle of human civilization in that part of the world. Archeologists are only now beginning to explore the rich Stone Age sites in the great forest. They find artifacts showing that cat cults existed in the earliest times.

As the early Indians spread over the South American continent, they drew the larger 18-chromosome cats into their pantheon of gods and spirits. Some ancient Peruvian textiles are decorated by spotted cats with very long tails — possibly margays. Pre-Columbian pottery and gold jewelry sometimes portray what appear to be smaller wildcats. Even today, the tiny Stone Age tribes still living in the Amazon fear and respect the ocelot.

The smaller cats probably inspired a bit less awe, and may have been thought of as gods or guardian spirits. Occasionally a semi-tame Geoffroy's cat or ocella may have been kept around the village, to catch rodents or to be a pet. There were no cattle or horses to domesticate, but the Indians did have domestic dogs, llamas, guinea pigs and birds and were in the process of trying to domesticate the smaller native cats.

When the Spanish and the Portuguese colonized the continent, they were amazed and bewildered by the strange wildlife there. Writing in 1504, Amerigo Vespucci said of the cats: "Few are like ours."

Science being in its infancy, the Europeans put the South American cats into the few traditional pigeonholes that they already knew: lion, tiger, leopard. Spanish colonists cheerfully baptized the bigger American cats, especially the jaguar, with the name *tigre*, or tiger. The smaller cats were often called *tigrillo*, or little tiger. The Portuguese called the jaguar a leopard — *onca*.

Now and then, colonists of both nationalities adopted names with Indian roots. For instance, *kodkod*, *jaguar*, *ocelot* and *jaguarundi* are Indian words. So is the word *jaguaririka*, sometimes applied to the ocella in Brazil. *Colocolo*, sometimes used for the pampas cat, is said to be the name of an Indian chief.

Eventually the name *ocella* — little leopard — was adopted formally for the one of the two smallest of the genus *Leopardus*. In English the cat was sometimes known

Treetop World

The range of the ocella straddles the equator, between the Tropic of Cancer and the Tropic of Capricorn.

In the northernmost reaches of its range, the cat makes its home in the steep mountain forests of Costa Rica, overlooking the Caribbean. There, the trees are swept by the trade winds, and occasionally battered by hurricanes. Active volcanoes loom everywhere. The rainfall can be 125 inches a year.

And in the southernmost reaches, the ocella can be found in the wetter, forested parts of the Gran Chaco, a hot lowland in northeastern Argentina. The cat probably does not venture much into the wide open spaces of the Chaco, where there is low bush and salt flats.

On an east-west line, the cat has been seen in the green plateaus of the Brazilian coast and the Matto Grosso. And it has been also seen in the cool forested foothills of the Andes in Venezuela.

In all, ocellas have been recorded in at least ten countries — Costa Rica, Panama, Venezuela, Colombia, Ecuador, the Guianas, Brazil, Paraguay, Argentina, and possibly Peru.

But the heart of ocella country is the Amazon basin — that green plain, ribboned with rivers, swept with rain, that spreads across nearly three million square miles of central South America.

Our imagination cannot help being stirred by the Amazon. It has existed, almost unchanged, since the Tertiary period, when mammals first appeared on earth. It is so vast that it influences weather on a global scale, and purifies much of the world's air by photosynthesizing it through its massed plant life.

Until recently, much of the Amazon was still unspoiled — untrodden by man, save for explorers and a handful of Stone Age Indians still living there.

Indeed, the Amazon has long been one of the few places left on earth where we could get a real-life glimpse of the Garden of Eden.

Little is known about the ocella in the wild. Thanks to its shyness, its size and its forbidding habitat, the cat has never been studied there. The little that we know about ocellas comes mainly from observations of ocellas in captivity.

First to publish observations on captive ocellas was Dr. Paul Leyhausen, one of the world's leading authorities on small wildcats. Leyhausen conducted his study at the Smithsonian Institution, funded by the West German government. He



kept a number of oncillas there and bred them, and compared their behaviour to that of other small wildcats, as well as to domestic cats. Together with a German cat breeder, Maria Falkena, he even did some successful hybridizing of oncillas with domestic cats. Leyhausen was probably the first person to persuade oncillas to breed in captivity, and later published an article on them in the *International Zoo Yearbook*.

Captive cats, however, do not necessarily act the same in a wire-fenced compound as they would in the wild. So, if we want to paint ourselves a picture of the oncilla's free life in the rain forest, we can also do some educated guessing.

And to understand the oncilla, we must first try to understand the forest where it lives.

In his book *South America and Central America: A Natural History*, Jean Horst says some intriguing things about the Amazon:

"The great forest is a very complex mechanism, unlike the savannahs or the deserts. This very richness makes its study difficult. Biologists are still far from understanding exactly how the equatorial forest operates.

"Although there are many species, there are not many individuals; in fact, the total population is very small. Some Amazonian species are known only by a few preserved specimens.

"The physical factors of the Amazonian environment have deeply influenced the morphology and biology of each one of the species that live there. The humidity is such that Amazonia is without doubt one of the points on the globe where the passage from aquatic to terrestrial life took place.

"This relatively stable environment has allowed an archaic fauna to survive. Indeed, the Amazon forest is a refuge for living fossils."

There are two facts of life in the Amazon: water, and trees. So all Amazonian creatures are aquatic, or arboreal, or both.

The water is everywhere. It oozes richly underfoot after a rain. It meanders lazily along a local waterway that is almost choked with giant water-lilies. From there, it gathers into one of the thousand tributaries — the Branco, the Negro, the Solimões, the Putumayo, the Jurúa. Finally the water is rolling wide and deep down the Amazon, the world's greatest river. It is 3915 miles long, carrying one fifth of all the earth's flowing water, discharging over 4 million cubic feet of fresh water per second into the Atlantic Ocean.

The tallest of the trees are the "emergents" — solitary giants raising their crowns here and there above the green canopy created by masses of the next-to-tallest trees.

This "canopy" is an important factor in jungle life. Its sunny interlaced branches are high above the forest floor, so strong that a light plane can crash — land in it and be held up — by it till rescuers arrive.

Below the canopy is what biologists call a "middle zone" — it is shadier and more choked with greenery. There, shrubs and lesser trees struggle for the light, hung with thousands of lianas and vines.

Below the middle zone is the forest floor, where only one percent of the sunlight reaches. The air is close and steamy. The great roots tangle in bizarre masses, bracing the great trees as well as possible in the shallow soil.

In some areas of the Amazon, the ground is underwater all year round. So even the tallest trees are stunted and moderate in height — around 30 or 40 tall. But some riverbank areas are underwater only during the annual flooding, so the palms and trees are sturdier, and can reach 60 or 65 feet.

But in the higher and drier areas, the giant hardwoods commonly reach 100 feet, with the lonely emergents soaring up to 120 or 130 feet. The trees bear exotic names like pau amarelo, matamata, caucho and castanheira.

Few plants grow on the forest floor, and only those that have adapted themselves to deep shade — like begonias, ferns, gingers and arum lilies. Few large animals live on the floor — and then only in clearer areas, where there is light and food.

Most living creatures need sunlight. So, in the rain forest, all smaller creatures that can climb have looked for their well-being above the ground. The treetops are a madhouse of monkeys, birds, butterflies, small mammals, small reptiles. Even the orchids, in their wisdom, have climbed high to the canopy, where they can bloom in the sun, and be pollinated by the insects.

Because of this, the oncilla must spend much of its life above the ground too.

All the bigger cats found in the rain forest are pretty good climbers, though ordinarily the jaguar and the cougar don't venture too far up. But the bigger cats don't really have to climb. They can find their big game on the forest floor: brocket deer, tapir, large rodents, flightless curassows. In the summer, more open areas, the bigger cats can find enough sunshine to synthesize Vitamin A and enjoy health.

But the smaller cats are limited to smaller game, and must go where they can find it. So they have joined the noisy horde high above the ground

In so doing, the oncilla (along with the margay) has become the high-wire artist of the cat world — the Flying Wallendas of the felines.

German cat authority Heidi Fahrenholz is one of the few who have been able to make comparative behavioural observations on captive American tropical cats, in something like a natural habitat. She keeps margays, ocelots and oncillas in huge outdoor enclosures, which are extravagantly planted with big trees, vines, shrubs. In her recent book *Meine Wildkatzen*, she makes some intriguing remarks that may help to pinpoint the locale in the rain forest where oncillas may prefer to live.

Ms. Fahrenholz notes that, of these three species, only the margay dares to hang head down from a branch, by the hind feet, like a monkey. The margay can even walk upside down, hanging from a branch by all four paws, like a sloth! To do this, the margay's ankles are constructed differently, rotating 180 degrees to facilitate a grip on the tree. Also, she observed that from birth, margay kittens take an instinctive grip on a human's finger with the claws of all four feet, and can be lifted up without losing their grip.

When it came to water, however, ocelots and oncillas showed a liking for it. Ms. Fahrenholz set out children's swimming pools, and saw her wild-born oncillas splash in them fearlessly, while her wild-born margays tended to avoid water.

In fact, bravery about water is not unusual in jungle cats of any kind. South American wildlife authority Stanley E. Brock reports that jaguars are strong swimmers, and fish in the rivers like bears. Cougars must swim for their lives during the annual flooding in the rainy season. The margay appears to have the most aversion to water of any cats found in the South American rain-forest.

While the oncilla has no anatomical quirks that help with tree-climbing, the cat is still more reckless and athletic in the trees than are ocelots.

From all the foregoing, we can possibly deduce that the margay loves the canopy in the taller forest, though even this cat may eschew going up and down the slippery trunks of 130-foot hardwood "emergents," whose first branches are 100 feet up. The oncilla may prefer the canopy of the lower 30-60 foot forest that is found in watery areas, and along rivers.

The ocelot, in turn, may stay at an even lower level in the trees.

Thus the oncilla may blend its life intimately with both of those two elements of the rain forest: trees and water.

The Life of an Oncilla

Several years ago, a young American biologist named Donald Perry launched a study of the treetop life in the rain forest. He wrote about his experiences in an article for *International Wildlife*.

Equipped with ropes, pitons and other mountain-climbing gear, he climbed high into the trees. He was amazed at the busy world he found there. Well-worn trails ran along the great mossy branches, through their hanging gardens of epiphytic plants. The animals busily came and went along them, like cars along the California freeways. Tiny and nimble, the oncilla can patter along the narrowest branches, and leap easily from tree to tree. Though a dainty cat, it has broad paws with strong toes and good-size claws that probably give it a good grip on the bark.

Small game abounds there. The oncilla can catch birds, small monkeys, other small climbing mammals — even small lizards and snakes. A fastidious eater, the cat plucks its prey half-bare of hair or feathers before eating it.

If the cat wants to nap, it is tiny enough to nap high above the ground. It can curl in a nest of bromeliads, or in a cozy crotch of branches. During a thunder shower, the oncilla can stay dry in a hole in a tree trunk.

It is also possible that wild oncillas do some of their breeding and kitten-rearing in trees. So any biologist wanting to make field notes on the oncilla's breeding habits might have to be a skilled alpinist!

Like many wildcats, oncillas probably do not mate for life. Male and female spend the brief estrous time together — a few days — then go their ways.

Male oncillas mark their territories with a strong, sour-smelling urine. Unlike the modest little organ sported by our male *Felis catus*, the oncilla's penis is nearly two inches long when displayed. It is up-curving like a horn, curiously tipped with a little bulb, and colored flamingo pink. With it, the cat literally mists the chosen spot like an aerosol can.

The female in heat utters the loud, sharp cry of the oncilla. This call echoes a long way through the forest, and advertises to any nearby male that she is there.

Courtship takes place amid much chasing-around and growling (the oncilla has a high-pitched growl that it uses whenever excited about food, play, enemies or mating). Sometimes the male takes the female by the scruff, like a kitten, and carries her from branch to branch, like Tarzan carrying off Jane.



The rounded, wide-set ears of the oncilla are a distinctive feature found in all the cats of the genus *Leopardus*. The owner of these ears is Zimba, a line-bred grandson of Rio, bred by Reg Riedel. (Riedel Photo)



Two other members of the genus *Leopardus* perch in a tree in Fahrenholz's compound in Germany. On the left is Herbert, ocelot, typically big and stocky. On the right is Bamme, margay — smaller, more slender, with the velvet coat and the extra large dark eyes that characterize the species. (Fahrenholz Photo)





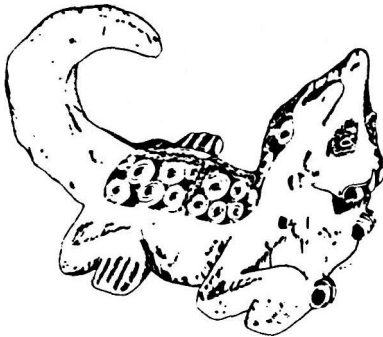
A female ocellot, Daphne, performs the chin-rubbing ritual, in excited response to a little cinnamon sprinkled on the coverlet. Here, she licks the scented spot, and will follow up by rubbing her chest and chin on the moistened spices. This behaviourism is also seen in Geoffroy's cats, who are closely related to ocellots. (Riedel Photo)



Riedel's famous litter of three — Cleo, Pharaoh and Baby — have a meal. Their sire, Rio, looks benignly on. When they were younger, Rio might have killed them as prey. But now they are big enough that he recognizes them as members of his own species. (Riedel Photo)



The same meal, a few minutes later. One kitten has noticed something disturbing, and signals its feeling of insecurity by suddenly curving its tail up over its back. Ocellot tail language is often different from that of any other feline, even that of other 18-chromosome cats. This particular tail signal is not seen in Geoffroy's cats, margays or ocelots. (Riedel Photo)



The up curled tail, on this magnificent little pre-Hispanic gold pendant, suggests the ocellot. So does the head type. The ornament was made by the Sinú in northern Colombia, sometime after the 5th century A.D. Museo del Oro, Bogotá

The gestation period of captive ocellots runs from 72 to 77 days. As a possible aid to an active aerial life in the wild, the female stays svelte until the last couple of weeks. Only then does a modest bulge betray that she is pregnant.

If the mother nests in a tree, she may find a natural hole in a damaged or decaying tree trunk. But the hole must be deep enough to keep the kittens from falling out.

She may also use an abandoned bird's nest, if it was clean enough. Some of the large birds in ocellot country, such as the scarlet macaw and the green-shouldered macaw, nest in hollow trees as high as 50 feet about the ground. Some macaws, in turn, take over nesting sites that have been excavated by tropical woodpeckers. Such a nest, if adopted by a mother ocellot, would have been "re-cycled" three times!

The scarlet macaw's nest is apparently very deep — possibly around two feet. This would be deep enough to keep the kittens from falling out.

Other macaws, such as the red-shouldered macaws, use their big bills to dig a nest out of a clay cliff face above a river. Such a nest might also attract a mother ocellot, if it was accessible and secluded enough.

Extra protection from climbing predators might come in an area where the ground was flooded for part of the year. However, an ocellot would nest in a waterbound tree only if she could come and go easily, via other trees.

Shortly before the birth of her litter, an ocellot may line at least two nests, by plucking fur from her own body and tail, leaving patches of bare skin. This behaviour has been seen by one observer, Reg Riedel, in captive ocellots. Litters can be anywhere from one to four kittens, as the female has four nipples. The kittens are so large at birth that it is hard to believe they were contained in the mother's slender little body.

The kittens open their eyes anywhere from 8 to 15 days — captive ocellots have varied as much as that.

From the very start, the kittens are amazingly alert. A tiny kitten, with eyes still closed, will sit up and carefully test the air, with its little nose and whiskers twitching like a rabbit's.

The mother hardly stirs away from the kittens, except to hunt. And hunt she must, to keep her milk flowing, and stay her own raging appetite.

Due to their hyper-active way of life, ocellots may have a higher rate of metabolism than most cats. Pat Quillen reports that her ocellots eat roughly three times as much as her Asian leopard cats, who are roughly the same size as ocellots. The ocellot may be like the shrew and the hummingbird — forced to fuel that fiery furnace of life within.

The ocellot mother's milk may also be extra-high in calcium and other nutrients, in order to sustain the high metabolism of her growing kittens. A study of captive ocelots done by a German fur farm found that the ocelot's milk contained several times as much calcium as the milk of domestic mother cats. Since ocelots and ocellots are related, this may give us a clue about ocellot milk.

A wildcat's calcium needs are amply met by the body of its prey. Fur, feathers, raw bone — even fresh blood — all contain calcium. So the wild mother must hunt tirelessly, or she and her litter might be overtaken by a fatal calcium deficiency.

Shortly after the kittens are born, the mother may divide her litter between two nests. Then she commutes between them to nurse and toilet the kittens. This survival tactic has been seen in captive ocellots, and is fairly common among wildcats. If one nest is raided by a predator, at least the other nest may be safe.

If the mother has nested high in a tree, she must be careful to keep the kittens in the nest. When they start exploring, she grabs them by the scruff and hauls them back from the exit hole. Riedel observed that one captive ocellot mother grimly kept her kitten in its nest for eight weeks. The kitten could hardly walk when she finally let it come out — but its legs quickly muscled up.

Treetop kittens must be able to negotiate the branches right away. If any kitten is a born klutz, it falls to the ground or into the water, and is "selected out," as the geneticists say. This is sad, but it ensures that future generations of ocellots stay as inherently sure-footed as mountain goats.

But sometimes the mother ocellot does have the wit to perform an aerial rescue. If her kitten gets in trouble, Riedel saw one captive ocellot bring her kitten down from a high wire fence, where it had climbed up and stranded itself. The mother took the kitten in her mouth but did not leap to the ground with it. Instead, she carefully backed her way down the fence, a paw at a time, holding the kitten cradled between her body and the wire.

The mother fiercely drives any male ocellots away from the nest — and with good reason. Like most wildcat males (and some domestic males) the ocellot stud usually does not recognize his own newborn young. He thinks of them simply as tasty tidbits — and eats them.

However, when they are bigger and start exploring, the male merely chases them

or tolerates them if he meets them. Their larger size possibly triggers the male's ability to recognize them as members of his own species, not prey.

As the kittens grow, the mother plays with them and educates them, amid excited chasings and growlings. Oncilla kittens engage in baby sex-play with other kittens. By the time they are 5 or 6 weeks old, they are eating small prey that the mother brings. Shortly they are hunting on their own.

The little family probably stays together till the mother is bred again and drives them away. Then the young ones drift off through the trees, to establish their own territories.

At present, no one knows how big a wild oncilla's natural territory is. But they are probably widely spaced, for the cats are not socially inclined, nor do they appear to be very numerous. No one knows how long wild oncillas live. Nor does anyone have any overall population figures on wild oncillas.

Obviously, oncillas often venture down on the forest floor. If they didn't, human beings would never have the chance to kill or capture any. And in the hillier reaches of their habitat, where the forest is more open, they possibly hunt a lot on terra firma — and may even nest there, in rock ledges or low trees.

It is dangerous on the ground. At the least rustle of alarm, an oncilla's reflex action is never merely to flee — but to go up, if it can. Along the waterways, caimans lurk, ready to snap up an old, sick, crippled or very young oncilla that comes to drink. The bigger cats prey on smaller cats. So a jaguar, a puma, or even an ocelot could run down an ailing oncilla.

Of course, back up in the trees, it is not safe either. An emerald boa, wound around a branch, could swiftly wrap an oncilla in its coils, crush it and swallow it whole. The harpy eagle, largest predatory bird in the world, with a wing span of 9 feet, is skilled at flying through the tree-tops. It can easily pick a full-grown oncilla off a branch and fly off with the cat in its talons.

And no matter how cleverly the mother chooses the nest site, it might be visited by a snake or a kinkajou (a small weasel-like carnivore) while she is gone.

And occasionally, there is man — with a gun, or a trap.

Despite the recent restrictions imposed by the Convention on International Trade in Endangered Species (CITES), with over 50 member nations, there are still South American hunters and poachers who have no qualms about taking the pelt of any endangered spotted cat that happens along. The pelts are hiked or horsebacked out to the nearest town on the nearest river or highway or airstrip. From there, they are sold into the illegal international fur market, still greedy for cat furs despite all the recent uproars about conservation.

Or perhaps the oncilla departs his homeland alive, in a filthy little cage or crate, bound for a zoo in Europe or the United States. Even in 1980, despite our membership in CITES, U.S. federal law still allows the importing of endangered cats for zoos — providing the paperwork indicates that no money changed hands along the way.

High-strung and nutritionally fragile, the oncilla probably has a higher shipping mortality rate than most wildcats. It may well die of stress and galloping malnutrition, and if an individual oncilla does survive the jungle-to-zoo ordeal, it may well be the last of its line — a bloodline stretching back unbroken to the dawn of mammals. The fact is, that oncillas are very difficult to breed in captivity — especially in zoos.

But a tiny handful of private owners have succeeded in breeding captive oncillas. The Europeans were probably the first to do it, among them Paul Leyhausen and Heidi Fahrenholz.

Leyhausen also played a key role in classifying and identifying the oncilla correctly, after a sharp controversy that has lasted for nearly two hundred years and is not yet over.

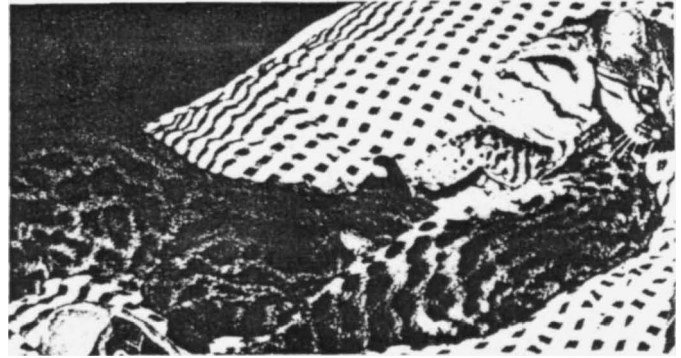
The War of the Cat-Classifiers

In the scientific world, the oncilla was not always tagged as *Leopardus tigrinus*. Once upon a time, it was known as *Felis tigrina*.

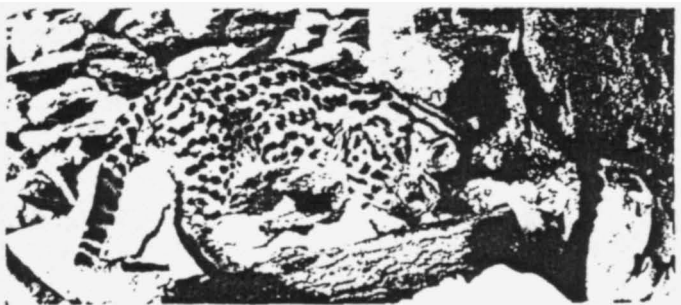
And thereby hangs a spotted tale.

As the age of science dawned, and Europeans junketed around the earth discovering plants and animals that were unfamiliar to them, they had the idea that a cat was a cat. All cats, from the Bengal tiger to the tiger of the hearth, were classified under the same generic name of *Felis*, from the Latin word for "cat."

In the 18th century, Swedish botanist Carolus Linnaeus was the first to start an orderly system that classified each living thing under both a phylum name, a generic name and a species name. Linnaeus used both the phylum *Felidae* and the traditional generic name *Felis*, for all cats. He classified the domestic cat as *Felis catus*. And he designated the European forest wildcat as *Felis catus ferus*, for at that time it was thought (erroneously) that this bushy-coated little wildcat was the ancestor of *Felis*



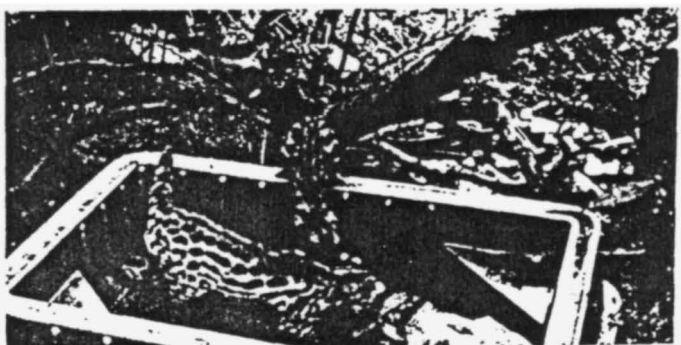
Cat-lovers are fond of saying that lions are the only cats that live in groups. But oncillas may be more social inclined than we think. South American wildlife authority Stanley E. Brock has reported seeing troops of oncillas in the Guiana highlands where he used to live. Here, two adult oncillas cozy up together in Heidi Fahrenholz's home. (Fahrenholz Photo)



Like all cats, oncillas like to strop their claws in a favorite scratching place. Zimba appears to enjoy the sno in his North American home. In the tropical wild, oncillas are found in "cloud forest" at higher, cooler elevations. This may give them the ability to adjust to winter climate in the temperate zone. (Reeder Photo)



In Heidi Fahrenholz's compound, an oncilla shows off a little of the high wire derring-do that helps the species survive in the rain forest. (Fahrenholz Photo)



In Heidi Fahrenholz's compound, a margay (foreground) and two oncillas named Dumme and Pea leanes investigate the water. Observers of both species have noted that the tree-loving margay usually dislikes water, while oncillas — who live nearer the ground — seem not to mind water. But this margay, Cecily, waded to the water. Fahrenholz theorizes that Cecily got used to water by being raised with the two oncillas.

catus. Linnaeus called the lion *Felis leo*, and so on.

However, as scientists studied the outward appearance of cats more carefully, they had the uncomfortable feeling that the classification of the world's felines was not such a simple matter.

For instance, most cats have claws that retract into sheathes. But the cheetah does not — its claws stay extended, like a dog's. So the cheetah was the first to be set apart, under a generic name of its own, *Acinonyx*. And what to do with the cats that had tufted ears and short tails? So these were set apart too, under the genus *Lynx*.

By the late 19th century, Linnaeus's neat system of the *Felis* was in shambles. Taxonomists were bewildered by the new species and new data that were pouring in. Around 34 cats had been discovered so far. Obviously, they were all cats, and deserved to be lumped under the phylum name of *Felidae*. But within the *Felidae*, what startling differences there were! There were cats that ate shellfish and fruit. There were cats that had partially webbed toes. There were cats that resembled weasels, and cats that looked remotely like dogs. There were even cats that had bristles on the bottom of their paws, instead of pads.

To classify a cat, a hundred different things had to be considered. How many teeth did the cat have? Was the hyoid bone ossified or not? Were the orbits of the eye sockets closed at the back or not? Did the eye pupils contract roundly, or to a slit? What was the structure of the skull?

As a result, most taxonomists classified the *Felidae* under as many as 16 different generic names.

Classifying the South American cats presented some thorny problems. Linnaeus knew of the jaguar — and he was also aware that the Portuguese called it *onca*, or leopard, for he labelled it *Felis onca*. He also knew of the ocelot, and called it *Felis pardalis*.

By the 19th century, however, 10 species of cats had been reported in South America. They were a motley lot, ranging from the cougar, the biggest cat that purrs, to the jaguarundi, a low-slung cat that moves like a giant weasel. Further thought about South American cat names was in order.

In the case of the jaguar, Linnaeus was partly right. The old Spanish names of *tigre* and *onca* were also partly right. Early explorers may have noted the striking fact that the jaguar's pupils contract to a round opening, instead of a slit, as most cats' pupils do. The tiger, leopard and lion also have roundly contracting eyes.

Archeology has since confirmed that the jaguar is probably an American cat. Fossils of giant jaguars have been found as far north as Alaska. But there was no denying that the jaguar had genetic ties with the lion, leopard and tiger on the far side of the Pacific Ocean.

So the jaguar was included under a new genus name, *Panthera*, with all the other big cats whose eyes contract roundly.

The ocelot presented a different problem. In 1869, Gray, listing South American mammals for the British Museum, was apparently the first to feel that the ocelot represented an entirely distinct family of cat. He junked Linnaeus's old label of *Felis pardalis*. Instead, he called the ocelot *Leopardus pardalis*.

Meanwhile, other Europeans had stumbled on the ocelot's smaller cousins. Schreber first described the oncilla in 1775. Molina, a Jesuit living in Chile, first mentioned the kodkod in 1782. Then came the margay, noted by Schinz in 1821. Last came the Geoffroy's cat, first described by d'Orbigny and Gervais in 1843.

It was not till the mid 20th century, and the advent of chromosome study, that the truth about the oncilla and its cousins finally came to the light.

A karyotype, or chromosome study, must be done in a laboratory. A snip of tissue, or a small blood sample, provide cells that can be examined under a microscope. The chromosomes can then be photographed and counted, and their differences analyzed.

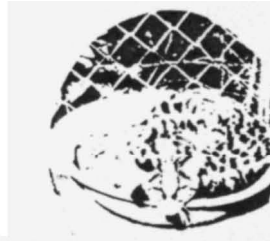
As the experts slowly began to karyotype their way down the list of 36 cat species, they got some surprises. Most cats, including the domestic cat, seemed to have 19 pairs of chromosomes. Yet when the margay and ocelot were karyotyped, they were found to have only 18 pairs.

This posed some disturbing questions about the evolution of all cats. In the poker-faced words of one scientist, it was "an intriguing situation."

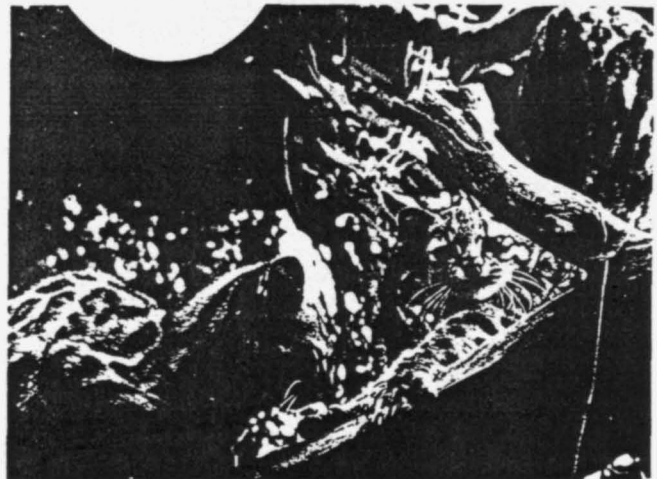
Only a few years ago, Leyhausen suggested that the oncilla was closely related to the margay. When the oncilla was finally karyotyped, Leyhausen's view was confirmed: the oncilla had 18 chromosomes.

In due course, the Geoffroy's cat and the pampas cat were karyotyped and added to the 18 pair list. At this writing, two other rare South American cats have been tentatively assigned to the 18 chromosome group on the basis of their phenotype alone — namely the kodkod and the Andean mountain cat. But they have not yet been karyotyped.

Recently, with a growing file of feline karyotypes to study, the experts have begun to compare them. Were the chromosomes classified as double armed metacentrics



Oncilla coat color can vary greatly, both in the pattern and in the background. Here is one of the rarest color variants — rusty red spots, as found on a wild-born male, Vince, that was owned by Heidi Fahrenholz. This is not the same "red" as the sex-linked orange in domestic cats. (Fahrenholz Photo)



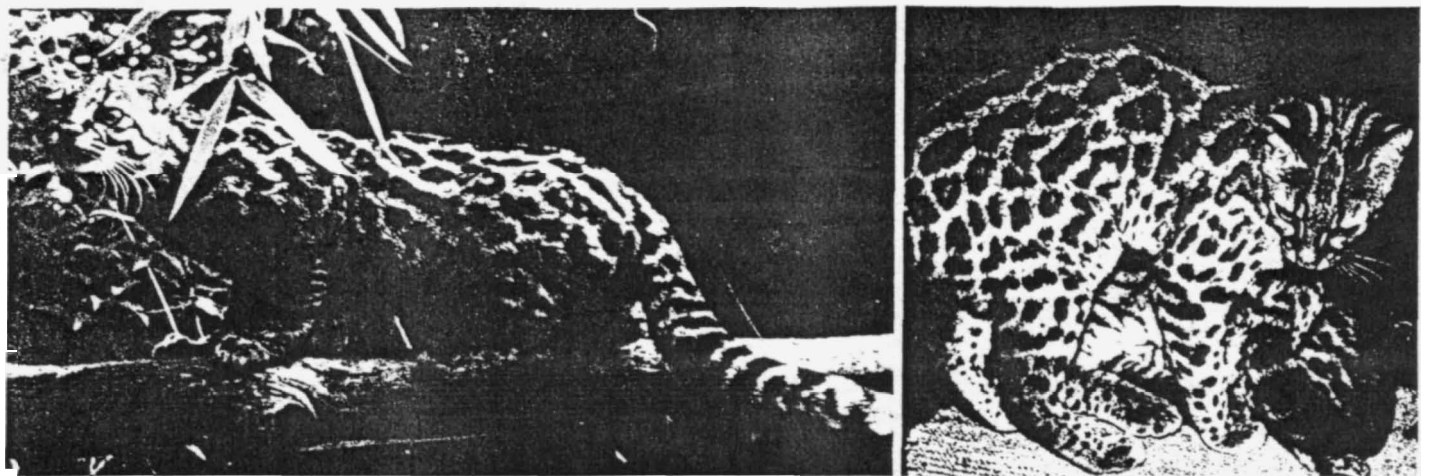
An oncilla with a red-spotted parent can show some modifying effect of the parent's color — indicating that this red may behave like an additive gene. Here are two sons of Vince, out of two different female. Gato, on right, has normal black markings. But Dumme, on left, has mahogany red markings, just a little darker than his sire's. (Fahrenholz Photo)



A pale silvery ground color is seen on these 2 yr-old offspring of Rio — who also has a pale silver coat. (Rader Photo)



The white appearing area on the chest and belly of this oncilla may be the result of a very different allele from that causing "dominant white" in domestic cats. This white, which is found in a number of wildcats, can serve as a beautiful ground color for tabby pattern. As yet, little comprehensive research has been done on the color genetics of wildcats. (Fahrenholz Photo)



Pic. left: The ocellata's markings and body type create an optical illusion of supple movement, even when the cat is standing still. (Fahrenholz photo) Pic. rt: Sometimes it is difficult to decide on the basis of phenotype, whether a cat is an ocellata or margay. Cat in foreground with extra-long tail and blotchy elongated rosettes, resembles a margay. But its head and eyes suggest the ocellata. More confusing, some margays lack enormous eyes that usually typify this deep-forest cat. Authorities believe that both cats sometimes hybridize in the wild. This theory has yet to be proven. According to Roy Robinson, margays and ocellatas have slightly different karyotypes. In the case of this cat, a chromosome study could probably settle all the arguments.

of each type of chromosome did a cat have? How many arms did the chromosomes have?

As they compared, they got some more surprises. The cats of the world seemed to divide into five groups that did not always correspond with the old generic lines drawn so painstakingly by the taxonomists. These differences were discussed by feline genetics guru Roy Robinson in a 1979 article in *Carnivore*, entitled "Cytogenetics of the Felidae." The five groups of 28 cats karyotyped by 1979 were remarkably similar in their chromosomal makeup — the differences lying in a couple of small acrocentrics. The biggest group was called Karyotype 1 by Robinson, and comprises 19 widely-scattered species — including the jaguar, lion, tiger, leopard, bobcat, lynx and much of the old genus *Felis* including the domestic cat! Karyotypes 2 and 3 differ slightly from Karyotype 1, and comprise all the remaining 19-chromosome cats in the world that have been karyotyped so far, including the cougar and the jaguarundi.

Karyotypes 4 and 5 include the 18-chromosome cats of Central and South America. Within this group, the margay and ocelot show a slight difference from the Geoffroy's cat, ocellata and pampas cat.

As article goes to press, Willard Centerwall informs me that four more cats have not been karyotyped, bringing the total to 32. He is hot on the trail of remaining four — Iriomote cat, Andean mountain cat, kodkod and Chinese desert cat.

His task is made formidable by the fact that scarcely any specimens of these rare cats are to be found in captivity, anywhere in the world. But if he locates any, and if he flies there and is able to obtain tiny snips of tissue from a humanely tranquilized animal, the world file of feline karyotypes will finally be complete.

More surprises may be in store when the experts begin using new staining or fluorescent techniques to study the banding patterns of chromosomes. Another new area is study of enzymes by electrophoresis. One researcher reported that his first enzyme assay on an 18-chromosome cat revealed that the cat had a different enzyme at a given locus than did the domestic cat and several other 19-chromosome cats.

So the battle of the cat-classifiers goes on. What effect will all this mind-bending information have on Linnaeus's much-revised and still-cherished taxonomy? Only time will tell.

Robinson and Centerwall see the ocellata very differently

According to Robinson, "The felids are assumed to have initially evolved in Europe and Asia, reaching North America via the Bering Straits and eventually migrating southward The situation was ripe for the occurrence of diversity as a result of the advancing wave breaking up into isolated and probably not too large populations. Isolation is a prerequisite for the evolution of unique karyotypes."

But Centerwall, in a recent conversation with me, suggested that the felids might have evolved in the Americas, with two main genetic thrusts: the 19-chromosome cats in the north, and the 18-chromosome cats in the south. The 19-chromosome cats, he said, could have migrated across Bering to populate Eurasia and Africa, while the 18-chromosome cats remained cut off in Central and South America.

In Centerwall's view, the highly specialized little ocellata might well be a primitive type of felid.

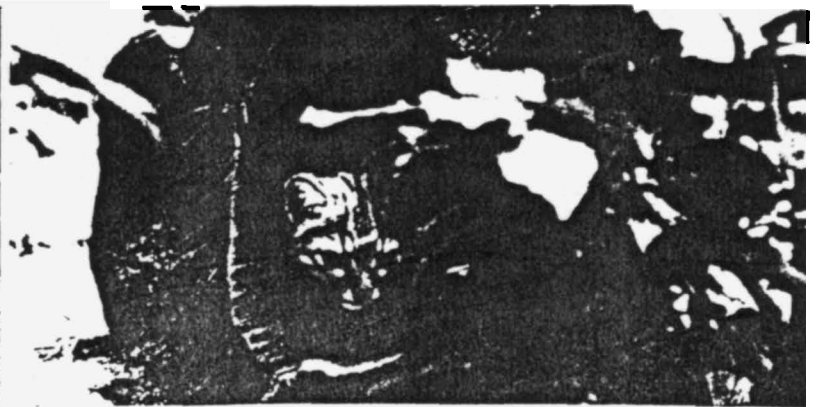
Hopefully, someday, the discovery of some new fossils can also answer nagging questions of the ocellata and its family.

Unfortunately, even under the best conditions, the bones of the little cats do not stand up very well. In the temperate zone, palaeontologists have found many fossils of big prehistoric cats — saber-toothed tigers, giant cheetahs, cave lions. But the tropical rain forest offers the worst conditions for small bones to become fossils. The damp, and the soil acidity, and the greedy way that the rain forest sucks up nutrients, rapidly decay any bones that are left there. So, while the great forest itself has survived unchanged for millions of years, it has also possibly swallowed up the bones of most early cats that lived there.

Beautiful Brown Eyes

Regardless of whether the ocellata evolved early or late, it is one of the most highly specialized cats in the world.

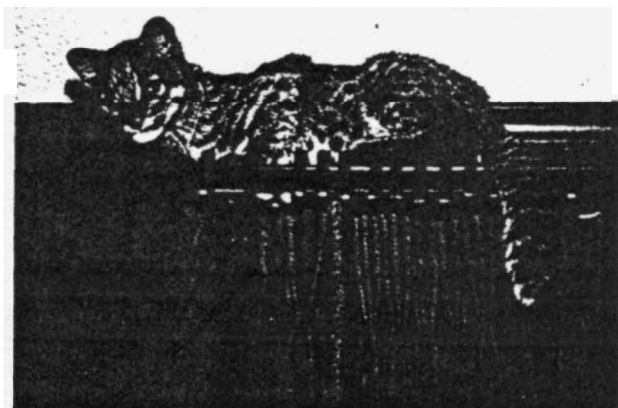
Specialization is the proof that an animal can adapt itself to a given environment, or a change in environment. In the 18-chromosome cats, the tough ocelot and the margay have spread out over a wide range of habitats. So the ocelot has specialized into 11 known subspecies, from the *Felis pardalis sonoriensis* found in Arizona, to the *Felis pardalis mitis* found in northern Argentina. The margay also has 11 known subspecies.



Ocellata is a wild Ocellata, but it is a very different Ocellata. Margay is a wild Margay, but it is a very different Margay. Ocellata is a wild Ocellata, but it is a very different Ocellata. Margay is a wild Margay, but it is a very different Margay.



The classic oncilla pattern — rows of oval rosettes with reddish centers — is seen on Zimba, son of Rio. All Rio's offspring wore this pattern, indicating that it might be fairly high in an order of dominance among oncilla patterns. (Redel Photo)



Oncilla pattern can vary as much as color. This captive-bred female polka-dot pattern identical with that sometimes found on the Geoffroy Coat patterns can also vary widely within a single litter. This cat's sister had the classic oval rosettes with red centers. (H. W. Photo)

The ear spots — called ocelli by scientists — stand out like little headlights. They may serve to startle an enemy, like the "eyes" on a butterfly's wings. They are always snow white, though they are missing from melanistic oncillas. (Queen Photo)



But the other 18-chromosome cats have smaller ranges, and a more uniform habitat. Since these cats are all unstudied in the wild, they may have more subspecies than are currently listed. The Geoffroy's cat has five. The pampas cat has five. The kodkod, confined to a small area of Chile, is reported to have only two subspecies. The mountain cat lives above the timberline of the Andes, and nothing is known of its subspecies.

The oncilla, while it has sprinkled itself all through the rain forest of Central and South America, has only four known subspecies. This suggests that the oncilla may have a poor ability to adapt itself to habitats outside the rain forest.

Today, the oncilla is so scarce that it is listed as an endangered species. Certainly part of its rarity is due to the fur craze of humans. But it is possible that the oncilla was never very plentiful to begin with. While small prey teems in the rain forest, the oncilla must compete for it with many other predators.

One clue to the oncilla's vulnerability is its fussiness about diet. Breeders who have worked with the different *Leopardus* cats in captivity tell me that ocelots will eat anything from canned Zoopreem to corn-on-the-cob. Even Geoffroy's cats will try anything. But the captive oncilla is remarkably choosy about what it will eat.

Within the cat's limits, however, the oncilla has evolved a whole bag of colorful survival tricks.

First, the cat has made an impressive effort to camouflage itself. It is basically a type of spotted tabby, and often wears one of the most colorful patterns of all the *Leopardus* cats — rows of dark rosettes with red centers. This pattern may help the cat to blend into its treetop world of bright flowers, birds and butterflies.

Under the pattern, the oncilla can vary its ground color — from dark tan to silver. The cats with darker coat color may tend to predominate in the deepest forest. The lighter-colored cats are possibly numerous in the more open and sunny types of forest. (This, at least, is the pattern with better-studied wildcats).

There are also black, or melanistic, oncillas. These, too, are probably found in the deeper forest. Melanism is a recessive non-agouti gene, and is found in a number of wildcat species around the world. It is the equivalent of black in domestic cats. The spotted pattern is still there, but since the undercoat is also black or dark brown, the pattern can be seen only when light strikes the coat at an angle.

On the back of each dark ear, the oncilla wears a round silvery white spot. And the male wears a magnificent dark spot on the back of his scrotum. Some authorities guess that the female's ear-spots can serve as a guide to her kittens, in the shade or at night. But both ear-spots and scrotum-spot could also startle, or frighten, an enemy. Since they are both seen from the rear, they might look like glaring eyes, and give a fleeing oncilla an extra moment to escape, especially at night. Many of the magnificent butterflies and moths of the Amazon wear similar "eyes" on their wings, for protection.

Most intriguing of the oncilla's color tricks is its eyes. They are not gold, as are the eyes of most wildcats. Instead, they are brown.

The margay also has brown eyes. The ocelot, the pampas cat and the Geoffroy's cat, who have moved boldly out into the wide open spaces, tend to have gold eyes.

The sloe eyes of the oncilla and the margay may have evolved as yet another camouflage device — they are less easily noticed amid the rich shadows of a tangled forest. And, when combined with the dark coat of a melanistic cat, they make their owner almost invisible.

Despite its melting expression, however, the oncilla is a brave and fierce little killer. The cat is like a grenade — small, but packed with explosive. Riedel tells how two 6-month captive oncilla kittens, weighing 3 and 5 pounds, charged a 15-pound full-grown margay, backed it into a corner and frightened it half to death.

Most aggressive of all is the mother oncilla when defending her kittens. She curves sideways, standing on tiptoe and turning her tail to the intruder, trying to make herself look as big as a jaguar. Then she suddenly lunges forward, with an explosive spit. One charge is often enough to send an intruder scurrying.

This high-powered aggression, which is out of all proportion to the cat's tiny size, is one of the keys to its evolutionary success.

The oncilla's voice may be another camouflage trick. In a world dominated by birds, one is not surprised that the cry of the oncilla sounds like a bird's. It is a sharp, loud, bright, ringing sound that carries far. The cat can raise its voice to locate its kittens or a mate, and hopefully, any enemy lurking nearby will mistake the cat for just another bird.

Oncillas are incredibly athletic and seemingly reckless in the trees. They have to be. Observations on captive oncillas, and the scanty observations on wild oncillas, indicate that they hunt at twilight and pre-dawn, when birds have gone to roost. So much of their aerial derring-do is done in poor visibility.

Captive oncillas who live in compounds with trees have been seen climbing out on

slender limbs that a domestic cat wouldn't be caught dead on. If the limb bends, they boldly slide down it, like a mountaineer rappelling down a rope, keeping a partial grip with their claws — to let go and land on another limb below.

They are also fearless about jumping down from heights. A captive oncilla kitten was seen by Riedel to jump straight down, 15 feet, out of a tree and was unhurt.

As for broad jumps, few cats can leap as far — in relation to their size — as the oncilla. Oncilla kitten play includes plenty of broad-jumping, as practice for a life spent as a feline flying-squirrel. Broad-jumping may be especially important for a life spent partly beside or over water. Riedel trained his little 5-pound female to jump through a hoop. She learned quickly, because of the sheer love of jumping. Eventually she was broad-jumping 8 feet to get through the hoop.

Oncillas in motion are a special treat to a human's eyes. They move like no other cat. Not for them the slow, heavy saunter of the lion. Or the long-legged greyhound grace of the cheetah. The oncilla is a will-o'-the-wisp, a squirt of quick-silver, a smidgen of greased lightning.

The oncilla is a cat in a hurry. He is always in high key. He patters, trots, jumps up, jumps down, gallops, races, hops and skips. Frequently he makes sudden stops or erratic zigzags — possibly to confuse an enemy. If oncillas had a motto, it would be "A rolling stone gathers no moss." Yet all this hustle-bustle is accomplished without wasted movement.

Like all cats, the oncilla is excited by certain smells, and possibly uses them to mask its own scent, for better camouflage. No one knows exactly what wild smells are the favorites of wild oncillas. But captive oncillas adore civilized smells like leather, cinnamon, catnip, bare feet — and perfume. Riedel found that his cats were ecstatic about Chanel No. 5.

First they lie down prone and lick the scented spot. Then they rub their chin, neck and chest in it. All the while, they make joyful eel-like wiggings. They keep licking and rubbing till they are moist with scented saliva.

The oncilla can vary its coat texture to the different tropical climates where it lives. In the hot humid lowlands, the cat may wear a flat coat like a Siamese — except that the hairs have a rough bristly feel. But in the cooler cloud forests at higher altitudes, the oncilla may have a softer, plusher coat, like a Russian Blue.

Finally the oncilla may have extra-sensitive hearing. All the *Leopardus* cats have ears that are curiously broad-based and rounded at the tips. But the oncilla has the largest and broadest ears, in proportion to its size, of any cat in the genus. Perhaps this gives the cat a stereophonic listening ability, in that jungle world that rings with noise day and night. It would be important, for instance, for the oncilla to distinguish the rustle of an emerald boa from amid the clatter of nearby macaws — and to know exactly what direction the deadly little rustle was coming from.

All told, the survival of this mercurial little cat is one of those seeming miracles of the wild.

To Save the Oncilla

One authority on the oncilla is the aforementioned Reg Riedel, a tall blonde 43-year-old mustachioed German now living in the U.S.

Since meeting Reg, I also had the opportunity to meet and correspond with a few of the other good oncilla people, and to become acquainted with their cats and their accomplishments. But Reg's cats are the ones that I have spent the most time observing personally so I will tell about them here.

And, in a sense, Reg's cats are a typical oncilla rescue story.

Born in Poland in 1937, Reg was a classical dancer and a nightclub performer for many years. But his lifetime passion was wild animals — especially cats. He became impressively self-educated about wildlife.

Reg became an oncilla owner by accident, while in Brazil in 1971. His company was there on tour. One afternoon in Rio de Janeiro, he dropped by a cafe. A friend had told him that two tiny wild kittens were in a cage there. Reg sat and drank a cup of chocolate, and looked sadly at the kittens. They were pitifully thin, lethargic, glassy-eyed and streaked with filth. At first glance, they looked like ocelot kittens.

The cafe owner confessed frustration. He told Reg that he fed them plenty of good lean beef. But the kittens looked near death.

Determined to save them, Reg obtained them. His orderly German mind went grinding into action. What would wild kittens eat? Certainly not lean beef.

Muscle meat is high in phosphorous, but low in calcium. Cats must have a balanced amount of these two minerals. Wild kittens would eat freshly killed rodents and small birds. The raw bones, even the feathers and blood, would provide the needed calcium. And feathers and bone would put the needed roughage into a kitten's gut.

Reg fed them with fresh-killed mice and baby chicks bought from pet shops.



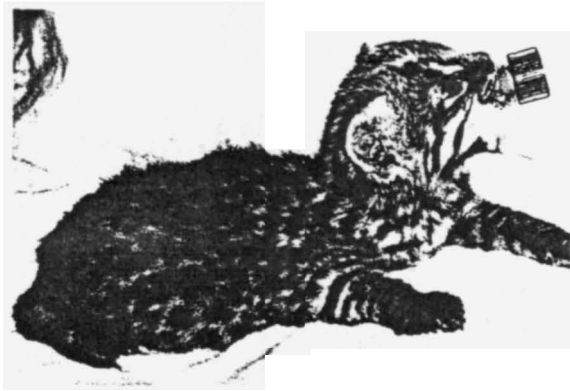
Daphne, now a 10-year-old grandmother, matriarch and founder of an oncilla dynasty. Notches in her ears are little souvenirs of domestic spats with Rio. Reg's hand in photo gives scale.



A captive oncilla mother who is happy with her environment has the look of contentment familiar to cat breeders the world over. Here, Daphne relaxes on Reg Riedel's bed with a fat healthy kitten (Art Human Photo)



A four week old oncilla kitten is still small enough to fit comfortably in the hand. Here is Ivy, a Fabreuhof kitten.



Hand-raising oncillas is Pat Quillen's specialty. Here, Buzzer guzzles her gourmet kitten formula, which she modified to meet the demands of the oncilla metabolism (Quillen Photo)

In the meantime, his company returned to Europe. He secured an export permit and took the kittens with him.

By the time he got back to his home in Paris, the kittens' condition had picked up. Gone was the lethargy, the glassy-eyed look, the diarrhea, the feather-light body weight — all symptoms of calcium deficiency. The two babies were lively and solid-boned, with sleek coats.

Reg had done a little research and learned that they were oncillas — one of the world's rarest cats. He was thrilled, and felt a deep responsibility. He knew oncillas were hard to breed in captivity. But his pair seemed so compatible that he was tempted to try.

Rio and Daphne, as he had named them, were not littermates. Daphne looked to be at least a month older than Rio, and they appeared to be from two different subspecies.

Reg had no idea what region of Brazil the two kittens came from. But, from their color and coat texture, he was able to deduce a little. Daphne was a little darker, and she had a flat, wiry coat. She might have been born in the hot lowlands of the Amazon. But Rio was an amazing shade of clear silver, and his coat was softer, heavier, plusher. He might have been born in the cooler uplands.

So the two kittens might have travelled thousands of miles, from widely separated areas, to come together so fatefully in that cafe in Rio de Janeiro.

Reg searched for literature on the oncilla. He found Leyhausen's notes in the International Zoo Yearbook, and consulted with Leyhausen on the telephone several times.

Rio grew into a magnificent cat, with brilliantly colored rosettes. Later, other oncilla owners would call him the most beautiful oncilla they had ever seen. Daphne was less good-looking, very petite and dainty — but she was gentle, playful and sweet. She became passionately attached to Reg.

The two oncillas had more close calls. For instance, when Reg had to go off on tour again, he left the pair with his brother Jochen Riedel, who was a game warden in Germany. One day Daphne escaped from Jochen's house near Düsseldorf.

Jochen searched the area, and found that the oncilla had taken up residence in the overgrown garden of an abandoned estate half a mile away. Every day, he went there to visit her. She still trusted him enough to come cautiously and take food from his hand. On the fourth day, he was able to catch her.

In 1973, the pair mated for the first time. Reg now started learning about all the special problems of trying to breed a pet oncilla.

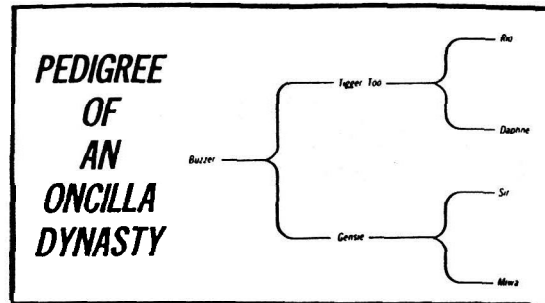
The moment Daphne saw him, she would come rushing out of her nest, carrying her newborn kitten. She kept carrying the kitten around, not nursing it, till it died.

Reg also learned the hard way that oncillas (1) demand more than one nest, (2) cannot be foster-raised by domestic mother cats, as the milk has too little nutrition, and that (3) male oncillas must be kept away from their kittens.

In November 1973, Reg moved to the United States, for what would stretch into three years as the male lead dancer at the M-G-M Grand in Las Vegas. He obtained the necessary import permit, and brought his oncillas with him.

In his new home, Reg built special outdoor quarters for the cats. It was like a big aviary, full of trees and vines and plants, rich in sun and shade. There were logs and branches for the cats to run along.

It was there, in 1976, that Reg finally achieved two "firsts." It was the first breeding of captive oncillas ever done in the U.S. in which the mother raised the



Oncilla kittens can die of galloping malnutrition if they are not fed adequate amounts of roughage and calcium. Here, two Riedel kittens feast on a young chick, which was humanely killed just before being given to them (Riedel Photo)



Reg Riedel and Zimba in a beautiful oncilla habitat in the U.S. which makes lavish use of evergreens to provide cover in the winter time (Riedel Photo)

kittens without human interference. And it was the largest captive-bred litter of oncillas ever recorded.

This time, Reg had provided Daphne with three nests. They were plywood boxes, two feet square, with small entrance holes. When the kittens were born, he did not go near her quarters for a week. A friend put in water and food for her.

Daphne showed no interest in the friend. She stayed calmly in her boxes, and looked after her kittens.

After a week, Reg found that it was safe to visit her. She came bustling happily out to see him, but then she always returned to the kittens. Later on, she would haul them out and trustingly nurse them on his lap.

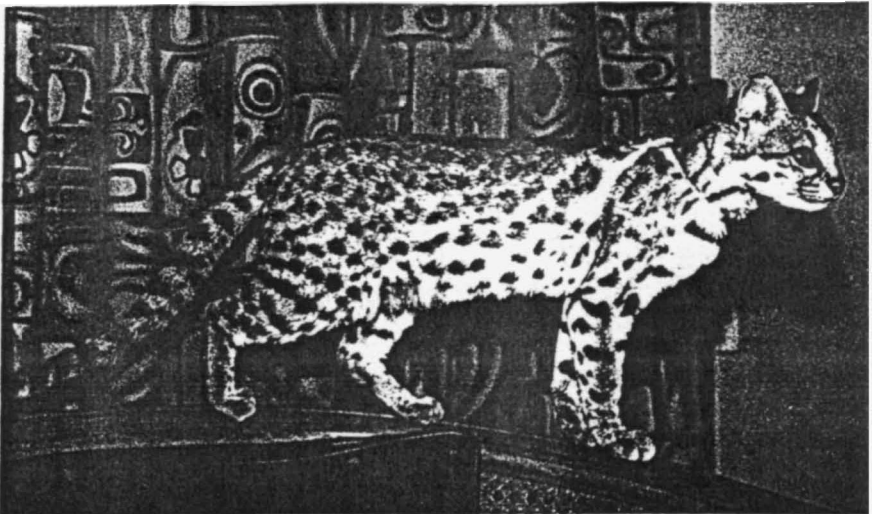
Now began the miracle. He was witnessing what few humans have ever seen: the growing-up of an oncilla family.

There were three kittens: two females and a male. Reg named them Cleo, Pharaoh and Baby. When the kittens were around 4 months old, he was able to re-introduce Rio to the group. At this age, Rio tolerated the kittens benignly. He even let them romp all over him, and play with his tail.

In 1976, Reg was struck by tragedy. He suffered a bad fall during a rehearsal, and injured his back. His career as a dancer was over. But now, at 39, he felt that he wanted to devote much of his time to working with oncillas, and possibly to helping save the species.



Private breeders of ocellas go to great length and expense to create an attractive habitat for their animals to breed in. Here, in Germany, Heidi Fahrenholz has built a suitably tropical home for her cats, using vines and rhododendrons. (Fahrenholz Photo)



Miwa, the dam of Gensie. Unlike the other dark-colored cats from the Treanors' breeding, this elegant little female wears a warm honey colored ground color under her pattern. She was photographed in a motel room while visiting the Long Island Ocelot Club annual convention. (Art Human Photo)

At the time I met Reg I was breeding my first few Somalis. One fine day, in 1977, I found myself sitting in Reg's compound, with ocellas all over me. Reg had misted me lightly with Chanel No. 5. Daphne and Rio, wearing big smiles, were rubbing themselves on my feet. The three kittens were burrowing ecstatically inside my jacket.

I had always admired wildcats from afar, but had never spent any time with captive ones. I had never heard of ocellas, and found it hard to believe that these tiny and exquisite animals were real, and in danger of disappearing. Saving them was something that I wanted to be involved with.

It was also interesting to learn from Reg that, as far as he knew, the three kittens born were the largest litter ever born in captivity, and that no zoo had ever bred ocellas. Clearly this fragile little cat was better off in the secluded environment that could be offered by a dedicated private breeder.

So we teamed up, and I built a new cattery on my property at Pawling, New York. Part of it was indoor-outdoor facilities for my Somalis, and the rest was the kind of forested aviaries that captive ocellas love. There, under an endangered-species permit from the N. Y. State Fish & Game Dept., Reg continued his work. He bred another litter of three.

Meanwhile, we both had joined the Long Island Ocelot Club, and Reg was searching for other ocella owners in the U.S.

Baby Bottles and Breeding Loans

The LIOC had started in the 1950's as a local club of New York exotic-cat fanciers. By 1977, under president Ken Hatfield, it had grown into a nationwide organization with a serious purpose: to educate the public about wildcats, to lobby for more sensitive wildlife laws, to help exotic-cat breeders exchange information — and to encourage the breeding of captive species by knowledgeable private owners. "Extinct is forever" became the club's motto.

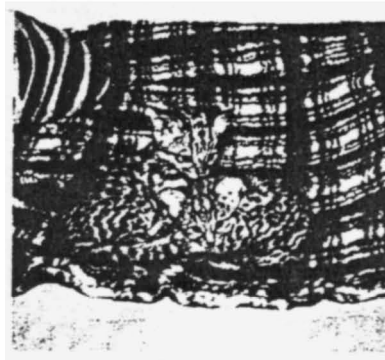
For years, the state and federal wildlife services had felt that any and all private parties should be discouraged from owning and breeding wildcats.

This feeling was understandable. Since the exotic-pet boom started in the 1950's, thousands of animal dealers and pet stores had built up a sordid trade in wild kittens, and thousands of ignorant and irresponsible Americans had owned them.

But little by little, the LIOC, and other pressure groups had gotten the federal government, as well as New York State and some other states, to see that the knowledgeable private breeder could make an important contribution to conserving wild animals.

So in 1978, Washington relaxed the law a bit, to allow for more interstate movement of endangered species — providing it was not done for commercial purposes. Private owners and zoos could make breeding loans or gifts of animals.

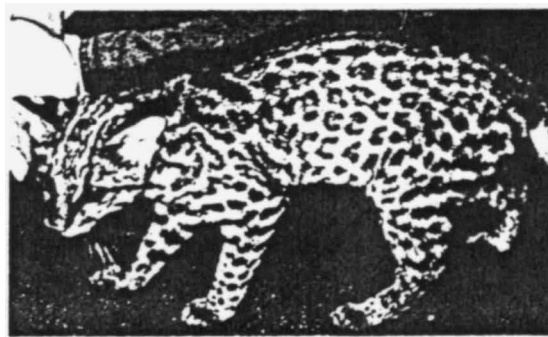
Reg discovered that ocellas were little-known in the U.S. zoo world. In 1977, as far as we knew, there were no ocellas in U.S. zoos. A phone call to the Bronx Zoo drew the response, from the individual answering the phone, that there was no such cat. By contrast, in Europe, ocellas were less scarce and better known. When David Taylor, internationally known British zoo vet, responded via long-distance telephone to a question about vaccinations from Reg and me in 1977, he told us that he was familiar with the cat, having treated ocellas at the Madrid zoo and other places.



Kitten on the left is Tigger Too, who went to Pat Quillen on a breeding loan, and sired Buzzer. (Art Human Photo)



Sir, the dark colored sire of Gensie. Owned by Dianne and Shirley Treanor. (Treanor Photo)



Gensie, the dam of Buzzer. This cat, as well as her litter sister, and her sire, seem to represent a distinct subtype among the captive ocellas in the U.S. All three of them share a very dark brown eye color, as well as a dark clay coat color. Their rosettes lack the red centers. They have no white on chest or belly, though their ears sport brilliant white ocelli. They are half-siblings, sired with the British Ocella sire.

In the South, one breeding pair was owned by Shirley and Danny Treanor. They finally obtained a total of three kittens from them. One kitten, Gensie, was destined to play an important part in this story.

In California, a brand-new ocella enthusiast was Patricia Quillen, president of the Leopard Cat Society of America. Pat had made her name as an authority on the Asian leopard cat, and on feline nutrition. She had also hand-raised a variety of wildcat kittens for the San Diego Zoo.

Pat was given a female ocella kitten by the Treanors. She had bottle-raised several species, and had worked out an elaborate formula of goat's milk, baby food, Nutri-Cal, calcium and other ingredients that made kittens grow like weeds. Watching Pat concoct this formula at the blender in her kitchen was a little like watching Julia Child put together a gourmet sauce on TV.

But she said later, the ocella baby was the toughest job she ever had. For weeks she battled the kitten's nutritional quirks, and its bouts of diarrhea. At the first sign of a calcium crisis, she would rush the kitten to the vet for injections of Calphoson (liquid calcium) and Vitamin B shots. Finally, she won the fight.

boned, with a dark tan color and deep brown eyes.

Pat was probably the first person on record to hand-raise an oncilla. The *International Zoo Yearbook* invited her to write an article on it. The experience left Pat hooked on oncillas. When she established her Society of Scientific Care, Inc., a private institute (under state and federal permit) for studying the breeding, behaviour and health of small endangered wildcats, she included the oncilla in her program.

Since she had no oncilla males, Reg sent her his precious Rio on a breeding loan, as well as two male kittens, Pharaoh and Tigger Too. Reg kept a grandson of Daphne's named Zimba, who combined her small size and sweet disposition with Rio's good looks.

In the spring of 1980, the oncilla group saw the first birth of its pooling of bloodlines. At Pat Quillen's institute in San Diego, Gensie gave birth to a single male kitten sired by Tigger Too. Pat was so excited that she got writer's cramp making birth announcements for all the people who mattered.

She hand-raised the kitten. Shortly he was pattering around the house in typical oncilla style. Pat named him Buzzer because — she said — "he buzzes around, stuffing his little nose into everything." When he was old enough, Buzzer went on a breeding loan to a qualified Texas couple, who wanted to become members on the oncilla task force.

U.S. oncilla breeders regard Buzzer with a little awe. After all, he is the first-born from two great oncilla dynasties — the Treanor cats and the Riedel cats — something like bringing together the Lancasters and the Yorks!

U.S. zoos have come to acknowledge that they will need private help to get into oncillas. At this writing, two female oncillas from well-known zoos are at Pat Quillen's institute for a stud service.

Now and then, another oncilla surfaces. In Oregon, a three-legged female turned up. She gets around quite well, is young, and hopefully breedable.

At this writing, we know of 18 oncillas in the U.S., either in zoos or in private hands. (By comparison, LIOC estimates that the more common and easily-bred Geoffroy's cat numbers at least 500 in the U.S.)

Fortunately, these 18 oncillas comprise at least half a dozen distinct bloodlines. If a juncture can be made with captive oncilla bloodlines in Europe and South America, working through CITES, the gene pool can be widened even more.

The oncilla group stay in contact with each other, sharing information — especially in emergencies. Phone bills are often high when the "oncilla hot-line" goes into action. The group are also in contact with oncilla people in Europe, including Dr. Leyhausen and Heidi Fahrenholz.

All of the oncilla group agree that *Leopardus tigrinus* is the most difficult and fragile wildcat that they have worked with. Oncillas are definitely a no-no for the amateur, and pose a challenge even to a seasoned wildlife hand. Even vets can make mistakes. Recently, one oncilla mother and kitten died of panleukopenia because a vet forgot that wildcats must not be vaccinated with live-virus distemper vaccine.

But a precious few have survived. The future looks a little brighter for the oncilla.

The work of Paul Leyhausen, Heidi Fahrenholz and the U.S. oncilla group is a classic example of the contribution that dedicated private breeders can make to the saving of threatened wildcats.

Educating the public about the little wildcats is a challenge. Many Americans get emotional about the awesome big cats, if you tell them that soon there will be no more Bengal tigers, which they have seen in the movies all their lives. But it is harder to get people excited about a 5-pound Latin American cat that they have never heard of, whose name they can barely pronounce.

Unfortunately, in a larger sense, the survival of this cat does not depend on oncilla breeders alone.

The fate of the oncilla lies mainly in the hands of those emerging South American nations who own its habitat.

A Threat to Eden

No longer can we think of the rain forest as the last immensity of virgin wilderness on earth. The Garden of Eden is being changed — not by a mythical serpent, but simply by human beings and their technology.

The slash-and-burn agricultural techniques that were practiced by Indians, from ages past, did not harm the great forest or its creatures. These tiny wounds in the canopy were quickly healed, as the Indians abandoned a small field and moved on to clear another.

Starting in the colonial period, bigger pieces of oncilla country began to be nibbled away — but probably without tremendous harm to the overall population of wildcats

living there. Oncillas have long been displaced by coffee and banana plantations in Costa Rica, and hardwood timber-cutting and rubber-farming in Brazil.

But today, South America is changing rapidly. And the focus of its development is in the tropical forest — especially in that giant nation, Brazil. Population pressures (200 million people by 1990) and poverty are forcing Brazil to burst out of its coastal provinces, where it has always concentrated its life. Brazilians are now settling, farming and industrializing the vast empty Amazon lowland that forms three-quarters of Brazil's total area. The Stone Age Indians have been quietly dispossessed of their lands, (often with tragic results).

Time was, the great rivers offered the handiest highways to the interior. But today, bulldozers and hardhat crews are slashing through the rain forest, felling the giant trees, throwing bridges across the rivers. The Trans-Amazon Highway now cuts straight across the interior. A network of newer roads is now lacing its way all around the rim of the interior.

Along the raw new roads go a flood of settlers and entrepreneurs. There are droughted-out peasants from the dry Northeast. There are gold-seekers, and homesteaders from the cities. It's the history of the American West all over again.

Today the Amazon is slowly being peppered with cattle ranches, pepper plantations, coffee plantations, pulp mills. Some of the wetter areas are being modified for rice farming — the dream is that a bonanza in Amazonian rice could feed that whole hungry and growing country.

According to a recent issue of *International Wildlife*, some of these pioneer farming efforts have not been very successful. Monocultures in the tropics appear to attract more disease and pests than they do elsewhere. Yet the Brazilian government presses on, desperate to prove that technology will succeed.

"Brazil wants to be a world power by the year 2000," one government official told *National Geographic*.

Of all Brazil's tropical-development projects, probably the most devastating to wildlife are the new tree plantations, which already cover millions of acres today. First, great tracts of rain forest are burned and felled. Nothing is left but stumps and a layer of fertile ashes. Endless rows of fast-growing hybrid pines are planted, and provide an easy-to-cut lumber crop in a decade. Thus the forest is sacrificed for newsprint and toilet tissue.

Mining also poses a huge threat. Government prospectors have found that immense deposits of iron, tin and bauxite lie under the Amazon country.

And unfortunately Brazilians are not the only investors in tropical-area development. Foreign companies, especially Americans, are heavily involved. The world's biggest paper mill, owned by American industrialist Daniel Ludwig, is located in the Amazon.

So, little by little, the great forest — which has waxed, waned and endured for countless millions of years — is being cleared away. The damage is now widespread enough to show up on satellite photos.

Ecologists warn that it is madness to strip the forest from the Amazon. They say that large areas of the thin forest soil, once exposed to sun and beating rain, rapidly turn to a hard crust called laterite, that is useless for agriculture, and even prevents the forest from growing back. They say that to reduce the weather-making and oxygen-making power of the rain forest may play havoc with the world's climate.

It is disquieting to think that the Sahara Desert, which is still in the process of engulfing north Africa, was once as green and wet as the Amazon.

The consequences for Brazil's wildlife are clear. In any area where the trees are cleared, the birds, insects, reptiles and mammals who depend on them for life will disappear. They will move elsewhere, or they will die. Many species — their numbers small to begin with — will vanish overnight.

To some degree, we Americans can help the oncilla and other tropical cats — by not buying products made of their skins, by not patronizing the still-thriving black market in endangered furs. But, in a larger sense, we yanquis must realize the futility — indeed, the arrogance — of trying to dictate to Latin Americans how they will develop their economies.

We can also help by setting a better example for the rest of the world. Right now the U.S. has a sadly mixed record on management of its own native wildcats. The cougar, though clearly endangered, is still officially a game animal in a number of our states, and the object of federally funded predator-control programs. The bobcat is being trapped in staggering numbers, and the federal government allows its pelts to be shipped abroad on an unrestricted basis.

But, hopefully, the future is not all that black. The best and surest hope for the oncilla lies in the hearts of South Americans themselves, who have the power to control and direct the development of their wilderness areas by foreigners and by their own companies.

The very national dream that draws Brazilians into the Amazon may also be the dream that saves parts of the Amazon for posterity. This happened in our American West, where millions of acres of wilderness are now national parks. This is also happening slowly in Africa, where some of the emerging black nations are starting to show a keen awareness of their unique wildlife heritage.

There are South Americans who love the natural beauties of their countries as passionately as Americans who thrill at the Grand Canyon. Argentina is already leading the way, with a string of wildlife sanctuaries and tough new laws protecting endangered animals. Venezuela, too, has set aside 220,000 acres of cloud forest in its Rancho Grande Reserve. In Brazil, conservationists are becoming vociferous.

Hopefully, here and there in South America, a few stretches of rain forest will be left, where the oncilla and other species can go on living as they always have.

If the oncilla has been trapped or hunted out of those areas, the species can always be re-stocked from the populations in captivity. This is already being tried in other countries, with a number of endangered animals.

Unfortunately, it is hard to protect the re-stocked cats, because the fur market is still so greedy, and the poachers are willing to feed it. But if — as I already said — people in industrialized countries would just stop buying cat furs, then the re-stocked cats would be left in peace.

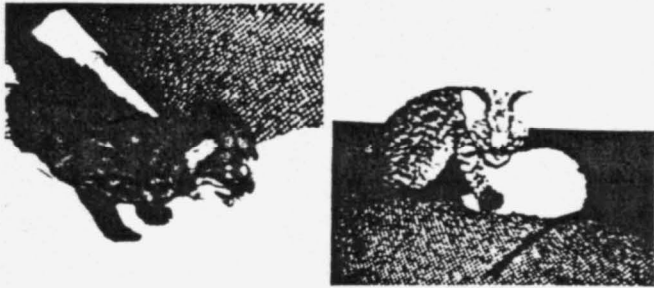
Perhaps, someday, descendants of Daphne, Rio, Gensie, Buzzer and others will make the return trip to the great forest.

Someday, perhaps, when we are all old, and there is a space station on the moon, and the world depression and a brief abortive World War III is over, we can drive inland along the Trans-Amazon Highway to visit the wilderness parks of Brazil — just the way people visit the parks in Africa today.

From a glistening modern hotel, we can hike for miles into the rain forest with a ranger, along a winding boardwalk. The walk must be cleared weekly by a crew of



In the world of felines, no contrast could be more poignant than that between this female oncilla kitten and her shaded-silver Persian friend (Enemoo Photo)



Like other cat people, oncilla breeders treasure the odd Polaroid snapshot of their kittens at tender ages. Here is Sassy, litter-sister of Gensie, at 5 weeks and 6 weeks respectively (H. W. Photo)



Provided she has enough privacy and a choice of nests, an oncilla mother will even consent to kitten in the cutesie-poo wicker affair used by domestic cats. Here is Heidi, Fahrenho's 12-year-old five-bred Olympia, with her 4-week-old son Gato (Fahrenho's Photo)



Oncillas appear to have a long breeding life, and don't seem to become "cystic" from prolonged heats, the way domestic cats do. In Germany, 12-year-old Peggy gave Heidi Fahrenho a nice surprise when she produced her very first litter, Dummie and Pea (Fahrenho's Photo)



This is one of the two oncilla females recently sent to Pat Quillen's breeding institute, for stud services

men with machetes, so that the forest does not engulf it.

High over our heads, the giant hardwoods will tower — pau amarelo, matamata, castanheira — as they have for a million years. As we walk in the twilight world, gasping in the dark heavy fruity air, we can crane our heads back and gaze up, awed and envious, at what Jean Horst calls "the luminous canopy."

The cheerful shrieks of birds and monkeys drift down to us. Perhaps a thunder shower comes over, so we sit for a while in a man-made shelter, to wait it out. Then the sun comes out again, and the foliage everywhere is dripping freshly.

Perhaps then we can climb a special winding metal stairway up and around an 80-foot tree, to a special tree-house designed literally to give visitors a bird's-eye view of the ecology of the treetops.

Up here, the blooming orchids and bromeliads stir in the breeze, at finger-tip reach. The small monkeys are curious, and eager for hand-outs. Tribes of colorful

macaws rise, screeching, to sound the alarm at our approach, with their long tails streaming. Then they settle on nearby trees to observe us. We feel the sun and the freshness of the air here, and breathe deeply. We have a gut understanding of why these animals and plants have chosen to live close to the sky.

And somewhere, far off through the trees, we hear a sharp, clear cry. It sounds like a bird, but is not quite a bird.

The ranger hands us his binoculars.

Peering through them, we might — far off through the branches, through the screen of sun and shade — barely glimpse a solitary little spotted cat trotting briskly along a branch. The cat pauses to lap a little fresh water from the heart of a bromeliad. Then it trots on, and disappears amid the hanging vines.

It is the oncilla — safe for ages to come, in a forest that is safe as well.

A cat, and a forest, that are a gift to us from ages gone by.



Will the oncilla still be found in its forest retreat a century from now? The fate of this cat, and of all the rain-forest creatures, is in the hands of man.
Ned Fahrenholz Photo

Author's note

Patricia Nell Warren has written widely on domestic cats, wildcats and wildcat/domestic-cat hybrids. Previous articles have appeared in the CFA Yearbook, Cats Magazine, Cat World, All Cats, Abyssinian Cat, and Long Island Ocelot Club Newsletter. Her writings have also been translated and published in many feline publications abroad, such as Cats/Chats, Die Edelkatze and Katten Var. She and Reg Riedel co-authored their first purely scientific article in the Carnivore Genetics Newsletter. The paper had previously been presented at the 2nd International Conference on Cat Population Genetics and Ecology, held in Jamaica in 1980. Ms. Warren breeds Somalis and Safaris.

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THANKS, also, to MARNA FOGARTY at CAT FANCIERS ASSOCIATION for allowing us to use this article.

Last - but not least - a big THANK YOU to ART and BETTE HUMAN for obtaining these issues and shipping them to us.

THANKS ALL



Our list of THANK-YOU'S for this issue must start with Pat Warren. Her work in developing and getting recognition of the Somali, Bengal and Safari Cats has, and will continue to benefit us all. THANKS PAT.

CRAZY CARACAL

BY REBECCA MORGAN

