

New Strangers at the Door?

by David Lazarus

IT is the year 2030. The earth is the warmest it has been for the past 120,000 years. The land shrinks. High seas and storms penetrate further inland. Wet areas become drier, dry areas drier. Oceans expand. Some ice-caps and glaciers melt. A one-metre rise in the sea-level in Bangladesh threatens the lives of ten million people. The Maldives are in danger of disappearing completely. In Mauritius, cities and airports are flooded. Water supplies are contaminated by sea water. Thousands of people collect their belongings and set off for a safer place to live. The environmental refugee, a new type of displaced person, is born.

The frightening scenario just described is the possible consequence of global warming, a process caused by emissions of carbon dioxide, chloro-fluocarbons, methane and other greenhouse gases. Scientists estimate that an average temperature rise of around 2.2 degrees centigrade could take place around the world in the next 40 years. It does not seem much, but previous climate changes have taken tens of thousands of years. Now the change is occurring with frightening speed, and nature, is not man, seems powerless to stop it.

The Intergovernmental Panel on Climate Change, which is working towards an international policy on this issue, estimates that 300 million people could be affected by the floods which would occur as the result of a one-metre rise in sea levels. But long before that, changing rainfall patterns

will affect crops. Soil erosion, desertification and a population explosion in Africa have led to a 20 per cent fall in per capita food production since the 1950s. Elsewhere in the world, food production is falling behind population growth.

Global warming, however, is only part of a 'worst case' scenario. Today, we have already witnessed a third of the world's land surface turning to sand, as the soil is overused. The Worldwatch Institute estimates that yearly topsoil loss

nowhere to go. One UN report predicts that by the year 2000, 77 per cent of Latin America's population, 41 per cent of Africa's and 35 per cent of Asia's will be urbanized. The pressure on cities is already great, creating slums and overcrowded unsanitary conditions. The urban sprawl will also chew up arable cropland.

A graphic example of urban degradation can be seen in Haiti, which suffers from the worst soil erosion in the world. The declining productivity of the land has propelled many rural people towards the capital city of Port-au-Prince, where the population has doubled in the past ten years. Half

a million people live in crowded slums. Confronted with these conditions and with an unstable and violent political situation, thousands of Haitians have already fled to the USA, travelling in small and overcrowded vessels like the Vietnamese boat people.

In fact, Vietnam provides another example of the role which environmental disaster can play in generating refugee movements. While political and economic considerations have been paramount in the boat people's search for a new home, the environmental damage inflicted by the Vietnam war—massive bombing, chemical and mechanical destruction of the land—has also played its part.

A 1985 UNEP report on the inland forests of southern Vietnam concluded that the herbicidal damage which occurred during the conflict was still much in evidence a decade later.

The environmental impact of war and militarization has been overlooked. In the South Pacific, nuclear weapons testing has forced people out of small islands and atolls, as high radiation levels threaten their habitat. The conflict between government and rebel forces in El Salvador, concludes the US Agency for International Development, has resulted in 'fundamental environmental as well as political problems... almost complete deforestation, massive soil erosion and loss of fertility siltation threatening hydro-power developments, and



Trees are felled more than they are grown. Picture shows wheelcarts transporting wood to brick kilns for use as fuel in the northern region of the country. — Star photo

Deforestation, desertification, global warming and the greenhouse effect. As evidence of these and other environmental disasters mounts, are we witnessing the birth of a new category of displaced person — the environmental refugee? That is the question posed in this article, contributed by a staff member of UNEP, the UN Environment Programme.

amounts to 25 billion tons — roughly the amount that covers Australia's wheatlands.

The rate of tropical forest destruction is about the equivalent of one soccer field per second. Burning forests release millions of tons of greenhouse gases and pollutants into the air. Scientists now say that the processes of desertification and deforestation are directly linked to an increase in droughts and floods.

Industrial accidents

Environmental refugees can also be expected in the more developed regions of the world. As long as dense popu-

lators inhabit the world's industrial zones, the potential for environmental refugees, fleeing from contaminated air, food and water will exist. Events at Chernobyl, Bhopal and Seveso have already demonstrated the disruptive social effects of industrial accidents. Some of the people displaced in those incidents have still not been able to return home. Many never will.

But the people who are most vulnerable to such environmental catastrophes may well find that they have

large-scale extinction of fauna and flora."

How would individual governments and the international community as a whole respond to a flood of environmental refugees? People escaping from natural or man-made disasters, like those who flee from poverty, do not fall within the refugee definition laid down by the 1951 UN Refugee Convention and its 1967 Protocol. According to those legal instruments, asylum seekers must be able to

demonstrate a "well-founded fear of being persecuted" in their homeland to qualify for refugee status. The 1969 Organization of African Unity Refugee Convention, which talks of people leaving their own country because of "events seriously disturbing public order," goes considerably further towards a recognition of environmental refugees. And in practice, governments and international organizations working in the Horn of Africa have recognized that the victims of war and the victims of envi-

ronmental disaster are often one and the same people.

But one might legitimately ask whether the international community's growing efforts to prevent environmental crisis should not be accompanied by a formal extension of the refugee concept. It would not be the first time that UNHCR and other relevant organizations had been asked to consider the utility of the definition established in 1951.

There is a strong feeling within UNHCR that it would

not be appropriate for the organization to extend its mandate, especially at a time when it is struggling to meet existing demands. But UNHCR has argued that refugee problems should be seen within the much broader context of development and migration, and called for a review of the UN's capacity to cope with major humanitarian crises.

UNEP Executive Director Dr Mostafa Tolba has long been concerned about the problem of environmental exiles.

STORMS, droughts and unseasonal frosts are not always the villains we make them out to be, according to a report on climate variability recently completed in Brazil. While they do cause overwhelming hardship in many parts of the world, they are occasionally actually beneficial, and are frequently the scapegoats for sociological problems.

For example, it has long been perceived that Brazil's northeastern state of Ceara has remained poverty-stricken due to frequent droughts. But according to the study, an entirely different cause-and-effect relationship seems to be at work, with climatic conditions less guilty than sociological ones for keeping the area deprived.

"Northeastern droughts do not cause poverty — they simply cause a starkly visible break in the already fragile lifelines of the poor through sharp

Climate : Society's Scapegoat

by Dale Boyd

drops in food production and consequent unemployment, hunger and suffering," says the report. In other words, climatic anomalies merely exacerbate and highlight existing sociological problems.

Ceara's droughts invariably signal the unfolding of a human drama in which the farm workers play "the traditional pawns in the great drought game." Dismissed by landowners, the farm workers migrate to town seeking work and food. When they find neither, they resort to looting which, not surprisingly, upsets the townspeople. This calls into action the politicians who turn on the federal-aid tap. Sometimes new jobs are created but

they never pay enough to seduce the workers permanently from the land where their labour is required to maintain the status quo.

When the rains return, the landowners rehire the workers who return to their prior docile existence a little poorer while all around them have become richer, and the social structure becomes ever more firmly entrenched.

On a more optimistic note, however, the researchers observed a new trend toward communities demanding more say in determining policies for dealing with climatic disasters. For example, in the Ceara case study a coalition of unions, church groups, farm workers'

wives and a new enlightened managerial class was found to be developing. This coalition has begun to take part in Brazil's political redemocratization and state attempts to introduce participatory drought-management techniques to create a more satisfactory response to droughts.

More to the point, the people of Brazil (and, by extrapolation, other places as well) need not be passive victims to the apparent whims of nature. As the report points out, with improved understanding of the region's meteorology, many climatic events can be predicted with reasonable certainty and measures taken to mitigate their effects

at the earliest sign of pending climatic calamity.

The Brazil study is one of four co-sponsored by the United Nations Environment Programme (UNEP) to assess the effects of climate on various human activities and socio-economic systems. The studies are carried out in developing countries which are less able to afford research projects themselves, and concentrate on non-humid areas in these countries due to their special vulnerability to climate in terms of food, water and firewood.

Based on 14 case studies, the Brazil project concentrates on the impacts of climatic conditions such as storms and

frosts, and uses the forecasting-by-analogy approach of predicting future scenarios based on past experience. The advantage of this approach over computer models, according to Peter Usher, coordinator of UNEP's atmosphere programme, is that it is relatively inexpensive (the Brazil study cost a mere \$62,000) and tends to have more credibility among decision-makers.

"Strong changes in climate such as shifts in the intensity or location of storms and drought could be one of the more serious consequences of global warming," Mr. Usher said. "Studying how people and governments react to them

now will help us prepare appropriate response strategies for coping with them in the future, should they become more prevalent or severe."

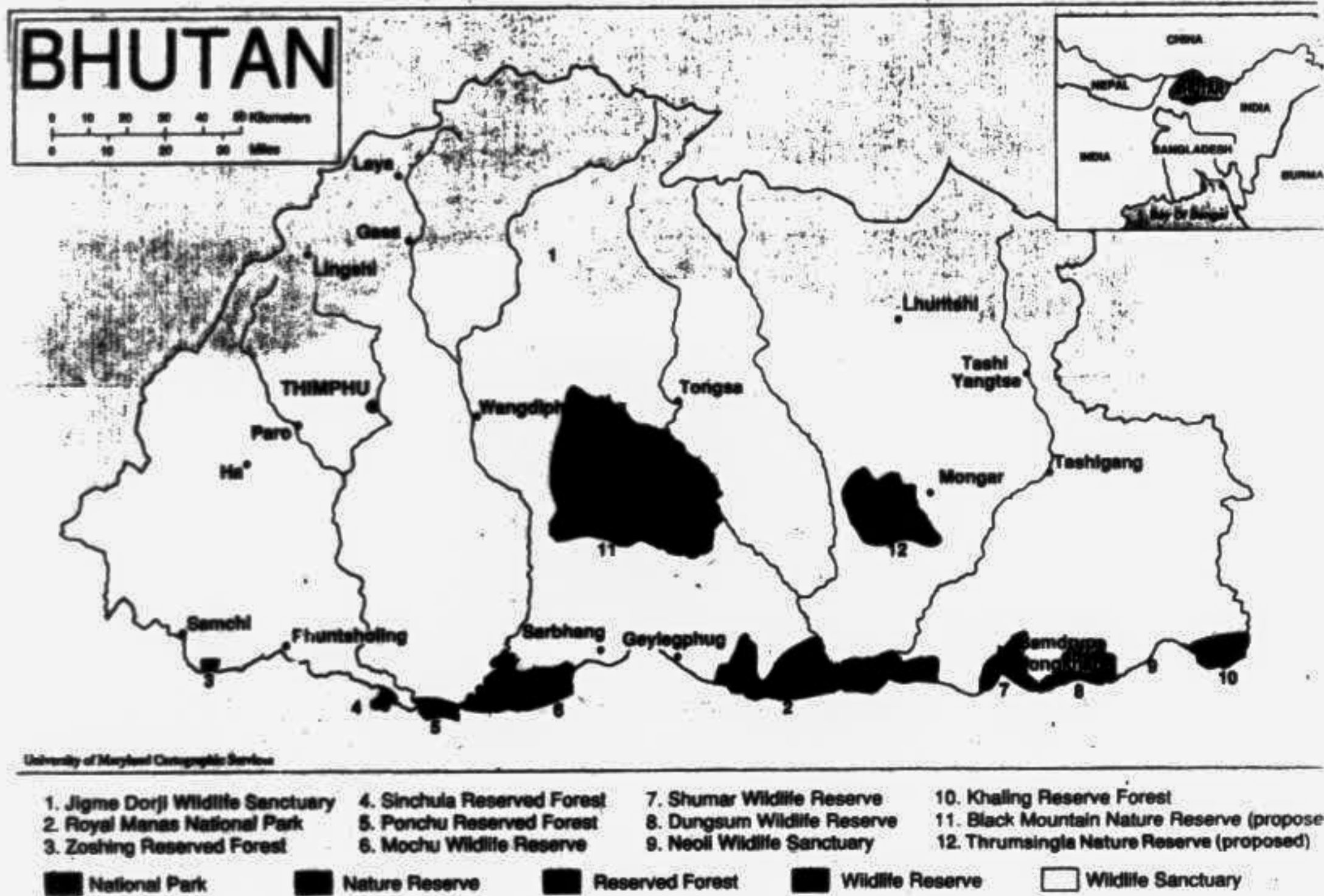
The Brazil project also reveals that climatic aberrations can actually be beneficial in unexpected, perhaps even perverse, ways. For example, researchers discovered that public health actually improved during droughts because compensation paid to farmers for lost subsistence crops raised their income above that of 'rain year', allowing them to afford better health care and nutrition.

Another study points out that the solar-salt industry in Ceara and Rio Grande do Norte actually thrives under drought conditions because it relies on the evaporation of salt water to manufacture its product.

Another interesting revelation is that climatic anomalies

in one part of the world can exert significant economic influence thousands of miles away. For instance, frost had little impact on Brazil's orange-growing industry until 1981, when it descended upon Florida, USA, devastating the orange-crop in that area and causing Brazilian orange-concentrate profits to soar from US\$400 million to \$700 million. For Brazil, the unusual weather conditions created a long-term niche in the market and an opportunity to unload stored-up stocks.

But over and above the unexpected results of the Brazilian study was one overwhelming conclusion that surprised no one — more research is required in Brazil, and no doubt elsewhere as well, before researchers, governments and the public can fully understand climatic variations, their socio-economic impacts and the best ways to deal with them.



Bhutan Safeguards Unique Ecosystem

Arriving late on the development scene, the country seems determined not to repeat the mistakes of others. by Ian Steele

BHUTAN is widely credited with having the greatest biological diversity of any country of its size in Asia.

Its southern region supports such tropical species as Asiatic elephants and buffalo, one-horned rhinos, tigers, and the golden langur, one of the rarest primates in the world.

The high Himalayas, just 100 miles to the north, shelter blue sheep, takin, snow leopards, wolves and lammergeiers, while the in-between reaches provide habitat for black bear and leopard.

The country has retained more than 60 per cent of its forests, and if one takes Royal decrees at their word, the preservation of all of this is assured.

wildlife sanctuaries, reserved forests, nature preserves and one national park, the vastness of these areas and acute shortages of trained rangers and resources have left the areas virtually unprotected.

Experts from the United Nations Development Program (UNDP) and the World Wildlife Fund (WWF) say that unless systematic efforts are made soon to safeguard the wilderness, Bhutan's forests are likely to disappear in much the same way as those in Nepal with disastrous consequences not only for the people and unique ecology of Bhutan but also for millions of people living in the floodplains downstream in Bangladesh and India.

Unchecked runoff from deforested hillsides causes erosion, declining soil productivity, and loss of habitat for animal and bird species in the uplands, and contributes to massive siltation and flooding downstream.

Bhutan's extensive forest cover and abundant bio-diversity, UNDP, the World Wildlife Fund and the Royal Government of Bhutan have agreed to set up a Trust Fund for Environmental Conservation as a means of generating funding for long-term conservation initiatives. Bangladesh and India have also indicated interest in contributing.

The initial goal is to have a US\$20 million fund capable of generating at least US\$1 million a year for a variety of programmes.

These include: training for foresters, ecologists, and natural resource managers; surveys of forest resources and development of an ecological information base; environmental education in schools; and institutional support for the National Environmental Committee, Department of Forestry, the Royal Society for the Protection of Nature, and a Research and Nature Study Centre at Manas.

at Manas in the south, shares most of India's elephants north of the Brahmaputra River. According to the World Wildlife Fund, hundreds of elephants use the park's dry deciduous forest and grasslands. Elephants are protected in Bhutan but their numbers have declined due to loss of natural habitat.

An estimated 10 to 25 rhinoceros live in the lower third of Manas where they are in constant danger from poachers. Tigers are said to be the most adaptable of the large mammals in the park and there are between 30 and 40 of them there. India's Manas Tiger Reserve has another 80 to 100 of the animals.

Bhutan has another 10 protected areas in addition to Manas, and two more have been proposed.

In addition to its best environmental intentions, Bhutan has a number of things in its favour. Among them, a 20-year start on Nepal which was exposed to modernisation and its rapacious tendencies in the 1950s.

Bhutan remained unopened until the 1970s, by which time the international community had become somewhat more sensitive to the need for conservation. Fortunately, the King was also well aware of nature's value and was not prepared to accept "development" at face value.

In 1986, the Royal government of Bhutan rejected a World Bank project to build a major dam on the Manas River because it would have flooded one of the most spectacular wildlife areas in the country. And the King intervened to halt a major marble quarrying operation because it was unsightly.

Having arrived fortuitously late on the development scene the country seems determined not to repeat the mistakes of others, and conservationists on the outside appear equally willing to help.

They are fond of a quotation from King Jigme Singye Wangchuk during an interview with Newsweek magazine in 1980. "What we want to achieve," he said, "is a balance between gross national product and gross national happiness." —Depthnews.

SHOULD ZOOS BE A THING OF THE PAST ?

A howl of public protest followed an announcement that the London Zoo — the oldest existing public collection of animals in the world — is to close in September. The news revived arguments between those who oppose the existence of zoos and those who believe they have a vital role.

The Zoo's future is threatened as a result of financial losses over a number of years, falling numbers of visitors, and British government refusal to bail it out.

In 1990, the Zoo lost an estimated £4.9 million, following annual losses of around £2 million for several years. In 1988 the government gave a one-off payment of £10 million to the Zoo. This is not enough. The Zoo needs at least £13 million to survive.

Its annual running costs — notably feeding and caring for the animals, staff salaries and the upkeep of historic buildings which the Zoo is obliged to maintain — are huge. In addition the Zoo has to be modernised.

It was founded in 1862 by Sir Stamford Raffles, who also founded modern Singapore, and Sir Humphrey Davy, who invented the miner's safety lamp.

The need to modernise is stressed by many opponents of zoos. They say the accommodation for animals is too cramped and that it is cruel to force them to live in such conditions.

Several groups, such as one called Zoo Check, would like the Zoo to go. Zoo Check director William Travers, son of actor Bill Travers and actress Virginia McKenna, stars of the lion film Born Free, has said that he would like to see all zoos phased out. He is not alone, either.

Some British Conservative MPs are unhappy about the idea of government money being used to support the Zoo. They argue that the Zoo is obsolete and public funds should

not be used to support an institution under attack from some conservation groups.

Visitors to the Zoo interviewed since the closure announcement are adamant that the Zoo should stay. Many say it is a form of entertainment that is worth keeping. Others, more thoughtfully, argue that the Zoo plays an important ed-

being a repository for endangered species or a form of entertainment combined with education.

Research into areas such as genetics, veterinary science and animal nutrition could be affected by the closure.

Animals at the Zoo are used as part of the research and staff at the Institute of Zoology attached to the Zoo use their

There is also the strong argument that people need to remain concerned about their environment and the animals which inhabit it.

If they can never see those animals physically and appreciate their beauty as well as their role in the world ecosystem, they are less likely to be concerned about endangered species and endangered environments.

The more spacious zoos at Whipsnade or Marwell are held up as the best alternatives to London Zoo. The value of the work done there for conservation and the breeding of rare animals should not devalue London Zoo's contribution.

It has played its part in the preservation of species such as Przewalski's horse, the scimitar-horned oryx and the Arabian oryx. Certainly, the Zoo is in need of modernisation, but it still has a part to play. Unlike Kew Gardens and other British institutions it receives no annual grant from the government.

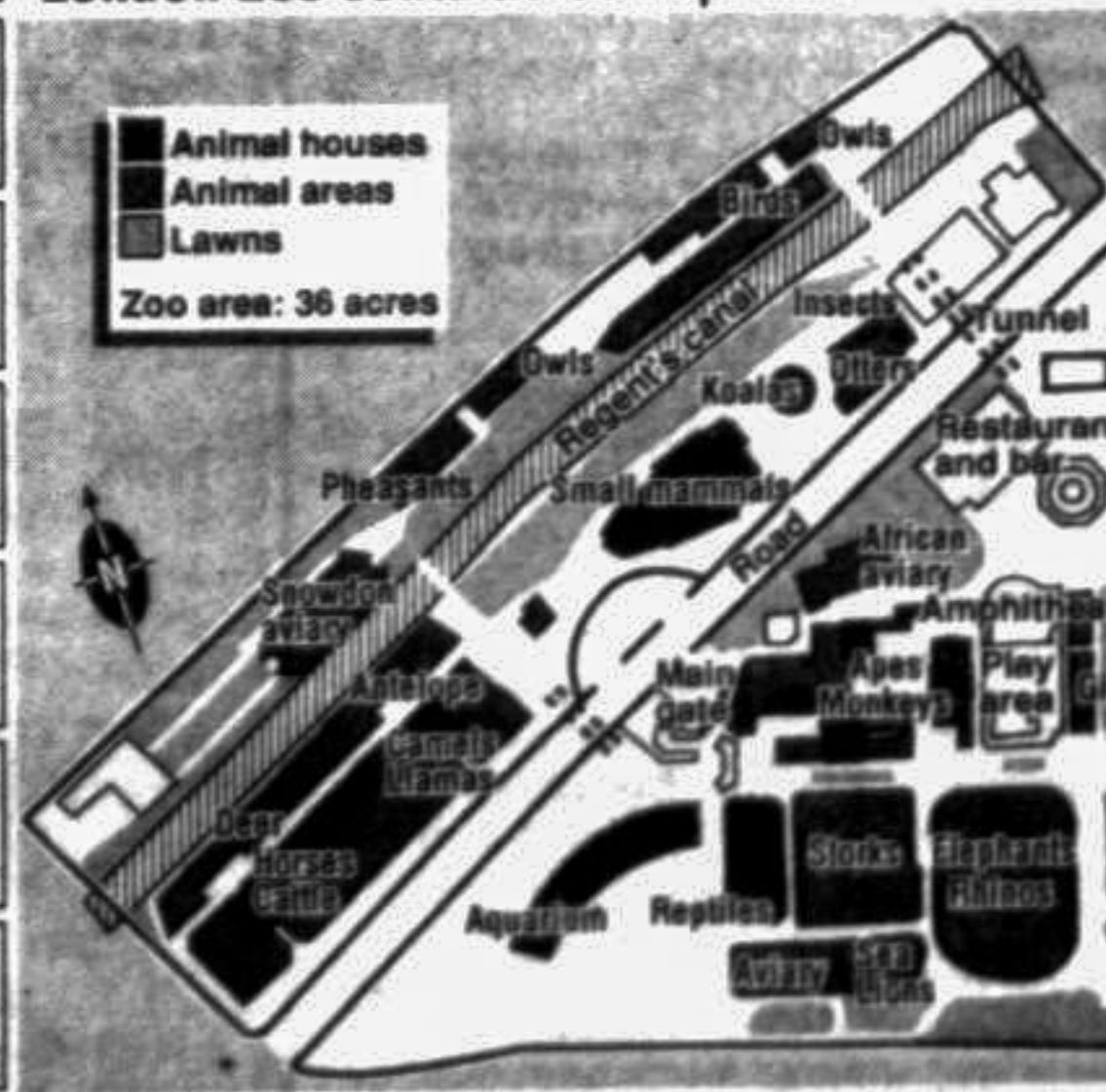
If properly funded it could play a valuable part in impressing on city dwellers the importance of wildlife, its aesthetic beauty and the need to preserve them and their environments for future generations.

The retention of London Zoo is also needed as part of an integrated, intelligent and, above all, a realistic approach to conservation.

Curtains after 165 years ?

Founded 1826 London Zoo contains 964 species

- Mammals: 1,241
- Birds: 963
- Reptiles: 449
- Amphibians: 199
- Fish: 2,500
- Invertebrates: 13,000



Operating deficit
1989-90 £5million
1988-89 £2million

Visitors down
18.5%

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