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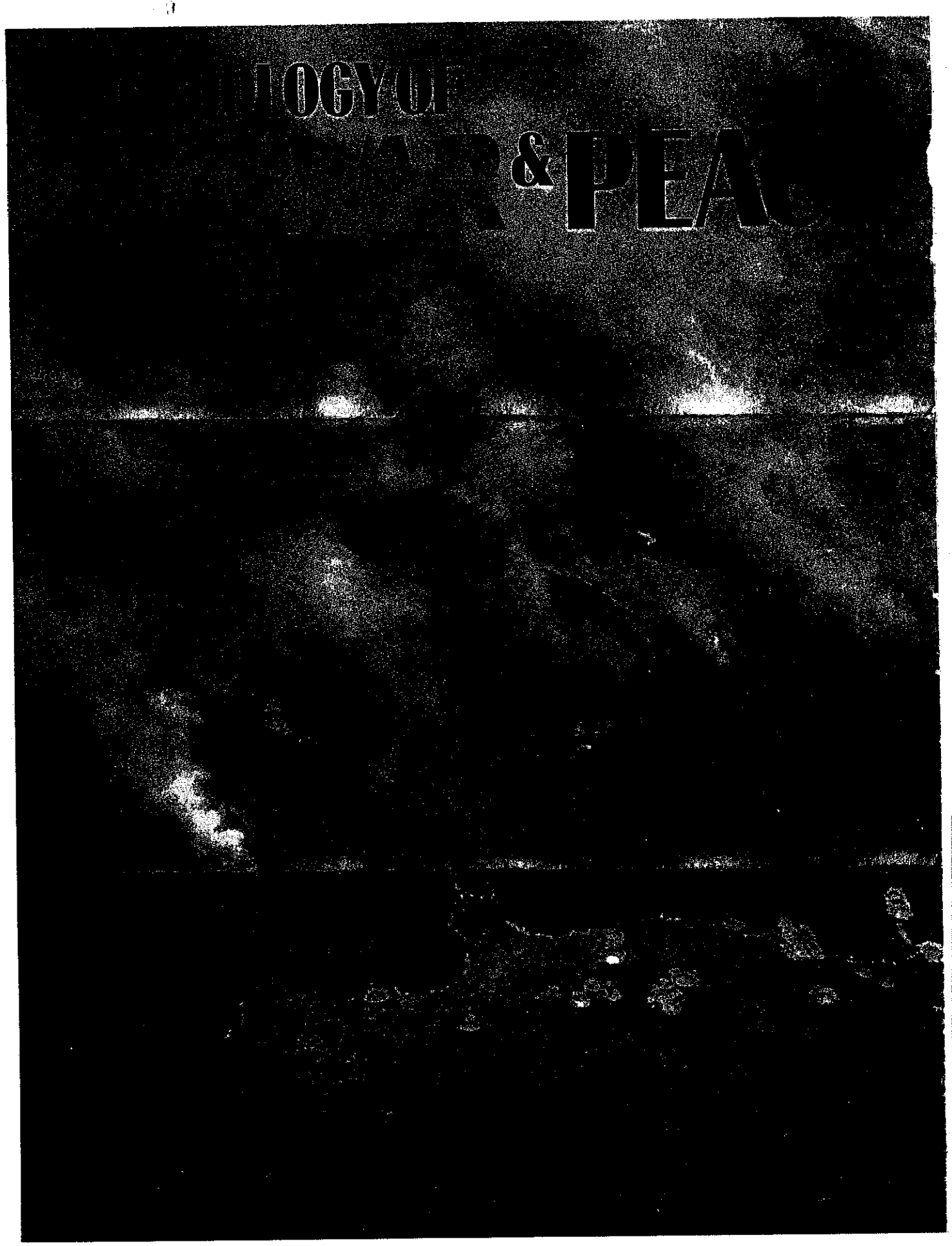
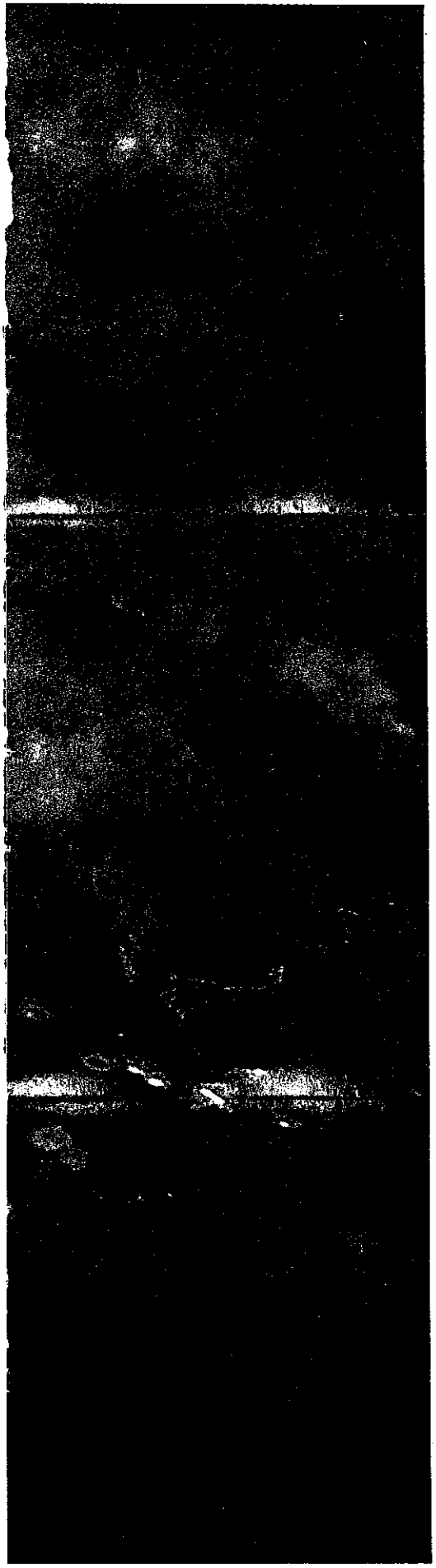




U. S. Air Force

Battlefields of Ashes and Mud

by Bernard Nietschmann

The environment has always been both a military target and a casualty of war. An enemy's habitat provides food, refuge, cover, and a staging ground for attacks. In prehistoric times, fire-drives deprived an enemy of game animals and cover. Some 3,000 years ago, Abimelech's forces spread salt on the conquered city of Shechem (Judg. 9:45), near Nablus, Jordan—perhaps the first recorded use of chemicals to destroy an enemy's territory.

Scorched earth tactics were used by the North against the Confederacy in the American Civil War, by Britain against the Mau Mau insurgency in Kenya (1950–1956), by France against Algerian independence forces (1949–1962), and by the Soviet Union against mujaheddin communities, their crops and sanctuaries in Afghanistan (1979–1989). This strategy is now the weapon of choice by government forces against insurgents in southern Sudan, Eritrea, Tigray, Chittagong Hill Tracts, Kawthoolei, East Timor, El Salvador, and Guatemala.

In Vietnam, the United States elevated environmental damage to a primary tactic in its fight against the peasant guerrilla forces of the National Liberation Front, or Vietcong, and the lightly armed and highly mobile North Vietnamese army.

Fires burn in a Vietnamese forest after a bombing raid in 1967. During operation Pink Rose, U.S. planes sprayed defoliating agents, then dropped incendiary cluster bombs in an attempt to remove the enemy's cover.

United States forces bombed and shelled 30 percent of South Vietnam's territory, leaving a moonlike landscape pockmarked by an estimated 250 million craters. Planes sprayed herbicides on 10 percent of the country, destroying 8 percent of the croplands, 14 percent of the forests, and 50 percent of the mangroves. "Rome plow" bulldozers and ship anchor chains cleared vegetation. The war in Vietnam left in its wake extensive impoverished grasslands instead of forests, widespread erosion and dust storms, major declines in freshwater and coastal fisheries, and severe losses of wildlife, especially from the forest canopy—wounds from which the land may not recover for a hundred years. (In France, shell craters from the 1916 Battle of Verdun are still present and thinly vegetated seventy-five years later.) In Vietnam, war-damaged environments fostered the spread of bamboo thickets and the tenacious *Imperata cylindrica* grass, rodent populations, and "bomb crater malaria."

Almost all of the world's current wars (some one hundred in more than forty, mostly Third World countries) are between conventional state forces and guerrilla insurgents or nationalists. Environmental "interdiction"—meaning destruction—is a very popular tactic. Comparatively inexpensive, it does not expose often poorly trained and unmotivated government troops to guerrilla ambushes in unfamiliar terrain. As R. Kipp, chief historian of the Strategic Air Command (1967–1968), wrote, "Guerrillas are not fought with rifles, but rather are located and then bombed to oblivion."

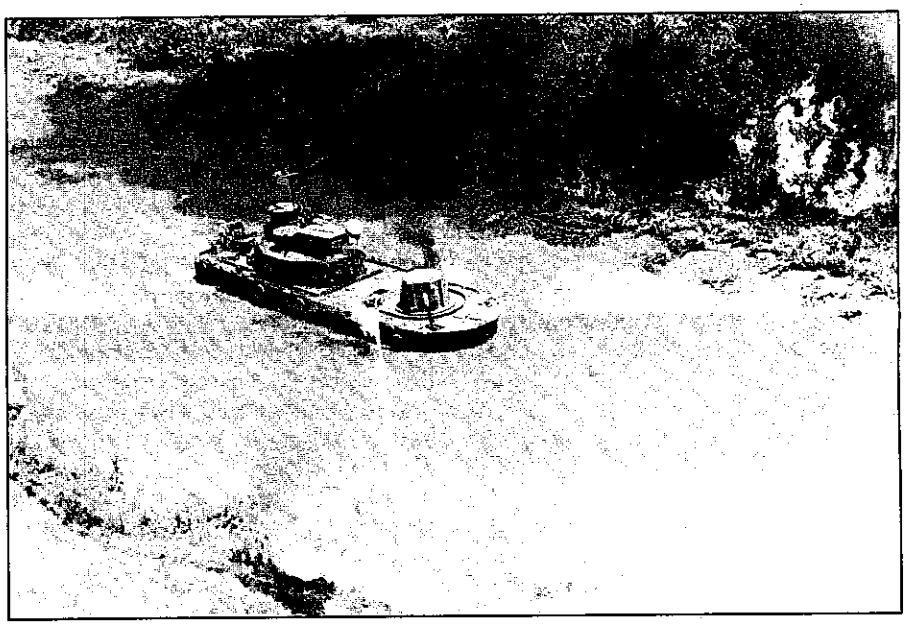
A main guerrilla objective is to remain invisible to government forces. Locating guerrillas in a forest or a community presents a needle-in-a-haystack problem. The solution is to bomb the haystack. In El Salvador, rebel-controlled areas are frequently napalmed, shelled with artillery, and hit with 500- and 750-pound bombs. In Guatemala, some 500 communities, their fields, and nearby forests have been burned and leveled to deprive left-wing insurgents of recruits, food, and shelter. In Tigray and Eritrea, the Ethiopian occupation forces destroy crops and vegetation to induce famine. And in 1988, the Iraqi occupation army used poison gas against Kurdistan to kill guerrillas and civilians and to contaminate vegetation, forcing some 400,000 Kurds to flee the oil-rich territory. (This summer the largest concentration of conventional weapons seen anywhere since World War II was deployed in and around Iraq.)

Elsewhere, fauna and flora become casualties of war. Lebanon's historic cedar

forests are disappearing under the demand for camouflage and firewood for armies and fuel-starved civilians; the teak forests in the Shan and Karen nations (perhaps 80 percent of the world's total) may be gone in three years through exploitation as a war crop by both the Myanmar (Burmese) occupation forces and the Karen and Shan resistance forces; Myanmar is also defoliating croplands and forest sanctuaries of Shan and other indigenous peoples' resistance forces under the pretext of opium poppy destruction; Bangladesh is deforesting the war-torn Chittagong Hill Tracts; and the confluence of the biologically rich Tigris-Euphrates rivers—the cradle of civilization—was the main theater of the recent destructive war between Iran and Iraq.

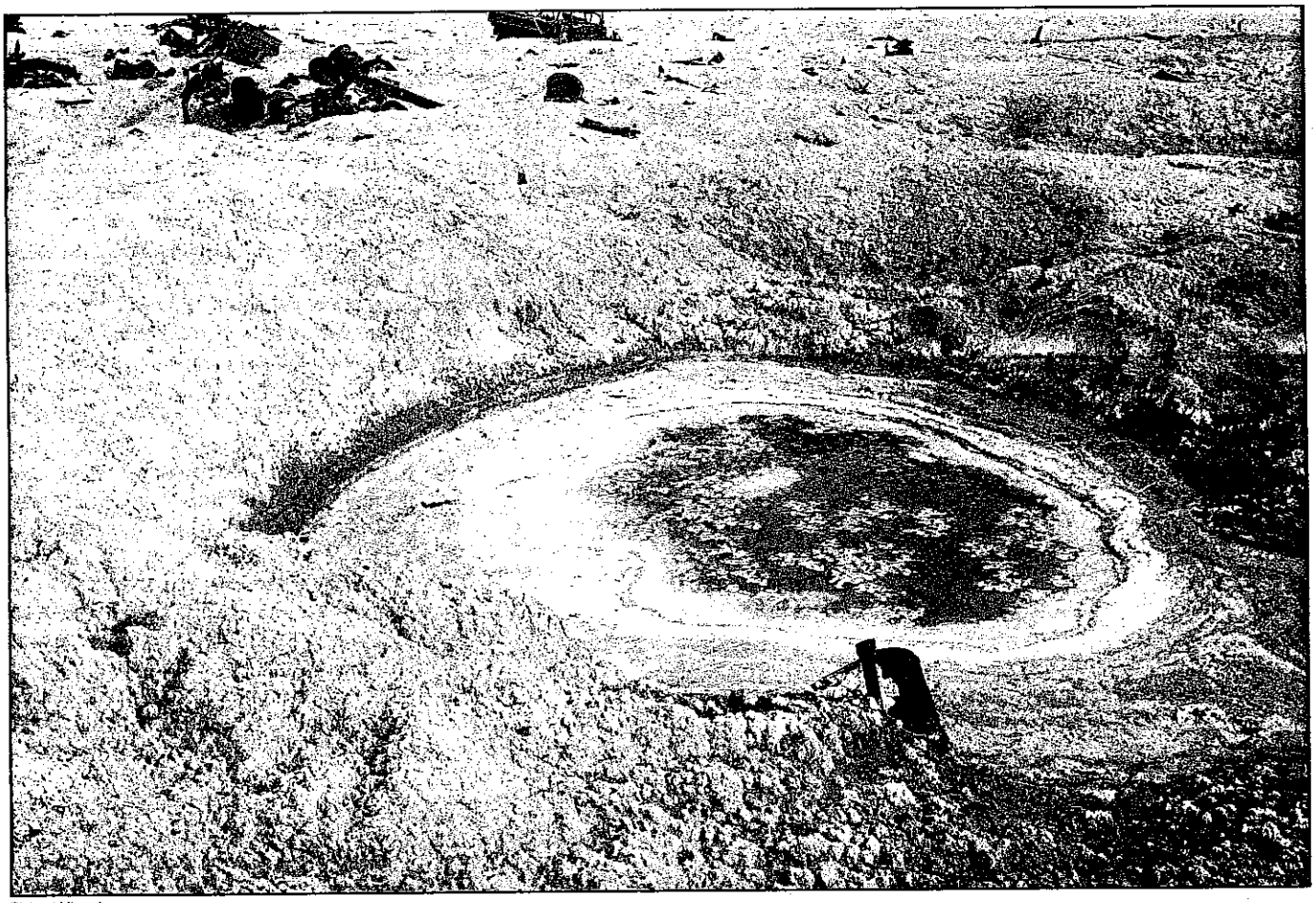
Preparations for war may be as environmentally destructive as war itself. Training exercises, bombing and artillery practice, weapons testing, and refuse disposal affect many environments continuously, unlike actual war.

The production and testing of nuclear weapons are the most environmentally destructive war-preparation activities. The mining and processing of radioactive ore, weapons assembly, and disposal of radio-



U. S. Navy

A U.S. Navy monitor boat, right, used flame throwers to destroy vegetation in Vietnam's Mekong Delta in 1968. Below: A crater at Bravo 20, a bombing range on public land outside Fallon, Nevada.



Richard Misrach

active wastes contaminate extensive areas used by the world's nuclear weapons powers. Weapons testing takes place in the most isolated (and therefore the least disturbed) environments, contaminating soils, plants, animals, and groundwater for thousands of years. Since 1963 the United States and Great Britain have exploded more than 670 nuclear weapons and "devices" in the Nevada desert, on land claimed by the Western Shoshone Nation. In this same region, the United States is constructing a high-level nuclear waste disposal center. Between 1946 and 1958, the United States detonated sixty-six atomic and hydrogen bombs on Bikini and Enewetok atolls in the Pacific. The radioactive cleanup will cost $200 million.

Elsewhere in the Pacific, the United States and Britain exploded 34 atomic and hydrogen bombs on Christmas Island (1957–1962); Britain set off 12 nuclear weapons on eleven Aboriginal nations in northwestern and central Australia (1952–1957); beginning in 1966, France detonated 132 nuclear weapons on Moruroa and Fangatuafa atolls in the South Pacific. On Moruroa the bombing created fissures a half mile long and eighteen inches wide in the coral base, blew large pieces out of its sides, collapsed the entire atoll until it is barely awash above the sea, and produced more than one million leaking bags and barrels of radioactive waste. The destruction of the coral reef may have led to the proliferation of single-celled organisms that produce toxins ingested by many species of fish. Ciguatera fish poisoning is now a public health and economic problem on many Pacific islands where people depend on fish for food and income. On Johnston Island, the United States is planning to incinerate expired-date chemical and biological weapons materials despite the protests of island peoples living downwind and downstream.

Similar environmental damage has been done by the Soviet Union and China, and to a lesser extent, India.

Ironically, in the midst of war and war preparation, environments and species may be inadvertently protected. In World War I the presence of German submarines shut down the North Atlantic fishing industry, which rejuvenated the fisheries and led to postwar bumper catches. The demilitarized zone between North and South Korea is effectively a wildlife preserve. Wildlife has also had a resurgence in many other cold- and hot-war borderlands, such as along the Iron Curtain, between the USSR and China, and between Libya and Chad. In Nicaragua two decades of back-to-back Sandinista and Contra wars and almost a decade of resistance by the indigenous peoples in eastern Nicaragua, known as the Yapti Tasba, have sharply reduced hunting, logging, cattle ranching with its attendant forest-to-pasture conversion, and exploitation of coastal and sea resources.

Armed conflicts between state armies and guerrilla insurgents and nationalists make up 90 percent of today's wars, and they are all in the biotically rich but economically poor Third and Fourth worlds. Instead of using the expensive counter-insurgency "hearts and minds" strategy, gaining the allegiance of their people through aid and propaganda, many Third World governments prefer to use the cheaper "ashes and mud" environment interdiction approach, which produces immediate results and requires no government reforms or concessions. But in these Third World wars, no international standards exist to monitor, control, or prohibit environmental warfare (ecocide) or, for that matter, any of these internal wars (the Geneva Conventions apply only to international states at war with each other).

Ultimately, ashes and mud counter-insurgency policies will be counterproductive. Degraded land and resources are as much a reason for taking up arms as are repression, invasion, and ideology. □

Degreening Vietnam

by E. W. Pfeiffer

In the summer of 1971, with the war in Vietnam still raging, biologist Arthur Westing and I flew over the mangrove forests south of Saigon and were astounded by the neatly arranged rows of bomb craters that trailed off beneath us in all directions as far as the eye could see. Massive attacks carried out by the U. S. Air Force had destroyed tens of thousands of trees. Once lush and green, this was now a vast gray landscape, littered with the skeletons of herbicide-killed mangroves. Water tables and local drainage patterns had been disrupted or even destroyed, and as ecologists, we both could see at once that rain and tide were washing nutrients out of the disturbed soil, with disastrous results.

Our aerial survey of the mangroves at that time was a part of studies made by Westing, myself, and others to document the damage done to these wetlands during the Vietnam War. (The Scientists Institute for Public Information, whose president at the time was anthropologist Margaret Mead, sponsored the studies.) Our understanding was that the indiscriminate bombing and spraying of these almost impenetrable, undeveloped areas was part of a larger scheme of "area denial"—the Department of Defense's official jargon for preventing "suspected enemy activity" in these areas. These deliberate attacks on the natural environment had produced a new word in our vocabulary, *ecocide*—the destruction of the environment for military purposes.

The U. S. Department of Defense had carried out an extensive program of forest and crop destruction in Southeast Asia, both by aerial spraying with herbicides and by bombing. Defoliation by herbicides made the enemy more visible to U. S. air and land forces and prevented surprise attacks. The bombing was intended to prevent guerrilla troops and the peasants who supported them from living in, or moving through, the fields and dense forests. Of the many types of trees attacked, the mangroves of Vietnam suffered the most damage; 54 percent of them were killed by the herbicides.

The most concentrated military attacks on the mangrove forests took place in the delta of the Saigon River, east of the much larger Mekong River delta. This area, designated by the U. S. military command as the Rung Sat Special Zone, included the many winding channels of the Saigon River delta. These channels provided waterways for the supply ships of the United States and their South Vietnamese allies. Ships moving slowly through the thick mangrove forests were targets for the National Liberation Front guerrillas. We had been told that if even one ship were sunk by the enemy in the Rung Sat Special Zone, it would seriously impede traffic to Saigon.

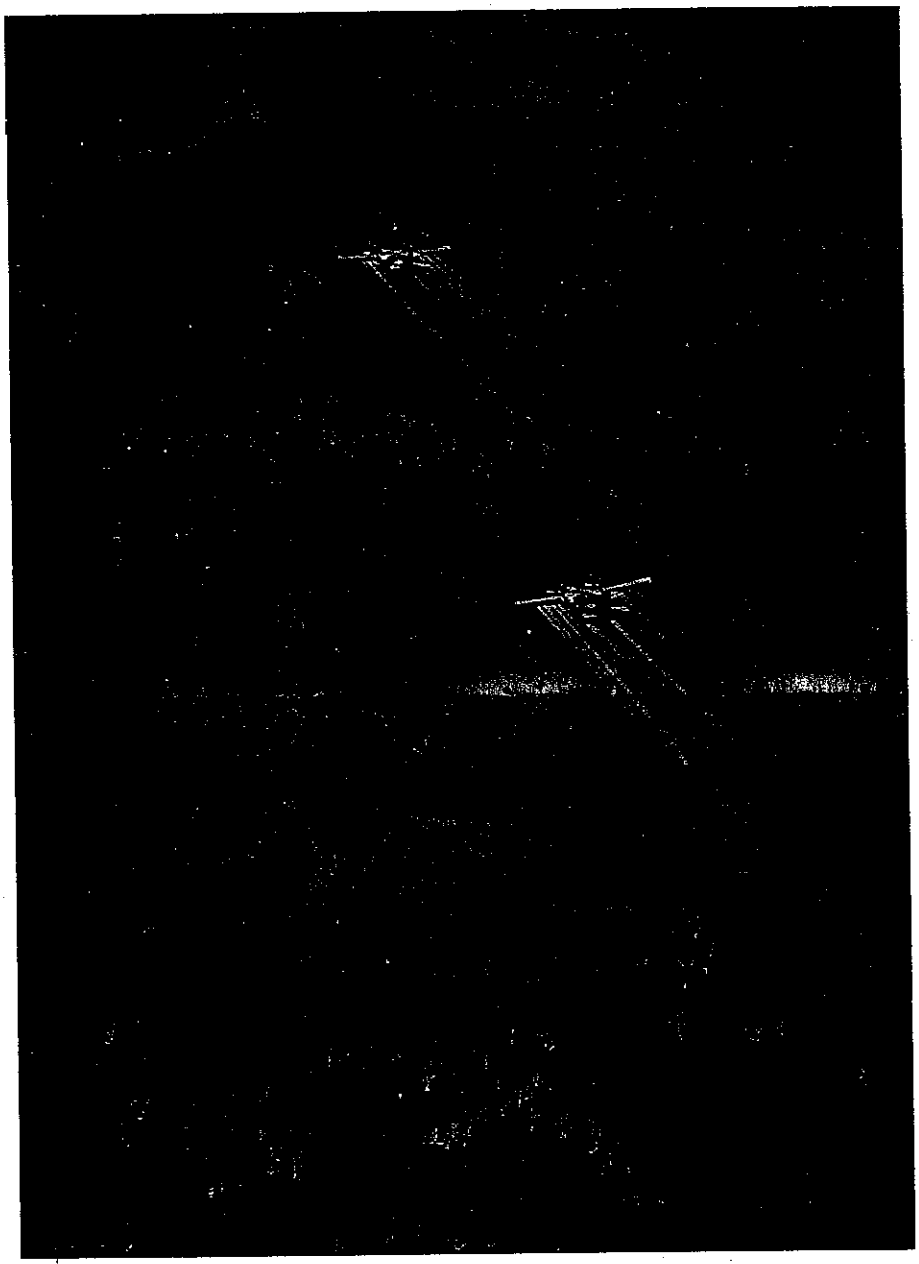
For ten years, beginning in 1961, about 20 million gallons of chemicals were sprayed on South Vietnam by a variety of aircraft. More than half these chemicals consisted of Agent Orange, an herbicidal mixture of 50 percent 2,4-D and 50 percent 2,4,5-T. Herbicides are chemicals that either defoliate or kill plants by mimicking and accelerating the action of their growth hormones, thereby causing leaves to drop off. Although these particular herbicides have been used throughout the world, the amounts applied in Vietnam were far greater than those legally permissible in the United States. Mangrove for-

ests were peculiarly sensitive to Agent Orange. A single application would destroy almost an entire mangrove community. Repeated applications—sometimes four or five—were required to cause the same devastation in upland hardwood forests in Vietnam as we wrought in the mangroves.

The mangroves also suffered extensive bombing, mostly by B-52 Stratofortresses. Beginning in 1965, these eight-engine aircraft bombed Vietnam, almost entirely in the south, on a daily basis for eight years, dropping a total of 2.8 million tons of bombs.

These aircraft flew from their bases in Guam or Thailand and arrived over Vietnam at an altitude of about 30,000 feet. Typically, each bomber carried 108 five-hundred-pound bombs, released so that the bombs scattered over a rectangular area of 160 acres—hence the phrase "carpet bombing." Each bomb, targeted and released by complicated electronic systems, created a crater with a diameter of about thirty feet and a maximum depth of about fifteen feet. Some eighty-eight cubic yards of soil were displaced by each explosion. In the mangrove swamps, the craters permanently filled with water.

Bombers spray Agent Orange defoliant during the Vietnam War. Herbicides destroyed more than half the country's mangrove wetlands.



Dick Edwards

The mangrove forest is a transition zone between land and sea. As a coastline accretes, mangroves invade the new soil and hold it against the erosive action of wind, wave, current, and tide. Mangrove forests are found along narrow coastal belts of the tropical Atlantic in the Western Hemisphere, the Gulf of Mexico, and Southeast Asia and Africa. The mangrove forest also grows along deltas and estuaries below the high-tide mark.

The predominant vegetation is several species of leathery-leafed evergreens ten to fifty feet high, primarily in the genera *Avicennia, Bruguiera, Sonneratia,* and the red mangrove *Rhizophora.* As soil is deposited along the coastline by rivers, the *Sonneratia* and *Avicennia* with their aerial roots grow first, followed by *Rhizophora,* then some years later by *Bruguiera* just below the high-tide mark. Through time, the soil level builds to beyond the reach of the flood tide, and the more or less concentric vegetative zones just described make way for a new community known as back mangrove. The back mangrove is dominated by trees of the genus *Melaleuca.*

Mangroves have "prop roots," which sprout from the tree trunk several feet above the soil into which they grow and spread. These roots form a dense, almost impenetrable mass. Mangroves are among the few types of plants that can live in brackish or salt water. Ordinarily, seawater kills by osmosis: sucking the fresh water out of plants. But membranes in mangrove cells filter the seawater entering the trees through the roots, excluding most of the salts so that only the central sap, almost pure water, is drawn up to the leaves. (A Vietnamese friend told me that the soldiers of the National Liberation Front, living in mangroves and attacking the ships coming up the waterways in the mangrove forests, used the mangrove tissues as a source of fresh water.) The herbicides upset the plants' filtering system and allowed excess salts to accumulate in the leaves.

Mangrove leaves, decomposing in the mud or tidal water, supply an enormous amount of nutrients and thus support a great variety of life—especially invertebrates such as snails, crabs, and mollusks. During peacetime, the mangrove forests of Vietnam are an important source of

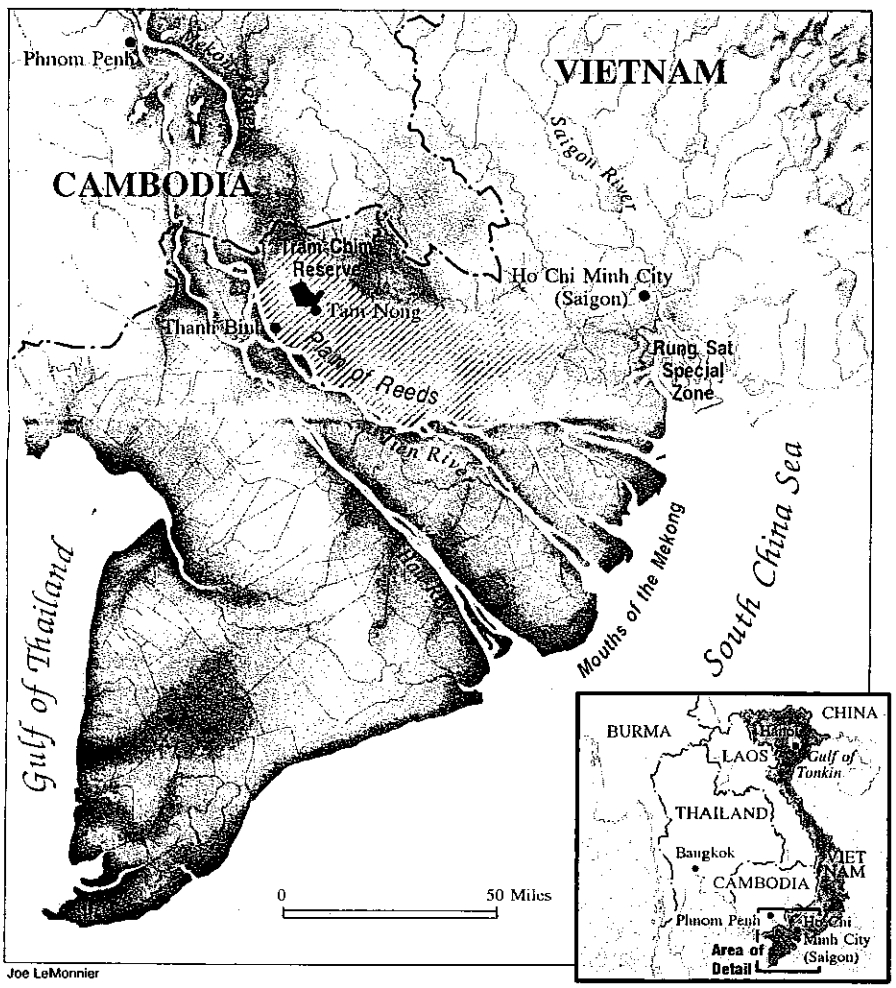
seafood, as well as of tannin for tanning leather and charcoal for cooking fuel. Even before the U. S. military presence, the Vietnamese severely damaged some mangroves by overcutting.

In 1928, French foresters established reserves and began to manage the mangrove systematically by regulating cutting, digging canals, and replanting denuded areas. But the vast destruction of the trees during the war greatly reduced the productivity of the mangrove wetlands, and the reduction of charcoal production made the southern Vietnamese more dependent on imported U. S.-supplied oil for stove and lamp fuel.

In March 1969, ornithologist Gordon Orians and I visited, by U. S. naval patrol boat, some of the channels running through the mangrove forests of the Rung Sat Special Zone. The scene was one of almost total destruction—a silent, gray mass of dead plants even in regions last sprayed several years earlier.

An avid bird watcher, I first encountered mangroves and their inhabitants in 1938 when I was in British Guiana (now the independent state of Guyana). I recall that as I crawled and climbed through the tangled roots and branches of the mangrove forest to observe the primitive bird hoatzin, large numbers of other bird species flew around and called to one another. The forest was vibrant with life. In Vietnam the destruction of plant life had an almost equally severe effect on the animals living in the formerly vibrant mangrove ecosystem. During our tour of the defoliated areas, Orians and I did not see a single species of insect-eating or plant-eating bird, with the exception of barn swallows, which were migrants from the north.

Although no scientific evidence exists on bird populations in the Rung Sat zone prior to defoliation, what both Orians and I knew of Western Hemisphere mangroves indicated that there should have been large numbers of land birds. A brief census of a mangrove forest in Costa Rica turned up forty-four species of breeding land birds. But in the chemically created desert of Vietnam, birds dependent on green vegetation and insects could not survive. Most of the birds we saw were fish eaters, but even their numbers were fewer than we expected. During our two-hour trip through the delta, we counted two oriental darters, three large egrets, twelve little egrets, six pond herons, nine ospreys, and two white-breasted kingfishers—six species and only thirty-four individuals. In a healthy mangrove we might have seen eighty species and hundreds of birds.



Joe LeMonnier

While some of the ecological impact of the loss of the mangrove forests is quickly visible, the full impact is often harder to detect. The endless reticulation of channels in a mangrove swamp supports a rich variety of aquatic fauna during all or part of their life cycle. Many fish and crustaceans that spend their adult lives offshore and some that migrate up the rivers utilize the mangrove estuaries as breeding or nursery grounds. These organisms depend directly or indirectly on a steady supply of nutrients—enormous in quantity—variously dropped, flushed, or leached out of the forest.

The destruction of the mangrove forest depleted populations of various aquatic animals. One species of mollusk may have been placed in danger of extinction by Agent Orange. The number and variety of planktonic and benthic animals (diatoms and copepods, for example), as well as fish eggs, also declined.

In addition to the destruction of plant and animal life, accelerated erosion of the exposed tidal soils reduced the total land mass of the forest areas. During the first several years after herbicidal spraying, more than four inches were lost to erosion in one area. The wakes of large ships sailing to and from Saigon also eroded the now treeless riverbanks.

Despite the devastation, peasants driven from their land by military activities began to settle in the denuded areas. The destruction of the trees had opened up large back mangrove areas not exposed to saltwater tides and potentially favorable for growing rice.

In February 1973, the National Academy of Sciences, at the request of the U. S. Congress, conducted a study of a community of about 2,000 Vietnamese in the Rung Sat Special Zone. The economy of the hamlet was described in the study as marginal, the resource base vanishing. About 60 percent of the civilian households supported themselves primarily by fishing, 10 percent by farming, and 30 percent by wood gathering. Rice, other food products, and drinking water had to be brought in; while firewood, surplus shrimp, and fish were sold primarily in Saigon. Trees did not regenerate fast enough to replace the amount of firewood collected, and woodcutters were reduced to digging up stumps in areas where all aboveground wood had been cut. Because decayed stumps had to be dug out of the

soil, the development of farming had been slow. The farmers, unable to afford draft animals or tractors for plowing, consistently reported declining yields. Some believed they lost a large proportion of their crops to rats, reportedly present in increasing numbers in the debris of dead and decaying mangroves and in the grasses that had grown up since the war.

National Academy observers also noted that the conversion of denuded Vietnamese mangroves to rice fields made the standing fresh water in the fields an excellent breeding ground for malaria-bearing mosquitoes; and that those same species were now transmitting malaria in an area where it had previously been absent. Malaria is not normally found in healthy mangrove ecosystems, and the reseachers could find no evidence of malaria in Thailand's healthy mangrove forests.

After all this destruction, what is the future of the mangroves in Vietnam? Natural regeneration is occurring at a very slow rate—not necessarily because of the residual effect of herbicides. The many species of crabs that live in or visit these forests may be a threat to the final fate of the disturbed mangrove environments. Herbivorous crabs normally feed on leaves and young mangrove seedlings. However, after the death of the mangroves, leaves are nonexistent and the crabs resort to devouring the few healthy seedlings. Deposit-feeding crabs, which feed on the detritus from the breakdown of leaves and mangrove wood, may also eat mangrove seedlings. After the herbicide attacks, there was a tremendous increase in rotting mangrove wood, which led to population explosions of these crabs.

Increased river traffic, dredging, and increased numbers of motorized fishing vessels have also adversely affected the mangroves and their aquatic ecosystems. Siltation has made the water more turbid, lowering oxygen levels drastically and reducing the number of microscopic plants and animals. A delay in the restoration of the mangroves will delay the revitalization of local fisheries.

Arthur Westing, who has extensively studied the ecological effects of the war in Vietnam, has observed that when mangroves are destroyed, as happened in South Vietnam, the coastal shores are not readily recolonized. A combination of many factors, including a lack of adequate seed source and the destruction of available young mangroves by crabs, continues to convert such mangrove sites to a muddy wasteland. Westing states that any substantial recovery can take more than a century.

Since the end of the war, many thousands of young mangroves have been hand planted by Vietnamese reforestation brigades. Many craters, caused mostly by the B-52 bombers, have been filled in by hand or with heavy equipment. Erosion can be prevented by plantings, and soil nutrients can be replenished by the establishment of leguminous crops and the application of fertilizers. Old drainage patterns can be reestablished, levees and dikes rebuilt, and irrigation systems restored. Unfortunately, other factors obstruct such reclamation; among them are the extensiveness of the disruption and the poverty of material and human resources. □

On the Wings of Peace

by Vo Quy

With a note of joy in his voice, an old farmer told us, "I've been living in this area for over fifty years, since before 1940. And I've seen the bombings, toxic chemicals, and napalm drive the sarus cranes away from this Plain of Reeds. We had thought we would never again see those graceful birds. But now they have returned. Not a few but hundreds, perhaps thousands, of them, along with other kinds of birds. It's a great joy for us. They bring with them happiness to our plain."

In a light motorboat, we were cruising down the Hong Ngu, a big canal dug across the Plain of Reeds, to get to the Tram Chim Reserve, a preservation plot marked out for cranes four years ago. Over our heads flew large flocks of birds. The plain itself is the largest submerged area in Vietnam. It covers almost 2 million acres in the provinces of Dong Thap, Long An, and Tien Giang in the Mekong Delta. Hundreds of thousands of cormorants, egrets, pond herons, and wild ducks live here. Rare species such as openbills, painted storks, and cranes are also seen from time to time. Natural life is coming back, step by step, with the help of local people who have been building dikes to conserve water in the fields, making the whole area as well watered as it used to be.

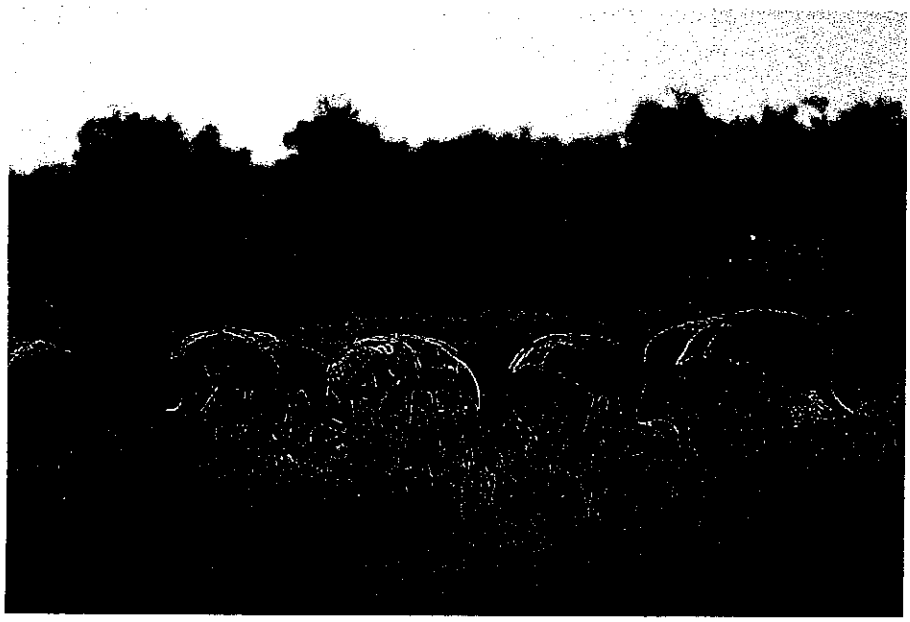
The Mekong is one of the big rivers in Asia, the twelfth longest in the world and the sixth in terms of water volume released to sea each year. It rises in the Tibetan highlands, at an altitude of 16,400 feet above sea level, and flows 2,600 miles across or along the borders of China, Myanmar (Burma), Laos, Thailand, Cambodia, and Vietnam. The Mekong Delta starts near Phnom Penh in Cambodia, where the Mekong divides into two main estuaries, the Tien and the Hau. As they enter into the southern plain of Vietnam, the Tien divides into six smaller estuaries and the Hau into three others (hence the name Cuu Long, or Nine Dragons, for the mouths of the Mekong) before they all flow out to the South China Sea.

A long time ago, this region was covered with a forest of cajeput, a twenty- to sixty-foot-tall tree with a straight trunk and small, tough leaves. Fig palms and myrtles also grew here, and beneath the canopy was a tangle of climbing vines. Years of wanton cutting for fuel wood and land clearing by one generation after another gradually reduced the cajeput forests, leaving stands of fern or bushy cajeput mixed with *Phragmites* and other wild grasses. At places where numerous canals had been dug, water quickly drained out during the dry season, and the upper eight inches of soil deteriorated. Constant burnings further turned the biological carpet into low brush.

The Plain of Reeds is submerged in the rainy season and drains in the dry season. In September and October, when the water level is highest, most of the plain is under more than six feet of water. The botanical life therefore consists of species typically seen in submerged areas: small wetland grasses, umbrella plants, and Chinese water chestnuts. In spring, the whole plain is brightened by the fragrant pink blossoms of lotus and the white-purple flowers of waterlilies.

The Plain of Reeds has also long been known for its stocks of wild animals. It was here that many species of water birds—cranes, rails, moorhens, jacanas, swamphens, oriental darters, cormorants, ibises, herons, egrets, and bitterns—had found their habitat. Some rare species endemic only to Southeast Asia or Indochina, such as the eastern sarus crane, greater adjutant stork, milky stork, painted stork, and Asian openbill, were also found in great numbers. Even species of greater rarity, such as the white-shouldered ibis, giant ibis, white-winged duck, masked finfoot, and Bengal florican, still existed in large numbers in the delta until about 1960. The plain also served as a stopover for many kinds of migrant birds from the north, which flocked there in great numbers in winter.

Sue Earle



After fifteen years, the eastern sarus crane has returned to the Tram Chim Reserve in Vietnam's Plain of Reeds.

During the Vietnam War, in order to force the resistance army out of their base in the Plain of Reeds, U. S. troops made a serious attempt to drain all the water out of the plain by digging canals. Once the soil was dried out, sulfur rose to the surface, producing sulfuric acid, which cut the pH down to 3.9 or lower. One consequence was that crops, especially rice, could not be grown. People were forced to leave. The residual water in the canals was affected even more than the soil, having a pH of about 2.8. Freshwater fish and floating rice, once rich and important sources of food for local wildlife, gradually disappeared.

During the dry season, this area now had virtually no water to accommodate water-dwelling animals. Flocks of birds, including cranes, greater adjutants, Asian openbills, and cormorants, had to find their habitats elsewhere. Besides digging the drainage canals, U. S. troops sprayed the plain with toxic chemicals and napalm to destroy all cajeput forests.

When the war ended, local people made tremendous efforts to revive agriculture on the plain. To dilute the acidity of the soil, they dug more canals to take in fresh water. Progress, however, was too slow at many places to check the continued denuding of the whole area. Over time, the people came to realize that in order to make the plain prosperous again, the soil had to be well watered in dry seasons and covered with cajeput as it used to be. Since then, they have built twenty miles of dikes around what is now the Tram Chim Reserve to keep its water from draining into the canals in dry seasons. They have also planted cajeput on thousands of acres of acidic soil, since it is the only tree species that can thrive in such conditions.

Now that they can find better living conditions, the trees and plants and wild animals are gradually coming back to the plain. Not only freshwater fish, which is a source of food for local people, but also turtles, snakes, and especially birds have returned in surprising numbers.

The eastern sarus crane is a large bird that used to inhabit Southeast Asia from southern China to the Philippines. Once found in great numbers in the Mekong Delta, its numbers fell during the war, and then it virtually disappeared, along with some other species such as the white-winged duck, the giant ibis, the white-shouldered ibis, and the milky stork. Not until 1985 did local people report that they had once again spotted several dozen cranes making their way back to the Plain of Reeds.

Upon learning the news, a group of researchers from Hanoi University immediately set out for the plain to make a first-hand examination. To their great joy, they found that the eastern sarus cranes, which they had thought to be extinct in Southeast Asia, had indeed returned.

In early 1986, with the help of farmers in Tam Nong district, the researchers set up a preservation plot for the cranes. Now made up of about 12,000 acres, it may soon be expanded to about 22,000 acres. Local people have been forthcoming and cooperative. Many who used to make a living by catching birds, including cranes, have now volunteered to scrap their traps and take an active part in protecting the birds. A year later, the number of returning cranes had increased to more than 100. Two years later, it rose to 400, and by May 1989, 1,000 of them had been counted.

Unlike the prewar years, when they used to stay year round and reproduce in the plain, most eastern sarus cranes now come in November, when the dry season begins, and stay in increasing numbers until about May or early June, when monsoon season sets in, before flying away to Cambodia. Many of the cranes seen in Cambodia are not yet fully fledged, prompting speculation that the eastern sarus cranes have found a breeding ground in the broad wetlands of Cambodia. By the end of October, when their offspring mature, the cranes return to the Mekong Delta, spreading over a wide area to find food. As the dry season approaches, the delta's submerged fields shrink. The cranes then move into areas where water still remains and finally converge on the Tram Chim Reserve, where the diked water outlasts the dry season.

Farmers in Tam Nong district, with the help of Vietnamese scientists, the International Crane Foundation, and the West German Brehm Fund, are now working on a system of sluice gates to regulate the water level in the reserve so as to soon return it to its natural form. The breeding cranes will then be able to dance and build their nests as they did before.

A Vietnamese saying goes, "Birds only stay in good lands." Apparently, the efforts of the people in Tam Nong district to make the Tram Chim Reserve a good land have started to pay off. The crane, a symbol of happiness and longevity, whose image can be found in stylized forms in almost all pagodas, temples, and other places of Buddhist worship in Vietnam (where it is called *hac*), have returned to Vietnam, the beautiful land of peace. □

Conservation by Conflict in Nicaragua

by Bernard Nietschmann

For two decades, wars ravaged Nicaragua: first in the cities; then in the countryside. Nicaraguans suffered 100,000 casualties. The wars displaced people and disrupted the economy. Of the country's 3,000,000 people, some 600,000 fled to other countries, 400,000 to cities, and another 200,000 were relocated out of the most active war zones in the northern pine and hardwood forests and the southern rain forests.

Ironically, while Nicaragua's people were suffering from war and impoverishment, the Nicaraguan environment was experiencing some relief from a long history of assaults and exploitation. Trade in gold, mahogany, cedar, animal skins, sea turtles, shrimp, and lobster nearly ceased. Forests and grasses grew over the many plantations, state farms, and ranches that had produced bananas, coffee, cotton, and cattle. Wildlife thrived, and Nicaragua began to regain its rich natural heritage.

"This kingdom of Nicaragua is the very best of all the Indies," wrote Bartolomé de las Casas in a sixteenth-century report to the king of Spain. "A place that of all the Indies I regard as the most opulent land in the world. This Nicaragua is God's paradise."

Nicaragua has the largest tropical rain forest north of Amazonia, the most extensive seagrass pastures in the Western Hemisphere, the widest continental shelf and stretch of coral reefs in the Caribbean, and the longest river, largest lakes, richest volcanic soils, and least populous territory in Central America. Nicaragua has 100 species of freshwater fish, 200 species of mammals, 600 species of amphibians and reptiles, and 750 species of birds. It has also had the most revolutions,

Nicaraguan children caught in the whirlwind of a military helicopter.

James Nachtwey; Magnum Photos

Paolo Bosio; Gamma-Liaison

Contras ambushed this Nicaraguan government truck. During the war years, lumbering and mining industries became prime targets for insurgents.

civil wars, and foreign military interventions, and the longest reign of dictators of any country in Central America.

During the forty-three-year rule of the Somoza family, destructive exploitation of the environment accelerated. In the 1950s and 1960s, the land area planted in cotton quadrupled, expanding into marginal lands and leading to widespread deforestation and erosion. Biocides contaminated the land and waters.

In the 1960s and 1970s, the cattle-ranching frontier spread rapidly eastward, resulting in one of the world's highest rates of deforestation and the largest exports of Central American beef to U. S. fast-food and pet-food markets. By the mid-1970s, cyanide used in gold mining had contaminated several rivers. Game animals everywhere were hunted relentlessly. Trade in wildlife products threatened the survival of jaguars, ocelots, crocodiles, caimans, and hawksbill and green turtles. Uncontrolled export lumbering entered its ninth decade.

The war against Somoza and his National Guard began to change some of this. Although formed in 1960, the Sandinista insurgency was not able to mount a serious guerrilla movement until the mid-1970s. Its hit-and-run ambushes and attacks on small military outposts were met by search-and-destroy missions and an overall crackdown by Somoza's 12,000-man National Guard. Any civilian in a forest with a rifle was considered to be a terrorist and dealt with accordingly. This discouraged hunting. In 1978, units of the 6,000-person Sandinista National Liberation Front (FSLN) engaged National Guard detachments in the western and central parts of the country and the northern gold-mining areas. But the countryside was not destined to be the main theater of the war; by 1979 the Sandinistas had moved into the cities to join civilians who were fighting the National Guard.

In July 1979 the Somoza government collapsed and the Sandinistas took power. Very soon, however, they found themselves fighting on two fronts. In 1981, the East Coast Indian nations began to challenge the Sandinista takeover and occupation of their territory (called Yapti Tasba by the resistance and the Costa Atlantica by the government). The next year a civil war broke out between the new government and a range of insurgent groups, supported largely by the United States and known collectively as the Contras. These wars involved at least 105,000 full-time combatants—six times the number involved in the Sandinista–Somoza conflict—and used sophisticated military firepower supplied by the Soviet Union, the United States, Cuba, East and West Germany, Israel, Vietnam, and Panama.

Fought in the countryside and therefore preventing large-scale exploitation of natural resources, these conflicts extended the environmental windfalls of the years of the Somoza–Sandinista conflict. The government confiscated civilian weapons, but even hunters who managed to hide weapons could not hunt for fear of being accused of being Contras. Many animal populations quickly rebounded: white-tailed deer, white-lipped and collared peccaries, pacas, agoutis, monkeys, crocodiles, caimans, iguanas, and game birds. Others, such as jaguars, ocelots, margays, manatees, and river otters, responded well but more slowly.

The amount of tropical forest being destroyed for cattle pasture shrank as cattle ranchers, especially in central Nicaragua, reduced and moved herds for fear they would be confiscated by the Sandinista government. Some slaughtered their herds for the chilled-beef export market; others moved them to Guanacaste in Costa Rica or Olancho in Honduras. *Campesinos* who received expropriated ranches butchered most of the breeding bulls, valued at $5,000 to $20,000 each. And soldiers on all sides took cattle to eat. By 1986, the herds had been reduced by two-thirds, or 2 million animals. As a result, untended pastures became overgrown and wildlife filled the expanding forests. A Sandinista plan for a Libyan-financed, state-run cattle ranch, extending from Lago de Nicaragua to Monkey Point on the Caribbean, was stymied by the presence of ex-Sandinista guerrillas.

Resistance groups sabotaged state-owned lumber mills and logging trucks, destroyed bridges, and mined roads, halting nearly a century of deforestation of the Nicaraguan tropical forests. Lumber industry workers either volunteered or were conscripted into one of the many military forces, while millwrights and sawyers left the battle zones to look for work in Honduras, Costa Rica, or elsewhere. The wars postponed Bulgarian and, later, Swedish support for replacing large tracts of rain forest with single-species stands of tree farms. The wars also shut down the environmentally damaging gold mines in the mountainous Bonanza-Rosita-Siuna region and slowed the export trade in animal products.

Unlike the governments of Guatemala and El Salvador, which use environmental warfare counterinsurgency tactics, the

Sandinistas did not rely on such strategies to dislodge the various guerrilla forces. Although the rain forest on the southern front held some 2,000 combatants, mostly one-time Sandinistas, it was too thick and wet to incinerate. The 15,000 Contra fighters on the northern front shuttled between base camps in Honduras and raids in Nicaragua without holding a territory that could be attacked. And the 6,000 Indian guerrillas in the eastern war zone were too thinly dispersed within their 20,000-square-mile territory for their habitat to be destroyed.

Instead, to cut off the resistance forces from civilian support (food, shelter, information, and recruits) the Sandinistas moved people out of the most militarily active regions and into relocation camps and settlements. In 1982–83, one-fourth (40,000) of the Miskito Nation was relocated or displaced. In 1985–86, the government relocated more than 150,000 other Nicaraguans. This reduced pressure on environmental resources over large areas. Both sides of Nicaragua's river frontiers—the Rio Coco and Rio San Juan—became a no man's land supporting little farming or hunting.

Some wildlife and environments suffered as the government built new military bases, roads, and airfields and conducted extensive training and maneuvers. (The United States did the same in Honduras for the Contras.) Weapons sometimes caused accidental fires. Sandinista artillery practice and weapons training of Salvadoran guerrillas took place inside Cosiguina's volcanic crater, pockmarking the inner slopes. Resistance groups (sixteen in all) set fire to economic assets of the government, such as pine forests. Several government resource-management projects were halted after their personnel were killed by Contra and Yapti Tasba guerrilla units.

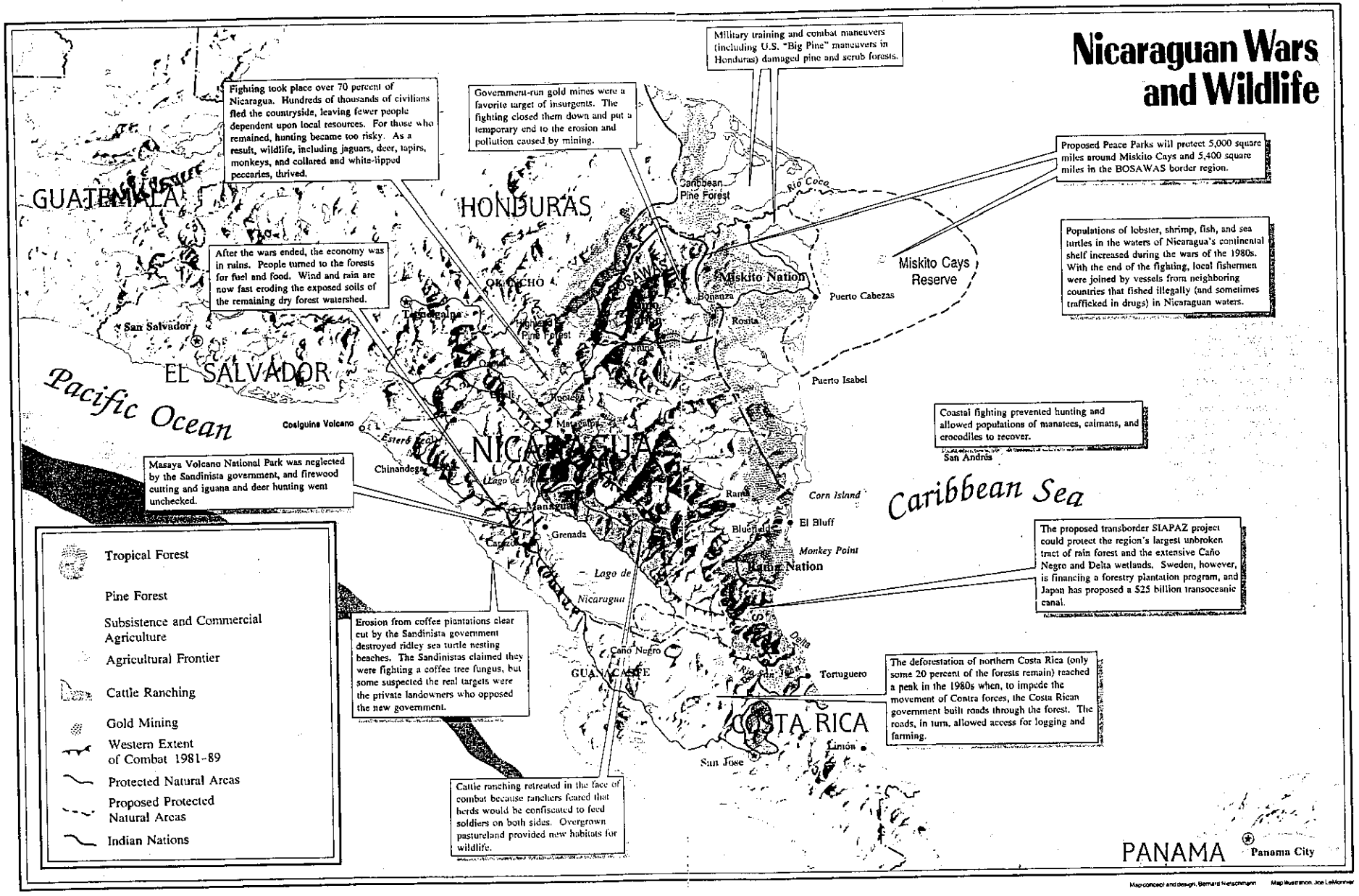
Meanwhile, the Nicaraguan Institute for Natural Resources and Environment (IRENA) passed new conservation laws and struggled to begin new environmental-management projects. The government banned the export and limited the hunting of endangered species. One of the first areas to be protected under the Sandinista regime was Chococente on the Pacific coast, where the mass nesting behavior of Pacific olive ridleys made them especially vulnerable to exploitation; hundreds of thousands of their eggs were exported. A marine park was planned for the Miskito Cays and adjacent Caribbean coastal lagoons, habitat for hawksbill and green turtles and manatees. Masaya Volcano National Park (created before the FSLN took power) was improved, and the 5,400-square-mile BOSAWAS reserve was initiated to protect the Bocay-Saslaya-Waspuk region, which would be Central America's largest protected area. (The first BOSAWAS reserve station was burned by the Contras.) Many pesticides were banned, and an integrated pest-management program was begun. Other projects included watershed management of resource development and conservation, reforestation, windbreaks, and a proposed transborder, binational peace park with Costa Rica. In 1983, the Sandinista Assembly approved IRENA-naturalist Jaime Incer's plan to protect twenty new areas outside the war zone, including the volcanic range, crater lakes, mangrove estuaries, and freshwater marshes.

But IRENA's programs for conservation and sustainable development were overwhelmed by Sandinista economic failures (exacerbated by the war). This led to environmental deterioration, especially in the populous Pacific region. The greatest environmental problems were caused by hundreds of state farms created by the agrarian reform. Left without sufficient technical or financial help, some 100,000 new farmers had to turn to forested areas for fuel and food. To bring in foreign money, state banana plantations were carved from mangrove forests in the Estero Real. This loss of wetland habitat caused economic losses in fisheries and shrimp farming. Eighteen miles of nesting beaches of the threatened Pacific ridley were destroyed by mud washed down from the Carazo region after the Ministry of Agriculture ordered the removal of shade-tree coffee in a futile effort to control a spreading tree fungus. Masaya Volcano, Nicaragua's only functioning national park, was left unregulated and open for firewood cutting, iguana and deer hunting, cattle grazing, pasture burning, and garbage dumping. IRENA narrowly blocked a Sandinista army plan to turn part of the park into a tank-training ground across the fragile lava beds. As the economy collapsed, the remaining dry forests and even the windbreaks in the cotton fields were rapidly cut for firewood. The mountain slopes backing Managua were deforested, and the subsequent wind and water erosion choked the capital city in dust and mud. Already polluted by waste and chemicals during the Somoza regime, Lago de Managua became more degraded during the 1980s, receiving sewage from the city's one million people, chemicals from lake-margin farms and

William Allard

To escape the war, many Nicaraguan ranchers moved their cattle into Costa Rica, leaving Nicaraguan grazing lands to become overgrown with forest and grassland—new habitat for Nicaraguan wildlife.

Nicaraguan Wars and Wildlife



Map concept and design, Bernard Nietschmann Map illustration, Joe LeMonnier

ranches, and mercury from an agrochemical factory.

Along the Caribbean coast, the nine-year war between the FSLN and the Indian nations affected both the environments and wildlife. The Yapti Tasba resistance considered the Sandinistas invaders. The indigenous nations wanted self-determination, territorial autonomy, and control of the resource base. The FSLN wanted to integrate this West Virginia-size area into Nicaragua and the people into the Sandinista revolution. The government seized hunting weapons and forbade community people to hunt and fish, depriving the Miskito, Sumo, and Rama Indian guerrillas of food. The wildlife, in turn, thrived. The Sandinista occupation force confiscated or destroyed cattle, pigs, rice mills, shrimp-drying plants, boats, sea and river canoes, and tools. They expropriated the gold mines and expelled foreign-owned shrimp and lobster companies and boats.

Thousands of fishermen and their families fled Yapti Tasba to seek refuge in Honduras, Costa Rica, and elsewhere. A large number of boats and sea canoes important in the fisheries were used to carry the exiles and refugees. The remaining Sandinista-run shrimp boat fleet became a target, and Managua's poorly managed fisheries program was widely despised. This, together with the lack of fishermen, boats, and parts, caused drastic declines in fish, shrimp, and lobster catches between 1982 and 1985, the height of the war for Yapti Tasba. The decline revitalized populations of fish and shellfish.

A Miskito Cays marine national park was proposed to IRENA in 1980. The park was to protect some 5,000 square miles of marine and coastal environments and wildlife. The park would have international funding and be staffed by Miskito people from the nearby coastal communities. But when the war began over control of the Indian nations, the plan was shelved.

The war sharply reduced subsistence turtle fishing. Many of the turtlemen had left the communities to fight, a majority of the sea canoes had been destroyed or used to take families to exile, and the remaining turtlemen with sea canoes rarely wanted to chance sneaking out to the turtling grounds because of heavily armed Sandinista patrol boats.

Because so few adult turtles were being caught in the war-crossed main green turtle habitat, more turtles appeared to be nesting at Tortuguero, Costa Rica, during the war years. But as fighting gradually subsided, the war-induced timeout on turtle exploitation began to expire in 1986. The United States reduced its arms supplies to the resistance forces, and the Sandinistas negotiated terms with some of the Indian guerrilla units.

Wartime restrictions on subsistence provisioning were relaxed, sea canoes could be built and used again, gill nets were introduced to catch turtles, and boats from Colombia, Panama, Honduras, and Jamaica obtained permits (often illegally) to catch lobsters; they also pirated substantial numbers of green and hawksbill turtles. Lobsters were the red gold of the western Caribbean and supported Corn Island and many coastal settlements through the 1970s. Lobsters and the war-starved national economy made Corn Island the wealthiest and freest place under Sandinista rule. Colombian buyers from San Andrés offered $8 per pound for tails in 1988 (down to $6 or half a gram of cocaine in 1989) and sold gasoline, outboard motor oil, frozen chicken, Levis, shirts, and underclothes—things unattainable in the Sandinista-suppressed economy. The Sandinistas considered this trade illegal, but because the lobsters were a means of increasing their foreign earnings, they offered to buy them in U. S. dollars from Corn Island fishermen. Corn islanders could sell their lobsters to San Andrés buyers for a dollar more per pound and risk being blown out of the water by a Sandinista patrol boat, or they could play it safe and sell for less to the Nicaraguan companies.

(Hurricane Joan hit Corn Island on October 22, 1988, and was more harmful to wildlife and the environment than the war was. It destroyed houses, coconut palms, most lobster boats, and the freezer plant. Overnight, Corn islanders went from prosperity to poverty. The hurricane made them refugees.)

As military confrontation subsided, destructive environmental and wildlife exploitation in Yapti Tasba increased. Again, in 1989, as during Somoza's regime, large numbers of foreign boats overfished Yapti Tasba's waters and reefs; contracts were negotiated with Sweden and Costa Rica for the export of large quantities of logs and lumber; and large-scale cattle-ranching schemes were being planned. While Managua made deals over the coast's natural resources, the people lived in a state of poverty many times worse than before 1979.

Like most of the world's small but enduring conflicts, this bloody, Indian-Sandinista war was over resources and territory, not ideology. In 1987, the Sandinistas agreed to grant the Indian nations autonomy but kept control of all important natural resources.

Fishing for green turtles, which declined during the war years, began to increase with the cease-fires between Sandinistas and insurgents.

But the war and the Sandinistas left Nicaragua dirt poor. By the end of the 1980s, few conservation programs remained. IRENA suffered an 85 percent cut in staff and was demoted to a subunit under the Ministry of Agriculture and Agrarian Reform. Environments rejuvenated by the war were under threat by people whom the war had impoverished.

After her stunning electoral victory over the Sandinistas, Nicaragua's new president, Violeta Barrios de Chamorro, stated in her inaugural address, April 25, 1990: "In order to guide development, we are going to create a new government institution to guard and protect and defend our environment, our abundant nature, our ecology, so that our progress is planned and respectful of our geography and based on the rational use of our natural resources."

Jaime Incer was the new government's unanimous choice to head and revitalize IRENA. Although beset by inadequate funding, facilities stripped nearly bare by the outgoing government, and lethargic and anemic support from Washington and most other Western governments, Incer created a task force to draw up a national plan for environmentally sustainable development. The plan protects critical ecosystems, recommends transborder parks and reserves with neighboring countries, and commits the government to helping the east coast benefit from its own resources. "Nicaragua has never had a government that supported these ideas until now," Incer told me. "But we only have a short time to save what the war has spared." □

AUTHORS

"In Africa," writes **Bernard Nietschmann** (pages 35 and 42), "they say that when two elephants fight, it is the grass that suffers." The effects of human conflicts on land and nature have long interested Nietschmann. A 1990–91 recipient of a MacArthur Foundation Grant on Peace and International Cooperation (his second MacArthur grant), Nietschmann is a professor of geography at the University of California, Berkeley. He is now at work on a book, *States and Nations: The Roots of Conflict,* about the geographical basis of the world's wars and continues his long-term investigations of the wars of Central America, especially Nicaragua. "In 1976," he writes, "Nicaraguan president Anastasio Somoza invited me to talk turtle with him in Managua because articles I had written on the plight of the green turtle had created considerable international concern. Along with Nicaraguan naturalist Jaime Incer, I told the general that continuing to allow commercial marketing of a threatened species would guarantee its extermination, as well as international outrage. I recommended that only subsistence turtling by the Miskito Indians and other coastal inhabitants be allowed. One characteristic of a dictator is that little intervenes between a decision and law. Somoza closed the turtle companies and banned commercial export. This was said to be the only Somoza law the Sandinistas kept after they took over the government in 1979." But, as Nietschmann points out in his article, the turtles remained out of harm's way only while the Nicaraguan conflicts continued. Nietschmann's most recent book on Nicaragua is *The Unknown War: The Miskito Nation, Nicaragua and the United States* (New York: Freedom House, 1989).

Vo Quy (page 40), director of the Center for Natural Resources Management and Environmental Studies at the University of Hanoi, is a research biologist who has dedicated himself to reversing the environmental damage caused by the long war in Vietnam. By filling in craters, restoring drainage, and planting millions of trees each year, he aims to recreate the tropical forests ruined by bombing and herbicides. The return of the sarus cranes to Tram Chim was a hopeful sign that his work may succeed. In 1988 Vo Quy was awarded the World Wildlife Fund Gold Medal. An account of his efforts to revive Vietnam's environment is found in *Month of Pure Light: The Regreening of Vietnam,* by Elizabeth Kemf (London: The Women's Press, 1989).

Miskito Coast Protected Area

THE MISKITO COAST Protected Area, 12 950 km² of coastal lagoons and mangroves, and offshore coral reefs and seagrass pastures, skirts the northeast coast of Nicaragua, in the territory of the Miskito Indians (Figures 1&2). This will be the largest and biologically richest coastal reserve in Latin America — a world-class wildlife region. The Miskito Coast is the coastal equivalent to the Serengeti. Here, we have manatees, huge aggregations of resident and migratory waterfowl, the largest remaining populations of hawksbill and green turtles in the Americas, exceptionally diverse coral reef fishes, and the Caribbean's economically most important lobster and shrimp developmental and fishing grounds (Figures 3–7).

The project is supported by the World Wildlife Fund, in collaboration with Nicaraguan Minister of Natural Resources Jaime Incer, and Miskito community leaders and fishermen, to develop local consensus and conservation, management, and defense strategies. When I first started working on the coast 23 years ago, the biggest conservation problem was the trade in threatened and endangered species' products, like jaguar skins, hawksbill shell, and green turtle meat. Now we have to deal with heavily armed resource pirate vessels from more than a dozen countries who are literally

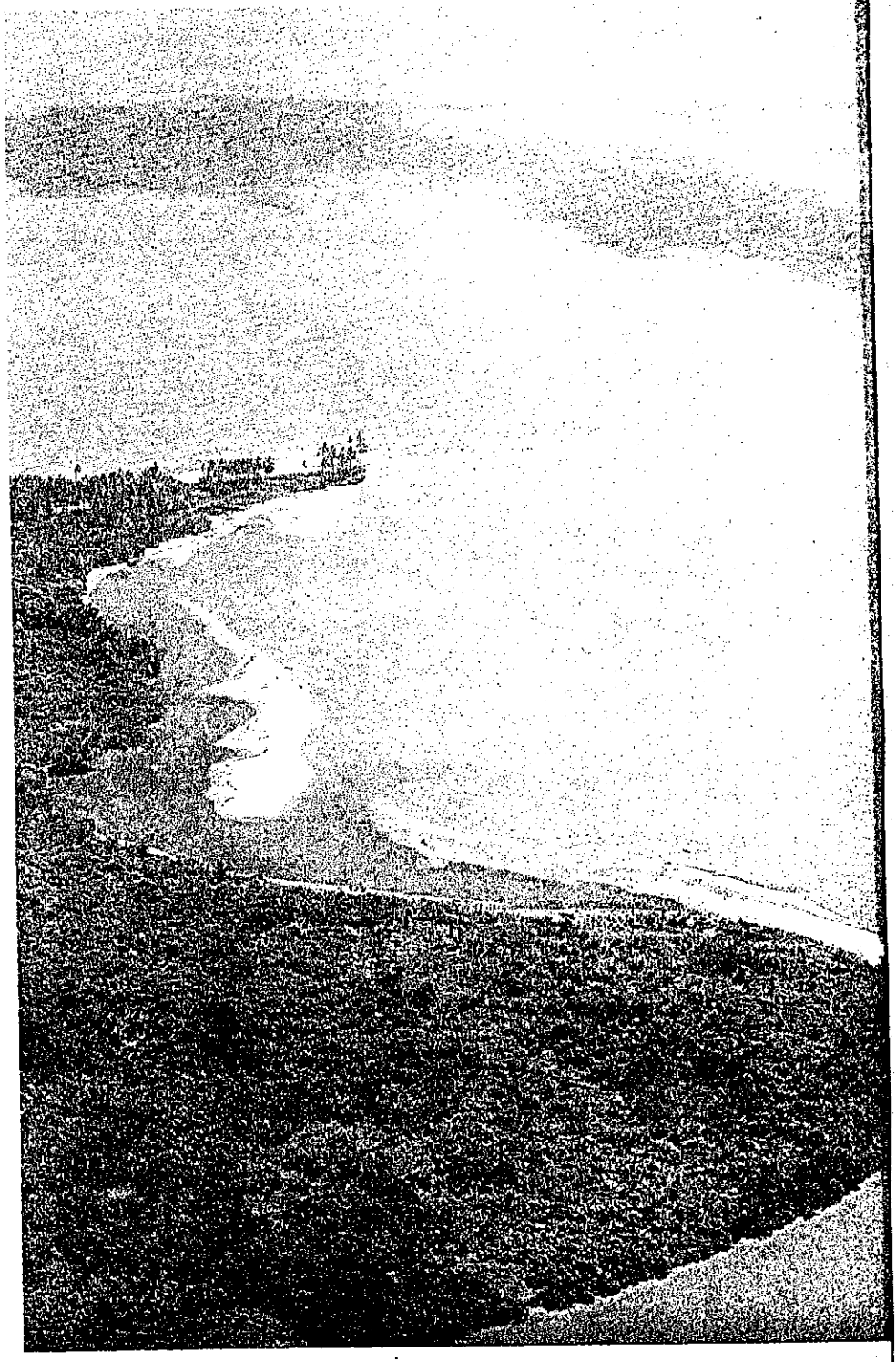
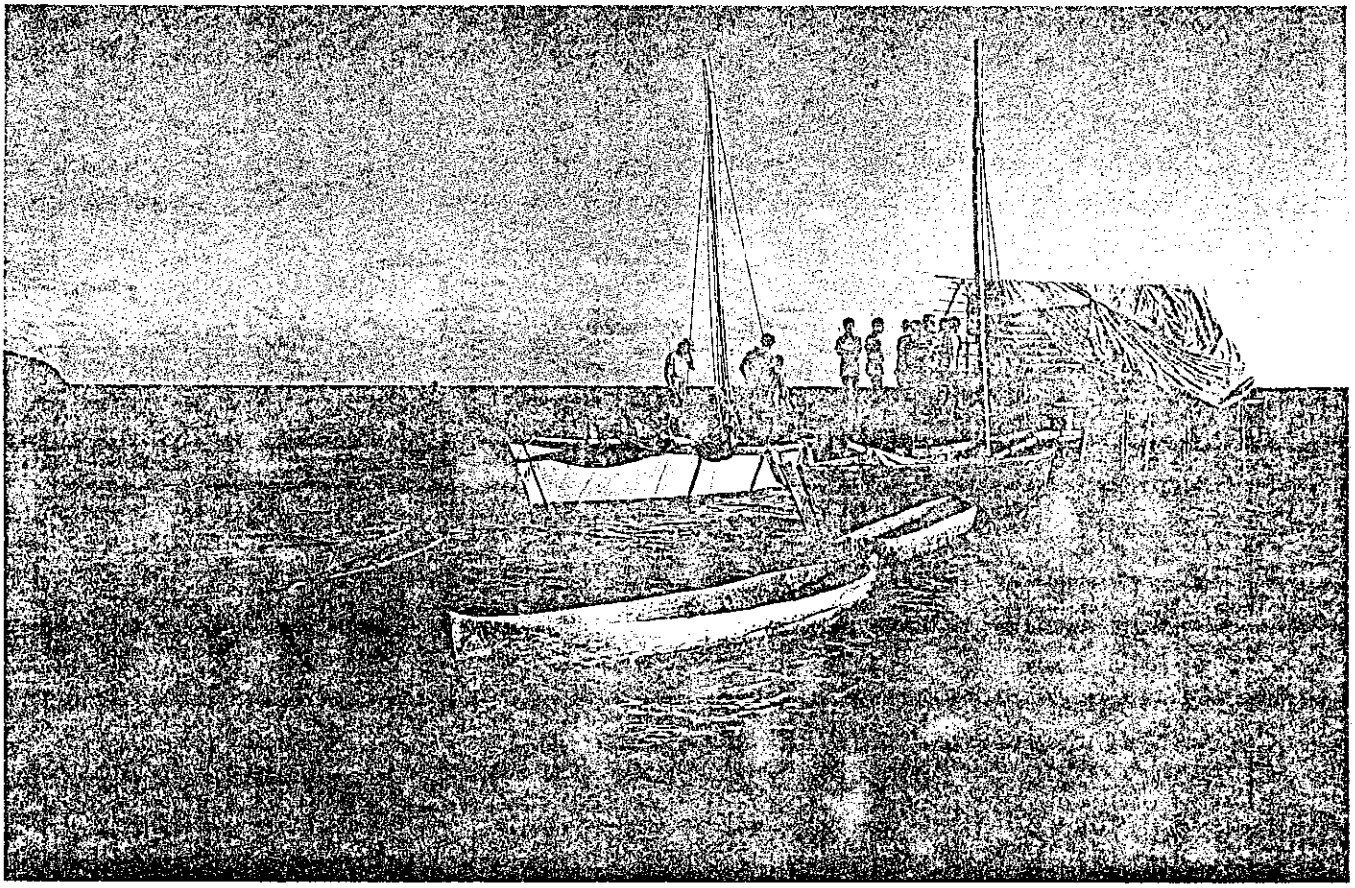


Figure 1. *Miskito coastal territory extends to the limits of a 565-km-long chain of large lagoons that dominate the Caribbean lowlands claimed by Honduras and Nicaragua. The Miskito have been the area's sole users and its defenders.* WIDDICOMBE S. SCHMIDT

Figure 7. *Miskito lobster divers live in rustic shelters, such as this one at Morrison Dennis Cay, 50 km from the mainland. Here, some 300 divers eat and sleep and refill scuba tanks. The divers are exploited and poorly paid by both foreign resource pirates and Nicaraguan fishing boat owners.* BERNARD NIETSCHMANN



strip-mining the lobster, shrimp, and turtles. And on top of that we have cocaine traffickers who are expanding transshipment and refueling operations off the 650-km-long coast.

Key to the success of this gigantic protected area will be the participation of the 15 000 residents in the 23 coastal communities who will be trained to manage and defend the coastal region. The communities are totally against the presence of the resource pirates and drug traffickers. The Miskitos just fought a nine-year war against the Sandinistas over control of their territory and resources and now they have to defend the resources over which they won autonomy.

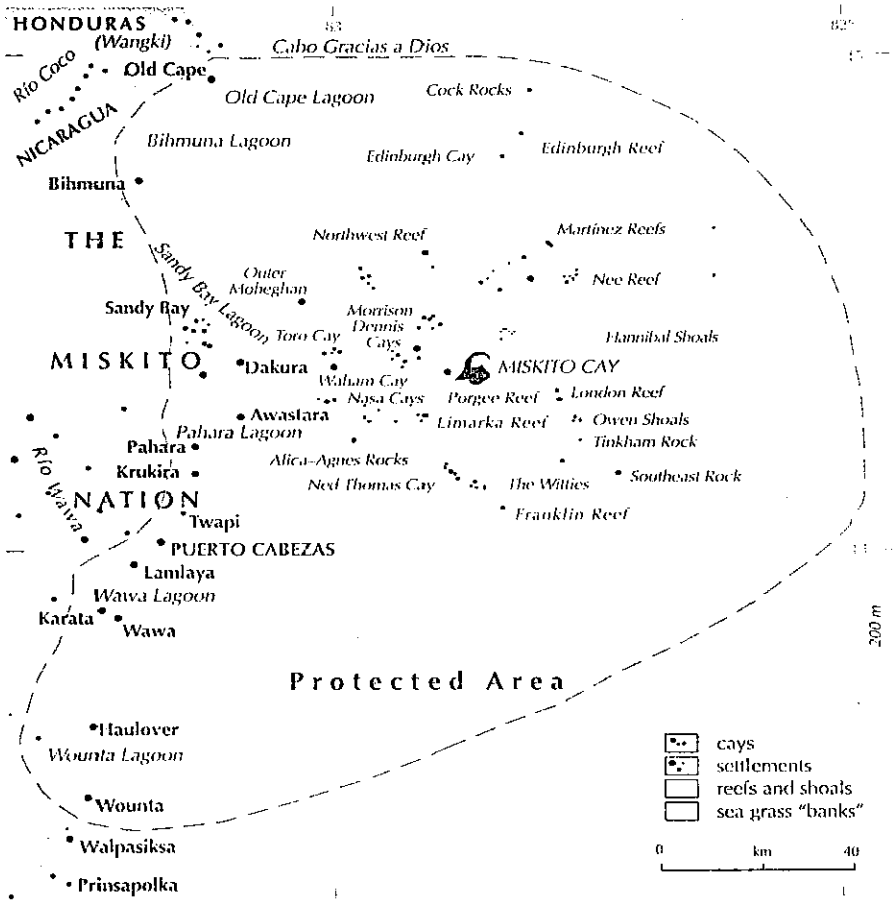
Ironically, the war caused a huge reduction in fishing and hunting which led to dramatic increases in wildlife populations. But as the Miskito–Sandinista war ended and both government and guerrilla units demobilized in 1990, military coastal surveillance ceased, and illegal foreign fishing and drug vessels started showing up in large numbers.

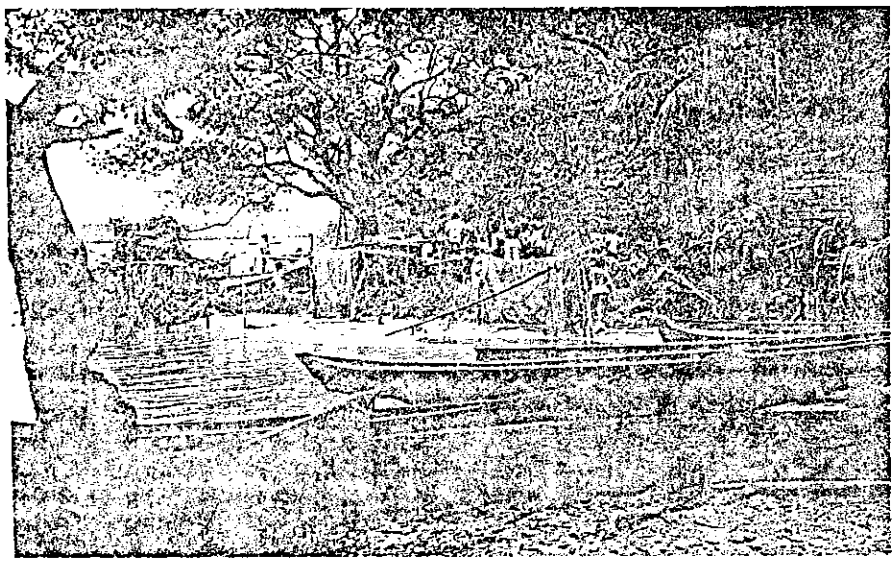
The people say their resources are being destroyed and they worry about cocaine coming into their communities. The protected area we are designing has to confront the problems of the 1990s which are on the doorstep of this once isolated region. As bad as the war was, it gave many Miskito people military experience on land and sea and that experience may soon be put to use again to clear out the pirates and cocaine traffickers.

The Miskito Coast Protected Area could economically develop the communities through locally managed and defended fisheries, and ecotourism. The basic concept is that to have sustainable development it is necessary to have sustainable environments and resources, and to have those it is necessary to conserve, manage, defend, and protect.

BERNARD NIETSCHMANN, professor, Department of Geography, University of California, Berkeley, CA 94720.

Figure 2 *(upper left). Proposed Miskito Coast Protected Area.*
Figure 3 *(lower left). Members of the Miskito environmental group arrive at Karata to organize support for the Miskito Coast Protected Area.* WIDDICOMBE S. SCHMIDT
Figure 4 *(upper right). Bernard Nietschmann (left) consults with Patricio Jeréz, Nicaraguan Vice Minister of Natural Resources (right) and Jorge Webster, Yatama political representative from Li Dakura.* STEPHEN CORNELIUS, WORLD WILDLIFE FUND–USA
Figure 5 *(middle right). The Miskito Coast has one of the greatest expanses of mangrove forest in Central America.* WIDDICOMBE S. SCHMIDT
Figure 6 *(lower right). Stanley Amacio, from Nina Yari, holding ray.* WIDDICOMBE S. SCHMIDT





GUATEMALA

La ecología paga deudas

La posibilidad de canjear deuda externa por inversión en proyectos de protección ambiental constituye una promisoria modalidad de reconversión de la deuda para los países centroamericanos, dice Rocío Samayoa, licenciada en relaciones internacionales, egresada de la Universidad de San Carlos de Guatemala.

¿En qué consiste ese intercambio? Una de las alternativas que ha surgido está contenida en el Plan Brady, un programa para la renegociación de la deuda externa comercial. Es una posibilidad respaldada oficialmente por Estados Unidos para programas de canjes de deuda.

Por otra parte, la Iniciativa de las Américas, del presidente Bush, contempla en uno de sus 4 puntos fundamentales, la posibilidad de realizar canjes, en relación a la deuda bilateral. La idea es que un país, en lugar de pagar en dólares cierta parte de su deuda, canalice esos recursos hacia proyectos ambientales, en su propia moneda. Esto moderaría el drenaje de divisas, y reduciría también el pago de intereses al exterior. Ello podría generar algunas presiones inflacionarias, pero habría que buscar mecanismos para neutralizar ese efecto que, en todo caso, sería un mal menor.

Rocío Samayoa estima apropiado y oportuno que los países desarrollados admitan esta modalidad de pago, considerando que ellos han contribuido en gran parte al deterioro ecológico. Admite, sin embargo, que nuestros países también tienen responsabilidad: "Los conflictos internos han causado daños en el ambiente en los países centroamericanos. Eso ha sucedido a causa de problemas estructurales, y las armas con que se ha combatido son fabricadas, fundamentalmente, por países desarrollados, que han encontrado en ese mercado una buena fuente de fondos".

El hecho de que Costa Rica haya tomado la iniciativa en este aspecto obedece en parte a que tiene la deuda externa más alta en Centroamérica, dice, Samayoa, pero poner en marcha el proyecto ha sido posible gracias a su estabilidad política. ■

NICARAGUA

Amenazas al medio ambiente

Varios lugares de la costa atlántica podrían convertirse en depósitos de basura tóxica o lugares de trasiego para el narcotráfico.

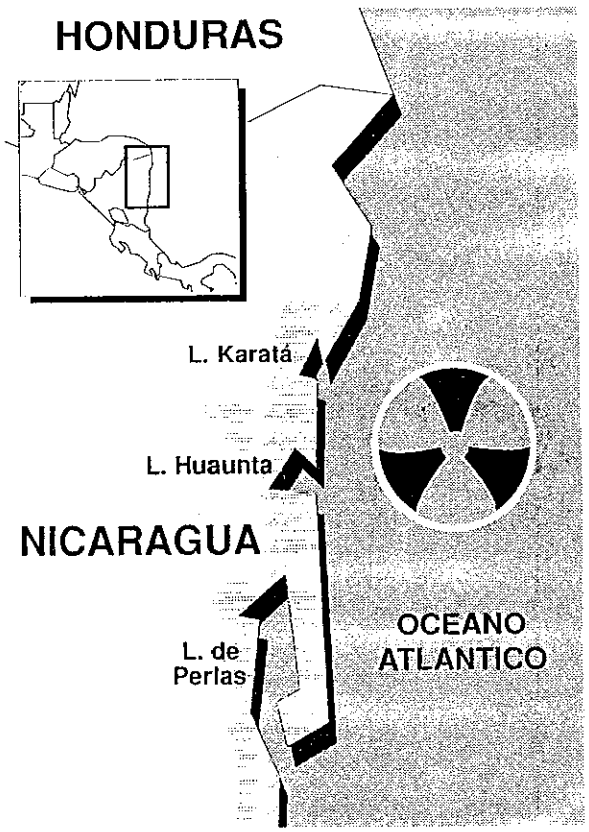
En varios informes, incluido uno del Instituto de Recursos Naturales y del Ambiente (IRENA), consta la intención de algunos países industrializados de convertir a zonas alejadas de la costa atlántica nicaragüense en depósitos de desechos nucleares, que pondrían en peligro a toda la región centroamericana y a las diversas formas de vida.

Hace algunas semanas, IRENA denunció el peligro que podrían correr lugares hasta ahora exóticos del territorio nacional si las compañías extranjeras interesadas en librarse de sustancias nocivas son autorizadas para depositarlas en el país. El informe señala que las empresas transnacionales intentan contaminar lagunas próximas al atlántico norte, entre ellas Huanta, Wawa, Pahara, Sandy Bay, Bismuna y Old Capreyy.

El informe oficial se basa en los resultados de varios seminarios en los que se ha discutido la situación de áreas protegidas de la costa misquita, donde se localiza el ambiente más diverso de todo el Caribe, rico en camarones, langostas, almejas, ostiones, peces, tortugas verdes y de carey, que se desarrollan entre los manglares.

Esas riquezas —que antes parecían inagotables— han sido explotadas de manera inmisericorde (de acuerdo con la versión oficial) por "gentes inescrupulosas" que lucran con los recursos naturales, con países destinatarios como Honduras, Colombia, Jamaica, Japón y hasta la URSS.

En los últimos meses la región ha sido afectada por el tráfico de drogas y hasta se dan casos en la costa atlántica de trueques de especies marinas por estupefacientes. Para conocer mejor esta realidad se han realizado varios seminarios, auspiciadas por la Internacional de Científicos de la Universidad de Berkeley y del Indian Law Resource Center. Con base en tales estudios y análisis se proyecta crear un Area Protegida, que contará con el respaldo de los naturalistas que están anuentes a extender y preservar un territorio que comprendería desde el Cabo Gracias a Dios hasta el poblado de Wounter, que abarca unos 14.000 kilómetros de superficie.



Hasta ahora, esta extensa reserva ha sido una de las más frecuentadas por embarcaciones de otros países, en abierta violación de la soberanía nacional. La pretensión de depositar en esa zona peligrosos desechos nucleares o de establecer puntos de contacto para el tráfico de narcóticos se enfrentará en lo sucesivo al control de los propios habitantes de esa región. ■

Eduardo Uribe Urías

6-30-91 ST

A NEW DECLARATION OF INDEPENDENCE

Alan Berner / Seattle Times

Bridgett Finkbonner, 10, whose mother is directing the Lummi tribal move to self-rule, reads a report outlining the project.

Some Native American tribes begin push for self-determination

by Marla Williams
Times staff reporter

As the nation prepares to celebrate the Fourth of July with a crescendo of fireworks, seven Native American tribes are quietly declaring their independence. Asserting a right to exist as sovereign nations, the tribes are undertaking a historic, three-year experiment in self-government.

Leading this national initiative are three Washington state tribes: the Quinault Indian Nation, on the Olympic Peninsula; the Lummi Indian Tribe, near Bellingham; and the Jamestown Klallam Tribe, east of Sequim.

After more than a century of federal domination and neglect, tribal leaders say this could be the first step toward self-determination.

"For generations we've lived in crisis, unwanted dependents of a domineering government agency," says Raynette Finkbonner, director of the Lummi self-governance project. "It's time to end this life of crisis."

The tribes hope to shatter stereotypes and end a pattern of paternalism born of forced dependency on the Bureau of Indian Affairs, the chronically troubled agency that has governed reservation life since 1824.

"We're the most regulated people on Earth, and worse for it," says G.I. James of the Lummi Tribe. "We're tired of getting the blame and none of the authority.

"We want to make our own mistakes."

With the backing of Congress and the Bush administration, the tribes are now setting their own spending priorities and contracting for services — tiresome responsibilities tribal leaders are nonetheless assuming with enthusiasm. For good reason.

Under the present system, barely 11 cents of every dollar appropriated by Congress to the nation's 310 tribes is spent in Indian country. The rest of the money is spent for Bureau of Indian Affairs administration — or it is simply unaccounted for.

Recent investigations conducted by the Interior Department and the White House Office of Management and Budget (OMB) found the Bureau of Indian Affairs accounting system to be rife with gross mismanagement. According to one audit, the bureau could not account for $95 million — or one-tenth of its budget — for the last fiscal year.

The Bureau of Indian Affairs denies its problems are serious, but the OMB has demanded a

Please see **TRIBES** on A 4

Self-government campaign is under way

TRIBES

continued from Page 1

massive reorganization of the agency. That process is under way.

Although self-governance tribes still must negotiate with the bureau in order to receive much needed federal funds, the talks are conducted as governments-to-government. In the simplest of terms, the tribes' status approaches that of a trust territory, such as Puerto Rico or Guam.

Far from a symbolic shift in government relations, the experiment could reshape the future for generations of Native Americans.

"They are calling us pioneer tribes," says Quinault tribal President Joe DeLaCruz, who has spent years lobbying for self-governance. "The future is up to us."

In addition to the Quinault, Lummi and Jamestown Klallam tribes, the success of the project rests with the Hoopa Valley Tribe in California, the Mille Lacs Chippewa Band in Minnesota and the Absentee-Shawnee and Cherokee, both in Oklahoma.

The importance of their effort was affirmed this month by President Bush after White House meetings with Native American leaders. In a prepared statement, the president said, "Today we move forward toward a permanent relationship of understanding and trust, a relationship in which the tribes of the nation sit in positions of sovereignty along with the other governments that compose the family that is America."

The invitation to sit at the table comes none too soon — relations have been desperately strained for decades. Despite some improvements, many Native Americans still say the Bureau of Indian Affairs treats them as unwashed, unruly stepchildren. They say federal policy regarding Indian affairs is at best one of benign neglect — and often, one colored with malicious prejudice.

History bears out much of their complaint.

Repeatedly, federal government has encouraged the breakup of Indian reservations by allowing tribal lands to be sold off piecemeal. At times, it has also tried to force Native Americans to assimilate by requiring reservation children ro attend bureau-run boarding schools. Adults have been urged to give up traditional jobs as hunters or fishermen and take up farming; skills like totem-carving have been denigrated.

"If self-governance works, it will be our opportunity to get rid of the people who thrive on the miseries of Indians," DeLaCruz says.

Ed Walker / Seattle Times

however. That fact has lead to skepticism, and speculation on the part of some Native Americans that the federal government does not intend for self-governance to work.

The National Congress of American Indians, headquartered in Washington, D.C., has adopted a wait-and-see position on the project. "We question whether the tribes will receive sufficient resources," says A. Gay Kingman, the group's executive director. "Will they get enough money?

"Truly, that is our concern. We already know there are tribal leaders capable of governing."

At the end of 1993, Congress and the Interior Department will evaluate the project and decide whether a policy of self-governance should be adopted. Or, they may extend the project another three years.

The challenges over the next two years appear staggering. Self-governance advocates must not only convince entrenched bureaucrats that Indians can govern themselves, but also convince Native Americas themselves.

Altogether, some 80 Indian tribes and Alaska native corporations have expressed a desire to participate in the project; close to 20 are ready to sign on as part of a second test group. But some of the largest tribes in the country have yet to endorse the project.

"We have a love-hate relationship," Kingman says. "We want the bureau to be streamlined and bureau."

The project has divided Indian Country for other reasons, as well. Some Native Americans fear tribal leaders will prove no better at managing their money than the bureau. Others are nervous about severing ties with the one agency that has been a constant through decades of upheaval.

"People are scared, I'm scared, its difficult to break with the past," DeLaCruz says. "For five generations we have been dependent upon, and under the thumb of, the Bureau of Indian Affairs.

"For many people, the bureau is a convenient scapegoat. They do not want to give it up. It means having to confront ourselves."

Even within participating tribes, there is disagreement. Some tribal leaders wonder if the promise of self-governance is nothing more than false hope.

"I'm very concerned about where this is leading — if it's leading anywhere at all," says Quinault Mike "Duff" Mail. A member of the Tribal Council, Mail voted against participating in the self-governance project.

"Are we creating economic opportunity? Or, are we simply changing the nature of our dependency?" he asks. "We need economic parity, who cares about political standing?"

Unemployment in Indian Country is sometimes as high as 80 percent, according to figures provided by the National Congress of

Alan Berner / Seattle Times

Raynette Finkbonner and her daughter Bridgett at the Lummi Indian tribal center.

Economic independence is a long way off, but already the seven tribes, with their own [illegible] protection and arranging for regular garbage collection.

"[illegible] in our roads, we can do it. If we want to build a new road, we can

netary Fund, Mr. Page said. But [illegible]

Jim Estrin/The New York Times

ng out the cease-fire imposed at the end of the Persian Gulf war drew a Thomas R. Pickering, the U.S. representative at the United Nations.

stroyed rather than converted for civil-an production.

In particular, Mr. Pickering called or the immediate and complete de-struction of Iraq's secret nuclear plant at al-Atheer, about 50 miles south of Baghdad, saying it can have no other purpose than weapons-making. The plant was discovered by United Na-tions inspectors after the end of the Gulf war. It had escaped damage from the allied bombing.

Hans Blix, head of the Vienna based International Atomic Energy Agency which is working with the special com-mission on dismantling Iraq's military nuclear program, told the Council that he is now preparing the destruction of the al-Atheer plant as well as other laboratories and installations.

Rolf Ekeus, who heads the special commission, said Iraq wants to pre-serve virtually all surviving buildings and equipment used for producing its weapons of mass destruction, arguing that they should be converted for civil-ian purposes.

Mr. Ekeus told the Council that Iraq has refused to provide details of its military imports, saying he needs the records to make sure all proscribed items are accounted for. He also said Iraq refuses even to recognize that it has an obligation to cooperate with his efforts to monitor its military indus-tries to insure that they are not used for building banned weapons again.

Kuwait's representative, Moham-med Abulhasan, told the Council that Iraq is refusing to release Kuwaiti pris-oners taken during its invasion of Ku-wait and does not accept the findings of the commission set up to redraw the boundary between the two countries. He said Baghdad also refuses to accept any responsibility for hundreds of mil-lions of dollars worth of private prop-erty taken from Kuwait.

Turkish Leader Warns West Of Azerbaijan Religious War

By ALAN COWELL
Special to The New York Times

ANKARA, Turkey, March 11 — Prime Minister Suleyman Demirel pledged today to resist pressures for Turkish military involvement in the conflict between neighboring Armenia and Azerbaijan and urged Western na-tions to avoid actions that could turn the fighting into a religious war be-tween Christians and Muslims.

"We will help but we don't want the military involved," Mr. Demirel said. "We want a political solution." The fighting involves the disputed territory of Nagorno-Karabakh, an Armenian enclave inside Azerbaijan, and pits the Azerbaijanis, who are Muslims of Turkic descent, against the Christian Armenians, whose relations with the Turks have long been strained.

The Prime Minister's comments, in an interview in his office here, reflects the Turkish Government's efforts at avoiding direct embroilment in the conflict. Reports of massacres of Azer-baijanis by Armenians have fueled Turkish anger over the dispute, and some of Mr. Demirel's own followers want Turkey to take a tougher line against Armenia. There have been demonstrations in Ankara and other cities over the past week urging Turk-ish military support for the Azerbai-janis, but the Prime Minister dis-missed their demands.

"This is a free country," Mr. De-mirel said. "In the United States, just in front of the White House there are demonstrations every day. I don't think the White House is run by the street and we are not going to be run by the street."

Diplomats here say Mr. Demirel's fear is that the conflict could draw Western support for Armenia, leaving Turkey, a NATO member and staunch-ly pro-Western nation, tacitly aligned with Azerbaijan against Ankara's tra-ditional allies.

"It should be evenhanded," Mr. De-mirel said, referring to efforts to end the fighting. "We have told the West that it shouldn't give support to Arme-nia. It should not turn out to be a Christian-Muslim war and everybody should be very careful.

"We are looking for a cease-fire," he said. "It is not only our concern. It's a concern of many countries."

While the war over the disputed ter-ritory of Nagorno-Karabakh continues, Turkey is facing a war within its own borders against insurgents from the Kurdish Workers Party, an outlawed guerrilla movement fighting to estab-lish a separate Kurdish state among Turkey's large Kurdish minority.

For the third time this month, Turk-ish warplanes struck across the border at suspected guerrilla camps in north-ern Iraq on Monday. In the first strikes last week, both the United Nations Chil-dren Fund and independent reporters said warplanes had killed civilians.

Mr. Demirel exonerated Turkish pi-lots, saying an investigation of the charges had proved that they had not struck civilian targets. "We have made investigations," he said. "Our security forces have been very careful."

Over the last year, Turkey has slight-ly relaxed its policies towards the Kurdish minority of some 10 million, permitting them for the first time to speak their language openly and per-mitting Kurdish deputies to enter the 450-seat Parliament, albeit on another party's ticket.

Those modest concessions have con-tributed to a sense among some Kurds that the guerrilla campaign will even-tually prod the authorities toward a negotiation on Kurdish demands for some form of autonomous status.

But the Turkish leader offered a par-ticularly blunt rebuttal of those sugges-tions today. "I don't think it would be possible at all" to negotiate with the guerrilla group, Mr. Demirel said.

"The P.K.K. is a group of killers," he said, referring to the Kurdish Workers Party by its Turkish initials. "How can a state negotiate with killers?"

While Kurds should be shown full respect for human rights and their constitutional status as "first-class cit-izens," Mr. Demirel said, "I do not think there should be a political solu-tion" to the Kurdish dispute.

"I do not think people who call them-selves Kurdish should be any different from any other people," he said, adding there would remain "one official lan-guage, one flag, one state and one coun-try in Turkey. The Turkish state is unitary."

Demirel says a political solution should be found for the dispute.

Medicare Plan Limits Doctors' Use of Labs

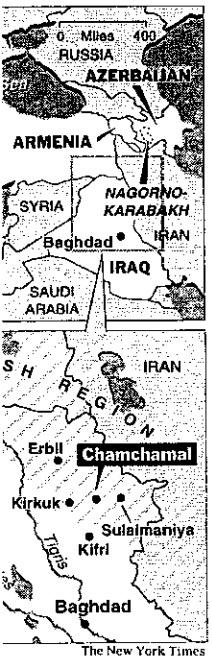
WASHINGTON, March 11 (AP) — The Government told the nation's doc-tors today that because of the tempta-tion to order many tests, it plans to forbid them to use laboratories that they own to do work on their Medicare patients.

Government studies have found that if a doctor owns all or part of a lab, its Medicare-related business goes up. "Having a financial interest in a lab-oratory that performs tests can affect a physician's decision to order tests," the Department of Health and Human Services said in the proposed rules, which were published today in the Fed-eral Register to enforce a law passed by Congress in 1989.

The department will accept com-ments on the proposed rules for 60 days

The department's inspector general issued a report three years ago that said one in seven doctors who bill Medi-care has a financial stake in a medical business to which he or she refers patients. And those patients wind up getting 45 percent more clinical lab services than Medicare patients in gen-eral. That increased use cost Medicare $28 million in 1987, the report said.

The proposed rules also forbid send-ing a Medicare patient to a lab owned by a member of the doctor's immedi-ate family.



The New York Times

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Asmara Journal

Singing a Song of Nationhood (Lento, Pianissimo)

By JANE PERLEZ
Special to The New York Times

ASMARA, Ethiopia — Since rebel forces swept through this Italianate city atop the East African highlands last May and secured the birth of a new nation, a surge of symbolic and material changes have convinced the world that this place is no longer really Ethiopia.

But until a referendum is held, around May 1993, Eritrea officially remains neither a nation nor a province of Ethiopia. Until the referendum, the Eritreans say, they are not asking for membership in the United Nations or formal recognition.

The nine nationalities who live here nonetheless consider themselves Eritreans, and now that they are free from 30 years of Ethiopian occupation, they are doing everything to show it.

The official Amharic language of Ethiopia has been discarded, for example, and new postage stamps are inscribed "Eritrea.

Who Won, Who Lost

As the former Soviet republics establish themselves as new nations and receive almost instant recognition from world bodies, this remote area is going through what many consider a similar process without the international fanfare.

The sense of nationalism here is embedded in high sacrifice: 50,000 Eritreans in a population of 3.3 million were killed in the 30-year war of independence, according to the Eritrean People's Liberation Front. (Ethiopia has never said how many of its people died.)

But Eritreans are also different from Ethiopians through historical experience: Eritrea was colonized by Italians for five decades, beginning in 1890; Ethiopia was ruled by Italy only briefly.

Instead of declaring independence with the Eritreans' victory last May, as many wanted him to, the front's leader, Isaias Afewerki, chose the more legalistic and, he hoped, internationally respected route of a referendum within two years.

Whom to Help, and How

Whatever the future, the uncertain status today presents problems, mostly financial, for a drought-stricken and war-devastated region, 80 percent of whose people live on foreign food aid.

"Its legal position as an aid recipient is uncertain," said Trevor Page, the senior United Nations official here, who represents the Under Secretary General for Political Questions, James O. C. Jonah.

Because Eritrea is not formally a nation, it is not eligible for loans from the World Bank or the International Monetary Fund, Mr. Page said. But food and other aid faces no such restrictions and is arriving by ship in Massawa, on the Red Sea.

In the last few months, the pace of visits by Western donors to Asmara, the capital, has quickened, giving the Eritreans heart that infusions of economic assistance to rebuild industries are on the way from the United States, Britain and Italy, which has opened a consulate here. Italy signed a protocol with Eritrea in February for $90 million in humanitarian and economic aid.

Italian colonists designed the mostly sienna-hued Asmara, eventually using the territory as a base from which they established their brief rule in Ethiopia. They stayed until the British drove them out in World War II. Britain gave Eritrea to Ethiopia in 1952 as part of a federation.

The long Italian presence in Eritrea resulted in textile mills, a brewery and other commercial enterprises that gave Eritrea skills and a trading edge over Ethiopia.

"We are calling on anyone to come and invest in the country," said Yemane Gebre Ab, the head of the information department. "This is no time for us to be choosy," he added, brushing aside some anti-Italian sentiment among the population.

Officials from the United States Agency for International Development visited Eritrea in February and left promising about $26 million in aid, Congress permitting.

It is expected that the United States will open a consulate and A.I.D. mission in Asmara by the middle of the year, an American diplomat said, adding that Washington was heartened by an investment code announced last month that delineated a market-directed economy.

The slow pace of economic assistance does not seem to have deflated the spirit among a population that is still reveling in late-night cafes after many years of curfews at dusk.

Those Who Fought the War

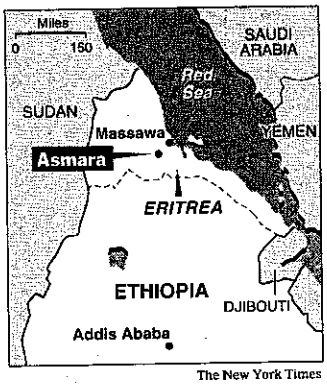
"We're patient," said Sabu Mebrahtu, a pharmacist, whose store has more plentiful supplies of medicines than are available in the Ethiopian capital, Addis Ababa. "We're enjoying our peace."

The Eritrean front was well-known among African guerrilla groups for its self-reliance in the field and its well-educated top cadre, many of whom were the sons and daughters of the Asmara middle-class. Many have returned to Asmara to establish for the civilian population what they accomplished in the northern mountains as guerrillas.

But perhaps one of the more visible signs of improvement for consumers since the Ethiopians were vanquished was the appearance in February of 25-year-old Coca-Cola trucks spruced up with shiny red and white paint. The first deliveries in seven years are planned for March.

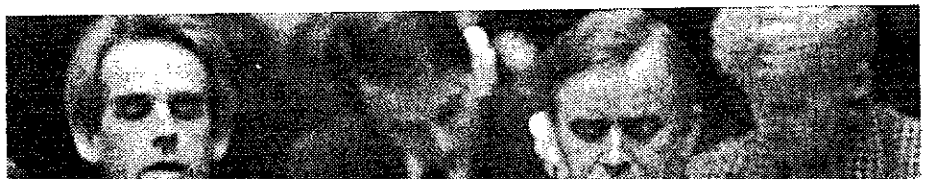

Trevor Page

Eritrea is celebrating its hard-won freedom and the end of 30 years of Ethiopian occupation. Schoolchildren in Asmara attended a rally last December in a show of support for the provisional government.



The New York Times

Foreign donors more frequently visit Asmara, the Eritrean capital.



Turkish Leader Warns West Of Azerbaijan Religious War

By ALAN COWELL
Special to The New York Times

Iraqi Buildup Of Forces Seen In Kurdish Area

Residents Expect Attack Once the Snow Thaws

By LESLIE WEAVER
Special to The New York Times

CHAMCHAMAL, Iraq, March 11 — Iraq has been building up its forces along the front separating it from the Kurdish-controlled north of the country, and has been attacking Kurdish guerrillas near the oil city of Kirkuk since Sunday, Kurdish officials and international relief agency workers said, today.

The raids have raised fears among Kurdish officials and residents here of a possible Iraqi military advance on this Kurdish-controlled town midway between Kirkuk, now under Iraqi control, and Sulaimaniya, the Kurdish-controlled city about 50 miles to the east.

"Everyone is expecting a big attack," said Khider Aziz, a senior member of Kurdistan Front in Chamchamal. "Saddam Hussein will occupy Chamchamal as a step toward retaking the Sulaimaniya region, and after Sulaimaniya, all of Kurdistan."

His remarks echoed fears expressed in recent days by other Kurdish officials here and in Sulaimaniya, as well as by several international relief agency workers and other area residents.

Tanks Cover Hillsides

More tanks can now be seen dotting the hilltops overlooking the town, and travelers between Chamchamal and Kirkuk have reported increased numbers of troops and tanks behind the hills, as well as in the Kirkuk region in general.

Several of Iraq's Republican Guard units have also recently arrived in the Kirkuk area, some in the past few days, and the Iraqi Defense Minister, Hassan al-Majid, was seen in the area today, according to Kurdistan Front officials as well as international relief agency workers who said they saw him with a military escort at a checkpoint on the road to Chamchamal.

Fears of a major Iraqi offensive have been further heightened this week by repeated Iraqi attacks on guerrillas entrenched in the rubble of several destroyed villages along the front in a hilly area north of Qara Anjir, between Kirkuk and Chamchamal.

Kurds Repulse Attack

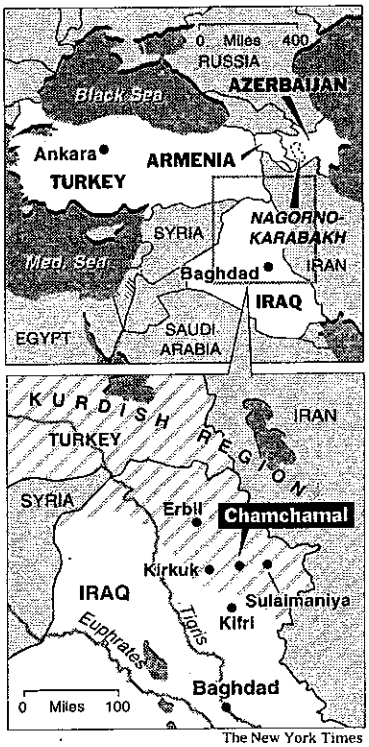
The biggest clash, the heaviest since last fall, erupted Sunday when Iraqi forces using heavy artillery, at least two dozen tanks, six helicopter gunships and several thousand ground troops launched a multipronged attack on the Kurdish positions in the area.

Rostam Kirkuki, the military commander for the area for the Kurdistan Front, and other Front officials said the Kurds repulsed Sunday's attack in an eight-hour battle. The fighting so far has left at least 40 Iraqi soldiers and 5 guerrillas dead, Mr. Kirkuki said. The casualty toll cannot be independently confirmed.

Qader Mohammed, a member of the Kurdistan Front leadership in Chamchamal, said that the guerrillas were better armed than they were a year ago, when Kurdish advances were repulsed by Iraqi forces, sending hundreds of thousands of Kurds fleeing into the mountains. He said the Front had told all men over 18 to stay home this yealr and fight.

"They must stay here and defend Chamchamal," he said, adding that while women and children could leave, only about 10 percent had gone in the past few days.

Khalaf Mohammed Amin, 24 years old, who joined the guerrillas after fleeing to Iran with his family in last spring's uprising, said Iraqi forces are likely to advance into the Kurdish-controlled area now because the winter snows have melted and the Iraqi Government "doesn't want the Kurdish elections to occur this spring."



The New York Times

An Iraqi drive is feared against Chamchamal, a Kurdish town. Turkey is resisting intervention in the Armenian-Azerbaijani strife.

Hussein's goal? 'All of Kurdistan,' a Kurd leader says.

Asmara Journal

Singing a Song of Natio

By JANE PERLEZ
Special to The New York Times

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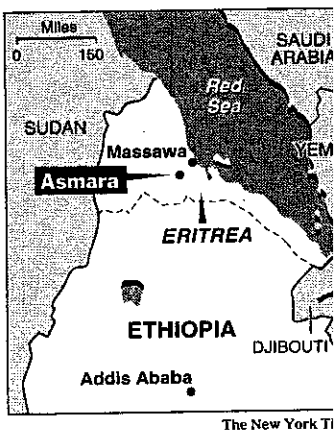


The New York Ti

Foreign donors more frequen visit Asmara, the Eritrean capi

Tapping Russian Oil Is a Multinational Job

To the Editor:

William Safire's basic premise in "How to Save Russia" (column, April 9) is right. The oilfields of Siberia are the best place to nurture the Russian economy and thus its new democracy. But his proposal of a joint task force from the White House and the Kremlin falls short of providing a catalyst that can team Western oil companies with Russian producers to reverse the slide in the country's oil production and exports.

The obstacles to Western investment in Russian oil involve more than policy confusion in Moscow and bad press there for the most visible United States oil venture. High political risk, the main thing holding back international oil companies, also comes from a split between Moscow and oil-producing regions over control of resources. The West Siberians produce most of the oil and gas, and no foreign investment program can succeed without involving them directly.

My publication's report on West Siberian oil also finds a mismatch between the investment goals of the Western oil companies and the Russians. While Russian producers want capital and technology to boost flows from troubled fields as fast as possible, the oil companies are more interested in big exploration or rights to develop large untapped oilfields.

To bring in Western companies, a multinational, rather than a solo United States effort can generate adequate investment insurance and avoid duplication. The multibillion-dollar scale of most international oil projects is so large, and there are so many potential projects in Russia, that no country can take on the financing singlehandedly. A unified approach would also defuse potentially disruptive rivalries among Western countries. The French oil companies Elf and Total are at the forefront of Russian investment thanks to the support of their government.

Investment insurance should be provided through credits and guarantees, tapping some funds earmarked for general assistance in the Russian aid announced by President Bush.

Western governments could spur oil companies to take the plunge by setting up a foreign investment clearinghouse to help structure deals that meet the objectives of Western companies and Russian oil producers.

It is also time to revive the old lend-lease program used so effectively in World War II. Equipment shortages are one of the main reasons for the steep production slide. United States and Canadian oil services companies have been devastated by a collapse of drilling in North America, leaving plenty of scope to make available the pumps and other equipment the Russians need so badly.

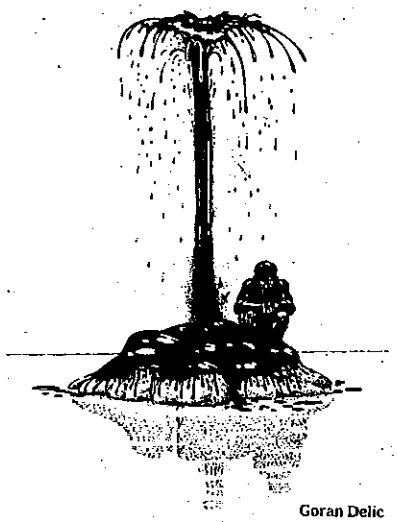
Western help in reviving Russian oil production has other advantages beyond shoring up the new democracy. Other former Soviet republics and Eastern Europe have been almost completely dependent on Russian oil, and the loss of these supplies is straining relations between them and Moscow. More Russian oil could provide the basis for a real commonwealth. While a continuing rapid slide in Russian oil output could significantly increase the threat of an uncontrolled 1970's-style explosion in oil prices.

THOMAS WALLIN
Group Editor
Petroleum Intelligence Weekly
New York, April 10, 1992

OPEC vs. Republics

To the Editor:

William Safire (column, April 9) supposes that black gold — oil — is "how to save Russia." Kazakhstan



Goran Delic

alone could contain as much oil as Saudi Arabia was presumed to have in 1980 (before effectively doubling its reserves). Republics from Communist rubble represent the most significant threat to the Organization of Petroleum Exporting Countries.

The oil infrastructure of the former Soviet republics is in ruins: to replace it (not just repair it) will require investments of $200 billion — before sufficient oil can reach markets to earn the hard currency required to save Russia, Kazakhstan and the other republics. Then, after the $200 billion has been spent by the republics, $300 billion more or so will be required to develop extensive reserves of oil and gas: the Tenghiz field in Kazakhstan alone will cost $100 billion. By the mid-1990's oil will have seen the peak prices of the decade.

In the mid-1980's, OPEC encouraged the perception that the Soviet Union was soon to become an unreliable supplier. OPEC understood the potential competition. Saudi Arabia did not boost oil production to 9 million barrels a day after the invasion of Kuwait just to win and keep Iraq's oil market share. To insure that Iraq does not get the oil revenues to become a threat again, the Saudis will keep their production high, and oil prices as a consequence cannot rise. The tactic will also succeed against Russia, Kazakhstan and the other republics as they seek to become true competition against OPEC.

The world's demand curve for energy flattens, especially as prices rise — a reality of the 1980's the industry has yet to accept. New volume competition can join the party only at a loss of market share by those there — who must keep prices so low that potential competitors cannot profit enough to remain competitors.

Put another way, Washington must insure Saudi Arabia has sufficient oil revenues to survive, or the lives of Americans in Operation Desert Storm were wasted. But the survival of Russia, Kazakhstan and other republics may well be the most significant impetus to world peace in the next century. They would need to seize the oil markets of Saudi Arabia and OPEC. Only one of these groups can survive; the other must fail.

Washington has unknowingly removed most other options. A Washington that once proclaimed Saddam Hussein a moderate even after he deliberately murdered Americans on the Navy frigate Stark in the Persian Gulf in 1987 may be forced by events to decide whether Saudi Arabia or a democratic Russia will be permitted to see 2010 as a viable economic entity.

NORMAN HIGBY
Menlo Park, Calif., April 9, 1992

The writer, an oil-industry consultant, publishes a newsletter.

Ashe Case Underlines Intrusiveness of Press

To the Editor:

Perot Votes Would Probably Help Bush

To the Editor:

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Samish case delay rejected

By Paul Shukovsky
P-I Reporter

A federal judge, after learning that government lawyers had given him incorrect information, has refused the lawyers' request to further prolong a 17-year battle by the Samish Indians to return from federally declared extinction.

U.S. District Judge Thomas Zilly had first granted the government's request for a 45-day delay in rehearing the Samish petition for formal recognition as a tribe. But Zilly reversed himself after learning that lawyers for the Justice Department and Bureau of Indian Affairs had incorrectly said the attorney for the Samish did not object to the delay.

The judge ruled last month that the Samish had been deprived of their constitutional right to a fair hearing when the Bureau of Indian Affairs in 1982 summarily declared the tribe extinct. He ordered the agency to hold a fair hearing to decide the matter.

The case could affect more than 100 unrecognized tribes around the nation, including at least six others in Washington state: the Chinook, Cowlitz, Duwamish, Steilacoom, Snohomish and Snoqualmie. Formal recognition entitles a tribe to federal health, education, welfare, and other benefits. Recognized tribes have sovereign power over land which cannot be taxed by governments.

In a delaying tactic that tribal council member Mary Hansen called "totally subversive," the government on March 18 asked

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Samish: Tribal leaders allege incident an effort to avoid issue

From Page B1

Zilly to stay his order for a new hearing for 45 days because the BIA was uncertain what procedures the court would find acceptable in a new hearing.

In the last line of its request to Zilly, the government said Russel Barsh, the Samish lawyer, had been consulted and did not oppose a delay.

"It just wasn't true," Barsh said in an interview. "To be nice, in legalese, we call it a material misstatement of fact."

Unaware of the misstatement, Zilly issued an order granting the delay, then left Seattle to hear cases in Guam, a U.S. territory.

When Barsh heard about the order, he sent a memo to the court saying he "did not see, did not discuss and did not approve" the BIA's request. He told the court the government's statements to the court were "materially false."

Zilly's clerk contacted the judge, who last week rescinded the 45-day delay. His order says the government lawyers improperly alleged that their motions were unopposed.

Melissa Burns, a Department of Justice spokeswoman said yesterday: "Even though we feel the accusations toward the Department of Justice are inaccurate, it's not appropriate for us to be talking about this case while it's still in court."

Barsh said "this may be a misconduct situation" on the part of the government lawyers. His memo to the court alludes to the potential for sanctions against the government attorneys.

"But we don't want to press it," said Barsh. "We want to get the Samish case resolved and not get into a fight over lawyers' behavior."

Ken Hansen, former Samish tribal chairman, said: "This is just another example of government's exotic machinations to avoid dealing with Samish recognition. It's another manifestation of the government's attempt to administratively terminate Indian tribes. In the past, Congress had to do it. Now you have the executive branch trying to usurp that authority from Congress."

Mary Hansen said: "We've had the BIA lie to us all these years and withhold information. It's just more dishonesty."

The Samish people hope a new hearing will "proceed at a high level or bypass the process completely and go to (Interior Secretary (Manuel) Lujan who would sign a paper and recognize us," Ken Hansen said.

"We would very much like to see that after 17 years of messing around with the process." That's how long it has been since the Samish lost federal recognition as a result of a legal battle over fishing rights.

Barsh, in his memo to Zilly asking that the delay be rescinded, said: "Leaders of the Samish Indian Tribe have literally died waiting for a fair and conclusive result."