

In the natural scheme of things, the peregrine falcon had it made. Millions of years of evolution equipped it with phenomenal hunting skills. Although agile in flight, more impressively they are incredibly fast—capable of overtaking birds they pluck from the sky in dives close to 200 miles per hour before throttling back for a spectacular mid-air collision. Oversized taloned feet clench into lethal fists that pound the life from their prey in a split second and then open to snatch the victim as it plummets to earth. It's no wonder that American Indians at the time of Colonial America viewed the peregrine—which means wanderer—with religious reverence. With extra-sensory eyesight (on human standards equivalent to being able to read a newspaper from a distance of 300 yards), the peregrine is perhaps the most efficient and awesome hunting bird to ever live.

As well equipped as the peregrine is to face the next millennium, it isn't equipped to cope with a poisoned environment. In 1946, the pesticide DDT became widely used throughout the United States. In time, the deadly pesticide had worked its way into the food chain. To some animals that meant an increase in deformities, abnormalities, and stillborns in offspring. But to the peregrine, DDT is a calcium inhibitor and without sufficient amounts of calcium, eggs are too weak to survive nesting activities, or developing chicks are too weak to break out of their eggs because of their poisoned condition. By 1972, two years after DDT was outlawed in the U.S., the peregrine was extinct east of the Rocky Mountains and was near extinction in the West. Only two breeding pairs could be found in California. Since the residual effects of DDT are long lasting and because peregrines feed on migratory birds that travel from Latin America where DDT is still in wide use, many experts saw certain doom for the peregrine.

Santa Cruz veterinarian James Roush and UC Santa Cruz Professor Ken Norris thought otherwise. Dr. Roush is a longtime falconer who is



BRIAN WALTON PHOTO.

*There are now fifty known peregrine territories in California, where there were only two in 1970.*

well-known for repairing shattered bones of birds of prey that fall victim to gunshot wounds. Professor Norris achieved an international reputation for his work with marine mammals. Together they hatched the idea of a captive breeding program for peregrines and convinced UCSC officials to allow the facility to be housed on the UCSC campus. Operating on meager funds from concerned private organizations and scant federal sources, a spartan looking plywood facility was put together. Designed to approximate natural nesting conditions for the falcons, the box-like structures are markedly non-descript to any first time visitor. This humble looking facility became aligned with

parallel efforts in Colorado and New York and drew an extra funding source by becoming part of a national effort known as the Peregrine Fund.

In 1975 Brian Walton, a biologist, was hired to direct activities at the facility. Working with the California Department of Fish and Game and drawing from top ornithologists around the world, Walton set into motion a somewhat controversial, but successful, program. A big part of Walton's program relied on eggs taken from wild falcons. Influential environmentalists, like Sierra Club kingpin David Brower, were philosophically opposed to interceding to help a species survive. But, Walton points out, "Mankind had already interceded when he introduced DDT into the falcon's realm. Obviously a hands off approach wasn't working. We're just righting the wrong."

Philosophical views aside, Walton went ahead with a carefully thought out, multi-faceted strategy aimed at increasing numbers of falcons and returning them to the wild. A captive breeding program was started with thirteen birds that had suffered permanent injuries or had been owned by falconers. Field studies were conducted to assess the breeding potential of falcons surviving in the wild. The few nests that were found to be producing healthy chicks were guarded by volunteer biologists and students who vigilantly spelled each other around the clock. However, the effects of DDT on most nesting activities ended in pathetic failure.

Walton and a small group of dedicated assistants literally took the future of the birds into their hands. Walton enlisted the mountain climbing skills of biologists Merlyn Felton, Rob Ramey, and Kurt Stolzenburg, who used ropes to reach nests on cliffs. The climbers snatched the eggs, replaced them with dummy eggs, and rushed the developing eggs to Santa Cruz for "intensive care incubation." "Double-clutching" was tried with some of the nesting falcons. Simply put, double-clutching is swiping eggs from the same nest twice in a single

season. Usually, if eggs are taken early in a nesting cycle the female bird lays a second clutch. With double-clutching, Walton and company found they could double the egg production that had occurred naturally. Moreover, the thin shelled eggs rarely hatched in the wild.

So, through Walton and his wife Cheryl's vigilant incubation activities (which included helping weak chicks chip their way out of their eggs), ninety percent of the eggs under their care were hatching.

The adult captive birds fit nicely into the chick raising phase of the program. If the captive adults didn't have their beaks full, caring for their own nestling, they became surrogate parents. Great care was taken that chicks relied on falcons rather than humans, ensuring survival on their wariness towards people. Ducks, pigeons, and many other kinds of birds are *prosocial*, which means they are born with sight and automatically adopt forever the first thing that moves across their field of vision as their mother. Luckily, falcons are *altricial*, which means they're blind at birth. This feature allowed Walton a margin of a few days to carefully monitor each chick's eating habits and development before turning them over to captive birds, or more commonly to wild falcons who were diligently and, of course unknowingly, waiting on dummy eggs for their captive hatched chicks to arrive.

Climber Rob Ramey, who has since joined a similar program for the California Condor, describes the exchange of dummy eggs for live chicks carried in a backpack while suspended hundreds of feet above the ground: "It's always exciting, because besides the technical part of the climb, I'm always aware of my precious cargo. My mind constantly juggles concern for the birds and my own safety. Often the adult falcons begin dive bombing me when I get near their nest. As fast as possible I exchange the chicks for the fake eggs, taking special care to make sure the chicks aren't too near a ledge. Then I retreat as fast as possible." What follows often strikes an emotional cord in Ramey. "The falcons stare in disbelief at their 'newly hatched' chicks and swoop down and inspect them. Usually in a matter of minutes they're doting over their chicks and take turns racing off to find food for their noisy nestlings."

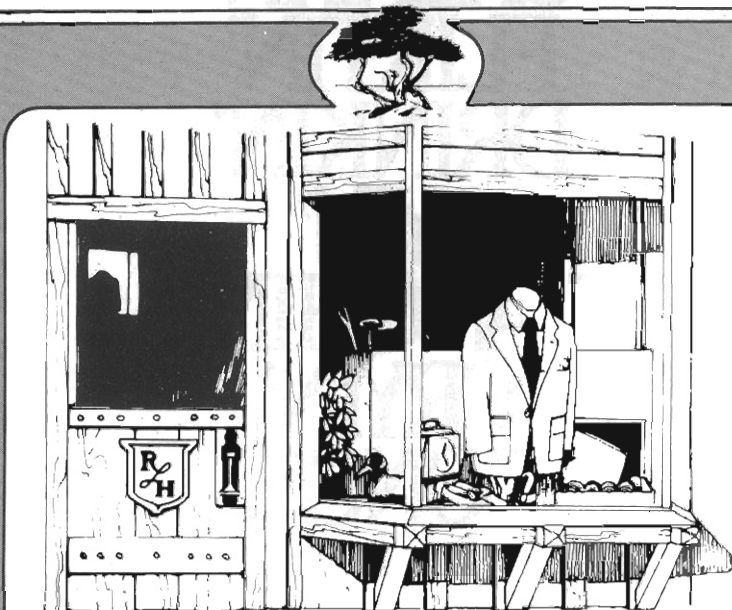
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The egg-shuffle that relies on risk takers, like Ramey, has resulted in a great number of falcons being fledged in the wild. The Santa Cruz Predatory Bird Group, as the Santa Cruz program is now called, began releasing peregrines all over the Western United States. Climbers Ramey, Felton, and Stolzenburg, found themselves applying their rappelling skills on the granite walls of El Capitan in Yosemite National Park; the rope-fraying volcanic cliffs of Crater Lake in Oregon; fog-shrouded Morro Rock in San Luis Obispo; along the most formidable cliffs in the Big Sur area; and of all places, the tallest skyscrapers along Wilshire Boulevard in Los Angeles. To the falcons, these unnatural looking cliffs are ideal homes. They're safe from trigger-happy humans, have high nests and perches to view hunting grounds, and carry out dive bombing raids on the city's pigeon population. Walton points out the peregrines perform an important function. "Besides the novelty of watching a peregrine streak by your office at 180 mph, the peregrines weed out sick and old birds, which helps keep the flocks healthy."

No less important, and a lot less glamorous than scaling cliffs, is the "hack box" part of the program. Designed to reintroduce peregrines to areas only occupied by their ghosts, hack-boxes serve as sort of half-way houses for young peregrines. Made of plywood and about the dimensions of a refrigerator, a hack-box is suspended half-way down a cliff. It is open on one side so young falcons can come and go. It is weather proof, and kept stocked with fresh food supplied by human volunteers who camp above the cliff and drop freshly killed quail or chicken down a tubular shoot into the box. As young falcons display greater success in hunting, hack box attendants slowly wean the birds until they are entirely self-sufficient.

Biologist Karen Burnson, who has worked for years at fulfilling the nutritional needs of captive and released falcons, has spent arduous hours tending hack-boxes in inhospitable terrain north of Los Angeles and Monterey County, explains the importance of a falcon half-way house: "First, the boxes allow introducing young birds into an area where no falcons exist. The box affords a margin of safety for

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young birds during the critical learn-to-hunt transition that is stressful to these birds. The boxes have greatly increased the survival rate of falcons to around eighty-five percent, which is much higher than would be the case without our help."

Last year alone, Santa Cruz's Predatory Bird Group released seventy peregrines into the wild. There are now fifty known peregrine territories in California, where there were only two in 1970.

The success has brought Walton and company new responsibilities. Dr. Pat Zenone, an animal behaviorist, has joined the group and is conducting tests to better understand the peregrine's complicated calcium related problems. In addition, the Center has broadened its net and taken on other endangered predatory birds, notably the tiny elf owl from the Southwest, the Harris hawk, aplomado falcon (barely hanging on in Northern Mexico and now extinct in the United States), and the colorful orange-breasted falcon from Central America.

Dr. Zenone warns that the success of the peregrine effort is no reason for bird lovers to become complacent. "We can create new birds, but the thin egg problem still exists, both because DDT is slow to leave a food chain once it's in, and because peregrines continue to dine on migratory birds that get fresh doses of DDT in South America." He feels the eventual outcome of the peregrine's ability to re-establish itself will be a measure of society's commitment to the quality of the environment.

Really, the peregrine is a gauge to measure the condition of our environment. If the peregrine becomes a truly healthy bird, and doesn't need our help, we will have come a long way. The degree to which the peregrine can't survive on its own tells us the degree to which mankind still shoulders the responsibility for destroying the natural balance."

Tours of the Santa Cruz Predatory Bird Research Group are arranged through appointment only by calling (408) 429-2466 at least several days in advance. Tax-deductible contributions can be sent, payable to the Santa Cruz Predatory Bird Research Group, Lower Quarry, University of California, Santa Cruz, CA 95064. ✓



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