

known to occur at the histological level of organization. Even in organs made up of histological units of function and having the potential for unlimited hyperplasia (for example, liver, exocrine glands, thyroid, ovary), the population of functional units never exceeds the number needed to fulfill the physiological requirements of the body. Above and below the level of the cell, therefore, structures are not permitted to escape the constraints of functional demands which control their production. The fact that cells can occasionally do so when they become neoplastic may reveal as much as it conceals about the problem of growth regulation.

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NEWS AND COMMENT

The Coast Redwoods: Struggle over National Park Proposals

In the battle over the fate of northern California's coast redwoods, the saw has the current advantage. Approximately 85 percent of the nearly 2 million acres which originally stretched from the Oregon border to south of San Francisco have already been cut. Fewer than 300,000 acres of virgin redwoods remain; of this area, only about one-sixth is now publicly preserved. The Interior Department estimates that, at the present rate, the remaining virgin growth will be completely cut in 2 to 3 decades.

The desire to preserve a greater portion of the virgin redwoods while the trees remain standing in significant groves is the crux of the current struggle. For the conservationist, destruction of the redwoods is an irreversible tragedy. President Johnson emphasized the "now or never" need for redwood preservation when he told Congress in February, "It is possible

to reclaim a river like the Potomac from the carelessness of man. But we cannot restore—once it is lost—the majesty of a forest whose trees soared upward 2000 years ago."

The coast redwood (*Sequoia sempervirens*) is one of the oldest living things, as well as the tallest living thing; the highest known tree exceeds 365 feet. (The much less extensive stands of the Sierra redwood—*Sequoia gigantea*—are already protected.) Conservationists often point out that some standing coast redwoods were alive at the time of Christ. Their great antiquity, as well as their size and beauty, leads some admirers to regard them as "holy trees."

The lumber companies argue that the coast redwood is an extremely fast-growing tree; some of their trucks carrying the giant logs to the mills flaunt the slogan "Redwoods Forever." While it is true that the coast redwood becomes commercially harvest-

able within a 40- to 80-year period, it requires several hundred years to reach its full stature. For the redwood conservationist, second-growth redwoods cannot be more than second-rate, at least in his experience or that of foreseeable generations. At a June Senate Interior Committee hearing, Ralph W. Chaney, professor emeritus of paleontology at the University of California, Berkeley, was even more pessimistic. He said that, because of climatic and other changes, "there are many of us who doubt that giant redwoods may ever grow extensively again."

The concern about the disappearance of the virgin coast redwood forests prompted President Johnson to request, on 23 February, that a Redwood National Park be created in northwestern California by combining the Jedediah Smith and Del Norte Redwoods state parks with land owned by the Miller Redwood Company in the Mill Creek watershed. The Redwood National Park proposal is unusual in that it is the most expensive national park ever requested by an administration (approximately \$55 million), and that it is the first administration park proposal to concentrate specifically on preserving a single plant species.

The administration bill has acquired important backers, including Thomas H. Kuchel of California, Senate minority whip and ranking Re-

publican on the Interior Committee, and the Save-the-Redwoods League. A single-purpose organization, the League has great prestige in conservationist circles for having raised money to help save 50,000 acres of virgin redwoods in 28 state parks during the years since its founding in 1918.

Despite this support, the Redwood National Park measure faces several high hurdles before passage by Congress. The first obstacles are the economic costs and consequences of the bill. Since the redwood industry is so important in California, many residents fear their area's economy will be disrupted and diminished by the establishment of a national park. The Miller Redwood Company, employer of 235 people in Del Norte County, would be closed if the administration proposal were adopted. Similar economic problems would arise elsewhere if another site were chosen for a Redwood National Park. Conservationists reply that the redwood industry will decline in any case when the remaining virgin growth is cut, and they say that a national park would benefit the area economically by attracting tourists.

Because of the initial economic disruption which would be caused by the creation of a national park, the administration's proposal contains a provision for in-lieu tax payments to Del Norte County to help offset the loss of tax revenues from the Miller Redwood Company. These payments would amount to approximately \$340,000 annually for 5 years. Such a payment represents an unusual policy change in the purchase of land for a national park, and the precedent worries some congressmen, among them Alan Bible (D-Nev.), chairman of the parks and recreation subcommittee of the Senate Interior Committee. But, despite congressional doubts, Kuchel insists that these payments remain part of the bill.

The economic costs to the California lumber industry also influence the way California officials evaluate the idea of a redwood national park. Naturally enough, the "keep the grasping federal government away from free enterprise in the redwoods" argument has more adherents in California than in Washington, D.C. The administration's national park proposal assumes that the state will exchange or donate land currently in the two state redwoods parks. While Governor Edmund G. Brown and the state

"I propose the creation of a Redwood National Park in northern California. . . . This will be costly. But it is my recommendation that we move swiftly to save an area of immense significance before it is too late."—President LYNDON B. JOHNSON in a message to Congress

"The Redwood National Park, more than any other park proposal in my tenure in the Cabinet, represents an opportunity that will be lost forever if Congress does not act with expediency."—Secretary of the Interior STEWART L. UDALL, testifying before the Senate Interior Committee

"I say there's not going to be a Redwood National Park. We'll fight these bastards from hell to breakfast."—DON CAVE, of Eureka, California, co-chairman of the redwood-industry-financed Redwood Park and Recreation Committee, in an interview with *Science*

attorney general say that such an exchange is permissible, other Californians doubt that the legislature will permit the surrender of these state lands to federal administration.

Attitudes of California's elected officials may also be affected by the gubernatorial candidacy of Republican Ronald Reagan, who has backed the lumber industry's ideas in the redwoods national park controversy. Reagan's remark on the redwoods, "A tree's a tree—how many more do you need to look at?" has been quoted by the Democrats in the current campaign. If Reagan is elected governor—a distinct possibility—the likelihood of state cooperation in the creation of a Redwood National Park would diminish.

The major economic factor which has complicated the recent history of the Redwood National Park proposal, and which promises to continue to create obstacles for the park, is the expense of the Vietnam war. Originally, Interior Secretary Stewart L. Udall hoped to use federal funds to preserve both the Mill Creek drainage of Del Norte County and the forests to the south in the Redwood Creek drainage, where the largest unprotected groves of virgin redwoods still stand. Indeed, while the Interior Department deliberated about the park proposal in 1964 and 1965, the Redwood Creek area was at the top of the list of possible sites.

However, after long consultations with the Bureau of the Budget and with California officials, Udall decided, he recently told *Science*, that it would take a 5-year fight to obtain a park which included the Redwood Creek forests as well as the Mill Creek area.

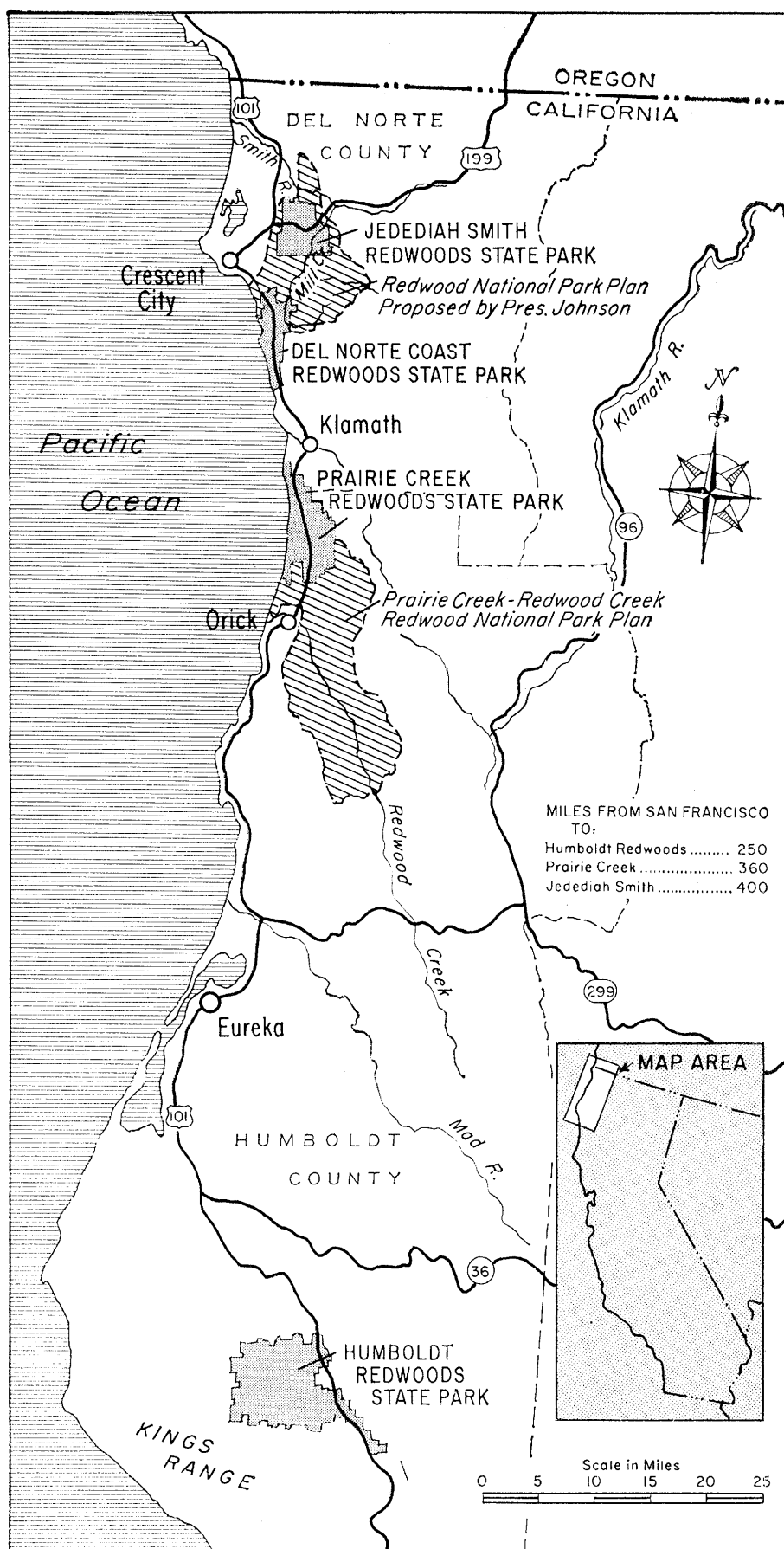
During that time, most of the worthwhile redwood stands would have been mutilated.

When the rationale behind the choice of the Mill Creek site is discussed privately with the federal administrators responsible for the choice, they note that the huge expenses connected with Vietnam have affected the redwood park proposal. At times, officials publicly allude to the influence of current foreign expenses on the choice of a park site.

Edward C. Crafts, director of the Interior Department's Bureau of Outdoor Recreation, an official who has played a major part in the planning for a redwood park, recently wrote an explanation of the choice of the smaller site. In his statement Crafts commented: "Although the desirability of establishing national parks should not be based solely on economic justifications, there are certain economic factors that should not be overlooked. The purchase price should be within the means of the Nation, given its worldwide commitments."

The financial limitations imposed by the Vietnam commitment helped the administration decide on the less expensive Mill Creek location and led to the battle over site which currently complicates the discussion of the Redwood National Park. The more militant conservationists have denounced the administration's proposal as a "pinch-gut substitute."

Several conservation groups, led by the Sierra Club, support a park of 90,000 acres in which 9540 acres of virgin growth in the Prairie Creek Redwoods State Park would be added to 30,000 privately owned virgin acres in the Redwood Creek drain-



Major site proposals for a Redwood National Park (diagonal shading): one, near Orick, is supported by the Sierra Club; the other, further north, on Mill Creek near Crescent City, has the administration's support. Existing state parks (solid shading) would be incorporated in each; the administration's plan also proposes a 1400-acre "tall trees" unit on Redwood Creek.

age. [The administration's park would have more than 43,000 acres, containing 7000 acres of privately owned virgin redwoods and the 12,000 virgin acres already preserved in the two state parks.] At the 17 August hearing before the Senate Interior Committee in Washington, Edgar Wayburn, vice president of the Sierra Club, argued that "dollar for dollar the values are infinitely greater there [on Redwood Creek]." Under the administration plan, Wayburn said, the taxpayers would be spending money to buy out 100 private homeowners near the Smith River, at the northern edge of the Jedediah Smith park, as well as the modern Miller mill, in the heart of the administration's proposed park.

Advocates of the Redwood Creek proposal are enthusiastic about the scenic attractions of their site. On its western boundary are the spectacular Gold Bluffs, where redwood-topped cliffs look out over an expanse of Pacific beach inhabited by the Roosevelt elk herd. Supporters of this site note that the National Park Service originally favored the Redwood Creek location for a national park. As part of their evidence they quote the 1964 National Park Service survey, "The Redwoods," which states that the Redwood Creek area contains "the largest uncut block of virgin growth not preserved—certainly the most significant large block in terms of park values. . . . Lower Redwood Creek from ridge to ridge is essentially uncut. It presents an outstanding redwood valley picture. . . ."

The major disadvantage of the Sierra Club plan is its cost. Acquisition figures cannot be fixed with absolute precision, but it is estimated that the Redwood Creek park would cost three times the amount the administration plans to spend for the Mill Creek area. Sierra Club leaders, however, dismiss the cost argument as irrelevant. They prefer the larger park, but, if the money for park acquisition must be limited to \$55 million, they want it spent in the Redwood Creek area. As Wayburn said at the August hearings, "If we do not have the money now for a park this size [90,000 acres], we still believe we should put our funds into the biggest park possible on Redwood Creek."

Proponents of the administration bill are equally vehement about the advantages of their park site; they enthusiastically discuss the views

along the coast in the Del Norte Redwoods State Park (one of the two places where the redwoods extend to the ocean), the noted virgin groves of the Jedediah Smith park, and the opportunity to acquire a complete watershed.

For decades the Save-the-Redwoods League has given top priority to acquiring the entire Mill Creek watershed. Beginning in 1955, this desire was given further impetus when a series of floods along Bull Creek wreaked havoc on the great downstream redwood groves of the Rockefeller Forest. This expensive loss underlined the futility of spending large sums to acquire downstream groves if poor upstream logging practices permitted devastating floods. The Save-the-Redwoods League does not want to see similar destruction of its downstream investment occur in the Jedediah Smith Redwoods State Park.

From a first glance at Capitol Hill, it seems that the Redwood Creek site has the greater congressional support. Senator Lee Metcalf (D-Mont.) has persuaded more senators to cosponsor the Redwood Creek bill than Kuchel has enlisted to cosponsor the Mill Creek proposal, while in the House the Redwood Creek measure has received the sponsorship of 35 representatives, including Jeffrey Cohelan (D-Calif.) and John P. Saylor of Pennsylvania, ranking Republican on the Interior Committee.

Although the Redwood Creek location has influential congressional support (including that of Senator Robert F. Kennedy), the potential backing for the Mill Creek site should not be minimized. During the past few weeks, Kuchel, Udall, and the President have been highly successful in dramatizing the need for their park proposal. They have denounced the Miller Redwood Company for cutting virgin growth along the southern boundary of the Jedediah Smith Redwoods State Park, inside the proposed national park—"cutting out its heart," in Kuchel's words.

After Harold Miller refused an offer of compensation to move his cutting operations to areas outside the proposed park, Udall, in a letter, accused Miller of "an outrageous public-be-damned, conservation-be-damned approach to this whole issue." The President then took the unusual step of sending legislation to Congress which would forbid Miller to cut in the park area. Within a few days both Miller

and the companies cutting in the Redwood Creek park site assured Congress that they would not impair the park value of either area.

Udall and Kuchel had to force the curtailment of cutting in the Mill Creek area to preserve their own park site. If they had not been successful, the more spacious forests of the Redwood Creek area would have become the favored park site. By moving to protect their location, Kuchel and Udall also helped reinforce the idea that Mill Creek was the likely site for a Redwood National Park. In addition, they helped mollify the conservationists by uniting the redwood preservationists in a common cause against the lumber companies, thus creating "the public versus the big interests" battle to which conservationists usually respond.

By phrasing the issue in compelling terms, Kuchel and the administration seem to have acquired substantial press and public backing and to have won over the important chairman of the Senate Interior Committee, Henry M. Jackson (D-Wash.). Jackson recently announced that the Redwood National Park would be the first item on his committee's agenda for the next congressional session, in January, and predicted that the bill would be favorably reported out within 2 months of the beginning of the session.

Jackson also said he hoped the conservationists and the lumber companies would agree on a park site before the session begins. But, since the lumber companies basically don't want any national park that takes away sizable private forests, they are unlikely to strike a bargain with conservationists who want to preserve as much virgin redwood forest as possible. Moreover, the conservationists are unlikely to resolve the disagreement within their own ranks: while the Sierra Club regards its fight for the Redwood Creek location as a matter of principle, the Save-the-Redwoods League would find it difficult to give up its backing of its long-cherished Mill Creek site. As long as dispute exists among these reputable conservationists, skeptical congressmen have a good excuse for not seeking or permitting action on any park bill.

Other congressmen are reluctant to spend so much money in California, a state many believe to be rich enough to preserve its own natural resources. This reluctance is further complicated by a prior congressional commitment to support the very expensive Point Reyes National Seashore project north

of San Francisco, in the same congressional district as the coast redwoods. Many congressmen think that more National Parks money should be spent closer to their own states, especially when they contemplate the multitude of federal grants and contracts going to California.

Even if Congress passes the administration's Redwood National Park bill next year, President Johnson and Secretary Udall will have emerged scarred from the conservationist in-fighting they have recently endured. The President probably thought he would be warmly applauded by conservationist groups when he first suggested the idea of a Redwood National Park. No doubt, he is disturbed to find himself in the midst of a dispute over location.

The temperature of the argument has been raised by other battles which Secretary Udall and his department have recently fought out with conservationists. For instance, Udall's support of dam-building in the Grand Canyon (*Science*, 17 June) and the National Park Service's proposal to build another transmountain road through the Great Smoky National Park (*Science*, 1 July) have angered some conservationist groups, including the Sierra Club. In view of what are regarded as administration failures over the Grand Canyon and Great Smoky issues, conservationists were even more likely to view the smaller Mill Creek proposal for a redwood park as a sellout. One official predicted that the administration would be successful in pushing the Mill Creek proposal through Congress, but only at the cost of "one hell of a penalty" because of the resulting split in the conservationist movement.

Despite all the difficulties, on balance it seems as if those who desire congressional approval of a Redwood National Park will have their wish gratified in the next session of Congress. The major potential threat to the park remains the cost of the Vietnam war. If this expense keeps growing, congressmen will want to get by with as small a park as they possibly can. If the cost grows greatly, many congressmen will regard any multi-million-dollar park proposal an expensive luxury.

The future of the Redwood National Park is much more likely to be affected by events in the hot and explosion-filled jungles of Vietnam than by what happens across the Pacific in the cool and tranquil redwood groves of northern California.—BRYCE NELSON