

## THE POLITICS OF NATURAL RESOURCE USE

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California's accelerating population growth is placing increasing stress on our limited resources of land, air and water. We will see almost a doubling of people by 1980, with over 90 percent located in metropolitan areas; only 2.7 percent now live on the farms. California already is the most urban of all the states.

The growth anticipated by 1980 could duplicate the state's thirteen major cities to create an additional metropolitan system -- core cities, suburban settlement, and all. We can expect that without a policy and a program to control the size and the direction of urban growth, the major portion of these people will settle, at least initially, in the suburbs of existing metropolitan areas on the open space lands of the Los Angeles, San Diego and Santa Clara basins and in the Great Central Valley.

Projections of growth based on present policies and trends show the continued development of two giant clusters -- one in the south stretching from Bakersfield and Santa Barbara to San Diego, with Los Angeles as the hub, and the other in the north reaching from San Jose to Stockton and Sacramento, with San Francisco-Oakland at the center. Nearly all of this growth will be on California's best lands.

Under present policy, California has delegated its responsibility for land use -- for the control of economic development -- to our cities and counties, and in every region this trust is being violated in the mad, competitive battle of local government to attract "development", industry and slurban growth within its own taxing boundaries. But the grab for taxes is not the only villain. The "progress" syndrome permits members of city councils and boards of supervisors, or their supporters - the development establishment - to make money out of their own land-use decisions. Thus the rules and practice of the present developmental game say that the sole question is profit - money made by private developers on values created by public designations of land use.

So the state has handed over its responsibility for the land and landscape to local government.

What is the result?

In the first place, the failure of cities and counties to reserve significant open space against the onrush of urbanization is a well-documented, state-wide scandal. The flood plains, hilltops, tidelands and agricultural land wantonly consumed by urban growth were sacrificed by local government.

In spite of state policy and the efforts of the San Francisco Bay Conservation and Development Commission, the cities of Oakland, Alameda, San Francisco, San Mateo and Emeryville rushed their single-interest fill jobs in an attempt to get under the wire. Private interests press their "right" to fill their land as they wish, all in the name of taxes, progress and substantial profit. They are aided and abetted by the State Division of Highways which plans additional outboard freeways, thus inviting more and more garbage fill, more and more destruction of the mountains.

The open spaces provided by farmland are also being devoured by hasty and uncontrolled growth. The City of Los Angeles has occupied over 90 percent of the best agricultural land in the county. Less than 40 percent of Santa Clara Valley prime lands remains in agriculture. Much of this land has been leapfrogged by sprawling subdivisions. In Sacramento County, for example, twice as many people could be settled on land that is already within the urbanized area and still have present low density, single family dwellings -- with schools, streets and parks.

Tax programs and fiscal policies of local government are in large part determining the contours of California land and not our heavily subsidized local planning program. Assessors throughout the state are undervaluing land in relationship to improvements contrary to the state constitution. Studies in Orange and San Diego counties indicate that vacant land is assessed about one-fifth the level at which homes are assessed.

Competitive county subdivision regulations entice large-scale housing outside municipalities in areas unserved by police or fire protection, or furnished sewer systems and other municipal type services. This land is then picked up by the speculator, and developers are forced to skip over it and build urban islands beyond. Thus islands of undeveloped land are common in both counties and cities.

If local government programs and non-programs have encouraged the invasion of agricultural and other open land by the slurbs, it is pretty clear that federal and state policies and programs have helped make this result

inevitable. There is no doubt that federal taxation and fiscal policy is actually encouraging the dispersion of urban growth and speculation in urban and fringe property.

The shelter available to land speculators under the capital gains tax program permits them to charge the costs of holding against the loss if the venture does not pay off. If the land does, the higher return is taxable only at the capital gains rate. The gains tax, therefore, makes profitable the rapid expansion of property either to generate income taxable at the capital gains rate, or to create tax deductible losses. In addition, the whole of the local property tax, which is supposed to be a deterrent against increasing prices, is deductible from federal and state income taxes.

While the property tax tends to reduce land values, the full deduction of mortgage interest and local property taxes from the federal income tax counters this tendency, and no manner of land value taxation to discourage speculation can affect the upward trend.

From the beginning the Federal Housing Administration's interest rates have favored new housing over old, and single family homes against multi-family rental units; and since available land has been primarily outside incorporated cities, it has been better economics for builders to go to open country land.

So it appears that even with the best controlled local development aided by strong state and federal policies and programs, it is probably true that some of California's better land could be destroyed. But it is not inevitable that from 50 to 100 percent of this prime land must disappear within the next thirty years, yet this is the trend.

But neither the states nor the federal government, at this stage, has developed controlling policy for the protection of our best lands. None of the agricultural subsidy programs is related to the need for preserving these lands, nor are any of the urban planning and development programs conditioned upon such conservation. Realistic programs to save the nation's most productive land call for federal policy and for state plans and state-wide open-space zoning similar to that in Hawaii. As things stand now we don't even have quantitative answers to agriculture's relationship to community values and the total economy.

A second result of unbridled development is the pollution of our land and landscape, our air and water.

Although some eastern rivers and lakes have been more severely polluted than any in California, our water pollution problems are serious and grow worse.

Air pollution, specifically photo-chemical smog associated with the internal combustion engine, is a world famous California-pioneered and developed product. And in pesticide pollution, California leads the world. With only five percent of the country's land area, California applies 20 percent of all the chemical poisons used in the nation.

The most deliberate uglification of the landscape is so characteristic of "development" that it seems to be accepted as an inevitable by-product of growth.

In spite of urban renewal, the core areas of our cities become more and more the living place for the rich, the poor and the minority families. While the failure on the part of the cities permits the continued deterioration of downtown areas, the counties, planning by special permit and variance, usually refuse the responsibility for the developing circle of decay on the suburban fringes.

On the whole, federal agencies are aggressively unconcerned with esthetics. Just the opposite. The cities of the San Francisco Bay Area may be involved in sneaky attempts to fill the Bay, but the Army Corps of Engineers, one of the agencies with the power to prevent the filling, is furnishing these cities fill material from its dredging operations. The federal public health agencies, with complete jurisdiction over the quality of food shipped in interstate commerce, could force the various states to create effective pesticide administration, but they have not.

Federal agencies are known to be involved with state and local counterpart agencies in actions that downgrade the environment. Each regulatory or action agency has its own clientele or support group. Its own congressional or legislative committee -- also captive of the support group -- and its backup state agencies serving the same clientele. For instance, it is natural for state and federal agricultural agencies to favor the agricultural industry in pesticide control because they are in the double role of attempting to regulate the very clientele they were created to serve.

Not only does each federal agency have a single-purpose approach to our land and landscape but there are as many land and landscape policies as there are agencies and programs. There is no national policy in regard to how land and landscape should be treated and no single national policy to protect the considerable national investment in the beauty and productivity of the individual states. There is no strong set of standards uniformly applied as preconditions for the federal largess that helps control and cushion the impact of growth.

So the destruction of land and landscape, our air and water - the loss of the state's beauty and productivity - is not a problem to be solved by

itself. It is part and parcel of the policy and lack of policy at state, federal and local levels for the control of urban growth and for the protection of the quality of the environment.

We are massively tampering with the world of nature without concern for the biological results. The pollution of landscape pyramids the dangers of air and water pollution as open space and open water for dilution are covered over with the slurbs and filled in with garbage. Pollution moves through the waters of our rivers and lakes to the ocean where it threatens the marine ecology which produces 70 percent or more of the world's photosynthetic oxygen. The average national loss of one-half million acres of producing farm land each year and the clear-cutting of our forests increases the threat to the delicate carbon-oxygen balance on which all life depends. In California we play Russian roulette with the ecology of our north coast area by planning to send its water to encourage a continued dangerous growth in Southern California, an area already out of control. In the process, we threaten the Delta and the San Francisco Bay with pollution and salt-water intrusion and deal a body blow to the North Coast sports and commercial fisheries.

In sum, we pursue the destruction of our land and landscape, our air and water, without full knowledge of the effects on us and our environment because "you can't stop progress," because it is the "economically feasible" thing to do. We emphasize chemical pesticides because people make money out of their production and not nearly as much money can be made by developing biological controls. We apply the measure of cost to subdivisions that destroy our agricultural lands, to highways that scar the land, to pollution control programs that could save our lives, to our box-like public buildings on a square footage basis, to bridges that cross our waters and mar their beauty. We tie communities together by ribbons of concrete on the basis of feasibility studies that fail to measure community values, and in the process destroy historic and esthetic values and screen the land and landscape with billboards. We justify destruction of our environment by adding up columns of figures, but we don't put in these columns the cost, tangible and intangible, that the people who live in the areas we thus create must pay.

This is the sad picture of what is happening and why it is happening to a state of great beauty and productivity. If all this is cause for despair, if these trends continue, what will happen within the next two decades is the irreversible loss of resources and destruction of much of the amenity that attracted us here in the first place.

How can we devise policies and programs that will reverse present trends and use the growth we know will come to create the type of urban plant that will establish the quality of life we want in our urban areas? We have two

routes to follow, neither of which is mutually exclusive, if we are to save what is left of the state's beauty and productivity and rescue our deteriorating urban centers while we create a new urban plant equal in population to what we now have.

1. Add to existing metropolitan areas and in the process create the open space and amenities that will make the areas more livable.
2. Create completely new cities of controlled size in areas deliberately selected for urban living on the basis of land capability, open space and the maintenance of the quality of the environment.

As a first basic step in bringing urban growth under control, we must recognize that all land in California has a highest and best use. Land in the agricultural valleys or the natural resource areas of California has not been or can be classified to determine capability. This method also determines the carrying capacity or amount of use the land can take without destroying the land or limiting its productive ability. Control based on this principle has been followed throughout time and in all countries, and ignored only at the expense of civilizations. The entire conservation movement is based on this intrinsic value of land -- a value that man holds in trust for future generations.

In natural resource areas, standards determining carrying capacity have been developed to control the amount of grazing an area can stand, involving elevation, topography, climate, vegetable cover, rainfall, snowfall, and the land's timber and water producing ability.

For years the federal government has worked with an economic farm unit that varies in size, determined by land characteristics, climate conditions, and crop and market projections.

Environmental factors of amenity - natural beauty, available open space, landscape, vegetable cover and topography - are more important to the location of residential developments than soil characteristics, yet soil factors determine the type and intensity of all other land uses.

In our dealings with other land uses and in determining specific needs and location for industry, recognized standards are guiding considerations. It is time we recognize that there are also standards which could determine maximum, optimum and minimum sizes for any urban area. This is related to the "size of plant" concept of Professor Coleman Woodbury of the University of Wisconsin, involving the size, location, and relation to each other of the major land use areas, the densities of their development, the transit and transportation facilities that serve them with power, light, communication, and water. Also involved could be standards related to natural resource and

economic base data, topography, and open space factors, air and water pollution potentialities, national defense and survival characteristics, and the cost of government services.

In the second place, I am convinced that we need to take a new look at the relative state, local and federal responsibility for California's land and landscape. It makes no sense, and no open land is saved, when the land is turned over to the developers who also are the town council and the county supervisors -- the very local establishments now making money out of destruction.

It was the Marin County Board of Supervisors that permitted subdivision invasion of Point Reyes, and the city council that cut Sacramento off from its river and destroyed historical values of national importance.

The solution to area-wide problems and parochial land use decisions requires area-wide planning and administration. Decision making in all the problem areas of growth is hampered by small constituencies and by special and limited local interest. Different interests in a broader area must be brought in to make the land use decisions that affect state and area-wide public welfare.

How can we redistribute the power to control our land and landscape to make it effective and meaningful?

First, the state needs to breathe life into our regional cities in order that regional planning and administration can rescue vital land use and open space decisions from the local governments immediately involved.

All federal grants and capital improvement programs should be conditioned on area-wide planning and administration. Special grants to the state to assist area-wide administration on a matching basis are needed to induce the creation of regional agencies through which the state could administer programs of area-wide influence. Regional cities must be established because they can assume the regional functions not now being properly handled by local government but also because they are logical areas for tax and budget equalization. They are also needed to administer state and federal grants and to coordinate state and federal development programs.

Second, new development authorities at the federal, regional and municipal levels need to be created with broad powers for the independent financing, planning and the construction and reconstruction in existing urban areas and the construction of completely new urban units.

Third, the state must re-assume its manifest responsibilities for protecting the environment. The state needs to stop pussy-footing on beauty and

amenity -- it needs to furnish policy to guide local decisions and state plans to carry out that policy. A state plan must provide land use and population distribution policies and require regional land use plans related to these policies to determine such special uses as the preservation of agricultural land and open space and for parks, recreation and watershed and timber uses. It then must zone these designated areas to prevent the local development establishment from subverting them to gain a quick profit.

State law should require that assessment practices be coordinated with these state and regional land use plans. Assessors should give paramount, if not exclusive, consideration to zoning and other land use limitations. He should not be permitted to recognize values at variance with plans -- values that cannot be realized under existing zoning. Lands gaining higher zones should be sold and the return used to help pay for required public facilities and services. Unearned increment in the areas of improvement and construction should be recovered by the appropriate development authority.

The state needs to be specific in its direction to local leaders on their responsibility for defending the environment. Federal regulations and state law must provide that all local development plans carry a special element on open space and amenities, in order to qualify for federal and state aid. In short, local government needs precise direction by the state in what it must do in order to maintain community beauty and productivity. It needs to be instructed that beauty is not a dirty word, that amenity is part of local government's responsibility and that beauty and amenity must be planned for and must be budgeted for as a community responsibility under its capital improvement program.

Fourth, we must create a State Commission on Environmental Change, a land use ombudsman, if you please. The commission would be concerned with land use decisions of public agencies which downgrade the quality of the environment - by destroying open spaces for example. It could be empowered on its own motion, or at the request of individuals, or of public and private agencies, to hold hearings and make recommendations regarding the public interest involved in these environmental changes. The recommendations need not be binding but could furnish a chance for the public interest to be expressed.

Finally, the federal government should realign its various programs to effectuate development of sound urban units. For example, no federal money should be made available in this or any region for backstopping growth that is out of control, or growth that heedlessly destroys prime agricultural and open space land. No additional water should be furnished these areas by federal programs and no transportation systems be subsidized. No housing or federal loan money or mortgage guarantee programs should be available to

such areas. While the federal loan and grant programs should no longer be extended to over-built and unsound local development, federal aid funds and special federal tax inducements and public facility construction programs need to be extended to new areas for the construction of completely new cities.

Public land purchase programs should not only include all the land within the new city, but sufficient land for greenbelt control around its perimeter.

Recovery of the full public value in lands zoned for specific uses, as practiced in most European metropolitan areas, will pay most of the public investment in these new cities. Sale of zones will also take the pressure off local officials for private interest zone changes that are now wasting our resources and downgrading California's beauty and productivity.

Abstract: The paper reviews the methods by which birds orientate themselves and navigates to a desired destination. Working as a classical physicist, the author has provided experimental proofs and repetitions observed and recorded. Methods of studying bird flight are described. A series of experiments on short range navigation by pigeons conducted by the author are described and results tabulated.

INTRODUCTION

This report presents some of the more prevalent theories and ideas concerning bird navigation. For the purpose of this report, the author has reviewed the available literature on bird navigation, and has presented a summary of the results of his own experiments, and the results of other experiments.

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