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Locational Analysis of Recreational Subdivisions in the United States

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A LOCATIONAL ANALYSIS OF RECREATIONAL SUBDIVISIONS IN THE UNITED STATES

The selling of rural real estate as it exists today began in the 1950's with the appearance of large companies, primarily resort land developments, that sold lots in Florida and the desert southwest by mail. Their practices have changed as the corporations evolved schemes to tap a broader market for rural property (Stroud, 1978). Thousands of corporations are a part of the interstate, or installment, land sales industry and range in size from one or two people to giant enterprises (Paulson, 1972).

Comprehensive data on the land development industry is sketchy at best and often difficult to obtain. Much of the research has been only peripherally related to recreational land develoment and has not analyzed the extent of or the implications associated with these developments. A three volume manuscript (Allen et al., 1976), a relatively recent government document (American Society of Planning Officials, 1976), the work of Richard Ragatz (1970), a private consultant in vacation housing, and the Office of Interestate Land Sales Registration, Department of Housing and Urban Development (U. S. Dept. of Housing and Urban Development, 1981), provide the most useful information.

The office of Interstate Land Sales Registration, which requires developers involved in interstate commerce to register and make full disclosure, has published a Catalogue Report providing the number of large scale operations in the United States. Useful information was also obtained from personal interviews with land development officials on the Cumberland Plateau in Tennessee, in Arkansas, and in Texas.

Much of the serious impact of development can be traced to two major factors: 1) the location of the development, and 2) the developmental standards used by project officials. The most glaring environmental problems result when fragile environments are selected for development.

Recreational subdivisions total more than 19,000 in the United States and are found primarily in five states, with 76.7 percent of all lots subdivided in only 10 states. Since many of these subdivisons are small and the primary emphasis in this investigation is with the impact of large-scale recreation subdivisions, this research analyzes the resort developments of 405 hectares or more.

A dot map portrays the location of each of the 707 large recreational subdivisions (Figure). Very strong clusterings are revealed. Florida has an incredibly high density with 145 large projects concentrated in central and southern portions of the state. Other strong concentrations occur in Colorado south and west of Denver along the Front Range of the Rockies, in several counties in Texas near Austin and Houston, and across the desert southwest. California has sizable concentrations as does northeastern Pennsylvania within the Pocono Mountains.

A number of important variables influence the location of these large scale land development operations. The most important include: 1) accessibility, 2) the availability of large tracts of relatively inexpensive land, 3) nearness to urban centers of population, and 4) an absence of local and regional land use plans and regulations that might hamper land development operations. (Pers. Comm. by Land developers in Tennessee, Arkansas, and west Texas, 1973, 1975, and 1981).

The relationship between interestate highways and the location of major recreational subdivisions was considered. This examination showed developments, in many instances, to be located along or near major transportational arteries with only two percent more than 160 kilometers from an interstate.

The availability of large tracts of relatively inexpensive land is important to the success of land development operations. Lee and Collier Counties in Florida emerged after the depression with huge inventories of land still intact and one land development company acquired more than 149,850 hectares during the 1950's. Some of the early purchases were made for around $40.00 per hectare (Carter, 1974). Similar acquisitions have been made across the country.

Nearness of recreational subdivisions to urban centers with populations of 500,000 or more was tested. Only 264 are more than 160 kilometers from urban centers, with 217 of the more remote projects located in the western United States. When the counties within which large developments are located were examined, it was found that only 13 had populations of 500,000 or more, 37 counties had 80 percent or more of their populations living in urban places, and 96 counties were within standard metropolitan statistical areas. Although statistics reflect the preference of developers to locate in a rural setting where land use regulations and controls are lacking, 98 percent of the subdivisions are within 160 kilometers of an interstate and 63 percent are within 160 kilometers of large metropolitan areas.

The recreational land development boom caught many rural governments by surprise and with no controls over land use. A survey taken by the American Society of Planning Officials of one-third of the nation's counties revealed that only 41 percent of the non-metropolitan counties (less than 100,000 population) had zoning regulations. The figure for metropolitan counties was 55 percent (American Society for Planning Officials, 1976).

The large land developments studied here produce numerous environmental problems. These problems are caused by an enormous network of roads, poor water resource planning and management, inadequate open space, and disregard for fragile environments. When developers ignore local environmental constraints and roads remain unpaved, the area may become susceptible to dust storms, flash floods, and pollution of water resources from erosion and siltation. Inadequate water resource management may result in pollution of surface water from siltation, pollution of shallow aquifers from the widespread use of septic tanks, and the depletion of ground water resources if withdrawal exceeds recharge. Adequate open space improves not only the aesthetic quality of the development but could help preserve the natural drainage network of streams, fragile environments, and hazardous areas by allowing them to remain undeveloped (Allen et al., 1976).

Extreme clustering has accompanied recreational subdivision activity and has created and accentuated several problems. Impact of these activities could be reduced dramatically if developers were required to operate within existing environmental constraints.

Adherence to specific guidelines could significantly reduce or eliminate much of the environmental impact from these developments. Land extensive projects should be developed in phases. A 70 to 80 percent buildout should be required before expansion to new areas is allowed. This would eliminate much of the unnecessary road network and prevent the continued expansion of "premature" subdivisons. Roads should preserve existing topography to reduce disruption of the natural drainage network and the need for cut and fill (Allen et al., 1976).

Developers should be required to preserve water resources by limiting withdrawal to an environmentally "safe" yield and limit the use of septic tanks on individual lots. These practices would reduce the rate of water table decline, salt water intrusion, and pollution of shallow aquifers (Allen et al., 1976).

Large areas of open space should be required, and development of wetlands, steep slopes, and fragile areas avoided. Open space could be used as parks, wilderness areas, and greenbelts along streams (Allen et al., 1976).

Many of these suggestions obviously can not be met by developers because of the restrictive nature of the fragile environments they have chosen to develop. The three most intensely developed areas, the desert southwest, the mountains of Colorado, and the wetlands of Florida, have major environmental limitations which are serious enough to make such enormous developmental activity highly questionable, especially since buildout rates are low and these developments are not responding to a real need for housing.

Developers should be required to establish sound, legitimate, and justifiable land development operations that blend with the needs of the region and conform to the environmental constraints of a particular area. Those unwilling to work within existing environmental limitations should not be allowed to proceed with development.

Figure. Recreational subdivisions of 1,000 acres or more in the United States.

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SR/MG RATIOS OF PENNSYLVANIAN LIMESTONE UNITS IN NORTHWEST ARKANSAS

In a previous publication (Wagner et al., 1979), a linear relationship was noted between the Sr and Mg contents of 5 Carboniferous limestone units in northwest Arkansas. Such correlations held only within a given limestone unit, not between different units. It now appears that this relaship is a paleontological one with the Sr/Mg ratio of the limestone being determined by its fossil content. The latter can be determined by petrographic examination. Using Sr and Mg contents for recent specimens of the fossils from standard texts, a weighted average composition can be calculated for the original prediagenetic limestone unit. These calculated Sr/Mg ratios based on fossil content are within a few per cent of the actual ratio for outcrops of the Brentwood and Kessler limestone units.

Davis (1961) has done an extensive petrographic study of the Brentwood Limestone. Using a water lubricated saw, samples 1 cm thick were obtained adjacent to and parallel to his thin section samples. These were dissolved in hydrochloric acid and analyzed by atomic absorption spectrophotometry as described previously (Wagner et al., 1979). A suite of samples were selected which came from the perimeter of a 10 x 10 mi. area in southwest Washington County of Arkansas. The sample numbering and identification (MA = Morrow Anticline, HS = Hale Mt. Syncline and CA = Cove Creek Anticline) are the same as Davis' (1961) and this reference may be consulted for the exact location of samples and petrographic details.

The table summarizes 1) the position of each sample in its stratigraphic column and compares it petrographically and chemically to a column weighted average, 2) the calculated and determined chemical compositions and 3) the calculated amount of diagenesis. The first column in the table gives the total thickness of the section and the heights above the base where the samples were taken. The calculated compositions are weighted