

Open space conservation in urban environments: lessons from Thousand Oaks, California

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The conservation of large amounts of natural open space presents a significant challenge to local government, particularly in rapidly growing communities. In Thousand Oaks, California, over 12,000 acres of natural open space have been preserved within the City's planning area, while simultaneously accommodating approximately 116,000 residents.

The purpose of this paper is to describe the factors that have contributed to open space preservation by local government in Thousand Oaks. These factors include community initiative and support, open space conservation policies, diverse implementation techniques, creation of a local agency for open space stewardship, experience and commitment of staff, inter-agency agreements, large landholdings, and topography. This study highlights the need for a multi-faceted, integrated and long-term approach to open space conservation, based on public support. Many of the factors outlined in this paper may be applicable in other communities that are trying to balance economic growth with the conservation of natural landscapes.

Keywords: open space; conservation; urban planning; environmental planning

Introduction

A significant amount of attention has been devoted to the importance of open space conservation in California, and to general recommendations for improving open space preservation in the Golden State (Dangermond, 1993; Jones and Stokes, 1992; Meral, 1993; Smith, 1993). Similarly, a variety of techniques have been described that can be used to protect natural landscapes (Hoose, 1981; Shiffman, 1983; Weiner, 1991). Few case studies exist, however, regarding the specific factors that have accounted for the successful conservation of open space at the local level in California.

The goal of this paper is to describe the specific factors that contributed to the conservation of open space by local government in Thousand Oaks, California. This community, which has experienced rapid population growth, has been able to preserve 31% of the land within the City's planning area as open space, while simultaneously accommodating approximately 116,000 residents. Hopefully, such a case study will identify factors that can be applied in other communities that are trying to conserve open space, and highlight the need for a broadly based and integrated approach to open space conservation.

Setting

Location and topography

Thousand Oaks is located on the eastern edge of Ventura County, approximately 40 miles (64 km) west of downtown Los Angeles and 10 miles (16 km) north of the coastal City of Malibu. The Valley has a typical Mediterranean climate, characterized by hot, dry summers and short, cool winters. The City's planning area encompasses 38,464 acres (15,566 ha), and most of what is traditionally known as the Conejo Valley. The current City area is 35,066 acres (14,191 ha).

One of the most distinctive features of the Conejo Valley (Valley) is the ring of hills that encircles it. Rising over 2,200 feet (671 m) above the Valley floor, these hills define the Valley physically and comprise one of its most important scenic resources. Principal peaks and ridgelines include the Santa Monica

Mountains, Conejo Peak, Mount Clef Ridge, and the Simi Hills. Smaller hills and ridgelines are located within the Valley, the tallest rising over 700 feet (213 m) above the Valley floor.

Another distinguishing topographic feature is the Arroyo Conejo, which consists of several drainages which have cut deep canyons through the northwestern quadrant of the Valley. These drainages provide a perennial source of water and are an important source of riparian vegetation and associated wildlife. These canyons also provide some of the most visually dramatic landscapes in the Valley, in areas characterized by cliffs rising over 200 feet (61 m) above the stream bed.

Biological diversity

The Valley supports seven principal vegetation types, including Southern California Grassland, Chaparral, Coastal Sage Scrub, Riparian Woodland, Freshwater Marsh, Southern Oak Woodland, and Oak Savanna. Within these vegetation types are an estimated 22 plant and animal communities, based on the classification system described by Holland (1986). Twelve of these communities are considered to be at-risk, threatened, or endangered in Southern California (Davis, 1994).

These communities support an estimated 400 species of plants (Collins, 1994), 171 bird species (COSCA, 1984a), 37 mammal species, and 22 species of reptiles and amphibians. Common medium to large-sized mammals include coyotes (*Canis latrans*), mule deer (*Odocoileus hemionus*), raccoons (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*) and bobcats (*Lynx rufus*). Mountain lions (*Felis concolor*) are occasionally sighted in open space areas, and American badgers (*Taxidea taxus*), although scarce, are still found.

A number of special plant species can be found locally. The California Native Plant Society (CNPS), for example, has identified nine local plant species as “rare, threatened or endangered in California and elsewhere”, including Lyon’s pentachaeta (*Pentachaeta lyonii*), Plummer’s mariposa lily (*Calochortus plummerae*), Conejo buckwheat (*Eriogonum crocatum*), Santa Susana tarplant (*Hemizonia minthornii*), dune larkspur (*Delphinium parryi* ssp. *blochmaniae*), Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovatifolia*), Braunton’s milk-vetch (*Astragalus brauntonii*), Blochman’s dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*), and the Conejo dudleya (*Dudleya abramsii* ssp. *parva*). The CNPS also considers at least five species to be “uncommon enough that their status should be monitored regularly”, including Plummer’s baccharis (*Baccharis plummarae* ssp. *plummarae*), island mountain mahogany (*Cercocarpus betuloides* var. *blancheae*), the southwestern spiny rush (*Juncus actus* ssp. *leopoldi*), the Southern California Black Walnut (*Juglans californica* var. *californica*) and the Catalina mariposa lily (*Calochortus catalinae*) (CNPS, 1994). Of these plants, the California Department of Fish and Game (CDFG) has also listed the Lyon’s pentachaeta as endangered, and the Conejo buckwheat and Santa Susana tarplant as rare. In addition, the U.S. Fish and Wildlife Service has proposed that Lyon’s pentachaeta and Braunton’s milk-vetch be listed as endangered, that the Santa Monica Mountains dudleya and Conejo dudleya be listed as threatened, and that the Conejo buckwheat, Santa Susana tarplant, dune larkspur and Blochman’s dudleya be considered Category 2 candidates for federal listing (CDFG, 1994a).

The Valley also supports a number of special animals. The southwestern pond turtle (*Clemmys marmorata* ssp. *pallida*) and the California coast horned lizard (*Phrynosoma coronatum* ssp. *frontale*), for example, have been identified by CDFG as “species of special concern” and are proposed for listing by the U.S. Fish and Wildlife Service. The two-striped garter snake (*Thamnophis couchi*) is also considered a sensitive species by CDFG, and the Coastal western whiptail lizard (*Cnemidophorus tigris* ssp. *multiscutatus*) is a Category 2 candidate for listing by the Fish and Wildlife Service. Among local birds that are seen at least occasionally, nine species are considered by CDFG to be species of special concern, including the Cooper’s hawk, sharp-shinned hawk, golden eagle, northern harrier, merlin, burrowing owl, loggerhead shrike, yellow warbler and Southern California rufous-crowned sparrow. Four additional bird species are identified as “sensitive” by CDFG due to declining habitat or other factors. Among mammals, the American badger is State-listed as a species of special concern (CDFG, 1992, 1994b).

Local government

Five local government agencies are directly involved in open space conservation in the Conejo Valley. These include the City of Thousand Oaks, the Conejo Recreation and Park District, the Conejo Open Space Conservation Agency, the Mountains Recreation and Conservation Authority, and the County of Ventura. The City of Thousand Oaks (City) was incorporated in 1964 as a general law city, and is governed by a five member City Council who make policy decisions and initiate legislative actions. General administrative functions are the responsibility of the City Manager. A Planning Commission reviews development proposals and provides advice to the City Council on development policies.

The Conejo Recreation and Park District (Park District) was created in 1963 as a special district by voter initiative, and is governed by a five-member elected Board of Directors. The boundary of the Park District is slightly larger than that of the City.

The Conejo Open Space Conservation Agency (COSCA) was formed in 1977 as a joint powers authority (JPA) between the Park District and the City, and is one of the few JPAs in the State created exclusively for the conservation of natural open space (University of California, 1993). COSCA is governed by a five-member Board of Directors, composed of two Directors from the Park District, two City Council members, and one citizen member. The boundary of COSCA is defined by the combined area of the City and Park District.

The Mountains Recreation and Conservation Authority (MRCA) is a joint powers authority between the Santa Monica Mountains Conservancy (a State agency), the Conejo Recreation and Park District, and the Rancho Simi Recreation and Park District. Formed in 1985, MRCA's principal purpose is to assist the Conservancy in acquiring and managing open space land in the Santa Monica Mountains and nearby areas such as the Conejo Valley.

The County of Ventura is governed by five elected Supervisors, two of whom share portions of the Valley within their districts. The County area is approximately 1,873 square miles (485,107 ha).

Population growth

The City has experienced extensive population growth since its incorporation, growing from a population of 19,300 in 1965 to a population of approximately 110,000 in 1994 (Table 1). Population growth was particularly rapid from 1965 to 1980, during which time the City population grew almost 300%.

Table 1. City of Thousand Oaks population (1965 to ultimate)^a

Year	Population ^b	Net increase	% Increase
1965	19,300	n/a	n/a
1970	35,873	16,573	86
1975	53,752	17,879	50
1980	77,072	23,320	43
1985	94,160	17,088	22
1990	104,352	10,192	11
1995	111,000	6,648	6
2000	115,000	4,000	4
Ultimate	132,000	17,000	n/a

^aSource: City of Thousand Oaks Department of Community Development (City, 1992).

^bExcludes unincorporated areas. An estimated 6,000 persons resided in unincorporated areas in 1990.

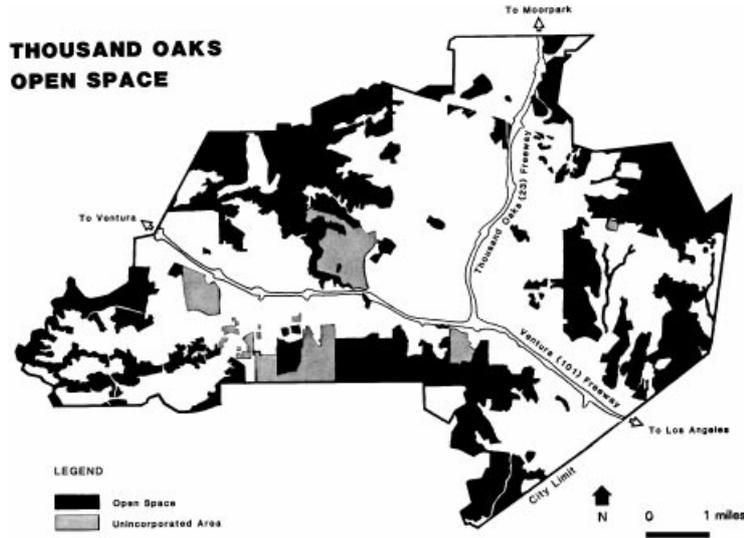


Figure 1. Thousand Oaks open space.

Open space defined

For the purposes of this study, “open space” is defined as land which has been designated to remain in essentially an open, natural, and undeveloped state. Park sites, golf courses, utility corridors, and other improved areas are excluded from this definition. Examples of open space include privately owned (usually a homeowner’s association) land required as natural open space in a development project and land which is in public ownership and designated as open space.

Thousand Oaks open space has grown steadily since 1964, to a total of 10,954 acres (4,433 ha) within the City limits and 12,071 (4,885 ha) acres within the City planning area as of 1994 (Fig. 1). This open space represents approximately 31% of the area within both the City limits and planning area. The final extent of open space within the City planning area is expected to total approximately 13,374 acres (5,412 ha), or 35% of the planning area (Table 2).

Of the open space described in Table 2, approximately 95% is publicly owned or will be under public ownership through existing agreements. Most of this public open space is owned by COSCA, with lesser

Table 2. City of Thousand Oaks open space^a

Year	Open space		City area		Open space (% of City area)
	Acres	(ha)	Acres	(ha)	
1964	50	(20)	9,216	(3,730)	1
1970	1,500	(607)	23,616	(9,557)	6
1975	1,900	(769)	27,584	(11,163)	7
1980	3,500	(1,416)	28,800	(11,655)	12
1985	3,800	(1,538)	29,440	(11,914)	13
1990	8,700	(3,521)	34,688	(14,038)	25
1994	10,954	(4,433)	35,066	(14,191)	31
Ultimate	13,374	(5,412)	38,464	(15,566)	35

^aSource: City of Thousand Oaks Department of Community Development.

amounts owned by the City, the Park District, the National Park Service, the County of Ventura, and the Mountains Recreation and Conservation Authority. Eventually, most of the major open space areas owned by the City and Park District will be transferred to COSCA for stewardship.

These open space areas include approximately 75 miles (121 km) of public trails, and 12 improved trailheads. One of these trails, the Oak Creek Canyon Whole Access Trail, was designed to provide access to both visually and physically challenged users.

Keys to successful open space conservation in Thousand Oaks

Open space conservation in Thousand Oaks has been made possible not by any single factor but rather by the combination and interaction of a number of factors which addressed a range of political, planning, and administrative issues. Eight principal factors responsible for open space conservation in the Valley are summarized in this section.

1. Community initiative and support

Community initiative and support has been vital to the preservation of natural areas in Thousand Oaks. This support has been particularly important because it was articulated early in the planning process, has proven to be long-term in nature, and was broad-based. An important method of monitoring this support has been the City's Attitude Survey.

Attitude survey

Since 1968, the City has conducted an Attitude Survey of its residents approximately every five years (surveys were conducted in 1968, 1974, 1979, 1984, 1989 and 1994). This simple random mail survey includes questions on a variety of topics, including questions on local attitudes toward open space, development policies and City needs.

Early and sustained support

Support for open space from 1963 to 1973 was important because it emphasized open space early in the development of the City and Park District, at a time when policy decisions regarding future development patterns were being made. During this period the Park District and City adopted their General Plans, as well as key implementation techniques such as the City's Hillside Planned Development ordinance. Public support for these policies and implementation methods was expressed in many ways, including the City's first Attitude Survey in 1968, the City's General Plan Policy Advisory Committee from 1968 to 1970, and Open Space Committee in 1971, and through public hearings to consider adoption of the Park District and City General Plans in 1967 and 1970, respectively.

Sustained community support for open space since 1973 has also been critical. In the six Attitude Surveys since 1968, for example, an average of 83% of surveyed residents considered the preservation of public open space to be "very important" (City, 1994a). Moreover, when asked to rank open space preservation from a list of City needs, respondents have ranked more open space as the #1 issue in three of the last four surveys (City, 1994a). Surveyed residents have also indicated a willingness to spend public funds on open space. In each survey since 1979, for instance, respondents ranked "public open space areas" as the #1 priority, in terms of their willingness to spend tax dollars, except in 1994, when open space was the #2 priority.

Public support for open space has also been broad-based. Two principal reports recommending open space preservation, for example, were the result of joint studies conducted by a consortium of business representatives, educators, local residents, and special interest groups (Conejo Future Foundation, 1974, 1992). Another recent example is a promotional video produced by the Conejo Valley Chamber of Commerce,

which highlighted the open space system as one of the community's principal resources (Conejo Valley Chamber of Commerce, 1994).

Such strong community support is based on the importance of open space to the community's character and quality of life. The Conejo Valley has long been known for its natural beauty (Bidwell, 1989), and many residents moved to the Valley in part because of this beauty and a desire for a semi-rural atmosphere. According to the City's Attitude Surveys, an average of 78% of the respondents since 1979 said that open space was a very important reason for moving to Thousand Oaks (City, 1994a). Many residents also utilize the open space trail system for passive recreation such as hiking or horseback riding, and work diligently to maintain these benefits.

2. Open space conservation policies

Reflecting public concerns, local government in the Conejo Valley has taken an early, aggressive and integrated approach to open space conservation through its policies and regulatory powers. Perhaps the most important of these factors was an early emphasis on open space. When the City's General Plan was adopted in 1970, for instance, only about 20% of the Valley was developed, providing a significant opportunity to conserve open space (City, 1971). Below is a summary of milestones in the development of open space policy in the Conejo Valley.

Conejo Recreation and Park District general plan

Although the emphasis of the Park District's General Plan was on improved park sites, the Plan recognized the importance of natural open space (Park District, 1967). This concern was demonstrated by the Park District's acceptance in 1967 of the 1,250 acre Wildwood Park, which was the Valley's first significant open space acquisition.

City of Thousand Oaks development plan

The City's Development Plan (now known as the General Plan) was a critical factor in open space conservation because it incorporated a number of goals and policies that provided the foundation for the open space system. Three of the eight General Plan goals, for example, supported open space preservation. These goals stated that the purpose of the Plan should be: (1) "To enhance and preserve the spaciousness and attractiveness of the Conejo Valley in accommodating future growth", (2) "To provide a permanent park and recreational system of sufficient size and quality to serve adequately the Valley's future needs, and consonant with the rising expectations of the community", and (3) "To provide a high quality environment that at all times is healthful and pleasing to the senses of man, and to understand the relationship between the maintenance of ecological systems and the general welfare of the people of the Conejo Valley" (City, 1971).

Equally important was the Plan's endorsement of a "Multiple Core-Modified Greenbelt Community" land use concept which envisioned a ring of natural open space around the community, with relatively compact, clustered residential development in selected areas to preserve hillside areas, natural landmarks, and sensitive habitats (Fig. 2). The Plan also proposed a Valley-wide trail system (City, 1971).

City of Thousand Oaks open space element

The City's Open Space Element, which was first adopted in 1972, played an important role in open space conservation through several mechanisms. First, the Element articulated five open space policies that emphasized: (1) on-going research relative to open space lands, (2) the importance of taking "full advantage of all regulatory open space implementation techniques, whenever and wherever the opportunity avails itself to the City", and (3) intergovernmental cooperation and coordination to achieve the "most desirable

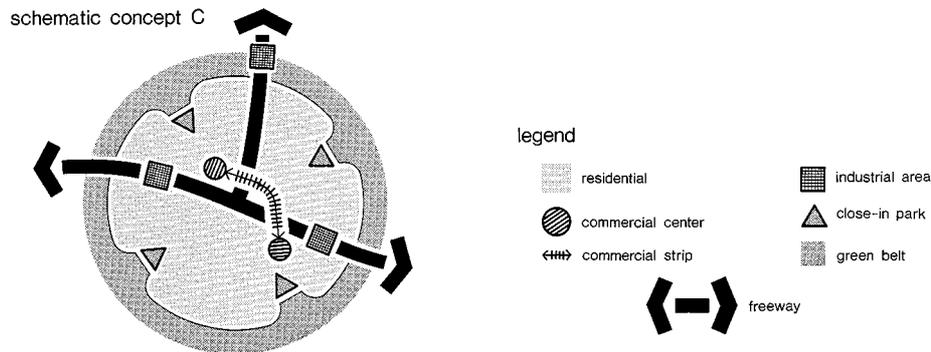


Figure 2. Schematic land use concept "C", Thousand Oaks development plan, 1971.

and comprehensive open space system" (City, 1972a). Second, the Element described implementation techniques for open space conservation, emphasizing the importance of land use regulations. Third, the Element emphasized the need to implement open space policies as quickly as possible, by identifying privately owned land that was likely to be developed in the short term.

City of Thousand Oaks conservation element

This Element, which was originally adopted in 1972, analyzed the intrinsic suitability of different land forms for development, based on the methods described by McHarg (1969). Flat land, for example, was characterized as having the highest tolerance to urban use, while streams, marshes, barrancas and wildlife habitat were considered to have the lowest tolerance to urban use (City, 1972b). This approach assisted open space conservation efforts by recommending that little development should take place on steep slopes or in areas with sensitive wildlife habitat.

The costs and benefits of alternative open space policies

This study was conducted in response to questions regarding the fiscal impact of a strong open space conservation program. Principal results of the study were: (1) open space would probably increase the cost of residential development in the Valley slightly, (2) population growth would be slower with an open space conservation program, and (3) costs associated with open space acquisition and maintenance vary directly in relation to the design, use and proposed improvements in the open space system (Gruen Gruen and Associates, 1973). Overall, the study allayed concerns that open space conservation would become a significant financial burden on local government.

Conejo Canyons studies

The Open Space and Conservation Elements identified the Conejo Canyons system as the Valley's most important natural resource. Additional studies, including the "Report of the Conejo Canyons Task Force" (Conejo Future Foundation, 1974), the "Conejo Canyons Study" (City, 1976), and the "Arroyo Conejo Reforestation Report" (City, 1980), analyzed the resources and potential land uses for the Arroyo Conejo and nearby developable areas. These reports were important both in a practical and intellectual sense, resulting in the designation of a significant portion of the Arroyo Conejo as a nature preserve, providing information for a subsequent reforestation project, and increasing public awareness of the sensitive natural areas still existing in the Valley. These reports also recommended the creation of an organization and program for open space management and ownership, contributing to the creation of the Conejo Open Space Conservation Agency in 1977.

Open space management plans

The first open space management plans were prepared by COSCA for the 75-acre Joel McCrea Wildlife Preserve and the 529-acre Lake Eleanor Open Space in 1984 and 1988, respectively. These documents provided specific management alternatives for these areas and formed the basis for future management plans (COSCA, 1984b, 1988).

Report of the open space subcommittee

This study reinforced the policies of the General Plan, and provided new recommendations on ways to improve open space conservation. Principal recommendations of the study were to: (1) acquire land and facilities needed to complete open space goals, (2) seek additional citizen input on open space issues, (3) enforce ordinances relating to open space, (4) preserve and protect wildlife movement corridors, (5) implement open space safeguards in the General Plan, and (6) make full use of public agencies to adequately protect and manage open space (City, 1988).

Open space management policies and guidelines

This document, which was adopted by the COSCA Board of Directors in 1989, was particularly important in several respects. First, it clearly stated COSCA's overall management goal: "Natural open space areas shall be managed by COSCA so as to be affected primarily by the forces of nature, with the imprint of human modifications or presence substantially unnoticeable in order to preserve and protect any ecologic, geologic, scenic, historic, cultural, scientific or educational values which the area may contain" (COSCA, 1989). Second, it articulated permitted and prohibited visitor uses, including the policy that only passive recreation such as horseback riding, hiking, bicycling, or jogging is allowed in open space areas (COSCA, 1989). Where conflicts arise between resource protection and recreational activity, the guidelines state that: "Conservation of natural resources shall be the dominant theme in all management decisions where a choice must be made between preservation of the natural environment and visitor use" (COSCA, 1989). Finally, the document includes guidelines for the preparation of open space management plans and the preservation of cultural resources.

Vision 2020 project: options for our endangered environment

This study was important because it was conducted by a coalition of business persons, government representatives, educators and citizens, who jointly identified methods for preserving local open space. Strategies recommended by the study reinforced previous community goals, including the preservation of land for open space, protection of wildlife and ecosystems, and the establishment of a regional trail system (Conejo Future Foundation, 1992).

Thousand Oaks area plan

The Thousand Oaks Area Plan was adopted by the County of Ventura as a means to coordinate County and City goals, policies, and land uses for the unincorporated land within the City planning area. The Area Plan has been important in protecting natural open space in the unincorporated portion of the Valley because it identified both policies and standards for hillside and ridgeline protection. The Plan also symbolizes the cooperation between the County and the City to promote planned, orderly growth (County of Ventura, 1992).

3. Diverse implementation techniques

A variety of techniques have been used to conserve open space in the Conejo Valley, including specific plan conditions, land donations, subdivision conditions and zoning, purchases, and land trades. The majority of open space has been obtained through development exactions (specific plan and subdivision conditions),

Table 3. Open space acquisition sources^a

Source	Area ^b		% of Area
	Acres	(ha)	
Specific plans	4,124	(1,669)	34
Donations of land	3,793	(1,535)	31
Subdivisions and zoning	2,125	(860)	18
Purchases	1,761	(713)	15
Land trades	268	(108)	2
Total	12,071	(4,885)	100

^aSource: City of Thousand Oaks Department of Community Development.

^bBased on open space within the City of Thousand Oaks' planning area in 1994.

representing 52% of the total (see Table 3). Land donations account for an additional 31% of the total open space. In most cases, the emphasis in applying these techniques has been on securing public ownership of open space, and it is likely that this trend will continue. Remaining open space acquisitions necessary to complete the “ring” of open space will principally be acquired through subdivision and specific plan conditions. Below is a summary of how these techniques have been used to conserve open space in the Conejo Valley.

Specific plans

In the Conejo Valley, the specific plan process has been especially important because of the number of large landholdings. Through this process, land uses are determined through a review of the entire subject area, permitting more flexible planning and design which often provides for the preservation of large open space areas.

With respect to one specific plan, a federal court order also played a key role in open space acquisition. Originating as a method of settling a long-standing lawsuit between the Lang Ranch Company and the City, the two parties entered a “stipulated judgement” in 1986 after extensive negotiations. Approved by a Federal Judge, this judgement resulted in significant benefits to each party. One of the benefits the City and other public agencies received was the dedication of approximately 1,300 acres of open space. The majority of this acreage was developable under the previously approved Lang Ranch Specific Plan, and only through settlement of the lawsuit was it set aside as permanent open space.

Donations of land

Donations of land make up the second largest amount of land acquired for open space. These donations have been based on varying combinations of philanthropy, tax incentives, and fiscal considerations. Local regulatory measures such as zoning, specific plan conditions, and the growth control initiative have also had a significant effect, setting the stage for many land donations.

Subdivisions and zoning

Oak tree preservation and protection ordinance. The City's oak tree preservation ordinance requires a permit for the cutting, removal, relocation or encroachment into the protected zone (which is defined as the dripline plus five feet (1.5 m)) of any tree of the *Quercus* genus exceeding a minimum size. Normally this ordinance serves to protect individual trees. Where there are several or more trees, however, the ordinance acts to protect those groves, and indirectly assists open space conservation.

Hillside planned development zoning

The hillside planned development zone, which was adopted by the Thousand Oaks City Council in 1971 with a 4-0 vote despite opposition from the building industry, has played a central role in the preservation of open space in Thousand Oaks. Overall, the goal of hillside planned development zoning is to minimize grading, protect trees and natural vegetation, retain natural landmarks, and encourage a variety of building types and designs which minimally disturb the natural character of hillside areas. To accomplish these goals, this zone utilizes three principal land use controls. First, grading in any areas with slopes of 25% and steeper is generally prohibited. Second, maximum allowable dwelling unit densities are based on the average slope of the subject parcel, with density reducing as the slope increases. Third, a minimum percentage of the subject site is required to remain in its natural state or to be used for recreational purposes, based on the average slope of the parcel. For parcels with an average slope between 25 and 27.4%, for instance, at least 70% of the total site area must be preserved as natural open space or for recreation (City, 1994b). In practice, land protected through this method is almost entirely natural open space.

Residential planned development zoning. The general purpose of this zone is to provide for creative and environmentally sensitive land design (City, 1994c). Densities established under the residential planned development zone are based on a variety of environmental and other factors, rather than on specifically defined criteria such as used in the hillside planned development zone. Density transfer from hillside areas over 10% slope to more developable areas is allowed within the residential planned development zone, permitting residential clustering under certain conditions. Such creative land design often maximizes the preservation of natural open space.

Subdivision conditions. A significant amount of land has been protected as natural open space through subdivision conditions, based on the authority of local government to control the design and improvements of subdivisions under California's Subdivision Map Act and local zoning ordinances. From a legal point of view, two factors must be present for such conditions: (1) the City's General Plan must identify goals and implementation steps in preserving specified open space lands, and (2) some viable and reasonable use must be allowed for the remainder of the privately owned land being subdivided. The Subdivision Map Act then permits local government to require land donations and other design requirements to bring projects into conformance with the City's General Plan.

Grading ordinance. The City's grading ordinance protects hillsides and natural vegetation by requiring a permit for any significant alteration of the land, and by generally prohibiting grading on slopes 25% or greater. This ordinance is important because it regulates cut and fill slopes on smaller parcels which may not be protected by zoning or subject to subdivision regulations.

Residential development control system. This growth control initiative, which was passed in 1980 by 59% of the voters in response to rapid population growth, limited the number of residential units each year to 500 through 1990, and 650 per year after that until the year 2002, subject to certain exceptions. Allocation of residential allotments is based on a number of criteria, including natural open space preservation. While this technique was not directly used to protect open space, it provided developers who were competing for building permit allotments a strong incentive to donate open space. In the North Ranch area of the Valley, for instance, Prudential Insurance Company's desire to obtain development allotments was a principal factor contributing to its donation of 1,631 acres of open space, a significant portion of which was developable property that could have accommodated several hundred residential units.

Protected ridgeline overlay zoning. The protected ridgeline overlay zone prohibits all grading or the modification of native vegetation on designated ridgelines except under special circumstances. If grading

must occur within the protected ridgeline area in order to allow a reasonable and viable use of the private property, it is subject to a number of restrictions to protect visual and natural resources (City, 1994d).

Open space zoning. The open space zone is designed for natural open space which has already been dedicated to a public agency or restricted to open space uses. The purpose of the zone is to: “Recognize and identify the intrinsic ecological value, scenic and/or undisturbed nature of particular parcels of land”, and “To ensure that any proposed structures and improvements in the zone will be compatible with surrounding zones and uses and will have a minimal impact on the natural, undisturbed character of the land” (City, 1994e). Pursuant to this intent, only minor improvements related to recreational use are permitted by zone. Special use permits are required for all other uses.

Open space parcels owned by the City are further protected by regulations requiring City Council approval for the sale, exchange, lease or any other disposition of land designated or zoned as open space, except for minor open space adjustments (City, 1994f). Although any disposition of public land is a legislative act requiring City Council approval, this ordinance highlights the importance of open space to the community and elected officials’ desire to ensure that any long-term disposition of open space is fully considered.

Purchases

Because of limited available public funds and the success of the City in preserving important open space through the development review process only a few properties have been purchased. Generally, parcels are purchased only if they possess outstanding open space resources which cannot be adequately protected in other ways. In one recent acquisition, limited development of five residential parcels on a previously disturbed part of the site is expected to offset the cost of acquiring the 231 acre property, which had been approved for 45 housing units.

Land trades

In several cases, land trades were used as part of transactions to conserve open space. The best example of this was a land trade which protected 228 acres of open space known as the Wildwood Mesa. This complex transaction, involving three public agencies and two separate land owners, began with the Prudential Insurance Company conveying 41 acres of land to the Park District for park purposes. The Park District then traded 30 acres of the 41 acre site to Orange Builders, another landowner, for 228 acres of the Wildwood Mesa. The remaining 11 acres of the North Ranch park site was retained as a neighborhood park site. In addition, Orange Builders and Prudential received development allotments under the City’s Residential Development Control system, which was their incentive to enter the agreement. The 228 acres was then transferred to COSCA. More than 700 homes were previously authorized for this property under a specific plan adopted in 1967.

4. Creation of a local agency for open space stewardship

One of the milestones of open space conservation in Thousand Oaks was the creation of the Conejo Open Space Conservation Agency (COSCA). Formed in 1977 as a joint powers agency between the City and Park District, COSCA was the result of many factors, including increasing public open space holdings, and the desire to better coordinate open space management between the City and Park District. In response to these concerns, the agency was formed for the purposes of: (1) acquiring and managing open space, and (2) coordinating planning efforts and land use policies for open space (City, 1977). Funded equally by the City and Park District, COSCA has played a lead role in open space conservation in the Valley since its formation. Among the agency’s benefits are:

Team approach

COSCA staff currently includes one full-time planner, five full-time rangers, and 10 City and Park District staff who work part-time on COSCA issues. By using this team approach, COSCA is able to draw on a range of professional abilities to resolve issues effectively and at lower cost. Park District expertise in design and open space maintenance, for example, is complemented by City expertise in planning and environmental impact assessment.

Open space emphasis

Before the creation of COSCA, open space issues competed with other issues over which the City and Park District have responsibility. Through COSCA, a local agency is able to devote all of its attention to open space conservation. This focus enabled staff to better evaluate the large numbers of development applications that were being submitted in the late 1970s and 1980s, and has assisted in open space acquisition and the development of open space management policies.

Public involvement

COSCA increases community participation in several ways. First, COSCA Board of Director meetings provide a forum for public input on open space topics. Another method is through the Conejo Open Space Trails Advisory Committee. Created by COSCA in 1989 as an advisory committee to the Board, the Trails Advisory Committee is composed of nine members representing equestrian, biking and hiking interests, who provide advice on trail planning and development. The committee also coordinates several volunteer programs, including Trail Work Days, a Volunteer Trail Patrol, and Open Space Education Days.

Public education programs

COSCA provides information on open space topics through a variety of media, emphasizing the sensitive nature of open space and the importance of public involvement. Maps and pamphlets, for instance, have been developed, including a bird checklist, trail guides, trail maps, and COSCA's management policies and guidelines. COSCA has also collaborated with the City to produce videos on open space topics, including programs on trail use guidelines, open space areas, and educational events, which are broadcast on the local government access channel. Finally, COSCA sponsors Open Space Education Days, which is an annual event for fifth grade students coordinated by the Trails Advisory Committee. This activity complements on-going outdoor education programs which the Park District has been providing in Wildwood Park since 1969. These Park District programs, which include guided hikes, camps, and summer programs, have played a crucial role in increasing public awareness and appreciation of open space over the last 25 years.

5. Experience and commitment of staff

Another factor contributing to the effectiveness of open space conservation in the Conejo Valley is the experience and personal convictions of staff. With regard to experience, for example, the Park District General Manager, City Manager, Assistant City Manager and City Planning Director, have played instrumental roles in the preservation of local open space for almost 90 years collectively, excluding experience in other cities. Overall, the average experience of COSCA staff is 13 years, including five staff members with over 20 years practice in dealing with open space issues in the Conejo Valley. Moreover, other staff members in the Department of Community Development also have extensive experience with open space conservation, including day-to-day project review and the implementation of various regulations that affect open space.

More important than experience, however, is the personal commitment of staff to the concept of preserving the natural environment. While this is not quantifiable, staff routinely demonstrate a commitment to

open space issues that extends beyond professional requirements. These personal values, combined with experience, provides the knowledge and ability to resolve open space issues quickly and effectively.

6. *Inter-agency agreements*

Inter-agency cooperation is vital for efficient conservation efforts. In Thousand Oaks, a principal method of agency cooperation has been through joint powers agreements, including the Conejo Open Space Conservation Agency, the Mountains Recreation and Conservation Authority, and the Eastern Ventura County Conservation Authority. COSCA, as previously described, has played a key role in open space conservation and is likely to play an even larger role in the future.

The Mountains Recreation and Conservation Authority (MRCA) has also played an important role through their ability to work with multiple local agencies and the Santa Monica Mountains Conservancy to acquire and manage open space. As of 1994, MRCA had played a key role in acquiring approximately 1,279 acres of land within or adjacent to the Conejo Valley.

The Eastern Ventura County Conservation Authority (EVCCA), formed in 1990, is a joint powers authority between the Santa Monica Mountains Conservancy and the County of Ventura. The purpose of EVCCA is to preserve public open space in Los Angeles and Ventura Counties, and therefore fills an important role in regional open space conservation.

7. *Large landholdings*

Large landholdings also assisted in open space conservation, enabling large amounts of open space to be conserved through a limited series of negotiations. Typically, these landholdings were developed through the specific plan process. Table 4 summarizes major developments in the Valley.

8. *Topography*

A final, key factor favoring open space conservation in the Conejo Valley is topography. Some areas, for instance, are largely undevelopable, such as very steep slopes and stream beds. As a result, these areas are not subject to the intense development pressure of more developable areas. Most of these areas are already part of the open space system or will be in the future.

Topography also contributed to open space conservation through its impact on development costs. Hillside areas are more expensive to develop than other areas due to increased construction costs. These

Table 4. City of Thousand Oaks major developments^a

Year	Development project	Total area		Open space ^b		Open space (% of Area)
		Acres	(ha)	Acres	(ha)	
1967	Wildwood	1,812	(733)	1,320	(534)	73
1969	Lang Ranch	2,585	(1,046)	1,550	(627)	60
1972	North Ranch	4,700	(1,902)	1,925	(779)	41
1983	Rancho Conejo	1,862	(754)	1,107	(448)	59
1988	Dos Vientos	2,331	(943)	1,205	(488)	52
n/a	Westlake South Ranch	2,970	(1,202)	1,170	(474)	39
	Total	16,260	(6,580)	8,277	(3,350)	51

^aSource: City of Thousand Oaks Department of Community Development.

^bIncludes public and private natural open space.

additional costs, coupled with development restrictions in hillside areas, combined to make development in hillside areas less economically feasible than in the Valley bottom. Undoubtedly, open space conservation would have been much more difficult if the Valley did not have any topographic relief.

Future challenges

Although significant progress has been made, a variety of challenges remain in the years ahead regarding open space conservation in the Conejo Valley. Below is a summary of five principal challenges.

Funding for open space management

Currently, COSCA expenses are paid from the general funds of the City and Park District, which are based principally on sales tax and property tax, respectively. A more reliable non-general fund source is desirable to provide for long-term management costs. Additional private support for open space conservation is being sought through expanded volunteer programs and the creation of a non-profit foundation for Conejo Valley open space, but it is likely that alternative public funding sources will also be required. The International City/County Management Association (1993), Sturdevant and Company (1993) and others have described a variety of creative funding strategies applicable to open space.

Increased recreational use of open space

Use of local open space areas is steadily increasing, both from increasing use by Valley residents and from growing regional awareness of local open space and trails. The percentage of local residents who use trails, for instance, has increased from 38 to 51% in the last five years (City, 1989, 1994a). Valley trails have also been featured in recent mountain biking guides for the Santa Monica Mountains (Hasenauer and Langton, 1993). Unless carefully managed, such increases in visitation can cause significant environmental impacts (Boyle and Sampson, 1985; Cole, 1982). While a variety of methods are currently used by COSCA to minimize environmental impacts from trail use, including trail design, education and trail patrols, it is possible that other methods of controlling impacts may be necessary (Lindsay, 1986; Washburne, 1982).

Development pressure on open space areas

It is likely that in future years there will be considerable pressure on local open space areas for various types of development as the population increases. In Southern California, for example, the population is expected to increase from 17,138,900 in 1990 to 24,138,900 in the year 2010, representing a population increase of 41% within 20 years (California Department of Finance, 1993). In Ventura County, the population is expected to grow from 669,000 to 905,600 during the same period, representing a 35% increase in population.

Public attitudes toward wildlife

As urbanization encroaches into natural areas, residents often express concerns regarding wildlife they encounter, despite choosing to live near such areas. Public concerns regarding coyotes, mountain lions and other animals are common, often resulting in requests for their removal. To truly develop sustainable communities, it will be necessary to increase public awareness and tolerance of wildlife needs, so that people and wildlife can successfully co-exist at the urban/open space interface.

Regional wildlife corridors

To fully protect local wildlife populations, open space in the Conejo Valley must be connected to larger protected areas (Adams and Love, 1989; Soule, 1991). Fortunately, significant undeveloped areas exist nearby in the Santa Monica Mountains, Simi Hills and Santa Susana Mountains, and locations for wildlife corridors between these mountain ranges have been identified (Nature Conservancy, 1990). A sustained

effort, however, will be required to acquire the necessary land and rights-of-way, and to design, fund and construct corridors to provide for the crossing of roads and highways.

Conclusion

The successful conservation of natural open space by local government requires a long-term and integrated approach. Political, administrative, financial and regulatory factors must be addressed, based on a consensus that open space is an important community resource. Other factors, such as topography, large landholdings, and personal values, also play key roles in facilitating open space acquisition and management.

In Thousand Oaks, California, over 12,000 acres of natural open space has been protected, the result of over 30 years of commitment, persistence and hard-fought efforts by residents and local government. While many factors contributed to this achievement, perhaps the most important element was vision. In this community there was a common vision among many residents, elected representatives and staff that open space conservation was essential to preserving a high quality of life. The result of this vision is an open space system that, while still facing challenges, has managed to conserve a notable amount of natural open space for both people and wildlife.

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