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Roland Löffler and Ernst Steinicke

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Resettlement of peripheral areas ("counterurbanization") is driving population growth in the central Sierra Nevada of California and Nevada. The present study analyzes the impact of "urban refugees" on socio-economic condi-

tions in rural high mountain regions (above 1800 m). From 1960 onward, the High Sierra counties have ranked among Californian high mountain regions with the heaviest relative population growth. Tourism provides the most important impulse for the diffusion of metropolitan populations to high altitude areas, and constitutes the major source of employment there. People who migrate to the study areas (Lake Tahoe region and Mammoth Lakes area) tend to be white, well-educated, with considerable household earnings, but do not fall into the senior citizen category. There is no doubt that their demand for vacation or permanent homes has increased housing prices enormously. Planning problems that tend to come with settlement expansion in high mountain regions represent a certain potential for conflict between people who have been living here for a long period (more than 15 years) and recent, affluent amenity migrants ("newcomers"). So does the fact that a majority of homes have meanwhile been priced well beyond the reach of people on local salaries. Finally, the study addresses the problem of various attitudes towards planning strategies in the Sierra Nevada.

Keywords: Counterurbanization; amenity migration; tourism; population growth; settlement expansion; land use; Sierra Nevada; California; USA.

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Counterurbanization and the present research concept

The present study, supported by the Austrian Science Fund (FWF), attempts to highlight the economic and social effects of settlement expansion in high mountain regions—a phenomenon rarely taken into account in the various analyses of demographic deconcentration. The study area is located in the Sierra Nevada in California and Nevada.

From 1990 to the present, more Californians left their state than US citizens migrated to California (Johnson 2000, 2002, 2003). Nevertheless, the Sierra Nevada experienced the opposite trend, as domestic migration led to a continuous increase of the population in this region (Figure 1). On the one hand, the results of this migration can already be seen in the foothills, which have meanwhile become part of the Sacramento metropolitan area. On the other hand, there is also considerable population growth in various regions of the high mountains—remote and sometimes isolated from metropolitan areas. Steinicke documented this phenomenon for the first time in 1995 and addressed the influence of tourism on current population growth (Steinicke 1995, 2000, 2001). By analyzing the census results of 2000 (USCB 2000), Hofmann and Steinicke (2004) found confirmation that the process of *counterurbanization* was ongoing, leading not only to horizontal but also to vertical settlement expansion.

The concept of counterurbanization is not synonymous with "exurbanization" (Spectorsky 1955; Mitchell 2004), which refers to the low-density expansion of metropolitan areas beyond the outer suburban belt. Counterurbanization, instead, is defined as the diffusion of metropolitan populations, "urban refugees," and economies to remote high-quality environments (Berry 1976; Champion 1989, 1998). The processes discussed in the present article can also be integrated into the concept of "amenity migration" (Price et al 1997; Williams and Hall 2003). Moss defines amenity migration as "people moving into the mountains to reside year-round or intermittently, principally because of [the mountains'] actual and perceived greater environmental quality and cultural differentiation" (Moss 2003).

Analyses of the consequences of current population growth in high-altitude regions of California and Nevada are limited. Although the Sierra Nevada Ecosystem Project (SNEP 1996), Duane (1999), the Sierra Business Council (SBC 1997, 1999, 2003), and Walker et al (2003) provide essential information about human settlement, demography, the economy, and regional planning in the Sierra Nevada, they all focus either on the ecological situation or on exurbia, ie the foothills region. Apart from the studies by Steinicke mentioned above, the literature cited here documents that research on the economic and social consequences of counterurbanization is rare.

Given the current status of research, this study is based on the following hypothesis: the continuing process of counterurbanization is associated with a basic change in socioeconomic conditions, which could represent a potential source of conflict between people in low- and high-income categories. Broadly speaking, a social conflict is a specific social situation involving different living conditions and the conflicting needs and interests of various groups (and actors). It is a dispute over any issue that affects the situation of one community relative to the other. In our case, this might take place between local residents (with a low income) and

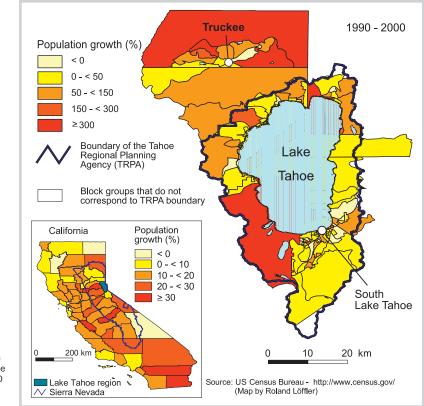


FIGURE 1 Population growth in the Lake Tahoe region and in the California counties, 1990–2000 (block group level). (Map by Roland Löffler)

wealthy newcomers. Apart from analyzing existing related research, official statistics, media material, various topographic maps, and aerial photographs, the study sought to obtain necessary information from expert interviews and from open, qualitative interviews (ie partly structured interviews with 85 residents).

Population growth in high mountain areas

The progressive population exodus following the demise of the Gold Rush—and the subsequent rise of deserted settlements ("ghost towns") in the Sierra Nevada—was reversed in the 1920s as a result of tourism-oriented innovations. Subsequently, the increasing significance of tourism and permanent inhabitants in these high-altitude regions led to a renewed growth of population and settlements outside designated protected areas, such as US National Parks. From the period of the 1960 Olympic Winter Games in Squaw Valley onward, the High Sierra counties have ranked among Californian high mountain regions with the greatest relative population growth.

The Sierra Nevada is still full of vast, wide open spaces, while towns and dispersed patterns of human settlement are generally quite rare. Unlike public and federal land (national forests, national parks, state parks, national monuments, ecological areas, wilderness areas, etc) only private land can be developed for human settlement (Figure 2; SNEP 1996; Steinicke 2000).

Given their enormous population growth and settlement expansion, the study focused on the following 2 counterurbanized high-altitude subregions, both situated above 1800 m:

- The Lake Tahoe region, ie the Lake Tahoe Basin and the adjacent Donner-Truckee area in the north (population in 1930: about 2000; population in 1960: about 10,000; population in 2004: about 73,000);
- The Mammoth Lakes area, east of Yosemite National Park, about 180 km south of Lake Tahoe (population in 1930: about 400; population in 1960: 1905; population in 2004: 7404).

The Lake Tahoe region has strong economic ties to the San Francisco Bay Area and the Central Valley. Most of the amenity migrants to the central Sierra are former residents of that area (Steinicke 2000; Hofmann and Steinicke 2004). The economy is driven by the influx of weekend, winter, and summer visitors, including gaming in Nevada casinos. The establishment of the bi-state Tahoe Regional Planning Agency (TRPA) in 1969, however, resulted in development restrictions within the Lake Tahoe Basin. The TRPA's regional plan presented

Truckee Boundary of the Tahoe Regional Planning Agency I ake South Tahoe Lake Tahoe 10km Public land Private land 100 200 km Mammoth Lakes Town Source: The California Spatial Information Library (CaSIL) 5 10 km http://casil.ucdavis.edu/casil/ (modified by Roland Löffler)

FIGURE 2 Distribution of private land and public land in the Sierra Nevada (California portion) and in the research areas. (Map by Roland Löffler)

in 1987 overlays the county general plans on the Californian part, as well as the planning ordinances on the Nevada part of Lake Tahoe. Spillover growth is now concentrated in those areas situated outside TRPA control.

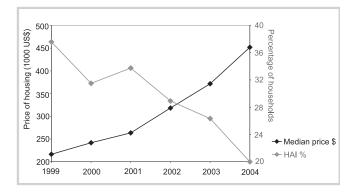
FIGURE 3 Incline Village: a horizontally and vertically expanding Lake Tahoe settlement dominated by permanent residences. (Photo by authors, 2005)



Mammoth Lakes and the adjacent communities in the Eastern Sierra, on the other hand, serve as a gateway to ski areas, national parks, and wilderness areas, which affects the local economy. Throughout the winter months, this area is topographically isolated from northern and central California, yet it is closely tied via US 395 highway to southern California—both through a long history of conflict over water resources development, and due to continuing economic dependence on tourists from southern California. Unlike in the Lake Tahoe region, population growth here has been limited primarily by the restricted availability of private land and water supplies.

One characteristic of the High Sierra is the increasing vertical expansion of human settlements. Thirty years ago, the upper limit of settlements in the Lake Tahoe region was below 2200 m. By comparison, today it has moved up to almost 2400 m, ie to 2370 m in Incline Village (Figure 3) and 2380 m in Kingsbury Village. In the Mammoth Lakes area it is not unusual for human settlements to be situated even above 2600 m (Hofmann and Steinicke 2004, modified).

Our interviews basically confirmed that pull factors in high mountain regions, as generally discussed by Duane (1999) in his study of the Sierra Nevada foothills, are similar. As our research showed, factors such as safety/low crime rate, high quality of life (hous-



ing quality, calmness, and privacy), high leisure values (favorable conditions for outdoor recreation such as skiing, swimming, and hiking), and excellent public schools were particularly relevant in decisions to migrate to California high mountain regions. A considerable number of respondents also cited ethnic homogeneity as a major reason for their exodus to the mountains. Thus, it is fair to say that to a certain degree the High Sierra offers the advantages of a "gated community." Moreover, new telecommunication technologies are encouraging deconcentration of metropolitan employment (Duane 1999).

The socioeconomic effects of counterurbanization

The phenomenon of counterurbanization is associated with ongoing transformation of rural economies, from a previous commodities-oriented, natural resourceextractive base to a services-oriented, amenity-driven base. In economic terms, the communities in the central High Sierra (Lake Tahoe Basin, Donner-Truckee area) and the Eastern Sierra (Mammoth Lakes area) are prototypically resource-dependent on tourism. The process of counterurbanization has led to a specific upswing in real estate prices and changes in demographic as well as economic structures.

Increase in housing prices as a potential source of conflict

In the interviews, migrants from the 1980s emphasized equity gains among urbanites as essential factors driving the exodus to the mountains. Due to strong consumer demand for housing in metropolitan areas (eg the Bay Area), many home owners were able to realize considerable capital gains selling their metropolitan homes. Consequently, they enjoyed an economic advantage in moving from urban areas with high housing costs to mountain areas with relatively low housing costs. In the meantime, however, there has been hardly any difference between house prices in metropolitan areas and those in the Sierra Nevada.

Currently in the central High Sierra, an average home (up to 200 m²) costs at least around US\$ 300,000—an insight gained quickly by analyzing numerous real estate brochures and local newspapers. Additionally, official statistics and selected special studies (FCA and ASR 2002; TRPA 2002; BAE 2004; CAR 2004–2005) provide details about current home prices. The median price of an existing, single-family detached home in California in October 2004 was US\$ 460,370a 21.4% increase over the US\$ 379,120 median for October 2003 (1977: US\$ 62,290). Figure 4 shows the increase in the median price for a single-family home in California during the period 1999-2003 (71.8%). Moreover, the graph exhibits the percentage of households in California able to afford a home in this price range (Housing Affordability Index, HAI). A similar rapid increase in price has been observed in the high mountain areas of the Sierra Nevada. The 2 case study areas will be described in more detail below.

Table 1 outlines housing price levels according to the size of the interior and demonstrates the exclusivity of both areas. If 30% is defined as a reasonable proportion of income to devote to housing, it becomes apparent that housing price levels are no longer affordable for a large portion of residents, particularly as median annual household income is not above US\$ 50,996 (Lake Tahoe region) or even US\$ 44,570 (Mammoth Lakes) according to the 2000 census (California: US\$ 47,493; United States: US\$ 41,994). The high price of homes is also reflected in area rents, which range from 40-95% above the fair market price. The median selling price of a single-family home in Mammoth Lakes in 2004 was US\$ 750,000. At that price, a household would have to make more than 300% of the 2004 Mono County median income to keep housing costs at or below 30% of household income (Town of Mammoth Lakes 2004).

As already mentioned, immigration from the Bay Area has been expanding continually from the Lake Tahoe Basin ever further north to the Donner-Truckee area (including North Star and Squaw Valley). As a result, demand for housing space has been increasing, driving up real estate prices even in this area. Between 2003 and 2004, the median home price in the entire Lake Tahoe region jumped by 17.7%, to US\$ 620,625. Nevertheless, the difference in median prices in areas around the lake is considerable: from US\$ 352,500 in the south to US\$ 892,500 in the northeast (Incline Village; *Reno Gazette-Journal* 2004).

The land use map of Mammoth Lakes (Figure 5) explains the significance of housing/habitation (dark gray) and accommodation in motels, hotels and lodges (medium gray). Undoubtedly, there is a certain potential for conflict between high- and low-income groups, arising for the most part from the higher real estate

FIGURE 4 Median price for a single-family home and Housing Affordability Index (HAI) in California, 1999–2003. (Source: CAR; Graph by authors) 68

Study areas		Housing price (US\$)	
Study areas (with median selling price)	Size of interior	From	to
Lake Tahoe region (2004: US\$ 620,625)	up to 200 m ²	97,500	1,850,000
	up to 250 m ²	399,000	1,699,000
	up to 300 m ²	439,500	2,850,000
	up to 400 m ²	789,000	5,900,000
	400 m ² or more	985,000	Highest observed price: 37,000,000
	0		
Mammoth Lakes area (2004: US\$ 750,000)	up to 200 m ²	129,000	1,599,000
	up to 250 m ²	790,000	1,695,000
	up to 300 m ²	1,099,090	1,800,000
	up to 400 m ²	815,000	2,050,000
	up to 500 m ²	2,799,000	3,600,000
	500 m ² or more	3,200,000	Highest observed price: 9,500,000

TABLE 1 Housing price levels in the study areas. (Source: Analyses of real estate brochures and local newspapers in March-July 2004, by authors)

prices that result from growing demand for single-family homes in the area. Our survey results demonstrate that amenity migrants to the Donner-Truckee area belong to a wealthier category, with an average household income of more than US\$ 80,000. In 2000, more than 50% (5209) of the 9846 housing units in that area were permanent residences (FCA and ASR 2002), while in the whole Lake Tahoe region almost 38% of all housing units (65,298) were considered vacant for seasonal, recreational, or occasional use (USCB 2000). In Mammoth Lakes, too, permanent residences prevail (56%). One logical consequence of the steady increase in housing prices is that many less affluent people have been forced to look for homes in less expensive areas of Nevada, around cities like Reno-Sparks, Gardnerville, and Carson City. Most affected in this regard are Hispanic and some Asian workers, but even young locals are being priced out of the market. In 1992, some 24% of workers in the Lake Tahoe Basin were registered as commuters-half of them from the areas mentioned earlier (TRPA 2002). Although no follow-up studies have been done since then, it may safely be assumed that the percentage of commuters has continued to grow.

Changes in the population structure of the High Sierra

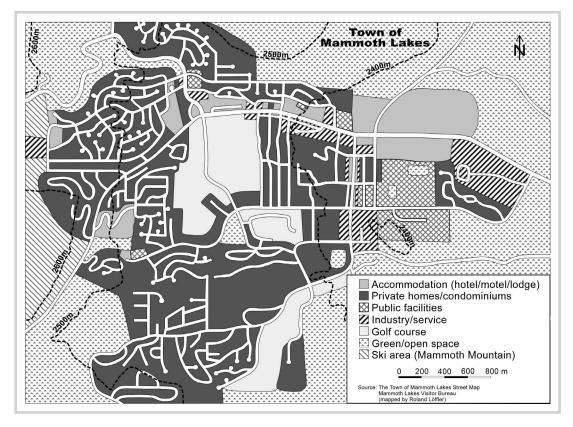
In contrast to the foothills, which are popular migration destinations for retirees, the high-altitude areas are unlikely to become "senior settlements," as their infrastructure was not designed to accommodate a large number of the elderly. Besides, the high altitude and frequent snows do not appear to hold much attraction for this group. Younger age categories dominate all high mountain areas, particularly the town of Mammoth Lakes. Apparently the high mountains also draw the male population in greater numbers: in Truckee, for example, there are 159 men for every 100 single women between the ages of 20 and 44 (= 42% of the population). If the age range is restricted to 20–34-yearolds, the male-to-female ratio goes up to 183:100 (USCB 2000). According to interviews conducted by a local newspaper, men in Truckee (as well as in Aspen and Vail) are more likely to be attracted to the mountain lifestyle and outdoor activities than women (Raymore 2004).

The central part of the Sierra Nevada is distinct from all other regions of California by virtue of its higher proportion of white residents. In the high mountain areas, the percentage of whites seldom falls below 80%. The only exceptions are reservations for Native Americans (Alpine County) or areas where Hispanics and/or Asians find work, such as the (casino) hotels at the Nevada border or in South Lake Tahoe. Another exception is Mammoth Lakes, where the migrant population from southern Californian cities includes numerous Hispanics. In the year 2000, they made up more than a fifth (1577) of the town's inhabitants.

In addition to its ethnic structure, another notable feature of the Sierra Nevada is its progressive tertiarization and the particularly low rate of employment in the agricultural and forestry sectors (Lake Tahoe region

Research

FIGURE 5 Land use patterns in Mammoth Lakes. (Map by Roland Löffler)



about 1%, Sierra Nevada counties about 3%). Since-as has already been mentioned-there is a direct link between counterurbanization and tourism in high mountain areas, it is no surprise to learn that jobs in this sector predominate in the Lake Tahoe region as well as Mammoth Lakes. In the high mountains, only in the area around Truckee does the secondary sector take on some significance: this area is marked by the crossing of the Sierras, served by railroad tracks and the interstate highway (I-80), where construction, trade, and industry offer the most job opportunities. Even here, however, the spillover effect contributes to an increase in tourism-oriented businesses. The level of education and training in the counterurbanized high mountain areas is far higher than the California and Sierra average. In the study area, 30-35% of the population claim a bachelor's degree or higher, while this figure is barely 27% for California as a whole. From these numbers it can be assumed that an especially high percentage of migrants to the mountain areas hold an advanced degree.

Tourism: a primary economic sector in the high mountains

Aside from the national parks (Yosemite, Sequoia, Kings Canyon), Mammoth Lakes and the Lake Tahoe Basin are the most tourism-intensive parts of the Sierra Nevada. Of the approximately 60,000 jobs in both areas, 38% are directly tied to tourism; 74% of all jobs, as well as 68% of all wage payments, are indirectly related to tourism (TRPA 2002; DRA 2003; City-Data.Com 2004). FCA and ASR (2002) and the North Lake Tahoe Resort Association (NLTRA 2003) reveal that the number of visitors to winter sports destinations within the entire Lake Tahoe region for the interval between 1999/2000 and 2002/2003 was approximately 4 million annually. These figures have doubled since the end of the 1980s, partially as a result of new ski station construction. In Mammoth, these numbers were estimated at 800,000-1 million during the same time period. With an average stay of 3-4 days, the number of overnight stays would range between 15-20 million in both areas under discussion.

Tourism intensity may also be derived from the proceeds of the tourist occupancy tax (TOT), which draws on commercial room rental to overnight visitors (TRPA 2002). Using the conversion key, this produces a result of approximately 14 million overnight visitor days in the Lake Tahoe region currently, which is an increase of one third since 1990. Added to that figure are another 4 million overnight visitor days in Mammoth Lakes. The authors of the studies mentioned in this chapter all agree that these visitors to the Sierras are an affluent group. Their median household income of US\$ 80,000

Synthesis and questions for further research

The study confirmed our primary hypothesis, with qualifications. The process of counterurbanization in the high mountains has continued, leading to horizontal expansion as well as a permanent upward shift of settlement boundaries since 1960. In contrast to the demographics of the foothills, this has not been a migration of the aged but rather a movement of well-educated, mostly white, affluent people employed in the cities of southern California and the San Francisco Bay Area, who see the high mountain areas as a preferred place of residence. Tourism not only provided counterurbanization with the necessary momentum, but has also developed alongside it at the same pace. For this reason, there has not been a complete transformation of the local economy. Rather, tourism has given an enormous boost to other industries (construction or service) that scarcely contributed to employment statistics in the 1960s and 1970s. Profiting the most from this trend are the real estate business and the construction trade. In our study areas, the rise in home prices over the last decade has also led to a basic potential for conflict between the lower middle class and wealthy "urban refugees."

In the Californian mountains, normative planning ideals—as specified by TRPA—contradict the residential preferences of the migrated and migrating population. This yields areas of research for the future: one of the primary reasons for counterurbanization in California is that people from urbanized areas see the high mountains as an opportunity for improved quality of life—specifically, living as far as possible from other households, as patterns of human settlement show (Figure 3)—which then results in a considerable horizontal as well as vertical expansion of residential development into woodland areas. Although the economic disadvantages and ecological consequences (SNEP 1996; Duane 1999) of a widely dispersed settlement structure are well known (SBC 1997), they were not factored into official county planning. Thus while interstate regional planning in the Lake Tahoe Basin (TRPA) is cognizant of ordinances restricting development, it does not have any guiding strategies that would encourage concentrated patterns of human settlement. The general plans (released from 1980 onward), which are the foundation for planning in the High Sierra counties, do equally little to deal with the phenomenon of sprawl. This is where the official planning approaches of the east Alpine countries and the Sierra Nevada completely diverge. However, it should be borne in mind that the east Alpine countries developed effective strategies to combat unwanted sprawl several decades ago. Accordingly, further research questions may be expressed as follows: would it be advantageous under socioeconomic conditions in the Californian high mountain regions, despite the cultural differences, to try previously tested concepts and measures of "compressed building in the Alpine region?" Or would this spell the inevitable end of counterurbanization?

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