

CHAPTER 3: GROWTH PROJECTIONS AND LAND USE TRENDS

Introduction

The purpose of this chapter is to create a comprehensive and focused examination of historical and projected land development patterns in the Auburn Ravine, Coon Creek, and Markham Ravine watersheds. The primary ecological and land use concern in these watersheds is the conversion of existing land uses from agriculture to urban and suburban development. Vernal pool grassland, which contains a variety of listed and sensitive plant and animal species, is the habitat type most immediately threatened by conversion to high-density developments. Stream and riparian zone areas face further ecological stress due to the conversion of adjacent upland habitats to urban and suburban development. Additionally, it is anticipated that water quality will decline with urbanization of the surrounding watersheds. Sustaining commercial agriculture, with its open space component, is a primary goal of habitat conservation, as planned urban development and uncontrolled annexation of agricultural lands continues. Land speculation drives up values, increasing agricultural costs, thus making it more difficult for landowners to make a profit or pass their farms on to the next generation.

The following discusses future population growth projections, buildout data, and public land use management activities as they pertain to natural resources and open space within the ERP planning area.

Existing And Projected Growth

As of January 1, 2001 approximately 257,500 people resided in Placer County (Table 3-1). By 2025, the population is projected to grow by an additional 158,000 individuals with the majority of this change occurring in southern and western Placer County. Sutter County, to the west, will grow at a slower rate but is still expected to add 53,800 persons between now and 2025. All three of the watersheds within the ERP planning boundary contain rapidly urbanizing areas and, consequently, will experience significant changes to their existing condition. Auburn Ravine and Markham Ravine will carry the greatest percentage of urban growth given the changes that are anticipated for the City of Lincoln based upon their General Plan.

Table 3-1. Current and Projected Population in Sutter and Placer Counties

Jurisdiction	Year	Population ¹	Net Change
Sutter County (total)	2001	80,900	N/A
	2025	134,700	53,800 ²
Placer County (total)	2001	257,500	N/A
	2025	415,335	157,835
A. City of Lincoln	2001	13,900	N/A
	2025	57,875	43,975
B. City of Auburn	2001	12,500	N/A
	2025	17,350	4,850

¹Sources: California Department of Finance, 2001; SACOG 2025

²Reflects expected growth for entire Sutter County. No expected population growth within the ERP planning area.

Future Buildout

Buildout should always be considered a theoretical figure that should not serve as the ultimate guide for ecological resource planning. The primary reason is that the figure represents a snapshot in time that is taken well in advance of the theoretical condition ever occurring. Buildout, if it were to occur at a fixed point in time, also varies from land use type to land use type with industrial and commercial lands tending to take longer to achieve a buildout condition as opposed to residential. This pattern occurs because local land use authorities in California often provide an excess of commercial/industrial land zoning in order to capture high value property and sales tax revenues from these land uses.

Population estimates and land use projections provide a description of potential conditions that can be compared with current and reasonably certain future projects. These estimates allow planners to evaluate the relative magnitude of changes, identify the geographic locations where the greatest degree of land use change will occur, conduct infrastructure time planning, and most importantly, identify actions that can be implemented to minimize the overall impact of increased development. Placer County does not currently have buildout data for Sutter County by watershed. However, an examination of the Sutter County General Plan shows that the majority of land is designated as Agricultural-Open Space. Table 3-2 provides a summary of the anticipated buildout condition by watershed and by jurisdiction in Placer County.

Table 3-2. Projected Population and Dwelling Units in the ERP Watershed at Buildout

Watershed	Placer County Jurisdiction	Total Dwelling Units	Buildout Population¹
Auburn Ravine	Cities of Auburn and Lincoln	28,427	71,066
	Unincorporated	10,483	26,308
Markham Ravine	City of Lincoln	4,193	10,482
	Unincorporated	1,130	2,826
Coon Creek	Unincorporated	11,181	27,952

¹ 2.5 persons/DU (Source: Placer County General Plan)

As total population and population densities increase, society’s ability to protect, conserve, and restore functional ecological habitats and associated biological resources increases in difficulty. The land use conversions that accompany population increases and economic expansion result in undeveloped or underdeveloped lands being converted to urbanized uses. Increased development and its side effects (e.g., runoff from pavement carrying pollutants) can degrade important habitat areas and adversely affect water quality. Increased runoff can destabilize stream banks, result in increased stream water temperatures, and adversely modify aquatic habitats. Conversion of open spaces (i.e., agricultural lands, grasslands, and woodlands) to developed areas with impervious surfaces changes the natural hydrologic functions of the original landscape, reduces flood water attenuation, reduces or eliminates the natural filtration of water borne pollutants, and reduces or eliminates groundwater recharge. Biological functions are also affected by the loss of terrestrial wildlife habitat and changes to water flow volumes and runoff patterns in aquatic systems.

Current Land Uses

In terms of large areas (i.e., > 100 acres) under a single ownership, virtually all of the land in the watershed is privately owned without any form of permanent protection from land use changes. Placer County General Plan and ERP planning area land use designations are identified in Figures 3-1 and 3-2, respectively. The two current exceptions include the U.S. Air Force property adjacent to Moore Road and the Western Regional Sanitary Landfill properties near Fiddymont Road. Placer County’s 1994 General Plan and related community plans jointly display the urban growth boundaries and existing zoning for the region. However, these land use restrictions can be changed through plan amendments and/or zoning variances. Rapid urbanization in the cities of Lincoln, Rocklin, and Roseville is increasing the amount of land converted from predominantly grasslands to urban/suburban housing and commercial/industrial development. Figure 3-3 identifies Placer County’s urbanization patterns within the ERP planning area. In addition to the existing general plans in the County and cities, numerous property owners in the unincorporated areas of the County have expressed interest in pursuing General Plan amendments or having their property annexed to Roseville, Rocklin, or Lincoln. Political pressure to convert existing agricultural land use to

Insert fig. 3-1

Insert Fig 3-2

Insert Fig 3-3

more urban uses in Placer County is increasing due to the proximity of current urban development and major infrastructure improvements (e.g. Highway 65 Bypass, Placer Parkway, and two new regional wastewater treatment plants in the region) within or adjacent to these watersheds. Land speculation is intense in the Auburn Ravine and Markham Ravine watersheds.

Due to large parcel sizes, particularly along Coon Creek upstream of Gladding Road, blue oak woodlands are relatively intact and unfragmented, thus providing large patch sizes for terrestrial species. The Auburn Ravine's upper watershed is more fragmented due to the predominance of the rural resources land designation (1-10 acre/DU). Subdivision potential in the upper Coon Creek watershed is generally low under current General Plan designations and is unlikely in the future because of a lack of urban services and environmental constraints. Figures 3-4 and 3-5 identify Placer County's parcel subdivisibility patterns and natural community patterns within the ERP planning area. Although land speculation in this area does not approach the intensity seen in the area west of Lincoln, non-renewal and expiration of Williamson Act contracts are fairly high throughout the entire AR/CC ERP planning area. This trend may indicate an interest in rural residential subdivisions, some expectation about future development opportunities, a lack of confidence in the viability of the agricultural land over time, or a desire to retire on the market value earned on the land which in most cases is higher than agricultural values.

The dominant land use in the portion of the watersheds west of Lincoln is rice farming. This land use drives the current water management practices and the timing and flow volumes of water that is delivered during the spring, summer, and early fall. One assumption in this assessment is that water management and deliveries to rice farmers will continue indefinitely into the future. However, with the possibility that reduced agricultural subsidies could occur, it is possible that rice farming could cease to exist in the western portion of the watersheds, or that the crops grown would change to something besides rice, resulting in a change in water deliveries. Placer County agricultural patterns within the ERP planning area are depicted on Figure 3-6.

Public Land Use Management Objectives and Implications of Management Activities

Land Use and Natural Resource Management Policies and Objectives

Federal, state, and a variety of local entities have numerous policies and legal mandates that influence land use and natural resource management in these watersheds. All of the watersheds have been designated as critical habitat for the federally-listed threatened steelhead trout. This designation creates a nexus between activities that would have negative impacts on water quality, riparian zones and adjacent floodplain, and the requirements of the federal Endangered Species Act (ESA). State policies influence specific species and habitat protections. Local agencies influence land uses through zoning and development policies. Policies or laws that influence the water in the channels, adjacent land use, riparian habitats, floodplain, and stream flow are summarized in Table 3-3.

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Table 3-3. Summary of General Policy or Legal Mandates that Influence Land Use Practices and Development Impacts in Stream Channels and Associated Riparian and Upland Areas in the Three Watersheds

General Policy or Legal Mandate	Public Entity
Protection and conservation of unique or special habitats, including riparian areas	City of Lincoln, City of Auburn, Placer County, State of California, Federal Agencies
Prohibit development within the 100-year floodplain	City of Lincoln, City of Auburn, Placer County, Sutter County
Protect, preserve, conserve, and restore open space and agricultural areas in Placer County and Sutter County	Placer County, Sutter County
Require that all developments use surface water sources as a water supply and not rely on groundwater resources as a large scale water supply source	City of Lincoln, City of Auburn, Placer County, Sutter County
Confine high density development to recognized urban area boundaries	Placer County, Sutter County
Design and implement projects which do not negatively impact riparian and aquatic habitats or increase the volume of flood flows or change the timing or duration of flood flows	City of Lincoln, City of Auburn, Placer County, Sutter County, State of California, Federal Agencies
Maintain the viability of agricultural land uses within Placer County	Placer County
Maintain the viability of agricultural land uses within Sutter County	Sutter County
Provide the highest practical level of wastewater treatment and use the reclaimed effluent as a water supply for agricultural purposes and/or discharge the effluent to Auburn Ravine to provide for aquatic habitat improvements	City of Lincoln, City of Auburn
Provide the highest practical level of wastewater treatment and discharge the effluent to Coon Creek to provide for aquatic habitat improvements	Placer County
Allow streambeds to be altered only in accordance with a Streambed Alteration Agreement or ESA Section 7 or Section 10 take permit	State of California, Federal Agencies

Table 3-3. Summary of General Policy or Legal Mandates that Influence Land Use Practices and Development Impacts in Stream Channels and Associated Riparian and Upland Areas in the Three Watersheds

General Policy or Legal Mandate	Public Entity
Strive to protect, through mutually negotiated agreements, lands and resources which meet the requirements of a Natural Communities Conservation Plan or Habitat Conservation Plan	Placer County, Sutter County, City of Lincoln State of California, Federal Agencies
Provide for the protection and restoration of anadromous fish resources	Placer County, Sutter County, City of Lincoln, State of California, Federal Agencies
Ensure that fish passage structure or flows are present and appropriate fish exclusion devices are present in streams with fish resources to allow fish passage and minimized juvenile mortalities associated with water diversions	State of California, Federal Agencies
Reduce fuel loadings in rural areas to minimize the potential for catastrophic wildfires	State of California
Provide fire suppression services to minimize damage to structures and secondarily watershed vegetation	State of California
Rehabilitate fire areas to minimize soil erosion, impacts to water quality, and water runoff increases	State of California
Have all point and non-point source discharges comply with water quality objectives and meet the requirements of the Clean Water Act	State of California, Federal Agencies
Protect prime farmland in the state	Placer County, Sutter County, State of California
Manage the Williamson Act program to insure that it meets its legislative objectives	State of California, Placer County
Insure that activities in navigable streams, and other jurisdictional waters comply with the requirements under the provisions of the Clean Water Act and that activities undertaken, funded, or approved by Federal agencies facilitate the recovery of species and habitats listed under the provisions of the Endangered Species Act	Federal Agencies
Restore anadromous fish resources and protect essential fish habitat in Central Valley streams	State of California, Federal Agencies

As Table 3-3 demonstrates, there is currently a broad set of policy and legal mandates to provide for protection, conservation, and restoration of stream channels, associated riparian

and upland areas for these three watersheds. However, there is one major flaw in this body of policy and legal mandates. None of these policies or mandates provides for programmatic permanent protection, conservation, or restoration of these areas. These policies and mandates are all temporary or subject to political review and modification. The only effective way to ensure habitat protection and conservation is through legally binding mechanisms such as purchasing land, and establishing permanent conservation easements, etc. Protection and regulation mechanisms must be applied with respect to current public policy. For the purpose of this report, temporary incentives may be combined with long-term measures (exclusive of land use regulation) to implement this program.

Well-planned development or land management activities provide opportunities to correct or improve ecologically degraded conditions resulting from past activities. However, even well-planned developments or activities can have significant impacts on terrestrial and aquatic habitats and species. Conversely, poorly planned development can result in widespread impacts to both public and private lands at some distance from the development. Ecologically insensitive land management practices also have the potential to turn a functional stream into an essentially non-functional drainage ditch or water conveyance canal. Agricultural, infrastructure and urban/suburban development encroachment has occurred upon riparian zones throughout all three watersheds. There are viable and landscape scale opportunities for conservation and restoration if cooperative relationships can be established with property owners throughout the project area.

If the watershed was developed without adequate storm water management, heavy rains would accelerate channel erosion and loss of groundwater recharge could further reduce channel base flows. Inadequate management of construction site erosion would result in delivery of large quantities of sediment to the streams, causing further degradation of wildlife habitats. Increased loads of phosphorous that are associated with sediment would also cause more turbidity and exacerbate summer algae blooms. Conversely, the use of good planning practices prior to development and the use of sound management practices now would greatly enhance ecological conditions. Such practices include innovative storm water and erosion control techniques, improved agricultural conservation methods designed to reduce sediment and nutrient discharge, and wetland restoration to increase base flow and trap sediment.

Local jurisdictions all have general plans that outline goals, policies, implementation strategies, and maps that guide their community toward achieving local objectives and meeting state and federal laws and regulations. Riparian protections and buffering, preservation of sensitive habitat, and controls on property alterations are also found in design guidelines, ordinances, and other existing local land use controls. These goals are individually implemented by each jurisdiction and, consequently, there is no compatibility in how these standards are applied throughout the watersheds. Full implementation of the various goals and objectives could assist in maintaining conditions in the watersheds. However, because the majority of these goals and objectives are applied to projects in the process and are not necessarily applicable programmatically throughout the landscape, it is necessary to examine, in a manner such as this ERP, how the region as a whole can work together to maintain or improve conditions in the project area.

Implications of Current Management Activities

There are a number of actions and projects, currently under consideration, which could result in major long-term implications for the stream channels and riparian areas in these watersheds. A brief summary of these actions and projects follows:

- **City of Lincoln Wastewater Treatment and Reclamation Facility** - The City is currently constructing a new wastewater treatment and reclamation facility that may discharge to Auburn Ravine near Moore Road. Initial capacity is intended to be 4.3 million gallons per day (mgd), which equates to 6.6 cfs. It is unclear at this time just if and how much of this water would be discharged to the stream. Seasonal or year round flows have very different ecological consequences for fish and wildlife resources downstream. Ultimate capacity of this facility, based on Lincoln's current projected population and the pending Bickford Ranch project, is 12 mgd (18.6 cfs). A joint powers authority has been formed to evaluate the possibility of expanding this facility to a regional facility (discussed below).
- **Regional Wastewater Treatment and Reclamation Facility** - Feasibility level studies are now being conducted to determine if the Lincoln facility could be enlarged to accommodate gravity flow inputs from the City of Auburn, Placer County's SMD-1 plant on Joeger Road, Newcastle, and possibly Lake of the Pines. This regional facility would eliminate existing year around discharges from upper Coon Creek and upper Auburn Ravine. While there may be some improvements in water quality in these streams, the flow loss implications are potentially substantial and unknown at this time. Maximum capacity for a regional facility is estimated at 33 mgd (51 cfs). Year-around flows of this magnitude, in addition to the normal summer irrigation deliveries, have major ecological implications.
- **Placer County Water Agency (PCWA) American River Pump Station** - PCWA is planning to build a permanent pump station in the American River and deliver water on a year-around (water is now delivered seasonally) schedule to customers in western Placer and Sutter counties. Changes in the current water temperature regime and fundamental water chemistry of the water supplies to Auburn Ravine are unknown. Also, the implications for Nevada Irrigation District (NID) deliveries, in terms of timing and quantity, are unknown at this time.
- **Bickford Ranch Project** - This project, approved by the Placer County Board of Supervisors but under judicial appeal, would add approximately 1,900 housing units near Auburn Ravine, east of Lincoln. Lincoln's new regional wastewater treatment plant will provide wastewater treatment capacity to accommodate this project.
- **Teichert Aggregate Project** - This project is currently under environmental review. The proposed project is a large aggregate and granite mining operation adjacent to Coon Creek and Doty Ravine just upstream of their confluence. This project, if approved as proposed, would have a projected 40-year life and has the potential to cause a range of adverse environmental impacts on the both the terrestrial and aquatic communities on the project site.

- Continued Rapid Urbanization in the Cities of Lincoln, Rocklin, and Roseville - Urbanization in Rocklin and Roseville is adding to the wastewater treatment plant capacity and discharge to Pleasant Grove Creek, which discharges into the Cross Canal near the community of Pleasant Grove in Sutter County. Increased discharge and urban runoff has water quality implications for the Cross Canal. Lincoln's expansion to the west and south has the same implications for discharges to Auburn and Markham Ravines.
- Placer Legacy Program - Through the Placer Legacy Open Space and Agricultural Conservation Plan, it is the policy of Placer County to protect, preserve, and enhance agricultural and open space lands. Growth projections suggest that development trends will continue if not intensify. This level of growth has created tremendous pressures to develop new residential, commercial, industrial and recreational lands.

Placer Legacy seeks to protect open space through conservation measures and coordinated efforts to support agricultural operations such as increased marketing. Maintaining the open, rural character of the landscape, protecting critical environmental areas, and preventing sprawl is of primary importance. Providing long-term protection of farmland and open space under the pressure of increasing urban development is difficult. Land suitable for farming is an irreplaceable natural resource with soil and other characteristics that have been enhanced by generations of agricultural use. When such land is converted to urban and suburban uses, an important community resource is permanently lost.

In mid-2000, the County purchased its first conservation easement on a 317-acre parcel in western Placer County known as the Aitken Ranch on Auburn Ravine. The Aitken Ranch is surrounded entirely by agricultural uses with rice and grazing being the predominant activities. A number of "rights" were purchased including protection of the floodplain and the riparian woodland, a public access easement, hunting rights, and the right to subdivide the property. Certain agricultural operational restrictions were imposed due to the presence of endangered species on the property. There is a real potential for this site to provide mitigation credits for the Highway 65 Bypass and/or other private and public sector projects in the region. Additional acquisitions within the AR/CC watershed through the Placer Legacy program are anticipated.

- Land Use Conversion in the Western Portion of the Watersheds from Predominately Rice Farming to Some Other Less Water Intensive Use - Recent attempts have been made in the Congress to reduce farm subsidies. Currently rice farmers in the western portion of the watersheds receive these subsidies, but the profit margin for rice is relatively small when compared to other crops or land uses. If these subsidies are reduced or eliminated, then the future of rice farming and associated water needs and delivery timing could be changed dramatically. If a major land use change and associated changes in water delivery and management were to occur then many of the assumptions associated with this assessment may no longer be valid. This change in water management could alter the nature and extent of projects proposed in the ERP.

The watersheds will also be affected by the cumulative impact of smaller projects (i.e., less than 100 acres of disturbance), including the ongoing fragmentation of agricultural lands into rural residential land uses and the infill urban growth in the Cities of Lincoln and Auburn and unincorporated north Auburn. While the larger projects listed above will directly or indirectly cause the greatest percentage of population and employment growth in the area, the ongoing fragmentation of habitat within the total landscape will mostly be associated with ongoing rural residential growth. The greatest potential for restoration resides in cooperative relationships with agricultural property owners both in the valley floor and in the blue oak woodland belt.

Management Concerns

Given the projected growth scenario within these watersheds and Pleasant Grove Creek to the south, a number of management concerns were identified (summarized in Table 3-4).

Table 3-4. Land Use Management Concerns and Impacts

Management Issue	Negative Ecological and Social Impacts	Positive Ecological and Social Impacts
LUM 1. Management and discharge of water flows from wastewater treatment and reclamation facilities.	LUN 1.1. Changes in flow volume, location, timing, and water source could have negative impacts on water quality, fish populations, wildlife species, sediment transport, and riparian plant communities.	LUP 1.1. Changes in flow volume, location, timing, and water source could have positive impacts on water quality, fish populations, wildlife species, sediment transport, and riparian plant communities.
LUM 2. Current policies and legal mandates influencing land use and species and habitat protection are not permanent and provide no long term protection for the ecological resources in the watersheds.	LUN 2.1. All of the existing policies and legal mandates are potentially temporary in nature and do not provide long-term protection for the biological resources in the watersheds. A legally binding mechanism(s) needs to be developed and implemented to ensure protection, conservation, and restoration actions completed are maintained and viable for the long term.	LUP 2.1. Sufficient policies and legal mandates are currently in force to allow protection, conservation, and restoration actions to occur.

Table 3-4. Land Use Management Concerns and Impacts

Management Issue	Negative Ecological and Social Impacts	Positive Ecological and Social Impacts
<p>LUM 3. Priority for protection, conservation, and restoration actions should be in those areas where additional development, urbanization, and fragmentation are going to occur so that natural resource values are maintained.</p> <p>LUM 4. Potential for current rice farming land use to be converted to other crops and/or urban uses.</p>	<p>LUN 3.1. Given the pace and extent of development pressures, a short-term, substantive program needs to be undertaken to “get ahead of the development curve.”</p> <p>LUN 4.1. Conversion of rice farming land use to other crops and/or urban uses could have major ecological implications for water quality, sediment transport, wildlife, fish, and riparian plant communities. These changes would come in the form of changes in water management and encroachment into riparian areas.</p>	<p>LUP 3.1. Planning ahead will benefit individual species and open space habitats as well as ensure that the County maintains its scenic viability.</p> <p>LUP 4.1. Conversion of existing rice farm land use to other crops or uses could provide an opportunity to make water available for fish migration flows and eliminate encroachment into the riparian zone, which would benefit fish, wildlife, and flood management objectives.</p>
<p>LUM 5. Additional urbanization creates additional non-point source runoff, which in turn degrades water quality in the streams.</p>	<p>LUN 5.1. Non-point source urban runoff is normally high in a variety of heavy metals and pesticides, which can have significant negative impacts on terrestrial and aquatic communities.</p> <p>LUN 5.2. Additional impervious surfaces and increase the rate of runoff and thus increase the rate of water surface elevation and volume of flood flows.</p>	<p>LUP 5.1. Increases in non-point source runoff may increase stream flows, potentially providing desirable habitat for fish and other wildlife species as well as suitable conditions for riparian vegetation establishment.</p>

Summary of Findings

The following provides a summary of the issues discussed in this chapter:

- The western portions of the watersheds within Placer County are rapidly urbanizing;
- Rapid urbanization has increased flooding issues in the lower watershed;
- Developers are actively buying up agricultural and open space lands in anticipation of further urbanization;
- Conversion of rice farming land use to other crops and/or urban uses could have major ecological implications;
- All of the existing policies and legal mandates are potentially temporary in nature and do not provide long term protection for the biological resources in the watersheds;
- A legally binding mechanism(s) needs to be developed and implemented to ensure protection, conservation, and restoration actions completed are maintained and viable for the long term; and
- Water sources, wastewater management, and management of non-point source runoff all have major ecological implications.