

Oak Management Plan
Red Mountain Ranch Subdivision

Prepared by: John Phillip Ownbey, Developer
Reveiwed by: Chris Kjeldsen, Biologist
Date: May 31, 2009

Executive Summary

- The County of Lake Planning Commission has established, as part of the tentative subdivision map for the Red Mountain Ranch Subdivision, a requirement for an Oak Management Area and Mitigation Plan, which is intended to assist in the protection of the oak forest. Proposed parcels 1, 2, 3, 4, 5, 6, 7, and 8 contain or are dominated by Blue Oak (*Quercus douglasii*) Woodlands and will be subject to the Management Plan.
- The Oak Management Area will establish a designated building envelope and an oak retention zone for each of these parcels. This may also be referred to as an Oak Retention Zone. Oak trees may not be cut down except within a designated building envelope. The trees that may be cut down, as well as any trees that must be cut down for development purposes, will be subject to a mitigation plan.
- The mitigation plan requires that any tree that is cut down be mitigated at a ratio of 3 to 1. The Mitigation Plan establishes the primary method of mitigation be the protection of existing oak seedlings, which already exist on the property. These seedlings will be required to have grazing enclosures that will allow for their continued growth.
- A survey has been conducted of both existing oak trees and potential seedlings. The survey has determined that 39 oak trees exist within the building envelopes. It is estimated that an additional 20 trees might need to be removed as part of development. The survey has determined a potential population of oak seedlings suitable for use as replacement trees to be in excess of 300 seedlings.
- The tentative map conditions require that 60% of the trees be maintained as part of the plan. The survey established the total population of trees to be 981. The total number of trees subject to removal is 39. Therefore, the plan establishes a retention percentage of 94%. Further, it establishes a replacement number of 177 seedlings. At present, 180 seedlings have been caged to satisfy this requirement.
- The Oak Management Area will be subject to specified property restrictions designed to protect the oak forest, as well as to promote a watershed, view shed and wildlife habitat. These restrictions are specifically designed to protect the drip zone of mature trees and encourage the preservation of seedlings.
- The Oak Management Area establishes a requirement for a wildlife corridor for connectivity and opportunity for gene flow across the landscape.
- The maintenance of the Oak Management Area will be the responsibility of the homeowner's association. The homeowner's association is created through C C & R's and each property owner is subject to the conditions set forth in that document.

Introduction

The county of Lake, as well as the state of California, under the California Environmental Quality Act (CEQA), is attempting to protect the biological diversity of its oak woodlands. As a condition of the tentative map allowing for the creation of the Red Mountain Ranch subdivision, there is a requirement that an Oak Management Area be created. The management area affects lots 1 through 8. The oak management area represents about 33.5 acres of land where there is a heavy concentration of blue oaks. For each lot, a survey of the oaks has been conducted. It is the purpose of this plan to assist in the preservation of the oak forest and the habitat it supports and educate the landowner in the proper management practices for a healthy oak forest. The landowner should utilize the practices outlined here in any area covered by the oak management area.

The practices contained in this plan have been adopted from the recommendations contained in the publications of the University of California Integrated Hardwood Range Management Program entitled “Living Among the Oaks” and “Wildlife Among the Oaks.” A biological survey of the oaks has been conducted by Dr. Chris Kjeldsen. His further recommendations have also been included in deriving a site-specific plan.

The specific purpose of the plan is “the retention of 60% of the existing oak trees over six (6) inches dbh and replacement of trees removed for development at a ratio of 3:1 within the retention zone.” In order to accomplish this goal, the Oak Management Area has been separated into two zones, a building envelope where development may take place without concern for the existing oak trees, and a management zone, where the practices outlined in this plan should be utilized. In the management zone, development activities are limited to those practices outlined in this plan.

Information about Blue Oaks

There are nineteen (19) species of native oaks of which, only nine, will grow to tree size in California. In the Oak Management Area, the primary species of oak is the blue oak, therefore, this section will deal with the blue oak specifically. In the surrounding area, many of these species of oak are growing in significant numbers. In particular, you will find Interior Live Oak, Black Oak, Valley Oak, Scrub Oak, Blue Oak, and hybrid cross of Live Oak and Coastal Live Oak. Lake county has a diverse number of habitats which support oaks. Blue Oak is a deciduous tree covering a range from Shasta county to Kern county. Blue oaks are often used as an indicator plant of underlying soil conditions since they prefer shallow soils and somewhat elevated sites. These conditions make Lake county a perfect site for them. On the subdivision property, the blue oaks prove to be a good indicator of the existence of hardpan soils. In most cases where you see the blue oaks, if you dig down a couple of feet, you will find a layer of hardened soils, resulting from mineral deposits, making deep root penetration more difficult for plants. The blue oaks thrive in these conditions.



Soil profile showing hard pan layer.

This is a picture taken while the joint trench was being excavated. The trench was dug to a depth of 54 inches. In this picture, the hardpan layer shows clearly. One can see the root zone, where the root threads are showing from the dirt layer. The whiter area below the soil layer is the hardpan. Based upon the soil exposure in this picture, the hardpan starts approximately 6 to 8 inches from the bottom of the trench, providing a topsoil layer of approximately 4 feet. This is what is meant by shallow soils.

The blue oaks have adapted their root structure to survive in these soils where they have less competition from trees that would grow to taller heights and shield the tree canopy from sunlight. Typically such trees require deeper root depths. Many shrubs and smaller bushes also need deeper soils for their roots, limiting the undergrowth of the blue oaks to a combination of grasses and small shrubs. This creates ideal conditions for the acorns to grow since the grasses and shrubs allow sufficient light for the acorns to germinate. There will be a more extensive discussion of the blue oak habitat later.

The following picture is taken from the oak management area, showing a classic oak woodland. The picture shows a savanna like landscape consisting of open grass areas, blue oaks, and small shrubs.



Blue oak woodland taken on lot 7.

It is important to understand what is happening underneath the soil of the blue oaks as well as what is happening above the soil. Obviously, the health of the oaks is dependent upon the root system of the tree. The following chart shows a depiction of an oak above and below the soil.

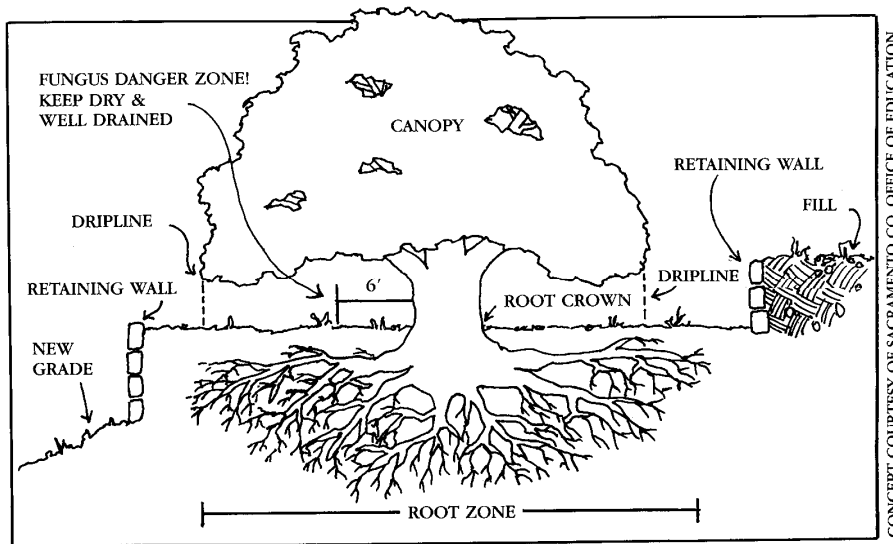


Chart from "Living Among the Oaks", Division of Agriculture and Natural Resources Publication #21538

There are several terms shown in this diagram which will be used throughout this plan. The canopy refers to the entire area of the leaves. The drip line is the edge of the canopy, or as the term suggests, the edge of the area under which rainfall drips off of the tree. As shown in this diagram, the root zone is roughly the area of the canopy. The general rule is to assume the root zone extends about one-third the distance further than the drip line. The area where the trunk extends from the soil is called the root crown. This is important because it is an area where disease, in the tree, might first show up. Just beyond the root crown, extending for about six feet, is a danger zone area where wet soil conditions can have a particularly negative impact. I refer to it as the dry zone. The following picture shows a classic mature blue oak.



Mature blue oak

The acorn produced by the oak tree is an important nutritional supplement for the local wildlife habitat. Historically, it is believed that up to one quarter of a million Native Americans used the acorn as the basis for an acorn mush. The oak trees were of particular importance to the large Native American population in California. As a result of archaeological studies conducted in the Oak Management Area, we know that local Indians have used this land for about 2,000 years. This information is gained by dating obsidian flakes found at two sites. The combination of springs, abundant acorns, and open grassland made this area a particularly good hunting site.

The presence of acorns also makes this area a rich habitat for wildlife. There are 35 terrestrial mammals and at least 30 oak-woodland birds that eat acorns as part of their diet. The following animals are frequently seen in the area and are known to eat acorns: acorn woodpeckers, scrub jays, wild turkeys, quail, deer, squirrels, and other rodents. Then there are a series of animals that prey upon these animals, including mountain lion, bobcat, coyote, fox, hawks, eagle, and rattlesnake. It is the hope of the management plan that the recommendations outlined in this plan will allow this habitat to remain healthy long into the future.



A coyote in the Oak Management Area

The oaks also provide important ecological functions that help protect the landowners and neighboring owner's property. The oaks help to stabilize the local watershed through a combination of processes. They mitigate the flow of storm water runoff. The trees will uptake water from storms, as well as minimize channel erosion by slowing surface runoff. This process will also minimize flooding in the lower watershed and soil erosion.

They maintain surface water quality through filtration and decomposition of air and water pollutants. Further, they assist in the recharge of local aquifers as a result of increased ground water infiltration. Again, this will mitigate surface run off.

In addition to the local watershed, the oaks benefit the overall ecological environment. As mentioned above, they are a habitat for wildlife, birds, reptiles, and bats. They are also a habitat for lichens and mosses. They play a role in temperature modification for the local environment, creating a cooler environment. They play a role in soil health, both by creating organic matter for soil structure and by assisting in nutrient release in the soils. Without the oaks, the area underlying the canopy would be significantly different.

Why do the Oaks need saving?

This is a critical question and one that I feel needs to be addressed as part of the management plan. It should be noted that the answer would vary depending upon who you ask. There certainly exists a widespread oak habitat in California, so some people feel that the protections are unduly warranted. For the purposes of this plan, let me review some of the reasons in favor of increasing protection for oaks.

First, let me note that at the time of the writing of this plan, there is no law in the county of Lake forbidding the cutting of oak trees. On a state level, there are restrictions concerning how timberland may be forested and requirements for proper permitting. But, to the best of my knowledge, these restrictions would not prevent a landowner from cutting his oaks. What the state and county has mandated, as part of the Subdivision Map Act, is the obligation of the government to protect natural resources to the extent that it feels it is prudent to do so when allowing for a subdivision. The general argument is that when a developer is creating new lots for sale, the county has the right to place restrictions upon those new lots, which might not be the same as those of other parcels previously created. In this way, the government can balance the need for development with the need for habitat protection. If the government passes a general restriction on all property owners, there is an argument that that restriction is taking away property rights that were already vested in the property. Since the owner has already purchased the property at the time the restriction is put into place, he had no ability to foresee that that restriction might impinge upon his intended uses of the land. However, when a subdivision is being created, since the lots are new, there is a more limited argument that the new lots come with vested property rights since the lots are going to be sold to new owners who will be fully aware of any property restrictions. One purpose of this plan is to make sure prospective buyers are fully aware of the restrictions being placed on the land.

The two primary reasons given in favor of blue oak protection have to do with the reduction in oak woodland resulting from urban development and rangeland grazing. In the past 45 years, approximately one million acres of oak woodland have demised. Since the 1970's, the amount of rangeland clearing has declined substantially, however, the amount of urban development has increased. In 1992, it was estimated that there were approximately 8 million acres of oak woodland in California. However, for the reasons

that follow, it may be possible that that is an overstatement of the actual amount of oak woodland that will be present in the future. Since this is a site-specific management plan, I will use a site-specific example to show this point.

The following picture shows a house while under renovation on lot 1 of the subdivision. This house was originally built as a miner's shack for one of the early settlers to Lake county. Archeological surveys in this area show foundations predating this house, allowing us to comfortably estimate that non-Native Americans have been living in this immediate vicinity for over 130 years. As the picture shows, you can see several beautiful, majestic blue oak trees towering over the house.



Blue oaks surrounding prolonged human habitation

This picture is proof that blue oaks are compatible with human habitation. These oak trees have managed to survive for 130 years and will probably continue for a considerable time more. What are missing from this photograph are young trees to replace the older ones. If you look at the lot across the street, you will notice blue oak of varying ages. This is the heart of the problem. The property across the street has not been grazed or developed, other than by deer and creatures natural to the oak habitat. Therefore, the regeneration of the oak trees has continued unabated. While oak trees can live for a considerable period of time, as this photo shows, when these trees do die, as is natural for them, there will be no replacement trees to take their place. As a result of that, the oak forest in this area will be diminished.

In most urban developments, efforts are made to protect the oak trees that have particular value, the more mature trees. It is unusual for someone to cut an oak tree since they are generally considered an enhancement to the property and have significant monetary value. The younger trees are not always so spectacular; hence, less importance is paid to them. Since it takes a very long time for a blue oak to grow into a mature tree, the choice for a replacement tree in these circumstances is often a faster growing tree. Hence, there is a fear that urban settings, which still show a sizable population of oak trees, will

gradually lose their trees over a period of a few hundred years. It makes for a complicated situation, since the actual number of trees is so high; it makes it appear as if they are well protected. And since the oaks will probably outlive most humans, it is sometimes difficult to project into the future and view the trees as endangered.

The situation on rangeland is also complicated. It is estimated that approximately 6 million acres of California oak woodland is used for rangeland grazing. On one hand, this has probably been a reason that we have seen less destruction of oak woodland than we might have otherwise. Grazing does not affect existing oak trees if the canopy is above the level at which the animal can graze. In those circumstances, the trees provide shade for the livestock, which is an advantage. Also, the acorns are of nutritional value to cattle and horses, therefore, there is little reason for someone to cut down their oak trees. This fact has helped to protect millions of acres of oak woodland. The problem is similar to that with urban development. The younger trees, which are available to the livestock, are eaten, as well as the acorns. This limits the possibility that birds or squirrels will disseminate the acorns to other possible growing areas. Therefore, you see the same problem as before. There are high numbers of oak trees, however, the number of replacement trees is declining. Once the trees in the rangeland die, there will be no replacement and an end to the potential for oak forest in that area.

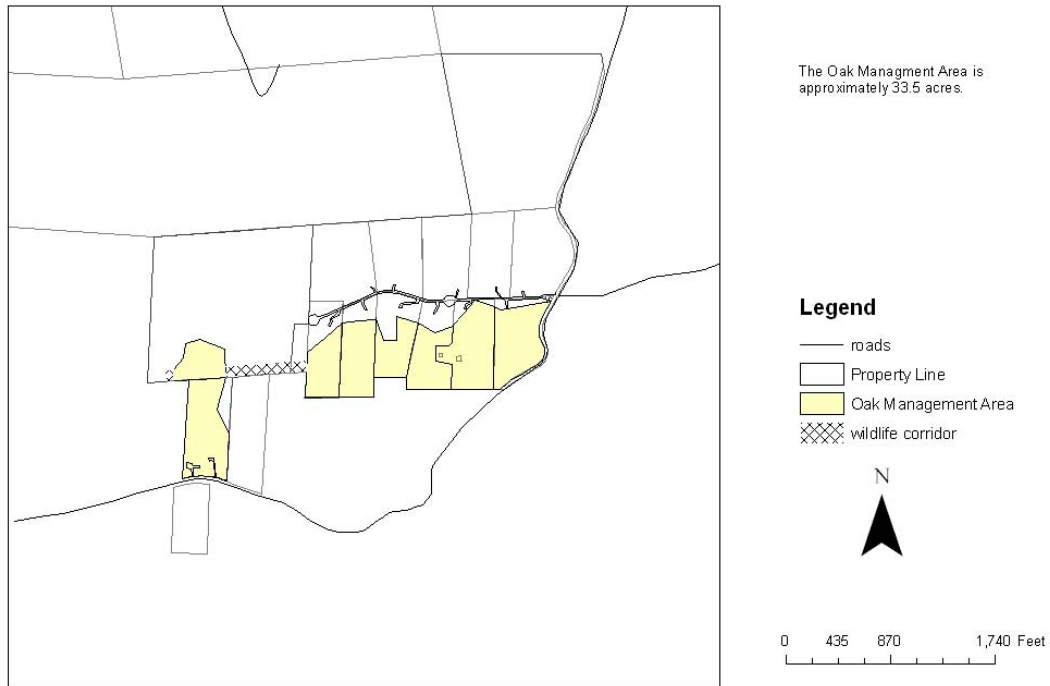
The affects of rangeland grazing can be seen in the oak management area. Lots 3 – 6 have been used more recently than the other lots for horse pasturing. As the lot surveys show, the number of oaks on these lots is significantly less than in areas where there has been reduced grazing. This, by itself, does not explain the fact that there are fewer trees. The trees could be reduced in this area for many other reasons relating to the preference of oaks and having nothing to do with human habitation. However, the fact that there is a reduced number of replacement trees on these lots, relative to the other lots, tends to suggest that grazing is partially to blame.

Hence we come to the reason for the oak management area. The purpose of the plan is not to prevent development, but rather to limit development to a type that allows for sustainable development while at the same time increasing the likelihood that the oak forest will regenerate and be healthy for a long time into the future. It is recognized that an oak forest is compatible with activities like livestock and horse grazing if the grazing is of such a nature as to recognize the needs of the forest for replacement. If the grazing becomes so extensive as to prevent forest regeneration, then the development has exceeded sustainability. The purpose of the plan is to assure a balance in whatever development happens. Farming is also compatible with oak trees. Again, if the irrigation is such that it endangers the root zone of the mature tree, then the tree will die. Once again, there needs to be a balance between the farming activity and the needs of the forest. It is my personal belief that the oak trees have significant value, both monetary and aesthetic. Therefore, this balance is intended to serve the overall development of the property and the subdivision and the county, while at the same time, placing reasonable limitations on the property owner.

Where is the oak forest boundary?

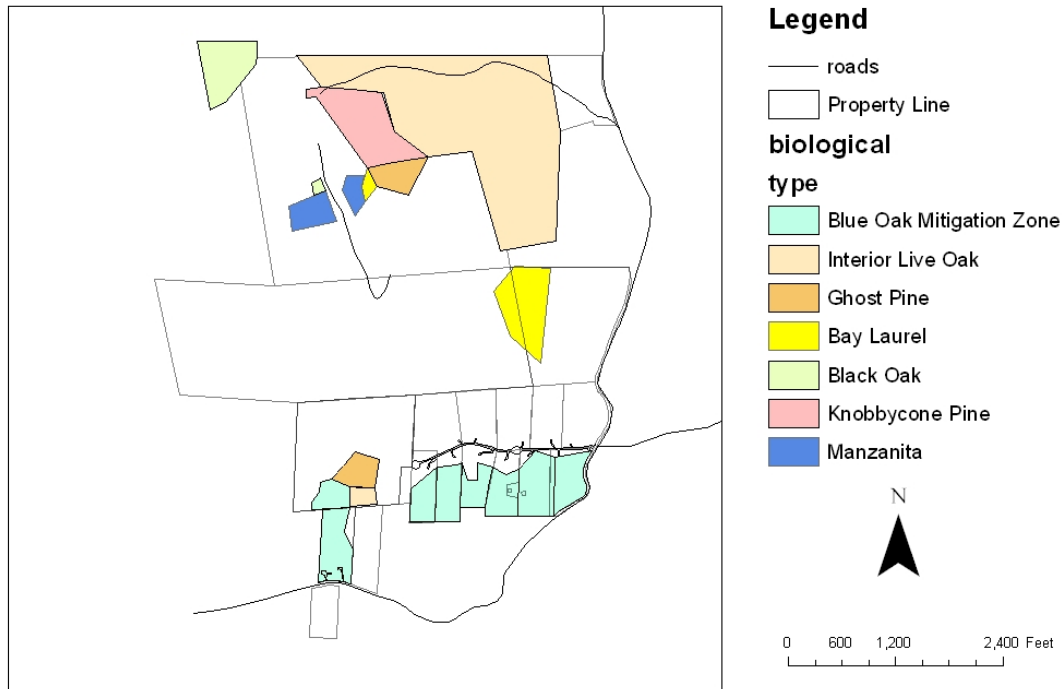
The boundary of the oak forest is actually shown on the deeds of the property. The following map shows the area of the oak forest relative to the entire subdivision.

Oak Management Area



The next map shows several of the additional sylvan areas on the neighboring parcels adjacent to the subdivision. This provides an understanding of how varied the forested land is in this area. The local area has a significant number of local ecosystems.

Sylvan Areas



The remainder of this area is mixed brush or mixed forest.

How do we protect the oak forest?

The protection of the forest can be segmented into two parts, which we will deal with separately. First, you need to allow for replacement trees to grow. And second, you need to make sure not to adversely effect the mature oak trees. Oaks do not need care in order to be healthy. However, there are some development activities that are known to adversely affect them. Therefore, these specific activities should be limited in the drip zone around the mature trees.

Replacement Trees

Oaks grow from acorns. There are several ways new trees may start growing. The easiest way to start a new tree is to do nothing. This may seem odd, but nature is quite effective at replacing the trees if competition is not too great. Birds, such as stellar jays, will eat the oak acorns. As part of this process, their beaks will often push the acorns into the ground and they will germinate. The following spring, a new oak seedling will come up. This is probably the best way to start new trees because these are native oaks that are adapted to the local area. The following pictures show blue oak seedlings.



Blue oak seedlings

Around most mature trees, assuming sufficient sunlight, you will find seedlings. These seedlings could be transplanted to other sites or simply allowed to continue growing into a replacement tree.

In order for the seedling to have an increased chance of success, it is necessary to place an enclosure around the seedling to prevent grazing by other animals. The seedlings are usually eaten after they start growing by either ground squirrels or deer. In the spring, the deer have plenty of green grass to forage on. As the summer progresses, the oak shoots will remain green after the grasses become brown and die. At that time, they are particularly vulnerable to deer foraging. The following chart shows two protective coverings, which could be used.

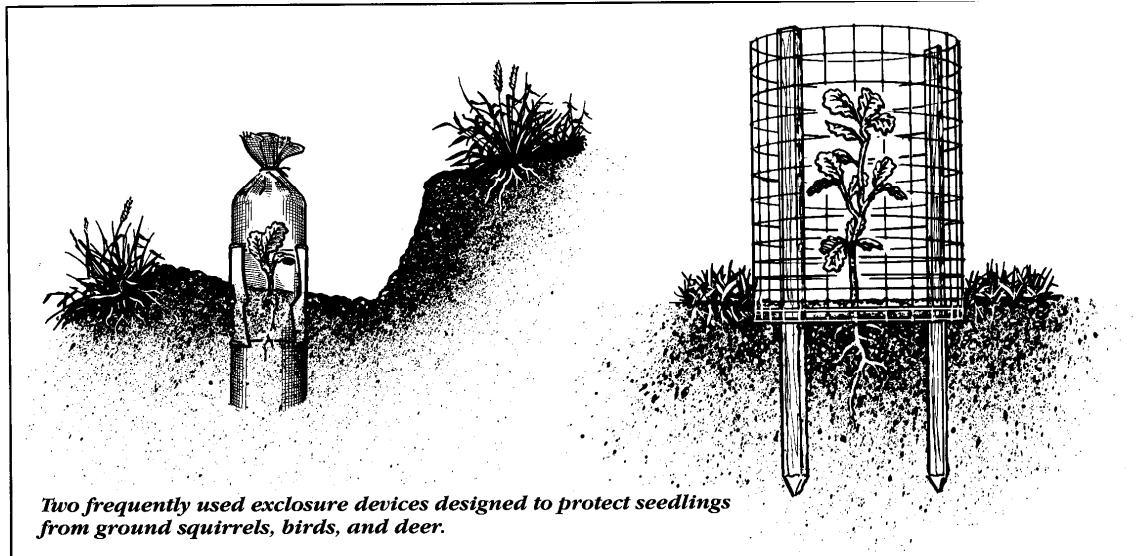


Chart from "Living Among the Oaks", Division of Agriculture and Natural Resources Publication #21538

If you walk around the oak management area, you will often find blue oak seedlings that grow during the spring, but then are overgrazed later in the fall. The following picture shows an example of such a seedling.



Overgrazed blue oak seedlings in need of protection

If an enclosure is placed around either of these trees, then they will begin to shoot higher and establish a primary trunk. Enclosures can also be made out of natural elements, such as sticks and brush piles. The following picture shows two blue oaks growing out of such an enclosure.



Blue oak seedlings in a natural protective barrier

(Unfortunately the likelihood of this seedling surviving until maturity is low because of the brush pile retaining high moisture content of the soil causing root rot.)

It is easy to notice how different these seedlings are from the overgrazed pictures. Each of these seedlings has already started to create the shoot that will become the primary trunk of the tree.

In order to establish the replacement trees required by the plan, a survey of potential replacement trees has been taken. It has been determined that approximately 177 replacement trees need to be protected. As a requirement of the plan, these trees will receive an enclosure for protection. It is our estimate that this will allow a success rate of new growth in the oak management area exceeding the loss of trees from development. In the future, homeowners are encouraged to find oak seedlings and protect them so those additional trees will grow in the oak forest.

Building Envelopes and Replacement Trees

The conditions for the final map of the subdivision require that if building envelopes are created, as they have been, that 60% of the blue oak trees be retained. The trees that are inside the building envelope and may be removed since they will have replacement trees planted at a ratio of 3:1. Based upon the envelopes that have been developed for the Oak Mitigation Area, the following census of trees has been taken. A map for each lot is included in the appendices.

Lot #	Total # of Trees	Trees inside building envelope	Seedlings With grazing Cages	% trees retained
1	45	7	21	85%
2	49	1	4	98%
3	115	5	21	95%
4	106	6	5	94%
5	79	3	31	96%
6	126	6	23	95%
7	226	5	20	98%
8	235	6	75	97%
Total	981	39	180	96%

As part of the survey, potential seedlings, which can be used for replacement plants, were also surveyed. The survey determined that there are approximately 300 seedlings that may be used for replacement trees. The biologist prefers to use existing seedlings that have already sprouted as replacement trees. These acorns have already been genetically adapted to the site; the acorn has shown its ability to sprout, indicating good genetic material; and the acorn has shown its preference to the site. The feeling is that these seedlings will establish a higher rate of survival as opposed to nursery stock. In addition, the seedlings are positioned in such a way as to provide diversity to the age of trees in the forest. In order to protect the seedlings, a cage will be placed around the individual seedling or groups of seedlings to prevent them from being eaten by deer or other herbivores (as discussed above). The cage will be kept around the seedling until it reaches a height of 6 feet, which makes it higher than grazing height. While an effort

will be made to use replacement seedlings that are on the same lot as the tree in the lots building envelope, this is not always possible. Lot 4 lacks sufficient replacement seedlings. Therefore, replacement seedlings will be used from other lots. In addition to trees in the building envelopes, 20 trees were removed for development purposes. An additional 60 seedlings have been caged to mitigate this.

The cage around the replacement seedling will be at a height of 36 inches, or higher. A wire mesh will be attached to two stakes to secure the protection in place. In places where a group of seedlings exist, the mesh will extend around the entire group of seedlings rather than individual seedlings. We believe this will assure a high rate of survival among the seedlings and satisfy the tentative map conditions for a 3:1 replacement.

Oak trees that are within the building envelope may be cut down as required by development. Oak trees outside of the building envelope are prohibited from being cut down.

Drip Zone Restrictions

The only other significant restriction in the oak management area relates to the drip zone. There are two activities that can have a negative impact on a mature oak tree. The first is summer watering in the drip zone. The oak tree has adapted to the Mediterranean climate that we have in this area. Therefore, it does not need nor want watering of the drip zone during the summer months. By doing so, the tree becomes susceptible to disease and is weakened. Therefore, a tree that has a diameter in excess of six inches should not be watered except for normal rainwater. You want to be careful that, if irrigation systems are in use, that the area under the canopy is not watered. Smaller trees and seedlings generally do benefit from some summer watering.

There are a couple of additional points the homeowner should consider with respect to water in the drip zone. First, oak trees are very specific to the site that they live in. This is one reason why summer watering is so bad for them. Therefore, it is important to consider the drainage area around the tree. The natural drainage in which the tree developed should remain viable. Be careful that landscaping or earthmoving do not effect the area around the oak tree. It is possible for these types of activities to modify the subsurface flow of water both to and away from the tree. This could have a negative impact on the drip zone of the tree. For example, significant irrigation in an area higher (land more elevated) than the tree could drain subsurface into the drip zone even though the water itself was not originally discharged in the drip zone. This is especially true since the water will travel along the hardpan layer. These factors should be considered.

Second, be careful not to allow ponding in the drip zone of a tree. Sometimes development activities have unintended consequences. For example, grazing animals might dig out an area under a tree to make the earth cooler. This type of activity might create ponding areas under the tree. This would impact the water uptake in the drip zone

of the tree. As such, it would be a violation under this plan. If you see ponding under a tree, that area should be filled in to encourage drainage away from the tree.

The second significant activity that can affect a mature tree is soil compaction. If there is a great degree of soil compaction, it is difficult for water to enter the soil, which minimizes the water uptake available to the tree in the winter. In order to minimize soil compaction, if there is going to be extensive grazing under the tree, a barrier or fence should be placed six feet from the tree to protect the root zone and root crown. Another way of doing this is to move grazing animals to different grazing areas, allowing the grasses under the tree to grow up before the grasses are grazed. The grass roots will help to prevent soil compaction. And by moving grazing animals from area to area, compaction is minimized.

The environment under the canopy of the tree is called the understory. The natural understory for oak trees is grass and small shrubs forming a savanna. It is important that the owners try and protect the savannah around the trees. The grasses and shrubs have a significant impact on water uptake and in preventing soil compaction. They also provide habitat for birds and other animals that are critical to the oak regeneration. Therefore, that natural grasses and shrubs should be maintained. The following chart provides a list of native California plants and shrubs that are compatible with oaks. The variety of what might be grown is quite impressive. This chart comes from “Living among the Oaks.”

Shrubs Partial Shade

Carpenteria Californica, Carpenteria
Ceanothus species: Wild lilacs *C. griseus*, *C. thyrsiflorus*, *C. maritimus*, plus cultivars: *C. Joyce Coulter*, *C. Ray Hartman*.
Cercis occidentalis, Western redbud
Cercocarpus betuloides var. *blancheae*, Mountain mohogany
Eriogonum arborexens, Sanga Cruz Island buckwheat
Garrya elliptica, Silk-tassel brush
Heteromeles arbutifolia, Toyon
Mabonia species, Barberries and Manonias: *M. amplexans*, *M. dictyota*, *M. fremontii*, *M. Haematocarpa*, *M. higginsiae*, *M. pinnata*
Prunus ilicifolia, Holly-leaf cherry
Rhamnus Californica, Coffeeberry
Ribes species, Gooseberries: *R. aureum* vr. *Gracillimum*, *R. malvaceum*, *R. speciosum*, *R. sanguinium*, *R viburnifolium*
Rosa californica, California wild rose
Rosa Californica, “Plena” double California rose
Salvia clevelandii, San Diego wild sage
Salvia leucophylla, Coastal white sage

Shrubs Full Sun

Fremontodendron californicum mexicanum and cultivars, Fremontia, Flannel bush, “California glory”, “Pacific sunset”

Galvesia speciosa, Island snapdragon

Lupinus albifrons, Silver bush lupine

Lupinus chamissonis, Chamisso bush lupin

Mimulus aurantiacus, Bush monkeyflower

Mimulus puniceus, Red monkeyflower (This is an interesting plant. It concentrates sodium chloride and other salts available in the soil into its leaves and stem tissues. Therefore, early settlers would put the flowers on wild game when cooking as a salt substitute.)

Penstemon clevelandii, Cleveland’s penstemon and other species

Romoneya coulteri, Matilija poppy

Ground Covers

Baccharis pilularis subsp. *Pilularis*, dwarf coyote bush

Ceanothus griseus var. *horizontalis*, Carmel creeper

Ceanothus maritimus, Hoover ceanothus

Ribes viburnifolium, Catalina currant

Evergreen Herbaceous Plants

Dryopteris argula, Wood fern

Eriogonum umbellatum var. *polyanthum*, Buckwheat (In 1918, over one million acres of buckwheat were harvested in this country.)

Heuchera maxima, Giant alum root

Iris douglasiana and hybrids (These are found blooming in the spring around the property. Here is a picture of one on the property.)



An iris growing in the wetlands area

Viguiera deltoidea var. *parishii*

Deciduous or Annual Herbaceous Plants

Clarkia species, Clarkias

Collinsia species, Chinese houses

Dodecatheon clevelandii, Shooting stars

Eschscholzia species, poppies

Montia perfoliata, Miner's lettuce (During the gold rush, the miners would eat this plant because it was high in vitamin C, so it would prevent them from getting scurvy.)

Nemophila Menziesii, Baby blue eyes

Oenothera species, Evening primrose

Sisyrinchium bellum, Blue eyed grass (This is found on lot 7 and lot 8, here is a picture.)



Viola pedunculata, Yellow pansy

Zauschneria californica, California wild fuchsia

Bulbs

Brodiaea, species and related genera: *Dichelostemma pulchellum*, *Tritileia laxa*

Calochortus species, Mariposa lilies

Chlorogalum pomeridianum, Soap plant (The juices from the bulb form a lather when mixed with water. Many locals feel it to be helpful with poison-oak rashes. The bulb has many medicinal purposes.)

Lilium pardalinum, Leopard lily
Trillium chloropetalum, Common trillium

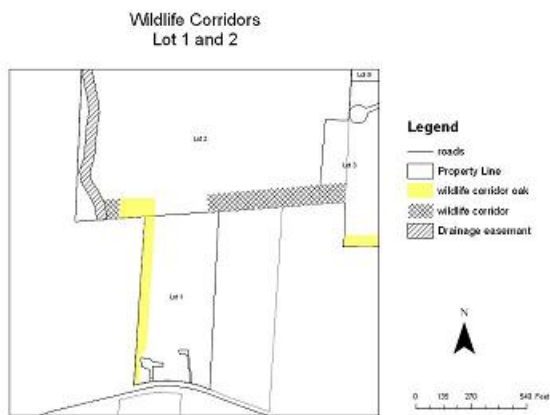
Wildlife Corridor

Another condition of the Oak Management Area is the existence of a wildlife corridor. For lots 3 through 8, the area along the southern boundary line of the property, extending for approximately 50 feet, is considered to be a wildlife corridor. This means that this section of the property should allow for the flow of wildlife throughout the oak forest. Specifically, deer fencing is not allowed in this section of the property. Fences that are ornamental and allow for wildlife to pass easily are allowed.

It should also be pointed out that there are setback requirements in the building codes for development from natural drainage ways. Lot 5 has a drainage path flowing through it. As such, this drainage way should also be considered part of the wildlife corridor.

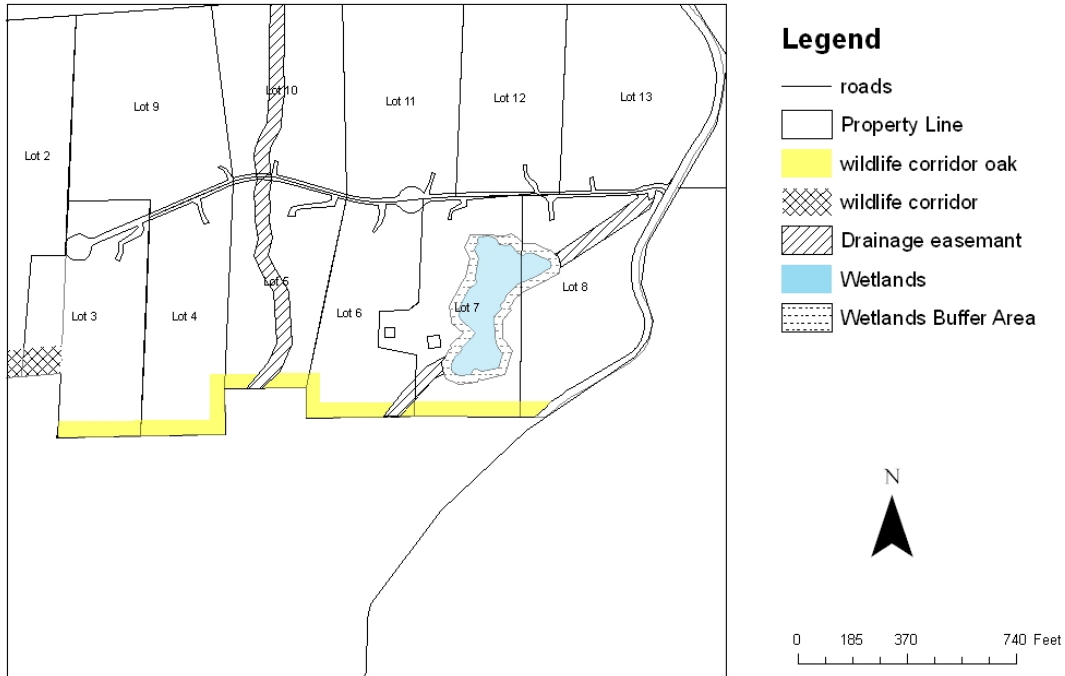
On lots 1 and 2, the wildlife corridor is designated to run along the western boundary of lot 1 until it reaches lot 2. An area of approximately 30 to 50 feet, depending upon existing structures, should be left clear of deer fencing so that wildlife may pass easily through the property. This corridor will continue along the southern boundary of lot 2 until it reaches the natural drainage corridor on that parcel. This drainage pathway will be a natural wildlife corridor.

The following maps show the general location of the wildlife corridor.



Map showing the wildlife corridor on lots 1 and 2

Wildlife Corridors Lot 3 through 8



Map showing wildlife corridor on lots 3 through 8

Compatible Uses

While the Oak Management Area does place restrictions on the use of the property, there are several compatible uses. Historically, the most prevalent use was for animal grazing and wildlife production. As is discussed elsewhere in the plan, this use requires some consideration to pasture management to prevent over-compaction of the soil and proper drainage for the oak trees. Also, since grazing animals will eat the acorns, special attention needs to be given to oak regeneration. Typically, seedlings need to be caged to prevent grazing by the animals. Oak seedlings can be transplanted to the area as well, though the success rate is not as good as for naturally occurring seedlings.

Another common use is fruit, olive, or nut production. Many fruit trees, olive trees, and nut trees will grow well in proximity to oak trees. The major consideration here is to make sure the newly planted trees do not crowd out the oak trees. Also, leave space for oak seedlings to regenerate as well. In many areas of the woodland, there is an abundance of open pasture that could be utilized in this way.

The publication “Living among the Oaks” and “Wildlife among the Oaks” suggest the following compatible uses, in addition to the ones already mentioned.

- 1.) Firewood cutting. Firewood cutting is done by trimming branches off of mature tree, which will open up the canopy and allow for additional growth. Branches with a 6 inch diameter should be kept unless they have died naturally. You should never trim more than 10% of the branches on a tree.
- 2.) Game resources, such as deer, quail, band-tailed pigeons, and wild turkeys
- 3.) Christmas tree farms.
- 4.) Specialty or nursery crops,
- 5.) Hunting, and
- 6.) Recreational uses, such as bird watching and horseback riding.

Conclusion

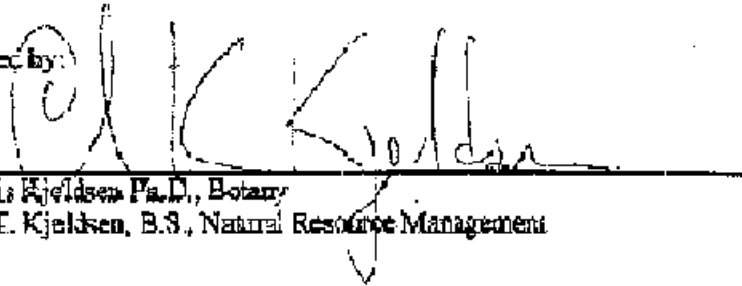
The restriction on the use of land in the oak management area are simple.

- 1.) No trees may be cut down outside the building envelope.
- 2.) Keep the cage around protected seedlings until the trees have had a chance to grow to six feet or higher, above the grazing zone of foraging animals.
- 3.) Try and protect seedlings that might get established for future forest regeneration.
- 4.) Do not water in the summer time in the drip zone of a mature oak tree.
- 5.) Do not cause excessive soil compaction under an oak tree.
- 6.) No trenching or digging under the drip zone of an oak tree.
- 7.) Maintain large trees in riparian areas for nesting and roost sites. Maintain natural stream flows.
- 8.) Maintain an unevenly aged woodland.
- 9.) Avoid ponding or changing conditions due to cuts and fills. Install permanent berms or barriers if necessary.
- 10.) When cutting firewood, leave seedlings and saplings to ensure replacement. Never remove more wood than can be added by growth. Typically, this means that the tree canopy should be trimmed no more than 10% of the tree and larger trunks should be maintained. Thinning should consider the woodlands long term regeneration capabilities. Supplement natural regeneration with planting as necessary. No cutting in riparian areas without County approval.
- 11.) Graze the woodland only moderately to reduce competition and retain natural diversity of the understory. Manage grazing to leave understory vegetation. Reduce grazing disturbance during the fawning season and exclude cattle from known fawning areas during spring to late summer.

Prepared by:

Phil Ownbey, Developer of Red Mountain Ranch Subdivision

Reviewed by:

A handwritten signature in black ink, appearing to read "D. E. Kjeldsen", written over a horizontal line.

Dr. Chris Kjeldsen Ph.D., Botany
Daniel E. Kjeldsen, B.S., Natural Resource Management

Date: May 31, 2009
