CCRC Fall Membership Meeting
Thursday, October 20, 2011
Vaquero Farms, Morning Session
D. Rao Notes, Reviewed and Edited by Gareth Fisher

Duane Martin Jr., Rancher

Duane gave a brief history of Vaquero Farms Ranch. Mr. Souza bought the original part of the ranch where the Contra Costa Water District (CCWD) office is now. The ranch was purchased at that time for maybe $35/acre. When the dam was built, the ranch headquarters was moved. Duane bought the cow herd and leased the ranch in 1997 from Mr. Souza. Previously, there was a mix of private and public land. Now it is all public land in the area. Ranching worked well when there was a mix of private and public land, which allowed for more flexibility. Now that it is all public land, ranching is still feasible, but the rancher has to adjust to new requirements and goals.

David Amme, Wildland Vegetation Program Manager, East Bay Regional Parks District (EBRPD)

David gave an overview of EBRPD grazing lands. EBRPD owns 100,000 acres in 2 counties, and has 36 grazing tenants. EBRPD's mission is to be a steward of the grasslands, including enhancing native species and reducing invasive species using livestock where possible. Human visitors, cattle, and sheep all share the parks, which can be a challenge. EBRPD has been acquiring a lot of land. When they acquire a piece of land, sometimes they keep the existing rancher and sometimes they hire a new one. EBRPD uses a grazing license that has been improved over time. For the last 5-6 years, David has been adding water troughs to various parks so he can divide up the land into multiple pastures. He likes to have 3-4 pastures and rest at least one pasture during each growing period. They typically use cow/calf operators, which gives the park more flexibility.

Denise Defreese, Park Supervisor, East Bay Regional Parks District (EBRPD)

Denise described how she works with the livestock tenants. She is relatively new to grassland management and has learned a lot from the tenants. She has learned that you need cross fences if you want better utilization and that grass stays green longer on the west side because you have more fog.

Sometimes park visitors complain bitterly about cow pies or trails that are pock marked in winter. When she gets these comments, she asks these visitors if they enjoy recreating in the park's grasslands then lets them know that only 10% of the area grasslands remain and it's the cattle that help maintain the grassland. When cattle were pulled off a lot of the east bay in the 1960s, a lot of the grasslands were lost.

Denise has forged positive working relationships with several ranchers. For example, one tenant liked to build ponds and said that it's important to have ponds in high and low areas, sprinkled throughout the landscape. They did a mitigation pond together which

was good for the cattle operation and benefited special-status species. This was a win-win situation.

The tenant at Briones worked with Denise to determine the number of animals and how to move them. Together, they met every goal, including reducing invasive weeds and promoting perennial grasses. The tenant was new and he liked communicating and managing the land. He was the first to notice medusahead on the property. They worked together and got a pesticide applicator to eliminate the medusa head. She was able to form a strong alliance with the tenant, which has helped them reach their goals.

Denise went from Briones to Vasco Hills, which is 14,000 acres across 6 parks with 6 grazing tenants. All but one of those tenants run cattle, with one running sheep. Duane Martin Jr. is one of the tenants and Denise has learned a lot by riding around the park with him. She was able to ask Duane why the area is so productive, how many animals would be needed to graze, and what the historical management of the area has been. Ranchers know the land better, are managing the land well, and have the same goals as the park. Alliances need to be formed to reach management goals.

Sometimes the park needs to make changes for the rancher. For example, the sheep rancher, who is extremely cooperative, had to report to several managers about his operation. This seemed unnecessary and he asked if he could have just one person to report to. Denise was happy to comply to make communication easier for the rancher.

It's important for ranchers to achieve the goals identified in the grazing plan, but there have been some violations of grazing plans. There have been a few cases where ranchers consistently do not meet their contract or a gross violation of the contract has been made. In these cases the ranchers are no longer allowed to graze park lands. A request for proposals is sent out and EBRPD interviews for a new tenant. During these interviews, Denise has seen that there are a lot of good ranchers coming up who want to manage for the same natural resource goals as the park. Younger ranchers tend to be more interested in working more closely with the parks on conservation projects.

"Let's be good to each other. We're all working on this." - Denise Defreese

<u>Questions for Denise</u>
Q1 - Grazing is represented well as a tool in grazing plans, how can we do a better job of getting rancher knowledge acknowledged?

A1 - There should be recognition - one way would be to interview current or previous ranchers and incorporate their knowledge into the grazing plan. The ranchers know where the weeds are, where they are coming from, and when they arrived. Ranchers are talking to each other and keeping each other informed. This knowledge should be included.

Q2 - Are there any conflicts between the public and cattle at EBRPD? Is there any horse grazing?

A2 -There is not much horse grazing. Yes, there have been conflicts between cattle and visitors. Denise is constantly educating visitors about cattle grazing. One visitor was so scared of the cattle she hid inside a stock pond exclosure with her barking dog. Denise had to explain that yearlings are like teenagers. They are curious and get excited about unexpected things, like someone wearing a blue backpack. Denise walked through the group of cattle slowly to show the visitor that the cattle will move away. There have also been incidents of dogs chasing cows. One time a dog was head-butted by a cow. Tenants will remove any problem cattle or exclude cattle entirely from high use areas or at high use time periods.

Q3 - You said what you don't want, but what do you want and why? What are you managing to?

A3 - The mission is to manage for biotic diversity, including special-status animals (e.g. California red-legged frogs, California tiger salamanders, and kit foxes) reduce invasive weeds, reduce fuel, and maintain an aesthetically pleasing landscape. There is some inherent conflict between these goals.

Gareth Fisher - Graduate Student, UC Berkeley

Gareth received a small grant from the Midpeninsula Regional Open Space District (MROSD). With the grant he conducted interviews that were between 1 and 4 hours and did a literature review. His next step is to produce a technical paper based on this research. The title of his talk was "Working towards Conservation Objectives on Rangelands - Global and Local Perspectives in the Age of Regulation."

There were three main themes in Gareth's talk:
1) The Knowledge Deficit and Cultural Cognition
2) Traditional Ecological Knowledge
3) Regulation and Innovation

A lot of people have been organizing around rangeland health and seeing the benefits of grazing. However, there is not always agreement on how to manage rangelands. Managers, scientists, and agencies agree that there are measurable values from grazing and that grazing can benefit several special-status species, including burrowing owls, California red-legged frogs, and butterflies. At a Walnut Creek development, the homeowners demanded the return of cattle to reduce fire hazard. In addition to these ecological benefits of grazing, ranchers chase off vandals and pick up trash among other things that are a significant to service to society and which often go unnoticed and are not paid for.

Knowledge Deficit and Cultural Cognition

There is a hypothesis that if the public knew more and had more information, then better decisions could be made. Research has shown that more information is not necessarily better. Different people have different values and sometimes people protect their own values above knowledge. A message will be received differently depending on how the

message is delivered and who delivers it. People are often more likely to accept a message if it is delivered by someone with their same values.

Traditional Ecological Knowledge
Ranchers are constantly monitoring. The data may not be written down, there may not be a formal data collection method, but they measure what is important to their operation and use that information to make management decisions. Traditional ecological knowledge informs these decisions with the substantial input of their long-term experience and close familiarity with the land they use.

Ranching in the 21st Century is more complex than in the past, but there is a lot that is still done by "feel". Some ranchers are now measuring ecological and economic variables on their ranch and are finding that the way they were operating before was remarkably similar to what their new quantitative measurements indicated.

Here are some questions to consider in light of the concerns of ranchers and agency managers: What is a healthy rangeland? The answer is different depending on an individual's background and perspective. How can management concerns be reconciled with science when decisions might need to be made before data is available or if ranchers are skeptical about science, or when you need to make a decision on the fly?

Regulation and Innovation
Regulation is currently a hot topic in and a potential hindrance to agriculture. Ranchers are frustrated because there are a lot of regulations and the regulations are vastly different between agencies. Innovation is important and can be promoted when all parties communicate effectively, have mutual trust and respect, and when ranchers are allowed to have long-term leases which make them feel more secure and willing to make modifications and innovations.

<u>Questions for Gareth</u>
Q1 - Were there any surprises from your interviews?

A1 - There is more collaboration between agencies and ranchers now than previously, but there are still some things that need to be worked out. Many ranchers didn't know if they were doing a good job. Different people have different perspectives about what is considered a good job. From conversations it seemed that what constitutes success for an agency range manager and a ranch could be completely different, sometimes making positive reinforcement a challenge.

Q2 - Did you get feedback from ranchers on how they felt about the interviews?

A2 - People love to share what they do and have it be brought into a public forum.

Q3 - Biological capacity of rangeland health is a critical issue. You noted that the understanding of biological capacity of rangeland health is different between different groups. How did the idea arise? I would like to have consensus on that issue.

A3 – Although it was stated in different ways, this concept rang true with a lot of what different people said. Some people felt that there were different standards for the amount of use the land could sustain – whether it was too high or too low.

Q4 - If I want to explain a new policy or practice to a group of ranchers, I should try to involve other ranchers in the explanation?

A4 - Yes. Who can be the best teachers is important to consider.

Panel Discussion - Vince Fontana, Duane Martin Jr., Joe Morris
Question: What type of land do you lease? What do you produce? What kind of ecosystem services do you provide that could be paid for in the future?

Vince - Vince leases private land and land from MROSD. He has a cow/calf and stocker operation, does some maintenance (e.g. roads, check for thistles, after a storm checks ditches to make sure erosion isn't running down the road). If you don't maintain your property, you can't maintain your cattle. The land looks good because the rancher is managing it.

Duane - Duane's operation is primarily in Contra Costa County, but he also runs livestock through out many of the western states and the mid-west. He has 30 employees. He leases private land and land from EBRPD and CCWD. A lot of work goes into government leases compared to private leases. He grazes the same on all properties. He produces as much cattle as possible with the current technology, including growth hormones or what ever he needs to do to feed people. Duane is a business man and he is always learning. If there's an issue related to riparian areas or something else, he needs to know what the agency wants and he'll do everything he can until it becomes uneconomical. His private leases are managed the same as his public leases.

Joe - Joe leases from State Parks and Elkhorn Slough Foundation, both for about 16 years. He also leases land from private families in Santa Cruz and San Benito Counties. Joe's operation produces relationships, change, new thinking, and desirable outcomes characterized by profit for food and housing. He produces food for cows, bacteria, and fungi. He produces a reservoir of water to satisfy drinking water needs for wildlife and people, and solar energy that becomes habitat and food.

Joe has a different way of looking at things from scientists and managers, but they share desired outcomes. State Parks has a lot of yellow starthistle (YST). They desire biodiversity, but have a specific definition of what is included in that biodiversity. YST is not included in that biodiversity. There's lots of money in weed abatement. Cattle don't really like to eat YST. You can get them to eat it, but goats get fat on YST. People are willing to pay to get rid of it. This year was a great growth year, including for YST. Joe introduced goats to State Parks to control YST.

Question: There has been a lot of change from private to public rangelands, especially in Contra Costa County. What do you need from public leases to be viable?

Duane- Cheap rent! Willingness to understand the cattle industry and its cycles. It seems like agencies don't like summer grazing, but where are the cattle going to go in the summer? Now that there are few private ranches in the area and cattle are not allowed to stay year-round on a lot of public leases, cattle need to be trucked farther for summer feed. That increases the carbon footprint. Year-round grazing is the way it should be.

Vince - We're all here to make a dollar, we need to pay rent. Ranchers and agencies need good communication. Ranchers can't install fences, maintain roads, and pay high lease fees and still be profitable.

Joe - Rancher's aren't viable today unless they are doing extraordinary things. To improve relationships we need to work together to determine desired outcomes. Written agency policies can cause problems when they aren't flexible; they are producing worst outcomes. It's important to make desired outcomes more realistic by looking closely at the piece of land being managed.

Audience Questions for Panel
Q1 - It's critical for ranchers to have a private land base nearby public land so there is somewhere for the cattle to go in the summer. How can we maintain the private land base?

A1 - Duane - Previously, it was about 50% private and 50% public lands in the area. That was a good mix because he could open a gate and trail cattle to private land for summer feed. Now it's about 95% public land and he has had to adjust his operation. He has irrigated pasture ranches in the valley set aside for summer feed or when he needs to move cattle out early due to drought.

Q2 - There seems to be conflict between the Eastern Contra Costa County Habitat Conservation Plan and grazing which is a tool to achieve the plan goals. How is that being addressed?

A2 - Duane - Life is always changing. The industry is always changing based on new needs. The need for moving livestock away for summer feed has made the livestock industry less green because of the need for more fossil fuels for shipping animals to summer feed.

Vince - The number of farming acres is way down today compared to the past. Ranchers are running out of places to put their cattle. With less land and more demand, technology (e.g. growth hormones) is needed to feed people.

Q3 - Are conservation easements on private property a necessity, convenience, or just another regulatory issue with more restrictions?

A3 - Joe - The US Fish and Wildlife Service developed a conservation easement program because the future of the Williamson Act is in question. The endowment for purchasing easements was so large it could have funded the entire Williamson Act. Instead of putting land into conservation easements, that money should have gone to fund the Williamson Act.

Duane - In the right situation a conservation easement can be a good thing, but perpetuity is a long time. One benefit of conservation easements is that you can use the money to pay for inheritance taxes. On the other hand, conservation easements can make the land less productive. For example, one landowner put a Natural Resources Conservation Service conservation easement on his land. Originally there were almonds and grapes on the land, in addition to cattle grazing. The almonds and grapes were removed due to the easement and summer grazing was no longer allowed. The number of employees went from 8 down to 1. Also, wetlands were constructed as part of the easement and the landowner was required to ship cattle to other ground during the summer. That ranch went from being very productive to being very unproductive. Conservation easements of that type are wrong for America.

Joe - Conservation easements are another tool. You have to consider the goal. Will an easement lead us to where we want to go?

Q4 - Did you know you had traditional ecological knowledge and how are you using it to advance your business goals?

A4 - Joe - Yes. The land is what we make our living on. If we don't take care of our land, our land won't take care of us.

Vince - Cows take air, water, and grass. If those were not my concern, I would not be in business today.

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Thursday, October 20, 2011
Vaquero Farms, Discussion at Field Site
L. Ford Notes, Reviewed and Edited by Dr. James Bartolome and Dr. Peter Hopkinson

<u>Dr. James Bartolome and Dr. Peter Hopkinson</u>

The Bartolome lab at UC Berkeley worked on a grassland study on East Bay Regional Parks District (EBRPD) lands from 2001 to 2011. They looked at the spatial and temporal structure of the grassland to guide monitoring and management. Nine parks were sampled for 10 years with a total of 50 plots.

Research Review

Scientific information has value, but it doesn't have all the answers to manager's questions. Science often provides basic information about goals for restoration or management tools.

For example -- Soil archive from California: There are microfossils in the soils (called Phytoliths), which plants make by accumulating silica in specialized cells. Grasses accumulate more silica than other plants and in grasslands much of the soil silt fraction is from this source. The Bartolome lab obtained 158 soil samples covering the past 100 years from sites that are currently occupied by grasslands; only 22 samples (14%) had enough total and grass-produced phytoliths to conclude that they were historically grass dominated. Apparently, perennial and annual grasses were not dominant or even common until a few hundred years ago. The sites from which the soil samples were taken were apparently dominated by forbs, shrubs, or trees, which do not leave abundant phytolyths in the soil. These kind of results have important implications for management or restoration goals.

Grazing is useful for maintaining our existing grasslands and avoiding conversion to other vegetation types. The goal of restoring perennial grass dominance may not be appropriate if the site was not historically grass.

Science also tells us it's important to distinguish weather and soil effects from management. Small-scale patterns in soil (smaller scale than NRCS soil mapping units), topography, and weather effects are the most important controls on species composition.

Plot # VC10 - Ungrazed Site

Permanent plot # VC10 is ungrazed and is dominated by purple needlegrass. The Bartolome lab investigated grazing by either sheep or cattle. Vasco Caves had been grazed by cattle for about 150 years by the time it was acquired by EBRPD. Livestock were then excluded. It has now been grazed by sheep for about 10-15 years. After grazing was started again in the whole unit, the park managers reported that purple needlegrass had increased. The Bartolome lab subsequently recommended not grazing the area of plot # VC10 to help better determine grazing effects on community structure. They did not find a strong signal for grazing effect. They think the fluctuations in abundance by purple needlegrass are primarily due to weather.

Sheep grazing is seasonally applied to small (about 40 acre) temporarily fenced paddocks. The residual dry matter (RDM) target is 800 lbs/acre.

When you remove site and weather effects, about 40% of effects remain unexplained. This 40% could include random effects, RDM, and management effects (including grazing). Based on his statewide research, Prof. Bartolome estimates that management's influence on plant species composition and productivity explains about 20% of the variation in composition and production. The role of management is minimal compared

to the uncontrollable factors. We need to understand better the limitations of management.

Based on research from Grey Hayes and Karen Holl, in coastal prairie (on the far coast of California), grazing is an important factor in increasing native forbs. At EBRPD, composition of native forbs was variable across plots and parks.

Sheep are used here by EBRPD instead of cattle at Vasco Caves because they have less demand for water and infrastructure, they can be moved quickly, and they prefer to eat forbs over grasses. There was also a concern that cattle were rubbing off the petroglyphs (a protected cultural resource) at the park. Other sites with purple needlegrass at EBRPD are grazed by cattle. The abundance of purple needlegrass at grazed and ungrazed sites has fluctuated in tandem, in response to weather patterns.

Grazing effects can be measured using approaches based on RDM, replicated treatments, or adaptive observations.

Grazed Site

Near plot # VC10 is a grazed site. Site characteristics (soil type, texture, and chemistry) are important in determining what species grow there. All soils at Vasco Caves are clay soils - "normal" soils. There are no chemically unusual soils, such as serpentine. Based on research at Vasco Caves and other EBRPD parks, the most important element in soil is phosphorus (P). Soil texture is less important for determining plant composition. Sites where natives are most abundant (the native grass purple needlegrass is the most important) have less than 6 ppm P. Sites with more than 6 ppm P are more likely to be dominated by non-native plants. Native species richness is highest in soils with low available nitrogen (high C:N). In addition to soil fertility, other predictors of areas where restoration could be effective are whether or not any native plants currently exist on the site and whether or not the site was historically cultivated (cultivated areas have fewer native plants). Grazing might produce a better response where there is low P.

Following sites over time, looking for micro-sites with perennials, and studying the responses to management are very costly. However, collecting soil chemistry information could result in the manager saving money in the long-run by identifying sites with low P and thus higher potential for native plant restoration, and avoiding sites with high P (also indicated by higher productivity, such as patches of thistles).

Duane Martin Jr. said that Vasco Caves was so hammered prior to being purchased by EBRPD, that anything you do would be an improvement.

Site characteristics that would predict potential to increase natives include the following:

- existing abundant stands of native plants
- no history of cultivation
- low productivity (actual fertility)
- north-facing aspect