

Saturday, September 26, 2009 (file cac239) Revision on 10/23/09

To: Dan Breedon

Fr: Ed Miller

Subj: Critique of the Land Use Element in the second general plan draft & proposed additional studies

Ref A: General Plan draft #2, Conservation and open space plus health & safety elements.

Ref B: <http://www.fgc.ca.gov/policy/p3wild.asp>, Wildlife policies of California Fish and Game Commission.

Ref C: South West Research and U.C. Berkeley Dept of Environmental Science, Modeling habitat for deer, Forest Ecology and Management, Vol 88, issues 1 & 2 Nov 1996 pp 157-165

Ref D: Wikipedia, Craters of the moon national monument and preserve, Study of 300 mule deer in May 1980 by wildlife researcher Brad Griffith of U. of Idaho over a period of 3 years funded by NPS and BLM.

Ref E: Google, Chris Cook & Bill Grey, Biology and management of white-tailed deer pp 57-65

Ref F: Google, [http://www.texas huntfish.com/app/wildlife\\_resources/136/Food-Plots-for-](http://www.texas huntfish.com/app/wildlife_resources/136/Food-Plots-for-)

White-tailed-deer-management

Ref G: [http://www.qdma.com/gdm=herd\\_management.asp](http://www.qdma.com/gdm=herd_management.asp), Quality deer management Association

Ref H: Wikipedia, Lyme disease, including 212 cross references, 5 external links and 6 major studies primarily under NIH direction. This 31 page overview of Lyme disease and related tick borne diseases is a must read for people addressing the problems of health and county government responsibility.

Ref I: [http://en.wikipedia.org/wiki/Giardia\\_lamblia](http://en.wikipedia.org/wiki/Giardia_lamblia), 20 cross-references, 8 links

Ref J: David Carle, Introduction to water in California, U.C. Press 2004

Background: I am concerned that we do not have sufficient backup to justify the allocation of 326,140 acres to the deer herd migration overlay (P59), mapped on figure COS-4 (p208) and described in policies COS-P7.1/2 per Ref A.

Highlights and commentary:

1. Two short paragraphs specify a winter deer herd migration minimum lot size of 20 acres and a critical deer herd management minimum size of 40 acres. The economic impact on large parcel owners is substantial and the potential affect on the health element is even more substantial. . The areas surround Cohasset, Forest Ranch, Concow, Yankee Hill, Berry Creek, Forbestown,

Feather Falls and Clipper Mills per Fig LU4. Note is made that clustering to allow smaller lot sizes provided that non-development areas are protected under permanent conservation easements.

2. Ref B Describes deer management that flows down from the CFG commission " A plan for California Deer, 1976" and plans for specific restoration and maintenance of critical deer habitats by Dec 1, 1985. Research was to be directed toward discovering wild animal requirements on public and private lands. So far I have only been able to find one county in the San Joaquin valley area that was responsive to this directive.
3. Ref C describes linear modeling techniques based on feeding-cover class, site and corridor movement. The complete record can be viewed on Scopus.
4. Ref D describes a specific study at a national monument with an area comparable to Butte County that monitored 300 deer on their summer-winter migration over a period of 3 years. This is a measure of the effort required to seriously address the deer herd management problem.
5. Ref E examined the deer population growth potential based on a logistical equation resulting in a definition of an absolute or reasonable carrying capacity in the eyes of a gaming commission.
6. Ref F by a commercial a deer herd management association describes observations of herds and recommendations for culling.
7. Ref G is challenging subject that needs to guide BOS decision making, I am convinced of the incontrovertible fact that a specific bacterial spirochete transmitted by a particular tick can cause a serious health hazard that must be mitigated. Removal of ticks within 36 hours and stored in alcohol is essential. Rapid treatment with antibiotics based on a classic ring pattern and/or tick analysis is very effective. The fetus of pregnant women is adversely affected during the first 3 months of life by the most effective antibiotic and only an inferior substitute is recommended. The adult tick is a particular problem in our area and its life cycle includes smaller animals and rodents that must also be attacked. Ref 83 suggests that helmeted guinea fowl can hold down the tick population. Ref 149 suggests that absence of deer in small areas of the order of a few acres may cause a rise in tick population that suggests that moderate deer densities of the order of 8 to 10 per square mile may be allowable if only to spread out the tick population. This is in line with the recommendation to pass a light colored flannel flag along walking paths to pick up ticks primarily in the spring and fall and destroying them in a dryer. The presence of lizards in the tick life cycle has shown to be beneficial. Deer densities >60/square mile can lead to a high tick densities and potential incidence of Lyme and related tick vector associated diseases. Blood tests in California made by U.C. Berkeley investigation teams operating out of the Hopland research station have shown that in certain areas in Northern California the majority of the population show antibodies to Lyme disease with a 2% false negative probability. A small fraction of the cases result in serious consequences since the spirochete can penetrate the blood-brain barrier in addition to other major organs and the central nervous system.
8. Ref H reviews the history and life cycle of giardia lamblia/duodenalis a flagellated protozoan parasite that reproduces in the small intestine. Mamalian hosts include cows, beavers, deer and sheep. Common human treatments have serious side effects that are especially acute with pregnant women. Giardia cysts are difficult to treat with chlorination and ozonolysis in potable water systems. Paper filters with < 1 micron pore size have shown to be effective. Dealing with

secondary hosts like pets require careful isolation and sanitation. Routine testing for giardia antigen is not available at most veterinary hospitals and is relatively expensive. Kennels frequently require giardia testing so some testing is performed. Human testing is available at Enloe hospital.

9. Ref J notes that giardia lamblia in the final decades of the 20<sup>th</sup> century is the most commonly diagnosed intestinal parasite in North America. The CDC estimates that 2.5 million cases occur annually. Ingestion of more than 10 cysts will result in a high probability of contracting giardiasis.

Additional deer herd facets that need to be examined.

1. Review the work of the Hopland tick field station library, U.C. Berkeley tick specialists and the federally sponsored tick research facility in Connecticut who are responsible for this class of work. Deer are a vector for propagation of ticks. Many new classes of tick borne disease are being uncovered in addition to classic Lyme disease. At one time iso-contours of Lyme disease were prominently displayed on the wall of the Butte County Development department. Perhaps these maps need to be updated based on the Berkeley/Hopland field work. Mother Earth News carries frequent articles on control of ticks. The message is clear that physical isolation of deer and substantial nearby population densities is required to get a handle on tick based disease. Perception and emotion are major drivers in separating out truth from fantasy. A key figure in the discovery and treatment of Lyme disease, now at John Hopkins now requires body guards per the NY times to protect himself from lunatic fringe elements that criticize his suggestion that the treatment of many long term serious diseases may not necessarily be associated with Lyme disease and hence not eligible for non-experimental treatment by insurance organizations.
2. Examine deer palatability indexes from Cal Poly San Luis Obispo, and other sources to establish the benefits of deer browsing re to wildland fire mitigation. The extensive propagation of Sierra Redwood that is advocated for low crown fire propagation and low water utilization is listed as "high palatability". Providing water and salt licks in remote high fire danger regions may be an element in wildland fire management based on deer browsing.
3. Establish predatory chain effects on man and domestic animal associated with deer populations such as bears and mountain lions.
4. Examine highway safety records re to deer damage to moving vehicles.
5. Determine the feasibility/safety of miticide applicators, reproduction regulators and culling of deer to regulate tick propagation, fecal deposition and stabilize thrifty deer populations.
6. Determine the potential for domestic deer production and distributions on commercial or 4-H /FHA projects. Safety issues involving inspection/treatment and soil compaction re to larger herbivores may need to be examined.
7. What are the obligations for deer herd conservations easements for parcel/cluster organization owners, e.g. browse maintenance, salt licks or water sources or health isolation?

8. Is there historical evidence that modification of random deer corridors to prescribed corridors is effective? Is there evidence that vegetation clumps for nestling protection minimized predation is effective?
9. What is the most cost effective method for monitoring deer distribution and travel corridors?
10. Is there evidence that ideal distribution and travel corridors contrived by man are effective?
11. Can we discover an ideal vegetative cover that will minimize wildland fire propagation, provide a near ideal deer/tick population distribution away from population centers and minimize plant water transpiration?
12. Can we devise a federal land exchange program to assist in optimally locating deer conservation sites or corridors?

Conclusions:

The Deer herd management overlay shown on page 58 and figure LU-4 should be eliminated until such time that we have knowledge that can guide the location and extent of the allocation. The current overlay is based solely on kill statistics that in turn are biased by access statistics and have no general validity. Availability of funds to perform a rigorous study of deer herd management and associated health risks are not likely to be available until after 2030 so there is no justification for consideration of this issue except to recognize that a request for funding of a study might be appropriate.