

MEETING REPORT

20 September 2002 Science Advisory Panel Meeting East Contra Costa County Habitat Conservation Plan / Natural Communities Conservation Plan

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INTRODUCTION

This report serves as the meeting record for the second Science Advisory Panel (Panel) meeting for the East Contra Costa County Habitat Conservation Plan / Natural Communities Conservation Plan (HCP / NCCP). The report was prepared by the chair and facilitator of the Panel. The chair ensured that the scientific views of the Panel were articulated clearly. The facilitator served in an editorial capacity to ensure that the report was clear and responded explicitly to the questions posed by the Habitat Conservation Plan Association (HCPA) Team. All Panel members have had the opportunity to review this document.

The body of the report contains comments from the Panel. Two Appendices are attached. Appendix 1 details responses of the HCPA Team to requests from the Panel for clarification on various issues. Appendix 2 summarizes the comments from the public.

The 20 September Panel meeting began at 1:00 P.M. In addition to four of the six Panel members (Huntsinger, Ertter, Launer, and Orloff), meeting participants included John Kopchik (Contra Costa County); David Zippin, Paul Cylinder, and Ed West (Jones & Stokes); and Erica Fleishman (facilitator). Also present were Rebecca Young (note-taker) and five members of the public (Sheila Larsen, Peter Rauch, John Slaymaker, Jay Torres-Muga, and Mike Vukelich). Panel members Bruce Pavlik and Brian Walton were unable to attend the meeting. Pavlik submitted separate responses to the agenda and meeting packets. His responses, which have been integrated into the appropriate sections of the report, are marked accordingly.

During the meeting, the Panel focused on five sets of issues:

1. Outcomes (follow-up discussion and actions) from the 29 May 2002 Panel meeting
2. Habitat models for 19 covered species
3. Conservation principles for HCP / NCCP development
4. Preliminary biological goals for covered species and natural communities
5. Potential needs for new biological data and planning related to the NCCP Act of 2002

The Panel also addressed a question on sudden oak death posed by the Coordination Group. Following a public comment period, the meeting adjourned at 4:50 P.M.

OUTCOMES (FOLLOW-UP DISCUSSION AND ACTIONS) FROM THE 29 MAY 2002 PANEL MEETING

Responses to the 29 May report

1. It is important to clarify that a higher density of oaks is not categorically better. Increasing oak regeneration or oak density should not be a default goal, but should be based on well-founded evidence of need. The same can be said for ‘reducing stream temperatures’ and increasing brush in riparian areas. The usefulness of these changes for habitat improvement depends on knowledge of the specific site and wildlife needs.
2. A significant and non-arbitrary characteristic of savannah (Reference #2) is that its canopy is open enough to permit significant understory development. In California’s oak woodlands, a canopy cover below 30% usually permits understory development. The percent of canopy cover chosen does vary from author to author and with specific geographic location.
3. The inability to distinguish between native and non-native grasslands (Reference #3) makes it difficult to estimate how much habitat is being lost and how much is being restored. Biodiversity patterns vary as a result of differences in soil type, vegetation associations, elevation, and management history.
4. It may prove impossible and / or impractical to discriminate among grassland assemblages. However, important land cover types with restricted or cryptic distributions, such as rock outcrops, seeps, and some grass associations, potentially could be included in a ‘watch list.’ These features, if found during HCP development or implementation, could be recognized and tracked.
5. Reference #5 implies that agricultural lands only provide habitat for three of the covered species. San Joaquin kit fox should be added to this list.
6. Request for clarification from the HCPA Team

If data on soils and grassland were overlaid, could biodiversity patterns be predicted?

“No Take” Species Memo

1. Consider adding *Cordylanthus palmatus* and *Deinandra bacigalupi* to the list. Both species occur in Alameda County. *Deinandra bacigalupi* was described in 1999, and currently is known from only three populations. Reconsider adding California horned lizard (*Phrynosoma coronatum frontale*) to the list.
2. With respect to Reference #20, caper-fruited tropidocarpum is not considered extinct, although it is extremely rare.
3. Educating and communicating with landowners is important. In the long run, having a more inclusive HCP in terms of covered species is sometimes better. It may be worthwhile to

emphasize that listed species must be considered by landowners independent of the HCP. The HCP is not creating new regulatory constraints.

4. The last sentence on Page 2, paragraph 2 should be amended to read “. . . applicants would therefore have to demonstrate through biological surveys *conducted at the proper time of year.*”

5. Request for clarification from the HCPA Team

Are any participants (municipalities) concerned that the list of covered species is too long?

HABITAT MODELS FOR 19 COVERED SPECIES

Introduction / background

Habitat models serve 2 purposes

1. Estimate the amount of take under alternative conservation strategies. Habitat models have been developed for 19 of the 26 covered species. Estimates of take for all species will be habitat-based.
2. Models are intended to help develop the conservation plan by telling us where species are likely to occur and how likely they are to occur.

Occurrence records were not used to build the models but were used to validate and refine the models. Records were obtained from a variety of sources including but not limited to the Natural Diversity Database, California Fish and Game, East Bay Parks District, and individual biologists.

An HCP can be developed without models. Given the limitations of the models, it is important to assess whether they will be helpful in developing alternative conservation strategies.

Panel comments

1. It is important to emphasize that existing occurrence records were used to validate and improve the models, or as an ‘error check.’

2. The existing models are essentially ‘best expert models.’ Such models are useful if numerous occurrence records exist and many experts are participating in the model building and validation process, but this type of modeling process can be open to errors and criticism. It is important to assess the accuracy of the models and, if possible, to test the models using new data (ground-truthing). In the absence of new data, it would be helpful to somehow assess how well the models performed using the existing data.

3. The habitat models are quite general, and probably represent cautious, conservative expressions required by the incomplete datasets we have to work with.

4. Diablo helianthella probably is not restricted to east-facing slopes.

5. Requests for clarification from the HCPA Team

- a. Would it be possible to send inventory maps to experts on covered species and ask those experts to contribute their knowledge and data records?
- b. Red-legged frogs sometimes occur in drainage ditches and other artificial habitats. Can those areas be identified?
- c. Do the habitat models distinguish between perennial streams and other potential habitat for amphibians? Research has shown that California tiger salamanders spend years in the uplands—sometimes as many as four years—before returning to water to breed. The uplands are much more important to this species than previously understood. In addition, foothill yellow-legged frogs are found in pools as well as perennial streams.

CONSERVATION PRINCIPLES FOR HCP / NCCP DEVELOPMENT

Introduction / background

Conservation biology principles are intended to describe the scientifically-based foundation of the overall goals of the conservation planning process, including creation of a reserve system.

Panel comments

1. Maximum size of reserves is important, but calculations of area also should include an estimate of the percentage of degraded habitat or of habitat quality. In addition, it would be helpful to include a measure of species-level diversity. A location that has relatively high diversity of native species should have a higher conservation value than a similar location with comparatively less species diversity.
2. Proximity of threats including non-native invasive species may be important. An area adjacent to a field covered in a non-native plant species like star thistle should be assigned a lower conservation value than an area that is further from sources of invasive species.
3. Some very small reserves may be necessary to accommodate species that are rare or have unusual resource requirements. To the greatest extent possible, the number of small reserves should be minimized in favor of larger reserves that contain habitat for those rare species. It is easier to manage one reserve than to manage two reserves.
4. It would be useful to acknowledge issues related to corridors, including corridor width and the ecological implications of temporary dispersal corridors versus more permanent corridors.
5. With respect to the map-based versus process-based approach, a purely process-based approach is unlikely to provide the spatially-explicit perspective needed for an effective HCP / NCCP, especially over long periods of time during implementation. Mapping core reserve areas (e.g., existing parks and reserves), with outlying (unprotected) resources of concern, would provide the necessary perspective. When combined with the acquisition / conservation criteria,

the question of what to acquire will not have to be mapped—it will be relatively easy to infer. If this is what is intended by the ‘hybrid approach,’ then the hybrid approach seems sound.¹

6. Request for clarification from the HCPA Team

Will the size of the reserves be sufficient to allow for occurrence of natural processes, such as relatively large and frequent chaparral fires?

PRELIMINARY BIOLOGICAL GOALS FOR COVERED SPECIES AND NATURAL COMMUNITIES

Introduction / background

Preliminary biological goals for covered species and natural communities will be a section of Chapter 1 of the HCP. This section will outline the goals and objectives for both covered species and covered natural communities. All HCPs are required to develop goals for covered species. This HCP includes goals for natural communities as well in order to emphasize that this is a habitat-based plan.

Goals as currently listed are not quantitative, they are qualitative and conceptual. They are intended as first drafts and preliminary targets. At a later stage in the planning process, some goals may be eliminated, and other goals may be refined.

Members of the public have questioned whether reserves established under the HCP will be capable of maintaining viable populations. But for many of the covered species, the planning area only includes a portion of a regional population—creating a reserve to manage a viable population may not be an appropriate goal. In these situations, it may be difficult to implement an appropriate measurement and monitoring protocol to assess whether the goal has been met.

Panel comments

1. The potential for restoring native grassland question is location-specific. In some sites active management would not help restore native grasslands; in other sites a few management changes could make a big difference.

2. The objectives contain many sweeping generalizations about major changes in management that would be difficult and perhaps even risky to implement. For example, “changes in grazing and fire management” are mentioned repeatedly. It might be preferable to alter the wording to “management of grazing and fire.” Changes in grazing and fire management, and how those changes would affect the specific needs of animals and plants of concern, need to be considered carefully prior to implementation. The habitat models do not appear to be linked to any of these potential changes.

¹ Comment submitted by Bruce Pavlik in response to the agenda and meeting packet

3. The draft biological goals are quite general, and probably represent cautious, conservative expressions required by the incomplete datasets we have to work with. However, the apparently simple objectives of “compensating for individuals lost as a result of covered activities” and “conduct experimental management” do not convey how difficult these objectives are to meet in reality (at least with respect to rare plant reintroductions and population enhancements). The research required to support these types of restoration objectives is fairly substantial and includes clearly-focused experiments, expertise, funding and a long-term time framework. These cannot take place on the same schedule as covered activities, so such objectives may sound reasonable from a permitting standpoint but not from a conservation standpoint. An explicit, adaptive management framework will be necessary to provide scientific opinion as to whether such objectives are achievable under existing conditions.²

4. The current objectives are too general to account for variation in the response of individual species to environmental changes. For example, some species will benefit from enhanced recruitment of oaks, whereas others may benefit more from maintaining relatively open areas. In addition, the general nature of the objectives makes it somewhat difficult to comment on objectives for individual species.

5. It may not be possible to assess whether the output of a viability analysis is accurate until 20 years from now. Viability analyses are helpful in the conservation planning process. They generate some useful ideas, but their output should not be regarded as exact answers. Existing population models for some taxonomic groups, such as amphibians, may be helpful for estimating whether reserves for some covered species (e.g., red-legged frog) may contribute to population viability.

6. Requests for clarification from the HCPA Team

a. Are artificial structures considered in the objectives? It is difficult to incorporate stock ponds or other artificial structures into the objectives, but they are important habitat for some species. Ponds that are created for management or mitigation purposes should not be constructed in an existing wetland.

b. How was objective 1i (limit the total loss of streams to less than 5% of the remaining streams in the inventory area) derived? This seems like a good conservative target. Why is this loss limit potentially lower than for other land cover types? The rationale should be stated to explain why a limit was set for wetlands and streams but not for other land-cover types.

c. Is water withdrawal from wells being taken into account? Groundwater withdrawals have led to desiccation of seeps and springs many miles away.

d. Objectives for many plants include “compensate for” and “salvage seed from” individuals lost. This seems to imply transplantation, which may not be effective. It would be preferable not to disturb existing populations.

² Comment submitted by Bruce Pavlik in response to the agenda and meeting packet

e. San Joaquin kit fox rely heavily on ground squirrels as prey. Would it be possible to develop a ground squirrel management strategy that would be compatible with protecting the kit fox and would not upset land owners? Ground squirrels do well in grazed grassland. The squirrels also disturb the soil—this could help promote the spread of invasive plants.

f. The foundation for building the alternative strategies seems solid, but it is difficult to make specific comments because many of the species-level goals and objectives are fairly general and non-controversial. Most of the goals focus on minimization of adverse effects. If our goals include recovery, then objectives should be more specific and explicit regarding ways to promote recovery. Another explicit goal might be avoiding the need to list species that currently are not listed.

POTENTIAL NEEDS FOR NEW BIOLOGICAL DATA AND PLANNING RELATED TO NCCP ACT OF 2002

Introduction / background

The NCCP Act of 2002 contains new requirements for applicants. The initial scope for this HCP was written before the NCCP Act of 2002 was passed. As a result, various aspects of the plan may need to be revised to comply with the revised Act. CDFG must make detailed findings before issuing a permit. As part of the planning process, suggested additions to the HCP in terms of data compilation and analysis are being outlined in order to assist CDFG and to comply with the Act. The Act includes many ecological terms but does not define those terms. Therefore, it is useful to consider definitions at this stage in the planning process. Terms that seem to warrant particular attention are ‘ecosystem function,’ “biological diversity,” and ‘environmental gradients.’

Panel comments

1. The suggested definitions are reasonable. There is no ‘best’ definition for these terms. Ultimately, it is more important to consider how the terms will be measured. It is difficult to separate how the term is defined from how the parameter will be measured.
2. Consider changing part of the proposed definition of environmental gradients, “shifts in physical and ecological parameters,” to “spatial variation in physical and ecological parameters” or “geographical transitions in physical and ecological parameters.”
3. It would be valuable to explore potential ways to map microclimatic variation using GIS.
4. It may be difficult to use watersheds both as a planning unit and as a way to protect ecosystem function. Three potential surrogate measures of ecosystem function—biodiversity, biomass, and vegetation structure—could be considered community-level measures rather than watershed-level or ecosystem-level measures, although all may be correlated with ecosystem function. It would be preferable to focus on measuring the physical processes that affect habitat for covered species, particularly since this is a habitat-based plan. If the plan contains reliable measures of

diversity and abundance, it may be possible to assess those surrogates at the watershed level in order to evaluate whether the system is self-sustaining. Perhaps the degree of active management necessary is an indication of function—the amount of active intervention necessary may decrease as function improves.

5. Consider adding some indicator of human disturbance to ecosystem function in watersheds in addition to extent of exotic species. For example, within a watershed an index of fragmentation (and possible effects on hydrology, nutrient flows, and erosion) would be a ratio of linear road length to watershed area (e.g. km/km²). This could be easily done for paved roads, and perhaps dirt roads, depending on the database fed into a GIS.³

6. Nowhere in the project timeline is there a specific reference to the development of a monitoring program for evaluating implementation of the HCP / NCCP. This is an absolutely essential part of the process (it's in Senate Bill 107), and it may be the most challenging. Evaluating biological goals, data gaps, application of conservation principles, restoration, are all part of the timeline that will depend heavily on the information feedbacks to decision-makers. Monitoring components should be built into the decision-making process at an early stage so that all stakeholders will understand the uses and limitations of different types of monitoring information. We think this will strengthen our vision of how the HCP will actually operate, and this cannot wait for the very end (often rushed) part of the HCP development process.⁴

7. Requests for clarification from the HCPA Team

a. Based on the current definition, how would 'ecosystem function' be measured in the HCP? It will be necessary to choose surrogate measures of function. Suggestions include but are not limited to nutrient cycling, hydrographs, and concentrations of urban and agricultural pollutants.

b. Biodiversity is a vague term—it is difficult to measure. Will measures be focused on vertebrates and plants? Would all covered vertebrates be measured? Would additional vertebrates not included in the plan be measured? It should somehow be emphasized that the goal is to maximize native biodiversity. It may be useful to include non-native species, but these should be considered on a case-by-case basis. Some non-native species are undesirable in the context of the plan's goals and objectives.

c. Will the plan capture vegetational communities that are considered rare in their own right, even if they do not include endangered species? Planning documents should specify more explicitly that these types of communities exist and are worth considering in a conservation strategy.

³ Comment submitted by Bruce Pavlik in response to the agenda and meeting packet

⁴ Comment submitted by Bruce Pavlik in response to the agenda and meeting packet

SUDDEN OAK DEATH

Question

The Coordination Group asked the Panel to comment on sudden oak death. What are the implications of this 'changing circumstance' as we enter into a long-term conservation plan?

Panel response

1. It is not possible to differentiate blue oaks, valley oaks, and coast live oaks using the existing land cover mapping methods. Ground measurements would be necessary. In other words, it may not realistically be possible to model the probability that an area is susceptible to sudden oak death.
2. Both sudden oak death and West Nile virus are likely to affect the planning area during the duration of the permit. The best we can do is to identify those potential changes in circumstances and address them through adaptive management. Detailed speculation on the potential effects of the changes is beyond the scope of this HCP.
3. The principles of conservation biology are designed to mitigate the effects of stochastic events. If sudden oak death becomes a problem in the future, it is something that may need to be considered through adaptive management. But at this point in time it is difficult to take anticipatory action. For example, it is not realistic to preserve all oak woodland that might be susceptible to sudden oak death. Given the duration of the permit, adaptive management is the only viable strategy. Establishing reserves according to conservation principles also provides some insurance against stochastic events. It may not be necessary to address this topic in the HCP.

APPENDIX 1. RESPONSES FROM THE HCPA TEAM TO REQUESTS FOR CLARIFICATION FROM THE PANEL

Outcomes (follow-up discussion and actions) from the 29 May 2002 Panel meeting

• Responses to the 29 May report

Overlaying currently available maps of soil and grassland would not allow for prediction of where the greatest concentrations of native biodiversity would occur. Although there is considerable biodiversity in grasslands, patterns do not necessarily correlate with soils maps. In order to attempt to use the maps in a predictive context, it would be necessary to obtain a finer-grained soil map and overlays of management, land use history, and ground disturbance.

• “No Take” Species Memo

The list includes 26 species, which does not seem excessive. If municipalities are uncomfortable with the list, they have the option of applying for their own permit as opposed to participating in the HCP.

Two categories of species are included on the “no take” list.

- (1) Fully protected species for which the state cannot authorize take.
- (2) Species that are sufficiently rare that any loss of populations or individuals might jeopardize its survival. Under this HCP there would be no take of those species. A landowner not participating in the HCP could apply to CDFG for a take permit, but obstacles to receiving a permit would be substantial.

Habitat models for 19 covered species

- a. Distribution of inventory maps to experts on covered species might be constrained by available time and money. Also, there is no obvious way to assess the accuracy of the data provided. It may be possible for the HCPA Team to compile the data records if the Panel is willing to provide a list of experts and disseminate the materials to those experts.
- b. Channels could be distinguished on the land cover map but not necessarily drainage ditches.
- c. Both perennial and ephemeral streams were included on the land cover map. It was difficult to model habitat for the foothill yellow-legged frog because data on stream status is poor. Streams that were not known to be perennial were classified as low-quality. The documentation of the model will clarify this rationale.

Conservation principles for HCP / NCCP development

The goal is that the reserves will be large enough to manage foreseeable disturbances and provide resilience to stochastic environmental changes.

Preliminary biological goals for covered species and natural communities

- a. Reserves will not be pristine—they will require management. Some land cover types, like ponds, will need more management than others. Different species and natural communities have different management needs. Hopefully this HCP can create a reserve in which management for the different species and communities will not conflict.
- b. There was no firm scientific basis for limiting the total loss of streams to less than 5% of the remaining streams in the inventory area. However, it is very difficult to create a new stream. Building a new stream requires channelization. Quantitative limits for other land cover types may be added later.
- c. Groundwater withdrawal is probably not an activity that could be covered under this HCP. The agencies who approve HCPs do not have jurisdiction over groundwater. It may be helpful to explicitly exclude the activity from coverage under the HCP.
- d. There is ecological uncertainty whether salvage of seeds is effective. Success is likely to vary among species. This question raises the issue of mitigation. In some cases, preservation of existing populations is considered mitigation. It would be worthwhile to consider whether this plan should try to compensate for plants that are lost, and to try to establish another population. Is it worth trying? Some experts argue the probability of success is too low. The objectives might include the caveat “if loss is unavoidable.”
- e. There may be some way to enhance ground squirrel populations to benefit fox, raptors, and other covered species. The plan uses the term “fossorial species.”
- f. Generalities are intentional at this point in the HCP development process, prior to drafting of alternative conservation strategies. The ability to develop objectives regarding recovery varies among species. Measures to promote recovery are implicit in Goal 2 for many species.

Potential needs for new biological data and planning related to NCCP Act of 2002

- a. Higher function for a species might be indicated by an increase in abundance or distributional range. Higher function for a community might be indicated by higher diversity. Potential surrogates may be measured at watershed level. For example, are the headwaters of the watershed protected? Is sufficient land within the watershed protected? Suggested measures of whether ecosystem function is stable or being maintained include water quality and quantity, sedimentation rates, erosion rates, biodiversity, biomass, and vegetative structure. CDFG has not addressed this issue in detail. Instead, the plan needs to state definitions clearly and to explain how assessment criteria were developed. CDFG seems to be focused on smaller planning units than whole ecosystems; they are concerned with goals for each natural community type. Watersheds would be one way of addressing ecosystem function at a larger scale.
- b. To prevent biodiversity from being a vague term in the plan, the plan will describe how the variable is being defined and measured. The plan is likely to focus on vertebrates and plants initially, but the taxonomic focus could be modified or expanded in the future. Potential

measurements include but are not limited to richness, abundance and distribution of native species. It is possible that a subset of a taxonomic group (e.g., vertebrates) would be measured as a basis for drawing inferences about the status of the taxonomic group as a whole. 'Diversity' may be measured as the proportion of land in different cover or habitat types. A few non-native species, such as annual grasses, be an accepted part of the community at this point in time.

c. Rare vegetational communities can be captured in the plan, but the land cover database has been developed within existing constraints. 'Endangered habitat types' can be incorporated into the written plan with respect to how elements of special value or concern are treated as we encounter them. Many of these considerations can be addressed through the adaptive management process. There will be much more in the plan that what is in the land cover database that is being used as a tool for development of the plan.

APPENDIX 2. PUBLIC COMMENT

Outcomes (follow-up discussion and actions) from the 29 May 2002 Panel meeting

1. From a regulatory perspective, covering wind farms in the HCP would be extremely difficult. It is possible that some wind farms could apply for a separate incidental take permit.
2. It is important to clarify that increasing oak density is not always preferable.
3. Species that are listed and not listed are treated equally under the HCP.

Habitat models for 19 covered species

The agricultural community is concerned that the habitat models make numerous assumptions about species occurrence, and that there has been limited ground-truthing.

Consider the wisdom on including these models in the HCP. The models are predictions that may not be acceptable to the agencies. In addition, there is a potential cost overrun on development of the HCP. Moreover, there has been limited field verification of the models. We want the HCP development process to be successful.

Sudden oak death

Trees in drier inland areas like eastern Contra Costa County (as opposed to areas with a stronger coastal influence) may be less susceptible to sudden oak death.

Preliminary biological goals for covered species and natural communities

1. There is a difference between a reserve system that in theory is capable of supporting a species, and habitat in which the species actually is present.
2. Although restoring native grassland may not be feasible on a regional scale, any restoration should be encouraged.

Potential needs for new biological data and planning related to NCCP Act of 2002

1. Agriculture in Contra Costa County does not rely heavily on groundwater. There are two canal systems in the county. As in Monterey and San Joaquin County, groundwater use in Contra Costa County requires permits.
2. Citations to relevant literature concerning these definitions might be helpful for members of the public.

Open comment

1. Some members of the public would like the Panel's feedback on how the process of adaptive management will be reconciled with the NCCP equivalent of federal 'no surprises' provisions.
2. The NCCP Act of 2002 indicates that plans should be based on the best available scientific information. Any opportunity to include information and the expertise of individuals should be pursued.
3. Irrigation districts in Contra Costa County utilize very little of the available water supply because there has been less farming and more construction of housing developments. Perhaps, as a means of mitigation, builders can establish a trust to purchase water and dedicate the water to conservation uses.

Documents

Five documents were presented to the Panel and HCPA Team for consideration during the planning process.

1. A letter, dated 31 August 2002, from Susan Bainbridge (California Native Plant Society) to John Kopchik (Contra Costa County) regarding the draft biological resources inventory for plant communities.
2. A letter, dated 19 July 2002, from Barbara Ertter to Bob Doyle (East Bay Regional Parks District) regarding prioritization of future land acquisition by the East Bay Regional Parks District.
3. An undated memorandum from John Hopkins (Institute for Ecological Health) regarding background documents for the Executive Governing Committee meeting (19 September 2002) and Science Advisory Panel Meeting (20 September 2002).
4. An undated memorandum from David Magney (California Native Plant Society) to John Buse (Environmental Defense Center) regarding locally rare species lists and CEQA.
5. A memorandum, dated 20 September 2002, from John Slaymaker (Greenbelt Alliance) to the Science Advisory Panel regarding biological data and analyses.