

**BIOLOGICAL ADVISORY TEAM
OF THE
SOUTHERN EDWARDS PLATEAU
HABITAT CONSERVATION PLAN**

MEETING MINUTES

DATE: March 11, 2011
LOCATION: Bexar County Ag Extension Conference Room
3355 Cherry Ridge Drive
San Antonio, TX 78230-4818

1. Call to order

Richard Heilbrun (Committee Chair) called the meeting to order at 9:08 a.m.

2. Approve minutes from previous meetings

Tabled until next meeting.

3. Public comments

There were no public comments.

4. Discussion of CAC questions and BAT response

After a few minutes to review a draft response to the County, members of the BAT discussed presentation of their answers based on the subject titles and other basic formatting issues. Richard Heilbrun stated that he was trying to lead the CAC away from comparing the SEP-HCP with other HCP's.

Tom Hayes discussed various things he had sent to Richard Heilbrun to incorporate into the document that were omitted, such as his paper relating to the need for preserve acquisition in Bexar County, a quantitative assessment of HCPs by Harding et al. (2001), and the addition of a reference list. He recommended including a discussion about scientific challenges and he stated that other HCPs have not examined impact assessments, random events, habitat quality and quantity, etc. He recommended the BAT explain that they took these issues into consideration while making their recommendations.

The U.S. Fish and Wildlife Service* (represented by Allison Arnold and Charlotte Kucera) briefly explained the Service's "No Surprises Policy." Changed and unforeseen circumstances should be addressed in the HCP, to help protect the permittee from additional mitigation requirements in the future.

* Official comments from the U.S. Fish and Wildlife Service are reflected in the audio recordings for each Citizens Advisory Committee and Biological Advisory Team meeting. Written meeting minutes from either committee do not represent official Service comments.

Tom Hayes suggested that they include a discussion regarding the failure of deciduous trees and how golden-cheeked warblers are affected, climate change, habitat quality and quantity effects on species survival, and the number of caves that have been filled so far in Bexar County. Andy Gluesenkamp responded that while those things are important to consider, that inclusion in the response doesn't help the explanation and that information regarding the number of caves that have been filled so far is impossible to obtain. Tom Hayes responded that George Veni came up with an estimate of 20-30% of caves have been filled and that the BAT has yet to see a quantification of the status of caves that are known to exist. He expressed concern that the BAT has yet to adequately address the effects of quantity and quality of habitat on species survival.

The BAT discussed how to make the response more concise without losing important detail. Andy Gluesenkamp suggested that they go ahead and approve the draft document before them and then vote to have Richard Heilbrun prepare an executive summary.

Various members of the BAT recommended additional changes to their draft response, such as inclusion of HCP guidelines, Tom Hayes's calculations, further explanation of a 3:1 mitigation ratio, discussion of the Camp Bullis extra conservation measures, adding citations, and the City of San Antonio parks not being bound to conservation easements.

MOTION: Jayne Neal made a motion for the BAT to approve the response as amended and corrected today and requesting that Chair Richard Heilbrun write an executive summary and present it to the CAC. Andy Gluesenkamp seconded the motion. VOTE: Voice vote carried without opposition.

Richard Heilbrun suggested that they address concerns regarding the last CAC meeting before moving into the subcommittee work or updates portion of the agenda. Jayne Neal stated her concern that the CAC was going with straight BAT recommendations, yet some of the numbers plugged into the model were not things that the BAT made recommendations about, such as participation rates. The BAT considered ways to clarify their recommendations to the CAC, such as making a list of their recommendations and asking Loomis to clarify on the spreadsheet what numbers were BAT recommendations. Clif Ladd described how the CAC review process took place at the last CAC meeting.

Members of the BAT discussed the schedule for sending a draft plan to the County without a formal recommendation by the CAC on all the plan elements. Richard Heilbrun reminded the committee that the BAT needs to complete its recommendations, including karst and public access. He asked BAT members if they want to express the opinion to County representatives that the County should allow the CAC to meet as frequently as needed to allow additional time to work through their recommendations before proceeding with sending the draft plan to the County.

Andy Winter responded that the County desires to hear all the CAC's opinions; however, they also want to consider the recommendations made thus far in one complete draft plan. They would like to get a framework on paper first, and then allow the CAC time to review. Richard Heilbrun stated his concerns about that process, stating that such a review process would result only in the CAC considering only what they are given.

5. Subcommittee work or updates

Richard Heilbrun reminded the BAT of various subcommittee recommendations still needing discussion, including Category 3 and 4 species lists, bird management and monitoring, research needs, and resource assessments. He recommended that the BAT talk about these issues at the next meeting.

6. Future Agenda Items






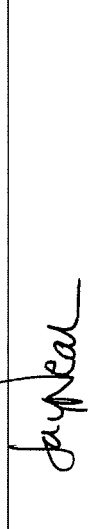
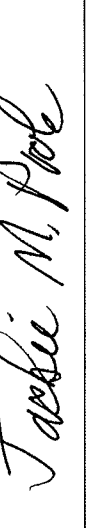

Andy Gluesenkamp asked Richard Heilbrun to send out subcommittee recommendations on species lists to the rest of the BAT.

Tom Hayes requested that a list of recommendations from the karst subcommittee meeting be distributed to the BAT as well.

Richard Heilbrun adjourned the meeting at 11:37 a.m.

BAT MEMBER SIGN-IN SHEET

Meeting Date: March 11, 2011

BAT MEMBERS	
NAME	SIGNATURE (IF PRESENT)
1 Heilbrun, Richard (CHAIR – Texas Parks & Wildlife Department)	
2 Collins, Valerie (Pape-Dawson Engineers)	
3 Dreibelbis, Justin (Texas wildlife Association)	
4 Gluesenkamp, Andy (Texas Parks & Wildlife Department)	
5 Groce, Julie (Texas A & M University)	
6 Hayes, Tom (Greater Edwards Aquifer Alliance)	
7 Neal, Jayne (City of San Antonio)	
8 Poole, Jackie (Texas Parks & Wildlife Department)	

GENERAL SIGN-IN SHEET

NAME	AFFILIATION	EMAIL ADDRESS	PHONE NUMBER
Alison Codd	on file		
Allison Arnold	USFWS		
Charlotte Kucera	USFWS		
Andres Wink	Bexar Co. A		
Judith Green	TPWD		
B Furstengraber	CAC Landowner		
Ken Dield	SAKS		
Mary Kennedy	Bexar Audubon	mbkenned@sbcglobal.net	210-698-2864

Biological **A**dvisory **T**eam

Southern Edwards Plateau Habitat Conservation Plan

EXECUTIVE SUMMARY

The Biological Advisory Team provides this document in response to requests for clarification on BAT recommendations. The questions originated from Bexar County and the Citizens Advisory Committee on Dec 30, 2010.

Regarding the **distribution of mitigation lands**, the BAT recommends that the CAC and plan participants ensure that mitigation lands are strategically located throughout the plan area, including Bexar County. Though HCP guidelines recommend that mitigation occurs as closely as possible to the impact, our recommendation did not indicate a distance from habitat loss, but rather that mitigation occurs anywhere within Bexar County plus an extra 5 miles. This means that 60% of mitigation could occur up to 32 miles from the impact area and the remainder could occur within 95 miles from the impact site. The BAT feels it is important to protect existing habitat throughout the plan area, and not rely on rural habitat alone to prevent harm to the species. Protected habitat in too few blocks, too isolated, or in too small blocks is overly sensitive to population and habitat threats (fire, disease, predators, etc) and may compromise the objectives of the SEP-HCP.

The BAT carefully deliberated over recommendations concerning **mitigation ratios**. Our recommendations were based on the scientific literature, our combined experience in the field, and our professional knowledge of our community, which includes knowledge of threats to the species, and significantly de-emphasizes historical impact to habitat. Our recommendations are not intended to compensate for prior habitat loss, but rather the new loss of habitat that will be authorized by this plan.

The BAT cautions against comparing San Antonio to other communities and other HCPs. Many other communities that have negotiated HCPs have a smaller human population, more available land for development, and less GCWA habitat. Each HCP has a different set of objectives, addresses different threats to the species, and solves different community needs.

The County asked the BAT to propose a new mitigation strategy that would meet minimum issuance standards. It is important to note that regardless of which mitigation ratio the SEP-HCP uses, there will still be a net loss of sensitive habitat. Habitat loss authorized under this plan is gone forever. Additionally, the USFWS is statutorily bound to ensure that there is a contribution to recovery with the issuance of their permits. The BAT feels that the structure of our recommendations allows the CAC to adjust its goals, whether the CAC intended to meet minimum standards or contribute to recovery. This can be done by adjusting the acres of Habitat Take Requested and the resulting acres of Mitigation.

The BAT cautions against comparing the SEP-HCP to the **Camp Bullis** Biological Opinion. Federal installations operate under more strict standards than HCP and have greater management and monitoring requirements. Because the Camp Bullis BO requires that they mitigate for unoccupied habitat, their “overall” or “effective” mitigation ratio is larger than 3:1, and in some cases, could exceed 4:1.

The CAC is reminded that under the BAT recommendations, a potential participant (e.g. a developer) has an important choice that could substantially impact the overall cost of mitigation. In the interest of expediency, a participant may choose to assume occupancy on all forested lands on the property. In this scenario, the developer may get a permit within 3 weeks. Alternatively, if expediency is not necessary, the developer could perform 3 years of USFWS protocol surveys on their project, but would not need to assume occupancy. In this scenario, though the project is slowed, the developer would know exactly how much habitat is occupied, and would only need to mitigate this amount.

The BAT offers 2 areas of **flexibility** for the CAC to consider. First, survey requirements for habitat within Loop 1604 may be relaxed. The conservation value of this habitat is already compromised, and it may be appropriate to accept absence surveys covering fewer than the 3 years traditionally required by USFWS. Secondly, there might be flexibility in the recommendation that the SEP-HCP preserves an additional 25% buffer for GCWA and BCVI mitigation lands.

It is important to note that BAT recommendations were based on scientific knowledge, needs of the species, and several over-riding biological issues concerning the plan. We also substantially considered the practicability of both implementing recommendations and accomplishing objectives. If the CAC has logistic, economic, or political concerns about our recommendations, we strongly recommend they consider those issues and make an appropriate decision based on the totality of their charge. Our charge, both adopted by the BAT members and statutorily imposed, required that we limit our discussions to mostly biological concerns. However, we did not create biological recommendations without also considering the feasibility and practicability of those decisions. We repeat our offer to be available for joint meetings and workshops. Additionally, we are willing to comment on decisions and drafts created by the County and the CAC.

Biological **A**dvisory **T**eam

Southern Edwards Plateau Habitat Conservation Plan

FROM: Biological Advisory Team
 TO: Citizen's Advisory Committee
 DATE: March 28 2011
 RE: Clarification of Mitigation Standards and Recommendations

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Pg 3 Clarification of BAT Recommendations and Response to Questions

Pg 8 BAT Recommendations as approved fall 2010 (karst has since been revised but not finalized)

Pg 14 Bexar County and CAC Questions to BAT 12/30/2010

The Need for SEP-HCP Protected Lands in Bexar County

The County raised concerns that the BAT Recommendation on the location and distance of mitigation is not appropriate for the SEP-HCP (County's Question 2). The BAT considered the HCP handbook, scientific literature, conservation research, professional biological knowledge, and basic biological principles. The HCP Handbook recommends that mitigation be as close as possible to the loss of habitat.

A likely reason for the negative effect of habitat loss and fragmentation on the genetic health of GCWA is the species' high level of fidelity to breeding sites. Urbanization in Bexar County often clears and fragments mature oak-juniper woodlands, upon which the GCWA depends. As is typical of other species of forest birds, the dependence of GCWA on old-growth woodlands and forests indicates a limited ability to disperse across non-forested areas (Harris and Reed 2002). Studies from Fort Hood found many GCWA individuals establish breeding territories within 2.5 miles (4 km) of where they were born (Ladd and Gass 1999). We also know that adult GCWAs will typically settle within 1.8 miles (3 km) of previously used breeding areas (Jetté et al. 1998).

Our recommendation did not recommend a specific distance from habitat loss, but rather recommended that mitigation for Bexar County habitat loss occur anywhere within Bexar County plus an extra 5 miles. This means that 60% of mitigation could occur up to 32 miles from the location of habitat loss. The remaining 40% of the mitigation could occur up to 95 miles from the impact site. We feel this is extremely generous, more than practicable, and well within the HCP Handbook guidelines to allow for flexibility and individual judgment without requiring a case-by-case analysis.

Additionally, the BAT strongly feels that it is important to protect existing habitat throughout the plan area, and not to rely on rural habitat alone to prevent harm to the species. Realizing that there are both biological and political justifications for this, the BAT relied on the biological knowledge that habitat in too few, too isolated, or too small blocks is unacceptably sensitive to population and habitat threats (fire, disease, new predators, etc.) and also wished to ensure that extremely large geographic areas of habitat are not ignored (e.g., all of the habitat in Bexar County).

Impact assessments of random events and of habitat quantity and quality on species survival are the required data analyses that Harding et al. (2001) found most commonly lacking in the HCPs they examined. As one example, the SEP-HCP region's long-term reproduction failures of deciduous tree species important to the GCWA (Russell and Fowler 1999) need to be assessed in terms of habitat effects on GCWA survival and mitigation measures.

Moreover, fragmentation adversely impacts GCWA reproduction within remaining breeding habitat. Reidy et al. (2009) while quantifying the reduction in GCWA nest survival within fragmented habitats and near edges, hypothesized that increased nest loss in these areas is due to an increase in predation. Their concluding recommendation is to protect both urban and rural preserves with greater than 100 ha of

breeding habitat, by reducing both the fragmentation of habitat patches and the amount of patch edge abutting open areas (Reidy et al. 2009).

The suggestion that larger blocks of habitat should be favored over a consideration of proximity to the habitat loss is accurate. The question for the CAC to consider then, is how would they prefer to structure the size and location of preserve lands. The BAT's recommendation is to create several smaller (at least 500 acres of GCWA habitat in size) preserve patches throughout the Plan Area, and to strive to create a limited number of larger patches (focal areas of 5,000-10,000 acres), preferably 1 in each county (except Blanco).

Adequacy of Currently Protected GCWA Habitat in Bexar County

Although GCWA are migratory and may be expanding in terms of population size within the breeding range, gene flow for both GCWA and BCVI remains a concern (Lindsey et al. 2008, Barr et al. 2008, respectively). In an attempt to avoid loss of genetic diversity for GCWA, the BAT feels it is important to protect habitat throughout the breeding range (including Bexar County) so as to maintain adequate gene flow. One study suggests lack of habitat connectivity may result in population isolation for GCWA, which could lead to lower genetic variation in those subpopulations (Lindsey et al. 2008).

In response to Bexar County's Question 3, the important issue is not whether the currently protected lands represent GCWA habitat, but rather whether those lands are truly perpetually protected:

- Camp Bullis could at any time be declared exempt from ESA laws by the Department of Homeland Security
- The City of San Antonio properties are not bound to manage their lands for warblers, vireos, or endangered karst species. Over time, through neglect, mismanagement, or a lack of funding, these lands could become unsuitable for warblers and the conservation value of those lands would be lost.
- Portions of Government Canyon State Natural Area are not bound by conservation easements. Other portions are bound only by aquifer-related easement language, and these areas may be threatened by several factors, including local efforts to create regional flood control structures. In addition, those parts of GCSNA not bound by legal easements for warblers could be annexed by the General Land Office and sold.

It is critical that the SEP-HCP considers only perpetually protected lands as resources that can perpetually provide for the Golden-cheeked warbler. The BAT carefully considered this issue, and felt that "new" habitat loss authorized under the SEP-HCP warrants "new" mitigation. It is unwise to expect a few properties to carry the biological burden of widespread habitat loss. However, we do feel that currently protected lands can provide limited new conservation benefit with the addition of new legal protection. While there are political and logistical concerns with this strategy, we feel that using these properties as anchors for a preserve system and to jumpstart the economics can be biologically justified.

The BAT strongly reminds the CAC that their committee must consider political, economic, biological, and logistical concerns. The BAT provided biological recommendations that we feel were practicable and feasible. However, we would like to clarify that we are very willing to review any changes that the CAC makes to our recommendations and to comment on whether we think those decisions are biologically appropriate. There may be an economic or political need to adjust our recommendations, and it is up to the CAC to find an appropriate solution.

The Role of Population Estimates

Though some progress has been made in assessing habitat extent and presence/absence within the breeding range (e.g. Diamond et al. 2007, Morrisson et al. 2010), data on range-wide status of reproduction and colonization success are lacking, and essentially no population trend data is known for GCWA. In addition, a quantitative link between habitat decline (past and future) and numbers of birds is unavailable for an accurate analysis of the reproduction and colonization necessary to maintain populations. Thus, the BAT feels that estimates of current population size alone are not sufficient to address the issues relevant to the SEP-HCP.

Within the SEP-HCP area, an accurate determination of the relationship between habitat trends and long-term GCWA sustainability may depend upon a monitoring program, which provides a statistically valid measure of actual take and mitigation effectiveness. Linking monitoring and adaptive management through frequent oversight is essential, especially in light of the lack of definitive data.

The BAT reminds the CAC that both the Golden-cheeked Warbler and the Black-capped Vireo were listed primarily due to the anticipated *threats* to habitat loss. Regardless of how many individuals exist, threats to habitat loss and poor reproductive success remain. The recent studies by Texas A&M University are useful in deciding how to address those threats, and where those threats are greatest. However, ultimately the TAMU studies are best used by the USFWS in their decision to downgrade or delist the species. The role of this SEP-HCP process is to minimize the threats so that existing populations can continue to thrive. Only after a sufficient population is documented AND species threats have been addressed can the USFWS reconsider the listing status of the GCWA.

Bexar County Section C

The mitigation ratios framework allows the CAC to choose a ratio based on the CAC's goal, regardless of whether or not the goal is to make a significant contribution to recovery. Mitigation ratios are intended to offset Take of covered species associated with covered activities under the SEP-HCP. Take may be the result of direct effects or indirect effects of completing a covered activity.

Mitigation Ratios & Camp Bullis Biological Opinion

Question 1: The County asked for clarification of the biological rationale for the recommended mitigation ratios. It is important to note that because the Golden-cheeked Warbler was listed due to both a lack of knowledge of population size *and* the substantial level of threats to habitat loss, we must consider several issues. First, we must consider the amount of habitat that historically existed as well as the amount that currently exists. Secondly, we must consider the rate at which GCWA habitat has been and continues to be lost in Bexar County. Other HCPs were written for areas with varying amounts of habitat that needed protection, and substantially different rates of threat to that habitat. Development rates are not as indicative of biological threat as acres of habitat lost over time. In Bexar county, 10,544 acres of prime GCWA habitat were lost in an 8 year period. This rate is alarming, and biologically unsustainable.

It is possible that the County has misunderstood language within the Camp Bullis Biological Opinion. The "extraordinary measures" reference refers to the extraordinary measures of protection and research that Camp Bullis has undertaken beyond their regulatory responsibility. Their data collection methods, karst preserve standards, karst management plan, research projects, and GCWA habitat classification exceed what is required by both Section 10 standards (non-federal HCPs) and Section 7 standards (federal T/E requirements). In return for these activities, they have negotiated different mitigation ratios with the USFWS. If the CAC would like to require such extraordinary measures of either the HCP administrative entity or plan participants, the BAT would make different recommendations for the SEP-HCP mitigation ratios. Camp Bullis spends approximately \$1M annually on their research and monitoring activities alone. We believe that implementing such extraordinary measures in the SEP-HCP would be financially and logistically impractical.

Generally speaking, the BAT recommends against comparing the SEP-HCP to Camp Bullis. Not only are different standards applied to HCPs and to federal installations, but specifically, Camp Bullis is required to mitigate for both occupied and unoccupied habitat. The SEP-HCP will only require mitigation for *occupied habitat*. This means that if a potential participant invested the time and money to perform bird surveys and demonstrated that all or a portion of his property was unoccupied, those portions would not need to be mitigated at all, even if these areas were expected to be habitat by a map, computer model, etc. Because Camp Bullis has added requirements, their "effective" or "overall" mitigation ratio exceeds 3:1, and in some cases, exceeds 4:1.

Bexar County continued to express concern over recommended mitigation ratios in section B of their document. The BAT carefully deliberated over these mitigation ratios and did not arrive at them lightly. Our mitigation recommendations were based on our knowledge of current threats to the species. While we used historic data to arrive at these predictions, we also used our knowledge of our community to identify the level to which local habitat was threatened. Our recommendations are not intended to compensate for

prior habitat loss, but rather to mitigate the current and expected threats to the habitat (which include more than development pressures) as well as estimates of future loss.

When evaluating threats to habitat in Bexar County versus other counties, it is not appropriate to compare growth rates of smaller communities with growth rates of San Antonio and Bexar County. Many other communities that have negotiated HCPs have a smaller human population, more available land for development, and less GCWA habitat. In other words, 5% growth in Bexar County means more sensitive acreage lost than would be lost with 5% growth in Williamson County.

The County asked the BAT to propose a new mitigation strategy that would meet minimum issuance standards. The CAC is reminded that the USFWS is statutorily bound to ensure that there is a contribution to recovery with the issuance of their permits. The BAT feels that the structure of our recommendations allows the CAC to adjust its goals, whether the CAC intends to meet minimum standards or to contribute to recovery. The CAC can adjust the acres of Take Requested and thus the resulting acres of Mitigation required.

There may be some flexibility to the mitigation strategy that the CAC considers. Habitat within Loop 1604 is highly fragmented and provides less conservation value than other habitat patches. It may be possible for participants within these areas to demonstrate absence with fewer requirements, which would decrease costs of participation.

The CAC is reminded that participants do not need to mitigate habitat if they have demonstrated absence. Many participants will want to assume occupancy to save time, but if they are encouraged or choose to perform surveys and document absence on their property, their mitigation bill is substantially reduced.

Other Concerns

The County included some concerns by a CAC committee member. We addressed several of those concerns elsewhere in this BAT response document, but offer the following additional response to a few specific questions.

#10: There are variances made to city ordinances all the time, and loopholes are readily exploited. We can't assume that these areas are in fact GCWA habitat, or that the steep slopes won't be developed. In fact, we recommend that only lands with legal protections be considered as protected habitat. Additionally, these "steep slope" lands are still subject to fragmentation, higher rates of depredation, human incursion, and other habitat stressors. That said, we recognize the importance of private land stewardship in GCWA and BCVI conservataion. However, when addressing the threats to a species in a highly developed area like Bexar County, formal legal protection should be the standard for estimating available habitat.

#11: the BAT feels that buffers are important when calculating preserve standards. However, this biological need may be outweighed by other non-biological considerations. This may be an area where the CAC can find some flexibility and cost-savings.

Summary

It is vitally important to note that the BAT recommendations were based on species requirements, scientific knowledge, and biological issues. We also substantially considered the practicability of both implementing recommendations and accomplishing objectives. If the CAC has logistical, economic, or political concerns about our recommendations, we strongly recommend they consider those issues and make an appropriate decision based on the totality of their charge. Our charge, both adopted by the BAT members and statutorily imposed, required that we limit our discussions to primarily biological concerns. However, we did not make biological recommendations without also considering the feasibility and practicability of those decisions. We repeat our offer to be available for joint meetings and workshops and our willingness to comment on CAC decisions.

Citations

Barr, K.R., D.L. Lindsay, G. Athrey, R.F. Lance T.J. Hayden, S.A. Tweddale, and P.L. Leberg. 2008. Population structure in an endangered songbird: maintenance of genetic differentiation despite high vagility and significant population recovery. *Molecular Ecology* 17: 1-12.

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Morrison, M. L., R. N. Wilkins, B. A. Collier, J. E. Groce, H. A. Mathewson, T. M. McFarland, A. G. Snelgrove, R. T. Snelgrove, and K. L. Skow. 2010. Golden-cheeked warbler population distribution and abundance. Texas A&M Institute of Renewable Natural Resources, College Station, Texas, USA.

Reidy, J.L., F.R. Thompson, III, and R.G. Peak. 2009. Factors affecting golden-cheeked warbler nest survival in urban and rural landscapes. The Journal of Wildlife Management 73(3): 407-413.

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BAT Recommendations for the SEP-HCP Conservation Program

Nov 18, 2010

Some items are presented as (required) and some as (recommended). In the final document, Plan Applicants have an option to specify items as either Requirements or Goals. The BAT makes a distinction thusly.

GCW Conservation Program

Summary:

The BAT recommends that GCW take occurring in Bexar County be mitigated at a ratio of 3:1 (acres of mitigation : acres of take), with at least 60% of the mitigation located within Bexar County or a 5-mile buffer around Bexar County. The remaining 40% of the mitigation may occur elsewhere within the Plan Area.

The BAT recommends that GCW take occurring outside of Bexar county be mitigated at a ratio of 2:1 (acres of mitigation : acres of take). Mitigation for take occurring outside of Bexar County may be located anywhere within the Plan Area.

The BAT recommends that no more than 10% of the GCW conservation credits be generated from public lands that were protected as of November 4, 2010.

Rationale:

Mitigation Ratios – The HCP requires that mitigation must be commensurate with the take, both in size and location. The GCW is experiencing a severe amount of habitat loss in Bexar County and, therefore, the degree of threat to the species is greater in Bexar County than in more rural counties. This higher degree of threat to the species warrants a higher mitigation ratio for take. Habitat outside of Bexar County is less threatened by habitat loss and may not require as much mitigation to offset the impacts of take.

Bexar County Mitigation – To help address the severe threat of habitat loss in Bexar County, it is appropriate to require a substantial portion of the mitigation for Bexar County take to be located in or just outside of the county boundary. This requirement also addresses the community's desire to help protect the mission at Camp Bullis and protect the biological integrity of previous public conservation investments (i.e., Government Canyon and other City of San Antonio preserves). Conserving additional lands that expand and/or connect these currently protected properties is necessary to ensure the long-term conservation value of these properties for the GCW.

Scenarios:

The BAT presents two examples for the amount of authorized take and the corresponding mitigation under the recommended approach described above (see attached Table). The amount of mitigation needed for the plan must correspond to the amount of authorized take. Scenario 1 illustrates the amount of incidental take that might be authorized via the mitigation formula recommended above, if the goal is to achieve a preserve size that represents the BAT's previous recommendation of 85,000 acres. Scenario 2 illustrates the amount of mitigation that would be required by the recommended mitigation formula for a more modest level of incidental take authorization.

1. Mitigation Ratio

- 1.1 Incidental Take of GCW Habitat in Bexar County should be mitigated at a ratio of 3:1 (acres of mitigation : acres of take), with at least 60% of the mitigation located within Bexar County plus a buffer around Bexar County. The remaining 40% of the mitigation may occur elsewhere within the Plan Area.
- 1.2 The BAT recommends that GCW take occurring outside of Bexar county be mitigated at a ratio of 2:1 (acres of mitigation : acres of take). Mitigation for take occurring outside of Bexar County may be located anywhere within the Plan Area.

2. **Preserve Configuration -Definitions of adjacency and contiguity will be provided in a separate document**

- 2.1. *Create preserves composed of individual parcels or clusters of adjacent parcels that include at least 500 acres of GCW habitat. Smaller parcels may be obtained to contribute to the preserve, but no credit is awarded unless the parcel contributes to a block of habitat that is 500 acres or greater (See Figure 1)*
- 2.2. *Prioritize the creation of a preserve system composed of conservation areas for the GCW that each contains approximately 5,000 to 10,000 acres of protected lands, which includes GCW habitat. These conservation areas will likely include currently protected parcels.*

Rationale: Patch size of 500 acres is an important predictor of habitat occupancy (Magness et al. 2006, Groce et al. 2010). Large contiguous patches of GCW habitat are distributed throughout several subregions of the Plan Area, in varying sizes, watersheds, and geologic types. Preserve units on the order of 5,000 to 10,000 acres are achievable and would be sufficiently large to reduce habitat threats, given appropriate management.

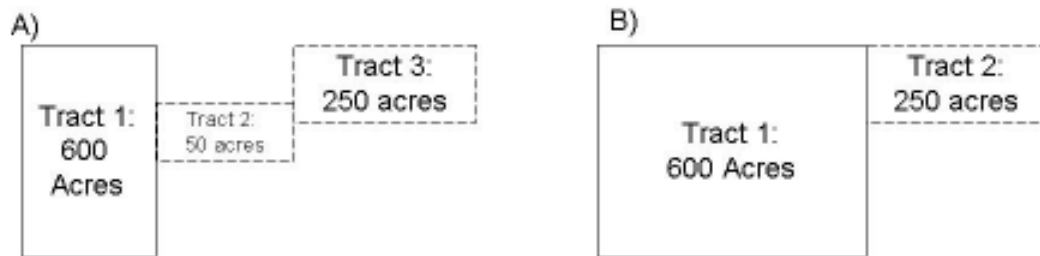


Figure 1. Solid border depicts protected lands with a legally binding conservation easement. Dashed lines represent properties being considered for enrollment in the Preserve. A) Tract 2 and 3 may be purchased at any time for the Preserve, but will not contribute to mitigation credits until the block meets or exceeds 500 acres. Tract 2 is eligible at any time for credit. Tract 3 will not contribute to credit until it is connected to an additional 250 acre block. (In this scenario, when Tract 2 is obtained. B) Tract 2 is immediately eligible for credit because it is adjacent to a block with at least 500 acres under protection.

3. **Preserve Distribution**

- 3.1. Lands mitigated for Take occurring in Bexar County must be mitigated 60% within Bexar County or a buffer around Bexar County (Required)
- 3.2. The buffer for Bexar County mitigation extends 5 miles from the County line. (recommended)
- 3.3 *Prioritize the protection of focal areas for the GCW in each of the Plan Area counties, except for Blanco County. (recommended)*
- 3.4 Prioritize the acquisition of preserve parcels that expand upon or help connect existing conserved lands and parks within the Plan Area (recommended)

Rationale: Protection of additional habitat in and adjacent to Bexar County is needed to conserve the species in that part of the species' range, prevent range contraction, and alleviate the threat of habitat loss to the species. Protection of several focal areas throughout the Plan Area is important for maintaining multiple subpopulations, connected through a preserve system that protects major blocks of habitat., prevents susceptibility to disease, and limits habitat degradation from encroachment, predators, and human disturbance. Planning future land conservation around currently existing protected lands would help ensure the most effective use of financial resources to achieve biologically significant, regional conservation of endangered species and complement other conservation efforts in the region, such as aquifer protection.

4. **Use of already protected public lands**

- 4.1 No more than 10% of the preserve system should consist of land publicly owned as of November 4, 2010. To qualify as a preserve component, a new conservation easement must be developed for GCW conservation and management. (required) This requirement should not be perceived to influence the spatial arrangement of the preserve system.

Rationale: Preserve size was calculated based on the harm to the species by new incidental take activities, so the bulk of the mitigation lands should consist of new lands not already protected in the public trust.

5. **Mitigation**

- 5.1 *Mitigate for impacts of GCW take resulting from participating projects by permanently protecting GCW habitat in the Plan Area at a rate proportional to the relative severity of the impact or degree of harm to the species.*

5.2 *Secure the mitigation to offset the impact to the GCW of take from participating projects before such take occurs.*

6. **Management and Biological Monitoring**

6.1 *Manage protected GCW habitat within preserves for the benefit of the GCW by minimizing threats and maintaining, restoring, or enhancing high quality habitat for the GCW.*

6.2 *Monitor GCW populations and habitats to track the status of the species within the preserve system and to inform the adaptive management process.*

7. **Research:** *Contribute to the body of scientific knowledge to benefit the recovery of the GCW*

Karst Conservation Program

The BAT recommends approaching the karst conservation program using an “Upfront Conservation with In-Lieu Fee Approach”, whereby:

- Karst participation is applicable for participating projects that occur within Karst Zones 1 – 4 (i.e., the “karst region”, mostly occurring in Bexar and Medina counties). The karst region is divided into 6 distinct “Karst Faunal Regions.”
- The Plan will offer incidental take authorization for the covered karst species only in KFRs where at least 3 caves (or “Karst Faunal Areas”) have been permanently protected for these species. At least one of these protected KFAs must meet the standards for a “high quality” preserve and the remaining 2 must meet the standards for a “medium quality” preserve. The Plan will not be able to provide take authorization for covered karst species within a KFR until this upfront mitigation has occurred.
- The Plan will then contribute to the creation of at least 2 high quality Karst Faunal Areas and 4 medium quality KFAs for each of the covered karst species in each of the KFRs (Total of 6 KFAs per KFR per species)
- In KFRs where take authorization is allowed, plan participants will provide mitigation fees to the Plan to offset the impacts of the project on karst species. The Plan will collect and use karst mitigation fees to protect caves in other KFRs to expand opportunities for take coverage.
- Based on current information, the BAT believes this approach assures that regional recovery of the covered species is possible in a KFR (thereby avoiding a jeopardy situation) prior to authorizing take in that KFR.

Rationale:

This approach addresses aspects of karst preserve size, configuration, and location. The recommendation for the establishment of 6 KFAs per KFR per species is based on substantial uncertainties regarding the taxonomic status of these poorly known species, persistence of the species within preserves under changed circumstances, and the paucity of basic biological and habitat/range information for these species.

Taxonomic uncertainty associated with cave organisms: Cave species are exceptionally difficult to differentiate because of convergent evolution. Similar ancestors invade caves and experience the same selection pressures (lack of light, near constant temps, high humidity, paucity of food, periodicity of nutrients), and this tends to make them morphologically indistinguishable. For this reason it is common for cave species to become "split" as more detailed research is performed. If the species are split, then their range is also reduced and they may be limited to fewer KFR's, in which case recovery can no longer be reached and therefore participation permits will be halted.

Uncertainty regarding the persistence of cave preserves based on the potential for natural or man-made catastrophic events: To actually reach recovery, the recovery plan calls for substantial additional research to demonstrate the adequacy of the recovery criteria. Since very little is known about the biology and needs of cave organisms, many of these research objectives include

gathering basic information on efficacy of different preserve sizes, vegetation components, and connectedness with other preserve areas. Because of this inherent uncertainty about these species, the plan also calls for monitoring to demonstrate population viability for at least thirty years. Since all of those additional actions will not necessarily be done in the timeframe of this plan, this plan proposes three additional preserves in each KFR as a 'buffer' to make up for that lack of information.

Lack of recent information about species boundaries: Most of the species boundaries given in the recovery plan are based on a single paper that was authored decades ago, and these papers may have been based on as few as one specimen. In general there is an extreme lack of verification of this information, partially based on a paucity of specimens available and a lack of taxonomists qualified to do the work. In some cases there is evidence for potential habitat barriers within the range of a species, and these barriers may in fact turn out to divide populations that are considered species (given an evolutionary species concept). In these cases, the recovery criteria would jump from 3 caves per KFR to 6, and the preserve goal would be met by this plan.

The BAT recommends the following criteria or standards for a Karst Preserve (i.e., a KFA):

- Protected caves may qualify as a KFA suitable for meeting the upfront conservation commitment if:
 - KFAs must be permanently protected for the benefit of the species through an appropriate legal mechanism. Appropriate management of protected habitats must also be assured.
 - High quality KFAs be sufficient to maintain the following habitat elements, as described in the Bexar County Karst Invertebrates Draft Recovery Plan (date March 2008):
 - High humidity
 - Stable temperatures
 - High water quality of surface drainage basin
 - High water quality of subsurface drainage basin
 - Low red-imported fire ant (RIFA) predation
 - Healthy cave cricket population
 - Natural quantities of native vertebrate matter input
 - Natural quantities of native plant matter input
 - Healthy native surface arthropod community
 - Healthy native surface plant community
 - Adjacent karst features for cave cricket metapopulations
 - Good connectivity with mesocaverns for population dynamics of troglobites
 - *Acreage is $\geq XXX$ (to be determined)*
 - Medium quality KFAs must maintain most of the following elements identified for a high quality KFA. *The acreage needed for a medium quality KFA is $\geq XX$ (to be determined).*
- Previously protected caves may count towards the upfront conservation commitment if they meet the standards for high or medium quality KFAs.

The BAT recommends the following process for assessing karst impacts and mitigation requirements. However, this process does not substitute for any other local, state, or federal rules or regulations.

- For participating projects in Karst Zones 1 – 4, conduct karst surveys in accordance with the process described in USFWS (2006), as summarized below.

- Step 1: Conduct an Initial Karst Feature Survey. It is preferred that geologists performing these surveys have experience conducting karst invertebrate habitat surveys with a permitted biologist.
 - NOT CONFIRMED PRESENT: If no features are identified from the surface assessment, then the assessment process is complete and mitigation fees are assessed on a per-acre basis (see mitigation fee structure below). The per-acre assessment addresses potential impacts to undetected sub-surface karst features that may be occupied by the covered karst species and encountered during construction. The per-acre assessment also addresses general, indirect impacts to karst habitat (including features outside of the project area).
 - Per-Acre Karst Mitigation Fees (no known occupied caves):
 - Karst Zones 1 and 2 = \$xx per-acre within the project area
 - Karst Zones 3 and 4 = \$x per-acre within the project area
 - CONFIRMED PRESENT: If karst features are identified, then additional work is needed to determine if the features may provide habitat for karst invertebrates.
- Step 2: Conduct a suitable habitat determination. It is preferred that geologists performing these surveys have experience conducting karst invertebrate habitat surveys with a permitted biologist.
 - NOT CONFIRMED PRESENT: If identified karst features do not represent suitable habitat for karst invertebrates, then the assessment process is complete and mitigation fees are assessed on a per-acre basis, as described above in Step 1.
 - CONFIRMED PRESENT: If identified karst features do represent suitable habitat for karst invertebrates, then additional work is needed to determine if endangered karst invertebrates are present.
- Step 3: Conduct a Karst Invertebrate Study.
 - NOT CONFIRMED PRESENT: If suitable habitat is not found to be occupied by endangered karst invertebrates (including the covered karst species and the Category 2 karst species), then the assessment process is complete and mitigation fees are assessed on a per-acre basis as described above.
 - CONFIRMED PRESENT: If endangered karst invertebrates are present, then the participant begins informal consultations with the Service to identify which avoidance or mitigation options are available.
 - Avoid Impacts: To avoid impacts you must avoid actions within one or more of the following areas, with case-by-case Service approval:
 - Surface drainage basin
 - Subsurface drainage basin
 - Cricket foraging range (105m)
 - Cave footprint
 - Mitigation Credit: Establish a high or medium quality KFA around the cave suitable for use as mitigation for impacts to karst species. Mitigation may be used by the plan participant to offset other karst impacts within the same KFR or may be acquired by the Plan to help achieve the goals and objectives of the Plan. Per-acre mitigation fees for karst species on other areas outside of the KFA will be waived for the project. If creating a high or medium quality KFA is not possible given the available acreage, the Service can evaluate the on-site mitigation on a case-by-case basis.
 - Karst Impact Mitigation Fees: Only applicable for projects that occur in KFRs where the upfront conservation commitments have been achieved. Is not applicable for any caves that contain Category 2 karst

species (these species are not covered for incidental take). Mitigation fees within Karst Impact Areas will be assessed based on the acreage of surface disturbance within the karst area of impact. Per-acre mitigation fees, as described above) for areas outside of the karst area of impact will also be assessed.

- Impact Area 1 (0 – 150 feet from the cave entrance) - \$xxxx per acre of surface disturbance within the zone
- Impact Area 2 (150 – 345 feet from the cave entrance) - \$xxx per acre of surface disturbance within the zone. **NOTE: The BAT is still reviewing the 345 ft designation and will clarify soon.**
- Alternate Survey Zones: Delineate the cave footprint, surface drainage basin, and subsurface drainage basin of the cave.
 - Cave Footprint = \$xxxx per acre of surface disturbance within the area
 - Surface Drainage Basin = \$xxx per acre of surface disturbance within the area
 - Cave cricket foraging area = \$xxx per acre of surface disturbance within the area
 - Subsurface Drainage Basin = \$xxx per acre of surface disturbance within the area



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December 30, 2010

Southern Edwards Plateau Habitat Conservation Plan (SEP-HCP)
Biological Assessment Team (BAT)

RE: Comments, Questions and Concerns regarding the BAT Recommendations

Bexar County, as the applicant, requests the BAT address the following questions and concerns regarding the committee's recommendations presented to the Citizens Advisory Committee on the SEP-HCP conservation measures.

- A. The County requests that the BAT more fully explain the biological rationale for the recommended Golden Cheek Warbler (GCW) mitigation ratios and the requirement for a substantial portion of the GCW mitigation to be located in Bexar County, particularly in light of the following considerations:**
1. Mitigation ratios. The 2009 Camp Bullis Biological Opinion prepared by the U.S. Fish and Wildlife Service (USFWS) describes the Department of Army's voluntary 3:1 to 0.5:1 graded mitigation ratios as "extraordinary efforts on the part of Camp Bullis to not only off-set the anticipated adverse effects, but to add to the recovery potential for the (GCW) due to their proposed voluntary mitigation strategy." This rationale would suggest that the 3:1 and 2:1 mitigation ratios proposed by the BAT also include an "extraordinary" contribution to recovery, beyond what might be needed to adequately compensate for the adverse impacts of the authorized take.
 2. Bexar County mitigation. The BAT recommended a substantial portion of the mitigation for covered habitat loss in Bexar County to be located within or within five miles of the Bexar County boundary. The BAT has stated that the rationale for this provision is to ensure that the mitigation is close to the take, as required by the USFWS. However, the standards for a HCP and an incidental take permit included in the Endangered Species Act do not include such a requirement (the only regulatory standard is that the mitigation must be to the maximum extent practicable). The USFWS 1996 HCP Handbook, which represents the USFWS' official published policy for the development of HCPs, states (page 3-21):

Generally, the location of replacement habitats should be as close as possible to the area of impact; it must also include similar habitat types and support the same species affected by the HCP. However, there may be good reason to accept mitigation lands that are distant from the impact area – e.g., if a large habitat block as opposed to fragmented blocks can be protected or if the mitigation lands are obtained through a mitigation fund. Ultimately, the location of mitigation habitat must be based on individual circumstances and good judgment.

The policy described in the HCP Handbook indicates that it may be acceptable to have mitigation located distant from the habitat loss, if the conservation value of that mitigation is greater (such as being able to protect a larger block of habitat).

3. Currently protected lands in Bexar County. As part of the justification for requiring a large amount of mitigation to be located in Bexar County, the BAT has indicated that the GCW populations on currently protected lands (such as Government Canyon and other San Antonio parks and preserves) are at risk of extirpation if additional lands are not protected to expand and/or connect these currently protected properties. However, the recent TAMU study by Morrison et al. (2010), suggests that patches of habitat that are at least 500 acres have a probability of occupancy that approaches 100%. Bexar County currently has at least 3 clusters of adjacent parks or preserves that include more than 500 acres of GCW habitat, not including Camp Bullis. The Government Canyon complex of protected lands includes approximately 11,500 acres. The cluster of existing parks and natural areas that includes Friedrich Park, Crownridge Canyon, and Rancho Diana includes approximately 2,200 acres. The private GCW conservation lands for Indian Springs and Cibolo Canyon also include approximately 2,000 acres. All the current GCW habitat models indicate that nearly all of these acres may be suitable GCW habitat. Given the size of these clusters of protected lands and the presence of approximately 2,000 acres of additional protected lands containing GCW habitat within the county, it seems unlikely that Bexar County would lose its GCW population, even if these large clusters of protected lands were to be completely surrounded by development.

B. The County would like the BAT to explain why the BAT finds that their recommended level and distribution of mitigation is biologically necessary to adequately balance the amount of harm to the species from the corresponding amount of incidental take requested and meet the issuance criteria for an incidental take permit. The County also asks the BAT to recommend an appropriate level of mitigation that would meet the permit issuance criteria, without making a substantial contribution to recovery of the species.

1. Potential severity of threat. The BAT has discussed that higher mitigation ratios for Bexar County take are warranted due to the potential greater risk and severity of threats to the species in this area, compared to other parts of the plan area. Mitigation ratios that are based on potential severity of threats to the species could require plan participants to mitigate at a level that is intended to compensate for impacts caused before the plan was in place or for future impacts caused by non-

plan participants, not just the impacts of the take covered by the plan. The Endangered Species Act requires that “the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking.”

C. The County would like the BAT to explain what types of impacts these mitigation ratios are intended to address. If the BAT recommends mitigation at a level that includes a substantial contribution to recovery, would this mitigation be understood to cover both the direct and indirect impacts of authorized take, and simplify the assessment of impacts (direct, indirect, and cumulative) in the participation process?

1. Recent population estimates. Texas A&M University (TAMU) recently reported estimates of the GCW population size, based on patch-specific GCW densities and occupancy rates derived from field data collected across the range of the species (Morrison et al. 2010). The TAMU estimates suggest that a range-wide population of approximately 370,000 adult GCWs occur over approximately 4.1 million acres of potential habitat. GCW population estimates at the time of listing ranged from approximately 9,600 to 32,000 individuals (Groce et al. 2010). Therefore, the current GCW population may be at least an order of magnitude larger than previously thought. The USFWS status review for the BCV also found that the overall breeding population of the vireo is substantially larger than was known at the time of listing (by a similar order of magnitude) and concluded that the magnitude of the threats to the species were sufficiently reduced to justify a recommendation for downlisting to threatened. Similar biological arguments could be made for the GCW that the magnitude of the threats to the species may not be as severe as previously thought.

The County looks forward to your answers. In addition attached are specific questions submitted by a member of the CAC. Thank you for your time and attention to this matter.

Sincerely,

Renee D. Green, P.E.
County Engineer

Morrison, M. L., R. N. Wilkins, B. A. Collier, J. E. Groce, H. A. Mathewson, T. M. McFarland, A. G. Snelgrove, R. T. Snelgrove, and K. L. Skow. 2010. Golden-cheeked warbler population distribution and abundance. Texas A&M Institute of Renewable Natural Resources, College Station, Texas, USA.

Groce, J. E., H. A. Mathewson, M. L. Morrison, and N. Wilkins. 2010. Scientific evaluation for the 5-year status review of the Golden-cheeked Warbler. Prepared for the U.S. Fish and Wildlife Service. Texas A&M Institute of Renewable Natural Resources, College Station, Texas, USA.

Attached are additional questions from a member of the CAC:

I have numerous questions regarding some of the proposed requirements of this plan, and I have listed below several of those for further consideration.

1. Are the currently proposed mitigation ratios for GCW and BCV based primarily on population projections originally produced by Wendell Davis? If they are based on other issues, what are some of the other considerations?
2. If the population projections change, will the proposed ratios change accordingly?
3. Bexar County had a growth rate of 18.6% from 2000 to 2009. During that same period, Hays County grew at 59%, Williamson County grew at 64%, and Comal County grew at 47%. None of their associated HCPs have REQUIRED mitigation at a ratio of 3:1. What different biology in Bexar County indicates that the SEPHCP should be treated differently?
4. Guidance on Mitigation from HCP Handbook stated clearly that contribution to recovery is often part of an HCP but not a statutory requirement. If the HCP is written with the proposed mitigation ratios, then it will become a statutory requirement making recovery mandatory for anyone that participates. Why would this be allowed to occur, if it is not otherwise required?
5. Guidance on Mitigation from HCP Handbook indicates that there might be valid reasons to accept mitigation lands that are distant from the impact area. Since this is considered an acceptable practice, why is it being excluded from the SEPHCP?
6. GCW HCPs appear to have per acre costs to the user of \$6,500 or less, with less than 10% participation. If the SEPHCP is going to cost the user \$9,000+ per acre, as indicated in earlier cost projections, wouldn't that likely indicate much lower usage rates? If usage rates are lower, doesn't that diminish the probability that the HCP will be successful?
7. The Camp Bullis plan allows for mitigation anywhere in Recovery Unit 5. What is the biological reason that the SEPHCP will be required to have at least 60% of its mitigation in Bexar County?
8. The Camp Bullis Plan calls for mitigation of occupied habitat at a 3:1 ratio, buffer at a ratio of 2:1, and unoccupied habitat at a ratio of 1:1. What is the biological justification for the difference in those requirements versus those proposed in the SEPHCP?
9. The Camp Bullis plan allows for effective on-site mitigation ratios of 1:1 for tracts of 500+ contiguous acres. What is the biological reason that these same ratios are not allowed in the SEPHCP?
10. The City of San Antonio adopted its Steep Slope Ordinance prohibiting development on land with slopes greater than 20%, an area of approximately 26,866 acres. In addition, approximately 15,244 acres of additional land having slopes greater than 25% exists in Bexar County, bringing the total number of acres that will most likely not be developable to over 42,000 acres. Neither the BAT nor the USFWS have recognized this or shown any indication that this land could be considered as areas for undisturbed habitat. What is the biological reason for this?
11. Imbedded in the cost calculations is a 25% increase in mitigation tract size to account for "non-habitat" occurring within the acquired reserves. This is assumed for ALL acquired reserves. Upon what fact is that assumption based? Does that mean that even the best available acquired habitat will have at least 25% non-habitat? Will marginal acquired habitat have no more than 25% non-habitat? Is there no way to judge that for each piece of habitat to be acquired?

In general, it appears that the proposed rules for the SEPHCP are being written as unnecessarily stringent, without much thought to flexibility or how this plan compares to other plans in Texas. As a representative of the members of the real estate industry, it is my duty to comment on their behalf as to whether or not I think this plan will be beneficial to them. Thank you for asking for the additional input and for being open to additional discussion on these matters.

Michael D. Moore