

MITIGATION RATIOS and ASSESSMENTS EXAMPLES AND ALTERNATIVES

Mitigation ratios can be used to standardize the amount of mitigation needed to compensate for the impacts of individual projects. Use of mitigation ratios requires an explanation of what both sides of the ratio mean.

Guidance on Mitigation from HCP Handbook

- Mitigation programs should be based on sound biological rationale; they should also be practicable and commensurate with the impacts they address. (pg. 3-19, 3rd paragraph)
- Issuance of a Section 10 permit must not “appreciably reduce” the likelihood of the survival and recovery of the species in the wild. Note that this does not explicitly require an HCP to recover listed species, or contribute to their recovery objectives outlined in a recovery plan. This reflects the fact that HCPs were designed by Congress to authorize incidental take, not to be mandatory recovery tools (pg 3-20, 2nd paragraph). However, recovery is nevertheless an important consideration in any HCP effort... Thus, contribution to recovery is often an integral product of an HCP, but it is not an explicit statutory requirement (pg. 3-20, 3rd paragraph). [*original emphasis*]
- The type of mitigation habitat and its proximity to the area of impact will need to be considered. 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. (pg 3-21, paragraph 4)
- When habitat losses permitted under an HCP are permanent, protection of mitigation lands normally should also be permanent. (pg. 3-22, 4th paragraph)

Examples from Other HCPs and Consultations

Camp Bullis Programmatic Biological Opinion (Sept 22, 2009)

Impacts to GCW habitat on the Installation may be mitigated with habitat protected and managed, in perpetuity, either on or off the Installation (but within the limits of the proposed GCW Recovery Unit 5).

BO establishes a variable mitigation ratio based on the suitability and occupancy status of the impacted habitat as follows:

Habitat Type	Mitigation Ratio (acres of off-site mitigation : acres of impact)
Non-habitat Buffers Around Occupied Habitat (within 300 ft of occupied suitable habitat)	0.5 : 1
Unoccupied Suitable Habitat	1.0 : 1
Unoccupied Buffer Habitat (unoccupied suitable habitat within 300 ft of occupied suitable habitat)	2.0 : 1
Occupied Suitable Habitat (demonstrated occupancy within at least one of the prior 3	3.0 : 1

* all mitigation ratios are expressed as mitigation : impact

years)

Suitable habitat is defined as woodlands with at least 30% canopy cover, at least 5% deciduous canopy composition, and the presence of juniper trees with stripping bark.

Acceptable mitigation lands may be either “suitable habitat” or “non-habitat buffers” of suitable habitat, and demonstration of habitat occupancy is preferred but not required. Each acre of suitable habitat is equivalent to one acre of mitigation. Each acre of non-habitat buffer is equivalent to 0.5 acre of mitigation.

For on-site mitigation, the effective mitigation ratios are reduced for the protection of large patches (at least 500 contiguous acres) of occupied suitable habitat within the Installation. Each acre of on-site mitigation of this type is equivalent to 3 acres of off-site mitigation (i.e., the effective mitigation rate is reduced to a maximum of 1.0 : 1).

Individual 10(a) Permits in Bexar County

La Cantera EA/HCP (2001) – Impacts to 3 caves occupied by *Cicurina madla* and/or *Rhadine exilis* were mitigated by the establishment of 1-acre preserves around 2 of the impacted caves and the creation of 5 off-site karst preserves (including 4 to 75 acres around each protected cave). The total acreage protected and managed in karst preserves was 181 acres.

Cibolo Canyon Master Phase 2 EA/HCP (2006) – Impacts to 846 acres of GCW habitat (fully or partially supporting 8 GCW territories) were mitigated with the protection of 760 acres of on-site GCW habitat (fully or partially supporting 12 GCW territories). The mitigation tract is adjacent to other GCW conservation lands.

Balcones Canyonlands Conservation Plan (1996)

The BCCP uses a defined fee structure for assessing mitigation requirements.

Typically, mitigation is assessed by overlaying a pre-determined map of “habitat zones” for the GCW, BCV, and karst invertebrates on the boundary of a legal parcel seeking to be enrolled in the plan. Delineations of the habitat zones were based on the extent of known or potential habitat for the covered species at the time the plan was developed. An alternative process is available for using USFWS-approved site-specific habitat assessments, but the per acre mitigation fees are higher.

Mitigation fees are assessed for the area of each habitat zone that occurs within the legal parcel being enrolled in the plan, regardless of the type of activity or impact. Per acre fees are highest for zones representing known habitat and reduced for zones representing unconfirmed (or potential) habitat.

The current fee structure is as follows:

- GCWA (zone 1 – confirmed habitat) = \$5,500 / acre
- GCWA (zone 2 – unconfirmed habitat) = \$2,750 / acre
- BCVI zone = \$5,500 / acre
- Karst zone = \$1,000 / acre

The BCCP has a defined mitigation commitment that is not directly tied to the level of participation in the plan. The permit requires the permanent protection and management of 11,000 acres of GCW habitat.

Williamson County RHCP (2008)

GCW and BCV: Mitigation assessments are based on an on-site habitat assessment, a presence/absence survey for the species (if available), and the extent and type of impact (direct or indirect).

If a presence/absence survey has been performed (1 year of surveys is sufficient), mitigation is only required for impacts to occupied habitat. An observation of a GCW or BCV in a patch of habitat establishes the entire patch of contiguous habitat as occupied by that species.

If a survey is not available, all potentially suitable habitat is assumed to be occupied and mitigation requirements for project impacts are based on the extent and quality of the potential habitat.

The base mitigation ratio for impacts to occupied or potential habitat is 1 : 1.

An increase in the base mitigation ratio may be determined on a case-by-case basis by the RHCP administrator. For the GCW, increased mitigation may be assessed for exceptionally high quality habitat (i.e., habitat patches that are at least 200 acres, have a canopy height greater than 20 feet, and have at least 90% canopy closure) or unusually high density occupation by the species (i.e., <17 acres/pair). For the BCV, increased mitigation may also be assessed based on habitat values (no specific criteria are identified). Mitigation ratios for impacts to these important habitats may be increased to 2 : 1. The RHCP administrator reserves the right to deny an application for participation.

Direct impacts to occupied or potential habitat are assessed at 100% of the applicable mitigation ratio. Direct impacts permanently remove or significantly modify habitat. Indirect impacts are assessed at 50% of the applicable mitigation ratio. Indirect impacts affect occupied or potential habitat that is adjacent to and within 250 feet of directly impacted habitat.

Mitigation acres for the GCW are typically acquired through the purchase of GCW conservation credits from the Hickory Pass Ranch Conservation Bank in Burnet County. BCV mitigation fees are banked and used for the benefit of BCV habitat restoration and management, as determined in consultation with USFWS. The plan may also establish conservation banks within Williamson County, in accordance with USFWS guidelines, as mitigation.

Karst Invertebrates: Mitigation assessments are based on a two-part strategy of a per acre fee for general disturbance of karst habitat and additional fees for impacts to known caves occupied by the covered species.

A Geologic Assessment prepared to TCEQ standards is required for project areas. If the Geologic Assessment identifies caves with the potential to be occupied by the covered species, a karst faunal presence/absence survey (prepared to USFWS standards) is required. At least 3 surveys must be completed, at least one week apart. If the covered species are detected, then the cave footprint must be mapped.

Mitigation fees of \$100/acre are assessed for each acre of karst habitat disturbed by a project and provide coverage for any impacts to the covered species that are not in the immediate vicinity of an identified species-occupied cave (such as for voids or mesocaverns not detected by the surface Geologic Assessment).

No additional mitigation is required for impacts to identified caves not shown to be occupied by the covered species. For identified species-occupied caves, mitigation fees are typically assessed for each acre of Impact Zone disturbed. Impact Zone A extends between 50 and 345 feet from the mapped cave footprint and the mitigation fee for disturbance within this zone is \$10,000/acre. Impact Zone B extends between 0 and 50 feet from the mapped cave footprint and any disturbance within this zone is assumed to destroy the long-term viability of the cave. Any incursion within Impact Zone B requires a flat mitigation fee of \$400,000 for the impacts to the cave (fees for Impact Zone A are waived).

Hays County RHCP (draft Sept 28, 2009)

Hays County RHCP uses a conservation banking model. Mitigation ratios determine the number of mitigation credits needed for a particular project to participate in the RHCP and are based on the type of impact and the relative quality/importance of the habitat impacted. The USFWS reserves the right to review and approve all mitigation assessments. Hays County would determine the specific amount of mitigation needed through an on-site habitat determination and project-specific impact assessment.

The base mitigation ratio for direct impacts is 1.0 : 1. The base mitigation ratio for indirect impacts is 0.5 : 1.

County may on a case-by-case basis lower the base mitigation ratios for currently degraded habitats or increase the mitigation ratios (up to 3 times the base ratio) for impacts to exceptionally high quality habitats (such as habitats with dense canopy cover, very large habitat patch size, demonstrated occupancy by relatively high densities of the covered species, or close proximity to other conservation areas).

Direct impacts include all areas of potential habitat where the vegetation will be physically affected or altered by clearing or land development activities, or where the proposed use of the area will significantly change from pre-project conditions. Indirect Impacts include all areas of potential habitat that are within 300 feet of the edge of an area with direct effects. Indirect impact areas may extend outside of a project area. Areas of indirect impact may also include small and isolated remnant fragments of potential habitat that would not be expected to be used by the species after completion of the proposed project.

Mitigation is provided by the creation of conservation banks in Hays County, in accordance with USFWS policy for conservation banks. Typically, each acre of potential habitat protected and managed for the covered species creates 1 mitigation credit. Variations to the typical ratio may be possible on a case-by-case basis, considering factors such as relative habitat quality, habitat patch size, proximity to other protected habitats or intensive land uses, and the presence of habitat buffers. The minimum preserve size is 500 acres, comprised of either a single parcel or multiple adjacent parcels.

Comal County RHCP (draft April 2010)

Mitigation assessments are based on an on-site habitat assessment, a presence/absence survey for the species (if available), and the extent and type of impact (direct or indirect).

If a presence/absence survey has been performed, mitigation is only required for impacts to occupied habitat. An observation of a GCW or BCV in a patch of habitat establishes the entire patch of contiguous habitat as occupied by that species.

If a survey is not available, mitigation requirements for project impacts are based the extent and quality of the potential habitat.

Base mitigation ratios for GCW and BCV are typically 1 :1. Higher mitigation ratios (up to 3 : 1 for GCW and 2 : 1 for BCV) may be assessed for high quality or high occupancy habitat.

For GCW impacts, criteria for higher impacts may include impacts to habitat patches of at least 250 acres, canopy height greater than 20 feet, canopy closure greater than 70%, and being within or adjacent to an existing preserve. For the BCV, increased mitigation may also be assessed based on habitat values (no specific criteria are identified). The RHCP administrator reserves the right to deny an application for participation.

Direct impacts to occupied or potential habitat are assessed at 100% of the applicable mitigation ratio. Direct impacts permanently remove or significantly modify habitat. Indirect impacts are assessed at 50% of the applicable mitigation ratio. Indirect impacts affect occupied or potential habitat that is adjacent to and within 300 feet of directly impacted habitat.

Mitigation is provided by either 1) the creation of conservation bank preserves in Comal County, in accordance with USFWS policy for conservation banks; or 2) the purchase of conservation credits from a third-party conservation bank with a service area that includes Comal County.

For conservation bank preserves created within Comal County, preserves will be a minimum of 500 acres (except as allowed by USFWS on a case-by-case basis) and composed of single tracts or multiple adjacent or proximate tracts.

SUGGESTED SEP-HCP MITIGATION RATIOS

General Approach and Assumptions

Applicable to GCW and/or BCVs. Karst conservation strategy will need to use a different approach.

Two-tiered approach to mitigation ratios, depending on the type of information available for the mitigation assessment. If available (or desired), participants can base the assessment on a habitat delineation and species survey. Otherwise, the assessment is based only on the habitat assessment and the assumption that all identified habitat is occupied.

Suitable habitat is delineated based on a site-specific habitat assessment prepared by a USFWS-permitted biologist, and consistent with USFWS and TPWD definitions (i.e., at least 35% canopy closure, between 10% and 90% Ashe juniper composition, presence of at least some mature juniper, and canopy height at least approximately 15 feet). This definition includes both high quality nesting habitat and more open habitats used for foraging and post-fledging dispersal.

Individually mapped patches of habitat are considered contiguous (i.e., effectively part of the same patch) if separated by less than 50 feet, unless the separation is due to a high-impact land use (such as a regularly travelled public road). Requires at least a rough delineation of suitable habitat on adjacent properties for patches that intersect the project site (can be accomplished by the use of aerial imagery).

Option 1: Species Survey Results

Inputs: 1) delineation of suitable habitat, and 2) results of a recent USFWS protocol P/A or territory-level survey (i.e., a spot-mapping survey)

Impacted Habitat	Mitigation Ratio
Suitable habitat in an unoccupied patch	0
Suitable habitat in an occupied patch (at least 1 GCW observation recorded from the patch)	1 : 1
Habitat is within 372 ft of a GCW observation (radius of a 10-acre circle around each point)	2 : 1
Habitat patch containing at least 250 ac has a GCW density of ≥ 5 territories/100 ac of suitable habitat	3 : 1

(continued on next page)

Option 2: Habitat Patch Size

To be used if a protocol survey is not available or submitted by participant.

Inputs: 1) delineation of suitable habitat; and 2) patch size analysis of habitat within and contiguous with the project area

Impacted Habitat	Mitigation Ratio
Suitable habitat in patches of less than 500 acres	1 : 1
Suitable habitat in patches of between 500 and 1,000 acres	2 : 1
Suitable habitat in patches of at least 1,000 acres	3 : 1

Notes: mitigation ratio strategy attempts to relate take to site-specific data on impacts to individual birds; approach encourages the use of species surveys with liberal delineations of suitable habitat to support mitigation assessments; could reduce mitigation obligations for a participant if habitat is shown to not be occupied; base level patch-based occupancy standard reduces the possible within-year and between-year variation in habitat use by the species; generally consistent with other RHCPs in the area, but with added certainty as to the mitigation requirements under different circumstances

Alternative Basis for Mitigation Ratios:

- Location of impact
- Habitat quality factors (canopy cover, etc...)
- Pre-determined, map-based habitat coverages -- such as using habitat occupancy potential (i.e., per Magness et al. 2006 approach)

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Examples from Select Properties

Examples illustrate the GCW mitigation obligation for three real-world project examples, based on prior survey and habitat assessment work completed by Loomis. The examples assume that the entire property is assessed for direct on-site impacts.

Option 1: Species Survey Results

Impacted Habitat	Mitigation Ratio	Property 1 – exceptional GCW habitat		Property 2 – generally average GCW habitat		Property 3 – low to average GCW habitat	
		Acres	Required Mitigation (acres)	Acres	Required Mitigation (acres)	Acres	Required Mitigation (acres)
Suitable habitat in an unoccupied patch	0	0	0	20	0	0	0
Suitable habitat in an occupied patch (at least 1 GCW observation recorded from the patch)	1 : 1	0	0	182	182	218	218
Habitat is within 372 ft of a GCW observation (radius of a 10-acre circle around each point)	2 : 1	0	0	661	1,322	181	362
Habitat patch containing at least 250 ac has a GCW density of ≥ 5 territories/100 ac of suitable habitat	3 : 1	2,023	6,069	0	0	0	0
Total		2,023	6,069	863	1,504	399	580
Overall Mitigation Ratio			3.0 : 1		1.7 : 1		1.5 : 1

Option 2: Habitat Patch Size

Impacted Habitat	Mitigation Ratio	Property 1 – exceptional GCW habitat		Property 2 – generally average GCW habitat		Property 3 – low to average GCW habitat	
		Acres	Required Mitigation (acres)	Acres	Required Mitigation (acres)	Acres	Required Mitigation (acres)
Suitable habitat in patches of less than 500 acres	1 : 1	0	0	37	37	19	19
Suitable habitat in patches of between 500 and 1,000 acres	2 : 1	0	0	0	0	0	0
Suitable habitat in patches of at least 1,000 acres	3 : 1	2,023	6,069	826	2,478	381	1,143
Total		2,023	6,069	863	2,515	400	1,162
Overall Mitigation Ratio			3.0 : 1		2.9 : 1		2.9 : 1

* all mitigation ratios are expressed as mitigation : impact

MANAGEMENT AND MONITORING

GUIDANCE FROM USFWS 5-POINT POLICY

(Addendum to the 1996 HCP Handbook)

([Federal Register 65: 35242; June 1, 2000](#))

Adaptive Management

- Adaptive management is an integrated method for addressing uncertainty in natural resource management.
- Elements of an adaptive management strategy in an HCP:
 1. Identify the uncertainty and the questions that need to be addressed to resolve the uncertainty;
 2. Develop alternative strategies and determine which experimental strategies to implement;
 3. Integrate a monitoring program that is able to detect the necessary information for strategy evaluation; and
 4. Incorporate feedback loops that link implementation and monitoring to a decision-making process (which may be similar to a dispute-resolution process) that result in appropriate changes in management.
- No Surprises: When an HCP, permit, and IA, if used, incorporate an adaptive management strategy, it should clearly state the range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty. This range defines the limits of what resource commitments may be required of the permittee. This process will enable the applicant to assess the potential economic impacts of adjustments before agreeing to the HCP.

Monitoring

- Should provide the information necessary to assess compliance and project impacts, and verify progress toward the biological goals and objectives.
- Types of monitoring
 1. Compliance monitoring
 2. Effects and effectiveness monitoring
- Scope of the monitoring plan should be commensurate with the scope and duration of the conservation program and project impacts.
- Monitoring program should be based on measurable biological goals and objectives.
- Effects and effectiveness monitoring includes, but is not limited to, the following:
 1. Periodic accounting of incidental take that occurred in conjunction with the permitted activity;
 2. Surveys to determine species status, appropriately measured for the particular operating conservation program (e.g., presence, density, or reproductive rates);
 3. Assessments of habitat condition;
 4. Progress reports on fulfillment of the operating conservation program (e.g., habitat acres acquired and/or restored); and

5. Evaluations of the operating conservation program and its progress toward its intended biological goals.
- The USFWS and the permittee are responsible for monitoring the implementation of the HCP. The Service's primary monitoring responsibilities (with the assistance of the permittee) are ensuring compliance with the permit's terms and conditions, including proper implementation of the HCP by the permittee.

SUMMARIES OF OTHER TEXAS HCPs

Following are summaries of other Texas HCPs that were designed primarily to include terrestrial species. Appended to this guidance document are full versions of the major sections for each HCP listed, as back-up material for further research, if desired.

Comal County RHCP

Current draft is April 2010. This is perhaps the simplest HCP among those compared herein. (See the attached pages 6-1 through 6-4.)

- Gives a general description of Adaptive Management.
- Adaptive Management Working Group (possibly including County representative, USFWS, TPWD, citizens, biologists) will meet at least twice a year.
- Identifies an Adaptive Management Framework, including:
 - Every 5 years, evaluate and report on preserve status and habitat quality improvement or deterioration;
 - Every 5 years, research update on covered species;
 - Every year, evaluate and report on conservation benefits, and what additional measures the County could implement; and
 - Every year, determine levels of expected impact and existing protected areas for Evaluation Species and decide whether to seek permit coverage.
- Biological and Compliance Monitoring section briefly describes a baseline evaluation, management and monitoring plan preparation, boundary assessment 4 times/year, biological monitoring, annual report.

Hays County RHCP

Current draft is the final draft, dated June 22, 2010. This plan is very detailed and prescriptive, especially for management and monitoring. (See the attached pages 70-89 and 102-103.)

- Describes a cyclical, adaptive process involving the following general steps:
 - Documenting baseline preserve conditions;
 - Evaluating threats to the covered species and their habitat;
 - Implementing management plans; and
 - Monitoring populations of the covered species and their habitats to track the results of management practices or programs, identify trends in populations and habitat conditions, and evaluate whether the management program successfully maintained the conservation value of the preserve system.
- Details requirements for Baseline Preserve Evaluations and Land Management Plans.

- Includes fine details for Preserve Monitoring and Reporting (8 pages).
- Schedule for Major Preserve Management and Monitoring Tasks, including:
 - Years ending in 0 or 5: Territory Mapping Surveys;
 - Years ending in 1 or 6: Habitat Occupancy Surveys;
 - Years ending in 2 or 7: Habitat Monitoring Surveys;
 - Years ending in 3 or 8: Baseline Preserve Evaluations; and
 - Years ending in 4 or 9: Land Management Plans.
- Gives detailed guidance regarding Management of Public Access and Other Preserve Uses, including:
 - Definitions and allowances for passive and active public use
 - Provisions for Management of Public Access and Other Preserve Uses (existing or new).
- Details Adaptive Management Provisions, including:
 - Uncertainty in the Effectiveness of the Preserve Design Criteria
 - Strategies for Dealing with Uncertainty in the Preserve Design Criteria
 - Monitoring to Assess the Effectiveness of the Preserve Design Criteria
 - Process for Revising Preserve Design Criteria

Williamson County RHCP

The final plan is dated August 15, 2008. Like the Comal plan, this plan is also very simple in its description of management and monitoring. (See attached pages 7-1 through 8-4.)

- Includes a general overview of Adaptive Management.
- Adaptive Management Working Group (possibly including County representative, USFWS, TPWD, citizens, biologists) will meet at least twice a year. Will review the annual report and make recommendations for changes in management directions.
- Identifies an Adaptive Management Framework for the following purposes:
 1. Identifying areas of uncertainty and questions that need to be addressed to resolve uncertainty;
 2. Developing alternative management strategies and determining which experimental strategies to implement;
 3. Integrating a monitoring program that is able to acquire the necessary information for effective strategy evaluation; and
 4. Incorporating feedback loops that link implementation and monitoring to the decisionmaking process that result in appropriate changes in management.
- Species and Habitat Tracking Process
 - Development of a database for cover and additional species, including known locations, population numbers, etc.;
 - Annual evaluation of increase or decrease in known locations (early warning system);
 - Literature and research update every 5 years;

- Coordination of a species status assessment, if new information is available;
- Following the species status assessment, an evaluation of conservation benefits and possible additional measures;
- Depending on the evaluation of benefits, determine the levels of expected impact and existing protected areas for the additional species and decide whether to seek coverage of the species; and
- As information identified above becomes available, or one or more of the additional species becomes listed and coverage is desired, at a minimum the Service and the County will need to amend the RHCP, the Permit, and the Biological Opinion to allow for inclusion on the Permit.

BCP Land Management Plan

The Balcones Canyonlands Conservation Plan (BCCP) was approved in May 1996. (See the attached Tier II-A, Chapter 1, which was re-approved in November 2007.) The complete Balcones Canyonlands Preserve (BCP) Land Management Plan is available on the [City of Austin BCP web site](#).

The BCCP did not include Adaptive Management provisions as described by the Five-Points Policy, which came after the BCCP was approved. The BCCP also did not include a detailed plan for species monitoring. The BCCP includes a hierarchical land management planning document and process that evolved after the plan was approved and which was designed to accommodate the dual permit holders and multiple managing partners.

OTHER CONSIDERATIONS

Land management considerations and land management entities will be affected by land conservation method (i.e., fee simple acquisition or conservation easement).

- Public expectations for recreational access will be greater for land that is conserved by fee simple acquisition.
- Neighboring property owners may also take special liberty with public land more frequently than private land that has a conservation easement.

ADDITIONAL CONSIDERATIONS FOR MANAGEMENT AND MONITORING PROGRAMS

General Guidance

- Guidance for adaptive management and monitoring measures is provided in the 5-Point Policy of the HCP Handbook (see [Federal Register 65: 35242; June 1, 2000](#)).
- Examples from other HCPs (SEP-HCP guidance document on management and monitoring dated July 23, 2010)
- Refer to the Biological Goals and Objectives under development for the SEP-HCP.

General Considerations

- Management of preserve lands should focus on addressing threats to the covered species and maintaining the conservation value of the mitigation.
- The management program specified in the HCP should be flexible and adaptive, with a focus on defining desired outcomes (instead of prescriptive management practices) and the decision-making process used to select appropriate management strategies that achieve the desired outcomes.
- The management program should avoid details that could later be construed as absolute requirements of the permit, unless they are carefully planned and are vital to the success of the management effort.
- Biological monitoring programs can be expensive components of RHCP implementation, that may not have direct, on-the-ground conservation benefits. Resources should be focused on the measures necessary to:
 - measure progress towards the biological goals and objectives;
 - provide information needed to support adaptive management decisions and identify changed circumstances; and
 - otherwise demonstrate compliance with the terms and conditions of the permit.

Purpose of Monitoring

The purpose of the monitoring program should be to monitor implementation of conservation actions for compliance with the HCP, including

- Review take permitted under the plan (i.e. by plan participants)
- Review the establishment, conservation and management of the preserves.
- Provide information for periodic reviews, as required by the permit, including annual report and any multiple-year reviews ("stop-gap reviews")
- Provide information for the permit holder to review progress towards other community goals and objectives that may not be required by the permit, such as
 - Streamlined permitting
 - Locally appropriate and cost-effective implementation
 - Leveraging resources