

Notes from SEP-HCP BAT meeting on 8-25-10

Priorities: Acquisition, Management, Monitoring (in that order)

What are management priorities, focusing on desired outcomes, for GCW?

1. Maintain or improve conservation value of the property for the species (e.g. productivity, habitat conditions)
2. Establish a baseline of habitat condition, species occupancy, and threats
3. Create, implement and periodically evaluate management plans specific to each property and adapt as necessary (based on item 2). We will provide an outline for what should be in the Mgmt. Plan.
4. Preserve sovereignty. Insure that all land management tools are available for use on each property (for example managers need to be able to do a burn, shoot pigs, and not be required to spray for mosquitos, trap coyotes, etc.). Create list of all generally accepted tools.
5. Strive for GCW habitat "where warblers are likely to occur" as described by Campbell (et seq.). Note that there may be some refinements of Campbell definitions for this region.

What are monitoring priorities, focusing on desired outcomes, for GCW?

1. Monitor each property once a year for compliance-related issues (e.g. dumping, clearcutting)
2. Monitor the habitat (at some intermediate interval):
 - a. Habitat loss within the plan area
 - b. Oak wilt, cowbirds, and other invasive species
 - c. Hardwood recruitment
 - d. Herbivory threats
 - e. Forest structure (e.g. canopy closure, mid and upper canopy)
 - f. Climate change
 - g. Encroachment
 - h. Overall vegetation
3. Monitor target species to the maximum extent practicable (at some lower frequency) (e.g. occupancy, productivity/nest monitoring, territory mapping, depredation)
4. Create an annual report with results of monitoring. This report should inform management, and is part of the annual report that goes to USFWS. This info is centralized.

***Note that not all of these items are required, but this is preferred

What are management priorities, focusing on desired outcomes, for BCV?

1. Maintain or improve conservation value of the property for the species (e.g. productivity, habitat conditions)
2. Establish a baseline of habitat condition, species occupancy, and threats
3. Create, implement and periodically evaluate management plans specific to each property and adapt as necessary (based on item 2). We will provide an outline for what should be in the Mgmt. Plan.
4. Preserve sovereignty. Insure that all land management tools are available for use on each property (for example managers need to be able to do a burn, shoot pigs, trap cowbirds and not be required to spray for mosquitos, trap coyotes, etc.). Create list of all generally accepted tools.
5. Strive for BCV habitat as described by Campbell (et seq.). Note that there may be some refinements of Campbell definitions for this region.

What are monitoring priorities, focusing on desired outcomes, for BCV?

1. Monitor each property once a year for compliance-related issues (e.g. dumping, clearcutting)
2. Monitor the habitat (at some intermediate interval – but note that BCV habitat monitoring frequency is more critical than GCW due to rapid changes):
 - a. Habitat loss/change within the plan area
 - b. Vegetation structure (e.g. percentage broadleaf etc. as in Campbell)
 - c. Cowbirds, pigs and fire ants and other predators (particularly if related to human-induced changes)
 - d. Herbivory threats (e.g. grazing management, white-tailed deer)
 - e. invasive plant species
 - f. Climate change
 - g. Encroachment
3. Monitor target species to the maximum extent practicable (at some lower frequency) (e.g. occupancy, productivity/nest monitoring, territory mapping, depredation)
4. Create an annual report with results of monitoring. This report should inform management, and is part of the annual report that goes to USFWS. This info is centralized.

***Note that not all of these items are required, but this is preferred

What are management priorities, focusing on desired outcomes, for karst invertebrates?

1. Maintain or improve conservation value of the property for the species (e.g. habitat conditions)
2. Establish a baseline of habitat condition, species occupancy, and threats
3. Create, implement and periodically evaluate management plans specific to each property and adapt as necessary (based on item 2). We will provide an outline for what should be in the management plan.
4. Preserve sovereignty. Insure that all land management tools are available for use on each property (for example managers need to be able to limit access to a cave, do a burn, control fire ants, shoot pigs, and should not be required to spray for mosquitoes, trap coyotes, etc.). Create list of all generally accepted tools. Note that sovereignty includes subsurface (re: tunneling operations).
5. Determine and protect surface and subsurface drainage (including outreach and education).
6. Strive for karst invertebrate habitat “12 goals” as described by USFWS (2008) plus preventing unnecessary human visitation.

What are monitoring priorities, focusing on desired outcomes, for karst invertebrates?

1. Monitor each property once a year for compliance-related issues (e.g. dumping, clearcutting)
2. Monitor the habitat (12 items plus visitation):
 - a. See 12-item list on page B-1 of USFWS (2008)
 - b. Visitation
 - c. Habitat aspects of spring populations
 - d. WNS
3. Monitor target species to the maximum extent practicable (at some lower frequency) (e.g. occupancy, point counts, timed-area searches)

4. Create an annual report with results of monitoring. This report should inform management, and is part of the annual report that goes to USFWS. This info is centralized.

***Note that not all of these items are required, but this is preferred

Our 5 to 10 year reviews for all species will include the following:

1. an evaluation of BMPs for efficacy and deleterious effect.

GCWA Habitat Mitigation Ratios: Criteria and Rationale

I. SUMMARY OUTLINE OF PUBLISHED HABITAT-PATCH CRITERIA

I.A. Landscape Criteria: GIS metrics

1. **Closed canopy (50-100 % mid-upper canopy cover; TPWD 1995) woodland patch size**

- a. **Patch size:** very small < 20 ha, small = 20-39.9 ha, moderate = 40-99.9 ha, better = 100-249.9 ha, best > 250 ha (Diamond, 2007)

Note: Since GCWA territory size in average quality habitat is 20 ha (USFWS, 1992), areas < 20 ha may be important only if near (< 3 km; Belaire, 2007) large habitat blocks (> 250 ha; Diamond, 2007) with intervening restorable habitat

- b. **Core habitat** = (total ha) – (ha w/i 50 m of edge) (Diamond, 2007)

- c. **Edge habitat** = ha w/i 50 m of edge (Diamond, 2007)

- d. **Core/edge ratio**

2. **Distance to currently or future protected GCWA habitat?** order of priority: contiguous, < 3 km (Belaire, 2007), 3-12.25 km, > 12.25 km (DeBoer and Diamond, 2006)

3. Patch protection will enhance existing or future **preserve design**?

- a. Increase block or circular shape?
- b. Provide buffers (100-500 m wide) from high-density development?

4. Within **recharge or karst area**, for additional protection opportunities?

5. Calculate area, quality (“effective area”), and connectivity **GIS metrics** (Belaire, 2007), in order to rank importance of individual patches

6. **Patch fragmentation**

I.B. Local Patch Criteria: field metrics (in approximate order of priority)

1. Juniper-oak community **structure**:

- a. **Total % mid-upper canopy cover** (non-GCWA habitat < 34.9%, possible habitat = 35- 50%, good potential habitat = 50-70%, best habitat > 70%) (TPWD, 1995; Belaire, 2007)

- b. **Good GCWA habitat:** older closed-canopy woods with large oaks and junipers present, tree height > 5 m, moderate-high density, dense foliage (approx. 50-70 %) in middle and upper canopies
 - c. **Best GCWA habitat:** above structure but with variable tree heights, more deciduous oaks, taller trees (> 10 m), > 70% mid-upper canopy cover, free water
 - d. **Hardwoods % mid-upper canopy cover** (% cover by priority species: Texas oak, scaly bark (shin) oak, cedar elm, plateau live oak, little walnut, hackberry, Texas ash, etc.)
 - e. **Ashe juniper % mid-upper canopy cover** (10-90%; Ladd 1985, TPWD, 1995)
2. Local-scale **restoration feasibility** of degraded habitat (if < 70%)
- a. Average tree canopy cover: 35-50 % = fair or good restoration potential (TPWD, 1995), 50-70 % = excellent restoration potential (w/i 10-20 y; Belaire, 2007), *if a few large oaks and nearby suitable habitat are present*
 - b. Large oaks present? (Golden-cheeked Warbler Recovery Team, 1998)
 - c. Large junipers present?
 - d. Near (< 3 km; Belaire, 2007) suitable habitat? (Golden-cheeked Warbler Recovery Team, 1998)
 - e. Little or no soil erosion? (Golden-cheeked Warbler Recovery Team, 1998)
 - f. Mesic moisture conditions (north and east aspects)? (Golden-cheeked Warbler Recovery Team, 1998)
4. Landscape context which would reduce **browse** by deer, goats, exotic undulates? (Golden-cheeked Warbler Recovery Team, 1998)

II. PROPOSED SEP-HCP MITIGATION RATIOS: GCWA

The following variable-ratio proposal builds upon that approved by the Camp Bullis Programmatic Biological Opinion (2009), by incorporating published patch distance and size metrics applicable to large disturbed landscapes as refinements of patch suitability and occupancy status.

<u>Impacted Habitat:</u>	<u>Mitigation Ratios:</u>	
	Within 3 km of occupied patch > 100 ha	All other
Non-habitat Buffer: within 500 m of occupied habitat	1.0:1	0.5:1
Unoccupied Suitable Habitat	2.0:1	1.0:1
Unoccupied Suitable Habitat: within 500 m of occupied habitat	3.0:1	2.0:1
Occupied Suitable Habitat	4.0:1	3.0:1
Notes:		
1. Suitable habitat is defined according to TPWD (1995).		
2. Occupancy determined by presence within at least one of the prior 3 years according to USFWS P/A protocol, or by default (note # 3).		
3. For mitigation purposes, suitable habitat (TPWD, 1995) without a USFWS P/A protocol completed within one year is considered occupied by default.		
4. Habitat acquired for mitigation must be demonstrated to be of equal or greater quality compared to impacted habitat, including above distance and size metrics.		

References:

Belaire, A. 2007. Golden-cheeked warbler habitat prioritization in central Texas. M.S. thesis, Duke U.

DeBoer, T.S., and D.D. Diamond. 2006. Predicting presence-absence of the endangered golden-cheeked warbler (*Dendroica chrysoparia*). The Southwestern Naturalist 521: 181-190.

Diamond, D.D. 2007. Project Final Report: Range-wide modeling of golden-cheeked warbler habitat. 12/15/07 report to TPWD, unpublished document.

Golden-cheeked Warbler (*Dendroica chrysoparia*) Recovery Team. 1998. April 2-3, 1998, meeting minutes: responses to USFWS's questions, unpublished document.

Ladd, CG. 1985. Nesting habitat requirements of the golden-cheeked warbler. M.S. thesis, Texas State U., San Marcos, TX.

TPWD. 1995. Management guidelines for the golden-cheeked warbler in rural landscapes. Special TPWD leaflet funded by USFWS.

USFWS. 1992. Golden-cheeked warbler (*Dendroica chrysoparia*) Recovery Plan. Albuquerque, NM.