

Recommended Conservation Strategy for Golden-cheeked Warblers



Role of the BAT

Provide input on biological matters of the HCP

Assist in:

- (1) the calculation of harm to the endangered species; and
- (2) the sizing and configuring of the habitat preserves.

Calculation of Harm

The GCW is threatened by:

Loss of Habitat

Degredation of Habitat

Predators associated with fragmentation

Fragmentation

Calculation of Harm

Introduction

Time and effort is warranted

Expense is warranted

Note on Contributing to Recovery: The more we do, the sooner we can de-list the species

Warning about too little Take Authorization

Sizing and Configuration

Issues that we considered

Fragmentation

Encroachment

Disease Transmission

Predators

Catastrophic events

Management challenges

Range of the species

Sizing and Configuration

1 Big Property:

- Easier to manage

- No fragmentation

- Good source of new birds

- Very vulnerable to catastrophe

- Very expensive

- Not practical

- Not regionally helpful

Sizing and Configuration

Many little properties:

- Buffered against catastrophe

- More easily obtained

- Less expensive

- Spread throughout Range

- Difficult to manage

- Highly fragmented, little connection

- No guarantee of high reproduction

Sizing and Configuration

Recommendation is to combine 2 approaches:

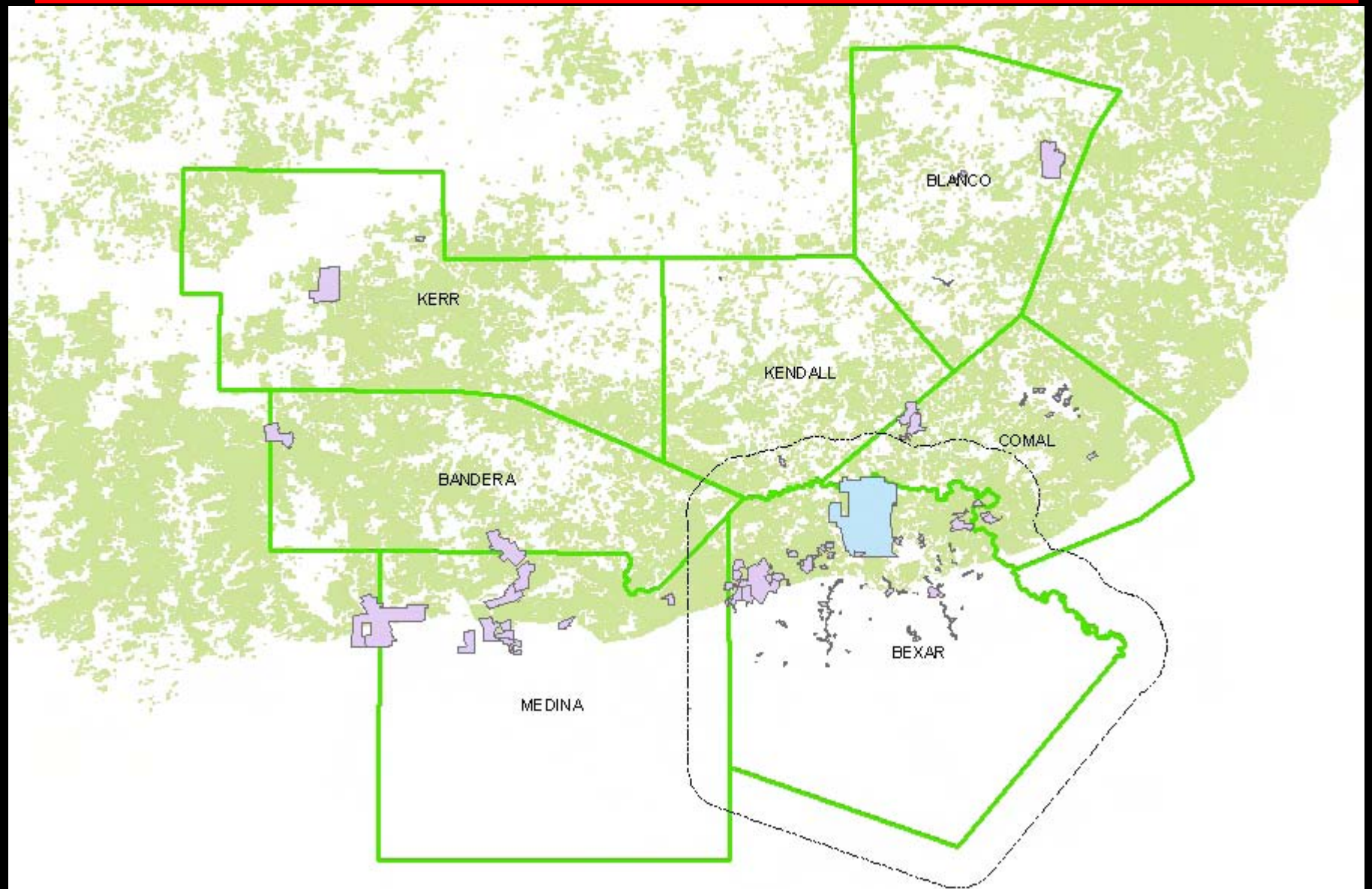
- Set a **goal** of protecting at least 1 big block in each county (except Blanco)
- A block could be 5,000-10,000 acres
- A block may be combined with existing lands
- Obtain the rest wherever you can in whatever pieces you can (500 acres min)

Sizing and Configuration

Recommendation

- Ensure conservation in Bexar County to address threats (required)
 - Obtain easements wherever you can
- Set priorities to have at least 1 block in

Sizing and Configuration



Mitigation Ratio

3:1 in Bexar County, but only 60% must be mitigated within Bexar County + Buffer

Buffer Bexar County by 5 miles for mitigation purposes

The remainder can be anywhere in the Plan Area

2:1 for all other mitigation

Mitigation is a sliding scale

	Authorized Take			Acres of Mitigation (habitat acres)		
	Bexar	Other	Total	Bexar	Other	Total
Scen 1	12,000	16,000	28,000	21,600	46,400	68,000
Scen 2	8,000	7,361	15,361	14,400	24,322	38,722

* The CAC should consider how much Take they want in the Plan *

Mitigation is a sliding scale

Total Size (incl. buffers)			
	Bexar	Other	Total
Scenario 1	27,000	58,000	85,000
Scenario 2	18,000	30,403	48,403

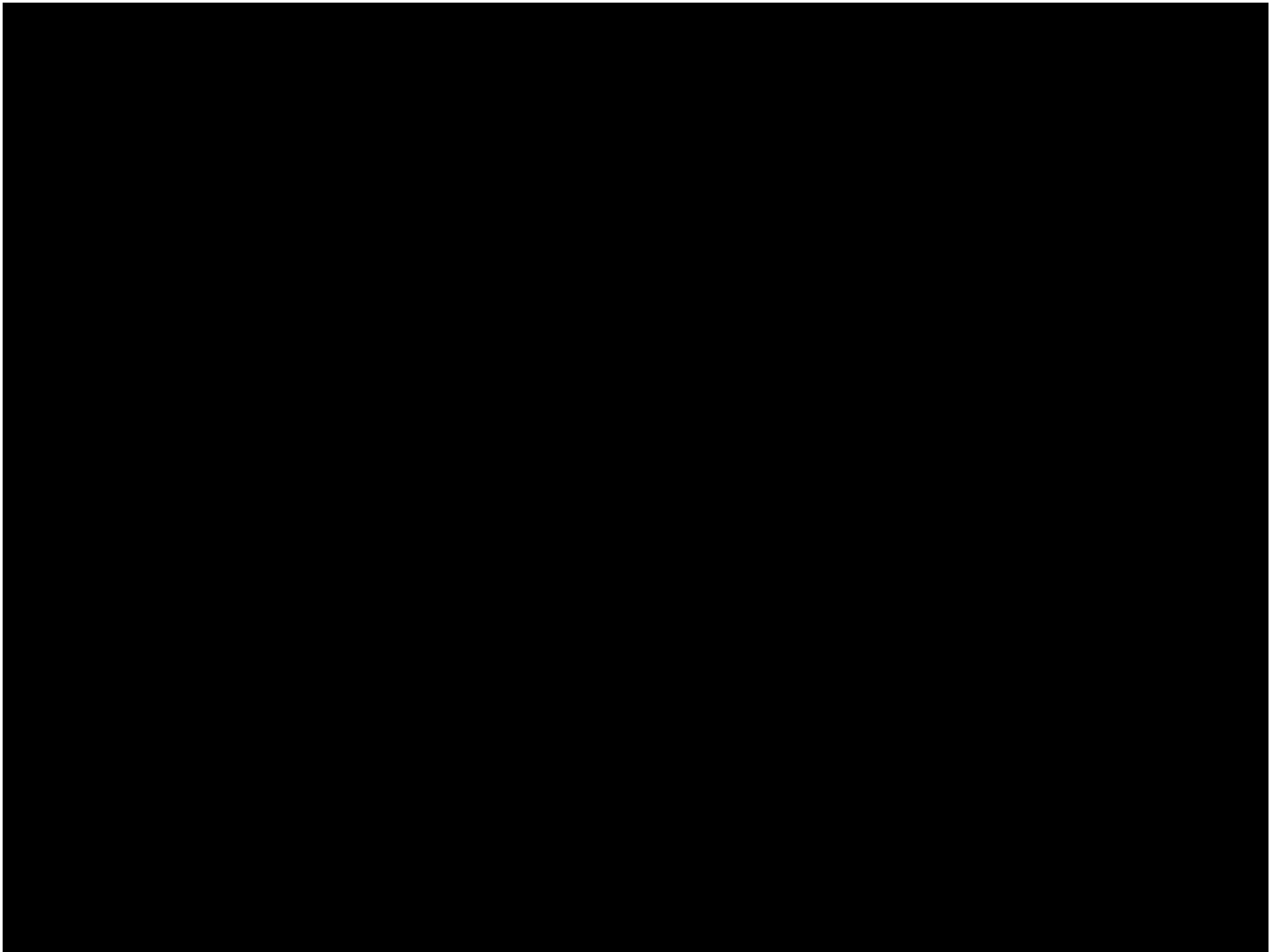
Restrictions

Use existing properties as building blocks

New Take requires New Protection
(Limit the existing properties used as
credit to 10% of entire effort)

Questions?





Karst Conservation Program

For SEP HCP CAC, 15 November 2010

Jean Krejca

ZARA
ENVIRONMENTAL LLC

Bexar County Nine Listed Karst Invertebrates



Rhadine exilis

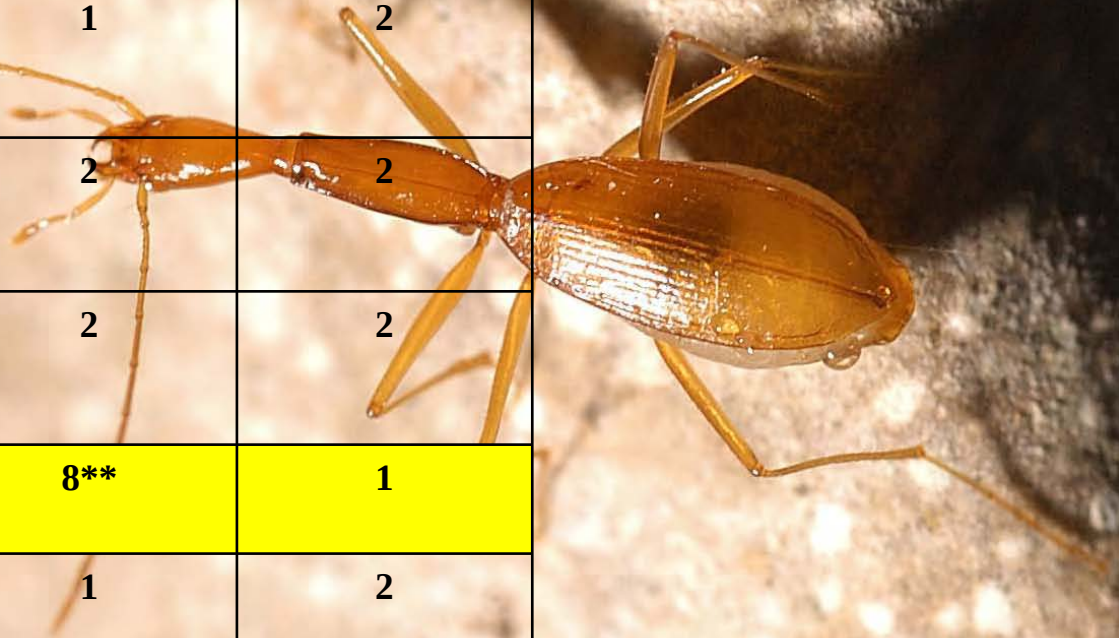
- **Six Arachnids:**

- *Cicurina madla* (Madla Cave Meshweaver)
- *Cicurina venii* (Bracken Bat Cave Meshweaver)
- *Cicurina vespera* (Govt. Canyon Bat Cave Meshweaver)
- *Cicurina baronia* (Robber Baron Cave Meshweaver)
- *Neoleptoneta microps* (Govt. Canyon Bat Cave Spider)
- *Texella cokendolpheri* (Cokendolpher Cave Harvestman)

- **Three Beetles:**

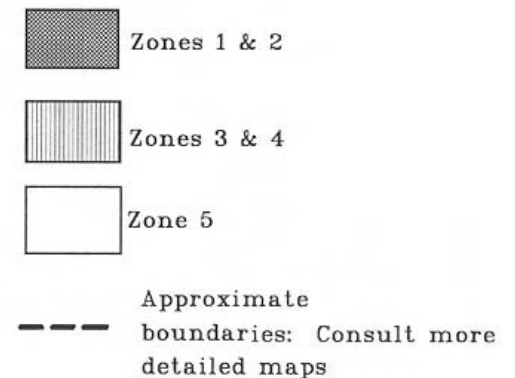
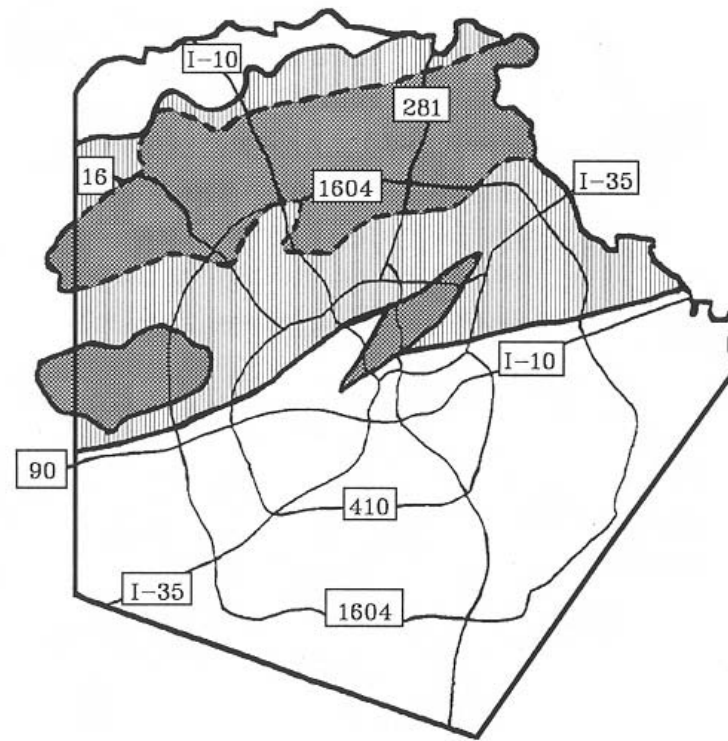
- *Rhadine exilis* (No Common Name)
- *Rhadine infernalis* (No Common Name)
- *Batrisodes (Excavodes) venyivi* (Helotes Mold Beetle)

Species	Common Name	# of Known Localities	SEP HCP Category
<i>Rhadine exilis</i>	Unnamed ground beetle	52	1
<i>Rhadine infernalis</i>	Unnamed ground beetle	36	1
<i>Batrisodes venyivi</i>	Helotes mold beetle	8	2
<i>Texella cokendolpheri</i>	Cokendolpher cave harvestman	1	2
<i>Neoleptoneta microps</i>	Government Canyon Bat Cave spider	2	2
<i>Cicurina baronia</i>	Robber Baron Cave meshweaver	2	2
<i>Cicurina madla</i>	Madla Cave meshweaver	8**	1
<i>Cicurina venii</i>	Bracken Bat Cave meshweaver	1	2
<i>Cicurina vespera</i>	Government Canyon Bat Cave meshweaver	1	2



• Participation

- Only in Karst zones 1-4
- These zones delineated based on geology and species' ranges
- More karst exists in the rest of the SEP HCP area, but there are not endangered karst species there

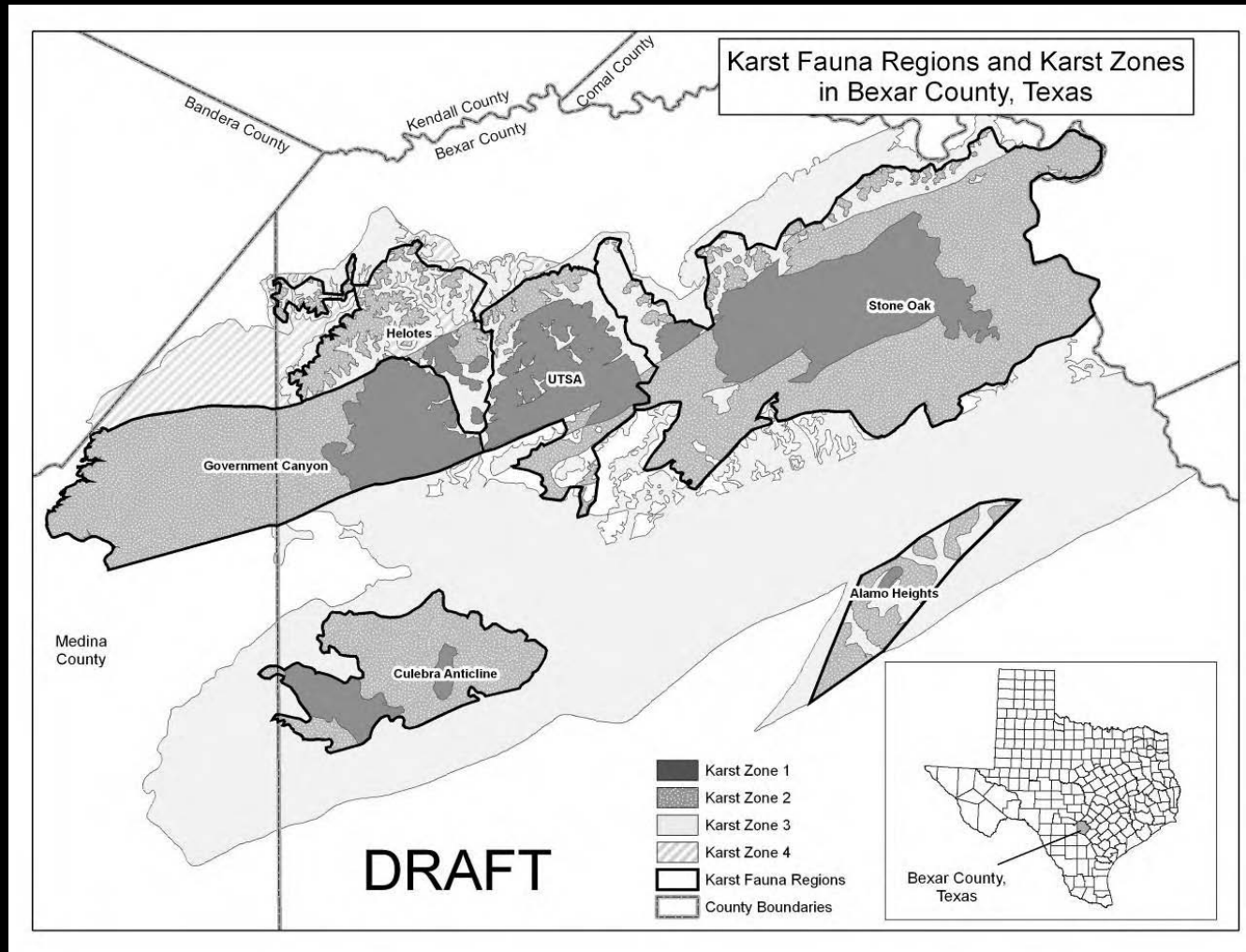


Karst Faunal Regions (KFRs): six regions

Karst Faunal Areas (KFAs): preserves w/in KFRs

Take authorized only in KFRs with 3 KFAs

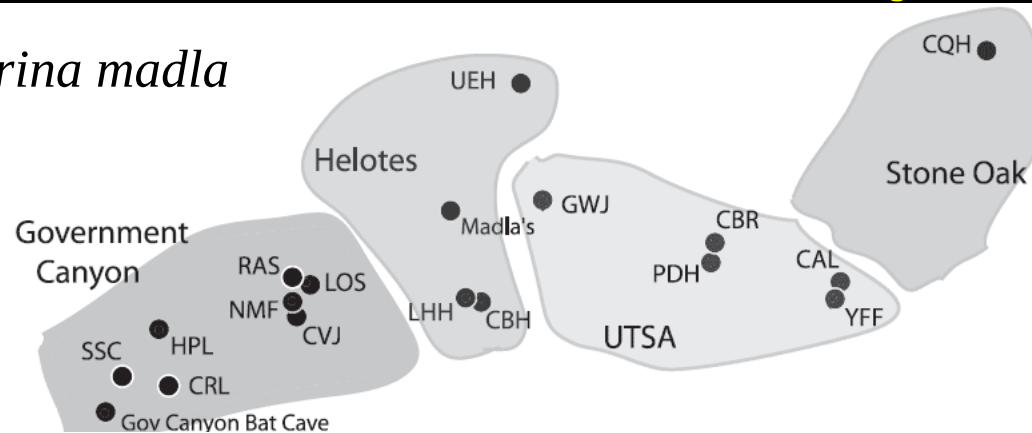
Total goal of 6
KFAs per
KFR



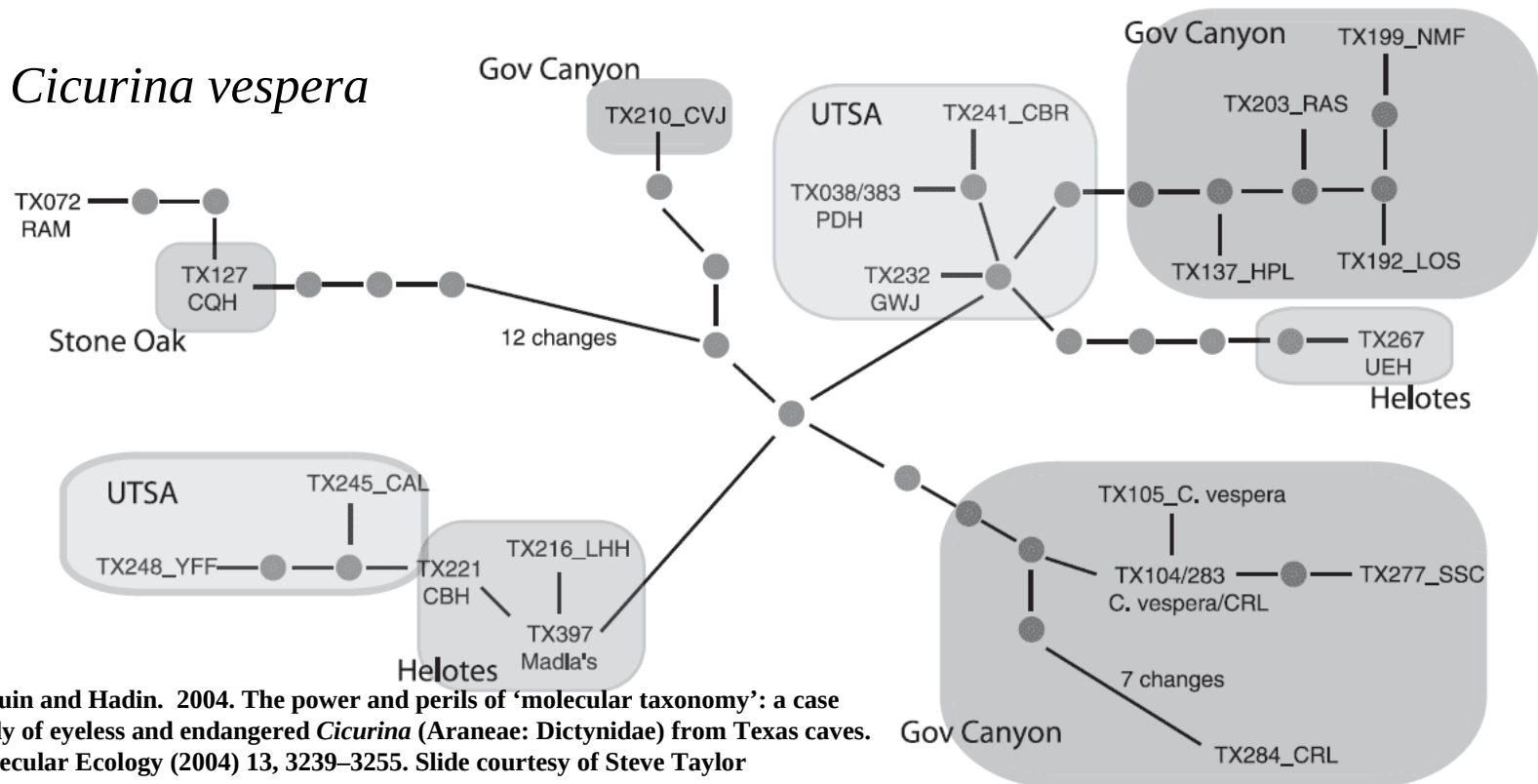
Rationale # 1. taxonomic uncertainty



Cicurina madla



Cicurina vespera



Paquin and Hadin. 2004. The power and perils of 'molecular taxonomy': a case study of eyeless and endangered *Cicurina* (Araneae: Dictynidae) from Texas caves. *Molecular Ecology* (2004) 13, 3239–3255. Slide courtesy of Steve Taylor

Rationale # 2. lack of information on species persistence



Rationale # 3. lack of recent information on species boundaries

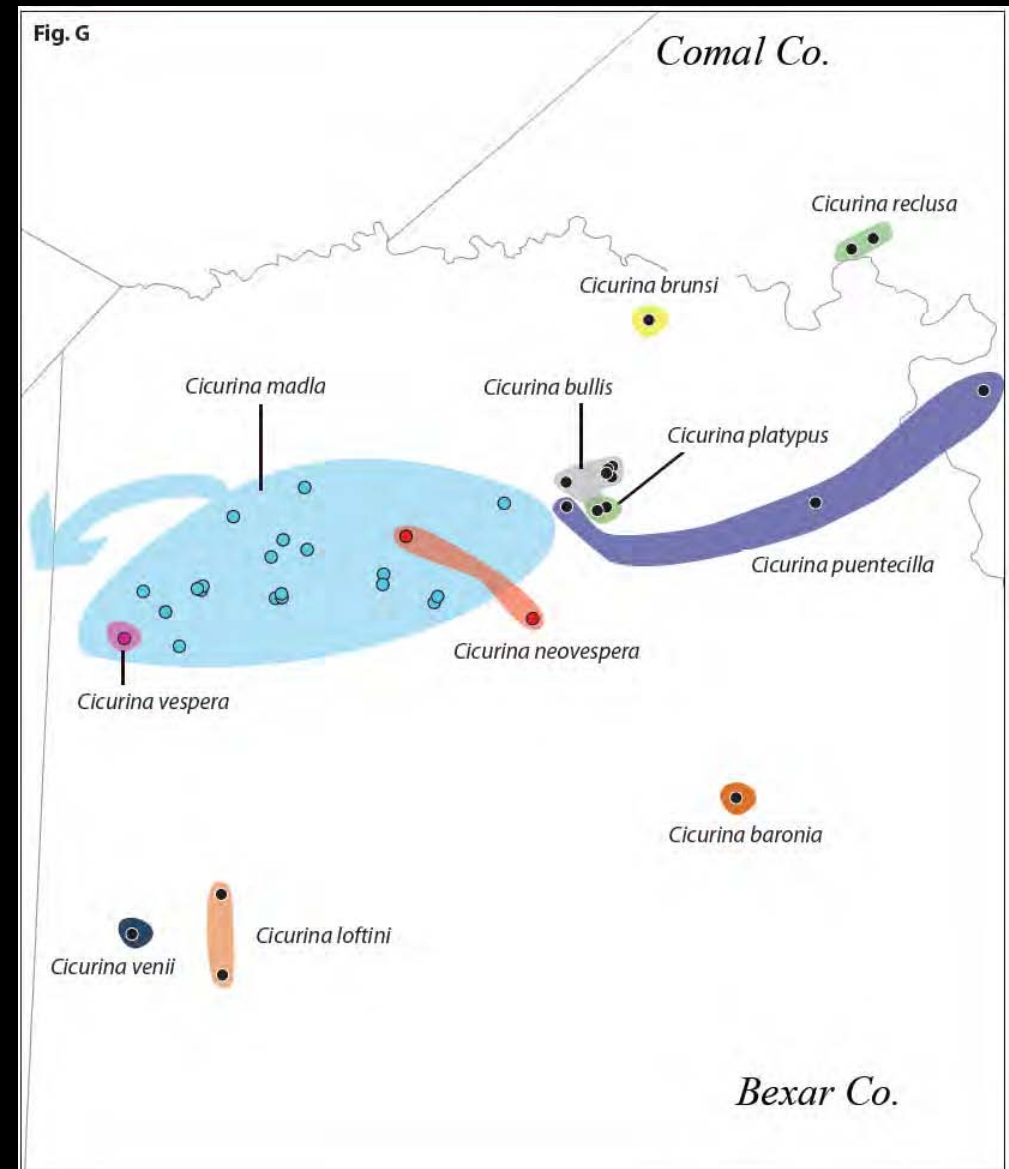


Image courtesy of James Reddell, drawn
by Pierre Paquin

KFA Standards:

High humidity

Stable temps

Water quality (surface and subsurface)

Low RIFA predation

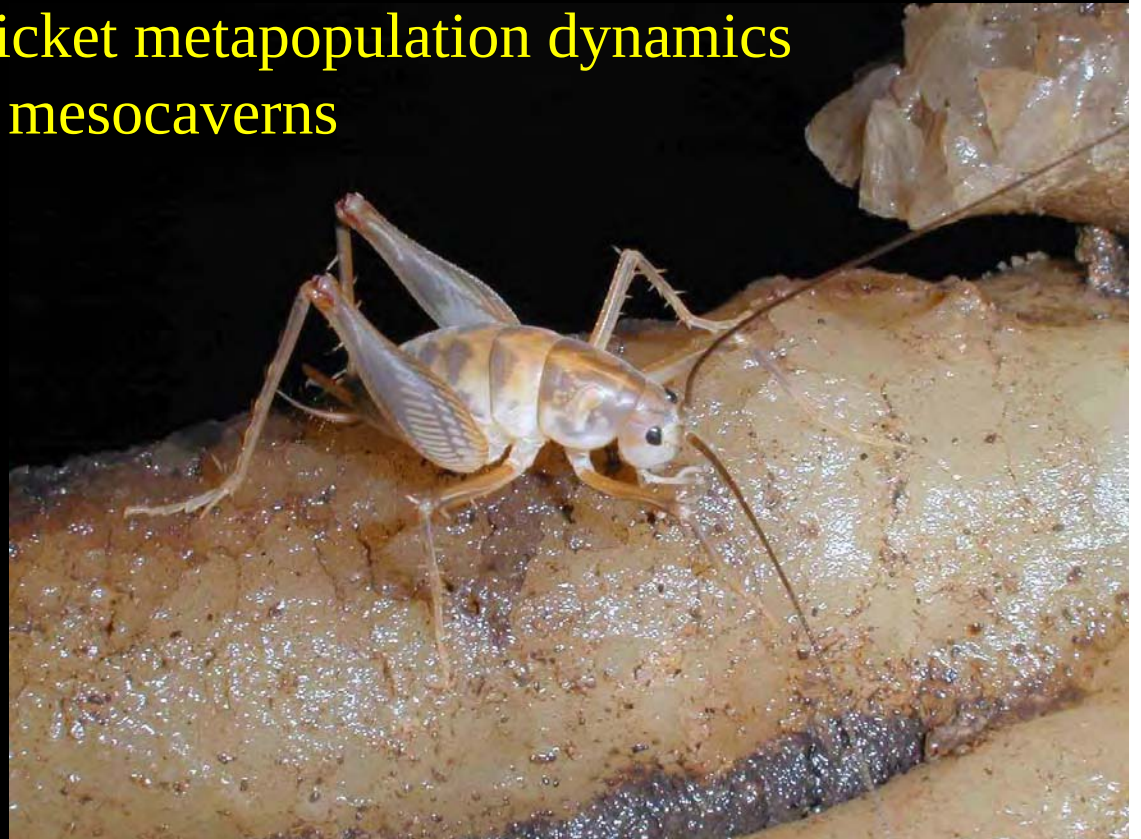
Healthy Cave cricket popn

Natural quantities of native plant and animals on surface

Adjacent features for cricket metapopulation dynamics

Good connectivity with mesocaverns

Minimum acreages



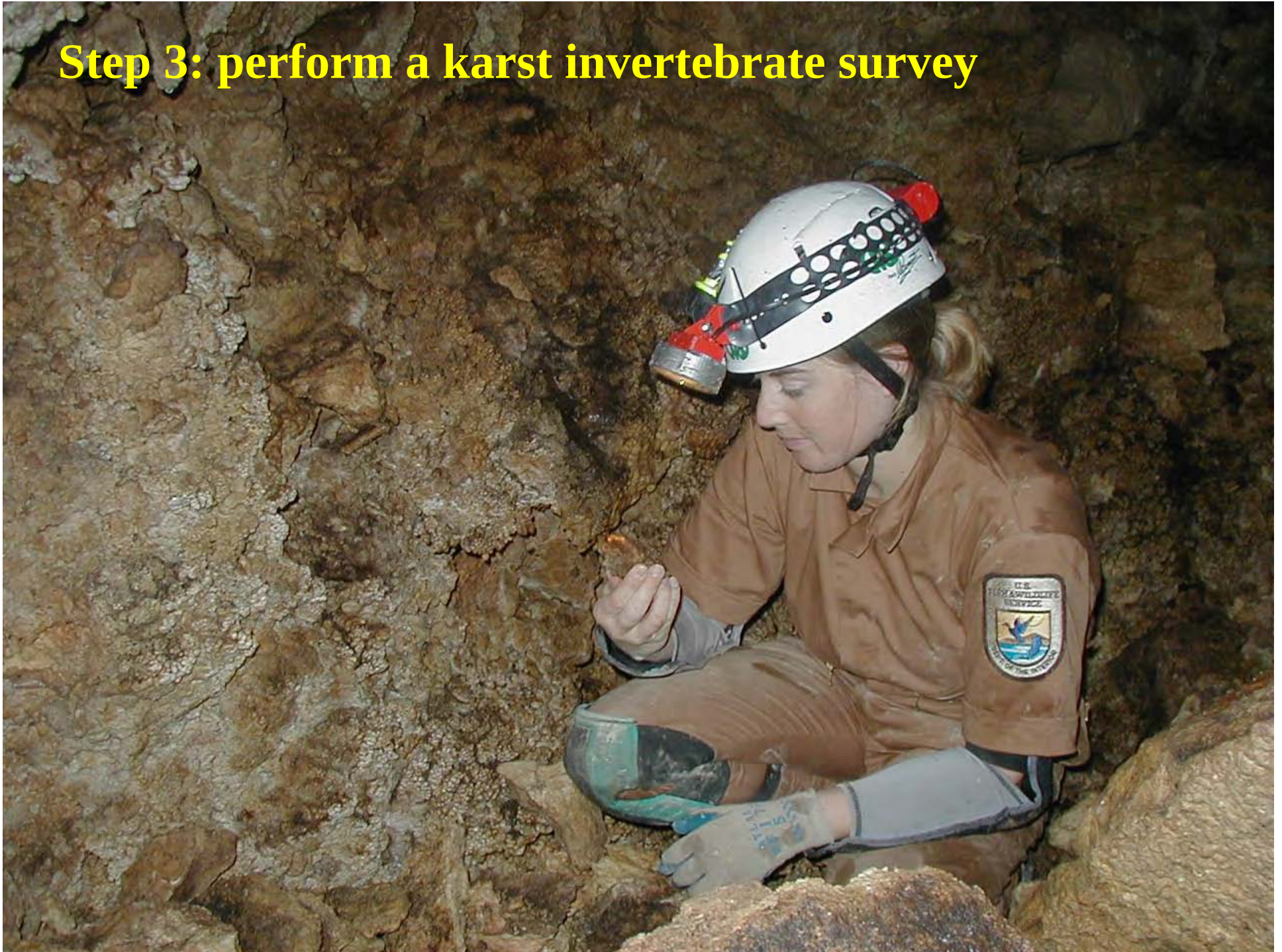
Step 1: conduct initial karst feature survey per USFWS (2006) protocols



Step 2: determine suitable habitat per USFWS (2006) protocols



Step 3: perform a karst invertebrate survey



**If species not
confirmed present,
pay minimal fee for
coverage for features
encountered during
construction**



If species confirmed present, either:

1. Avoid impacts

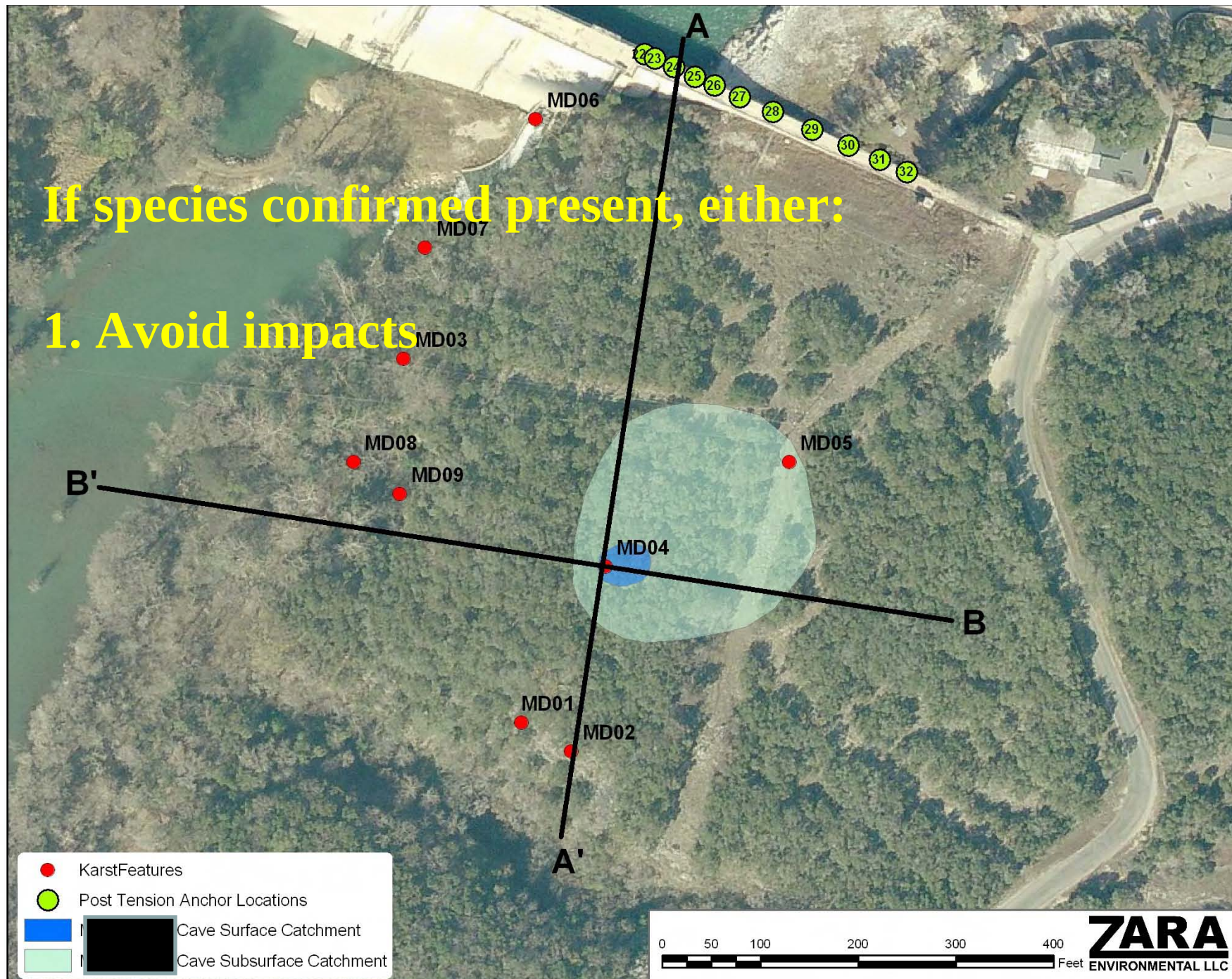
2. mitigate on-site (establish a KFA)

3. Mitigate off-site (pay a karst mitigation fee)



If species confirmed present, either:

1. Avoid impacts



If species confirmed present, avoid impacts (#1) or:

2. on-site mitigation (set aside land)

3. off-site mitigation (pay fees)



**If species confirmed present, pay fees (#3),
using one of two methods:**

“Bullseye” method

**Impact area 1:
0 to 150 feet =
very high cost**

**Impact area 2:
150 to approx 345 ft
= high cost**

“Survey” method

**Cave footprint:
very high cost**

**Surface, subsurface
drainage basin and
cricket foraging
area: high cost**

Map 1: General location of the critical habitat units for seven karst invertibrate species in Bexar County, Texas

