

BIOLOGICAL ADVISORY TEAM "BAT" MEETING
Hays County Regional Habitat Conservation Plan

MINUTES

WHEN: November 1, 2007

WHERE: A.E. Woods Fish Hatchery, 507 Staples Road, San Marcos TX 78666

Attendance:

BAT Members

- Craig Farquhar – Chair
- Terri Siegenthaler
- Garry Stephens
- Lee Elliott
- Linda Laack
- Randy Gibson
- Cal Newnam

HCP Consultant Team

- Loomis Austin, Inc.: Clifton Ladd, Amanda Aurora, Jennifer Williams, Emily Schieffer (Lopez-Garcia Group), Jean Krejca (Zara Environmental), and Peter Sprouse (Zara Environmental)
- Smith/Robertson: Melinda Taylor and Rebecca Hays

Others in Attendance

- Kevin Connally – Travis County BCCP
- Chris Ramser – Capital Area Council of Governments
- Rachael Ranft – The Nature Conservancy
- Christina Williams – U. S. Fish and Wildlife Service

1. Call to order: The BAT chairman Craig Farquhar called the meeting to order at 9:09am. Each individual in attendance introduced themselves and their affiliation.
2. Approve minutes from October 9, 2007 BAT Meeting: BAT members reviewed the minutes from the October 9, 2007 meeting. The minutes were approved by consent.
3. Citizen's Comments: No citizen comments were made.
4. Receive Briefing on Species Covered by the Balcones Canyonlands Conservation Plan: Kevin Connally (Travis County Environmental Specialist, Balcones Canyonlands Conservation Plan) gave a presentation on the Balcones Canyonlands Conservation Plan discussing the history, species covered, coverage options, what it includes, how the plan operates, and current progress of the BCCP.
5. Assessment and Consideration of Options for Species Coverage in the Hays County RHCP: BAT reviewed a complete list of species of concern in Hays County that was updated with comments from the BAT members. BAT members discussed and came to a consensus on a preliminary method of how to approach determining which species to address in the RHCP. The BAT requested that the consultant team review and update some of the species information and apply

the preliminary species filter. BAT also requested that the consultant team send out an updated species list for additional consideration at the next meeting.

6. Receive Briefing on Habitat Identification for the Golden-cheeked Warbler, Black-capped Vireo, and Karst Invertebrates: The consultant team briefly discussed methods for habitat identification for the golden-cheeked warbler and karst invertebrates in Hays County. Craig Farquhar requested that this issue be addressed in further detail at the next meeting.
7. Discuss and Take Appropriate Action on Agenda Items for Next Meeting: The BAT agreed that further discussion was needed on species to address in the RHCP and how to include them in the plan. The BAT also agreed to discuss habitat identification for the golden-cheeked warbler, black-capped vireo, and karst invertebrates in Hays County. BAT members agreed on a meeting time of 9:00am and a tentative date of December 6, 2007, with the location still to be determined.
8. Adjourn: Meeting was adjourned at 12:30pm.

Table 1. DRAFT Hays County Species of Concern (Preliminary BAT Filter), for discussion at BAT meeting on 12-6-07

Taxon	Common Name	Scientific Name	Habitat Type	Nature Serve G Rank _a	Nature Serve S Rank	Updated G/S Rank (Zara Env)	Federal Status	State Status	Forest Guardians Petition _b	Karst Waters Inst. List _c	Texas NDD List _d	TPWD Rare Spp List _e	Range and Localities		INCLUDE in HCP (initial BAT comments)		Prelim BAT Filter (Nov Mtg)**		
													County (green highlights are Hays County endemics per Randy Gibson)	Localities in Hays	Other info	YES		NO	
Plants	Texas Amorpha	Amorpha roemeriana	Terrestrial	G3	S3							x							
Plants	Hill Country wild-mercury	Argythamnia aphoroides	Terrestrial	G2	S2						x	x					x		
Plants	Texas Barberry	Berberis swaseyi	Terrestrial	G3	S3						x								
Plants	Leafy brickellbush	Brickellia dentata	Terrestrial	G3	S3						x								
Plants	Glass Mountains coral-root	Hexalectris nitida	Terrestrial	G3	S3						x								
Plants	Warnock's coral-root	Hexalectris warnockii	Terrestrial	G2G3	S2						x	x					x		
Plants	Heller's false-gromwell	Onosmodium helleri	Terrestrial	G3	S3						x								
Plants	Canyon mock-orange	Philadelphus ernestii	Terrestrial	G2	S2						x	x					x		
Plants	Buckley tridens	Tridens buckleyanus	Terrestrial	G3	S3						x								
Plants	Texas wild-rice	Zizania texana	Aquatic	G1	S1		LE	E			x	x				LE, LL, RG--	x		
Plants	Tall dodder	Cuscuta exaltata	Terrestrial	G3	S3											LE			
Plants	Scarlet virgin's-bower	Clematis texensis	Terrestrial	G3	S3											LE			
Plants	Hall's prairie-clover	Dalea hallii	Terrestrial	G3	S3											LE			
Plants	Sycamore-leaf snowbell	Styrax platanifolius subsp. platanifolius	Terrestrial	G3T3	S3											LE last obs - 1989			
Plants	Heller's beardtounge	Penstemon triflorus subsp. integrifolius	Terrestrial	G3T3	S3											LE taxonomic issues			
Plants	Texas seymeria	Seymeria texana	Terrestrial	G3	S3											LE			
Plants	Osage plains false foxglove	Tomanthera densiflora (=Agalinis)	Terrestrial	G3	S3											LE Historical			
INVERTEBRATES																			
Turbellarians	Aquifer flatworm	Sphalloplana mohri	Aquatic/Karst	G3	SNR	G2 S2								Hays, Kendall, Travis	Ezell's Cave?	This species complex was lumped, probably inappropriately, by Kenk in 1977. Even with the lumping (based on no internal anatomy), it's known from only 6 localities.			
Arachnids	Bandit Cave spider	Cicurina bandida	Karst	G1G2	S1	G3 S3			x	x		x		Hays, Travis, Williamson	Taylor Bat Cave	recent molecular work shows this critter from over 20 localities in Hays and Travis Counties	LE, RG	GS	x
Arachnids	A cave obligate spider	Cicurina cueva	Karst	G1G2	S1	G3 S3			x	x	x	x		Hays, Travis, Williamson		recent molecular work indicates this critter will probably be synonymized with C. bandida, and known from over 20 localities in Hays and Travis Counties	LE, RG	GS	x
Arachnids	A cave obligate spider	Cicurina ezelli	Karst	G1G2	SNR	S1								Hays (endemic)	Ezell's Cave, Grapevine Cave		LE, RG--	GS	x
Arachnids	A cave obligate spider	Cicurina russelli	Karst	G1G2	SNR	S1				x				Hays/Comal (endemic)	Boyet's Cave		LE, RG--	GS	x
Arachnids	A cave obligate spider	Cicurina ubicki	Karst	G1G2	SNR	S1				x				Hays (endemic)	Fern Cave, McGlothlin Sink		LE, RG	GS	x
Arachnids	Undescribed Chernetid pseudoscorpion	Dinocheirus sp.	Karst			probably should strike this from list, undetermined specimen and guano associate, see Muchmore 1992 for verification on this.							x	Hays, Edwards	a chernetid pseudoscorpion known only from Wheat Cave in Edwards Co and Arrowhead Cave in Hays County		RG	GS	
Arachnids	Undescribed cave obligate spider	Eidmannella n. sp.	Karst			G1 S1							x	Hays	a definite new species from Ezells, possibly also in McCarty Cave and McLaughlin Sink in Hays Co.		RG	GS	
Arachnids	A Cave spider	Gaucelmus augustinus	Karst	G3G4		S3S4						x		Comal, Hays, Kendall, Travis, Comal			RG	GS	
Arachnids	Pseudoscorpion	Hesperochernes unicolor	Karst			probably strike from list, a surface thing that just shows up in caves							x	SWG	a chernetid pseudoscorpion known only from Lakeline Cave in Wmson Co and Ezells Cave in Hays County: ask James about me!!		RG	GS	
Arachnids	Undescribed cave obligate spider	Neoleptoneta n. sp. 1	Karst			G1 S1							x	Hays (endemic)	sp. 1 from Boyett's Cave, sp. 2 from Burnett Ranch Cave		RG--	GS	x
Arachnids	Undescribed cave obligate spider	Neoleptoneta n. sp. 2	Karst			G1 S1								Hays	sp. 1 from Boyett's Cave, sp. 2 from Burnett Ranch Cave				
Arachnids	Undescribed cave obligate spider	Neoleptoneta n. sp. eyeless	Karst			G1 S1								Hays	Katy's Cave (Paquin, pers. comm. 2007)				
Arachnids	Undescribed species	Psilochorus sp.	Karst			probably strike from list, not very cave adapted and likely is much more widely distributed							x				RG	GS	

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Arachnids	A pseudoscorpion	Tartarocreagris comanche	Karst	G2G3	SNR	probably not troglobite, probably strike from list, see Muchmore 1992 and Muchmore 2001 for verification on this.				x			Burmet, Hays, Travis			LE, RG	GS	x
Arachnids	A pseudoscorpion	Tartarocreagris cookei	Karst	GNR	SNR	not troglobite, probably strike from list, see Muchmore 1992 and Muchmore 2001 for verification on this.				x			Bandera, Bexar, Comal, Hays	Magen's Sink		RG	GS	
Arachnids	A pseudoscorpion	Tartarocreagris grubbsi	Karst	GNR	SNR	G1 S1				x			Hays (endemic)	Wissman's Sink		LE, RG--	GS	x
Arachnids	A cave obligate harvestman	Texella diplospina	Karst	G1G2	SNR	S1				x			Hays (endemic)	Ladder Cave		LE, RG--	GS	x
Arachnids	A cave obligate harvestman	Texella grubbsi	Karst	G1G2	SNR	S2				x			Burmet, Hays, Travis	Burnett Ranch Cave, Wissman's Sink, Wissman's Sink #2		LE, RG--	GS	x
Arachnids	A cave obligate harvestman	Texella mulaiki	Karst	G2G3	SNR	G2 S2				x			Comal, Hays, Williamson, Travis	Boggus Cave, Ezell's Cave, Fern Cave, Ladder Cave, McCarty Cave, McGlothlin Sink, Tricophorous Cave		RG	GS	x
Arachnids	A cave obligate harvestman	Texella renkesae	Karst	G1G2	SNR	S1				x			Hays (endemic)	Ezell's Cave, Maggens Sink Hole		LE, RG--	GS	x
Arachnids	A cave obligate pseudoscorpion	Tyrannochthonius texanus	Karst	G2G3	SNR	strike from list, widespread on surface				x			Hays (endemic)	Arrowhead Cave		RG--	GS	x
Arachnids	Undescribed pseudoscorpion	Tyrannochthonius n. sp.	Karst			G1 S1, but not a troglobite (Muchmore said), genus is not well worked out, probably should strike from list				x			Bexar, Hays	Wissman's Sink		RG	GS	
Crustaceans	A cave obligate amphipod	Allotexiweckelia hirsuta	Aquatic/Karst	G2G3	SNR	G1 S1				x			Bexar, Hays	TSU Well		RG	GS	x
Crustaceans	A cave obligate amphipod	Artesia subterranea	Aquatic/Karst	G1G2	SNR	G1 S1				x			Comal, Hays	Diversion Spring, TSU Well		LE, RG	GS	x
Crustaceans	A terrestrial cave obligate isopod	Brackenridgia cavernarum	Karst	G3G4	SNR	S3S4				x			?	Beaver Cave, Ezell's Cave		RG	GS	
Crustaceans	An aquatic isopod	Caecidotea reddelli	Aquatic/Karst	G4	SNR	S3S4				x			Bell, Coryell, Dallas, Hays, Henderson, Limestone, San Augustine, Travis, Williamson		central to northeastern TX	RG	GS	
Crustaceans	An aquatic cave obligate isopod	Cirolanides texensis	Aquatic/Karst	G4	SNR	G3 S3				x			southern Edwards Plateau region in TX and N Mexico	Diversion Spring, Ezell's Cave, Rattlesnake Cave, TSU Well		RG	GS	
Crustaceans	A cave obligate amphipod	Holsingerius samacos	Aquatic/Karst	G1G2	SNR	G1 S1				x			Hays (endemic)	TSU Well		LE, RG--	GS	x
Crustaceans	Texas troglobitic water slater	Lirceolus smithii	Aquatic/Karst	G1G2	S1	G1 S1			x			x	Hays (endemic)	Diversion Spring, TSU Well		LE, RG--	GS	x
Crustaceans	A cave obligate crustacean	Tethysbaena texana	Aquatic/Karst	G2G3	S1	G1 S1						x	Bexar, Comal, Hays, Uvalde	Diversion Spring, Ezell's Cave, TSU Well	new name - <i>Tethysbaena texana</i>	RG	GS	x
Crustaceans	Balcones cave shrimp	Palaemonetes antrorum	Aquatic/Karst	G2G3	S1	G2 S2				x			Hays, Bexar	Diversion Spring, Ezell's Cave, TSU Well	Uvalde Record probably bad, known from 8 localities in 2 cos.	RG	GS	x
Crustaceans	A cave obligate decapod	Calathaemon holthuisi	Aquatic/Karst	G1G2	SNR	G1 S1				x			Hays (endemic)	Ezell's Cave, TSU Well?	new name - <i>Calathaemon holthuisi</i>	LE, RG--	GS	x
Crustaceans	A cave obligate amphipod	Seborgia relict	Aquatic/Karst	G2G3	SNR	G1 S1				x			Comal, Hays, Medina	Ezell's Cave, TSU Well		RG	GS	x
Crustaceans	Balcones cave amphipod	Stygobromus balconis	Aquatic/Karst	G2G3	S1	G1 S1				x			Hays, Travis	Autumn Woods Well, Boyett's Cave		RG	GS	x
Crustaceans	Ezell's cave amphipod	Stygobromus flagellatus	Aquatic/Karst	G2G3	S1	G1G2/S1S2				x			Comal, Hays, Travis	Diversion Spring, Ezell's Cave, Rattlesnake Cave, TSU Well	for sure known from TSU well and SM Springs, possibly known from 3 wells in Bexar Co., plus a questionable specimen from Rattlesnake Cave in hays Co.	LE, RG	GS	x
Crustaceans	An Amphipod	Stygobromus russelli	Aquatic/Karst	G4	S3	G3G4/S3S4				x			widespread in central TX - hyporheic	widespread in springs and hyporheic		RG	GS	
Crustaceans	A cave obligate amphipod	Texiweckelia texensis	Aquatic/Karst	G2G3	SNR	G1 S1				x			Bexar, Hays	Diversion Spring, TSU Well	Jeans comment: ONLY in 2 localities in Hays, we're 90% sure of this, see Holsinger and Longley 1980 to verify	RG	GS	x
Crustaceans	A cave obligate amphipod	Texiweckelia insolita	Aquatic/Karst	G3	SNR	G1 S1				x			Bexar, Hays	Diversion Spring, TSU Well		RG	GS	
Diplopods	A cave obligate millipede	Speodesmus echinourus	Karst	G2G3	SNR	G3G4/S3S4				x			Bexar, Hays, Travis			RG	GS	x
Hexapods	A cave obligate springtail	Arrhopalites texensis	Karst	G3G4	SNR	G2G3 S2S3				x					only definitively known from 8 localities, but probably more widespread.	RG	GS	
Hexapods	A cave obligate thysanuran	Texoreddellia texensis	Karst	G4	SNR	G2 S2				x					current manuscript splits this species like crazy, but type locality is Ezell's and therefore T. texensis may be a G1	RG	GS	
Insects	A mayfly	Allenhyphes michaeli	Aquatic	G5	SNR							x	Blanco, Hays, Kendall, Tom Green, Uvalde			RG	LE (G5)	
Insects	Leonora's dancer damselfly	Argia leonora	Aquatic	G3	S2							x	from Burnet south to Brooks and west to Hudspeth			RG		

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Insects	Texas austrotinodes caddisfly	Austrotinodes texensis	Aquatic/Karst	G2	S2							x	Hays, Bandera, Val Verde	Fern Bank, ?		RG	GS	x
Insects	An ant-like litter beetle	Batrisodes grubbsi	Karst	G1G2	SNR	G1 S1				x	x		Hays (endemic)	Grapvine Cave		LE, RG--	GS	x
Insects	Rawsons metalmark	Calephelis rawsoni	Terrestrial	G4	SNR							x	central, south, west TX - 3 disjunct populations - Quinn?			RG		
Insects	Flint's net-spinning caddisfly	Cheumatopsyche flinti	Aquatic	G3	S3							x	Bandera, Hays, Uvalde, Val Verde	San Marcos River		RG	LE	
Insects	Comal Springs diving beetle	Comaldessus stygius	Aquatic/Karst	G1	S1				x			x	Comal, maybe Hays	might be at Fern Bank but not confirmed		LE, RG	GS	x
Insects	Edwards Aquifer diving beetle	Haideoporus texanus	Aquatic/Karst	G1G2	S1				x			x	Comal, Hays	TSU Well		LE, RG	GS	x
Insects	Comal Springs riffle beetle	Heterelmis comalensis	Aquatic	G1	S1		LE					x	Comal, Hays	San Marcos Springs		LE, LL, RG--		x
Insects	A mayfly	Procloeon distinctum	Aquatic	G1G3	SNR							x	Hays, Williamson			LE, RG		x
Insects	San Marcos saddle-case caddisfly	Protoptila arca	Aquatic/Karst	G1	S1				x			x	Hays (endemic)	upper San Marcos River		LE, RG--	GS	x
Insects	A Cave Obligate Beetle	Rhadine austinica	Karst	G1G2	SNR	G2G3 S2S3			x				Hays, Travis	Dahlstrom Cave, Michaelis Cave	known from about 20 caves	LE, RG	GS	x
Insects	A Cave Obligate Beetle	Rhadine insolita	Karst	G1G2	SNR	G1 S1						x	Comal, Hays	Grapevine Cave	only 2 localities; fissure Cave and Grapevine Cave	LE, RG	GS	x
Insects	Undescribed species	Rhadine n. sp. 2 (subterranea group)	Karst			G1 S1						x	Hays (endemic)	Ezell's Cave, Lime Kiln Quarry Cave, McCarty Cave		LE, RG	GS	x
Insects	Undescribed species	Rhadine n. sp. (subterranea group Boyett's)				G1 S1							Hays	Boyett's Cave				
Insects	Comal Springs dryopid beetle	Stygoparnus comalensis	Aquatic	G1G2	S1		LE					x	Comal, Hays	Fern Bank		LE, RG--		x
Mollusks	Rock pocketbook	Arcidens confragosus	Aquatic	G4	SNR							x	east Texas			RG		
Mollusks	Texas fatmucket	Lampsilis bracteata	Aquatic	G1	SNR				x			x	Colorado, Concho, San Saba, San Marcos, Guadalupe, San Antonio			LE		x
Mollusks	Flattened cavesnail	Phreatodrobia micra	Aquatic	G2G3	S2S3	G2 S2				x			Comal, Hays, Kendall		6 reliable records	RG		x
Mollusks	Domed cavesnail	Phreatodrobia nugax	Aquatic	G3G4	S3	G3 S3				x			Bexar, Comal, Hays, Kendal, Travis		check this paper: Hershler, R. and G. Longley, 1986a. Phreatic hydrobiids (Gastropoda: Prosobranchia) from the Edwards (Balcones Fault Zone) Aquifer region, south-central Texas. Malacologia 27:127-172	RG		
Mollusks	Disc cavesnail	Phreatodrobia plana	Aquatic	G2	SNR	G1 S1				x			Comal, Hays		3 localities Artesian Well, SM springs, Nat. Bridge caverns	RG		x
Mollusks	High-hat cavesnail	Phreatodrobia punctata	Aquatic	G2	SNR	G1 S1				x			Hays, Travis	Diversion Springs	2 localities: SM springs, Barton Spgs	RG		x
Mollusks	Beaked cavesnail	Phreatodrobia rotunda	Aquatic	G1G2	SNR	G1 S1				x			Hays (endemic)	TSU Well AND SM SPRINGS	2 localities only	LE, RG--		x
Mollusks	Golden orb	Quadrula aurea	Aquatic	G1	SNR							x	Colorado, San Marcos, Guadalupe, San Antonio, Frio, Nueces			LE, RG		x
Mollusks	Texas pimpleback	Quadrula petrina	Aquatic	G2	SNR							x	Colorado and Guadalupe river basins			LE, RG		x
Mollusks	False spike mussel	Quincuncina mitchelli	Aquatic	GH	SH							x	Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins			RG		
Mollusks	Creeper (squawfoot)	Strophitus undulatus	Aquatic	G5	S1							x	Colorado and Guadalupe river basins			RG		
Mollusks	Pistolgrip	Tritogonia verrucosa	Aquatic	G4G5	S2							x	central to eastern Texas					
VERTEBRATES																		
Fishes	American eel	Anguilla rostrata	Aquatic	G4	S5							x				RG		
Fishes	Blue sucker	Cycleptus elongatus	Aquatic	G3G4	S3			T				x				RG		
Fishes	Fountain darter	Etheostoma fonticola	Aquatic	G1	S1		LE	E			x	x				LE, LL, RG		x
Fishes	Largespring gambusia	Gambusia geiseri	Aquatic	G4	S4						x					RG		
Fishes	San Marcos gambusia	Gambusia georgei	Aquatic	GX	SX		LE	E			x	x				LE, LL, RG		x
Fishes	Guadalupe bass	Micropterus treculii	Aquatic	G3	S3							x				RG		
Fishes	Guadalupe darter	Percina sciera apristis	Aquatic									x				RG		
Amphibians	San Marcos salamander	Eurycea nana	Aquatic/Karst	G1	S1		LT	T		x	x	x	Hays (endemic)	upper San Marcos River		LE, LL, RG--	GS	x
Amphibians	Blanco River springs salamander	Eurycea pterophila	Aquatic/Karst	G2	S2						x	x	Blanco, Hays, Kendall	springs flowing into Blanco River		LE	GS	x
Amphibians	Texas blind salamander	Eurycea rathbuni	Aquatic/Karst	G1	S1		LE	E			x	x	Hays (endemic)	Diversion Spring, Ezell's Cave, Rattlesnake Cave, Primer's Well, Sessoms Cr., TSU Well		LE, LL, RG--	GS	x
Amphibians	Blanco blind salamander	Eurycea robusta	Aquatic/Karst	G1Q	S1			T	x	x	x	x	Hays	underneath the Blanco River		LE, RG--	GS	x

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Reptiles	Cagle's map turtle	Graptemys caglei	Aquatic	G3	S3			T			x	x	Guadalupe River system	Blanco River		RG--	LE (OLD DATA)	x
Reptiles	Spot-tailed earless lizard	Holbrookia lacerata	Terrestrial	G3G4	S3?							x					LE (OLD DATA)	
Reptiles	Texas horned lizard	Phrynosoma cornutum	Terrestrial	G4G5	S4			T				x						x
Reptiles	Texas garter snake	Thamnophis sirtalis annectens	Terrestrial	G5T4	S3						x	x						LE (OLD DATA)
Birds	Western Burrowing Owl	Athene cucularia hypugaea	Terrestrial	G4T4	S2B							x						
Birds	Zone-tailed Hawk	Buteo albonotatus	Terrestrial	G4	S3B			T				x						
Birds	Mountain Plover	Charadrius montanus	Terrestrial	G2	S2							x						x
Birds	Golden-cheeked Warbler	Dendroica chrysoparia	Woodland	G2	S2B		LE	E			x	x					LE, LL, GS, RG	x
Birds	Peregrine Falcon	Falco peregrinus	Terrestrial	G4	S3		DL	E T				x						
Birds	American Peregrine Falcon	Falco peregrinus anatum	Terrestrial	G4T4	S2B		DL	E				x						
Birds	Arctic Peregrine Falcon	Falco peregrinus tundrius	Terrestrial	G4T3T4	S3N		DL	T				x						
Birds	Whooping Crane	Grus americana	Terrestrial	G1	S1		LE	E				x					LE, LL, RG	x
Birds	Bald Eagle	Haliaeetus leucocephalus	Terrestrial	G5	S3B, S3N		DL	T				x						
Birds	Black-capped Vireo	Vireo atricapilla	Shrubland	G2G3	S2B		LE	E			x	x					LE, LL, GS, RG	x
Mammals	Red wolf	Canis rufus	Terrestrial	G1Q	SX		LE	E				x					LE, LL, RG	x
Mammals	Cave myotis bat	Myotis velifer	Terrestrial	G5	S4							x						
Mammals	Plains spotted skunk	Spilogale putorius interrupta	Terrestrial	G5T4	S3							x						
a : Nature Serve rank provided by the Forest Guardians List and Karst Waters Institute List															Filtered Count		60	
b : Forest Guardians Petition available at: http://www.fguardians.org/support_docs/petition_protection-4																		
c : Karst Waters Institute List available at: http://www.karstwaters.org/troglist.htm species_id_2003.xls																		
d : Texas Natural Diversity Database (TXNDD) information was requested by Loomis Austin, Inc.																		
e : TPWD Rare Species List is available at: http://gis.tpwd.state.tx.us/tpwEndangeredSpecies/Desktop																		
Initial BAT Comments (Key)																		
BOLD initials represent federally listed taxa																		
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Purple cells are name spelling corrections and additions to the list made by J. Krejca.																		

Table 2. Filtered DRAFT Hays County Species of Concern (preliminary BAT filter).

Taxon	Common Name	Scientific Name	Habitat Type	Nature Serve G Rank ^a	Nature Serve S Rank	Updated G/S Rank (Zara Env)	Federal Status	State Status	Forest Guardians Petition ^b	Karst Waters Inst. List ^c	Texas NDD List ^d	TPWD Rare Spp List ^e	Range and Localities		INCLUDE in HCP (initial BAT comments)		Prelim BAT Filter (Nov Mtg)**	
													County (green highlights are Hays County endemics per Randy Gibson)	Localities in Hays	Other info	YES		NO
Plants	Hill Country wild-mercury	Argythamnia aphoroides	Terrestrial	G2	S2						x	x						x
Plants	Warnock's coral-root	Hexaletris warnockii	Terrestrial	G2G3	S2						x	x						x
Plants	Canyon mock-orange	Philadelphus ernestii	Terrestrial	G2	S2						x	x						x
Plants	Texas wild-rice	Zizania texana	Aquatic	G1	S1		LE	E			x	x						x
Arachnids	Bandit Cave spider	Cicurina bandida	Karst	G1G2	S1	G3 S3			x	x		x	Hays, Travis, Williamson	Taylor Bat Cave	recent molecular work shows this critter from over 20 localities in Hays and Travis Counties	LE, RG	GS	x
Arachnids	A cave obligate spider	Cicurina cueva	Karst	G1G2	S1	G3 S3			x	x	x	x	Hays, Travis, Williamson		recent molecular work indicates this critter will probably be synonymized with C. bandida, and known from over 20 localities in Hays and Travis Counties	LE, RG	GS	x
Arachnids	A cave obligate spider	Cicurina ezelli	Karst	G1G2	SNR	S1							Hays (endemic)	Ezell's Cave, Grapevine Cave		LE, RG--	GS	x
Arachnids	A cave obligate spider	Cicurina russelli	Karst	G1G2	SNR	S1							Hays/Comal (endemic)	Boyett's Cave		LE, RG--	GS	x
Arachnids	A cave obligate spider	Cicurina ubicki	Karst	G1G2	SNR	S1							Hays (endemic)	Fern Cave, McGlothlin Sink		LE, RG	GS	x
Arachnids	Undescribed cave obligate spider	Neoleptoneta n. sp. 1	Karst			G1 S1						x	Hays (endemic)	sp. 1 from Boyett's Cave, sp. 2 from Burnett Ranch Cave		RG--	GS	x
Arachnids	A pseudoscorpion	Tartarocreagris comanche	Karst	G2G3	SNR	probably not troglobite, probably strike from list, see Muchmore 1992 and Muchmore 2001 for verification on this.							Burnet, Hays, Travis			LE, RG	GS	x
Arachnids	A pseudoscorpion	Tartarocreagris grubbsi	Karst	GNR	SNR	G1 S1							Hays (endemic)	Wissman's Sink		LE, RG--	GS	x
Arachnids	A cave obligate harvestman	Texella diplospina	Karst	G1G2	SNR	S1							Hays (endemic)	Ladder Cave		LE, RG--	GS	x
Arachnids	A cave obligate harvestman	Texella grubbsi	Karst	G1G2	SNR	S2							Burnet, Hays, Travis	Burnett Ranch Cave, Wissman's Sink, Wissman's Sink #2		LE, RG--	GS	x
Arachnids	A cave obligate harvestman	Texella mulaiki	Karst	G2G3	SNR	G2 S2							Comal, Hays, Williamson, Travis	Boggus Cave, Ezell's Cave, Fern Cave, Ladder Cave, McCarty Cave, McGlothlin Sink, Tricophorous Cave		RG	GS	x
Arachnids	A cave obligate harvestman	Texella renkesae	Karst	G1G2	SNR	S1							Hays (endemic)	Ezell's Cave, Maggens Sink Hole		LE, RG--	GS	x
Arachnids	A cave obligate pseudoscorpion	Tyrannochthonius texanus	Karst	G2G3	SNR	strike from list, widespread on surface							Hays (endemic)	Arrowhead Cave		RG--	GS	x
Crustaceans	A cave obligate amphipod	Allotxiweckelia hirsuta	Aquatic/Karst	G2G3	SNR	G1 S1							Bexar, Hays	TSU Well		RG	GS	x
Crustaceans	A cave obligate amphipod	Artesia subterranea	Aquatic/Karst	G1G2	SNR	G1 S1							Comal, Hays	Diversion Spring, TSU Well		LE, RG	GS	x
Crustaceans	A cave obligate amphipod	Holsingerius samacos	Aquatic/Karst	G1G2	SNR	G1 S1							Hays (endemic)	TSU Well		LE, RG--	GS	x
Crustaceans	Texas troglobitic water slater	Lirceolus smithii	Aquatic/Karst	G1G2	S1	G1 S1			x				Hays (endemic)	Diversion Spring, TSU Well		LE, RG--	GS	x
Crustaceans	A cave obligate crustacean	Tethysbaena texana	Aquatic/Karst	G2G3	S1	G1 S1							Bexar, Comal, Hays, Uvalde	Diversion Spring, Ezell's Cave, TSU Well	new name - <i>Tethysbaena texana</i>	RG	GS	x
Crustaceans	Balcones cave shrimp	Palaemonetes antrorum	Aquatic/Karst	G2G3	S1	G2 S2							Hays, Bexar	Diversion Spring, Ezell's Cave, TSU Well	Uvalde Record probably bad, known from 8 localities in 2 cos.	RG	GS	x
Crustaceans	A cave obligate decapod	Calathaemon holthuisi	Aquatic/Karst	G1G2	SNR	G1 S1							Hays (endemic)	Ezell's Cave, TSU Well?	new name - <i>Calathaemon holthuisi</i>	LE, RG--	GS	x
Crustaceans	A cave obligate amphipod	Seborgia relictia	Aquatic/Karst	G2G3	SNR	G1 S1							Comal, Hays, Medina	Ezell's Cave, TSU Well		RG	GS	x
Crustaceans	Balcones cave amphipod	Stygobromus balconis	Aquatic/Karst	G2G3	S1	G1 S1							Hays, Travis	Autumn Woods Well, Boyett's Cave		RG	GS	x
Crustaceans	Ezell's cave amphipod	Stygobromus flagellatus	Aquatic/Karst	G2G3	S1	G1G2/S1S2							Comal, Hays, Travis	Diversion Spring, Ezell's Cave, Rattlesnake Cave, TSU Well	for sure known from TSU well and SM Springs, possibly known from 3 wells in Bexar Co., plus a questionable specimen from Rattlesnake Cave in Hays Co.	LE, RG	GS	x
Crustaceans	A cave obligate amphipod	Texiweckelia texensis	Aquatic/Karst	G2G3	SNR	G1 S1							Bexar, Hays	Diversion Spring, TSU Well	Jeans comment: ONLY in 2 localities in Hays, we're 90% sure of this, see Holsinger and Longley 1980 to verify	RG	GS	x
Diplopods	A cave obligate millipede	Speodesmus echinourus	Karst	G2G3	SNR	G3G4/S3S4							Bexar, Hays, Travis			RG	GS	x
Insects	Texas austrotinodes caddisfly	Austrotinodes texensis	Aquatic/Karst	G2	S2								Hays, Bandera, Val Verde	Fern Bank, ?		RG	GS	x
Insects	An ant-like litter beetle	Batrissodes grubbsi	Karst	G1G2	SNR	G1 S1							Hays (endemic)	Grapvine Cave		LE, RG--	GS	x
Insects	Comal Springs diving beetle	Comaldessus stygius	Aquatic/Karst	G1	S1				x				Comal, maybe Hays	might be at Fern Bank but not confirmed		LE, RG	GS	x
Insects	Edwards Aquifer diving beetle	Haideoporus texanus	Aquatic/Karst	G1G2	S1				x				Comal, Hays	TSU Well		LE, RG	GS	x
Insects	Comal Springs riffle beetle	Heterelmis comalensis	Aquatic	G1	S1		LE						Comal, Hays	San Marcos Springs		LE, LL, RG--		x
Insects	A mayfly	Proclaeon distinctum	Aquatic	G1G3	SNR								Hays, Williamson			LE, RG		x

Taxon	Common Name	Scientific Name	Habitat Type	Nature Serve G Rank ^a	Nature Serve S Rank	Updated G/S Rank (Zara Env)	Federal Status	State Status	Forest Guardians Petition ^b	Karst Waters Inst. List ^c	Texas NDD List ^d	TPWD Rare Spp List ^e	County (green highlights are Hays County endemics per Randy Gibson)	Localities in Hays	Other info	YES	NO	Prelim BAT Filter (Nov Mtg)**
Insects	San Marcos saddle-case caddisfly	Protophila arca	Aquatic/Karst	G1	S1				x			x	Hays (endemic)	upper San Marcos River		LE, RG--	GS	x
Insects	A Cave Obligate Beetle	Rhadine austinica	Karst	G1G2	SNR	G2G3 S2S3			x				Hays, Travis	Dahlstrom Cave, Michaelis Cave	known from about 20 caves	LE, RG	GS	x
Insects	A Cave Obligate Beetle	Rhadine insolita	Karst	G1G2	SNR	G1 S1						x	Comal, Hays	Grapevine Cave	only 2 localities; fissure Cave and Grapevine Cave	LE, RG	GS	x
Insects	Undescribed species	Rhadine n. sp. 2 (subterranea group)	Karst			G1 S1						x	Hays (endemic)	Ezell's Cave, Lime Kiln Quarry Cave, McCarty Cave		LE, RG	GS	x
Insects	Comal Springs dryopid beetle	Stygoparnus comalensis	Aquatic	G1G2	S1		LE					x	Comal, Hays	Fern Bank		LE, RG--		x
Mollusks	Texas fatmucket	Lampsis bracteata	Aquatic	G1	SNR				x			x	Colorado, Concho, San Saba, San Marcos, Guadalupe, San Antonio			LE		x
Mollusks	Flattened covesnail	Phreatodrobia micra	Aquatic	G2G3	S2S3	G2 S2				x			Comal, Hays, Kendall		6 reliable records	RG		x
Mollusks	Disc covesnail	Phreatodrobia plana	Aquatic	G2	SNR	G1 S1				x			Comal, Hays		3 localities Artesian Well, SM springs, Nat. Bridge caverns	RG		x
Mollusks	High-hat covesnail	Phreatodrobia punctata	Aquatic	G2	SNR	G1 S1				x			Hays, Travis	Diversion Springs	2 localities: SM springs, Barton Spgs	RG		x
Mollusks	Beaked covesnail	Phreatodrobia rotunda	Aquatic	G1G2	SNR	G1 S1				x			Hays (endemic)	TSU Well AND SM SPRINGS	2 localities only	LE, RG--		x
Mollusks	Golden orb	Quadrula aurea	Aquatic	G1	SNR							x	Colorado, San Marcos, Guadalupe, San Antonio, Frio, Nueces			LE, RG		x
Mollusks	Texas pimpleback	Quadrula petrina	Aquatic	G2	SNR							x	Colorado and Guadalupe river basins			LE, RG		x
Fishes	Fountain darter	Etheostoma fonticola	Aquatic	G1	S1		LE	E			x	x				LE, LL, RG		x
Fishes	San Marcos gambusia	Gambusia georgei	Aquatic	GX	SX		LE	E			x	x				LE, LL, RG		x
Amphibians	San Marcos salamander	Eurycea nana	Aquatic/Karst	G1	S1		LT	T		x	x	x	Hays (endemic)	upper San Marcos River		LE, LL, RG--	GS	x
Amphibians	Blanco River springs salamander	Eurycea pterophila	Aquatic/Karst	G2	S2						x	x	Blanco, Hays, Kendall	springs flowing into Blanco River		LE	GS	x
Amphibians	Texas blind salamander	Eurycea rathbuni	Aquatic/Karst	G1	S1		LE	E			x	x	Hays (endemic)	Diversion Spring, Ezell's Cave, Rattlesnake Cave, Primer's Well, Sessoms Cr., TSU Well		LE, LL, RG--	GS	x
Amphibians	Blanco blind salamander	Eurycea robusta	Aquatic/Karst	G1Q	S1			T	x	x	x	x	Hays	underneath the Blanco River		LE, RG--	GS	x
Reptiles	Cagle's map turtle	Graptemys caglei	Aquatic	G3	S3			T			x	x	Guadalupe River system	Blanco River		RG--	LE (OLD DATA)	x
Reptiles	Texas horned lizard	Phrynosoma cornutum	Terrestrial	G4G5	S4			T				x						x
Birds	Mountain Plover	Charadrius montanus	Terrestrial	G2	S2							x						x
Birds	Golden-cheeked Warbler	Dendroica chrysoparia	Woodland	G2	S2B		LE	E			x	x				LE, LL, GS, RG		x
Birds	Whooping Crane	Grus americana	Terrestrial	G1	S1		LE	E				x					LE, LL, RG	x
Birds	Black-capped Vireo	Vireo atricapilla	Shrubland	G2G3	S2B		LE	E			x	x				LE, LL, GS, RG		x
Mammals	Red wolf	Canis rufus	Terrestrial	G1Q	SX		LE	E				x					LE, LL, RG	x
															Filtered Count		60	
a : Nature Serve rank provided by the Forest Guardians List and Karst Waters Institute List																		
b : Forest Guardians Petition available at: http://www.fguardians.org/support_docs/petition_protection-4																		
c : Karst Waters Institute List available at: http://www.karstwaters.org/troglist.htm species_id_2003.xls																		
d : Texas Natural Diversity Database (TXNDD) information was requested by Loomis Austin, Inc.																		
e : TPWD Rare Species List is available at: http://gis.tpwd.state.tx.us/tpwEndangeredSpecies/Desktop																		
Initial BAT Comments (Key)																		
BOLD initials represent federally listed taxa																		
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**Additional Materials May Be Found on the Hays County
Habitat Conservation Plan Website at
www.hayscountyhcp.com**

Documents Page

- Mapping Potential Golden-cheeked Warbler Breeding Habitat Using Remotely Sensed Forest Canopy Cover Data (Loomis Austin, Inc.; DRAFT November 29, 2007)
- Black-capped Vireo Habitat Mapping for Hays County, Texas (Loomis Austin, Inc.; DRAFT December 4, 2007)
- Karst Sensitivity Map for Hays County (Zara Environmental, LLC; December 3, 2007)

Maps Page

Draft resource maps are posted on the Maps page of the website.

Hays County RHCP
 Comparison of Primary Alternative Structures
 November 2007

Structure	Costs/Financing	Schedule	Conservation Benefits	Potential Drawbacks	Opportunities for Creative Transactions
<p>1. Rolling Conservation Bank: A series of preservation transactions (fee title or easement) as funding is available.</p>	<p>This approach generally allows costs to be scaled to demand for credits. No up front commitment to financing beyond a given transaction. State law provides that offers to purchase individual tracts for preserve must be made four years after the tract is identified as habitat preserve.</p>	<p>Schedule of bank transactions can be very flexible and matched with expected demands. Tract must be acquired for preserve within five years after the tract is identified for preservation.</p>	<p>Allows more flexibility to adjust preserve design in future based on new data over time.</p>	<p>Higher likelihood that important parcels will become unavailable prior to preservation.</p>	<p>This approach maximizes opportunities for creative, cost-effective transactions, because efforts will be directed towards those habitat owners most eager to work with the County.</p>
<p>2. Predesignated Preserve System: Commitment to acquire (fee title or easement) a large-scale, predetermined preserve system.</p>	<p>State law requires that offers be made for acquisition of preserve system within four years after the federal permit is issued or six years after initial application for the permit, whichever is later. Therefore, this approach can represent a very large, early financial commitment. Bonding or other similar mechanisms likely necessary.</p>	<p>If identified up front in the RHCP, preserve system must be acquired within six years after the permit is issued.</p>	<p>Adequacy of ultimate preserve design better assured and, subject to funding, likelihood of getting key parcels is higher.</p>	<p>Less flexibility over time to react to new data. May require large, early financial commitment.</p>	<p>While this approach certainly allows use of creative transactions, the pool of potential landowner partners is limited by the initial preserve design, and the effectiveness of the preserve system can be limited if key landowners decline to participate or seek unreasonable economic terms.</p>