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Biological Goals Subcommittee – Meeting #1

February 2, 2023

Microsoft Teams

Meeting Logistics

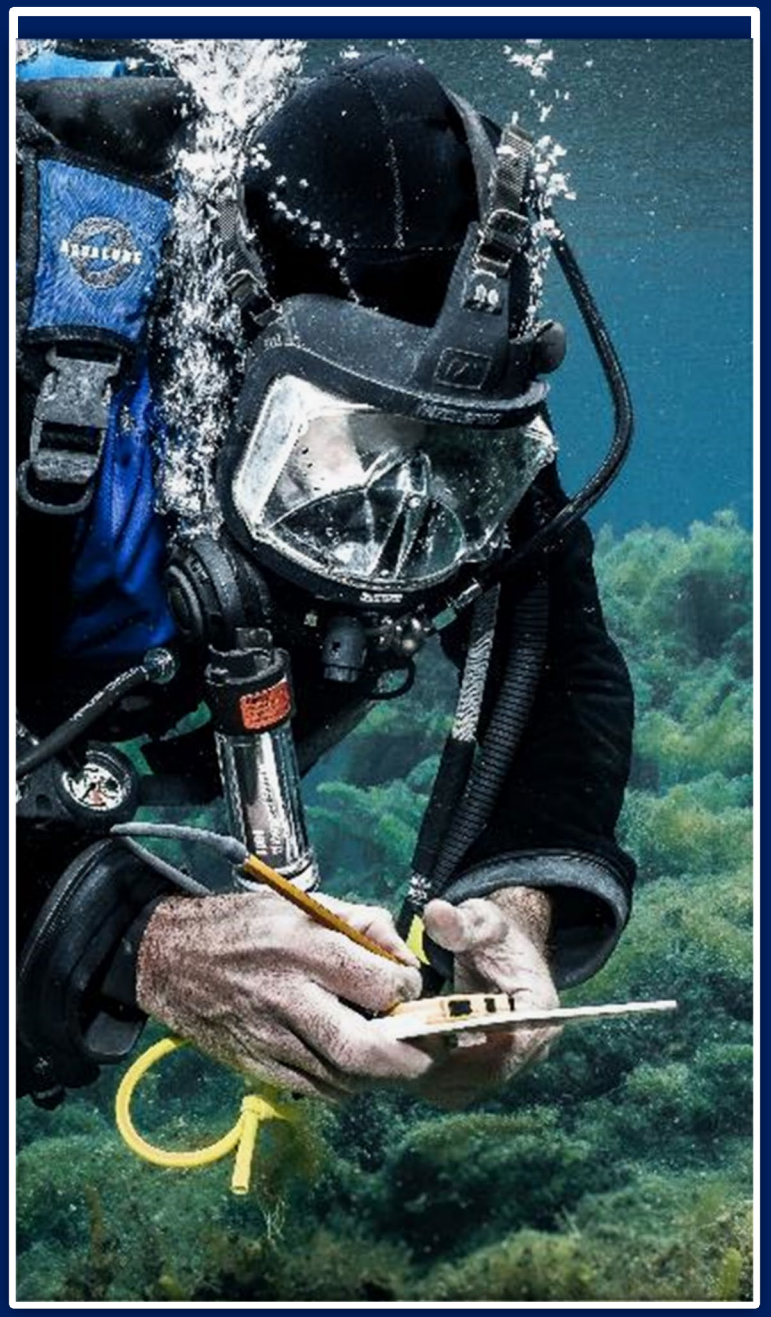
- Meeting Materials available on the EAHCP website under – Biological Goals Subcommittee
- Contact Olivia Ybarra for more info: oybarra@edwardsaquifer.org
- IT Support: Jesus Hinojosa: jhinojosa@edwardsaquifer.org

Meeting Logistics

- Decisions made by consensus.
- If consensus cannot be achieved by the deadline, the recommendations may be approved by a majority vote of the full Subcommittee.
- Any dissension from a member will be included in the final report.

Members

- **Chair:** Mark Enders (Stakeholder Committee)
- Rachel Sanborn (Stakeholder Committee)
- Kimberly Meitzen (Stakeholder Committee)
- Kevin Mayes (Stakeholder Committee)
- Jacquelyn Duke (Science Committee)
- Charlie Kreitler (Science Committee)



Biological Goals Subcommittee Charge

- Review the current EAHCP biological goals and the HCP Handbook as it pertains to biological goals development and structure.
- Develop initial recommendations for deletions, additions, or other changes to current biological goals.
- Finalize biological goal recommendations to be considered in the next EAHCP.
- Approve a report setting out the biological goal recommendations to be provided to the EAHCP Permit Renewal contractor.

HABITAT CONSERVATION PLANNING

AND

INCIDENTAL TAKE PERMIT PROCESSING

HANDBOOK

December 21, 2016

U.S. Department of the Interior
Fish and Wildlife Service

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

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Figure 9.1e: Hierarchy of Goals and Purposes

1. Purpose of the HCP: The purposes specified in or derived from law, regulations, agreement, etc. that broadly outlines the need for the HCP to meet regulatory purposes in harmonizing sustainable development with conservation of fish and wildlife.
2. Regional or Landscape Goals: summarize how the HCP conservation program will contribute to regional and landscape conservation goals.
3. HCP Conservation Vision Statement: A concise statement of what the HCP conservation program should be, or what we hope to do, based on the needs of species, and other mandates.
4. HCP Goal. Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose, but does not define measurable units.
5. HCP Objective. A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring effectiveness, and evaluating the success of actions.
6. HCP Conservation Actions: specific actions, tools, techniques used to meet plan objectives.
7. HCP Monitoring Goals: succinct statements of what the monitoring program will achieve.

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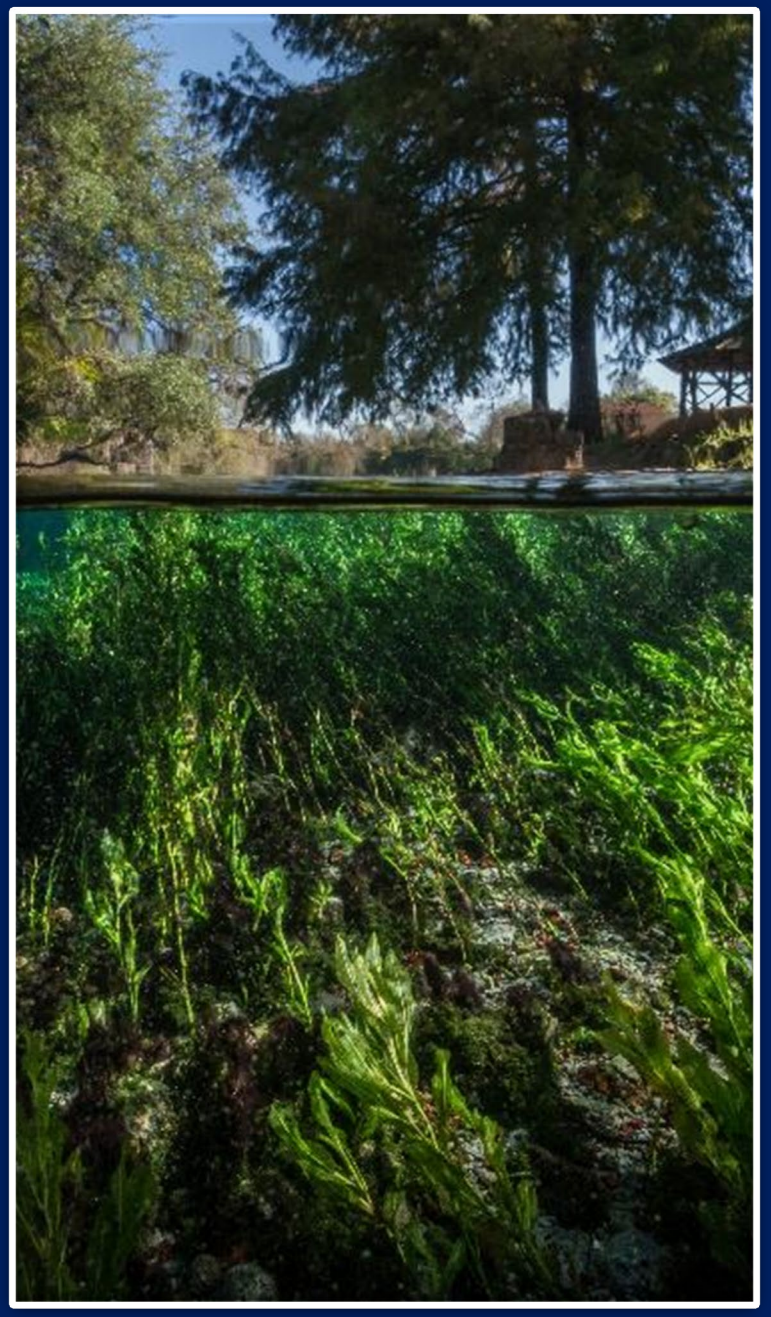
Handbook pg. 9-6

- Biological goals broadly describe the desired future conditions of an HCP in succinct statements.
- Each goal steps down to one or more objectives that define how to achieve these conditions in measurable terms.
- A well-written goal directs work toward achieving the vision and purpose of an HCP.

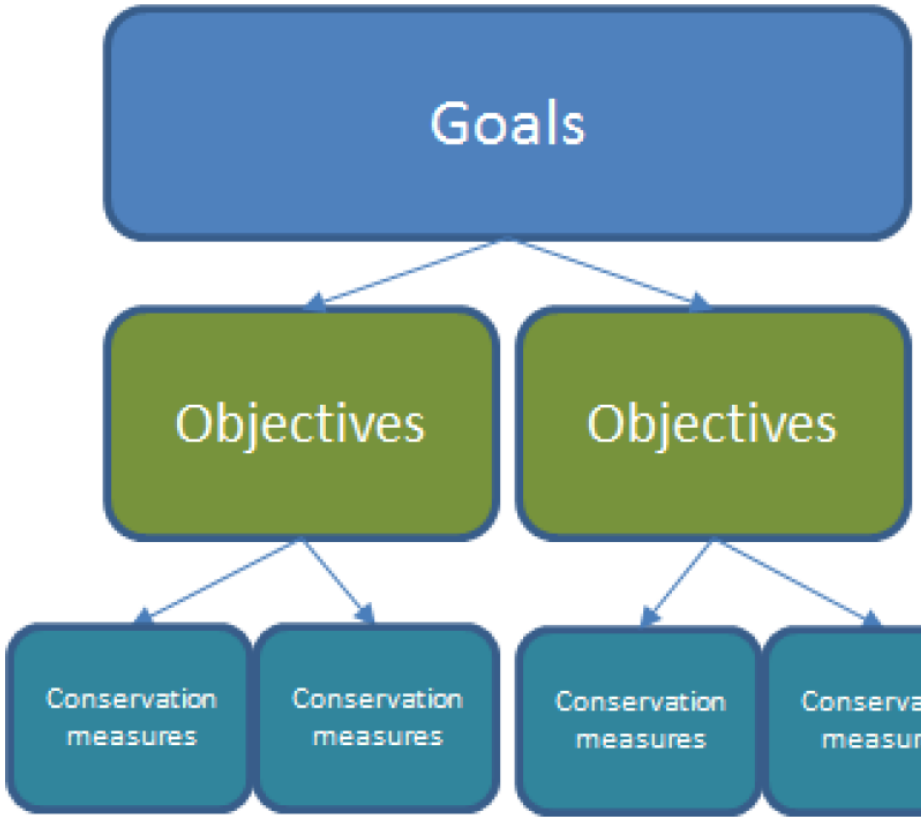


Biological Goals are **not**….

- An HCP is not a recovery plan (but should be consistent with existing recovery plans)
- They are not restatements of the issuance criteria in the ESA or the regulations
- They are not restatements of other regulations, policies, or guidance

Biological Goals

Figure 9.1a: Biological Goals and Objectives



Broad, guiding principals, describe desired condition

- Steps that outline how to achieve goals
- Provide direction for monitoring
- SMART: Specific, Measurable, Achievable, Result-oriented, Time fixed

- Means to achieve the biological goals & objectives
- Fully explain "where the rubber hits the road"

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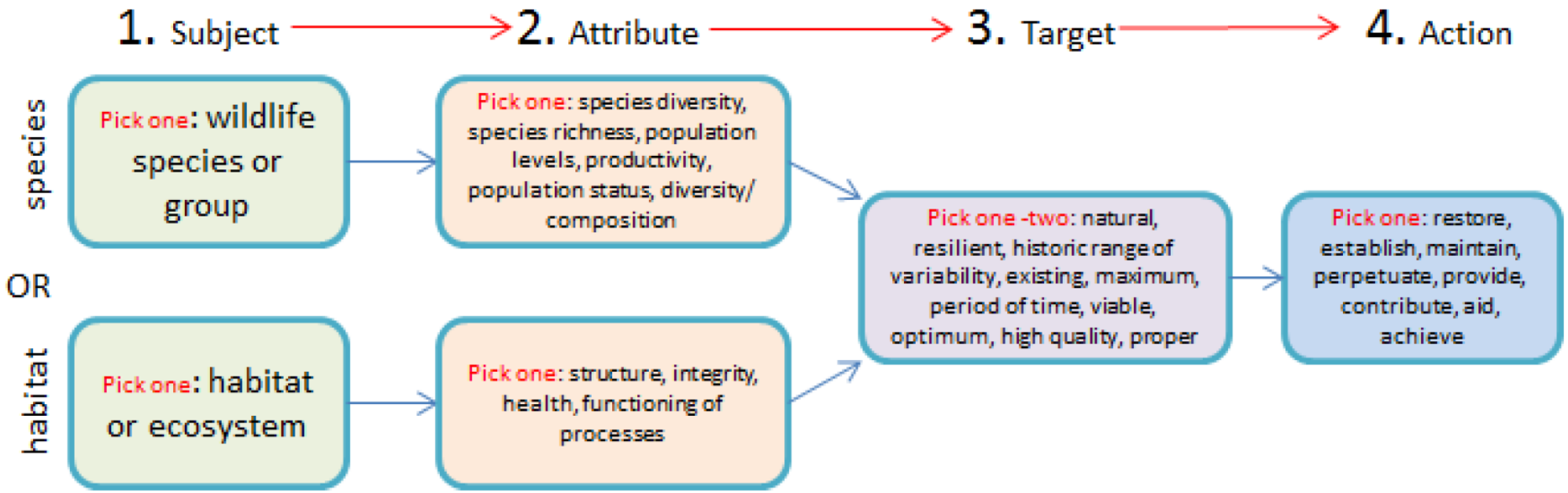
Goals must:

- broadly state desired future condition,
- be descriptive, and
- be clear and understandable to all, not just to those at the table developing them.

Elements of a Biological Goal

Figure 9.1b: Four Elements of a Biological Goal



Example Biological Goals

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Example: Species Based Goals

Example species-based goal:

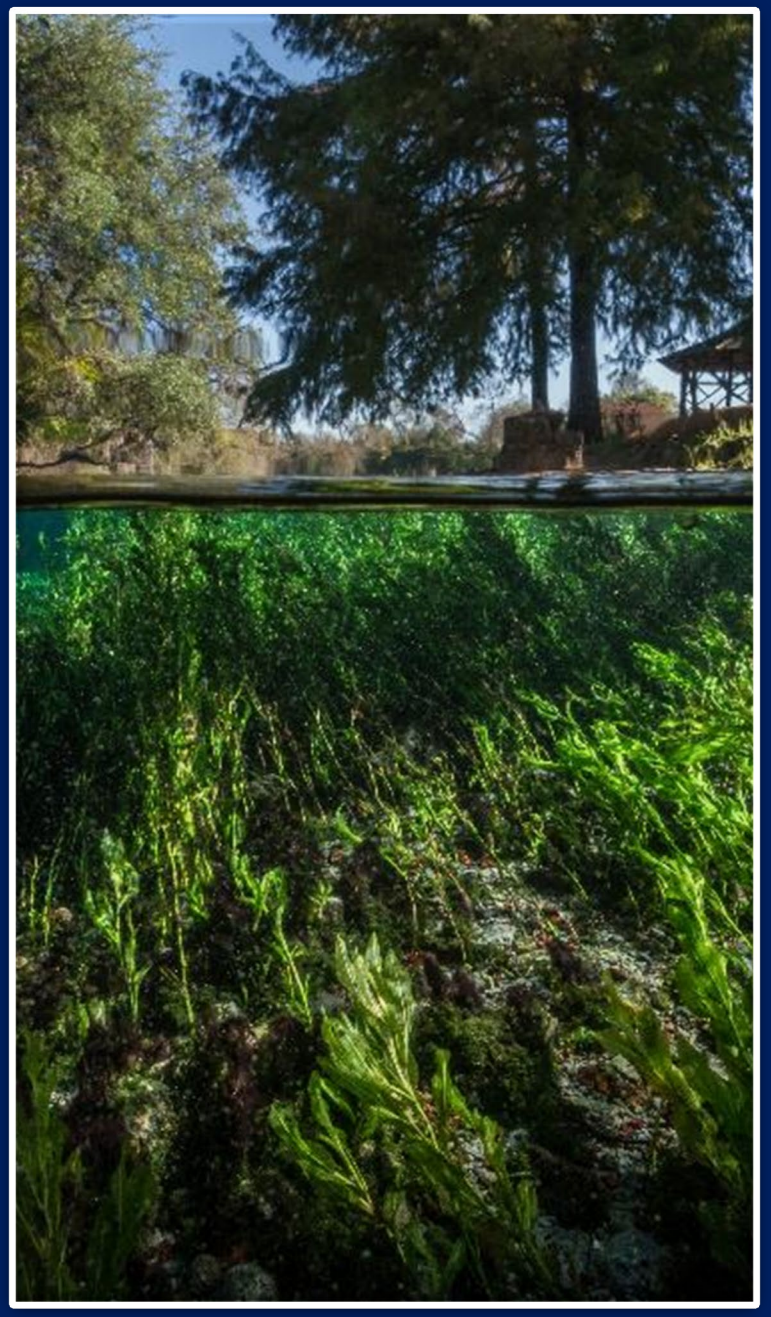
Goal: Swainson's hawk: maintain or increase population size and distribution of Swainson's hawk in the inventory area

Goal: foothill yellow-legged frog: protect, maintain, or increase populations of foothill yellow-legged frog

BSEACD HCP – Barton Springs Edwards Aquifer

The biological goals of the District HCP are to:

- Minimize drought-related decreases in size and health of the Barton Springs salamander population to the maximum extent practicable,
- Minimize drought-related decreases in size and health of the Austin blind salamander population to the maximum extent practicable, and
- Promote recovery of the populations from those decreases to levels required for their long-term viability.



Example: Habitat Based

Example habitat-based goal:

Goal: Maintain and enhance functional grassland communities that benefit covered species and promote native biodiversity.

Goal: Improve the quality of streams and the hydrologic and geomorphic processes that support them to maintain a functional aquatic and riparian community to benefit covered species and promote native biodiversity.

Goal: Maintain a functional riparian forest and scrub community at a variety of successional stages and improve these communities to benefit covered species and promote native biodiversity.

Upper Santa Ana River HCP

The HCP Goals will be accomplished within the HCP Preserve System and are as follows:

HCP Goal 1: Conserve Covered Species and manage their habitats to contribute to the recovery of listed species or those that may become listed under the Federal Endangered Species Act.

HCP Goal 2: Maintain or simulate natural ecological processes necessary to maintain the functionality of the natural communities and habitats upon which the Covered Species depend within the HCP Preserve System and to the greatest extent possible outside the HCP Preserve System.

HCP Goal 3: Maintain or increase habitat connectivity in the HCP Preserve System and to adjacent protected habitat areas to reduce isolation between metapopulations of Covered Species.

HCP Goal 4: Actively manage lands within the HCP Preserve System for the benefit of Covered Species to maintain or increase the health of populations.

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Current Biological Goals

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Comal System: Fountain Darter

Fountain Darter

Long-term Biological Goals

The long-term biological goals for the fountain darter at Comal Springs are quantified as areal coverage of aquatic vegetation (habitat) within four representative reaches of the Comal system (Upper Spring run [upstream most portion of the system to Spring Island], Landa Lake [Spring Island to the outflow to Old and New channels], Old Channel, and New Channel) and fountain darter density (population measurement) per aquatic vegetation type. (Figure 4-1). The habitat-based and population measurement goals are presented in Table 4-1 and include proposed aquatic vegetation restoration efforts. The population measurement goal is to maintain the median densities of fountain darters observed per aquatic vegetation type per system at a level greater than or equal to that observed over the past 10 years in the EAA Variable Flow Study monitoring.

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Comal System: Habitat-based and population measurement goals for the Fountain Darter

TABLE 4-1[2]

TABLE 4-1 FOUNTAIN DARTER HABITAT (AQUATIC VEGETATION) IN METERS SQUARED (M^2) AND FOUNTAIN DARTER MEDIAN DENSITY (NUMBER/M^2) PER HABITAT TYPE

Fountain darter habitat (aquatic vegetation) goal in meters squared (m^2)						
Study Reach	Bryophytes	*Potamogeton*	*Ludwigia*	*Cabomba*	*Sagittaria*	*Vallisneria*
Upper Spring Run Reach	1,750	0	25	25	850	0
Landa Lake	3,950	25	900	500	2,250	12,500
Old Channel	550	0	425	180	450	0
New Channel	150	0	100	2,500	0	0
TOTAL	6,400	25	1,450	3,205	3,550	12,500
Fountain darter median density goal (number/m^2)						
	Bryophytes	*Potamogeton*	*Ludwigia*	*Cabomba*	*Sagittaria*	*Vallisneria*
	20	3.3	7	7	1	1

San Marcos System: Fountain Darter

Fountain Darter

Long-term Biological Goals

The long-term biological goals for the fountain darter are quantified as areal coverage of habitat within three representative river reaches of the San Marcos system (Figure 4-3) and fountain darter density (population measurement) per aquatic vegetation type. These habitat-based and population measurement goals are presented in Table 4-21. The population measurement goal is to maintain greater than or equal to the median densities observed per aquatic vegetation type per system over the past 10 years of EAA Variable Flow Study monitoring.

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San Marcos System: Fountain Darter

TABLE 4-21[5]
FOUNTAIN DARTER HABITAT (AQUATIC VEGETATION) IN METERS SQUARED (m^2) AND FOUNTAIN DARTER DENSITY (NUMBER/m^2) PER HABITAT TYPE

Fountain darter habitat (aquatic vegetation) in meters squared (m^2)								
Study Reach		*Ludwigia*	*Cabomba*		*Potamogeton*	*Sagittaria*	*Hydrocotyle*	*Zizania*
Spring Lake Dam		100	50		200	200	50	700
City Park		150	90		1,450	300	10	1,750
IH-35		50	50		250	150	50	600
TOTAL		300	190		1,900	650	110	3,050
Fountain darter median density (numbers/m^2)								
		Ludwigia	*Cabomba*		*Potamogeton*	*Sagittaria*	*Hydrocotyle*	*Zizania*
		7	7		5	1	4	5

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Comal Springs Riffle Beetle

Comal Springs Riffle Beetle

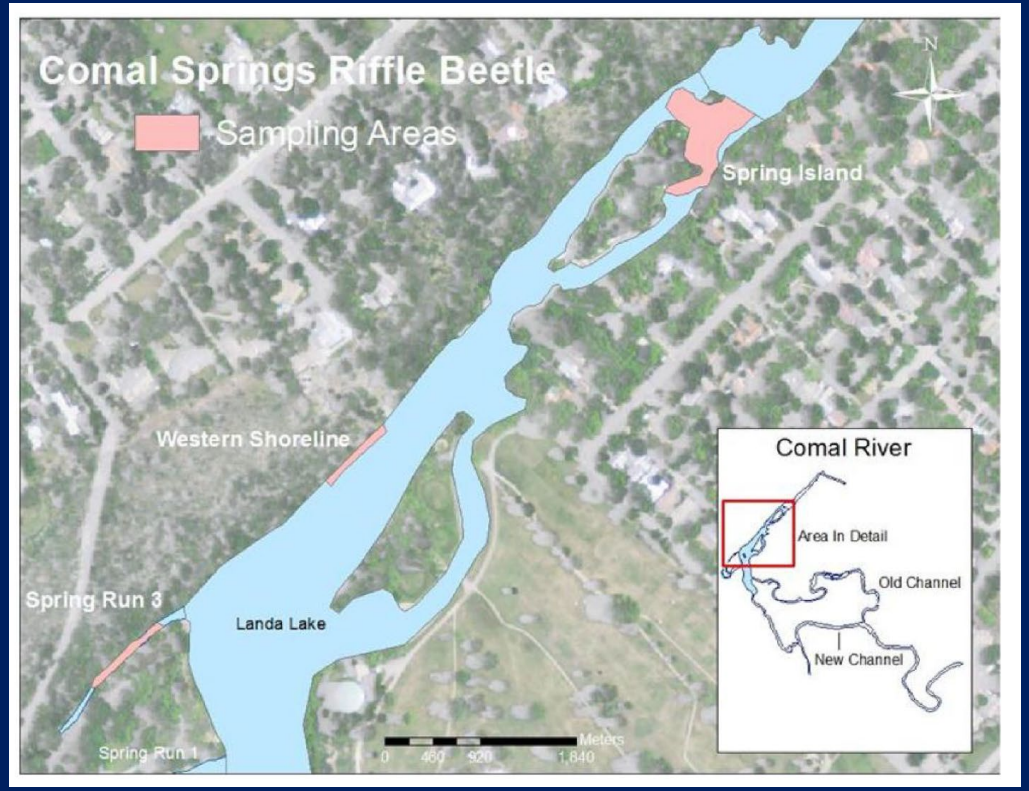
Long-term Biological Goals

The long-term biological goals for the Comal Springs riffle beetle involve a qualitative habitat component and quantitative population measurement. As with the fountain darter, a representative reach approach was employed. From a habitat perspective, the goal is to maintain silt-free habitat conditions via continued springflow, riparian zone protection, and recreation control throughout each of the three sample reaches (Spring Run 3, Western shoreline, and Spring Island area). (Figure 4-2). Additionally, the population measurement goal is to maintain greater than or equal to the median densities observed over the past six years of EAA Variable Flow Study monitoring..

Comal Springs Riffle Beetle: Goals

TABLE 4-7
COMAL SPRINGS RIFFLE BEETLE LONG-TERM BIOLOGICAL GOALS

	Spring Run 3	Western Shoreline	Spring Island Area
Habitat	Silt-free gravel and cobble substrate ≥ 90% of each study area		
Density (# of CSRB/ Lure)	≥20	≥15	≥15



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Comal Springs Dryopid Beetle and Peck's Cave Amphipod

Comal Springs Dryopid Beetle and Peck's Cave Amphipod

Long-term Biological Goal

The Comal Springs dryopid beetle and Peck's Cave amphipod are subterranean species inhabiting the Comal system. The subterranean nature and restricted range of the Comal Springs dryopid beetle (to the headwaters of the springs and spring upwelling areas) suggests that it does not require substantial surface discharge from springs to survive and presumes that springflow (of sufficient water quality) that continually covers the spring orifice should prevent long-term detriment to the population. EARIP (2009). Similarly, the Peck's Cave amphipod requirements include sufficient springflow covering the spring orifices and adequate water quality to prevent long-term adverse impacts to the species. (*Id.*).

As such, the long-term biological goal for these subterranean species focuses on Aquifer water quality as well as a springflow component. The water quality goal is:

- to not exceed a 10 percent deviation (daily average) from historically recorded water quality conditions (long-term average) within the Edwards Aquifer as measured issuing from the spring openings at Comal Springs.

This includes all water quality constituents currently measured in the EAA Variable Flow Study. This goal assumes that a 10 percent deviation would be acceptable; however, more extensive work to evaluate and assess water quality tolerances of these species will be addressed as part of the AMP.

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Texas wild-rice

Long-term Biological Goal

The long-term biological goal for Texas wild-rice has been determined by an evaluation of: (1) the maximum occupied area of Texas wild-rice that has been present in the San Marcos system over time; (2) TPWD analysis of the Hardy (2010) physical habitat modeling; and (3) the 1996 USFWS recovery plan goals.

The long-term biological goal for Texas wild-rice is presented in Table 4-10 and subsequent discussion.

Flow-related Objectives

The long-term biological goals for Texas wild-rice are defined as areal coverage over a spatial extent of the San Marcos River (*see* Table 4-10). However, because of the uncertainty associated with the long-term biological goals, the associated management objectives necessitate the flow-related objectives presented above in Table 4-13.

Texas wild-rice

TABLE 4-10
LONG-TERM BIOLOGICAL GOAL FOR TEXAS WILD-RICE

River Segment	Areal Coverage (m^2)	Reach Percentage of Total Areal Coverage
Spring Lake	1,000 – 1,500	n/a
Spring Lake Dam to Rio Vista Dam	5,810 – 9,245	83 – 66
Rio Vista Dam to IH-35	910 – 1,650	13 – 12
Downstream of IH-35	280 – 3,055	4 – 22
TOTAL	8000 – 15,450	100

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San Marcos salamander

San Marcos Salamander

Long-term Biological Goals

The long-term biological goals for the San Marcos salamander include a qualitative habitat component and a quantitative population measurement. As with the fountain darter and riffle beetle, a representative reach approach was employed. From a habitat perspective, the goal is to maintain silt-free habitat conditions via continued springflow, riparian zone protection, and recreation control throughout each of the three representative reaches (Hotel area, Riverbed area, and eastern spillway below Spring Lake Dam) (Figures 4-3, 4-4). Additionally, the population measurement goal is to maintain greater than or equal to the median densities observed over the past 10 years of monitoring. Table 4-25 summarizes long-term biological goals.

TABLE 4-25
SAN MARCOS SALAMANDER LONG-TERM BIOLOGICAL GOALS

	Hotel Area (Spring Lake)	Riverbed Area (Spring Lake)	Eastern Spillway below (Spring Lake)
Habitat	Silt-free gravel and cobble substrate ≥ 90% of each study area		
Density (# of salamanders/m^2)	≥15	≥10	≥5

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Texas Blind-Salamander

Texas Blind Salamander

Long-term Biological Goal

Similar to the Comal Springs dryopid beetle and Peck's Cave amphipod, the Texas blind salamander is a subterranean species. An assumption of the HCP is that as subterranean species, mechanisms exist for these species to retreat into the Aquifer should springflows cease at the spring outlets at San Marcos Springs. As such, the long-term biological goal for this subterranean species relates to Aquifer water quality. The water quality goal for the Texas blind salamander is:

- Not to exceed a 10 percent deviation (daily average) from historically recorded water quality conditions (long-term average) within the Aquifer as measured issuing from the spring openings in Spring Lake.

This includes water quality constituents currently measured in the EAA Variable Flow Study. (*See* Section 5.7.2). To be conservative, the long-term goal assumes that a 10 percent deviation would be acceptable; however, more extensive work to evaluate and assess the validity of that assumption and the water quality tolerances of the Texas blind salamander will be considered in the AMP.

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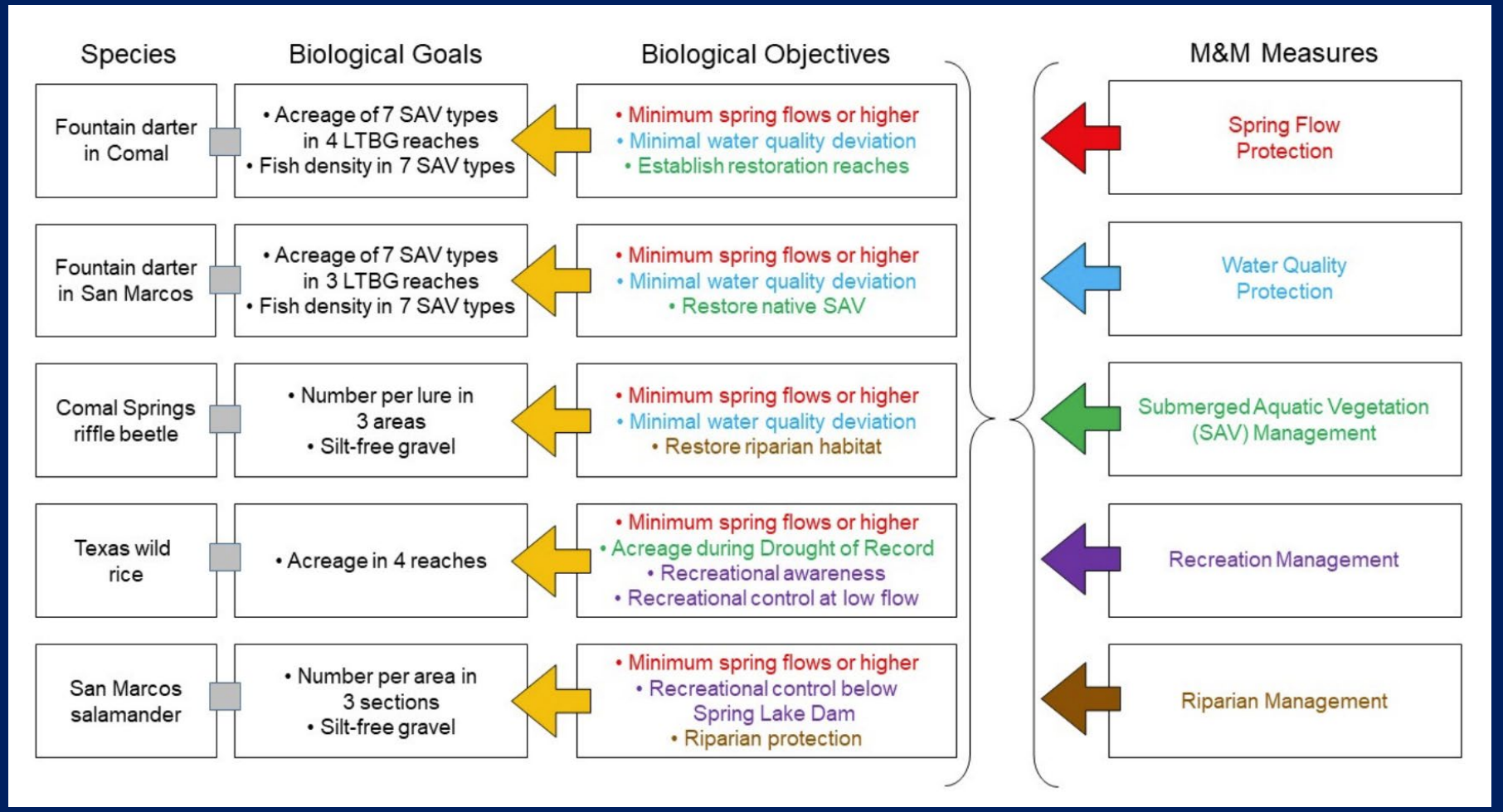
NAS Report 3



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Biological Goals Subcommittee

Meeting 1 Agenda
February 2, 2023
2:00pm – 4:00pm

1. **Confirm attendance**

2. **Meeting logistics**

   a. Virtual meeting logistics
   b. Meeting POCs
   c. Subcommittee logistics

3. **Overview of the Biological Goals Subcommittee Charge and meeting process.**

4. **Presentation on the USFWS Habitat Conservation Planning and Incidental Take Permit Processing Handbook – Chapter 9.1: Biological Goals.**

5. **Review and discussion of the current EAHCP Biological Goals.**

6. **Discussion to identify the type of Biological Goal(s) to proceed with.**

7. **Questions from the public**

8. **Future meetings**

9. **Adjourn**

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Covered Species

- Fountain Darter
- Comal Springs riffle beetle
- Comal Springs dryopid beetle
- Peck's Cave Amphipod
- Texas wild-rice
- ~~San Marcos gambusia~~
- ~~Comal Springs salamander~~
- Texas blind salamander
- San Marcos salamander
- Edwards Aquifer diving beetle
- Texas troglobitic water slater

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Suggestion: Group by Species Type

Macroinvertebrates

- Peck's Cave amphipod
- Edwards Aquifer diving beetle
- Texas troglobitic water slater
- Comal Springs riffle beetle
- Comal Springs dryopid beetle

Salamanders

- Texas blind salamander
- San Marcos salamander

Texas wild-rice

Fountain darter

Suggestion: Group Species by Habitat

Subterranean Species (Aquifer Dwelling)

- Edwards Aquifer diving beetle
- Texas troglobitic water slater
- Texas blind salamander

Spring/River Dwelling

- Texas wild-rice
- Fountain darter

Both Subterranean and Spring/River Dwelling

- Peck's Cave amphipod
- Comal Springs riffle beetle
- Comal Springs dryopid beetle
- San Marcos salamander

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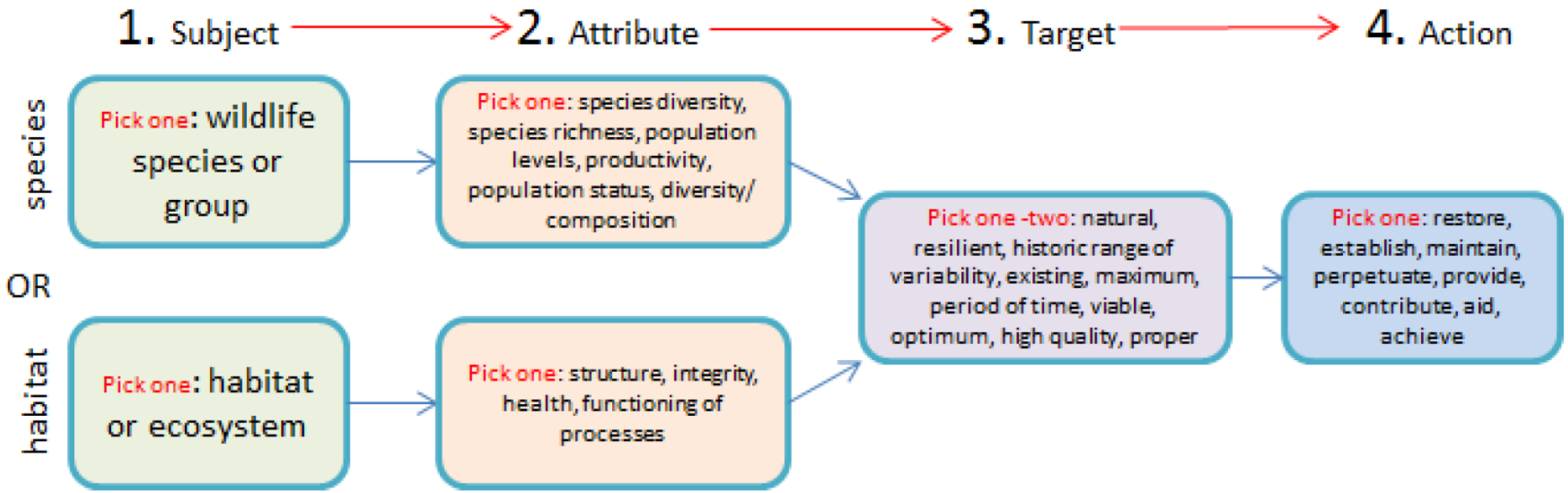
Elements of a Biological Goal

Figure 9.1b: Four Elements of a Biological Goal



Questions?

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Suggestions from the Listen & Learn Report

- Maintain springflow conducive to the protection of **Covered Species**.
- Extend the area of habitat restoration for the **Covered Species** further downstream.
- Maintain or create informed users of the Comal and San Marcos Springs.

Suggestion: Goal(s) per group

- Maintain genetically diverse populations of **Texas wild-rice** in the San Marcos River.
- Provide and maintain a diverse native aquatic vegetation community to support viable **fountain darter** populations in the spring systems.
- Maintain adequate water quality standards and springflow for **macroinvertebrate** and **salamander** populations in the spring systems.
- Contribute to the education of Comal and San Marcos River recreators on the importance of habitat conservation in relation to the **Covered Species**.
- Support land conservation over the Edwards Aquifer recharge zone.