

❖ Standard 8: Develop explicit abundance and distribution goals for conservation targets/biodiversity elements.

Case Study: **Aquatic and Terrestrial goal setting in the Edwards Plateau Ecoregion**

Excerpt from: The Nature Conservancy. 2004. A Biodiversity and Conservation Assessment of the Edwards Plateau Ecoregion. Edwards Plateau Ecoregional Planning Team, The Nature Conservancy, San Antonio, TX, USA.

Purpose and region of analysis

Conservation target goals estimate the number and distribution of viable occurrences necessary to sustain a conservation target in the ecoregion and across its range over some period of time. Although it is impossible to say with certainty the exact number or distribution of any species, community, or ecological system that will ensure its persistence in the face of climatic or other environmental changes, conservation goals provide guidance as to “how much is enough?”

Conservation efforts within ecoregions should complement those of other ecoregions. As such, targets were selected and their associated goals developed to be in alignment with ecoregions that share conservation targets. This is a particular challenge for widespread species (e.g., migratory birds) whose populations may be abundant in one ecoregion but exhibit significant declines in other parts of its range.

Occurrences of conservation targets considered to have a very low chance for survival or with unknown viability were mapped and tracked in our biodiversity database, but were not counted toward meeting conservation goals.

Criteria/Methods

Stratification Units

In order to help capture occurrences of targets across their natural range of genetic and environmental variation and to provide sufficient replication to ensure persistence in the face of predicted or unpredicted environmental change, we subdivided the ecoregion into stratification units and set representation goals for conservation targets within those units. For instance, if the range of a species spans the entire ecoregion, it is preferable to select viable occurrences throughout the ecoregion, rather than clustered in one local area.

The ecoregion was stratified into five terrestrial (Fig. 1) and seven aquatic (Ecological Drainage Units) regions (Fig. 4). Representation goals for terrestrial targets (including subterranean species) were set using the terrestrial regions. Aquatic goals were stratified across EDUs.

Goal Values

Conservation goal values for most species (terrestrial and aquatic) and small-scale terrestrial community and system targets were set using default values developed by the Conservancy that account for both the geographic scale and distribution of targets (Tables 5,6). We occasionally adjusted the default value when it did not adequately represent the historical range and/or life history of the target.

Goals were adjusted in cases meeting one of several criteria. First, when the number of historical populations of a target was known with much certainty and its taxonomic status precluded discovery of other populations, the goal was set at the number of historical populations. Second, when both the number of historical populations and the taxonomic status were uncertain, but it was thought to be highly unlikely that the number of existing populations would ever be as high as the default goal, the goal was set at some intermediate value. Finally, if ancillary information from experts or species recovery plans suggested a value different from the default, we adjusted the value appropriately.

Terrestrial system targets were assigned area-based goals in stratification units where they represented a matrix-type system. Goals were set equal to 30% of the estimated historical (*circa* ~1860) extent of the system in the ecoregion. We used area rather than individual occurrences of these targets due to their distribution over large areas and our ability to map them as large polygons across the landscape. Our estimate of the historical extent of these large-scale system types was developed by examining relevant literature and current landcover data, combined with expert opinion.

The goals for aquatic system targets were also set equal to 30% of the occurrences of each system target up to a maximum of three occurrences. Because system targets were nested within EDUs, there was no stratification of their goals across EDUs.

Products/Outcomes

Excerpts of appendices from the final ecoregional assessment report illustrate how goals were set in the Edwards Plateau Ecoregion.

Appendix A: Terrestrial Conservation Targets–Progress Towards Overall Ecoregional Goals

Group	Scientific Name	Common Name	Global Rank	State Rank	Ecoregional Conservation Goal	# of Viable Occurrences Captured In Portfolio
Amphibians						
	<i>Eurycea latitans</i>	Cascade Caverns salamander	G3	S3	25	0
	<i>Eurycea rathbuni</i>	Texas blind salamander	G1	S1	25	2
	<i>Eurycea robusta</i>	Blanco blind salamander	G1Q	S1	25	0
	<i>Eurycea tridentifera</i>	Comal blind salamander	G1	S1	25	2
	<i>Eurycea troglodytes</i>	Valdina farms sinkhole salamander	G3	S3	24	0
Birds						
	<i>Aimophila cassinii</i>	Cassin's sparrow	G5	S4B	5	17
	<i>Aimophila ruficeps</i>	Rufous-crowned sparrow	G5	S4B	5	28
	<i>Calamospiza melanocorys</i> (breeding)	Lark bunting (breeding)	G5	S4B	3	3

APPENDIX C: Terrestrial Conservation Targets–Progress Toward Stratification Unit Goals

Group	Stratification Unit	Scientific Name	Common Name	Global/State Rank	Stratification Unit Goal	# of Viable Occurrences Captured	# of Occurrences Remaining
Amphibians							
	Eastern Balcones Escarpment						
		<i>Eurycea rathbuni</i>	Texas blind salamander	G1/S1	25	2	23
		<i>Eurycea robusta</i>	Blanco blind salamander	G1Q/S1	25	0	25
		<i>Eurycea troglodytes</i>	Valdina Farms sinkhole salamander	G3/S3	12	0	12
	Southern Balcones Escarpment						
		<i>Eurycea latitans</i>	Cascade Caverns salamander	G3/S3	25	0	25
		<i>Eurycea tridentifera</i>	Comal blind salamander	G1/S1	25	2	23
		<i>Eurycea troglodytes</i>	Valdina Farms sinkhole salamander	G3/S3	12	0	12

The Edwards Plateau final report contains the full tables detailing goals set for terrestrial and aquatic targets (TNC 2004). Overall goals for all terrestrial targets in the ecoregion can be found in Appendix A; goals by stratification unit are shown in Appendix C. Overall goals for all aquatic targets in the ecoregion can be found in Appendix B; goals by stratification unit are shown in Appendix D.