

Identification of priority habitats for conservation of the Sierra Madre sparrow *Xenospiza baileyi* in Mexico

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Appendix

Physical and biological characteristics of the eight delimited vegetation communities (CI – CVIII, see text and Table 1 for details) within the Sierra Madre sparrow’s range, and the phytosociological table of plant species used to delimit the vegetation communities. Frequency and cover are indicated as classes. Frequency classes: I, 1–20%; II, 21–40%; III, 41–60%; IV, 61–80%; V, 81–100%. Cover classes: 1, <1%; 2, 1–5%; 3, 6–10%; 4, 11–20%; 5, 21–40%; 6, 41–60%; 7, 61–80%; 8, 81–100%.

	CI	CII	CIII	CIV	CV	CVI	CVII	CVIII
Altitude (m)	3,050	3,140	3,072	3,100	3,005	3,120	3,014	3,065
Number of vegetation strata	4	3	3	2	2	2	2	2
Rock cover (%)	0	0	30	0	0	30	0	0
Litter cover (%)	10	0	2	0	2	20	5	0
Ground cover (%)	30	50	30	30	10	10	80	20
Moss cover (%)	0	40	20	0	2	5	0	5
Herb cover (%)	90	95	79	90	85	60	2	95
Grass cover (%)	80	70	60	80	70	50	2	95
Shrub cover (%)	5	5	2	0	0	0	0	0
Tree cover (%)	10	1	0	0	0	0	0	0
Characteristic species¹								
<i>Arenaria lycopodioides</i>	V 1	III 2	V 2	III 2	V 2	IV 2	II 3	III 4
<i>Trifolium amabile</i>	V 2	III 1	I 1	V 2	IV 2	III 2	IV 2	III 2
<i>Cerastium nutans</i>	III 1	III 1		III 1	I 1		III 1	III 1
<i>Gnaphalium liebmannii</i> var. <i>monticola</i>		I 2	II 1	III 1	IV 2	II 2	IV 2	III 1
<i>Stachys eriantha</i>	III 2	III 2	III 2	II 1	I 1	II 2		III 1
<i>Muhlenbergia macroura</i>	V 3	V 6	V 4	IV 5	V 5	II 1	II 2	
<i>Gutierrezia alamanii</i>	III 4	I 4	III 2	II 2	IV 2	V 2	II 1	
<i>Commelina tuberosa</i>	V 2	IV 2	III 2	III 1	II 1	II 1	III 2	
<i>Oxalis alpina</i>	V 1	I 2	II 2	IV 2	I 1		II 1	
<i>Geranium potentillaefolium</i>	V 2	IV 3	III 1	II 1	II 2	II 1	II 1	
<i>Astragalus guatemalensis</i>	III 1	I 1	III 2	III 2	III 1	III 1	III 2	
<i>Sisyrinchium tenuifolium</i>	III 1	I 2	III 1	III 1	III 1		III 2	
<i>Festuca lugens</i>	V 5	V 5	V 5	II 5	VI 5	III 2	III 2	
<i>Muhlenbergia quadridentata</i>	V 4	III 5	V 3	IV 5	V 5	IV 3		
<i>Bromus anomalous</i>	V 3	III 3	V 2	II 2	IV 3	IV 5		
<i>Penstemon roseus</i>	III 2	IV 2	III 2	III 2	III 2	III 1		
<i>Potentilla staminea</i>	III 1	III 1		II 1	III 1	IV 1		
<i>Gnaphalium americanum</i>	III 1	II 2	I 1	II 1	I 1		III 1	III 1
<i>Alchemilla aphanoides</i>		II 2	III 2	II 2	I 2		III 2	III 2
<i>Alchemilla procumbens</i>		IV 2	IV 2	II 2	IV 3	V 1	III 2	
<i>Conyza schiedeana</i>		I 2	II 1	III 1	III 1	II 1	III 2	
<i>Commelina orchoides</i>		I 2	III 2	II 2	III 2	III 2	II 2	
<i>Achillea millefolium</i>		III 2		II 1	II 1		III 1	
<i>Oxalis jacquiniana</i>			III 2	III 2	I 1	III 1		III 2
<i>Tristeum altijugun</i>			III 2	III 1	II 2	II 2		III 2
<i>Viola hemsleyana</i>			III 1	II 3	II 2	II 2	III 2	III 2
<i>Plantago linearis</i> var. <i>mexicana</i>			II 1	IV 1	IV 1	IV 1	II 2	
<i>Sabazia humilis</i>			I 1	III 1	II 2	II 2	III 1	III 2
<i>Eryngium carlinae</i>				IV 2	IV 1		IV 1	III 1
Preferential species¹								
<i>Viola painteri</i>	V: 2	III 2	I 1	III 2				
<i>Lithospermum districhum</i>	V: 2	III 3	II 1	I 1	I 2			
<i>Pinus montezumae</i>	II: 2	I 1		I 1	I 3			
<i>Cyperus</i> sp.	III: 2	II 1	III 1	III 1	II 1			
<i>Lupinus aschenbornii</i> var. <i>aschenbornii</i>	III: 3		I 1	II 1	I 1	II 1		
<i>Ribes ciliatum</i>	III: 2							

	CI		CII		CIII		CIV		CV		CVI		CVII		CVIII
<i>Festuca tolucensis</i>	V	3	III	5	IV	3	II	3	I	2					
<i>Senecio cinerarioides</i>	III	2	III	3			I	1							
<i>Buddleia parvifolia</i>			III	2											
<i>Cupressus lindleyi</i>			I	1											
<i>Echeveria secunda</i>	III	1	I	1	III	2									
<i>Penstemon gentianoides</i>			II	2	III	2			I	1					
<i>Cheilanthes pyramidalis</i>					III	1									
<i>Stevia isomeca</i>					III	1									
<i>Carex longicaulis</i>					I	2									
<i>Dahlia coccinea</i>					I	2									
<i>Fuchsia thymifolia</i>					II	1									
<i>Pellaea ternifolia</i>					III	1			I	1					
<i>Stipa ichu</i>							III	4	I	2			III	2	
<i>Carex geophila</i>			I	1	III	2	IV	2	III	1	II	1			
<i>Jaegeria hirta</i>			I	2	II	2	IV	2					II	2	
<i>Tristeum kochianum</i>					I	2	V	2	I	2					
<i>Agrostis hyemalis</i>					II	1	III	2	V	2	IV	2			
<i>Muhlenbergia nigra</i>							I	2	II	4					
<i>Piptochaetium seleri</i>					II	2	III	3	I	2	IV	2			
<i>Cheilanthes hirsuta</i>					II	2			I	1	V	1			
<i>Stevia iltisiana</i>			II	2			II	1	IV	1	V	3			
<i>Stevia clinopodioides</i>					I	1	II	1	II	1	IV	1			
<i>Blepharoneuron tricholepis</i>							II	1	II	2	IV	3			
<i>Lobelia gruina</i> var. <i>gruina</i>							III	1	II	2	IV	1			
<i>Eryngium proteiflorum</i>	III	1							I	1	V	1			
<i>Vulpia myuros</i>									I	2	IV	2			
<i>Eupatorium schaffneri</i>											II	3			
<i>Muhlenbergia pusilla</i>							II	2	I	2	III	2	III	3	
<i>Aegopogon cenchroides</i> var. <i>breviglumis</i>			I	4	II	1			I	1		2	III	6	
<i>Oenothera flava</i>			I	1	I	1							III	1	
<i>Muhlenbergia vaginata</i>							II	2	I	2	II	2	IV	4	
<i>Villadia batesii</i>									I	1	III	2	II	4	
<i>Rumex acetosella</i>			III	1	I	1							III	2	
<i>Alchemilla</i> sp.			I	2			II	2	I	2	II	2	IV	2	III
<i>Arenaria bourgaei</i>							II	2	I	2			IV	4	V
<i>Phacelia platycarpa</i>							III	1	I	2			IV	2	III
<i>Verbena teucriifolia</i>					I	2	III	2	II	2			IV	2	
<i>Heliopsis procumbens</i>							II	1	I	2			III	5	
<i>Muhlenbergia ramulosa</i>					I	2	II	2	I	2	II	2	III	3	III
<i>Brassica campestris</i>			I	2			III	1	I	1			II	1	III
<i>Eruca sativa</i>							I	1							III
<i>Avena sativa</i>															IV
Companion species¹															
<i>Salvia helianthemifolia</i>	III	2			III	2	I	2					II	1	
<i>Solanum verrucosum</i>	III	2	I	2	III	1			I	2			II	2	
<i>Poa conglomerata</i>	III	2					II	1	I	2			II	2	
<i>Oenothera deserticola</i>	III	2	III	2	III	1	II	1	II	1					
<i>Peduncularis orizabae</i>	III	2	I	2	I	2	II	1	I	2					
<i>Arracacia atropurpurea</i>	III	2	III	1	II	1							II	1	
<i>Geranium seemannii</i>	III	2	III	2			II	1							
<i>Hedeoma piperitum</i>			I	2	II	1	II	1	I	1	II	2			
<i>Sisyrinchium scabrum</i>			II	2	I	1	II	1	II	1			II	2	
<i>Galium uncinulatum</i>			II	2	II	2	II	1	II	2					
<i>Hypoxis mexicana</i>			I	1	III	1	III	1					II	2	
<i>Hypericum silenoides</i>					I	1	III	1	III	1	II	2			
<i>Potentilla candicans</i>					I	1	II	2	I	1	II	1	II	1	
<i>Aristida divaricata</i>					I	1	II	1	I	2	II	2			
<i>Physalis orizabae</i>							II	1	II	1	II	2			
<i>Pinus hartwegii</i>	II	3													III
<i>Peperomia campylotropia</i>					III	1	III	1	I	1	II	1			
<i>Bromus carinatus</i>					III	2	III	2					II	2	
<i>Galium aschenbornii</i>					II	2			I	1					
<i>Astragalus strigosus</i>					I	2	II	1	I						
<i>Tajetes coronopifolia</i>					I	1	III	2							

	CI	CII	CIII	CIV	CV	CVI	CVII	CVIII
<i>Salvia mocioni</i>				II	2	I	1	
<i>Verbascum virgatum</i>				II	1	II	1	
<i>Eryngium bonplandii</i>				II	3	I	2	
<i>Halenia brevicornis</i>				III	1	III	1	
<i>Lobelia schmitzii</i>				II	1	I	2	II
<i>Plantago alismotifolia</i>				III	2	I	2	II
<i>Gnaphalium sarmentosum</i>					I	1		III
Rare species¹								
<i>Gibasis pulchella</i>	II	2						
<i>Stevia jorullensis</i>	III	2						
<i>Stachys agraria</i>	III	2	II	2			II	2
<i>Richardia triccoca</i> subsp. <i>tetracocca</i>			I	2	II	2		
<i>Astranthium condimentum</i>			I	2				
<i>Sisyrinchium arizonicum</i>			II	1				
<i>Stachys globosa</i> (<i>nepetifolia</i>)							II	1
<i>Datura stramonium</i>			I	1	II	2		
<i>Bromus catharticus</i>				I	2	I	1	
<i>Galium trifidum</i>				I	2	I	2	
<i>Oxalis cuniculata</i>				II	2	I	1	
<i>Poa annua</i>				II	1	I	2	
<i>Cerastium brachypodium</i>				II	1	I	1	
<i>Arenaria paludicola</i>				I	1	I	2	
<i>Castilleja moranensis</i>				I	1	I	1	
<i>Euphorbia ocymioidea</i>				I	1	I	1	
<i>Cerastium molle</i>				I	1	I	1	
<i>Cyperaceae</i>				I	1	I	1	
<i>Drymaria effusa</i>				II	2			
<i>Bromus exaltatus</i>				I	2			
<i>Mentha rotundifolia</i>				I	1			
<i>Stachys coccinea</i>				I	1			
<i>Bidens serrulata</i>				I	1			
<i>Spergula arvensis</i>				I	1			
<i>Agostis schaffneri</i>				II	2			
<i>Arenaria reptans</i>						I	1	
<i>Calamagrostis orizabae</i>						I	2	
<i>Cosmos crithmifolius</i>						I	1	
<i>Cuphea jorullensis</i>						I	1	
<i>Plantago mayor</i>						I	1	
<i>Haplopappus stoloniferus</i>						I	1	
<i>Erigeron galeottii</i>						I	2	
<i>Taraxacum officinale</i>						I	1	
<i>Gentiana spathacea</i>						I	1	
<i>Hieracium crepidispermum</i>						I	1	
<i>Cirsium ehrenbergii</i>						I	1	II
<i>Hieracium mexicanum</i>						I	1	II
<i>Flaveria trinervia</i>						I	2	II
<i>Penstemon barbatus</i>						I	1	II
<i>Aegopogon tenellus</i>							II	2
<i>Nesella mexicana</i>							II	1
<i>Vaccinium geminiflorum</i>							II	1
<i>Draba jorullensis</i>						II	1	
<i>Castilleja pectinata</i>						I	1	
<i>Oenothera tubifera</i>							II	1
<i>Lobelia nana</i>							II	1
<i>Gnaphalium sphacilathum</i>							II	2
<i>Echinopepon milleflorum</i>								II
<i>Senecio toluccanus</i>				I	2			II
<i>Lopezia racemosa</i>								II

¹Characteristic, preferential, companion and rare species follow Braun-Blanquet (1932). Characteristic species are those that define the entire community. Preferential species are those with a broad distribution that may occur in three or more communities but with higher frequency and coverage in one community; those within shaded boxes are predominantly more abundant in one particular community. Companion species are those without a pronounced affinity for any community. Rare species are those that are rare, accidental intruders from another plant community, or relicts of a preceding community.