Species presence/absence data Species common name		Cluster A Stoney Point/Serrano Valley Intense mechanical disturbance	Cluster B Palos Verdes Grazing + agriculture + suburbaniza-tion	Cluster C Charmlee Park/La Jolla Valley Largely grazing
Red-eyed wattle	*Acacia cyclops*		X	
Deerweed (Lotus scoparius)	*Acmispon glaber*	X		X
Chamise	*Adenostoma fasciculatum*	X		X
Amsinckia	*Amsinckia intermedia*	X		
Scarlet pimpernel	*Anagalis arvensis*			X
California sagebrush	*Artemisia californica*	X	X	X
California milkweed	*Asclepias californica*	X		
Big saltbush	*Atriplex lentiformis*		X	
Slim oat	*Avena barbata*	X		
Wild oat	*Avena fatua*	X		X
Coyotebrush	*Baccharis pilularis*		X	X
Black mustard	*Brassica nigra*	X	X	
Common mustard	*Brassica rapa*	X		X
Ripgut brome	*Bromus diandrus*		X	X
Foxtail brome	*Bromus madritensis*	X		X
Bigpod ceanothus	*Ceanothus megacarpus*	X		
Greenbark ceanothus	*Ceanothus spinosus*	X		
Tocalote	*Centaurea melitensis*	X	X	X
Rattlesnake weed	*Chamaesyce albomarginata*	X		
Field bindweed	*Convolvulus arvensis*	X		X
Turkey mullein	*Croton setigerus*	X		X
Sacred datura	*Datura wrightii*	X		
California encelia	*Encelia californica*		X	
Ashy-leaf buckwheat	*Eriogonum cinereum*	X	X	X
California buckwheat	*Eriogonum fasciculatum*	X	X	X
Long-beaked stork's bill	*Erodium botrys*			X
Fennel	*Foeniculum vulgare*		X	
Coastal gumweed	*Grindelia stricta*			X
Sawtooth goldenbush	*Hazardia squarrosa*			X
Toyon	*Heteromeles arbutifolia*		X	
Shortpod mustard	*Hirschfeldia incana*			X
Coastal isocoma	*Isocoma menziesii*		X	X
Common Pacific pea	*Lathyrus vestitus*	X		
Bicolored lupine	*Lupinus bicolor*		X	
Bush lupine	*Lupinus longifolius*			X
Chaparral mallow	*Malacothamnus fasciculatus*			X
Laurel sumac	*Malosma laurina*	X		X
Cheeseweed mallow	*Malva parvifolia*	X		
Wild cucumber	*Marah macrocarpus*		X	
Horehound	*Marrubium vulgare*	X		
Sticky monkey flower	*Mimulus aurantiacus*			X
Purple needlegrass	*Nassella pulchra*		X	X
Coastal prickly pear	*Opuntia littoralis*		X	
Showy penstemon	*Penstemon spectabilis*			X
Common phacelia	*Phacelia distans*	X		

Harding grass	*Phalaris aquatica*			X
Reed canarygrass	*Phalaris arundinacea*			X
Coastal live oak	*Quercus agrifolia*	X		X
Hollyleaf redberry	*Rhamnus illicifolia*	X		
Lemonadeberry	*Rhus integrifolia*		X	
Curly dock	*Rumex crispus*			X
Purple sage	*Salvia leucophylla*	X	X	X
Black sage	*Salvia mellifera*	X		X
Peruvian pepper tree	*Schinus molle*		X	
Woolly blue curls	*Trichostema lanatum*			X
Our Lord's candle	*Yucca whipplei*	X		X

alpha diversity				
beta diversity	Cluster A vs B			
	Cluster A vs C			
	Cluster B vs C			
gamma diversity				

alpha diversity is the total count of species in each of the three clusters
beta diversity is the contrast between pairs of clusters, the species found in one but not the other
(you don't count species found in both clusters)
gamma diversity is the total count of species found in the whole region, in all three clusters

La Jolla Valley and Charmlee Park wound up in the same statistical cluster, probably because of proximity and common history as livestock grazing operations

I was surprised that Stoney Point and Serrano Valley wound up in the statistically closest cluster because they are far apart, Serrano close to the coast and Stoney Point well inland. Both, however, were sites of heavy mechanical disturbance and ecological stress; Serrano being farmed and Stoney Point being disturbed mechanically by suburbanization, air pollution, and transportation development (railroad, highways), so it may make sense

Palos Verdes has a history of grazing and intensive agriculture, as well as suburbanization In the cluster analysis, it was closer in character to Stoney Point and Serrano than it was to Charmlee Park and La Jolla Valley, despite the similarities of setting, no doubt because of the heavy and complex disturbance history

Note: corrected 02/21/14 to fill in cells unintentionally left blank.