

Supplementary Table S1. The summary impacts of the Cenozoic Tethyan geological events on Eurasian animal evolution.

Major geological events	Changes in/between habitats	Impacts on		
		terrestrial fauna	freshwater fauna	marine fauna
Convergence of plates northward movement of African-Arabian, Indian and Australian plates	narrowing of sea / land bridge	Exchange / dispersal / migration		divergence
Continent-continent collision Indian-Asia / Australia-Southeast Asia / Arab-Eurasia	continental connection / closure of seaway	exchange / dispersal / migration	exchange / dispersal / divergence / vicariance	vicariance
	cohesive zone shift from shallow sea to freshwater			adaptation / habitat shift
	archipelago / shallow seas	dispersal / vicariant / diversification		evolution / speciation / diversification
	anchialine caves			adaption / isolation / relict
Sea-level changes in Southeast Asian and Europe	rise / transgression / waterway / seaway	vicariance	expansion / dispersal	expansion / exchange / dispersal / migration
	decline / regression / terrestrial corridor	expansion / exchange / dispersal / migration / reunion	isolation	vicariance
	fluctuation / ups and downs	diversification	diversification	speciation / diversification
Formation of Alpine-Himalayan orogenic belt	orogenesis	speciation / endemism / diversification	speciation / endemism / diversification	
	terrestrial barriers	divergence / vicariance	divergence / vicariance	
	glacial refugia	preservation / expansion	preservation / expansion	
	high plateau environment	extinction / adaptation	extinction / adaptation	
	karst cave environment	adaption / convergence / isolation / endemism / speciation	adaption / convergence / isolation / endemism / speciation	
Regression of the Paratethys Sea	Eurasian migration corridor	exchange / dispersal / migration		
	disappeared marine environment			extinction / relict distributions
	brackish / freshwater ecosystems		expansion / dispersal / origin / rapid diversification	adaption / rapid diversification
Aridification of Central Asia	increasing aridification	disjunct distribution / divergence	disjunct distribution	
	open and dry habitats	adaptation / expansion / radiation		
Messinian salinity	Sea-level decline / land connections	expansion / exchange / isolation / reunion	expansion / exchange / reunion / isolation	
	disappeared marine environment		exchange / dispersal / migration	extinction
	hyposaline lake			adaption
Zanclean flood	reopened seaway		isolation / endemism	exchange / dispersal / migration
	restore marine environment		readaptation	