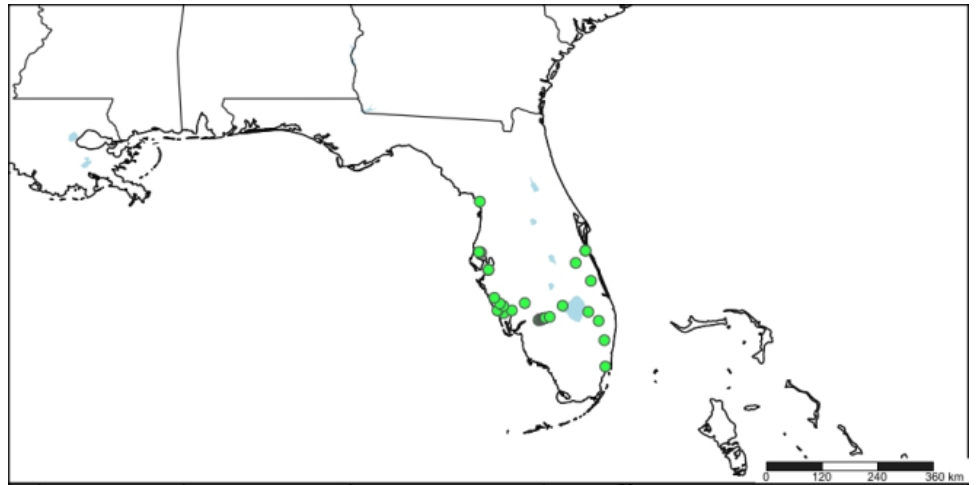
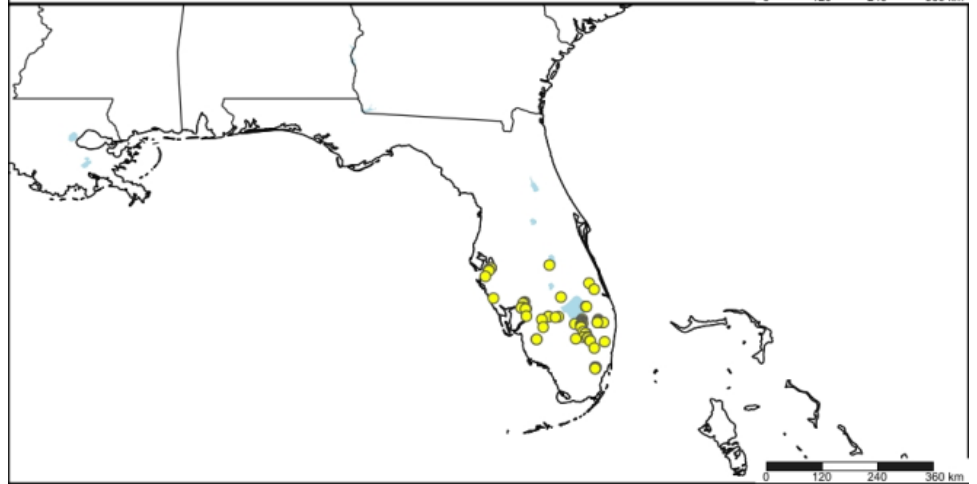


Time Series Maps

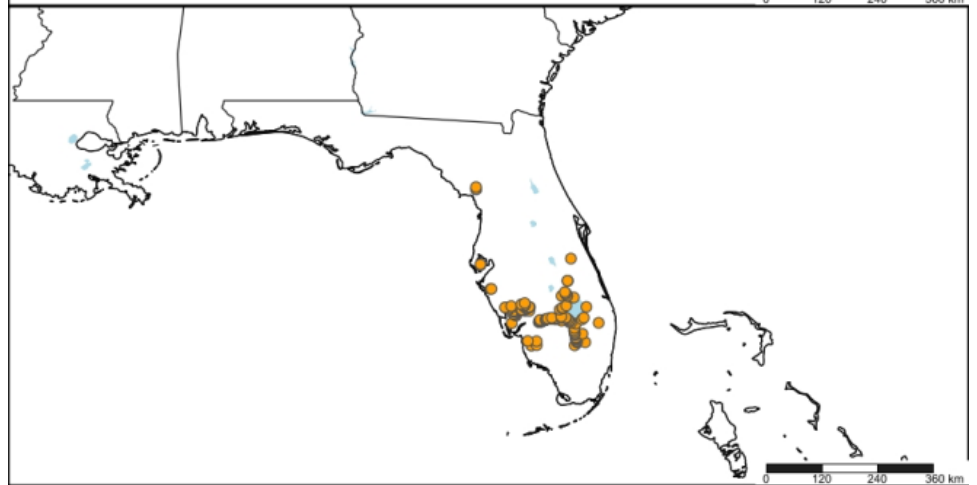
Fort Thompson Formation
Upper Pleistocene
~50,000 years old



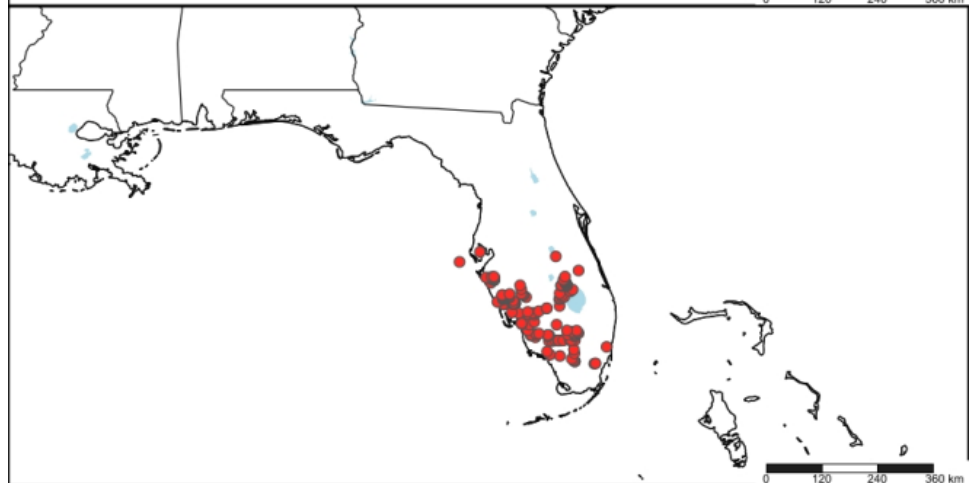
Bermont Formation
Middle Pleistocene
~500,000 years old



Caloosahatchee Formation
Lower Pleistocene
~2 million years old



Tamiami Formation
Upper Pliocene
~3 million years old



Name _____

Species Through Time: Time Series Data

Group	Species	Tamiami Formation	Caloosahatchee Formation	Bermont Formation	Fort Thompson Formation	Today
		~3 million years ago	~2 million years ago	~500,000 years ago	~50,000 years ago	
Gastropods	<i>Conus adversarius</i>	2810	1421			
	<i>Conasprella marylandica</i>	202	15			
	<i>Fusinus equalis</i>					
	<i>Neverita duplicata</i>					
	<i>Turritella subannulata</i>					
	<i>Xenophora floridana</i>					
Bivalves	<i>Chesapecten jeffersonius</i>					
	<i>Crassostrea virginica</i>					
	<i>Lucina pensylvanica</i>					
	<i>Panichione ulocyma</i>					
	<i>Planicardium virginianum</i>					
Corals	<i>Manicina areolata</i>					

What do you notice about the data? What general pattern do you see in the data table or line graph?

Do all the species follow this pattern? What are the similarities and differences in abundance through time among the species?

What are some possible explanations for the patterns you observe in the data?

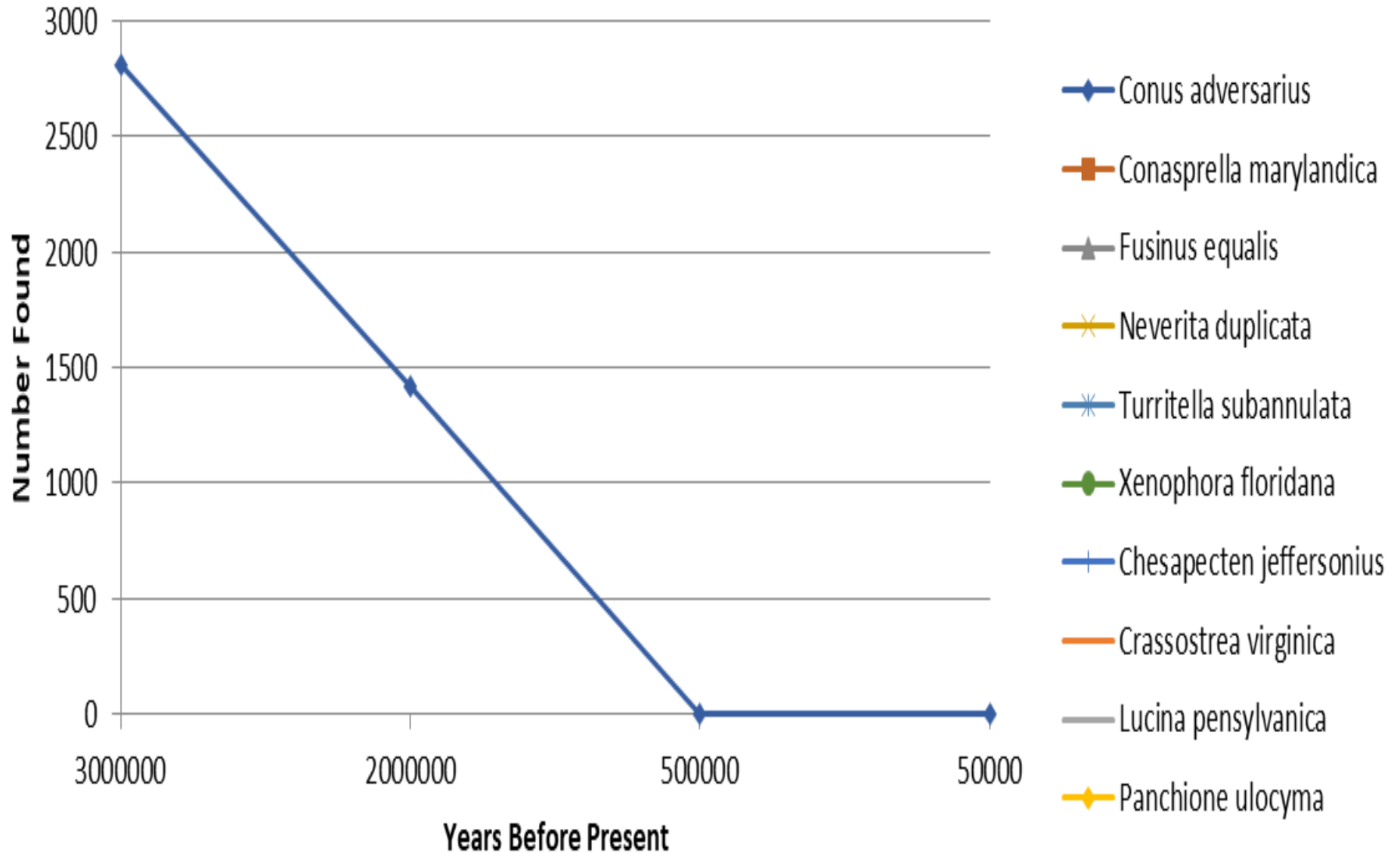
Several of the species have zeros for certain points of time. What might this mean? Write three possible reasons there might be zeros in the data.

Species Through Time: Time Series Data

Tamiami Formation (Pinecrest Beds): Southern Florida	Caloosahatchee Formation: Southern Florida	Bermont Formation: Southern Florida	Fort Thompson Formation: Southern Florida
Late Pliocene ~3 million years old 1,741 invertebrate species 241,963 specimens	Early Pleistocene ~2 million years old 1,520 invertebrate species 203,127 specimens	Middle Pleistocene ~500,000 years old 1,000 invertebrate species 140,574 specimens	Late Pleistocene ~50,000 years old 296 invertebrate species 45,675 specimens
Gastropods <i>Conus adversarius</i> : 2810 <i>Conasprella marylandica</i> : 202 <i>Fusinus equalis</i> : 50 <i>Neverita duplicata</i> : 958 <i>Turritella subannulata</i> : 267 <i>Xenophora floridana</i> : 399	Gastropods <i>Conus adversarius</i> : 1421 <i>Conasprella marylandica</i> : 15 <i>Fusinus equalis</i> : 0 <i>Neverita duplicata</i> : 543 <i>Turritella subannulata</i> : 2977 <i>Xenophora floridana</i> : 368	Gastropods <i>Conus adversarius</i> : 5 <i>Conasprella marylandica</i> : 0 <i>Fusinus equalis</i> : 0 <i>Neverita duplicata</i> : 331 <i>Turritella subannulata</i> : 675 <i>Xenophora floridana</i> : 89	Gastropods <i>Conus adversarius</i> : 0 <i>Conasprella marylandica</i> : 0 <i>Fusinus equalis</i> : 0 <i>Neverita duplicata</i> : 176 <i>Turritella subannulata</i> : 2 <i>Xenophora floridana</i> : 0
Bivalves <i>Chesapecten jeffersonius</i> : 2 <i>Crassostrea virginica</i> : 164 <i>Lucina pensylvanica</i> : 1124 <i>Panichione ulocyma</i> : 457 <i>Planicardium virginianum</i> : 41	Bivalves <i>Chesapecten jeffersonius</i> : 2 <i>Crassostrea virginica</i> : 348 <i>Lucina pensylvanica</i> : 531 <i>Panichione ulocyma</i> : 1 <i>Planicardium virginianum</i> : 0	Bivalves <i>Chesapecten jeffersonius</i> : 0 <i>Crassostrea virginica</i> : 82 <i>Lucina pensylvanica</i> : 395 <i>Panichione ulocyma</i> : 0 <i>Planicardium virginianum</i> : 0	Bivalves <i>Chesapecten jeffersonius</i> : 0 <i>Crassostrea virginica</i> : 7 <i>Lucina pensylvanica</i> : 93 <i>Panichione ulocyma</i> : 0 <i>Planicardium virginianum</i> : 0
Corals <i>Manicina areolata</i> : 68	Corals <i>Manicina areolata</i> : 149	Corals <i>Manicina areolata</i> : 244	Corals <i>Manicina areolata</i> : 0
Today: <i>Conus adversarius</i> : Extinct <i>Conasprella marylandica</i> : Extinct	<i>Fusinus equalis</i> : Extinct <i>Neverita duplicata</i> : Alive <i>Turritella subannulata</i> : Extinct <i>Xenophora floridana</i> : Extinct	<i>Chesapecten jeffersonius</i> : Extinct <i>Crassostrea virginica</i> : Alive <i>Lucina pensylvanica</i> : Alive	<i>Panichione ulocyma</i> : Extinct <i>Planicardium virginianum</i> : Extinct <i>Manicina areolata</i> : Alive

Species Through Time: Time Series Line Graph

Name _____



Group Names _____

Current Evidence about Patterns in the Data <i>Things we know based on the current data sets: write both what we know and how the data shows it.</i>	External Evidence <i>Things we know from other sources: books, other data, other science units, etc. Write both info and source.</i>	Hypotheses and Speculation about Causes for Patterns <i>Ideas about what might have caused the changes observed in the data.</i>	Open Questions and Missing Information <i>Things we don't know or things we need to know to answer questions.</i>