



Fossil Collecting 101

Part 2 – Making a Collection

Introduction to the hobby and science of
amateur paleontology

Erich Rose
Paleontological Society of Austin

Identifying your Fossils

So what did I find?

Numbers & Catalogs

How should I keep track of them?

Organization & Storage

I need to keep them safe and be able to
find them later

Identifying Your Fossils

- First of all be *METHODICAL*
- Sort your specimens by types: bivalves, gastropods, teeth, etc.
- Start broad, if possible determining the class or family and work your way toward the genus and hopefully species
- Understand that the age/formation must be known to help narrow down the choices
- Morphology: learn the terms used to describe the fossils
- Be happy with a genus-level ID, getting the species is bonus
- Keep track of how you identified the specimen for future reference

Identifying Your Fossils

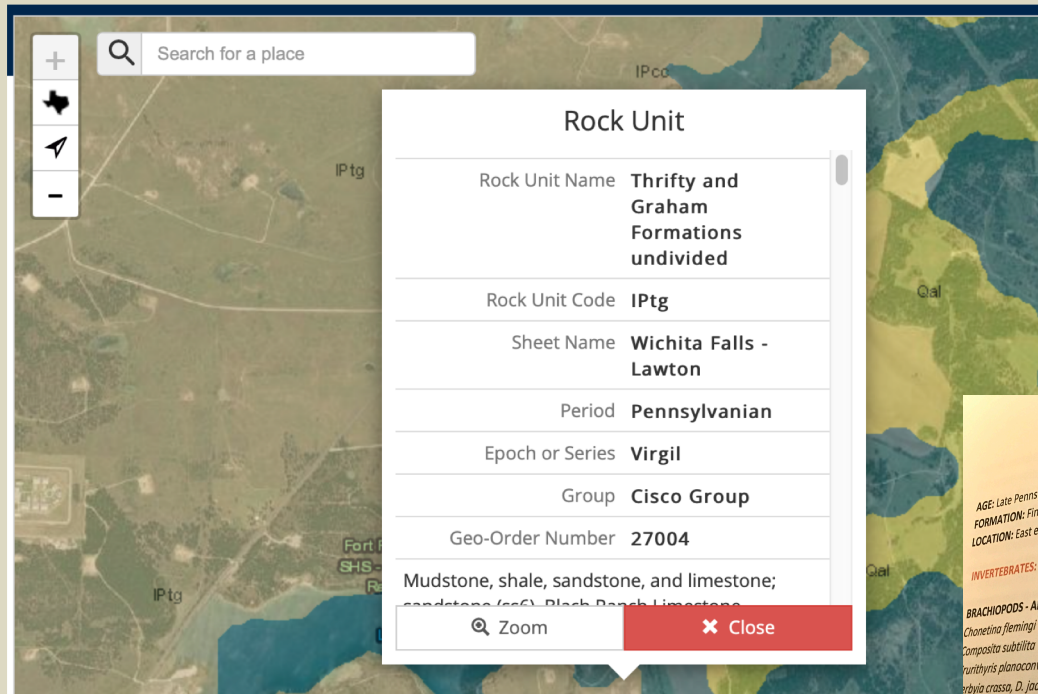
Sort out the different types



Identifying Your Fossils

What age is it & what formation?

What species can we expect there?

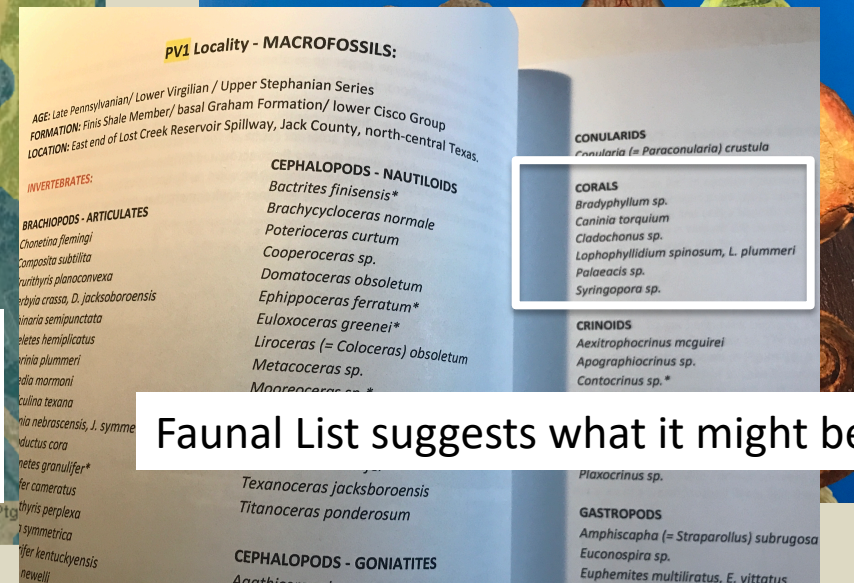


Map shows the site is Pennsylvanian in age
And the text describes the Finis Shale member of the Graham Formation as a match

Scale: 1 : 36,112 Lat: 33.2340 Lon: -98.1216

COLOR GUIDE TO PENNSYLVANIAN FOSSILS OF NORTH TEXAS

Mark McKinzie
John McLeod



Faunal List suggests what it might be

Identifying Your Fossils

Zeroing in on the species



Photo 45. *Conularia* sp., 32.5 mm., Pennsylvanian, Palo Pinto Co., Bill Carpenter.

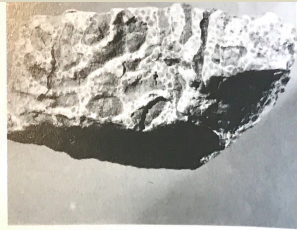


Photo 46. *Tollina trapezoidalis* Flower, a chain coral, approx. 90 mm., Ordovician period, El Paso Co., Texas Memorial Museum, Univ. of Texas at Austin 1410TX9.

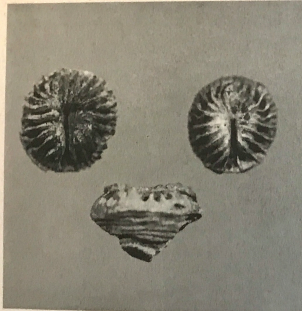
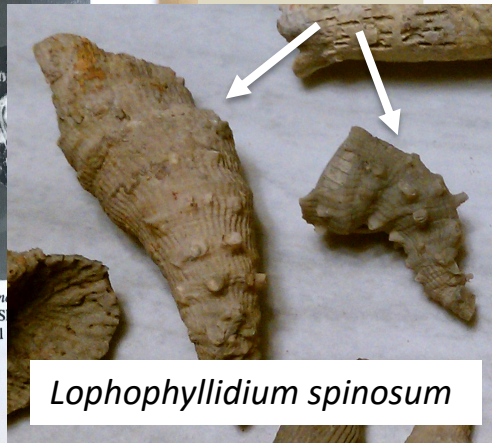


Photo 47. *Cumminia aplanata* (Cummins), 19 mm., Lower Pennsylvanian, Smithwick Shale, Lampasas series, San Saba Co., Frank, Mary, and Stephen Crane.

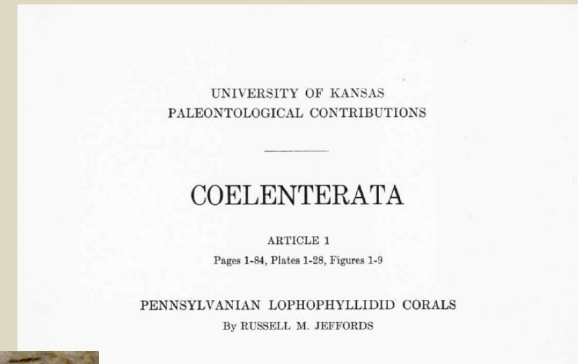


Photo 48. *Lophophyllidium spinosum*, 28 mm., Pennsylvanian, Finis S Co., Dallas Museum of Natural



Lophophyllidium spinosum

Plate 34



UNIVERSITY OF KANSAS PALEONTOLOGICAL CONTRIBUTIONS No. 1.

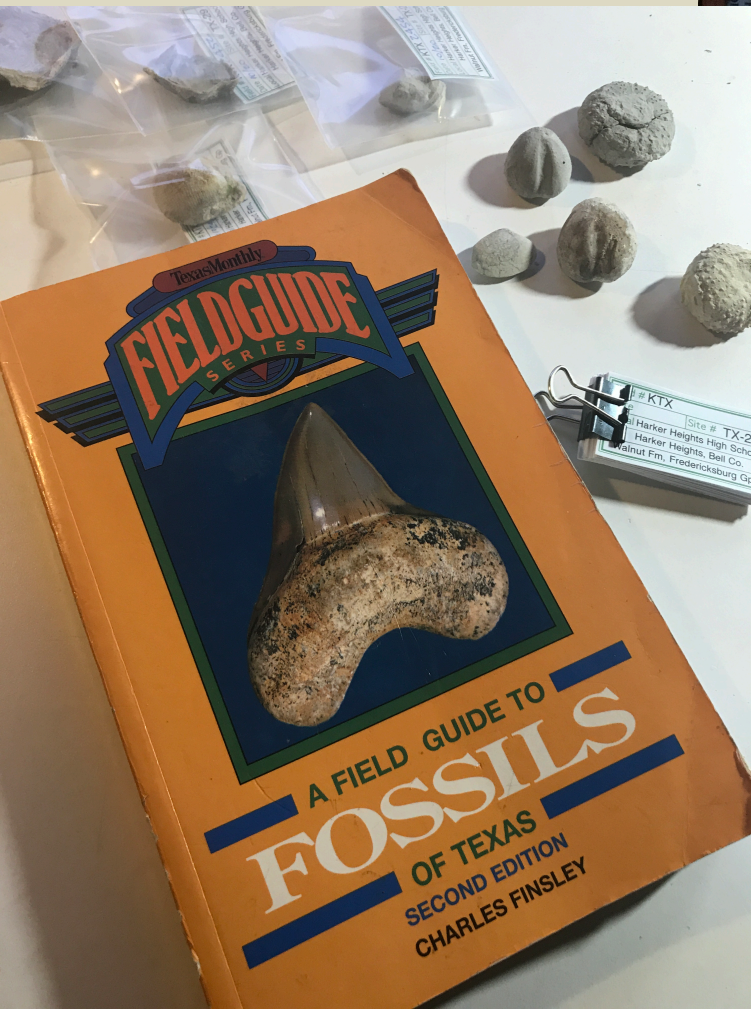
PLATE 26



JEFFORDS—Pennsylvanian Lophophyllid Corals

The genus and species is found in Texas Fossils and then it is confirmed with a more detailed paper from the University of Kansas

References for Identification



How many books do I need?

Types of Reference Books

- General: typical fossils of the world or USA
 - Example: Audubon Field Guide to North American Fossils
- State/Local: specific to what *you* would find
 - Example: Texas Monthly Series: A Field Guide to Fossils of Texas
- Advanced: specific to a type of fossil, a geologic range, a taxon
 - HGMS: Texas Cretaceous series
 - DPS: Pennsylvanian, North Sulfur River, etc.
 - Treatise on Invertebrate Paleontology (specific volumes)
 - Written papers like those found in the Journal of Paleontology
- There is now material online, including PDFs for downloading

Numbering System

- Every specimen or group of similar specimens are given a *unique* number
 - Numbers can be given at the time of collecting or as specimens are cataloged
 - Numbers are written directly on the specimen or, if the specimen is tiny, on the individual container
 - Numbers are recorded in sequence in your catalog
- Numbers and Codes
 - Numbers should be sequential
 - Codes can be used to indicate other information such as location, date, owner, etc. but don't get too complicated
 - Example: KTX123 = K for Cretaceous, TX for Texas, & 123 was the one hundred and twenty third specimen given a number

Numbering Specimens

When the specimen is large enough:

Find an inconspicuous spot to place the number

Specimen may need a rectangle of lacquer applied for placing number

Use "archival" quality acid-free pen to write number



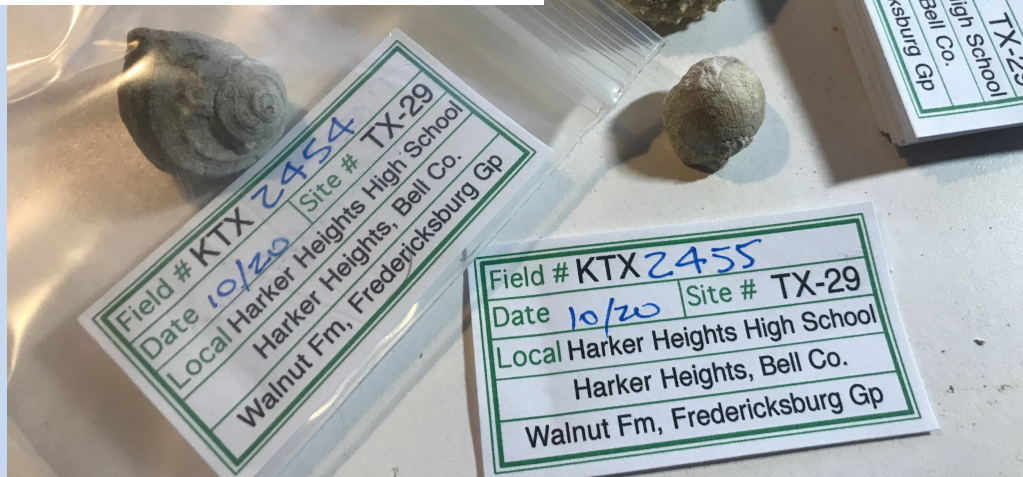
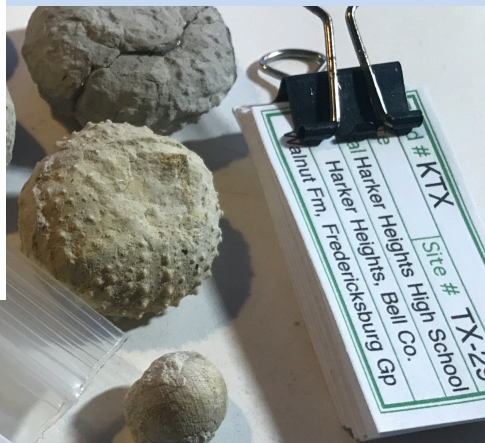
Numbering & Labeling Specimens

When the specimen is too small:

Place a label directly in the storage container (vigilance required!)

Microfossils can be mounted to slides and the slides labeled

Catalog #	Date:
Taxon:	
Formation:	
Age:	
Location:	



Cataloging Your Collection

- Create a Written Record
- Use a ledger book or 3-ring binder
- Using a data base program is a good alternative
- Create your own or buy a dedicated product like Trilobase
- Allows for easy revision and will be searchable
- Back up your information often

Catalog No. 2124	Field No. KTX2502 (x5)	Storage:
Date Collected: 10/15/2020	Date Identified: 3/21/2021	
Taxon: <i>Coenholectypus planatus</i> (Roemer)	Phylum: echinoid	
Notes: variety of sizes		
ID Reference: various		
Formation: Unit 37, Upper Member, Glen Rose Formation, Trinity Group		
Age: Albian (Early Cretaceous)		
Location: TX Hwy 46, 3.9m East of Boerne, Kendall Co.		
Location Notes:		
Location Description No.: TX94		

Catalog No. 2125	Field No. KTX2503 (x6)	Storage:
Date Collected: 12/1/2015	Date Identified: 3/21/2021	
Taxon: <i>Heteraster (Enellaster) obliquatus</i> (Clark)	Phylum: echinoid	
Notes:		
ID Reference: various		
Formation: Unit 37, Upper Member, Glen Rose Formation, Trinity Group		
Age: Albian (Early Cretaceous)		
Location: TX Hwy 46, 3.9m East of Boerne, Kendall Co.		
Location Notes:		
Location Description No.: TX94		

Catalog No. 2126	Field No. KTX2504	Storage:
Date Collected: 12/1/2015	Date Identified: 3/21/2021	
Taxon: <i>Hypacanthoplites cf. comalensis</i> (Scott)	Phylum: ammonite	
Notes: overall shape is Hypacanthoplites, strata suggests <i>H. comalensis</i>		
ID Reference: Young, 1974; Emerson, et al., 1994		
Formation: Unit 37, Upper Member, Glen Rose Formation, Trinity Group		
Age: Albian (Early Cretaceous)		
Location: TX Hwy 46, 3.9m East of Boerne, Kendall Co.		
Location Notes: specimen pulled from strata in fragments		
Location Description No.: TX94		

Cataloging

Example of Catalog Form and Fields

Catalog No. 2075	Field No. KTX2454	Storage:
Date Collected: 10/24/2020	Date Identified: 2/14/2021	
Taxon: <i>Turbo ? benbrookensis</i> Stanton	Phylum: gastropod	
Notes: medium-large specimen		
ID Reference: Akers & Akers, 1997; Stanton, 1947		
Formation: Keys Valley Marl Member?, Walnut Formation, Fredericksburg Group		
Age: Albian (Early Cretaceous)		
Location: Harker Heights High School, Harker Heights, Bell Co.		
Location Notes: from lower part of section		
Location Description No.: TX29		

Catalog your Locations

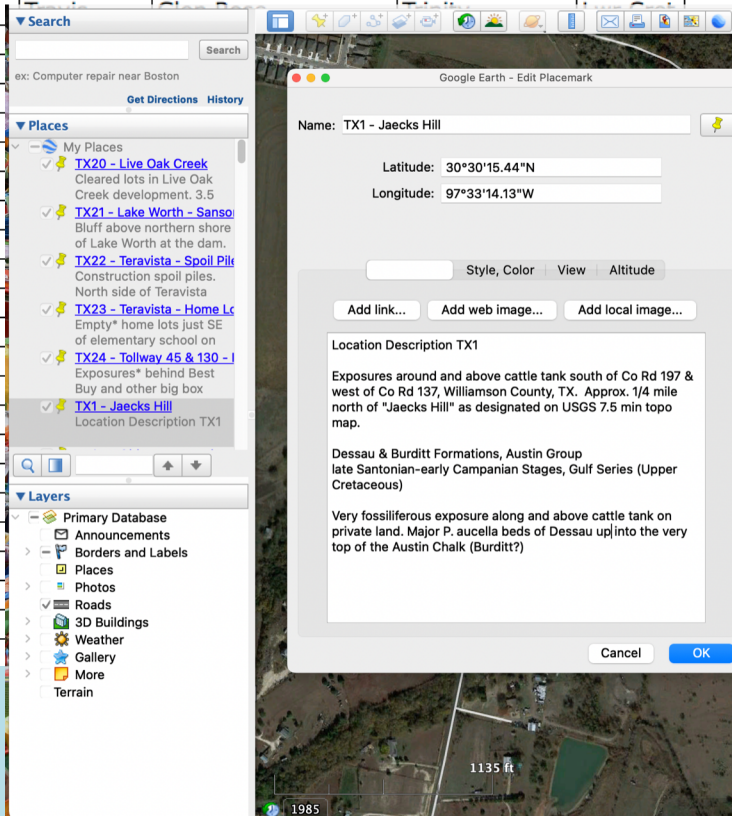
LOCATION info is VERY important and can be cross referenced to Specimens

TEXAS FOSSIL COLLECTING SITE LOCATION LIST

COLLECTION OF ERICH ROSE

Field Code	No.	Name	County	Formation	Group	Period
KTX	1	Jaacks Hill	Williamson	Dessau	Austin	Upr Cret
KTX	2	Boggy Creek	Travis	Dessau	Austin	Upr Cret
KTX	3	Northeast Drive	Travis	Sprinkle Clay	Taylor	Upr Cret
KTX	4	Little Walnut Ck @ Manor Rd	Tavis	Dessau	Austin	Upr Cret
KTX	5	Barton Ck-Gus Fruh Pk	Travis	Edwards	Fredksbg	Lwr Cret
KTX	6	Allen Park	Travis	Walnut	Fredksbg	Lwr Cret
KTX	7	Bob Wire Road				
KTX	8	TX Hwy 71 @ Bee Creek				
KTX	9	City Park Road #1				
KTX	10	City Park Road #2				
KTX	11	City Park Road #3				
KTX	12	Balcones Dr @ Hart Lane				
KTX	13	Lake Benbrook Spillway				
KTX	14	Little Walnut Ck @ Dessau Rd				
KTX	15	Loop 360 @ FM 2244				
KTX	16	Loop 360 @ Pascal Lane				
KTX	17	Waymaker Ln & Far Gallant Dr				
KTX	18	Bee Cave Type Section FM 2244				
KTX	19	Loop 360 w/of Great Hills Trail				
KTX	20	Live Oak Ck				
KTX	21	Lake Worth, Sansom Park				
KTX	22	Teravista - spoil piles				
KTX	23	Teravista - home lots				
KTX	24	Tollway 45 & 130, Pflugerville				
KTX	25	Old Manor Road				
KTX	26	RM 620 @ TX Hwy 71 #1				
KTX	27	RM 620 @ TX Hwy 71 #2				
KTX	28	RM 620 @ Murfin Road				

Locations are pinned on Google Earth with details and photos attached, can then be printed



Master running lists by age and state

Storing and Displaying Specimens



- Boxes: plastic, cardboard, wood
- Zip-lock bags, various sizes
- Clear plastic divider boxes
- Drawers, cabinets, display cases
- Storage is numbered & coded

- Arrange by site, formation, age, taxon, etc.
- Use archival quality material
- Make it Repeatable
- Stackable is good
- Durable is best



Storing Specimens



Photo Boxes



Flat Files

Storing Specimens



Clear Styrene
Divided Boxes



Soft Plastic Bins
With Lids

Displaying Specimens



Classic Riker Mounts

Available in various sizes and depths – glass or plastic



Displaying Specimens



Custom Built Display Case



Re-Purposed China Cabinet

Resources

Identification:

A Field Guide to Fossils of Texas, Charles Finsley, 1989, Gulf Publishing, Houston

Houston Gem and Mineral Society – Paleontology Publications

<https://hgms.org/publications/paleo-books/>

Dallas Paleontological Society - Publications

<https://www.dallaspaleo.org/page-18323>

Dallas Paleo Society - <https://www.dallaspaleo.org/Jacksboro-Study-Group>

Color Guide to Pennsylvanian Fossils of North Texas, 2015, Mark McKinzie & John McLeod

Collector's Guide to Texas Cretaceous Echinoids , 2016, William Morgan, Schiffer Publishing

Fossil Echinoids of Texas, A Monograph of Fossil Sea Urchins, 2016, William Thompson

Resources

Bureau of Economic Geology – Bureau Store <https://store.beg.utexas.edu>

Various state Geological Surveys, University and Museum Presses

Unites States Geological Survey (USGS) <https://www.usgs.gov>

Smithsonian Contributions - <https://repository.si.edu/handle/10088/796>

Journal of Paleontology – 1927 thru 2015 available at JSTOR

<https://www.jstor.org/journal/jpaleontology> published by the Paleontological Society

Labeling & Cataloging:

Trilobase - Database for fossils - <https://www.trilobase.com>

PaleoTax - Database for fossils - <http://www.paleotax.de>

Resources

Light Impressions – archival grade materials -

<http://www.lightimpressionsdirect.com>

Gaylord Archival – acid free pens & other labeling materials -

<https://www.gaylord.com/c/Labeling-and-Marking>

Storage & Display:

US Box Corp. – clear styrene boxes - <https://www.usbox.com/Boxes/Rigid-Clear-Hinged-Partition-Boxes/0LV/>

Various types of boxes including clear styrene boxes are available at The Container Store - <https://www.containerstore.com/welcome.htm>

Discount Plastic Bags - <https://www.discountplasticbags.com/zip-lock/>

Kingsley North – Riker mounts, gem jars, cases & lapidary supplies

<https://kingsleynorth.com>

IKEA - <https://www.ikea.com/us/en/cat/display-storage-cabinets-st003/>

Resources

myFossil – great online resource with good info on all aspects of fossil collecting -
<https://www.myfossil.org/forums/topic/curation-of-personal-collections-2/>

The Fossil Forum – another excellent online resource -
<http://www.thefossilforum.com/#>

Again there are many, many resources to help you that are now available on the internet

Many old hard to find references are now available as PDF files