### Amateur/Avocational Contributions to Paleontology – The Big Picture

Linda McCall North Carolina Fossil Club Research Fellow – University of Texas – Austin



### AA Paleontological Types

Individual Collector

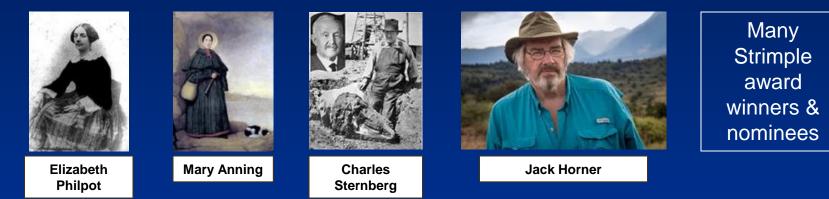
### **Commercial Operation**

Fossil Club/Society Member

## Individual Collector

(since the dawn of humanity)

Not a member of a club, collect for research, fun or profit
MANY GOOD FOR SCIENCE (research driven)



- SOME NOT SO GOOD FOR SCIENCE
- Internet/eBay explosion of folks out to find fossils just to sell – no interest in science, give the rest of us a bad name

### Commercial Operations Dealers

#### Dealers

- Collect, prep and sell (research component)
  - Black Hills Institute of Geological Research, Inc. (Peter Larson)
  - Geological Enterprises, Inc. (Donna Russell)
  - Black Cat Mountain Trilobites (Bob Carroll)
  - Trilobites of America (Dan Cooper) (Dry Dredgers)
  - Cold Creek Fossils (Danny Harlow) (PoSA)
- Just buy and sell (little or no research component)
  - Many more since internet/eBay....

With fossils becoming "hot" to own, explosion of folks with no interest in the science – in to make money







### Commercial Operations "Pay to Dig"/Ecotourism ('80's -)

- "Pay to Dig"/Ecotourism (research component)
  - U-Dig Fossils Utah
  - Paleo Adventures Walter Stein
  - Frank Garcia
  - Mark Renz
  - Mid-Atlantic Fossil and Nature Adventures (Cathy Young/"Buck" Ward)







- Positive impact in both education and outreach
  - Engage the public in hands-on paleontological experiences in the field

# Fossil Clubs/Societies

- Most clubs/societies formed 60's to 80's
- No different than shell clubs, mineral clubs, etc.
  - Not in it for profit
  - Social aspect, fun, education and research
  - Interested in paleontology and the science
  - Enjoy collecting in the field (20%)
  - Knowledgeable about their area of interest
  - Seek further education
  - Frequently partner with museums and universities
  - Heavy into community outreach
  - Group setting provides modeling and reinforcement for ethical behavior

Clear positive educational and scientific impact

### **Fossil Clubs/Societies**

#### 12,000 members nationwide





60 clubs/societies

### **Club Structure Basics**

- 501 (c) (3)
  - By-laws / Mission Statement
    - Ethics Policy
      - Liability Insurance
        - Elected Officers / Board of Directors
          - Professional Advisors
            - Website / Social Media
              - Grants / Scholarships / Donations
                - Affiliates

## Today's Fossil Clubs

- Collect in the field ethically
- Curate/Catalogue/Collections/Displays
- Research
- Publish articles/papers/books
- Publish peer-reviewed
- Public outreach
- Grants/scholarships/donations
- Basically the things professionals do















Invertebrates Plants

Volume I of IV North Carolina Fossil Clut







## Today's Fossil Clubs

- Volunteer time
- Communicate good sites/finds
- Donate exceptional specimens
- Eclectic group of individuals
  - Passion for Paleontology, from all walks of life
  - Wide range of knowledge
  - Wide range of talents outreach, organization, trips, publishing, photography, web savvy, etc..
  - Creating effective and impactful organizations
  - Share in common a love for fossils and thirst for knowledge
  - Many not professional paleontologists but just as passionate – maybe more so



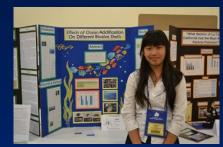




## Meetings/Speakers

- Meetings / guest lecturer forum
  - Professional Paleontologists
  - Grad students
  - Avocational Paleontologists
  - Fellow club members
- Business meeting / show-n-tell / door prizes
- Auction / Christmas Party / Picnic
  - Raise money
  - Speakers
  - Food, fun and fossils









#### **Paleo Footnotes**

JANUARY 2011

VOL. 8, NO. 1

Newsletter of the Paleontological Society of Austin Austin and Central Texas



Volume 8, Number 1 January 2013

#### 2014 Spring Calendar

NCLENS 11 West Jones Street, Raleigh,

nvention, Gainenville, FL (see right) om Fossil Fair - 1500 East Garrison Blvd., 4 00 Sanaday, General contact: See below

ciag - NCMNS, 11 West Jones Street, Ralei vel A conference room. Volume 17 roll-out, in March, 2014 Januar.

Arbor Day and Fossil Fair 10:00 - 4:00 Contact: Ruffin Tucker at 704-784-1672 or

king on it for almost 15 years and new ,000 photographs for it and Volumes II, put March 16 on your calendar <u>NOW</u>? IL III. A

#### President's Column

one and 2014 is finally he ful final finds, lots of frie

NAPC CONVENTIO? 10th annual NAPC Convention will be held in swille Florida February 15 – 18, 2014, with field uled on either side of the Convention dates. tific convention is a rarity in that they W sectional folks to attend and even have a sectionally for them

W. Hendy and Brace J. MacFadder

### Newsletters

- **Presidents note**  $\bullet$
- Speaker topic & bio •
- **Fossil articles**  $\bullet$
- Field Trip reports •
- **Future Trip notices** •
- Calendar of Events  $\bullet$
- Club officers contact  $\bullet$
- Membership info •

#### PALEONTOLOGICAL 0 C Pennsylvanian and **Permian Fossils** of Texas Praying Mantis on the Hunt

BULLETIN OF THE SOUTHERN CALIFORNIA



AT THE AURORA FOSSIL MUSEUM

H Everyone, Merry Christmas and Happy New Year to all of our wonderful Friends of the Aurora Fossil Maseum. The staff hopes that dreams of shark teeth and other fossils fill your nights. If you get a chance come by

the Museum and see our tree, the new empleeAnna Roberson did a fantastic job making it feel nore like the season around here. Our park has a reand new fence donated by Whiteburst Fencing of Washington and Clif Williams, Mayor of Aurora. Our red bows dress the park up and as always the

FOUNDED

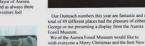


#### wish everyone a Merry Christmas and the best New Andrea Stilley - Direct

PACE 1 - Director's M PAGE 2 - President's Mi PAGE - North American Mos PAGE 6 - Andrewsarchu PAGE 8 - Editor's Column PAGE 9 - Member PAGE 12 - Friends Applic

visitors that better explains their products. We have the video that shows a small part of the process but this will actually have samples of their products. CURRENT HAPPENINGS





CONTENTS:

tables, donated by the Friends, for our touch area o the learning center. I have brass tags ordered to be mounted on each and we have offered one of the tables to Potash Corp of Aurora to do a display for













#### First point of contact for the general public

- Many clubs have outstanding websites, virtual portals to connect with and educate the general public as well as a forum for club members to obtain and disseminate information as well as fossil ID sections.
  - ncfossilclub.org
  - dallaspaleo.org
  - austinpaleo.org
  - southwestfloridafossilclub.com
  - afmfriends,org
  - floridapaleosociety.com
  - socalpaleosociety.wordpress.com

### **Social Media**







### Public Outreach & Results (Schools / Museums / Libraries / Fairs)

- 185 outreach events 15 clubs (740 / 60)
- 185 events impacted 70,000 (280,000 / 60)
- We are the face of Paleontology to the general public in our communities
- Hundreds of THOUSANDS of fossils given away annually. At ~500 lbs per club X 15 clubs = 3 TONS of fossils
- 60 clubs = 12 TONS of fossils annually























### Field Trips

Fossils, non-renewable resource, but...



- Clubs were formed in part because folks loved to collect in the field And it leads to all the positive things we have just discussed.
- ~10 trips per year x 60 clubs = 600 field trips x 20 = 12,000 people
- Exposed fossils have a finite life span
  - For every significant fossil you lose to a private collector you obtain hundreds more.
     The balance is clearly in favor of us being out there collecting.



Remember that 12 TONS of fossils we give away annually??



### **Professional Interaction**

- 14 of 15 clubs/societies surveyed actively interact with processional organizations
  - help out on projects
  - donate thousands of man-hours annually
  - Most have professionals as members or advisors



- Many professionals friendly to the AA community
  - Dr. Dave Bohaska
  - Dr. Bruce McFadden
  - Dr. George Phillips
  - Dr. Lyle Campbell
  - Dr. David Campbell
  - Dr. Roger Portell

- Dr. Ann Molineux
- Dr. James Sprinkle
- Dr. Ernie Lundelius
- Dr. Wann Langston
- Dr. Stephen Godfrey
- The Paleontological Society

## My Story

#### Early love of Paleontology

- Began collecting fossils at age 6
- Moved to Texas at age 12 fossils were everywhere!
- Individual collector until age 19
- Joined paleo section of the AGMS eventually became PoSA

#### • Went to UT as a Geology Major 1975-1977

- Worked at VP lab under Dr. Wann Langston and Dr. Ernie Lundelius as a freshman
- Counselors told me, "you're a girl best you can get is oil and gas and microbes".
- Dropped out, got married, took a day job, had kids

## My Story

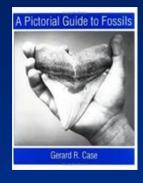
- Continued pursuing paleontology as a club member
  - Going on field trips
  - Amassing collections
  - Teaching myself, learning from fellow club members
  - Co-authored first paper as a club project w/ Dr. Jim Sprinkle (club science advisor) and others in 1985
- Began publishing peer reviewed material at age 51
  - Lead authored & presented first paper w/ mentor Dr. Ann Molineux and Dr. Jim Sprinkle in 2008. Paper won 2<sup>nd</sup> best paper at GCAGS conference – almost couldn't attend to give the presentation

## My Story

- Continued research and peer reviewed publishing
  - Lead authored & presented my 2<sup>nd</sup> paper in 2010 (GCAGS)
  - Both papers were reprinted in the South Texas Geological Society Bulletin as Cover Articles
  - Lead authored my 3<sup>rd</sup> paper in 2012 and won 3<sup>rd</sup> place for best presentation (GCAGS) (some push-back on my eligibility to receive the award)
  - Presented my first solo abstract at NAPC in 2014
  - Lead authored and presented my first GSA abstract in 2015 on 30 million old preserved fossil color
  - Currently presenting this abstract 2016 (SEGSA)
  - Continuing research on fossil color as well as preserved 2 million year old ligament

### **Peer-Reviewed**

- 51 AA individuals peer-reviewed out of 15 clubs surveyed
- Numerous Strimple Award winners
  - 1985. W. H. White, Jr. (Dry Dredgers)
  - 1992. Gerald R. Case (NCFC)
  - 1993. Peter J. Harmatuk (NCFC)
  - 1998. Peter LeGrand Smith (NCFC)
  - 2001. Stephen Felton (Dry Dredgers)
  - 2006. Christopher L. Garvie (PoSA)
  - 2008. Tom Witherspoon (FUMMP)
  - 2011. Michael and John Topor (FUMMP)





### Launchpad to Professionalism

- Clubs/Societies serve as a conduit through which members are inspired to join the ranks of the professionals – not to mention those we inspire through our outreach.
  - George Phillips: went back to school at age 45 now Paleontology Curator at the Mississippi Museum of Natural Science
  - Cindy Crane: former NCFC member, went back to school now Director of the Aurora Fossil Museum



### AA Accomplishments







- 1976, AA conceived, supported and run for 40 years

#### Fossil Forum

 Online venue for professionals and AAs to come together and share knowledge and finds



#### • Mineral Wells Fossil Park

 Conceived by the Dallas Club with support from other TX organizations to save a fossiliferous land-fill pit from development and create a fossil park for the general public



## We Pay Our Own Way



- All our accomplishments are done on volunteer hours / no pay.
- We don't have employers or funding or grants to accomplish all the things we do.
- ~ \$20.00 in annual dues + fundraisers covers meetings, newsletters, website upkeep and content, collecting trips, publishing, grant and scholarship award donations, etc.
- Additional collecting, researching, publishing, attending conventions, etc. is done on our own personal dime.

### MONEY: Grants/Donations/Scholarships

- 15 clubs donated over \$16,000.00 last year
- Average \$1,225.00 x 60 clubs

#### \$73,500 last year in donations to professionals









### FOSSIL DONATIONS

Can citizen scientists make a difference ?

Yes !

- 75% of all scientifically important specimens are found by amateurs (Rob Weems)
- 85% of all scientifically important elasmobranch specimens are found by amateurs (Brett Kent)
- Every club surveyed donated specimens
- How many? Thousands every year
- I've personally donated tens of thousands of specimens to UT
- 75% of scientifically relevant specimens were donated by amateurs. (Source: Paleo Quest) – I assume invertebrates
- Imagine your collections missing those specimens. Imagine all papers that wouldn't have been written and knowledge that wouldn't exist.











#### We are the face of Paleontology in our communities

(740 venues, 280,000 people, 12 TONS of fossils) (plus everyone we reach through our websites and publications)

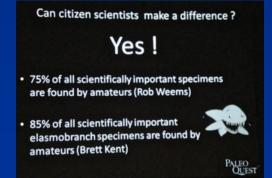


#### We are the Field Associates for the Professionals

- 12,000 potential allies in the field
- Most clubs collect primarily invertebrates
- 75% of scientifically relevant specimens found by amateurs
- We are out in the field a LOT, knowledgeable about our areas
- For every significant fossil you lose to a private collector you obtain hundreds or thousands more. The balance is clearly in favor of us being out there collecting.







### We can help professionals document, curate, publish

- Donation of your time (guide and mentor us)
- Lack proper training in collecting techniques/prep/curation
- Lack access to research material
- Lack access to professional conventions



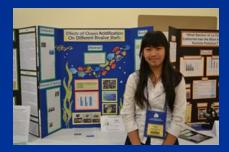












### **Break Down the Barriers**

#### Break down the barriers of distrust between us

- FOSSIL Project a start but we need a LOT more done
  - Bias even here
  - Raleigh Museum of Natural Science Paleopalooza cancelled
- Challenge to Professionals and to Amatuers
- Underutilized resource we are on the same side
- Synergistic partnership between us has exponential benefits for all of Paleontology

### The End

### Acknowledgements

#### **FOSSIL** Project

Chuck Ferrara Lee Cone Jack Kallmeyer

- PoSA members:
  - Ed Elliott, Suzanne Galligher, Chris Garvie, Kevin Durney, Mike Smith, Erich Rose, Scott Kelley
- SoCAL members;
  - Jennifer Morita, John Tabor
- NCFC members
  - Richard Chandler, Joy Herrington, James Bain, George Powell, Jerry Case, Eric Sadorf, Mike Bruff, Emily Bruff, Don Clements, Jonathan Fain, Diane Willis
- Emails with all 15 clubs surveyed