

# Geologic Field Studies Experience for People with Visual Impairments: What Works and What Doesn't (or The Blonde Leading the Blind)

Briget C. Doyle, Gina Applebee,  
Robert L. Nusbaum, Elizabeth K. Rhodes;

College of Charleston, Charleston, SC  
doyleb@cofc.edu

# Outline

- Field Studies Course
- Gina's Visual Impairment
- Classroom and Field Methods
- What worked and What didn't
- Gina's Suggestions

# Field Studies Course

- Summer 2005
- Three-week intensive field experience
- Utah, Nevada, California



# Field Work

- Intensive field work 7 days a week
- 8 hours a day in the field
- Mapping, measuring strat columns, constructing cross-sections, using a compass





# Gina's Visual Impairment

- Atypical Clumped Pigmentary Retinal Degeneration
  - Like retinitis pigmentosa
  - Very rare condition
    - Less than 100 people worldwide
- Symptoms
  - Missing spots (centrally)
  - Shimmering (constant movement)
- Mitchell
  - Leader Dogs for the Blind
  - With Gina for approximately 1 year

# Why have a Sighted Guide?

- Very foreign environment
  - Safety first!
  - Some things the dog can't do



# Why have a Sighted Guide

- Full and complete descriptions of geology and environment
  - Important to know geology



# Classroom Methods

- Presentations
  - Laptop for close-up views
  - Enlarged copies of slides before class
- Clarity Desktop - large screen monitor
  - Viewing samples and thin sections
- Individual Assistance
  - One-on-one work with instructor
  - Student to take notes
- Enlargements and magnification



# Field Methods

- Enlarged maps and diagrams
- Tablet PC / Handheld PDA
- Photography
- Drawn illustrations
- High powered hand-lens / Binocular glasses
- Verbal descriptions / Geologic hand-waving
- Software for readings

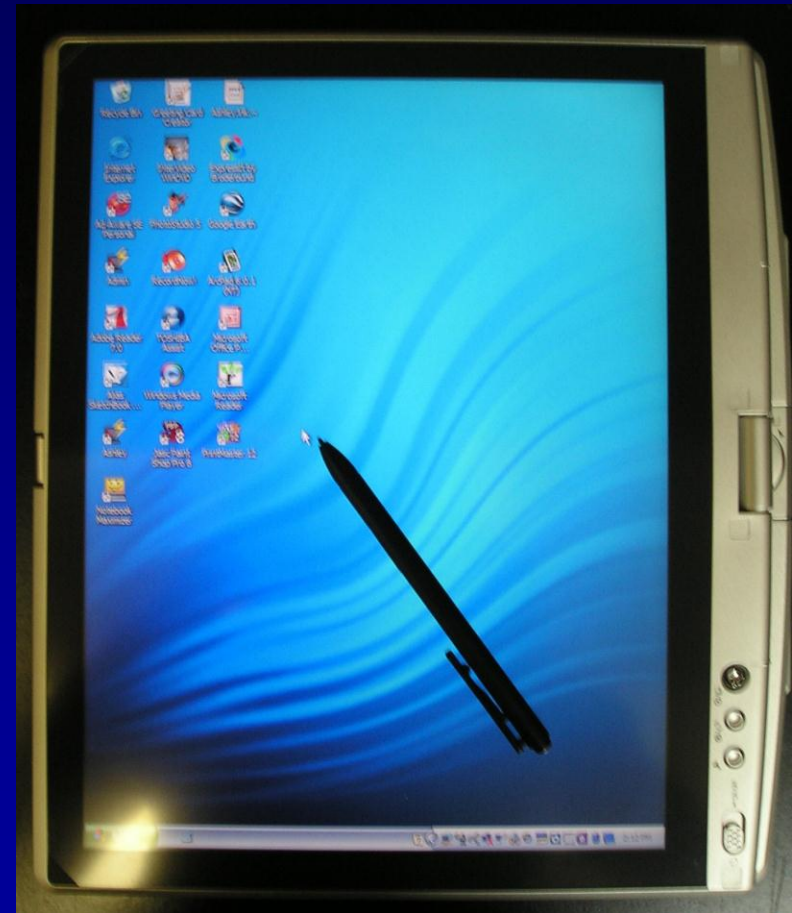
# Enlarged Maps and Diagrams

- All maps and diagrams enlarged 200%
- Large mylar overlays for mapping
- Guide as scribe



# Tablet PC / Handheld PDA

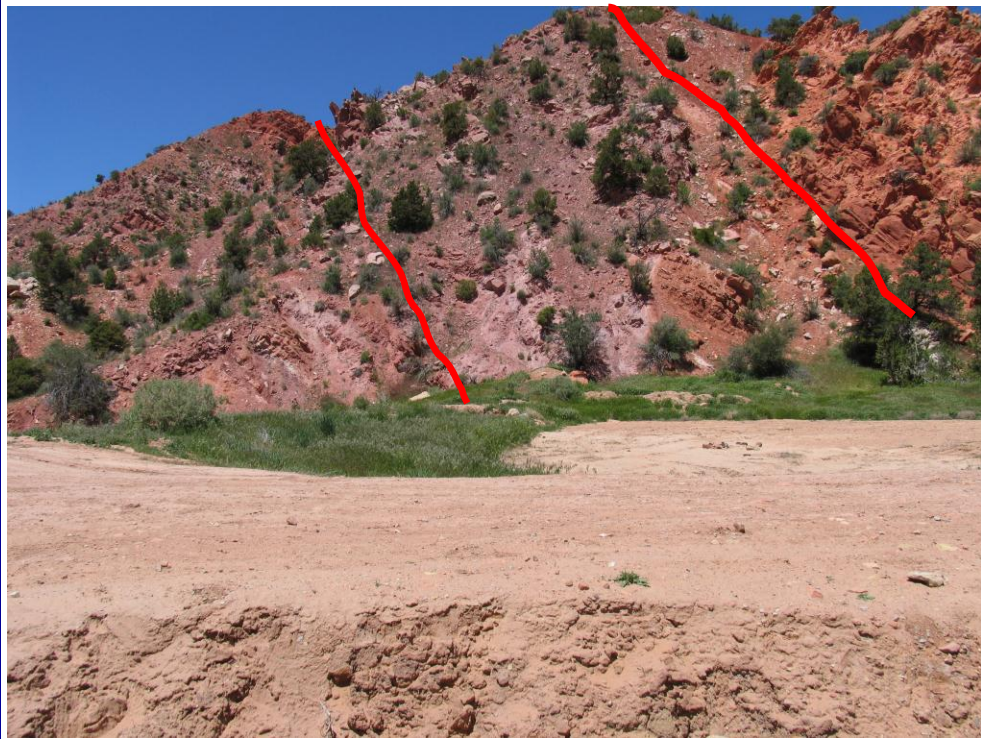
- Handheld PDA
  - Used for computer-based mapping by other students
  - Too small for Gina to see
- Tablet PC
  - Use Tablet to view digital forms of maps
  - Map directly on screen
  - View photos of field sites





# Photography

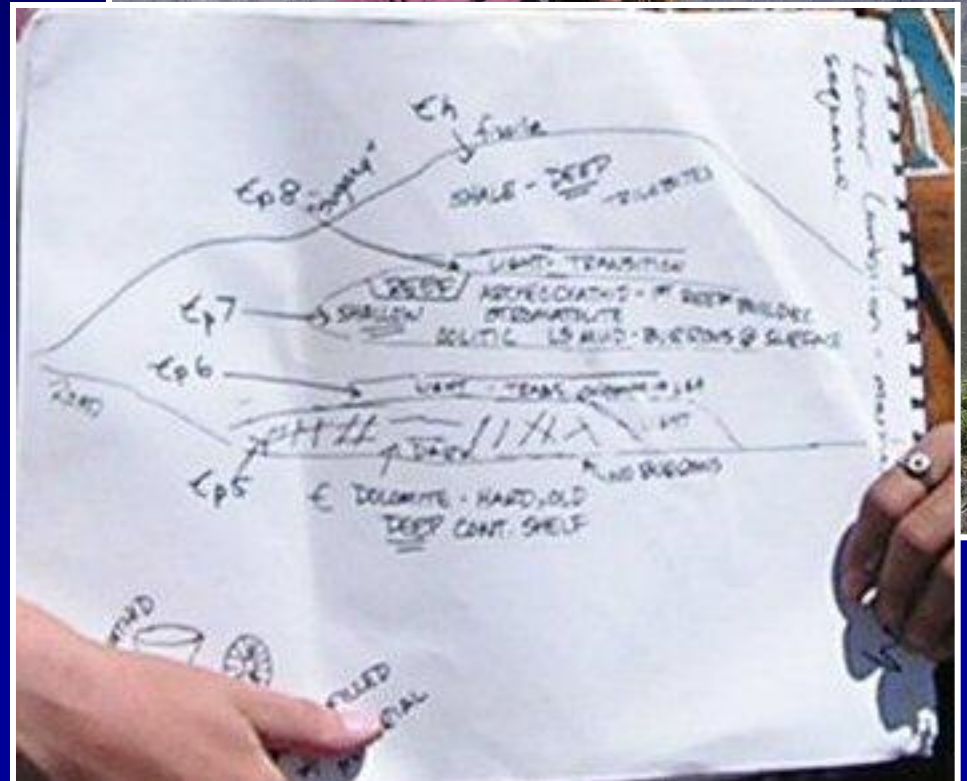
- Take photos in field and transfer to Tablet PC
- Zoom in on photos to view geology





# Drawn Illustrations

- 11 x 17 inch paper
  - Artists sketch book
  - Heavy paper
- Sketches of topography and geology
- Sketches of visible structures
  - Large and small scale



# High-Powered Hand-Lens / Binocular Glasses

- 20 x hand lens for rock and mineral samples
- Binocular glasses for distance viewing

# Verbal descriptions / Geologic hand-waving

- Complete and precise descriptions of rocks, minerals, structures
  - Need a guide who knows the geology
  - What's important and what isn't
  - How to describe without giving away the answers



# Assignments and Readings

- Work on maps, stratigraphic columns, cross-sections, and readings usually done in evenings after field work
- Usually done after dark
  - Multiple flashlights and lanterns
  - Need bug spray!

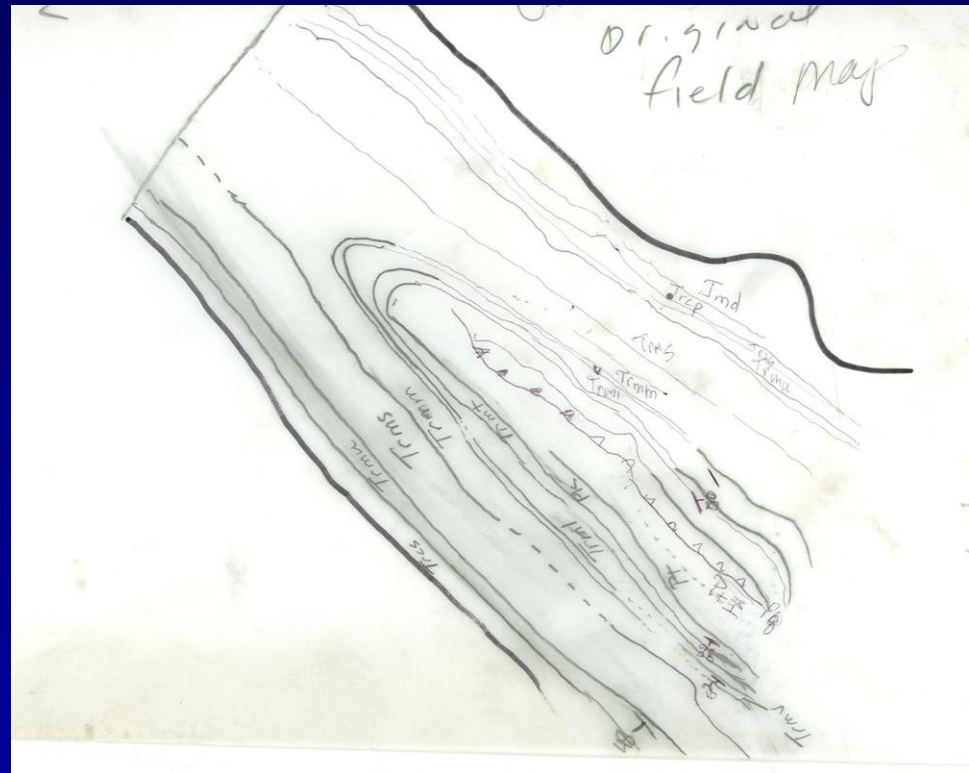


# Readings / Software

- Tablet PC and ZoomText
  - Enlarge text
  - Provide verbal descriptions of mouse-overs
  - Reading Software
    - Takes text and converts it to sound
    - Highlights words
  - Great when it worked

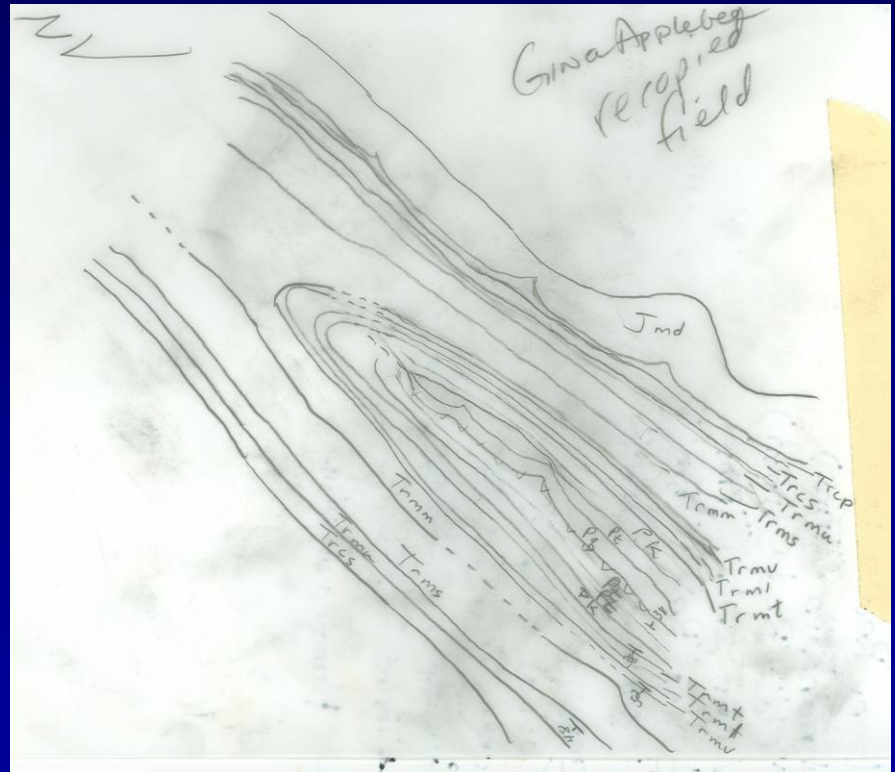
# Evening Assignments / Drafting

- Assistance with re-copying field maps into clean and more readable form



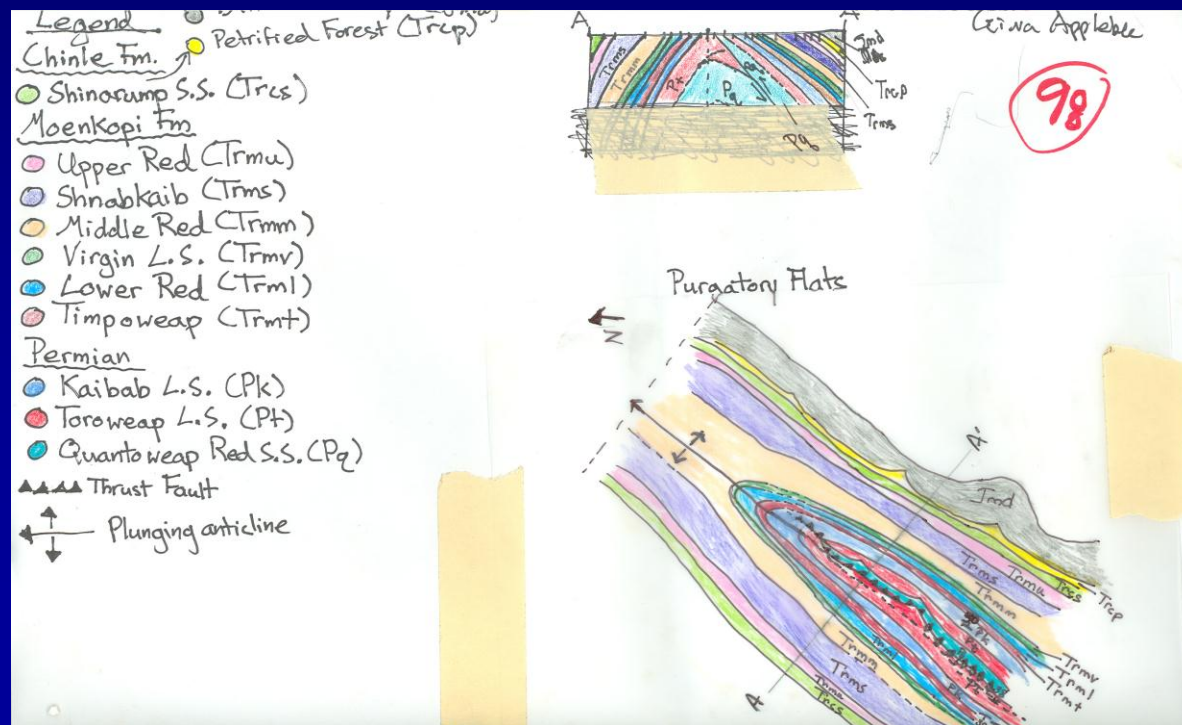
# Evening Assignments / Drafting

- Assistance with re-copying field maps into clean and more readable form



# Evening Assignments / Drafting

- Assistance with drafting of fine lines, lettering, and scales
- Assistance with organization of materials





# What Worked and What Didn't

- Technology
  - Not viable in the field
  - Screen not readable
  - Heavy and awkward when combined with other field equipment
- Reading software needed improvement
  - Too much time spent getting it to work
  - Would sound out or spell words
  - Reading citations

# What Worked and What Didn't



# What Worked and What Didn't

- Old Fashioned Pen and Paper
  - Big, bold colored markers
  - Large sheets of heavy paper
- Verbal descriptions
  - Most successful method

# Gina's Suggestions

- Need a guide experienced in geology of area
- Technology could work with screen improvement
- Readable compass (talking compass)
- Clear reproductions and enlargements of aerial photos and maps



# Questions?

