



85



TAKE A DIFFERENT TYPE OF NATURAL SCIENCE CLASS THIS SUMMER



CAMBRIDGE CAMPUS
ANOKA RAMSEY
COMMUNITY
COLLEGE

**SPEND A WEEK IN THE
BADLANDS AND BLACK HILLS
OF SOUTH DAKOTA**

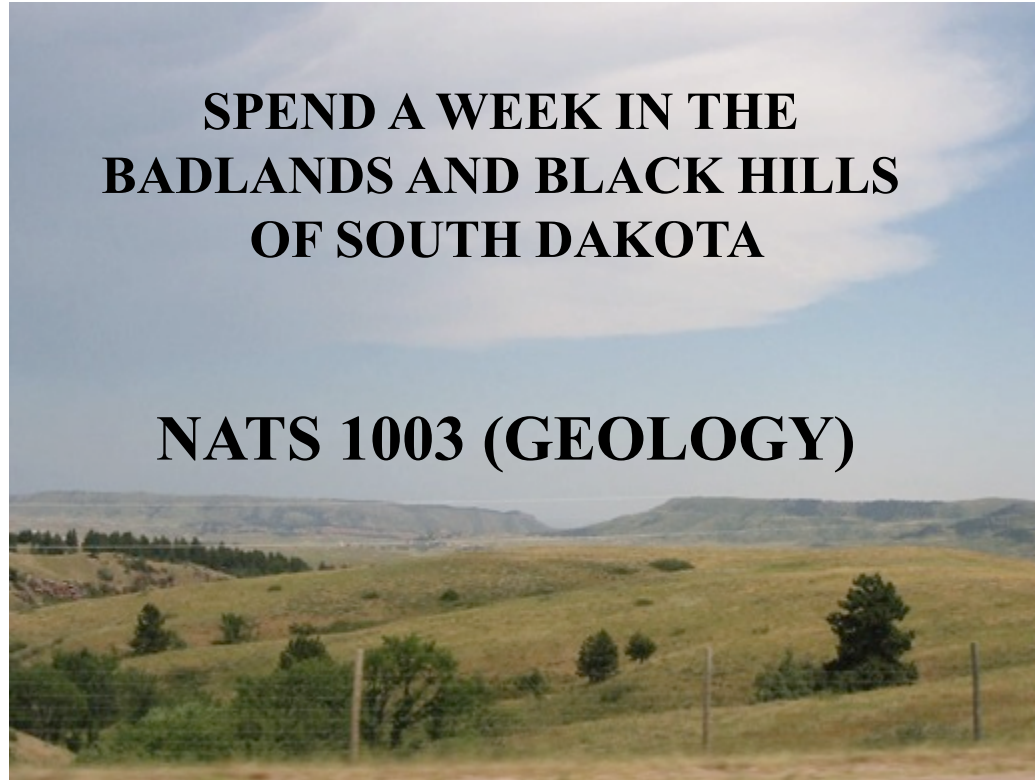
COSTS:
TUITION (4cr) PLUS
\$300 TRIP EXPENSES

CLASSES MEET
TUESDAY & THURSDAY
EVENINGS
JUNE 2nd - JULY 16TH
AT CAMBRIDGE

NATS 1003 (GEOLOGY)

**FOR FURTHER
INFORMATION
CONTACT:**
jeff.knapp@anokaramsey.edu

ONE WEEK FIELD EXPERIENCE
IN SOUTH DAKOTA
JULY 18st - JULY 25TH



SOUTH DAKOTA SCHEDULE (July 18st- July 25th)
SATURDAY: LEAVE - MINNESOTA –SOUTH DAKOTA GLACIAL LANDSCAPES
SUNDAY-MONDAY: BADLAND ENVIRONMENTS
TUESDAY-FRIDAY: -BLACK HILLS ENVIRONMENTS & GEOLOGIC HISTORY,
-STREAM & VALLEY DEVELOPMENT ALONG FRENCH CREEK,
-ROCKS, MINERALS & AGATES OF SOUTH DAKOTA,
-GEOTHERMAL SPRINGS & MAMMOTHS
SATURDAY: RETURN TO MINNESOTA

WEEK OF:	TUESDAY	THURSDAY
2-Jun	INTRODUCTION Class Overview Maps and Mapping Lab 1-3	TOPOGRAPHIC MAPS DeLorme Atlas Using Topographic Maps Lab 4-5
9-Jun	AIR PHOTOS Lab 6-7	GEOLOGIC STRUCTURES Lab 8-11 <u>QUIZ 1</u>
16-Jun	GEOLOGIC STRUCTURES SEISMIC REFLECTIONS Lab 12-17	LANDSLIDES Lab 18-24 <u>QUIZ 2</u>
23-Jun	STREAMS Lab 25-30	GROUND WATER Lab 31-36 <u>QUIZ 3</u>
30-Jun	ALPINE GLACIATION Lab 37-42	MINNESOTA –SOUTH DAKOTA GLACIATION <u>QUIZ 4</u>
7-Jul	BEACHES Lab 43-47	EARTH QUAKES VOLCANOES Lab 48-54 <u>QUIZ 5</u>
14-Jul	PLATE TECTONICS Lab 55-57	EARTH MATERIALS Lab 58-68
JULY 18– JULY 25	FIELD EXPERIENCE IN SOUTH DAKOTA	

**BEFORE
LEAVING**

GROUP PICTURES



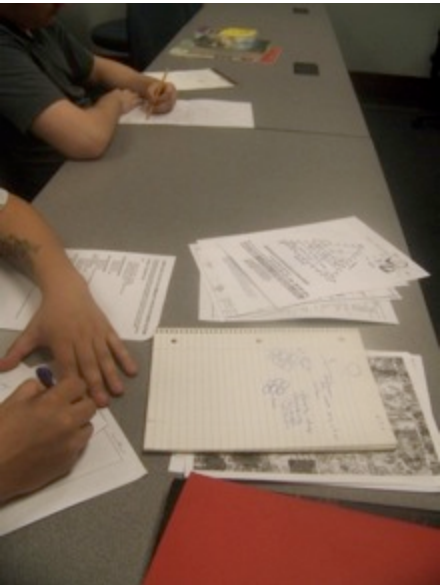
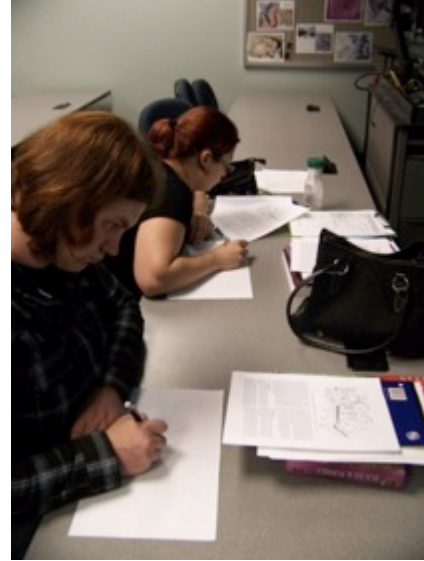
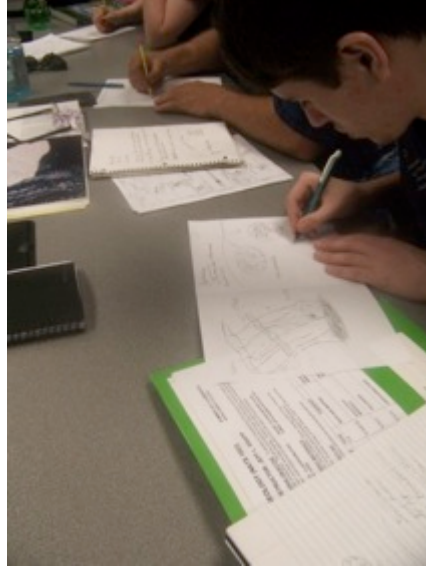
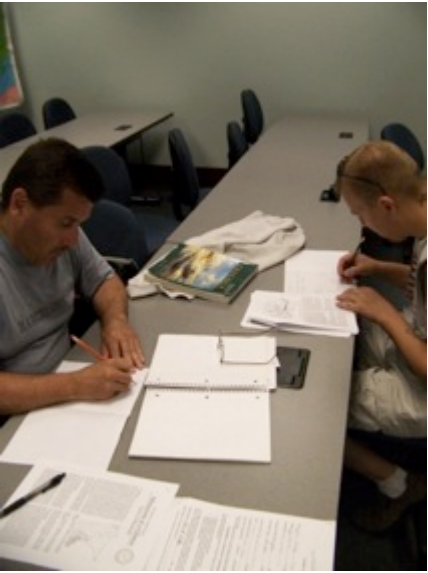
**DURING
THE TRIP**



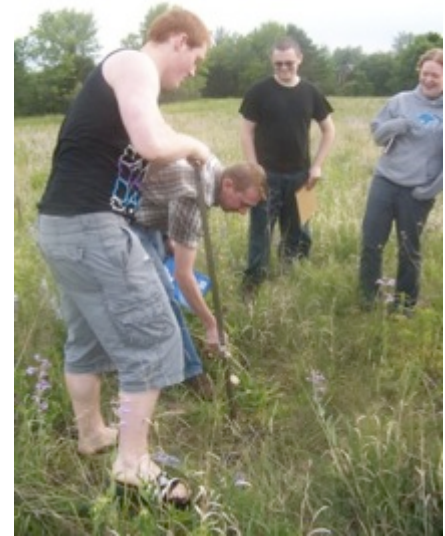
**BACK
HOME**



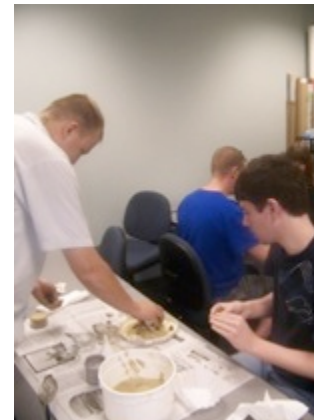
At School – Paper Work



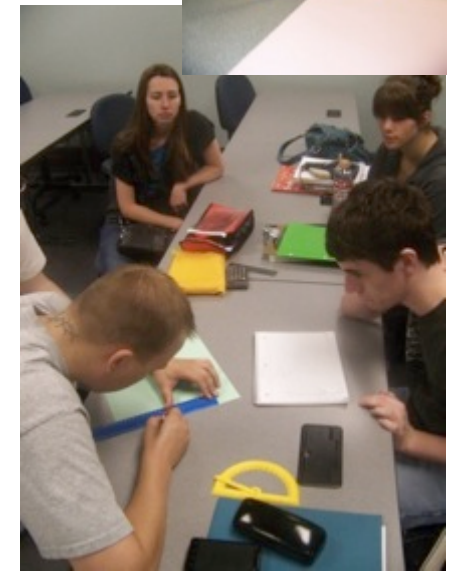
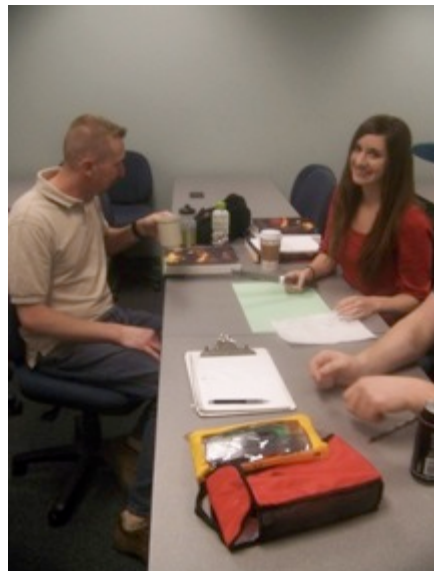
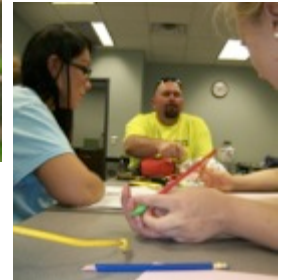
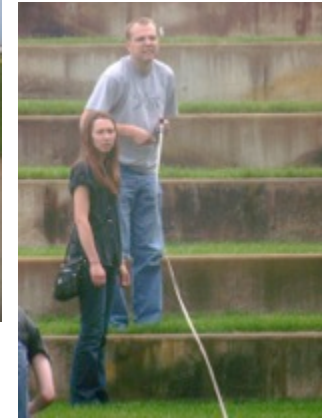
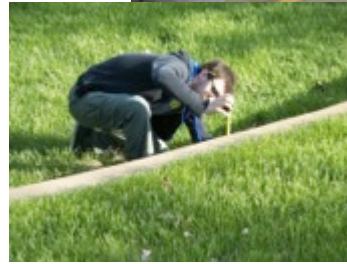
At School – Soil Probe



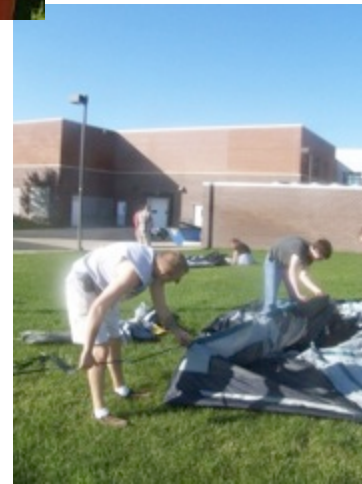
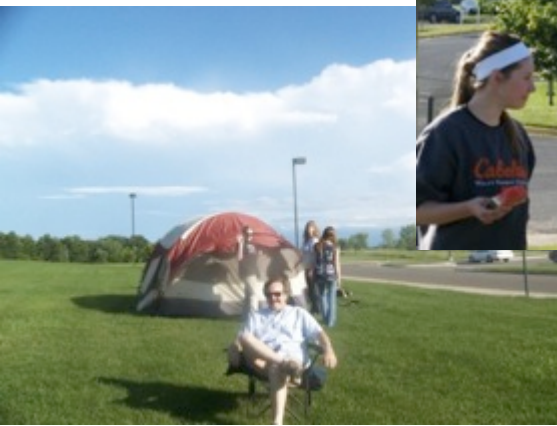
At School – Mud Pies



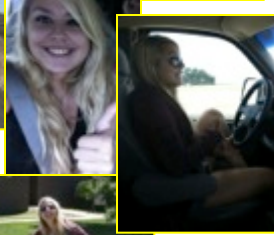
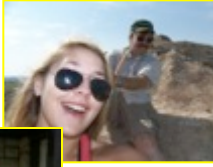
At School - Surveying



At School - Tents



YOUR FEARLESS LEADERS



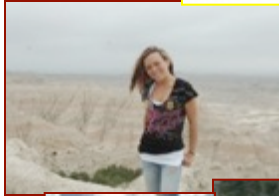
JAIME B.



CHAR M.



JENNIFER K.



NICOLE P.



BRAD W.

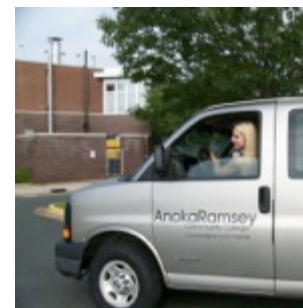


JEFF K.

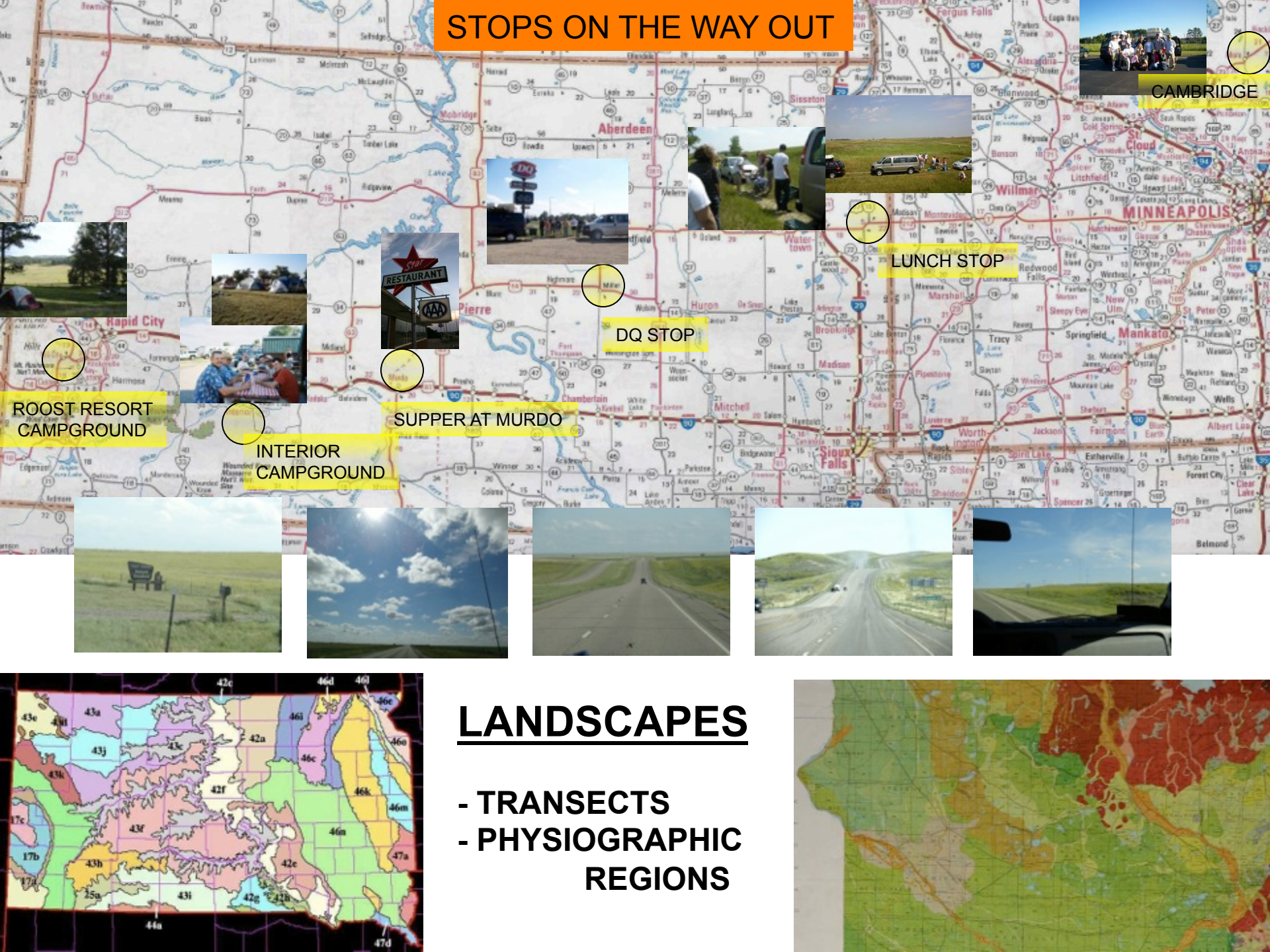




LOADING UP

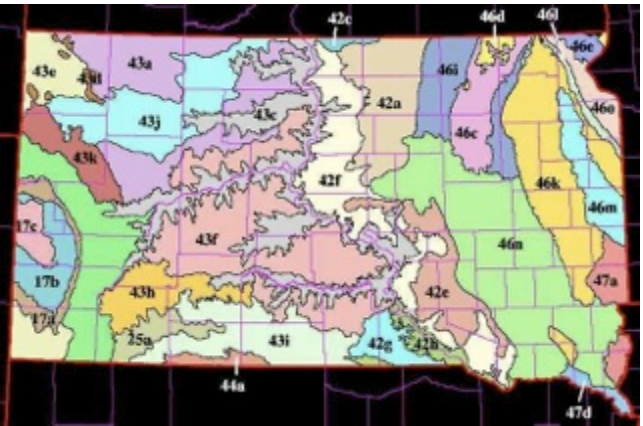


STOPS ON THE WAY OUT



LANDSCAPES

- TRANSECTS
- PHYSIOGRAPHIC REGIONS



Road Out - In the Vans

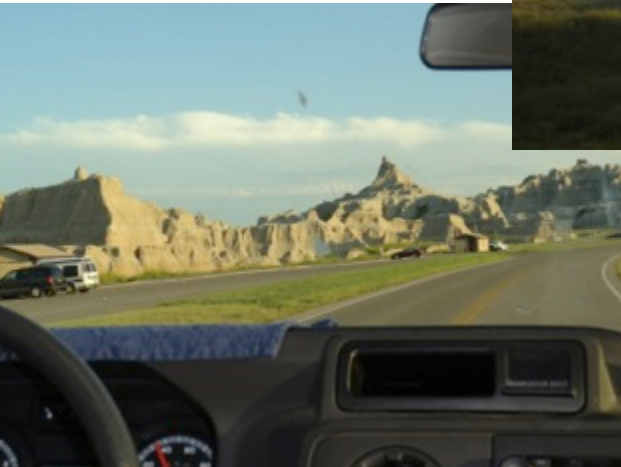
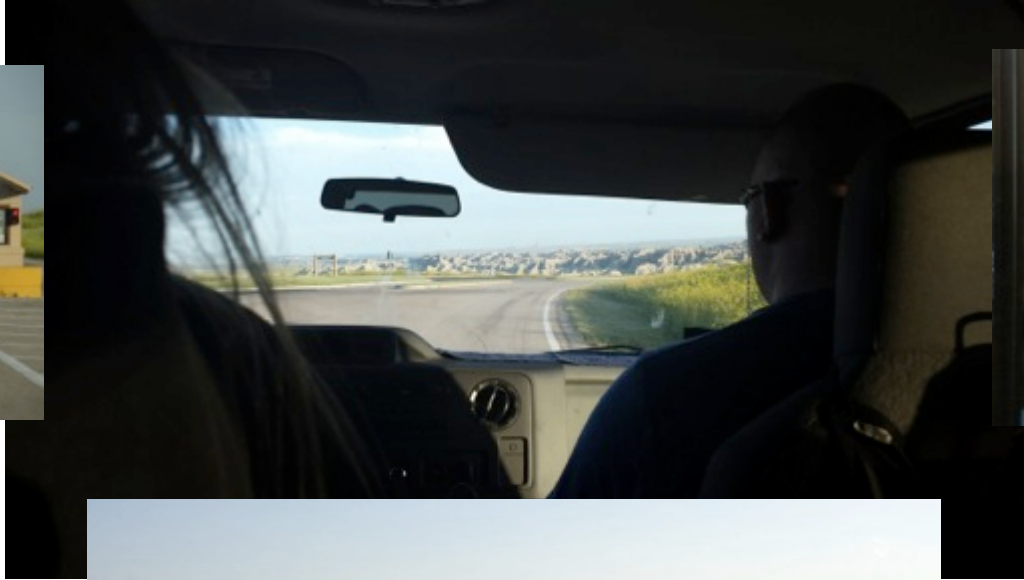




PRAIRIE COTEAU LUNCH PRAIRIES AND POTHOLES

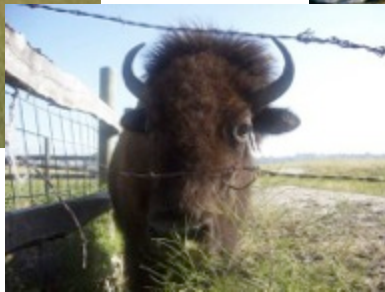


Arrive Badlands - Sunset

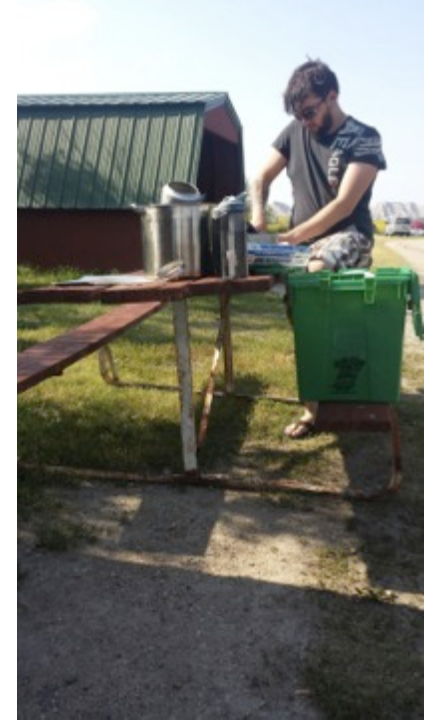
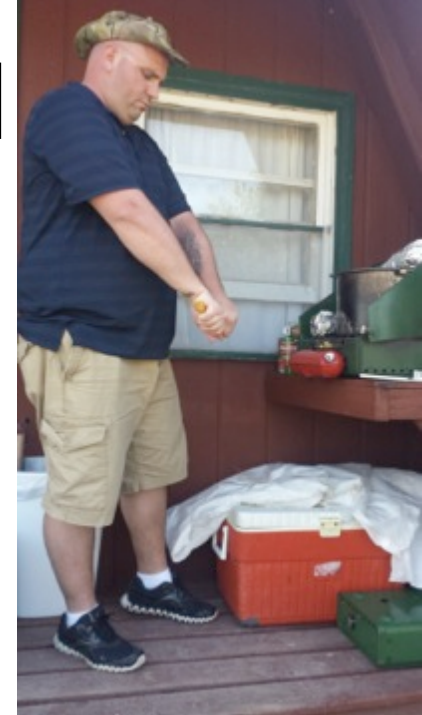




INTERIOR CAMPGROUND



Interior Campground





Day trip: Badlands area

Field stops

- Slope retreat
- Tableland development
- Agate formation
- Fossil identification
- Prairie preservation
- Grassland Ecosystems

Interpretive stops (Interpretive centers)

- Badlands National Park
- Buffalo Gap National Grassland

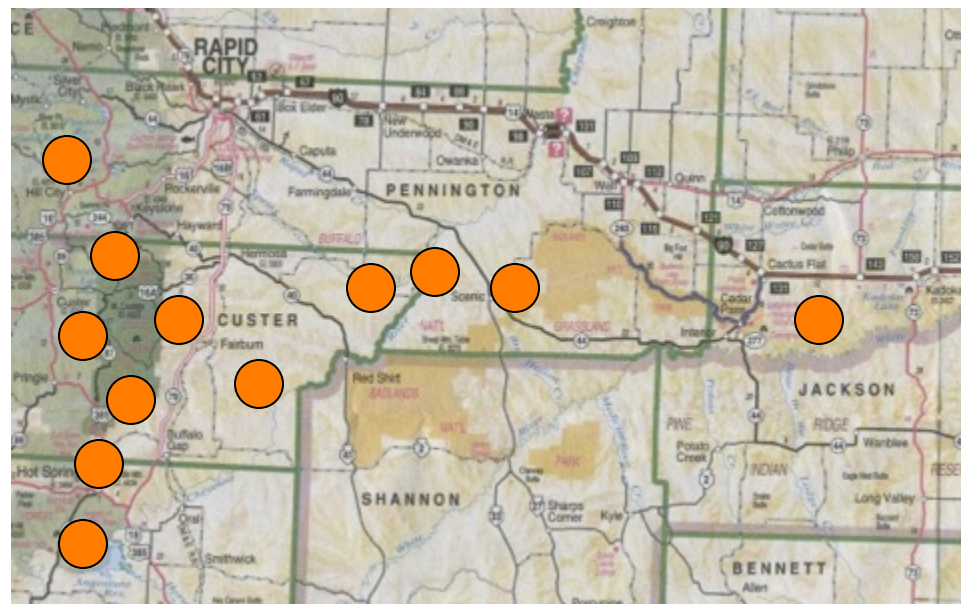


STOPS

FIELD TRIPS

OR

LOOPS



Day Trip: French Creek

Field stops

- Structural geology
- Hogback development
- Aquifer recharge
- Terrace development
- Stream piracy
- Agate collecting

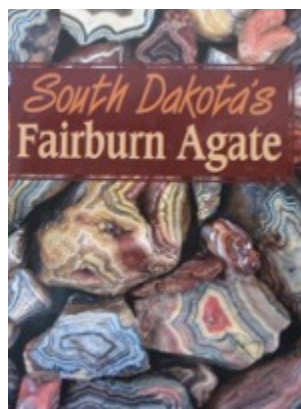
Day Trip: Hot Springs

Field stops

- Prairie dog town
- Cascade Falls
- Geothermal springs
- Terrace Development
- Stream Analysis

Interpretive stops

- Wind Cave
- Mammoth Site

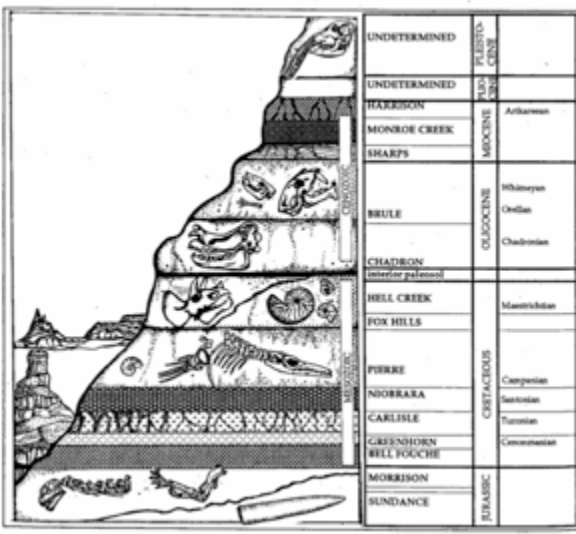


Other day trips and activities include: (depending on weather)

- Custer Park environments
- Mt. Rushmore area geology
- Harney Peak environments
- Rapid City area geology and sites
- Spearfish Canyon – Lead – Deadwood
- Mines and mining in the Black Hills



BADLANDS FIELD LOOP







**LANDSCAPE
DESCRIPTIONS**



**TERMS
CONCEPTS
OBSERVATIONS**



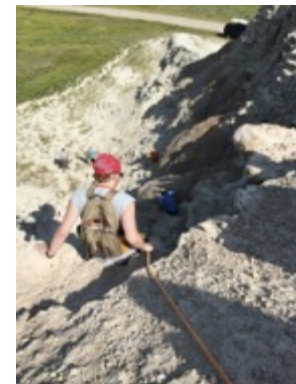
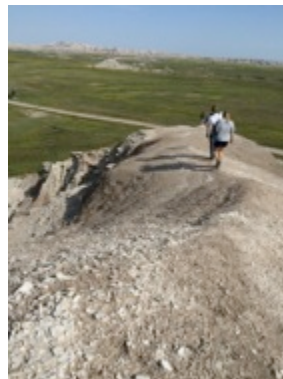
FIELD NOTES





GETTING ON TOP - LANDSCAPE







ON TOP OF FLAT TOP BUTTE

TABLELANDS



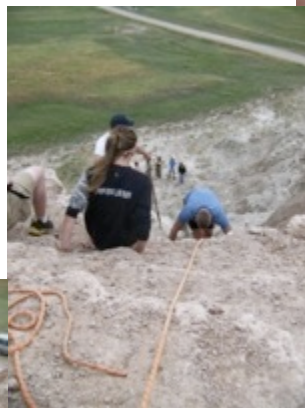
SLOPE RETREAT



BADLANDS FIELD LOOP - FLAT TOP BUTTE LUNCH ON THE TOP



GETTING DOWN FROM FLAT TOP BUTTE



GEOLOGIC CROSS-SECTIONS

BRULE AND CHADRON FORMATIONS



GROUP FIELD ANALYSIS

- STRATIGRAPHY
- SEDIMENTOLOGY



FAIRYLAND HIKE

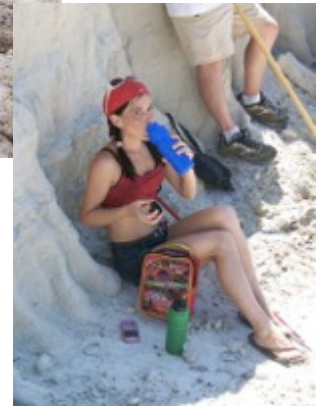




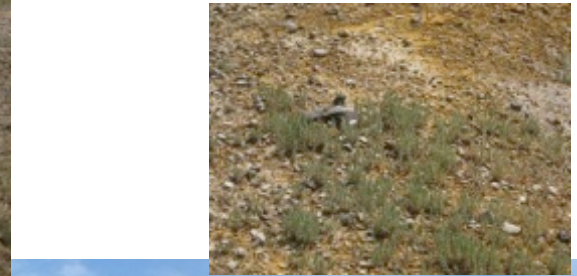
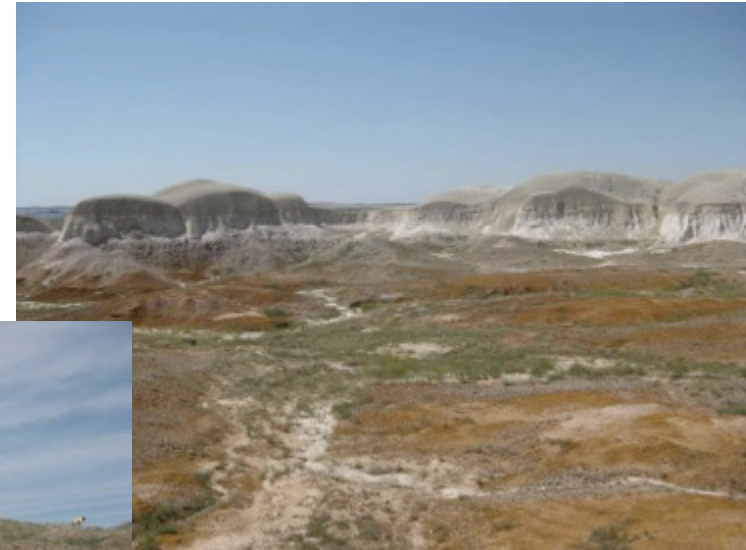
GETTING INTO THE LANDSCAPE







BADLANDS FIELD LOOP – LUNCH AT THE AGATE BEDS



FINDING FIREWOOD

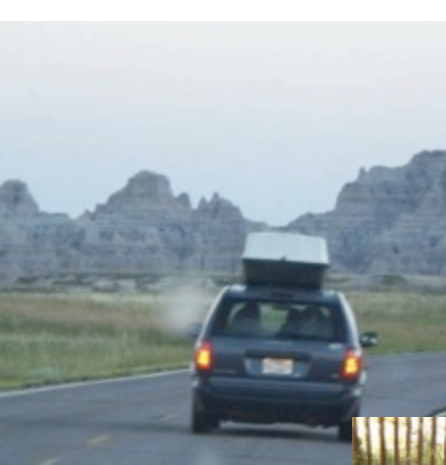


THE LAST TREE



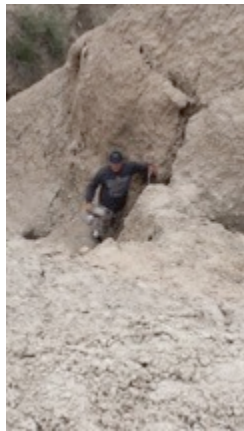
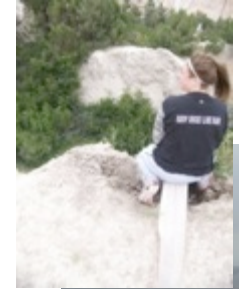


BADLANDS NATIONAL PARK

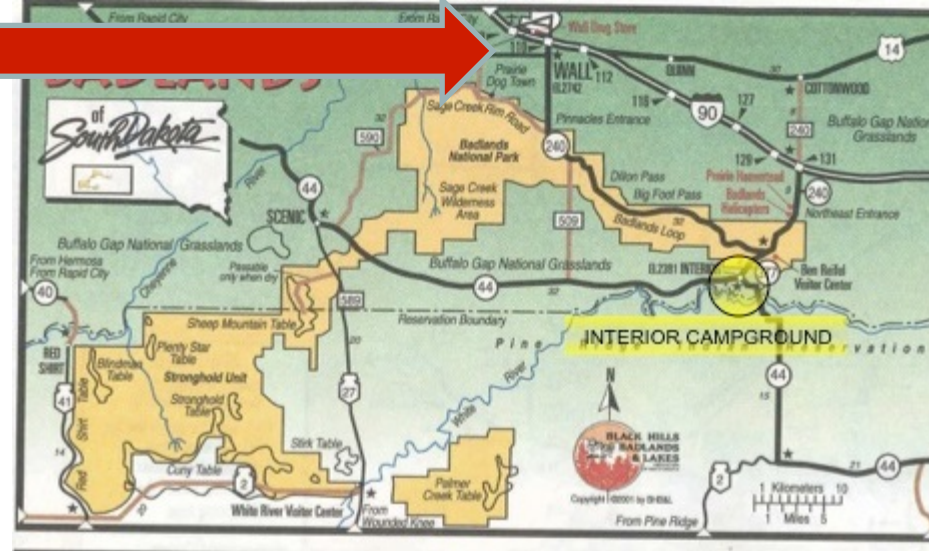


BADLANDS NATIONAL PARK

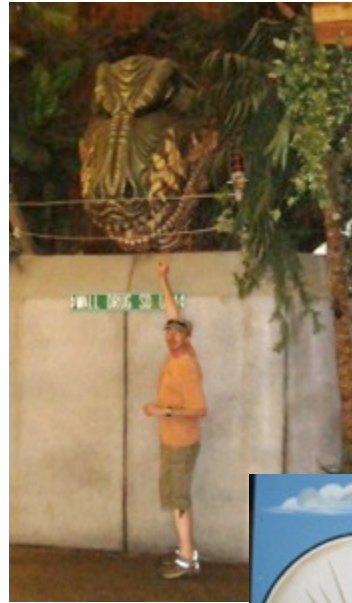




Wall..... Walk About



Wall S.D.



BADLANDS TO BLACK HILLS



Breaking Camp



Loading the Vans

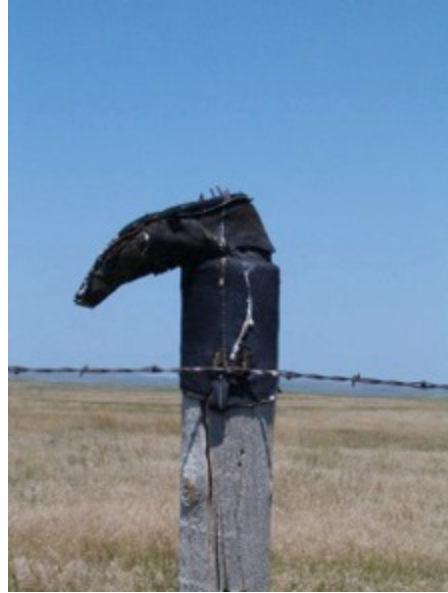


TRAFFIC JAMS



TOWN OF SCENIC





**ON THE FLANK
OF THE BLACK HILLS**

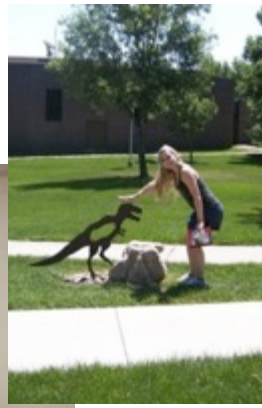
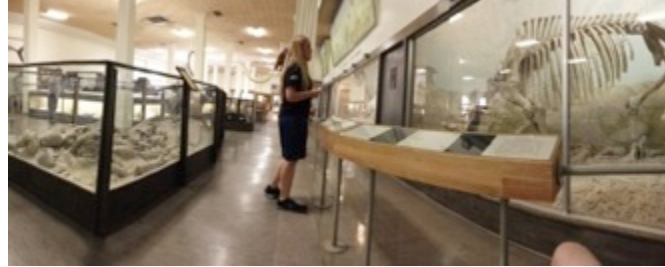
**CHEYENNE RIVER
TERRACES**



LOOKING FOR DINOSAURS

**-PIERRE SHALES
-TERTIARY DEPOSITS**

School of Mines – Rapid City



ARRIVING AT CUSTER STATE PARK

CELL PHONE SERVICE AT LAST

PARK ENTRANCE



CAMPING AT THE ROOST



KEEPING BUSY AT THE ROOST

PLAYING
COOKING
STUDYING



Roost Campfire



COOKING BY GROUPS



THE GIRLS



THE GUYS







CATCHING SOME SHUT-EYE





**DISCUSSING...
.....AND STUDYING**





.....AND MORE STUDYING

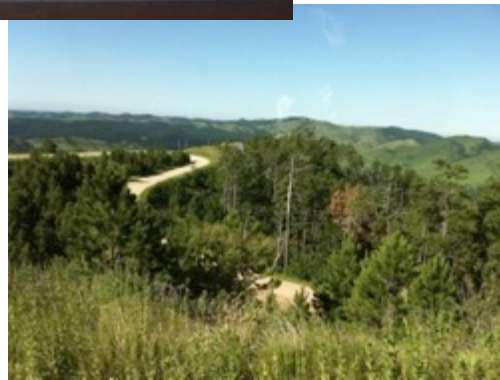
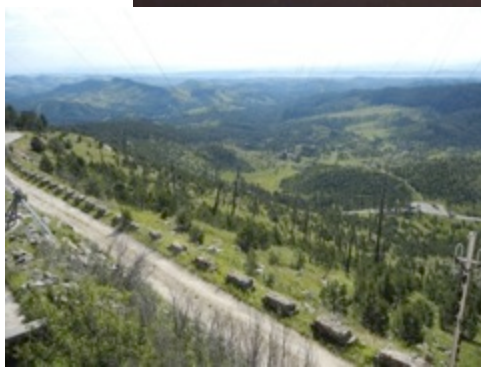


THE CABIN

**BREAKFAST
STUDYING
ORGANIZING**



Mt. Coolidge



FISHERMAN POINT



GEO-CACHE SITE



PRAIRIE – FOREST – FRENCH CREEK OVERLOOK



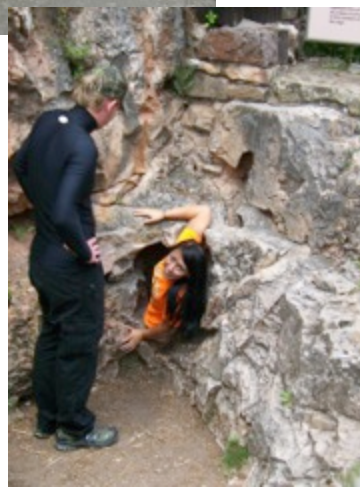
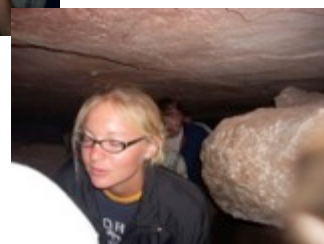
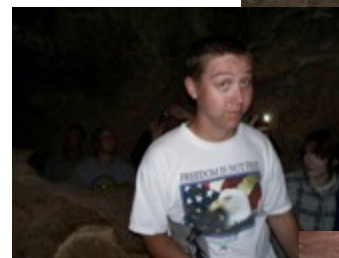


Wind Cave Roads

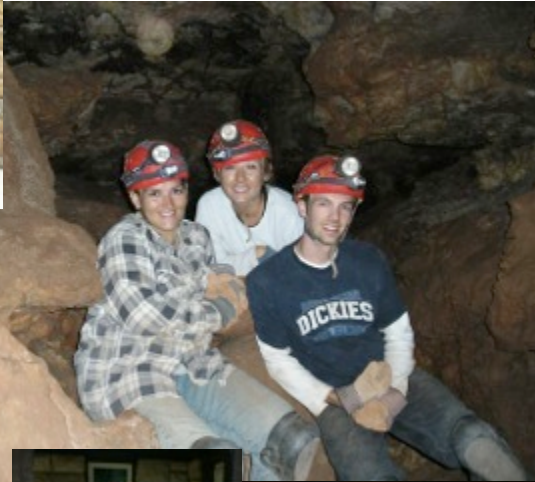




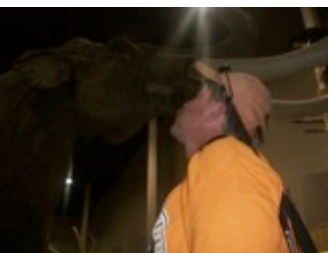
WIND CAVE

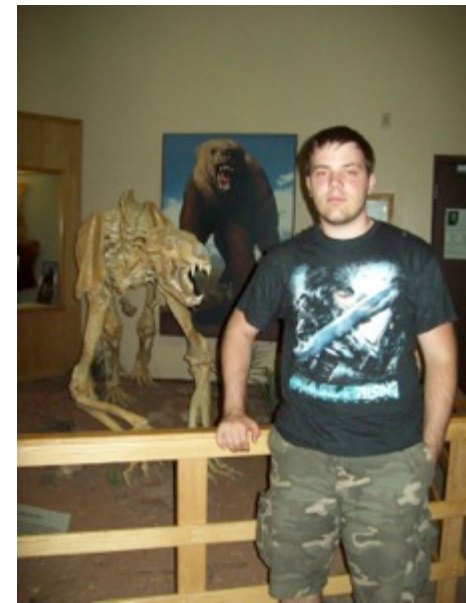


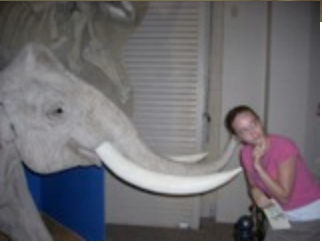
WILD CAVE TOUR



MAMMOTH SITE







.....SO MUCH FOR TAKING FIELD NOTES...



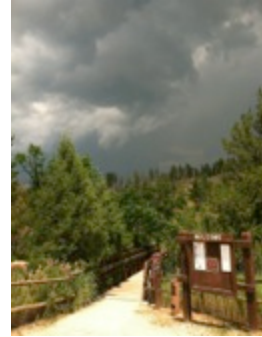


HOW TO GET TREE SAP OUT OF YOUR HAIR

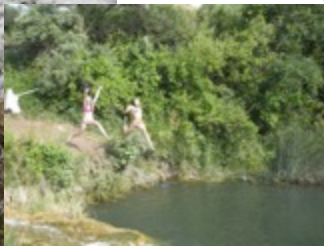
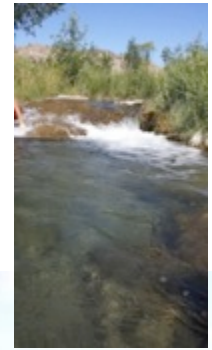
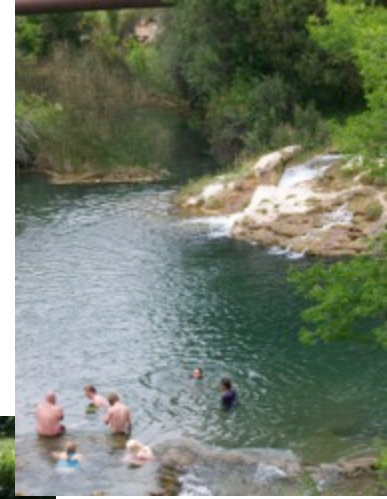


CASCADE SPRINGS

GEO-THERMAL HYDRATE DEPOSITS



Cascade Falls By Hot Springs





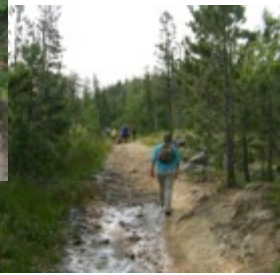
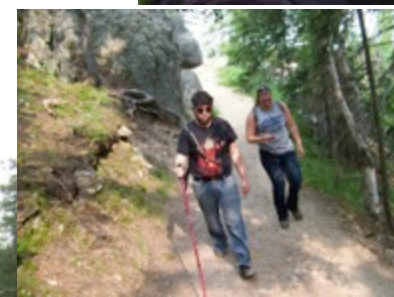
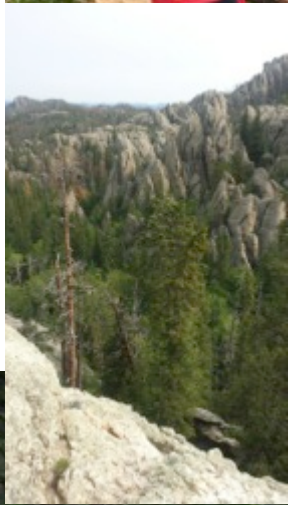
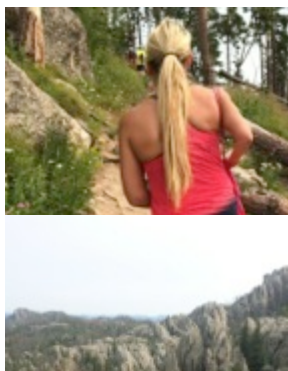
**DISSOLVED
CALCIUM CARBONATES**

TUFA DEPOSITS





To the Top of Harney Peak

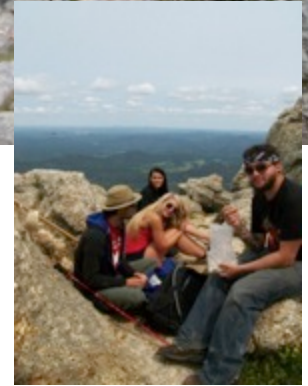
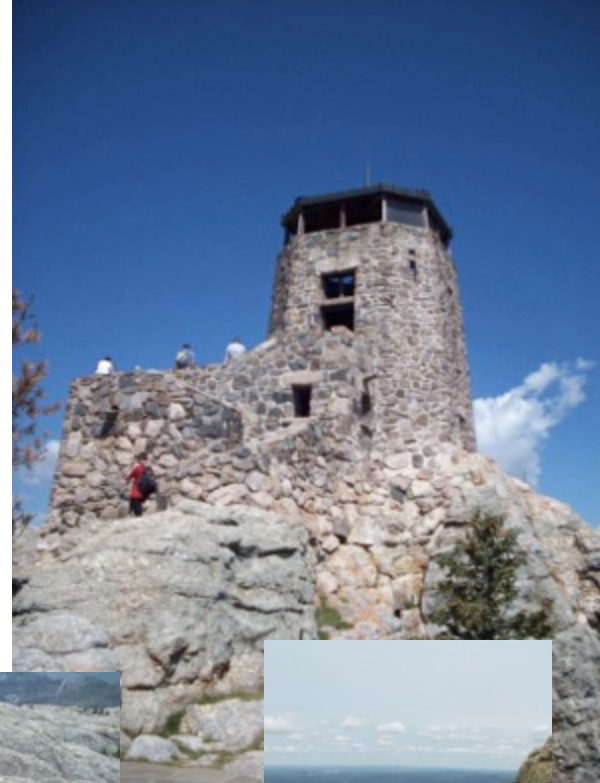


HARNEY PEAK

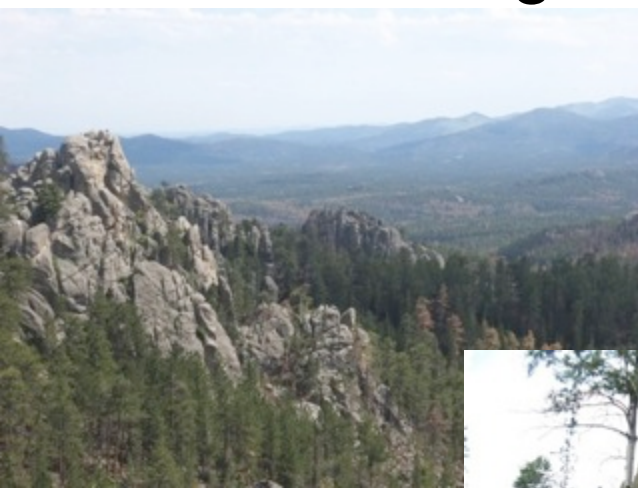
ON THE TOP



HARNEY PEAK

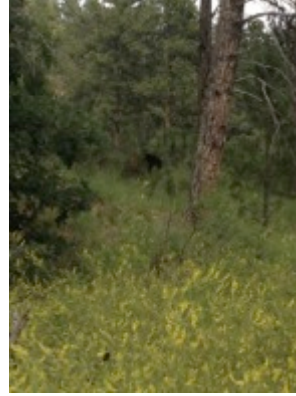


Needles Highway Drive

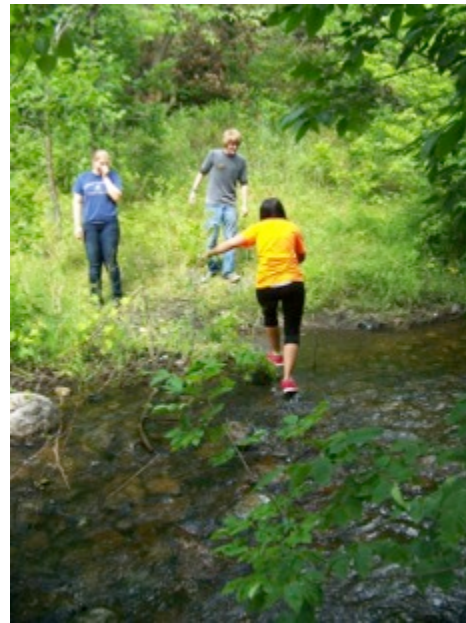


FRENCH CREEK WILDERNESS AREA





How not to cross a stream

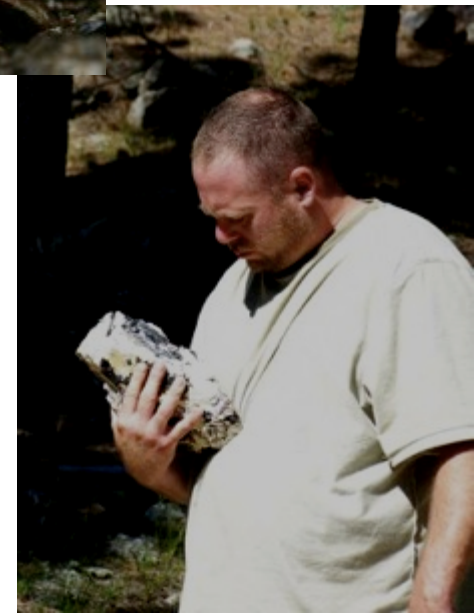
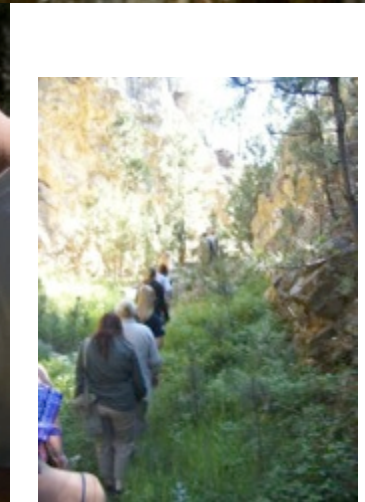
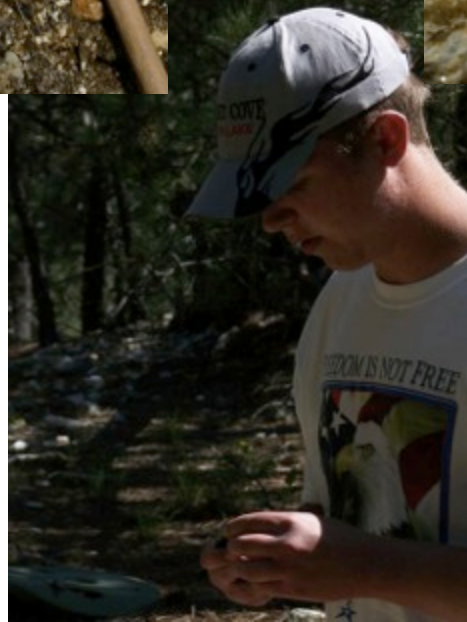


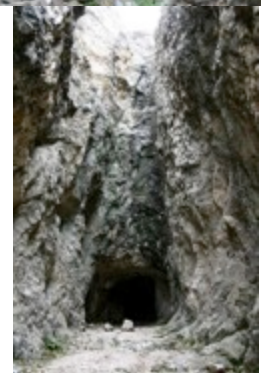
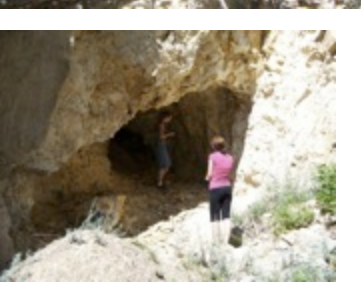


STREAM FLOW LOSS TO KARST – AQUIFER RECHARGE



CUSTER AREA MINES





MYSTIC MINE AREA



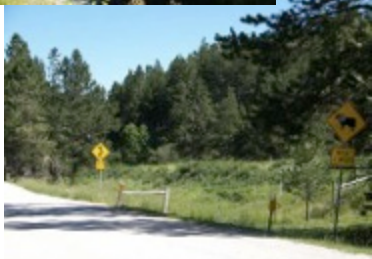
GOLD MINING.....HYDRAULIC MINING...DRIFT MINES



GOLD PANNING TRYING TO PAY TUITION



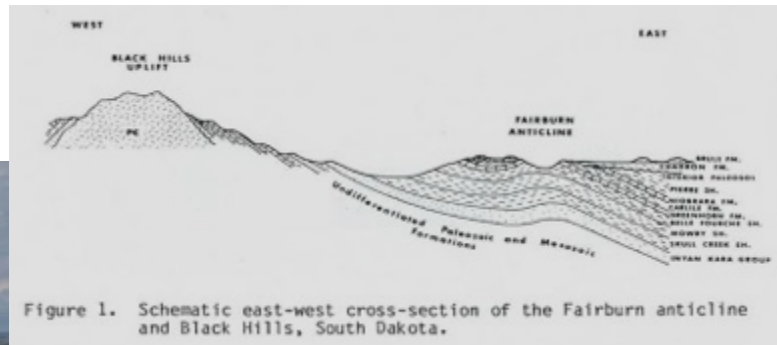
MYSTIC MINES



FAIRBURN – FRENCH CREEK

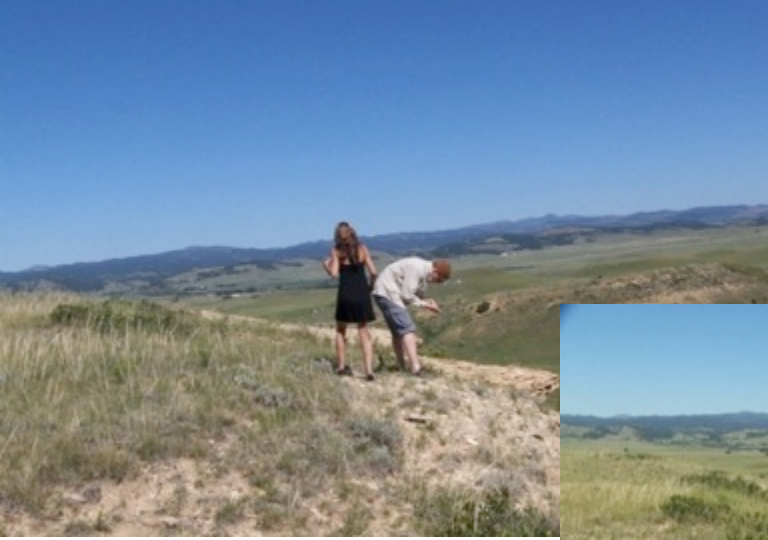


FAIRBURN ANTICLINE

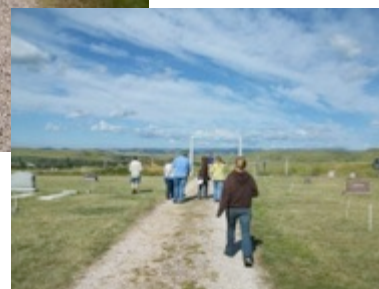




Look how fast Nicole can move after seeing a 'baby' rattlesnake

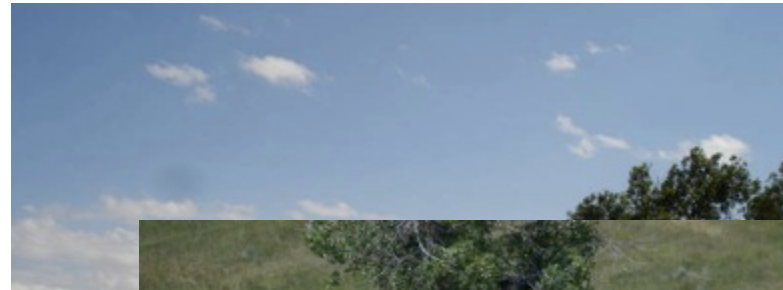


FAIRBURN CEMETARY





GETTING TO THE FAIRBURN AGATE AREA



FAIRBURN AGATE AREA





**GULLY EXTENSION
TERRACES**



OUT IN THE AGATE BEDS

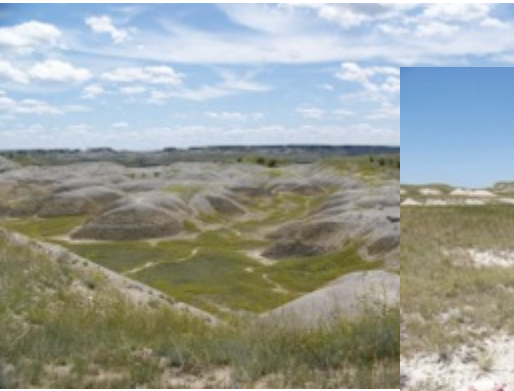


LOOKING FOR AGATES



<<FOLLOWING FOSSIL BONE FRAGMENTS
BACK TO THE SOURCE AREA>>>

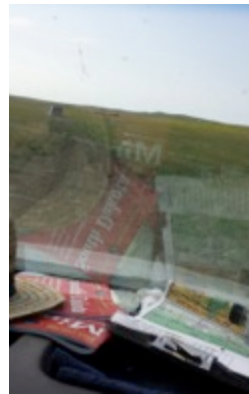
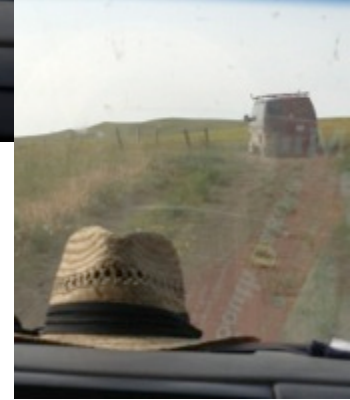
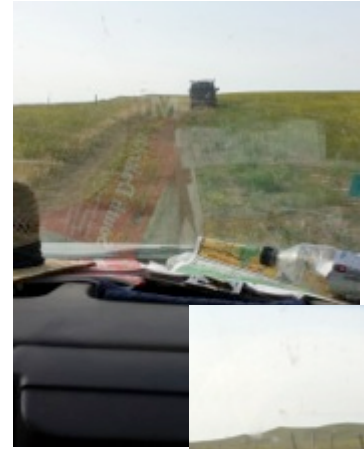
FAIRBURN LOOP – AGATE BEDS HIKE TO THE FOSSIL BED



FRENCH CREEK CUT BANK



Oelrich Agate Beds



Oelrich Agate Beds

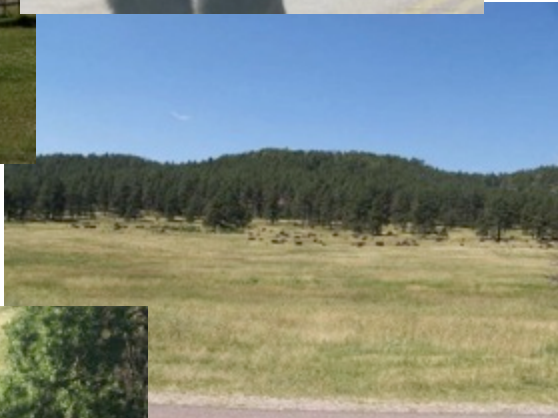
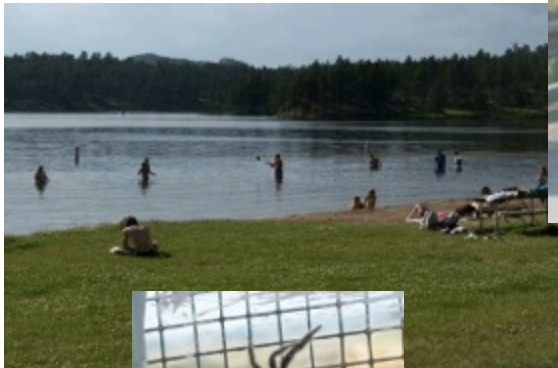
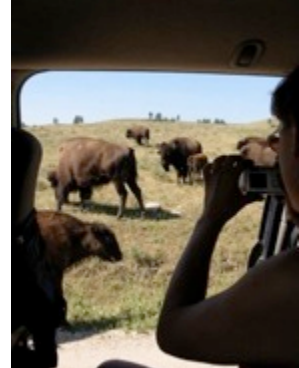




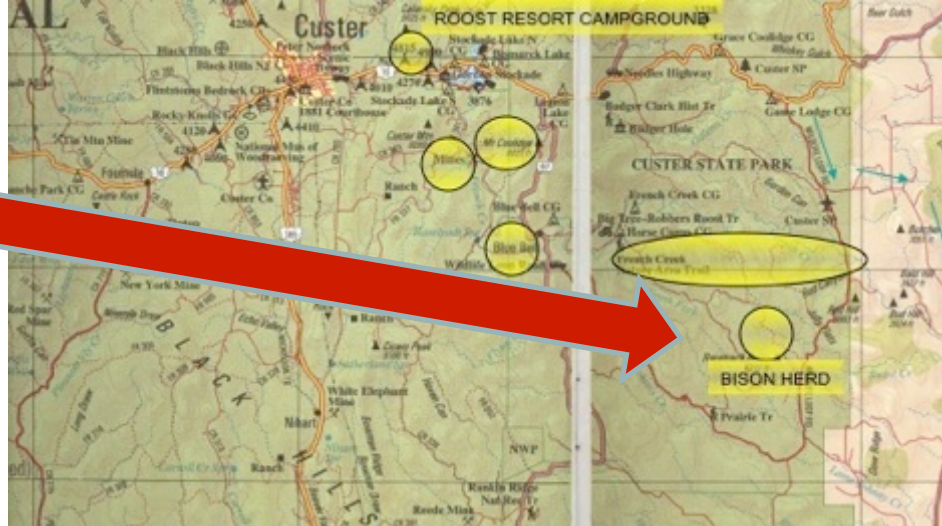
FENCES...FENCES...FENCES



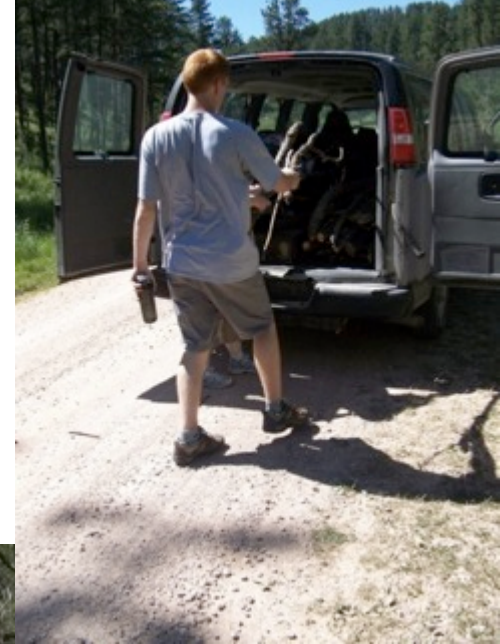
AROUND CUSTER STATE PARK



Bison on Wildlife Loop

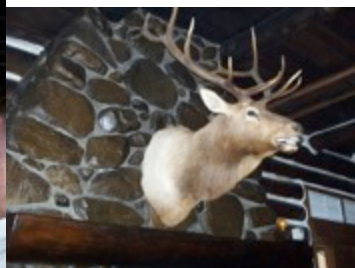
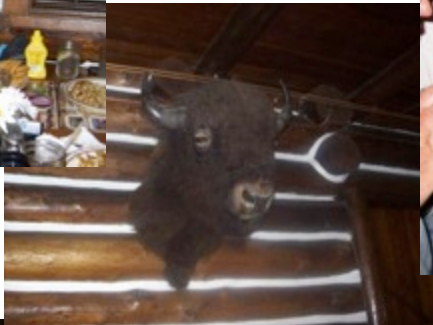


Getting Firewood



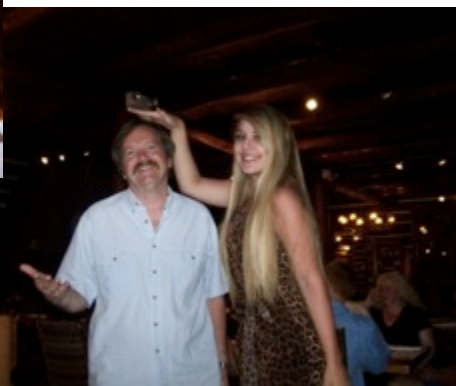
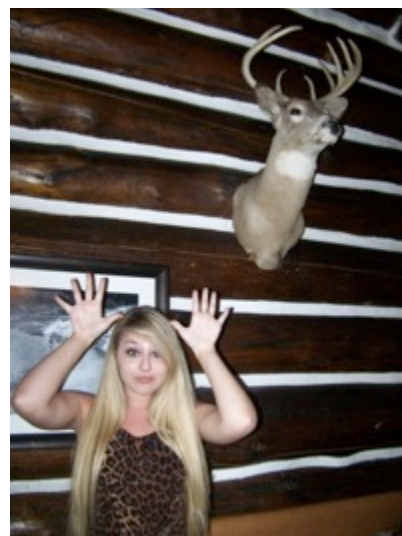
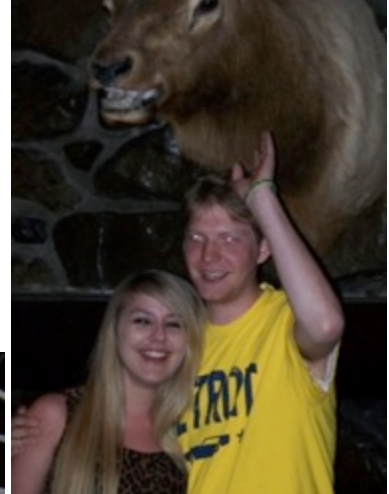


BLUE BELL LODGE

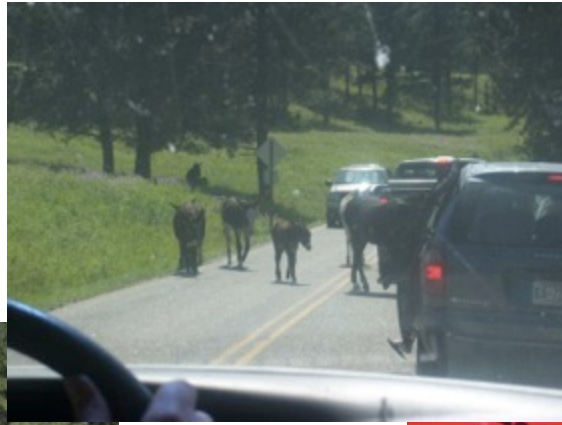


BLUE BELL LODGE





CUSTER PARK – IRON MT. ROAD





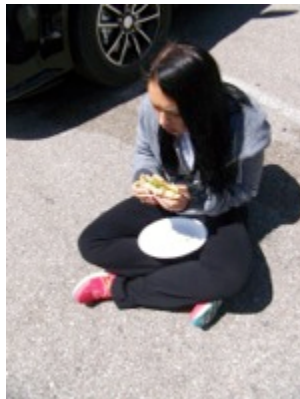
**DRIVING TO
MT. RUSHMORE
IRON MT. ROAD**



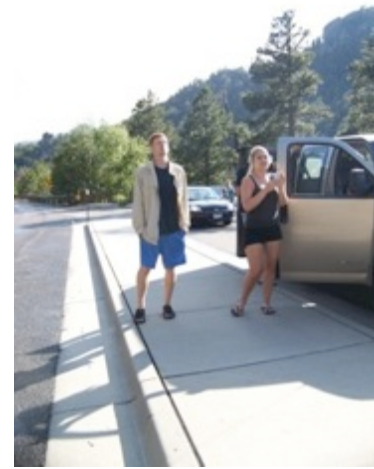
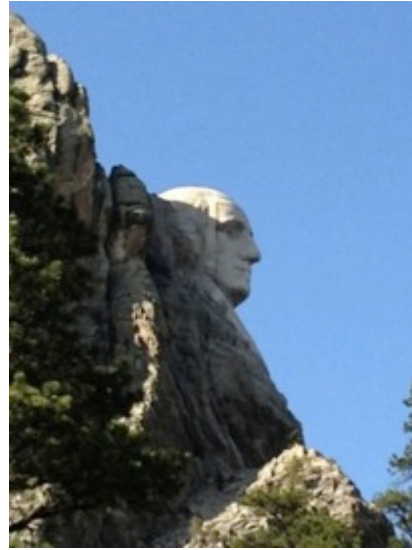
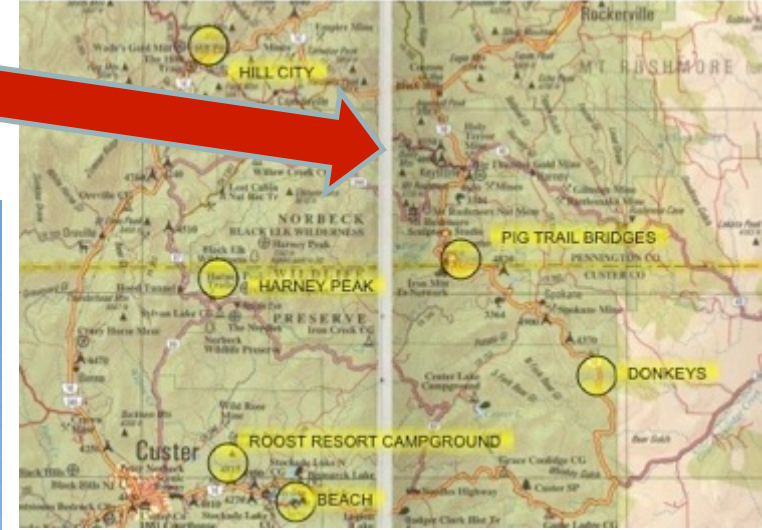
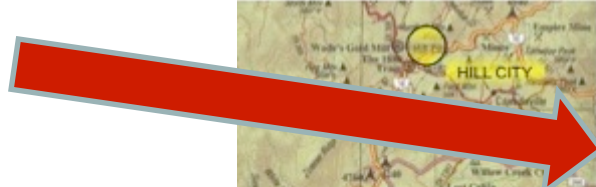
Road to Rushmore



Road to Rushmore



Iron Mountain Road.... Mt Rushmore



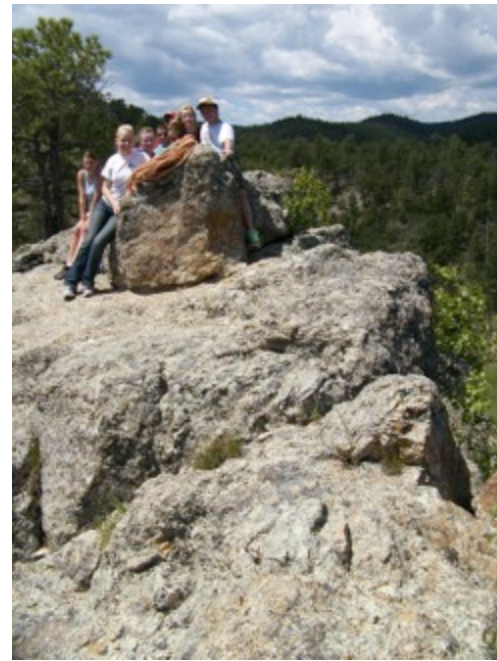


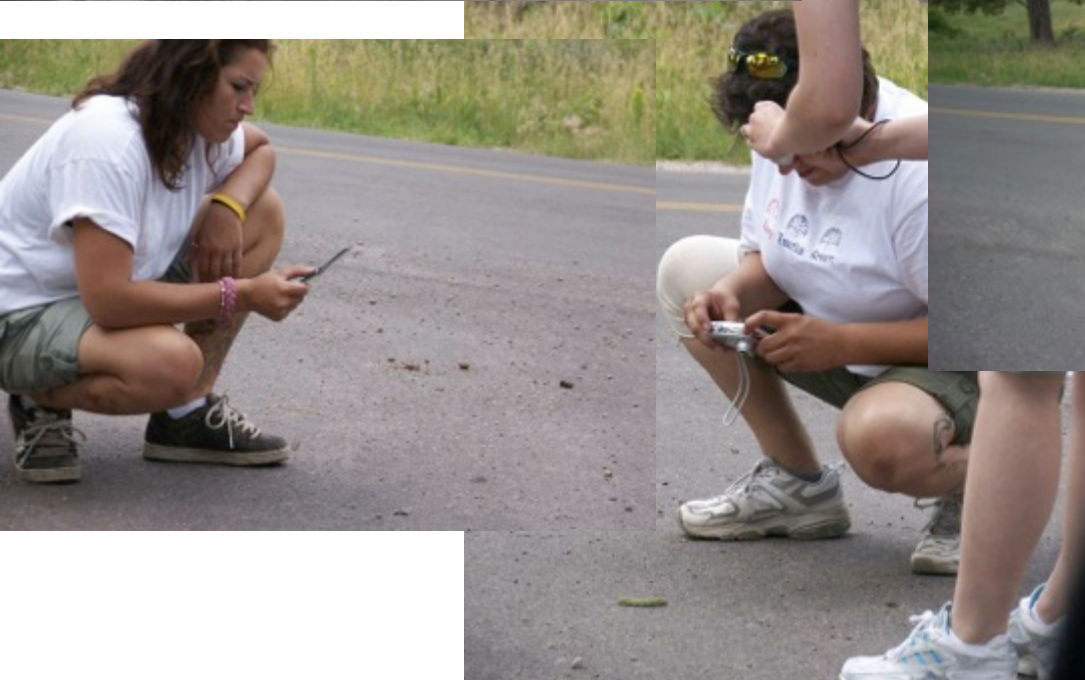
GO JUMP OFF A CLIFF





CUSTER PARK – LEGION LAKE

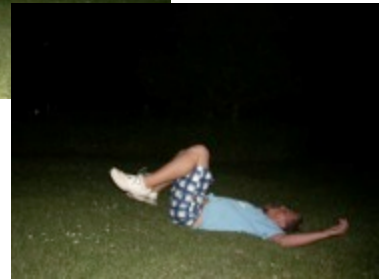




STUDENTS ALWAYS FIND SOMETHING TO DO

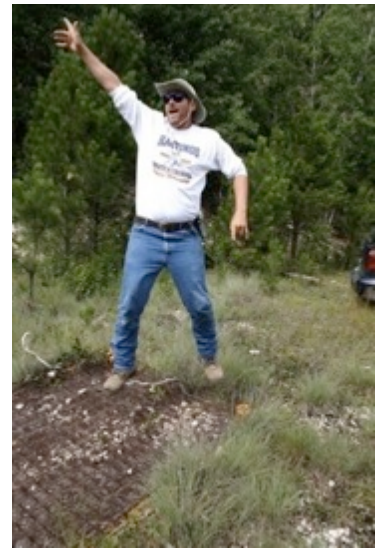


I DON'T
WANT TO ASK

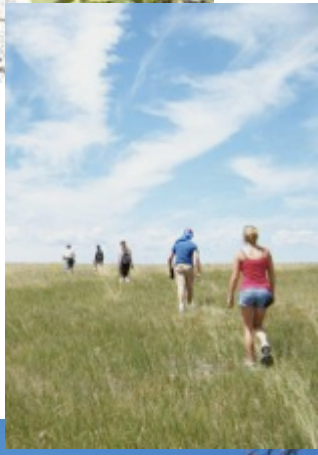




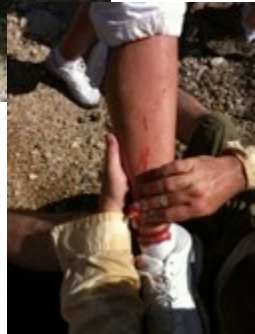
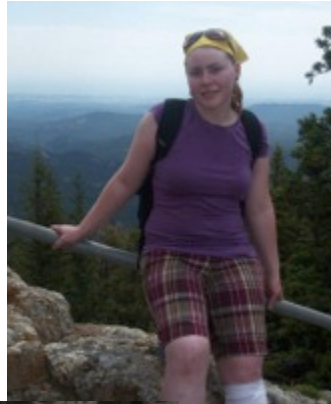
**AGAIN...
I DON'T EVEN
WANT TO ASK**



FOLLOWING THE INSTRUCTOR...WELL MAYBE



OUCHES AND OOPS' S



PACKING UP – GOING HOME

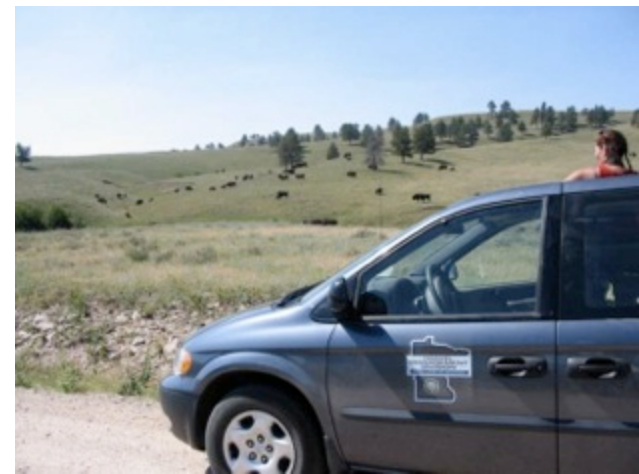


Leaving for Home

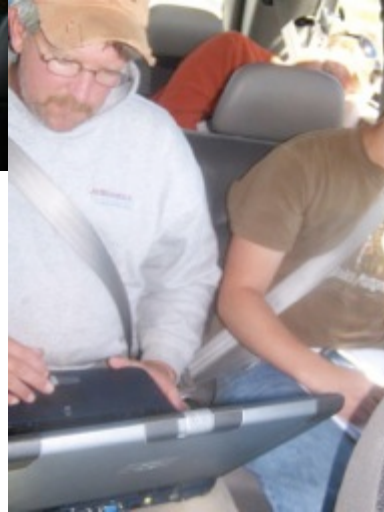
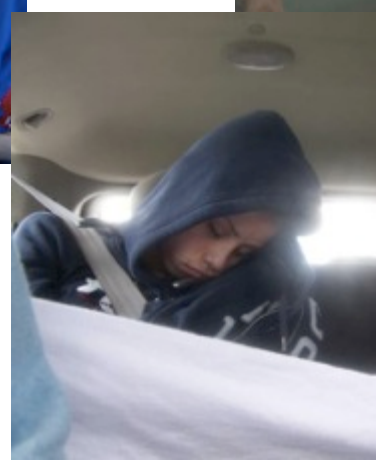


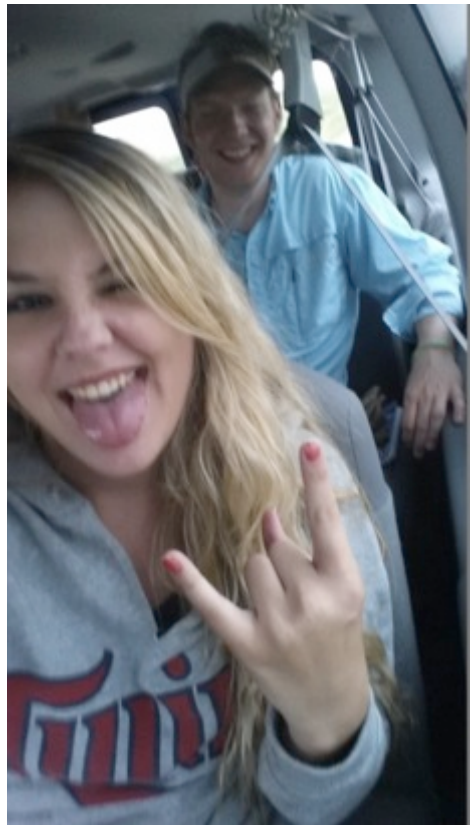
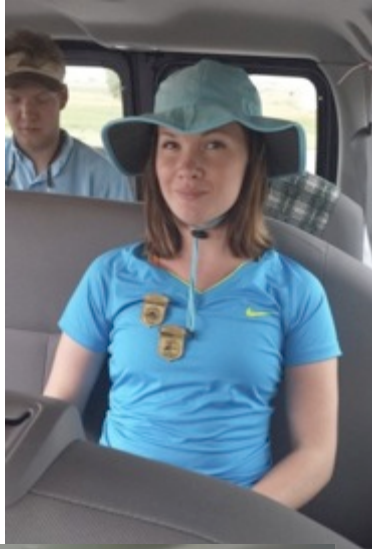
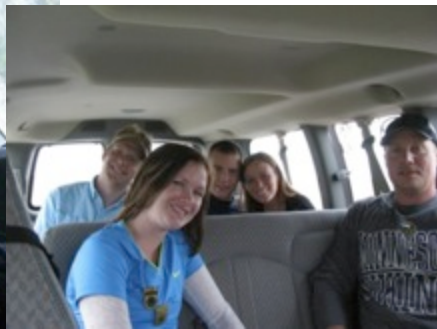
TRAPPED IN THE VANS



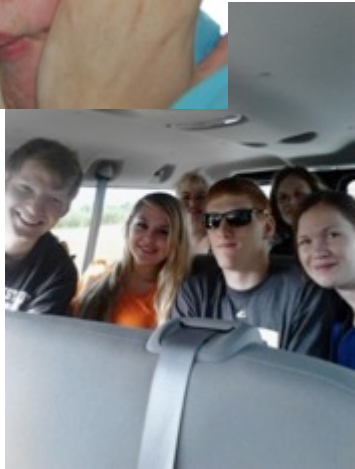
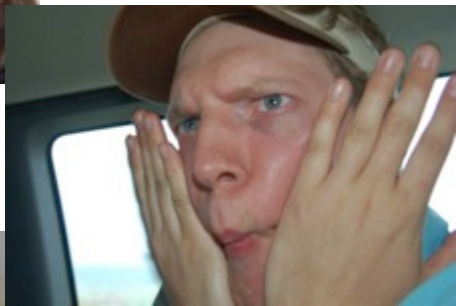
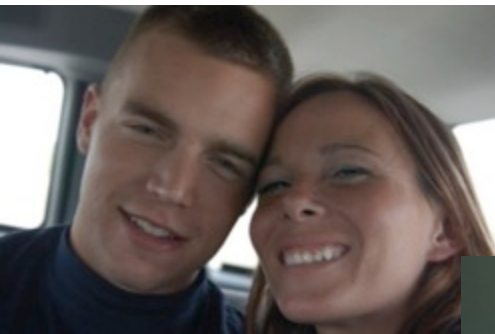


IN THE VANS



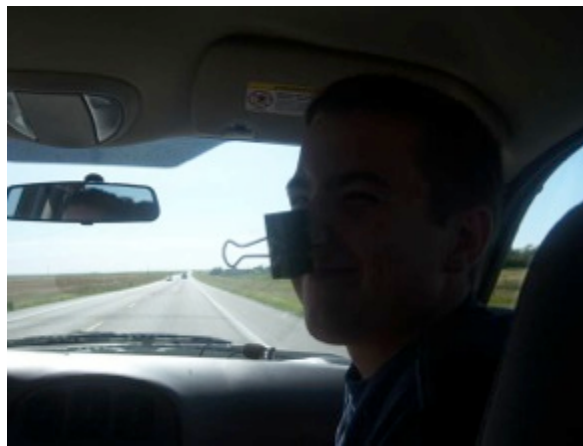
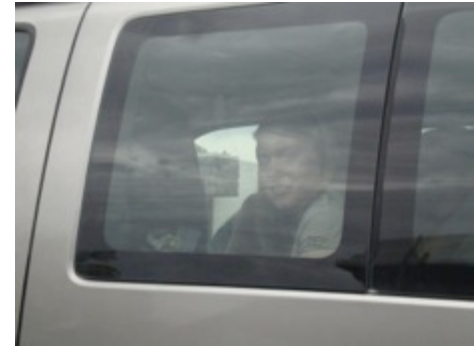


Trapped in the Vans

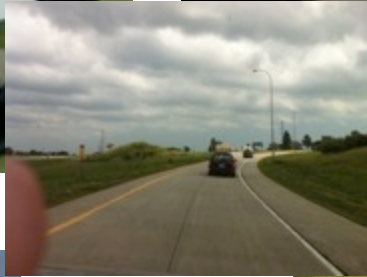




IN THE VANS



ALMOST BACK

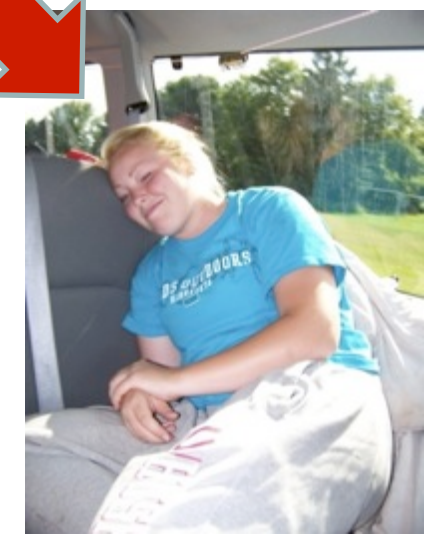




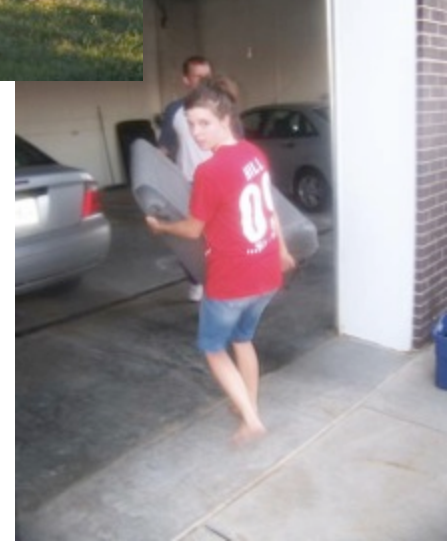
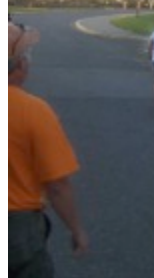
Almost Home.....



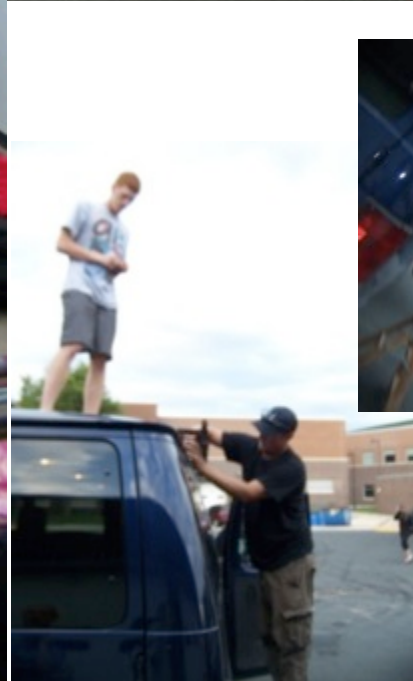
Dreaming of Boyfriends



WELCOME HOME



Looking for Lost Stuff



GEOLOGY (NATS 1003)



GEOGRAPHY CLASSES

Jeff L. Knapp



World
Geography



Minnesota
Geography



North America
Geography



Physical
Geography



Human
Cultural
Geography



Geology
(Natural Science 1003)



Home > Directory > College Directory

College Directory

Jeff Knapp

Phone Number: 763-433-1852
Department: Social Science
Office: SC273A
Campus: Coon Rapids
Email: Send this person an email
Home Page: <http://www.geo-site.net>

Geology

NATS 1003



- [GEO-SITE HOME](#)
- [GEOLOGY HOME](#)
- [GEOLOGY COURSE OUTLINE](#)
- [DROP BOX](#)
- [TRIP PHOTOS](#)
- [PROJECT INFORMATION](#)
- [ROUTE TOPO MAPS](#)
- [MN MAPS/ARTICLES](#)
- [SD MAPS/ARTICLES](#)



Trip Information
[2014 Trip Information](#)
[2013 Poster](#)

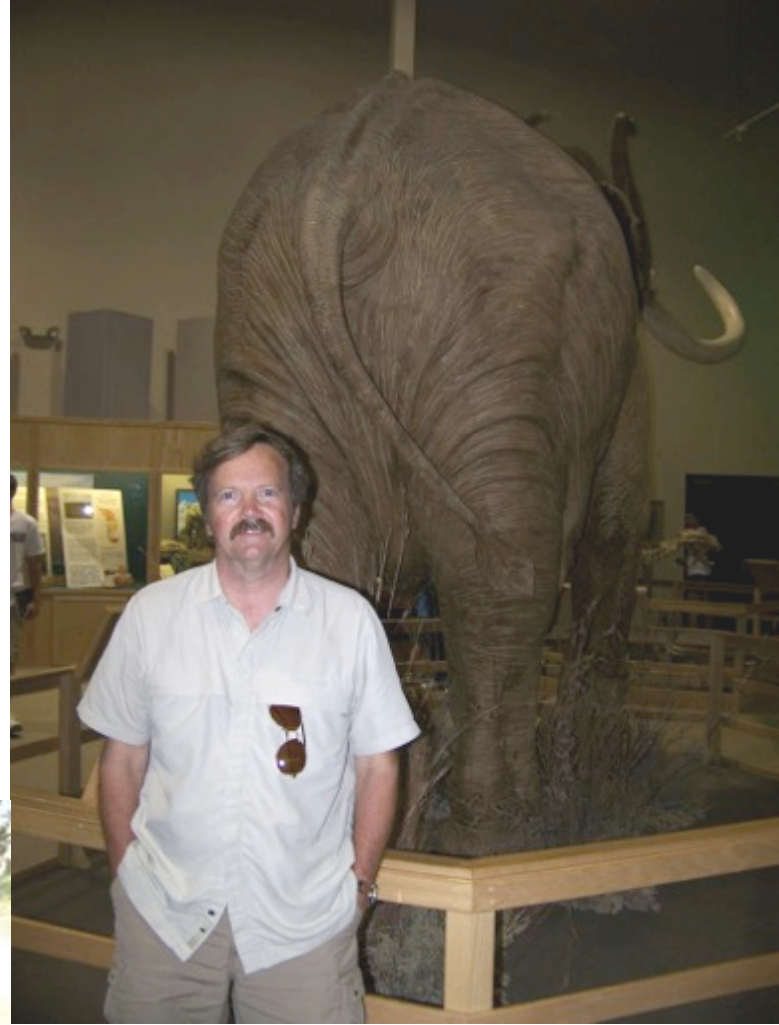
Geology Trip Overview
[Course Overview.ppt](#)
[Stops - Site Maps.ppt](#)

2014 Dates
Class meets: Tuesday and Thursday evening
Cambridge Campus
6:00-9:00 p.m.
May 27th - July 11th
Required Trip: South Dakota - July 12th-19th

www.geo-site.net



THE END



Put on your own title



Looking for their dignity





The dean said I had to bring back the same number of people as I took out.....she didn't say it had to be the same students.



Another exposed “dome”
of the Black Hills

We give up, Just take us.





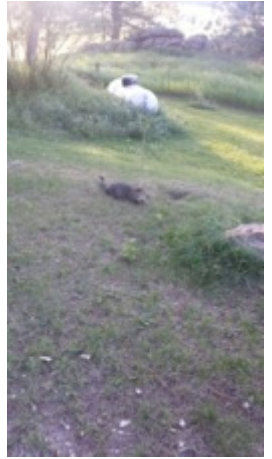
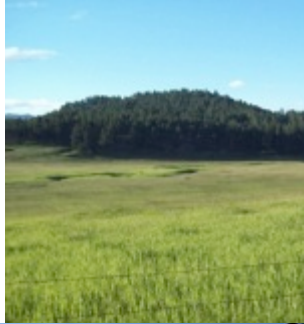
Knappy at his finest



Suns out..... Guns out



Roost





HIKING TRAIL

HARNEY RANGE TRAILS

Forest Service

Black Hills National Forest

United States
Department of
Agriculture

Custer Ranger District

SYLVAN LAKE-HARNEY TRAIL #9

Length: 3.4 mi. (5.4 km.)

Trail Beginning 6,100 ft. (1,830 m.)

Sylvan Lake parking area in Custer State Park.

Recommended Season:

Spring	Summer	Fall	Winter

Trail Ending 7,242 ft. (2,208 m.)

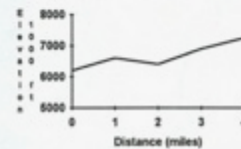
HARNEY PEAK SUMMIT. Trail #9 goes from Sylvan Lake in the South to Willow Creek Camp in the north. The trail from Willow Creek to Harney Peak is in a separate Trail Sheet.

Use: Extremely Heavy

Difficulty: Moderate

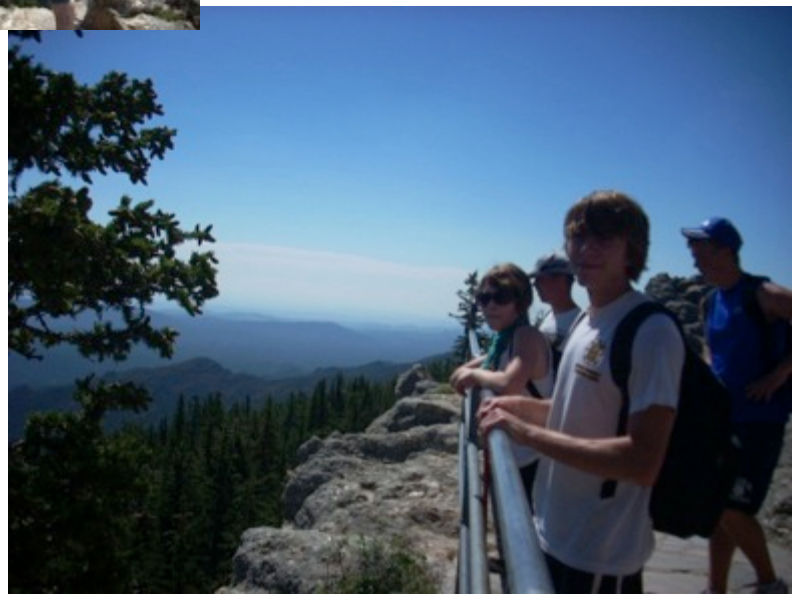
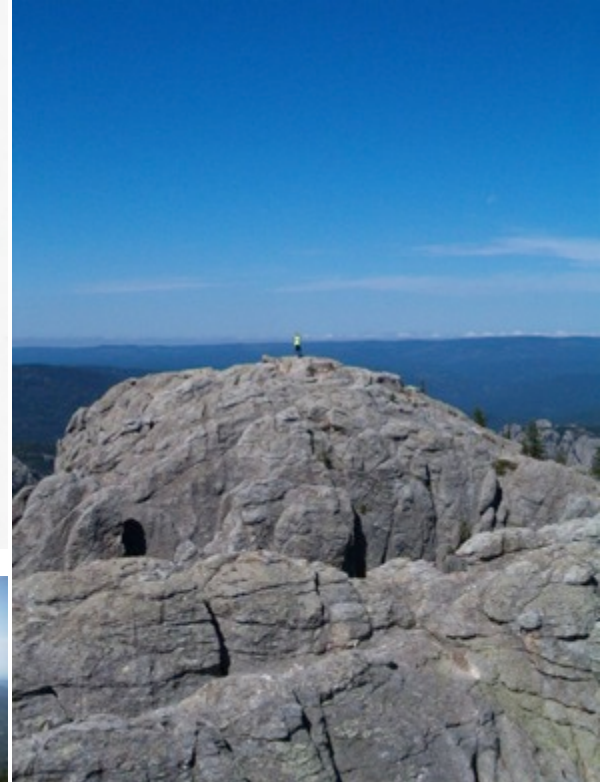
USGS Map(s): Custer Quad

Trail Profile



Access

Sylvan Lake is located in the NW corner of Custer State Park.



ROOST RESORT FACILITIES





DR. LARRY AGENBROAD

**HOT SPRINGS
MAMMOTH SITE**





WORKING TO GET A TOURMALINE CRYSTAL





MOVING ROCKS

OKAY TO GO





SMILE



**MAKING FUN OF
MT. RUSHMORE**



**GETTING
A TIRE FIXED**

ORGANIZING PICTURES

