Cape Fear Skies

The Official Newsletter of the
Cape Fear Astronomical Society
Wilmington, North Carolina

A Member Society of the Astronomical League

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www.capefearastro.org

CAPE FEAR ASTRONOMICAL SOCIETY
WILMINGTON, NORTH CAROLINA

This Month's Meeting –
Sunday, June 3, 2007
Meeting place to be determined.

The business meeting of
the Cape Fear Astronomical Society
will begin at 7:00 pm.
The general meeting will begin at 7:45 pm.

★★★ ***Gastronomy!***

Please join us for dinner before the meeting at Indochine on Market Street at 5:15pm!

CAPE FEAR SKIES
Editor: Ric Longren
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CAPE FEAR ASTRONOMICAL SOCIETY
WILMINGTON, NORTH CAROLINA

Cape Fear Astronomical Society

Meeting minutes by Letisha McLaughlin CFAS Secretary

Meeting Minutes for May 6th CFAS Meeting

The May meeting of the Cape Fear Astronomical Society began at 7:15 PM in UNC Wilmington's Bryan Auditorium on Sunday, May 6th, 2007. Ultimately there were seventeen members attending with no guest.

Officer's Report

Vice President Terry Herrin informed the club that Alan Hilburn is working on two speakers, Johnny Moore and Mark Davis, for future programs.

On another note, the VP mentioned a new building development to be built "right across the river at the Mooretown observing site. This of course will have a tremendous effect on the quality of observing there due to the increase in light pollution.

Secretary Letisha McLaughlin announced she has been accepted to complete another summer of solar physics research at Montana State University. In addition, she has been accepted at North Carolina State University's graduate school and will begin her pursuit of a Master's degree in astrophysics this fall.

Old Business

President Ronnie Hawes thanked all members who made it out to the Astronomy Day public viewing. He noted there were around 150 to 200 interested people at the site throughout the night observing the sky from two C11 telescopes and others which had been supplied by the club members. One exciting event during the night occurred when a large orange-white meteor flashed across the sky, several members agreed it was a spectacular site.

Club member Jonathan Guetta disappointedly told the club that the company responsible for producing the club merchandise has backed out of its original quoted prices for the embroidered polo shirts. The company claims the logo is too involved to be produced at the first price. However, Guetta stated that he will attempt to convince them to stick to their original quote.

Terry Herrin updated the club on the Yamacraw site. Tom Jacobs continues to work on the lock box while club member Chris Johnson is attempting to contact the owner of the field, Clint North, about the current situation.

New Business

Ronnie Hawes made the very disappointing announcement that he had recently spoken with Tina Strickland of UNC-Wilmington and had discovered that the college may no longer be able to reserve space on the campus for non-university affiliated societies. He was also directed to call back at the end of May to see if there are any new developments. Realizing that next month's meeting may possibly be homeless, the club immediately began to make suggestions. A couple of location ideas include Ronnie Hawes' house, a meeting room at the hospital, a local church or Cape Fear Community College. Vice President Terry Herrin even mentioned the possibility of having the meeting at the planetarium at Ocean Isle.

Observing Report

Member Thad Coin told the club he had recently found IC 4665, a nice cluster, M8, M20, and M22 with his binoculars during a night of sky watching.

Member Tom Jacobs reported on the Southern Star Party. He mentioned four CFAS members made it to the event. One highlight includes the NASA speaker who commented that any body in space with an atmosphere is considered a planet, although there is a fine line between a very thin atmosphere and that which makes up stellar space.

Tom Jacobs also announced some very exciting news: he purchased a very gently used f12 6-inch Astro-physics telescope at the Southern Star Party. Other excited group members made comments on the amazing abilities of this super planetary refractor, such as the magazine quality view of bright sky objects.

As no program was available for the night, the CFAS May meeting concluded at 8:20 PM.

News Cluster

- ►The next meeting of the Cape Fear Astronomical Society is June 3 starting at 7:00 pm. No program is scheduled.
- ►As of this writing, no meeting place for June had been announced.

Event Calendar for June 2007	
June 2	Mercury is at greatest eastern elongation (23º) 6 am
June 3	**CFAS June Meeting 7:00 pm**
June 4	Mars is at perihelion (128.4 million miles) 9 am
June 5	Jupiter is at opposition, 7 pm
June 8	Last quarter Moon, 7:43 am
	Venus at greatest eastern elongation (23º), 11 pm
June 8/9	**CFAS Group Viewing Sessions**
June 12	Moon at perigee, 1:07 pm, 226,042 miles
June 14	New Moon, 11:13 pm
June 15/16	**CFAS Group Viewing Sessions**
June 17	Father's Day
June 21	Summer Solstice at 2:06 pm
June 22	First quarter Moon, 9:15 am
June 24	Moon at apogee, 10:25 am, 251,370 miles

All times are EDT unless otherwise noted

News from Our Sister Society Down Under

Astronomical Society of Albury - Wodonga

For the latest news from down under, check out our sister society's web site at www.asaw.org.au.

Astronomical History During the Month of June

Date	Milestone
June 12, 1967	Launch of Soviet Probe Venera 4, first spacecraft to return data from within the atmosphere of Venus
June 14, 1967	Launch of NASA's Mariner 5, second US spacecraft to fly past Venus.
June 20, 1997	NASA's NEAR-Shoemaker flyby of asteroid Mathilde.
June 29, 1927	First astronomical observation from an aircraft – photography of a solar eclipse over London.

Planets in June 2007						
Planet	June	Elong.	Mag.	Dia.	Illum.	Dist.
Mercury	1st	23º Ev	+0.3	7.9"	40%	0.850
	11th	21º Ev	+1.4	9.9"	20%	0.681
	21st	12º Ev	+3.7	11.7"	5%	0.576
	30th	5º Mo	+5.5	11.9"	1%	0.564
Venus	1st	45º Ev	-4.4	21.5"	54%	0.775
	11th	45º Ev	-4.4	24.0"	49%	0.694
	21st	45º Ev	-4.5	27.2"	43%	0.613
	30th	43º Ev	-4.6	30.8"	36%	0.542
Mars	1st	58º Mo	+0.8	5.8"	89%	1.623
	16th	61º Mo	+0.8	6.0"	88%	1.551
	30th	64º Mo	+0.7	6.3"	88%	1.484
Jupiter	1st	175º Mo	-2.6	45.7"	100%	4.311
	30th	154º Ev	-2.5	45.0"	100%	4.378
Saturn	1st	70º Ev	+0.5	17.5"	100%	9.518
	30th	44º Ev	+0.6	16.8"	100%	9.919
Uranus	16th	96º Mo	+5.8	3.5"	100%	19.963
Neptune	16th	123º Mo	+7.9	2.3"	100%	29.487
Pluto	16th	172º Mo	+13.9	0.1"	100%	30.292

Elong. – elongation from the Sun: morning (Mo) and evening (Ev)
Dist. – distance from Earth in astronomical units

Mars Rover Spirit Unearths Surprise Evidence of Wetter Past

May 21, 2007
(www.jpl.nasa.gov)

PASADENA, Calif. - A patch of Martian soil analyzed by NASA's rover Spirit is so rich in silica that it may provide some of the strongest evidence yet that ancient Mars was much wetter than it is now. The processes that could have produced such a concentrated deposit of silica require the presence of water.

Members of the rover science team heard from a colleague during a recent teleconference that the alpha particle X-ray spectrometer, a chemical analyzer at the end of Spirit's arm, had measured a composition of about 90 percent pure silica for this soil.

"You could hear people gasp in astonishment," said Steve Squyres of Cornell University, Ithaca, N.Y., principal investigator for the Mars rovers' science instruments. "This is a remarkable discovery. And the fact that we found something this new and different after nearly 1,200 days on Mars makes it even more remarkable. It makes you wonder what else is still out there."

Spirit's miniature thermal emission spectrometer observed the patch, and Steve Ruff of Arizona State University, Tempe, noticed that its spectrum showed a high silica content. The team has laid out plans for further study of the soil patch and surrounding deposits

Exploring a low range of hills inside a Connecticut-sized basin named Gusev Crater, Spirit had previously found other indicators of long-ago water at the site, such as patches of water-bearing, sulfur-rich soil; alteration of minerals; and evidence of explosive volcanism

"This is some of the best evidence Spirit has found for water at Gusev," said Albert Yen, a geochemist at NASA's Jet Propulsion Laboratory, Pasadena, Calif. One possible origin for the silica could have been interaction of soil with

acid vapors produced by volcanic activity in the presence of water. Another could have been from water in a hot spring environment. The latest discovery adds compelling new evidence for ancient conditions that might have been favorable for life, according to members of the rover science team.

David Des Marais, an astrobiologist at NASA's Ames Research Center, Moffett Field, Calif., said, "What's so exciting is that this could tell us about environments that have similarities to places on Earth that are clement for organisms

Spirit and its twin rover, Opportunity, completed their original three-month prime missions in April 2004. Both are still operating, though showing signs of age. One of Spirit's six wheels no longer rotates, so it leaves a deep track as it drags through soil. That churning has exposed several patches of bright soil, leading to some of Spirit's biggest discoveries at Gusev, including this recent discovery.

Doug McCuistion, director of NASA's Mars Exploration Program, said, "This unexpected new discovery is a reminder that Spirit and Opportunity are still doing cutting-edge exploration more than three years into their extended missions. It also reinforces the fact that significant amounts of water were present in Mars' past, which continues to spur the hope that we can show that Mars was once habitable and possibly supported life."

The newly discovered patch of soil has been given the informal name "Gertrude Weise," after a player in the All-American Girls Professional Baseball League, according to Ray Arvidson of Washington University in St. Louis, deputy principal investigator for the rovers.

"We've looked at dozens of disturbed soil targets in the rover tracks, and this is the first one that shows a high silica signature," said Ruff, who last month proposed using Spirit's miniature thermal emission spectrometer to observe this soil. That instrument provides mineral composition information about targets viewed from a distance. The indications it found for silica in the overturned soil prompted a decision this month to drive Spirit close enough to touch the soil with the alpha particle X-ray spectrometer. Silica commonly occurs on Earth as the crystalline mineral quartz and is the main ingredient in window glass. The Martian silica at the Gertrude Weise patch is non-crystalline, with no detectable quartz.

Spirit worked within about 50 yards or meters of the Gertrude Weise area for more than 18 months before the discovery was made. "This discovery has driven home to me the value of in-depth, careful exploration," Squyres said. "This is a target-rich environment, and it is a good thing we didn't go hurrying through it."

Meanwhile, on the other side of the planet, Opportunity has been exploring Victoria Crater for about eight months. "Opportunity has completed the initial survey of the crater's rim and is now headed back to the area called Duck Bay, which may provide a safe path down into the crater," said John Callas, project manager for the rovers at JPL.

JPL, a division of the California Institute of Technology, Pasadena, manages the Mars Exploration Rover project for NASA's Science Mission Directorate. For images and information about the rovers, visit http://www.nasa.gov/rovers.

Image Credit: NASA/JPL/Cornell

NASA's Mars Exploration Rover Spirit has found a patch of bright-toned soil so rich in silica that scientists propose water must have been involved in concentrating it.

The silica-rich patch, informally named "Gertrude Weise" after a player in the All-American Girls Professional Baseball League, was exposed when Spirit drove over it during the 1,150th Martian day, or sol, of Spirit's Mars surface mission (March 29, 2007). One of Spirit's six wheels no longer rotates, so it leaves a deep track as it drags through soil. Most patches of disturbed, bright soil that Spirit had investigated previously are rich in sulfur, but this one has very little sulfur and is about 90 percent silica

Spirit's panoramic camera imaged the bright patch through various filters on Sol 1,158 (April 6). This approximately true-color image combines images taken through three different filters. The track of disturbed soil is roughly 20 centimeters (8 inches) wide.

Spirit's miniature thermal emission spectrometer, which can assess a target's mineral composition from a distance, examined the Gertrude Weise patch on Sol 1,172 (April 20). The indications it found for silica in the overturned soil prompted a decision to drive Spirit close enough to touch the soil with the alpha particle X-ray spectrometer, a chemical analyzer at the end of Spirit's robotic arm. The alpha particle X-ray spectrometer collected data about this target on sols 1,189 and 1,190 (May 8 and May 9) and produced the finding of approximately 90 percent silica.

Silica is silicon dioxide. On Earth, it commonly occurs as the crystalline mineral quartz and is the main ingredient in window glass. The Martian silica at Gertrude Weise is non-crystalline, with no detectable quartz

In most cases, water is required to produce such a concentrated deposit of silica, according to members of the rover science team. One possible origin for the silica could have been interaction of soil with acidic steam produced by volcanic activity. Another could have been from water in a hot spring environment.

Sudoku 11, 61, 151, 341, 531, 11

More Sudoku from easy to nearly impossible.

Complete the grid so every row, column and 3 x 3 box contains every digit from 1 to 9 inclusively. Stars indicate level of difficulty. Answers on page 7.

7				6			5	9
5	9			1			8	
		6		8	9	7	4	2
		3			8		7	
	6		2	7	1		9	
	7		9			2		
3	8	9	7	2		5		
	1			4			3	6
6	5			9				7

★☆☆☆☆

			3		7	9		
4								7
	2		8				3	
3		2		7		4	9	
6								5
	9	1		6		7		2
	5				8		4	
1								9
		4	6		2			

★★☆☆☆

	6	3	7	5				
					9		6	3
						1		
	9	8	3	7				
		5				8		
				8	6	2	7	
		9						
1	4		2					
				3	7	5	9	

★★★☆☆

	5	2	9					
4		9					2	
7		3	5	2				
9				6		1		
	6		1		5		8	
		1		9				6
				4	7	5		8
	2					4		3
					1	2	6	

★★★★☆

9		3			8		7	
4	8		5		2		1	
		1						4
	1				6	3		
		5	7				6	
3						4		
	4		2		3		5	8
	9		8			7		6

★★★★★

Supper Sudoku. Complete the grid so every row, column and 4 x 4 box contains every digit from 0 to 9 and letters from A to F inclusively. Good luck!

9				7	6	D	C	2	B			5		4	
	3		C			4					6		1		
	5			9		E		7	3				0		F
2	1	7	A	F	3			9						8	
1		4		3	D		8	A			0		E	F	
0	7		F						5	C	8			2	
	E	B			4					3			8	6	0
A	2				1		B	4	F						9
	A	9		8									6	C	5
5		C			F		A	8	1	9				3	
		E	1			3				A	7		2		
		F		D			0	5		4		9			
	6		4						C	B				0	
D		2			E	F						7	4		
	8	5			A	C				E	F	6	9	D	2
				0	7	9		6			1		B		

Solutions:

7	4	8	3	6	2	1	5	9
5	9	2	4	1	7	6	8	3
1	3	6	5	8	9	7	4	2
9	2	3	6	5	8	4	7	1
4	6	5	2	7	1	3	9	8
8	7	1	9	3	4	2	6	5
3	8	9	7	2	6	5	1	4
2	1	7	8	4	5	9	3	6
6	5	4	1	9	3	8	2	7

★☆☆☆☆

8	6	5	3	4	7	9	2	1
4	1	3	9	2	6	8	5	7
7	2	9	8	5	1	6	3	4
3	8	2	1	7	5	4	9	6
6	4	7	2	8	9	3	1	5
5	9	1	4	6	3	7	8	2
2	5	6	7	9	8	1	4	3
1	7	8	5	3	4	2	6	9
9	3	4	6	1	2	5	7	8

★★☆☆☆

4	6	3	7	5	1	9	2	8
7	5	1	8	2	9	4	6	3
9	8	2	6	4	3	1	5	7
2	9	8	3	7	4	6	1	5
6	7	5	9	1	2	8	3	4
3	1	4	5	8	6	2	7	9
5	3	9	1	6	8	7	4	2
1	4	7	2	9	5	3	8	6
8	2	6	4	3	7	5	9	1

★★★☆☆

6	5	2	9	1	3	8	4	7
4	1	9	8	7	6	3	2	5
7	8	3	5	2	4	6	9	1
9	4	5	7	6	8	1	3	2
2	6	7	1	3	5	9	8	4
8	3	1	4	9	2	7	5	6
3	9	6	2	4	7	5	1	8
1	2	8	6	5	9	4	7	3
5	7	4	3	8	1	2	6	9

9	6	3	4	1	8	5	7	2
4	8	7	5	9	2	6	1	3
2	5	1	3	6	7	8	9	4
7	1	4	9	2	6	3	8	5
6	3	9	1	8	5	2	4	7
8	2	5	7	3	4	1	6	9
3	7	8	6	5	9	4	2	1
1	4	6	2	7	3	9	5	8
5	9	2	8	4	1	7	3	6

★★★★★

9	F	0	8	7	6	D	C	2	B	1	A	5	3	4	E
E	3	D	C	A	0	4	2	F	8	5	6	B	1	9	7
4	5	6	B	9	8	E	1	7	3	D	C	2	0	A	F
2	1	7	A	F	3	B	5	9	E	0	4	D	C	8	6
1	9	4	6	3	D	5	8	A	2	7	0	C	E	F	B
0	7	3	F	6	9	A	E	B	5	C	8	1	D	2	4
C	E	B	5	2	4	7	F	1	9	3	D	A	8	6	0
A	2	8	D	C	1	0	B	4	F	6	E	3	5	7	9
3	A	9	0	8	B	1	7	E	D	F	2	4	6	C	5
5	4	C	2	E	F	6	A	8	1	9	B	0	7	3	D
6	D	E	1	4	5	3	9	C	0	A	7	F	2	B	8
8	B	F	7	D	C	2	0	5	6	4	3	9	A	E	1
7	6	1	4	5	2	8	3	D	C	B	9	E	F	0	A
D	0	2	9	B	E	F	6	3	A	8	5	7	4	1	C
B	8	5	3	1	A	C	4	0	7	E	F	6	9	D	2
F	C	A	E	0	7	9	D	6	4	2	1	8	B	5	3

Meetings of the CFAS are held on the first Sunday of The month (if holiday weekend or special event, second Sunday) at

7:00pm – To Be Determined

Group Viewing Sessions 5194

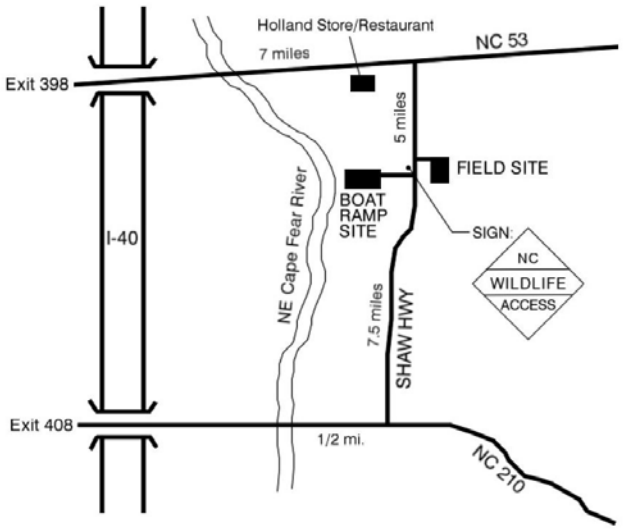
Call Ron Hawes at 762-1033 or check our email list to confirm a formal viewing session. Listed below are moonless nights so you can schedule a good viewing. All group viewing sessions will be at the Holly Shelter boat ramp site, unless otherwise specified. Time: Dusk until ?

Friday, June 8 Saturday, June 9

Friday, June 15 Saturday, June 16

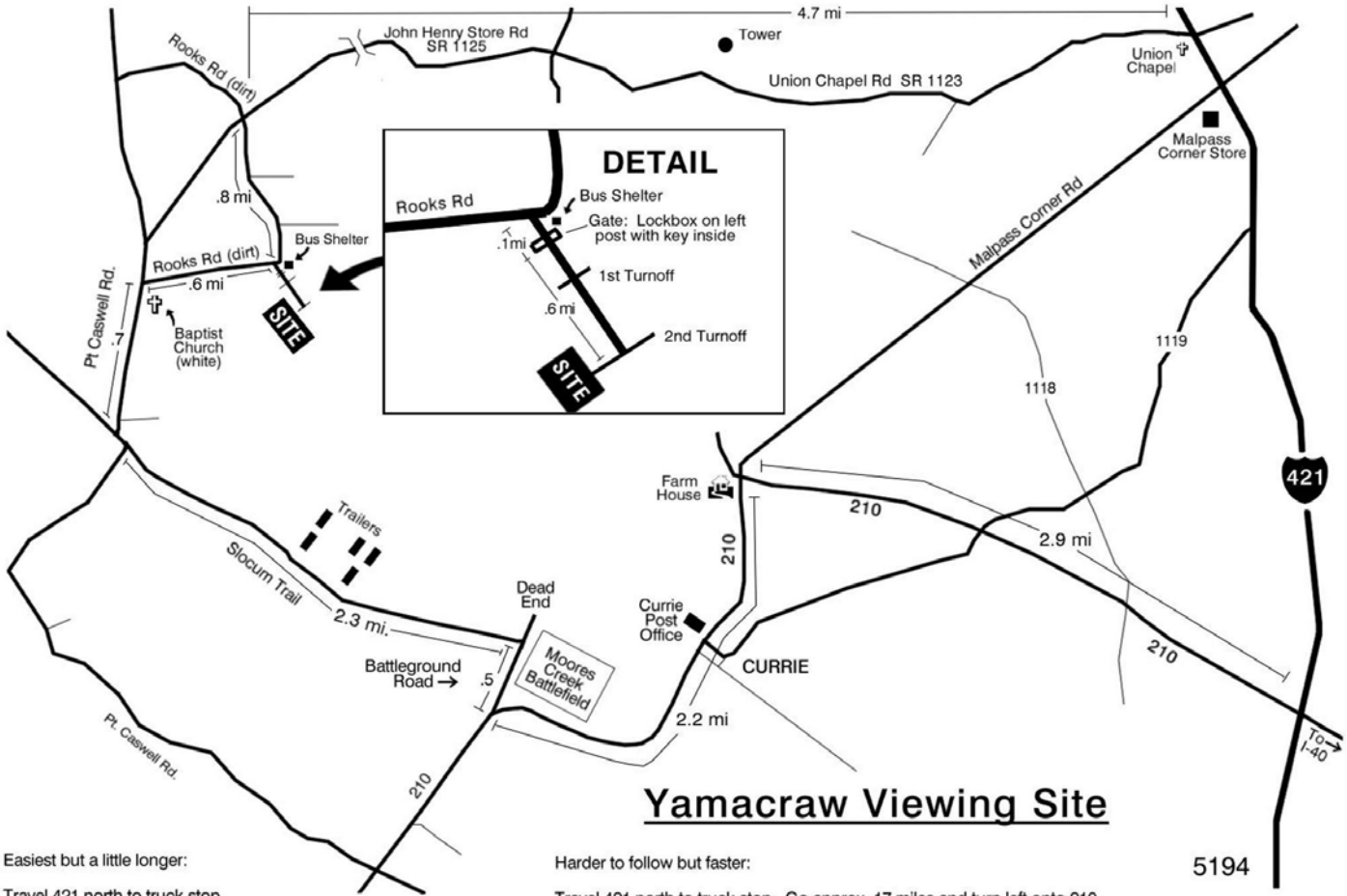
Please be cautious of unusual wildlife behavior while observing. A golf club or stick could be useful to keep nearby.

Holly Shelter Viewing Sites



Field Site Gate Open:
September 1 - February 29 and April 7 - May 14.

Please have your Holly Shelter Permit with you at the site.



Yamacraw Viewing Site

Easiest but a little longer:

Travel 421 north to truck stop.
Go approx. 20.5 miles and turn left onto Union Chapel Road.
Follow for 4.7 miles (becomes John Henry Store Road) and take left onto Rooks Road (dirt).
Follow Rooks Road .8 miles around curve, pass bus shelter and take left onto our site's road.
Travel .1 mile, unlock/relock gate, travel .6 miles, take 2nd right.

Harder to follow but faster:

5194

Travel 421 north to truck stop. Go approx. 17 miles and turn left onto 210.
Follow 210 for 2.9 miles to intersection (stop sign and big white farm house), turn left onto 210 W.
Follow 210 W past Currie Post Office and Battlefield, turn right onto Battleground Rd.
Follow Battleground Rd .5 miles, take sharp left onto Slocum Rd, follow for 2.3 miles.
Take a right onto Pt. Caswell Rd, follow .7 miles past Church, take right onto Rooks Road (dirt).
Follow Rooks Rd .6 miles, turn right onto our site's road. (If you see the bus shelter, you've gone too far.)
Travel .1 miles, unlock/relock gate, travel .6 miles, take the 2nd road on the right to our site.