Cape Fear Skies

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

A Member Society of the Astronomical League

Volume 22 no. 3 ★ March 2007

www.capefearastro.org

CAPE FEAR ASTRONOMICAL SOCIETY
WILMINGTON, NORTH CAROLINA

This Month's Meeting – Sunday, March 4, 2007

Bryan Auditorium in Morton Hall
on the UNCW Campus

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 McAlister's Deli on College across from UNCW at 5:15pm!

CAPE FEAR SKIES
Editor: Ric Longren
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Wilmington, NC 28411

CAPE FEAR ASTRONOMICAL SOCIETY
WILMINGTON, NORTH CAROLINA

Cape Fear Astronomical Society

Meeting minutes by Letisha McLaughlin, CFAS Secretary

Meeting Minutes for Feburary11th CFAS Meeting

The business portion of the CFAS February meeting commenced at 19:23 on February 11th, 2007 with 24 members in attendance and one visitor, Christa Johnson, who later became a member.

Officer's Report

President Ronnie Hawes began by thanking Vice President Terry Herrin for leading January's meeting in his absence.

Treasurer Ben Steelman reported the club's checking account is in the black with $1,995. Also, he requested approval to reimburse Newsletter Editor Ric Longren the $210 he has paid out of pocket for CFAS periodical expenses. A motion was passed in order to do so.

Old Business

According to the constitution, membership dues should be paid by the next month's meeting. If one does not fulfill the payment requirement, he or she shall be dropped from club membership.

Clint North has received payment for use the his field, known to the club as the Yamacraw viewing site, for sky observation. In addition, the lock on the gate has been changed. If anyone would like to use the site, contact Mr. North. His information may be acquired through President Ronnie Hawes.

New Business

This year's Southern Star Party will take place on the weekend of April 27th in Wildacres. It was noted that Saturday is usually the most eventful day of the party as there are guest speakers, photography contests, and more. Ronnie Hawes left out an information packet for everyone to view.

Vice President Terry Herrin and member Susan Buccini commented on Tommy Puckett's request for someone to volunteer to filter emails sent to the club mailing list. Currently, Mr. Puckett receives all emails sent to the info@capefearastro.org, reads them, then sends them out to the rest of the club. Member Roberta Babson graciously agreed to take over the job.

The club will pay the set-up expense for the production of CFAS merchandise. Member Rich Williams commented that the person in charge of setting up this transaction should be sure that the club gets to keep the rights to the CFAS logo. In the past, companies claimed ownership of the logo in order to keep purchases of tee shirts, etc. strictly through themselves. Also, members made several inquires about the garments being ordered, included the color and sizes. Susan Buccini compiled a list of questions to be asked before placing an order.

Astronomy day will be April 21 this year. A proposal to have the club host a public event celebrating the holiday at Carolina Beach State park raised much enthusiasm. Also, Ronnie commented that Astronomy Day was founded in 1972 as a result of one Californian museum's effort to bring astronomy to the people.

Mr. Alan Hilburn informed the club that Rusty and Mary Jo Holt had recently donated a 4 inch telescope to the CFAS. He also inquired as to whether the couple should be given a free membership as compensation for their generosity.

Observing Report

CFAS President reported the did catch a glimpse of the Comet McNaught.

Member Tom Jacobs announced the success of the second constellation class. The "mystery object" for the night was the extreme southern star Canopus in the constellation Carina. He also said that it was a short class, about one hour, due to the cold weather.

Associate Vice President Alan Hilburn noted that Mercury and Venus are both in the western sky and recently the former planet has been the better of the two to view.

The business portion of the CFAS February meeting was adjourned at 8:15. Following, Associate Vice President Alan Hilburn gave a presentation entitled "What Time Is It", a review of the many methods used to keep and measure time.

Please Welcome to CFAS:

Christa Johnson
2307 Princess Place Drive
Wilmington 28405

Phone: (910) 200-2035

News Cluster

- ►The next meeting of the Cape Fear Astronomical Society is March 4 starting at 7:00 pm. Following the meeting, Ronnie Hawes will present "Twinkle Twinkle Little Star".
- ►The Charlotte Amateur Astronomers Club (CAAC) will host the 21st annual Southern Star Astronomical Convention in the Blue Ridge Mountains on April 27-29, 2007.For more info visit www.charlotteastronomers.org/southernstar.
- ►Astronomy Day is April 21 2007. Let's discuss how best CFAS can promote astronomy in the Cape Fear region. Bring your ideas. Time is running out.
- ►Don't forget your Membership dues for 2007. March is the deadline.

Event Calendar for March 2007

March 1	Moon passes 1.1º north of Saturn, 9 pm
March 3	Full Moon, 6:17pm, total lunar eclipse
March 4	**CFAS May Meeting 7:00 pm**
March 6	Moon at apogee, 10:37 pm, 252,186 miles
March 11	Daylight Savings Time starts
March 11	Last quarter Moon, 11:54 pm EDT
Mar 16/17	**CFAS Group Viewing Sessions**
March 18	New Moon, 10:43 pm EDT
March 19	Moon at perigee, 2:39 pm EDT, 222,335 miles
March 20	Vernal equinox occurs at 8:07 pm EDT
Mar 23/24	**CFAS Group Viewing Sessions**
March 25	First Quarter Moon, 2:16 pm EDT
March 25	Mars passes 1.0º south of Neptune, 3 am EDT

All times are EST unless otherwise noted

News from Our Sister Society Down Under

Astronomical Society of Albury - Wodonga

Astronomical images and related matters:

- **Harry Akkerman**. Images of the transit of Mercury, the telescope/equipment used and his new Skywatcher 180 mm Maksutov 'Go To' telescope.
- **Mick Nolan, John Gurkin, Mick Laws and Dave Chandler**. Images of the magnificent Comet McNaught from dark sky sites and the tail striations evident.
- **Bob Price**. An amazing image taken by Ted Dobros of Comet McNaught which provided excellent detail of the extended curving tail and also an image of Comet McNaught taken by Bruce & Barb Thompson at their Thurgoona property.
- **David Thurley**. Discussed the functionality of his recently purchased Celestron Sky Scout Personal Planetarium and demonstrated its use.

Astronomical History During the Month of March

Date	Milestone
Mar 1, 1982	Soviet Venera 13 lands on Venus and sends back first color images from the surface
Mar 5, 1982	Soviet Venera 14 lands on Venus. A twin of Venera 13.
Mar 6, 1787	Birth date of Joseph von Fraunhofer, German optician after whom the dark absorption line of the Sun's spectrum are named
Mar 7, 1792	Birth date of Sir John Herschel, surveyor of the skies
Mar 7, 1962	Launch of NASA's OSO1, the first orbiting Solar Observatory.
Mar 28, 1802	Discovery of the second asteroid, Pallas, by Heinrich Olbers
Mar 29, 1807	Discovery of the fourth asteroid, Vesta, by Heinrich Olbers

Ten Planetary Treats for March					
Name	Cons.	R.A.	Dec.	Mag	Size
M76	Perseus	1h 42m	1° 34'	10.1	163" by 107"
NGC 1501	Camelop.	4h 07m	60° 55'	11.9	56" by 48"
NGC 1514	Taurus	4h 09m	30° 47'	10.9	136" by 121"
NGC 1535	Eridanus	4h 14m	-12° 44'	9.4	48" by 42"
IC 418	Lepus	5h 28m	-12° 47'	9.3	40" by 35"
NGC 2346	Monoceros	7h 09m	-0° 48'	11.9	60" by 50"
NGC 2371-2	Gemini	7h 26m	29° 29'	11.2	74" by 54"
NGC 2392	Gemini	7h 29m	20° 55'	9.2	47" by 43"
NGC 2438	Puppis	7h 42m	-14° 44'	10.8	73" by 68"
NGC 2392	Puppis	7h 42m	-18° 13'	9.3	74" by 42"

Sensor Being Developed to Check for Life on Mars
February 26, 2007 (www.jpl.nasa.gov)

NASA-funded researchers are refining a tool that could not only check for the faintest traces of life's molecular building blocks on Mars, but could also determine whether they have been produced by anything alive.

The instrument, called Urey: Mars Organic and Oxidant Detector, has already shown its capabilities in one of the most barren climes on Earth, the Atacama Desert in Chile. The European Space Agency has chosen this tool from the United States as part of the science payload for the ExoMars rover planned for launch in 2013. Last month,

NASA selected Urey for an instrument-development investment of $750,000.

The European Space Agency plans for the ExoMars rover to grind samples of Martian soil to fine powder and deliver them to a suite of analytical instruments, including Urey, that will search for signs of life. Each sample will be a spoonful of material dug from underground by a robotic drill.

"Urey will be able to detect key molecules associated with life at a sensitivity roughly a million times greater than previous instrumentation," said Dr. Jeffrey Bada of Scripps Institution of Oceanography at the University of California, San Diego. Bada is the principal investigator for an international team of scientists and engineers working on various components of the device.

To aid in interpreting that information, part of the tool would assess how rapidly the environmental conditions on Mars erase those molecular clues.

Dr. Pascale Ehrenfreund of the University of Leiden in the Netherlands, said, "The main objective of ExoMars is to search for life. Urey will be a key instrument for that because it is the one with the highest sensitivity for organic chemicals." Ehrenfreund, one of two deputy principal investigators for Urey, coordinates efforts of team members from five other European countries.

Urey can detect several types of organic molecules, such as amino acids, at concentrations as low as a few parts per trillion.

All life on Earth assembles chains of amino acids to make proteins. However, amino acids can be made either by a living organism or by non-biological means. This means it is possible that Mars has amino acids and other chemical precursors of life but has never had life. To distinguish between that situation and evidence for past or present life on Mars, the Urey instrument team will make use of the knowledge that most types of amino acids can exist in two different forms. One form is referred to as "left-handed" and the other as "right-handed." Just as the right hand on a human mirrors the left, these two forms of an amino acid mirror each other.

Amino acids from a non-biological source come in a roughly 50-50 mix of right-handed and left-handed forms. Life on Earth, from the simplest microbes to the largest plants and animals, makes and uses only left-handed amino acids, with rare exceptions. Comparable uniformity -- either all left or all right -- is expected in any extraterrestrial life using building blocks that have mirror-image versions because a mixture would complicate biochemistry.

"The Urey instrument will be able to distinguish between left-handed amino acids and right-handed ones," said Allen Farrington, Urey project manager at NASA's Jet Propulsion Laboratory, which will build the instrument to be sent to Mars.

If Urey were to find an even mix of the mirror-image molecules on Mars, that would suggest life as we know it never began there. All-left or all-right would be strong evidence that life now exists on Mars, with all-right dramatically implying an origin separate from Earth life. Something between 50-50 and uniformity could result if Martian life once existed, because amino acids created biologically gradually change toward an even mixture in the absence of life.

The 1976 NASA Viking mission discovered that strongly oxidizing conditions at the Martian surface complicate experiments to search for life. The Urey instrument has a component, called the Mars oxidant instrument, for examining those conditions.

The oxidant instrument has microsensors coated with various chemical films. "By measuring the reaction of the sensor films with chemicals present in the Martian soil and atmosphere, we can establish if organisms could survive and if evidence of past life would be preserved," said Dr. Richard Quinn, a co-investigator on Urey from the SETI Institute, Mountain View, Calif., who also works at NASA Ames Research Center, Moffett Field, Calif.

"In order to improve our chances of finding chemical evidence of life on Mars, and designing human habitats and other equipment that will function well on Mars' surface, we need to improve our understanding of oxidants in the planet's surface environment," said Dr. Aaron Zent, a Urey co-investigator at NASA Ames.

A Urey component called the sub-critical water extractor handles the task of getting any organic compounds out of each powdered sample the ExoMars rover delivers to the instrument. "It's like an espresso maker," explained JPL's Dr. Frank Grunthaner, a deputy principal investigator for Urey. "We bring the water with us. It is added to the sample, and different types of organic compounds dissolve into the liquid as the temperature increases. We keep it under pressure the whole time."

The dissolved compounds are highly concentrated by stripping away water in a tiny oven. Then a detector checks for fluorescent glowing, which would indicate the presence of amino acids, some components of DNA and RNA, or other organic compounds that bind to a fluorescing chemical added by the instrument.

A Urey component called the micro-capillary electrophoresis unit has the critical job of separating different types of organic compounds from one another for identification, including separation of mirror-image amino acids from each other. "We have essentially put a laboratory onto a single wafer," said Dr. Richard Mathies of the University of California, Berkeley, a Urey co-investigator. The device for sending to Mars will be a small version incorporating this detection technology, which is already in use for biomedical procedures such as law-enforcement DNA tests and checking for hazardous microbes.

Switzerland will provide electronics design and packaging expertise for Urey. Micro-Cameras and Space Exploration S.A., Neuchatel, will collaborate with JPL and the European Space Agency to accomplish this significant contribution to the heart of the instrument. Dr. Jean-Luc Josset, Urey co-investigator at the University of Neuchatel will coordinate this effort and help provide detector selection and support. JPL is a division of the California Institute of Technology in Pasadena.

Sudoku 8, 58, 148, 338, 528, 8

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.

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

★☆☆☆☆

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

★★☆☆☆

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

★★★☆☆

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

★★★★☆

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

★★★★★

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!

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

Solutions:

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

★☆☆☆☆

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

★★☆☆☆

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

★★★☆☆

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

★★★★☆

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

★★★★★

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

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

7:00pm – Bryan Auditorium, Morton Hall, UNCW

Group Viewing Sessions 5194

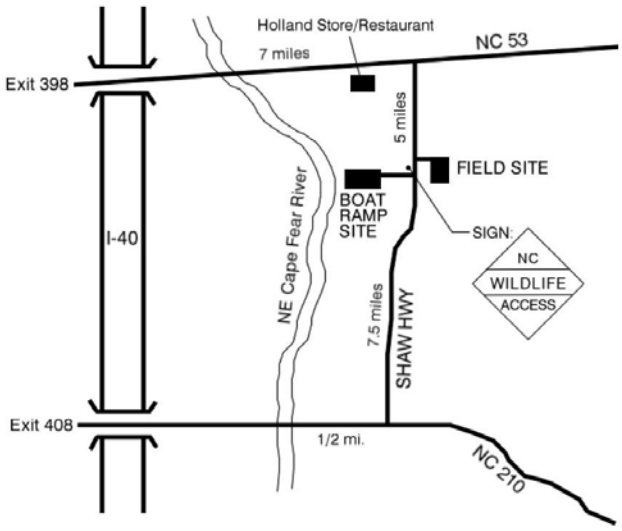
Call Ron Hawes at 762-1033 or check our email list to confirm a formal viewing session. Listed below are moonless nights so you can schedule a good viewing. All group viewing sessions will be at the Holly Shelter boat ramp site, unless otherwise specified. Time: Dusk until ?

Friday, March 16 Saturday, March 17

Friday, March 23 Saturday, March 24

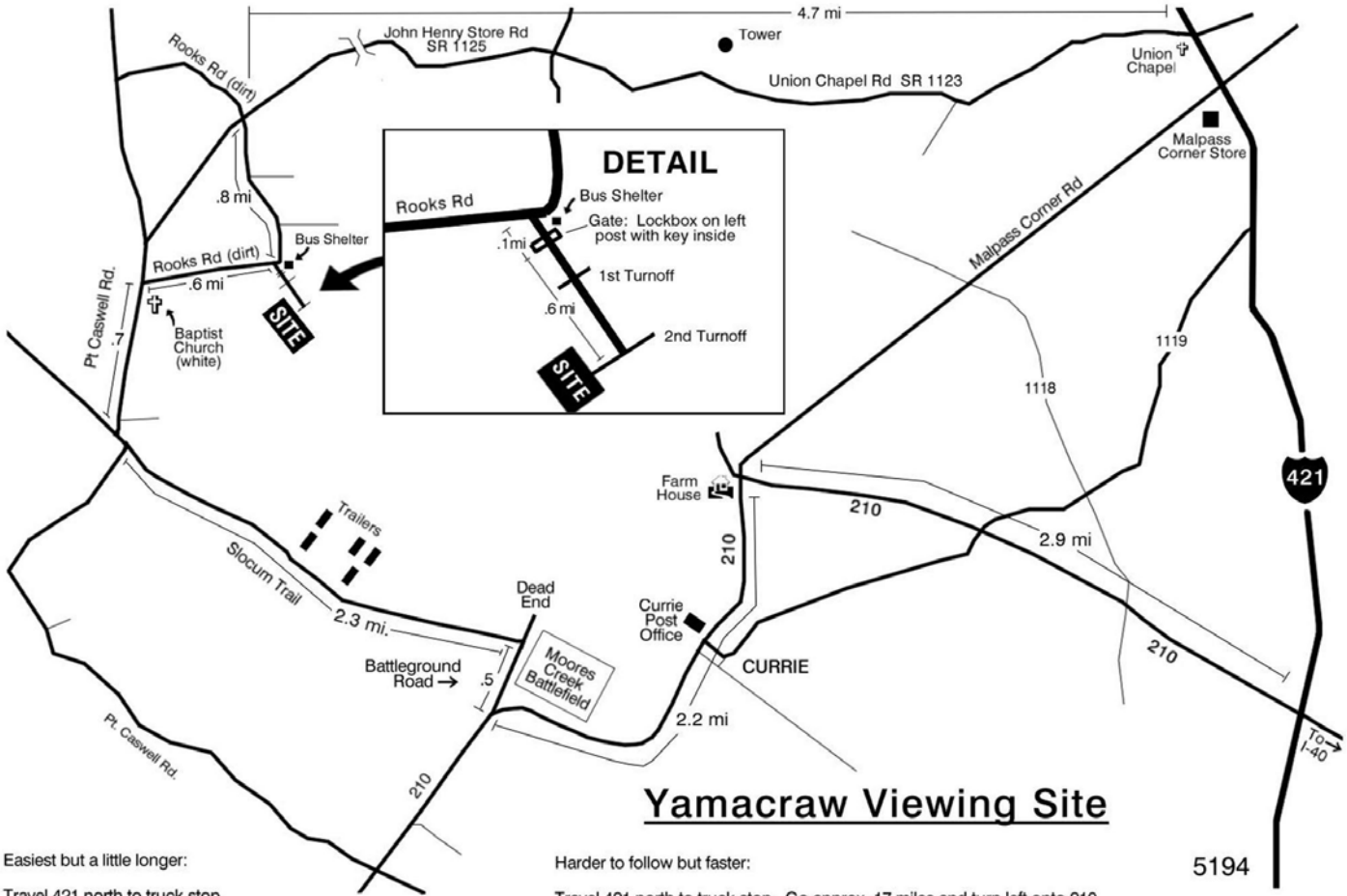
Please be cautious of unusual wildlife behavior while observing. A golf club or stick could be useful to keep nearby.

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.