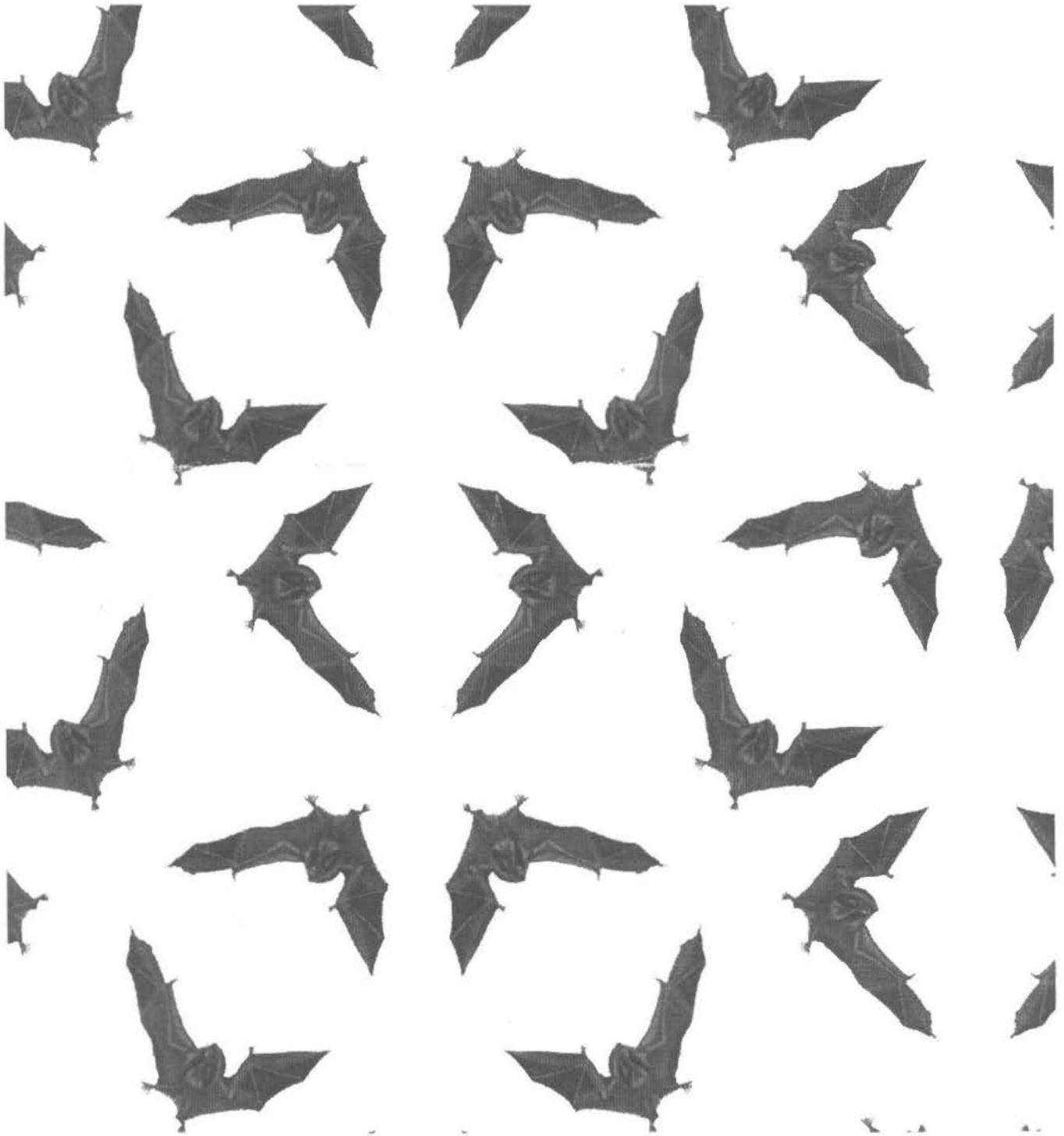

THE MAVERICK BULL

THE MONTHLY NEWSLETTER
OF THE MAVERICK GROTTO



Volume 10 Issue 1

January 1996



Notice: January Meeting Moved. See Inside.

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The Maverick Bull is the monthly newsletter of The Maverick Grotto, an internal organization of The National Speleological Society (NSS G-322). The editor invites all individuals and other grottos to submit articles, news, maps, cartoons, art and photographs. If the material is to be returned, a self-addressed stamped envelope should accompany it.

Reprinting Articles: Internal organizations of The National Speleological Society may reprint any item (unless copyrights belong to the author as stated in the byline) first appearing in *The Maverick Bull* if proper credit is given and a complete copy of the publication is delivered to the editor at the time of publication. Other organizations should contact the editor of *The Maverick Bull* at the address herein.

Exchanges: The Maverick Grotto will exchange newsletters with other grottos. Contact the editor.

Complementary Newsletters: The Maverick Grotto will provide complementary newsletters to persons or organizations that provide cave access (i.e. landowners) or

otherwise provide assistance to cavers. The Maverick Grotto will provide one free issue to persons interested in becoming members.

Subscription Rates: Subscription rates are \$15.00 per year for non-members and free for members.

Membership Policy: Any individual with interests, beliefs and actions consistent with the purposes of The Maverick Grotto and The National Speleological Society is eligible for membership. Acceptance of new members is based on payment of dues and a mandatory three trip requirement with at least three different grotto members. These three members shall act as sponsors. At least one sponsor must attend the meeting at which the membership vote is taken. A two-thirds majority vote of the members present will be required for acceptance.

Meetings: Meetings are held the second Tuesday of each month at Smokey's Ribs, 5300 E. Lancaster, Fort Worth. It is located less than one mile west of Loop 820 and next to K-Mart. The time is 7:00 p.m., and the food is good.

Carbide: Grotto carbide is available at the meeting if prior arrangements are made. Carbide is free for the

asking. Contact Russell Hill at 220-7108 or Butch Fralia at 346-2039 for more information.

Library: Support your Grotto Library. Russell Hill will be accepting books and magazines on cave-related topics, copies of homemade cave videos, etc. for our library. We wish to thank Russell for his efforts each month to bring and set up the Grotto Library.

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Photo Credits

This month's cover photo is an artsy-fartsy kind of a thing by Chad Fenner.
Page 4 Christmas Tree formation, Christmas Tree Cave taken by Angela Seals.
Page 7 Bat Maze drawn by Chad Fenner

Other Credits

Editor: Chad Fenner

Editor-in-charge-of-English: Lisa Fenner

Visit Our Web Site

The *Maverick Bull* is available as a World Wide Web Site at: <http://www.why.net/user/caver/bull/>

Minutes For the December Meeting

There was no December meeting.

Editor's Ramblings

Happy January!

I haven't tried doing an artsy-fartsy cover since September '94, and since I really didn't have one this month, I decided it was time to try again. What do you think?

A month or so ago I mentioned that I read on the Internet that hand-held GPS receivers had broken the \$200 barrier. Within a couple of weeks, two people from within our midst came up to me to announce that they had purchased one of the units. First was John Langevin,

followed closely by Butch Fralia. (I don't know who actually bought one first, that's just the order they told me they had.) This month we are fortunate enough to have Butch write up a report on what that really means. I hope to get an in-depth report from one of them on how they have used it.

Last month was the Christmas party. Lots of fun, frolic, hot sauce, and carnage. (James Savage had a three-node Doom network setup.) I was crushed that I didn't have the hottest hot sauce. That honor went to

Mike Cagle and his orange sauce. (It wasn't orange because of any food coloring!)

Dues time is coming up again. Please pay Pam or Mark at your earliest convenience. I'll do some reminders over the next few months and nasty-grams in April again.

Don't forget, the January meeting has been moved to a new location (see below).

Good caving.

-CF

READ THIS MEETING ANNOUNCEMENT, NOW!

The January meeting will be held at the Ft. Worth Botanic Gardens, 3220 Botanic Ave on January 9, 1996. **NOTE THIS IS NOT THE NORMAL LOCATION.** The meeting will start at 7:30.

You can reach the Botanic Gardens by driving 1/2 mile north of I-30 on University, then turning left on Botanic Ave. The meeting will be held in the auditorium on the north end of the main building. Someone will be

at the door to help.

This month, we will have a special choreographed slide show presented by John Langevin.

In February we will return to our normal meeting place.

Back Issues!

As part of my week off for Christmas, I cleaned out my study. What I found was that I have copies of selected issues over the last two years. I took a set for the grotto library, and a set for (ahem) Ernest Parker and had some left over. If you are missing any issues, give me a call. I don't have all of them, but I do have quite a few.

Dues Due Again

Yeah, it's that time of year again. It's kind of a pain. I just paid my national dues, I'm expecting TSA to hit me up, and now my grotto wants their share of my money. Well, Mike Nelson has been doing a great job getting programs, so I guess it's worth \$15, payable to Mark or Pam Porter.

Christmas Tree in July (Almost)

NOT by Shanon Seals, by Chad Fenner instead.

Date: August 26, 1995

Cave: Christmas Tree, Lincoln National Forest, NM

Cavers: Shanon and Angela Seals, Clark and Susie Giles, Chad Fenner

This was the second cave of what was supposed to be a four-cave trip. The other caves were Ogle, Wen, and Chimney. Larry Martin was supposed to come with us on all four-caves, but was given some major work assignment just as he left the office so he chose to skip Christmas Tree to work on that.

This was my third trip to Christmas Tree and everyone else's first. The obvious question when going to Christmas Tree is whether or not you need verticle gear. The entrance drop is about 40 feet, but has a lot of hand and foot holds. Since Angela was the least-experienced verticle caver, she decided to bring full gear. I chose to bring my seat harness, figure-8 and a hand-held ascender with webbing to attach to my harness. Everyone else did somewhere in between.

We did this trip in August. Christmas Tree cave is in Slaughter Canyon. That means that we went to Slaughter Canyon in August. Anyone who's ever been there will tell you that Slaughter Canyon is hot. It is especially hot in August. This trip was sort of a reunion trip for Clark and Susie since they psuedo-left the Metroplex for their tree farm in Iowa. With their schedule, we had to go after planting season and before something else that I can't remember, so August it was.

The hike to the cave wasn't too bad. We got a fairly early start and there was a descent breeze, so the heat didn't bother us much. We easily got to the base of the canyon wall below Christmas Tree. At this point, Shanon, Angela, and myself began to feel the effects of our office jobs. On

the other hand, Clark and Susie began to feel the effects of planting thousands of trees the previous few months. After handing them the step log and rope (as well as Angela's pack, complete with verticle gear), we only saw them as they topped ridges on their way up the the cave.

Clark and Susie found the entrance with no problem. The rest of us eventually made our way, huffing and puffing.

After tying the rope off, I descended first, followed by everone else.

After passing through the entrance room, the walls and ceiling of Christmas Tree are completely covered with decorations. There were many awwws, and wows given off. The namesake of the cave is an incredible formation that looks just like a stereotypical Christmas tree.

We did a bit of exploring and photography in the upper section, then headed off to the lower area.

The lower area is not quite as decorated as the upper area, though still very awe-inspiring. The floor of the lower area is made of hard-packed dirt, much like Hidden cave, and, much like Hidden cave, sounds almost hollow in parts.

From the lower area, one can look back up at the balcony on the upper area and see the one huge rock that supports it all. Kinda scary if you think about it too much, so we chose not to.

There are also several crawling passageways to explore. After crawling around a bit, we all crawled through this one particular hole near the cave log that led to a small domed room, large enough for us all to sit in. We chose to have lunch and rest here.

After a relaxing lunch break, we came out of the domed room and finished exploring the lower area. Clark and Susie found a small hole in the ceiling with a sleeping bat.



We made our way back to the entrance. Clark, with his loong legs, was able to climb out pretty much freely, with a safety attached, with little problem. Angela donned her verticle gear and had little problem, other than the fact that the wall we were ascending had quite a few protrusions. While this made climbing easier, it made ascending on rope a bit trickier, but she did fine for her first verticle cave.

Shanon and Susie tried climbing out like Clark, but lacked the leg and arm reach, and had a bit more trouble, but eventually made it.

I had a technique that worked fabulously. I would push my ascender as far up the rope as I could reach, which was exactly the length of the webbing used to attach the ascender to my harness. I would then put my weight on the ascender and work my feet up the side of the wall. When my feet were about equal with my waist, I would grab my ascender in one hand, grab the rope just below the ascender in the other, and in one swift motion, pull myself upright with both hands then shove the ascender up the rope with one hand, holding on to the rope with the other. I just repeated this until I got to the top.

The trip down the canyon wall was pretty uneventful. The trip back out the canyon was much hotter and less

breezy than the trip in. We took many breaks and rested often. After being sure several times that the parking lot was just around the next ridge, it finally was. Another successful Slaughter canyon trip.

GPS UNDER \$200

by Butch Fralia

In a recent **Maverick Bull**, Chad announced that GPS receiver prices have dropped to under \$200. Inquisitive soul that I am, I investigated and located one of the units, a Magellen GPS-2000 at K-Mart of all places. I paid \$199.99 only to find the same unit at Walmart a week later for \$189.99. Since the introduction of the Magellen GPS-2000, Garmin has come out with the GPS-40 receiver for \$269.00 that is probably a better buy though it costs more.

Why did I have to have one? 1) The old rule says; "He who dies with the most toys wins!" 2) Considering the price, it's time for the units to start showing up in the caving world. 3) It could be very useful for returning to caves, following trails, getting to a designated campsite and your imagination can fill in a couple of hundred other uses.

Over the years at Colorado Bend, we've lost a lot of caves because someone couldn't get back to them. The CBSP trip leaders have spent a lot of times taking survey crews to caves the crew wasn't familiar with. I've read trip reports about getting lost on the trails at Three-Mile Hill. With GPS, that could all change.

What is GPS? It's an acronym for Global Positioning System. Thirteen billion dollars worth of our taxes have put 24 satellites (plus three spares) in orbit to create a global navigation system. With this number of satellites, a minimum of four satellites should always be within range of the receiver. The satellites transmit a signal that is received by a GPS receiver. The receiver uses those signals to calculate the receiver location in Longitude/Latitude or UTM (Universal

Transverse Mercator) coordinates. The system was developed by the DOD (Department of Defense) for military use, but civilian use is also allowed. It transmits two sets of signals:

PPS - Precise Positioning System for military use, accurate to 17.8 meters horizontal and 27.7 meters vertical. If you listen to all the rumors, it's better than that!

SPS (Standard Positioning System) for civilian use, accurate to 100 meters horizontal and 156 meters vertical. It was discovered that SPS could actually be accurate within 25 meters. The DOD considered 25 meter accuracy to be a threat and intentionally degraded SPS accuracy with the introduction of SA (Selective Availability). With SA, each satellite transmits an error that changes on some random basis. All civilian receivers use SPS transmission and are subject to SA errors.

A number of ways have been developed to improve the accuracy of the SPS system. A new system, **DGPS** (Differential Code GPS) uses a land-based transmitter at a precisely surveyed location. It transmits a signal that can be used to correct SA errors. Some receivers receive this signal and apply corrections in real time. The transmitting stations are mostly maintained by the U.S. Coast Guard and are located along the coast (naturally!). Another method is to record time-stamped data at a known fixed location (track satellite location errors). Two field receivers are used, one maintained at some

arbitrarily selected fixed location (track local errors) and a rover unit to take the actual location data. Time stamped data from the three receivers is later processed and corrected to within one foot. Neither of these correction methods are available in receivers that sell for less than \$200.00!

Cavers writing for the *Cavers Digest* have been working on a method of taking measurements every 10 minutes for 15 hours to average out all the SA errors. That's cool, but I don't usually have 15 hours to sit around and take measurements! A 15 hour supply of beer takes a lot of space and weighs a LOT if you have to back pack it in!

The Magellen GPS-2000 uses the technique of locking on as many as 12



satellites (not likely - the most I've seen is seven). Since all the satellites are sending their own SA errors (not coordinated), the sum of all the signals is usually accurate to within 15 meters (49 feet). This is accurate enough for most caver work! It will store up to 100 waypoints in memory (that aren't lost when you change batteries) and will work with most map datums. You can program in a route between up to 39 waypoints (landmarks) and track your progress using the receiver.

The most critical aspect of working with a GPS receiver is understanding or at least appreciating datums and knowing what datum to use. A datum is a mathematical model used by map makers to establish coordinates. If you're calculating coordinates from a map, i.e., TOPO, you must set the receiver to the proper map datum for the map BEFORE loading the coordinates into the receiver! Most TOPO maps I've seen have developed coordinates using the NAD27 (North American Datum of 1927) datum. More recent maps use the WGS84 (World Geodesic Standard of 1984). Recent topos have been converted to this standard. If you try to locate a point on a map with NAD27 datum, with coordinates calculated or taken using WGS84, the error is 200 meters north and 50 meters west. Most receivers will convert the data in storage if you shift from one datum to another. In other words, data taken using WGS84 will be converted to NAD27 when changing receiver datum. I recently calculated UTM coordinates for all surveyed cave locations from the CBSP topo map. I loaded a number of these locations into the receiver with the datum set on WGS84. During the (COLD! - another story) December CBSP trip, I tried to locate some of the caves with the GPS receiver and guess what, they weren't close to where they were supposed to be! Yet, I could take a cave location, move a mile or so away and come back to the cave within about 50 feet using the GPS! Had I set the receiver datum to NAD27 before loading the locations, all the surveyed locations would have

been reasonably close to where they should have been!

It doesn't really matter to the GPS what datum you use to take data. If you want to transfer locations to a map, you can change the receiver datum to that of the map. When you review the data you've stored in the receiver, it's converted to the correct datum. You can successfully mark your map with the locations with reasonable accuracy. The trick is to know what datum to use!

Most GPS receivers available now work with either LON/LAT or UTM coordinates. UTM is much easier to use on the ground because it references data in meters north of the equator and meters east of a UTM zone. UTM zones are marked every six degrees horizontally around the earth's circumference. I assume the starting point is the international date line. It really isn't important where it starts as long as you know what zone you are in and what zone you're calculating points for! The DFW area is in zone 14. If you had the right coordinates and were off one zone, the error would be about 300 miles. You know something is wrong when you're trying to get to the next block! Using UTM, if you know a location, you can easily ascertain from your current location what direction you need to go to get there.

Since purchasing the receiver, I've had opportunity to run several tests. None of the tests establish accuracy but do establish usability. On a recent journey to Oklahoma, I established coordinates for a number of landmarks on the way up (this was a work trip so don't expect a cave trip report!). On the way home, I programmed a route into the receiver using the landmarks established on the way up. The receiver faithfully told me the distance and bearing to the landmark. It always took me back within a visual sighting of the landmark. When I thought of all the times I've had to find people who couldn't get back to camp, I said **THIS WILL WORK!**

The GPS-2000 receiver has a lot of neat graphics. For one thing, it retains

an Almanac of where all the satellites should be at a given time. The Almanac is constantly refreshed from Satellite transmissions. There is a display of where the satellites should be and what satellites are locked onto. You always know what time it is because the time is received from the Satellites, synchronized to the NBS (National Bureau of Standards) and corrected to your local time zone.

You always know where you're at in LON/LAT or UTM coordinates. You can store coordinates in the receiver as landmarks. Using the GOTO function, you know how far you are from the landmark and what direction it is from where you are. As long as you're moving, there's a display that points in the direction you should be going, tells you the bearing of the landmark, how far away it is and how long it will take to get there at your present rate of closure. Another display shows current speed, compass bearing you're traveling toward along with the distance and bearing of your destination. Still another display shows you where you've been by drawing a little map of your trip. It's cool!

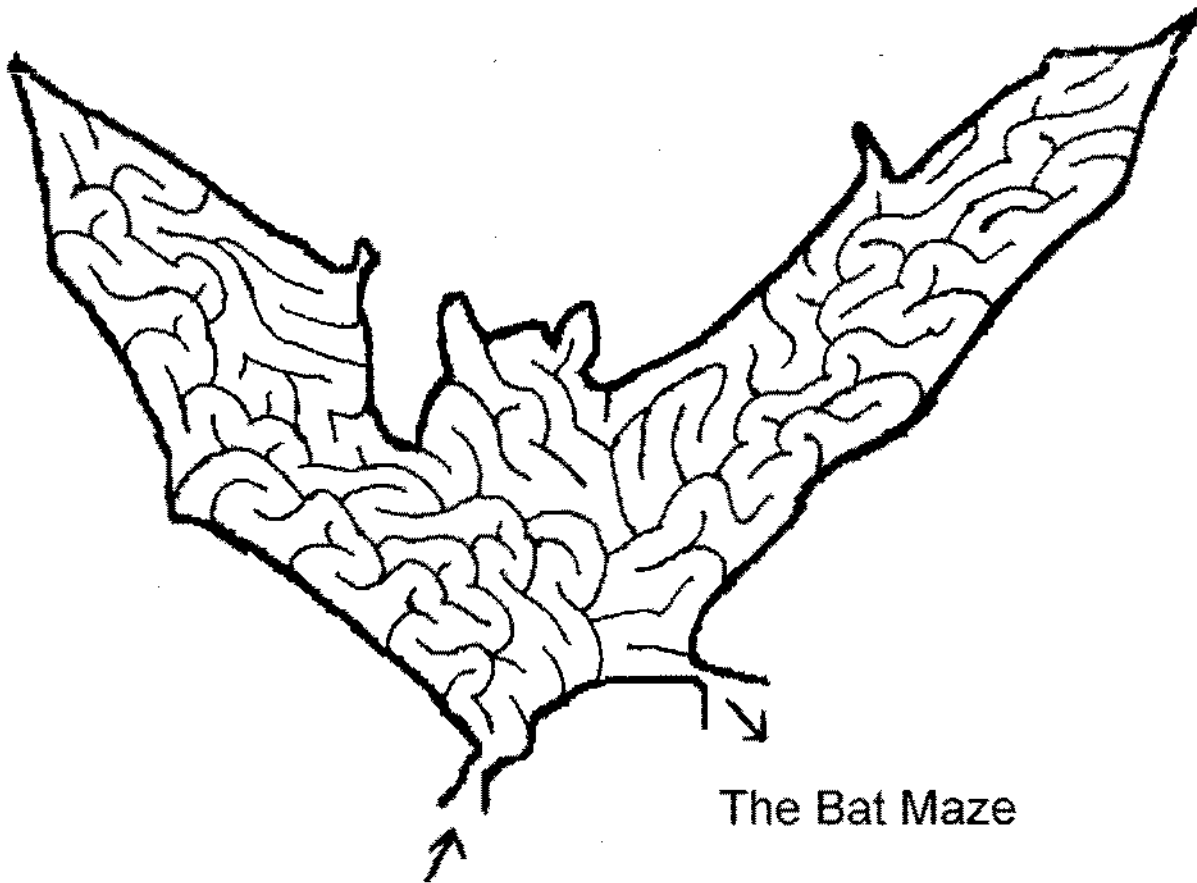
As mentioned earlier, there are a few things you need to effectively use the GPS. You need to know the datum for a map you might be using. You need to know the UTM zone if your using UTM coordinates. You'll also need a compass that displays bearing in degrees for close-in navigation. When you stop to figure out where you are, the receiver doesn't know what direction you're facing. It does know the bearing to your destination (provided you've programmed it in). You'll need the compass to know what direction to go! It ain't that hard.

Ok, so it's a new toy, a useful one but still a toy. You can be the first on your block to have one and be able to say you live at Zone 14, 653402E, 3615120N. You can say that on your last caving trip you were at Zone 14, 546563E, 3440746N. If you want to totally confuse everyone, you can list the waypoints you went by to get there!

Puzzle Page

Unscramble these Texas Caves:

1. YCENEROEHK
2. AAAEGIMMNZZ
3. OAEANNSFOVCORRS
4. WHAMOCANITVAEUET
5. ACEGHLNNOORRSV
6. YWWTSSSPOMLLEEECA
7. NENENESAPCRIVARC
8. REIWAECRSXTY
9. LLW9-EO
10. AABBBCEENOORRRV
11. SNREVACEGDIRBLARUTAN
12. AEEECGNRV
13. IOOAEVCLPLRHW
14. KOKOCACAPINERV
15. CGVMNROAAE



U.S.A. LONG CAVE LIST Compiled by: Bob Gulden NSS#13188 NSS Geo2 Committee on Long & Deep Caves

#	- Cave Name -	State	County	Miles
1	Mammoth Cave System	Kentucky	Ed./Hart/Bar.	350.000
2	Jewel Cave	South Dakota	Custer	100.000
3	Lechuguilla Cave	New Mexico	Eddy	80.382
4	Fisher Ridge Cave System	Kentucky	Hart	78.000
5	Wind Cave	South Dakota	Custer	75.300
6	Friars Hole Cave System	West Virginia	Green./Pocaho.	43.494
7	Organ (Greenbrier) Cave System	West Virginia	Greenbrier	39.500
8	Kazumura - Oloa Cave System (Lava Tube)	Hawaii	Hawaii	37.282
9	Carlsbad Cavern	New Mexico	Eddy	30.870
10	Blue Spring Cave	Tennessee	White	30.280
11	Crevice Cave	Missouri	Perry	28.201
12	Cumberland Caverns	Tennessee	Warren	27.615
13	Sloans Valley Cave System	Kentucky	Pulaski	24.630
14	Xanadu Cave System	Tennessee	Fentress	23.799
15	The Hole (Boggs Cave)	West Virginia	Greenbrier	23.003
16	Whippistle Cave (MCNP)	Kentucky	Edmonson	22.500
17	Scott Hollow Cave	West Virginia	Monroe	22.000
18	Culverson Creek Cave System	West Virginia	Greenbrier	20.820
19	Binkley's Cave System	Indiana	Harrison	20.060
20	Blue Spring Cave	Indiana	Lawrence	20.040
21	Hicks Cave (Hidden River System)	Kentucky	Hart	19.884
22	Honey Creek Cave	Texas	Comal/Kendall	19.188
23	Windymouth (Wind) Cave	West Virginia	Greenbrier	18.000
24	Butler-Sinking Creek System	Virginia	Bath	17.220
25	Thornhill Cave	Kentucky	Breckenridge	16.730
26	Moore Cave System	Missouri	Perry	16.546
27	McClung Cave System	West Virginia	Greenbrier	16.400
28	Mystery Cave System	Missouri	Perry	15.842
29	Fern Cave	Alabama	Jackson	15.630
30	Mountain Eye Cave System	Tennessee	Fentress	15.587
31	Cave Creek Cave System	Kentucky	Pulaski	15.010
32	Benedicts (Persinger) Cave	West Virginia	Greenbrier	14.850
33	Lilburn Cave	California	Tulare	14.841
34	Powell's Cave System	Texas	Menard	14.199
35	Bone - Norman Cave System	West Virginia	Greenbrier	14.120
36	Rimstone River Cave	Missouri	Perry	14.036
37	Chestnut Ridge Cave System	Virginia	Bath	14.000
38	The Maria Angela Grotto (Nunley Mountain)	Tennessee	Grundy	13.620
39	Coldwater Cave	Iowa	Winnechick	13.240
40	Mystery Cave System	Minnesota	Fillmore	12.790
41	Foglepole Cave	Illinois	Monroe	12.730
42	Big Bat Cave	Kentucky	Breckenridge	12.680
43	Anvil Cave	Alabama	Morgan	12.670
44	Bigfoot Cave	California	Siskiyou	12.400
45	Ellisons Cave	Georgia	Walker	12.127
46	Gradys (Mammoth River) Cave System	Kentucky	Hart	12.060
47	Carroll Cave	Missouri	Camden	11.250
48	Goochland - Poplar Cave Complex	Kentucky	Rockcastle	11.180
49	Crumps Spring Cave	Kentucky	Hart	10.740
50	Coral Cave System	Kentucky	Pulaski	10.560

#	- Cave Name -	State	County	Miles
51	James (Thousand Domes) Cave	Kentucky	Edmonson	10.250
52	Big Horn - Horsethief Cave System	Wyoming/Montana	Bighorn	10.180
53	Wells Cave	Kentucky	Pulaski	10.130
54	Perkins Cave	Virginia	Washington	9.997
55	Sullivan Cave	Indiana	Lawrence	9.630
56	Big Bone Cave	Tennessee	Van Buren	9.627
57	Maxwellton (Cowshit Pit) Cave	West Virginia	Greenbrier	9.627
58	Snail Shell Cave System	Tennessee	Rutherford	9.071
59	Bobcat Cave	Virginia	Bath/Highland	8.600
60	Rice Cave	Tennessee	Van Buren	8.592
61	Cuyler Cave	Tennessee	Sevier	8.160
62	Fitton (Beauty) Cave	Arkansas	Newton	8.144
63	Dunbar Cave - Roy Woodard System	Tennessee	Montgomery	8.067
64	Hell Hole	West Virginia	Pendleton	8.000
65	Fort Stanton Cave	New Mexico	Lincoln	8.000
66	Grassy Cove Saltpetre Cave	Tennessee	Cumberland	7.893
67	Wolf River (Jaguar) Cave	Tennessee	Fentress	7.890
68	Great EX(pectations) Cave	Wyoming	Washakie	7.854
69	Lee Cave	Kentucky	Edmonson	7.817
70	Climax Cave	Georgia	Decatur	7.730
71	Cathedral-Palmouth System (Under Water)	Florida	wakalla	7.272
72	Lisanby Cave	Kentucky	Caldwell	7.220
73	Paxtons Cave	Virginia	Alleghany	7.189
74	Webster System	Kentucky	Breckenridge	7.146
75	Russell Cave	Alabama	Jackson	7.040
76	Groaning Cave	Colorado	Garfield	7.040
77	Zarathustra Cave	Tennessee	Fentress	7.030
78	Blanchard Springs Cave	Arkansas	Stone	7.000
79	Wyandotte Cave	Indiana	Crawford	6.970
80	Unthankz Cave	Virginia	Lee	6.913
81	McFails Cave	New York	Schoharie	6.705
82	Simmons Mingo - My Cave System	West Virginia	Rand./Pocahon.	6.700
83	Sherfield's Cave	Arkansas	Newton	6.660
84	Paul Benley's Cave	Virginia	Bland	6.635
85	Cassell Cave System	West Virginia	Pocahontas	6.630
86	Lost River Cave System	Kentucky	Warren	6.501
87	Newberry - Hane Cave	Virginia	Bland	6.500
88	Stompbottom Cave	Virginia	Tazewell	6.480
89	Clarks Cave	Virginia	Bath	6.434
90	Fallen Rock Cave	Virginia	Tazewell	6.388
91	Blissits Cave	Kentucky	Breckenridge	6.307
92	D.C. Jester Cave System (Gypsum)	Oklahoma	Greer	6.254
93	Long Hollow (Dyke's/Mud-&-Slime) Sys.	Kentucky	Pulaski	6.214
94	The Portal	West Virginia	Greenbrier	6.111
95	Pettyjohns Cave	Georgia	Walker	6.074
96	Haws Spring Cave	Tennessee	Cannon	6.061
97	Vinegar Ridge (Buckingham Place) Cave	Kentucky	Hart	6.000
98	Cudjo's-Cumberland Gap Saltpetre Cave	Virginia	Lee	5.990
99	Guess Creek Cave	Alabama	Jackson	5.936
100	Devils Icebox	Missouri	Boone	5.644

Calendar Of Events

Aug. 3-9, 1996, NSS Convention, Salida, Colorado. Contact Skip Withrow, (303) 693-0997.

