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While the Cat's Away:Puzzle Solving FUNdamentals

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Anchorage

16 August2012

Disclaimer

- The views and opinions of the presenters are not necessarily the views and opinions of the board of GeocacheAlaska!

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Tonight's Topics:

❶ What are "Unknown" Caches?

❷ Breaking Down the Puzzle Listing

❸ Puzzle Solving Techniques

❹ Specific Puzzle Examples

❺ Online Puzzle Resources

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What are **Unknown** Caches?

- ❖ AKA "**Puzzle**" or "**Mystery**" cache

- ❖ A Mystery cache involves two "hunts"; completing some type of brain-powered task followed by a hunt for a traditional cache container in the field

- ❖ In most cases, the actual coordinates to the cache are simply hidden or encoded in the cache listing somehow

What are Mystery Caches?

The published coordinates of a Puzzle Cache are NOT for the actual location of the Cache Container! Though they **might** be for a Parking Area or Trailhead.

The actual coordinates should be within 2 miles of the published coordinates.

The published coordinates MAY have something to do with the Puzzle. Look for the Field Puzzle Attribute and hints or instructions in the listing if you are expected to go to the published coordinates to solve for the final cache.

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Breaking Down the Listing

- Contemplate the exterior of the quadrilateral parallelogram…
- Specific word choices matter!
- Look at everything that the Cache Owner can change or customize on the Cache Listing:

❑ Cache Name

❑ Placed By (Always links to CO)

❑ Date Placed (Must be in past)

❑ Related Web Page (Hyperlink)

❑ Background Image

❑ Bookmark Lists & Trackables

❑ Short & Long Descriptions (HTML)

❑ Hints/Spoiler Info (ROT-13 Encoded)

❑ Additional Waypoints & Images

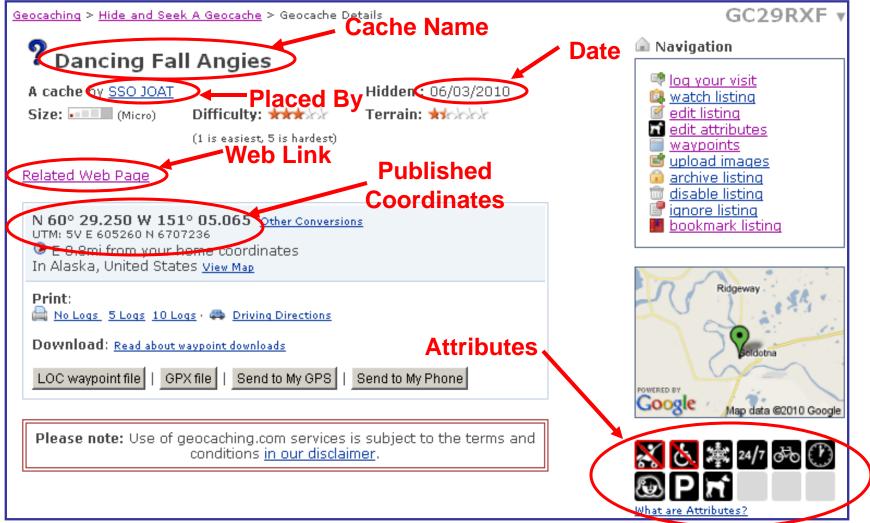❑ Owner Logs (Notes, Maintenance, etc.)

Names, Dates, Links…

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Geocaching > Hide and Seek A Geocache > Geocache Details

GC29RXF ▾

Cache Name

Dancing Fall Angies

A cache by SSO JOAT   **Placed By**   Hidden: 06/03/2010   **Date**

Size: ▮▮▭▭▭ (Micro)   Difficulty: ★★★☆☆   Terrain: ★✬☆☆☆

(1 is easiest, 5 is hardest)

Web Link

Related Web Page

Published Coordinates

N 60° 29.250 W 151° 05.065 Other Conversions
UTM: 5V E 605260 N 6707236
E 0.8mi from your home coordinates
In Alaska, United States View Map

Print:
No Logs 5 Logs 10 Logs · Driving Directions

Download: Read about waypoint downloads

| LOC waypoint file | | GPX file | | Send to My GPS | | Send to My Phone |

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Navigation

- log your visit
- watch listing
- edit listing
- edit attributes
- waypoints
- upload images
- archive listing
- disable listing
- ignore listing
- bookmark listing

Ridgeway
Soldotna

POWERED BY
Google Map data ©2010 Google

Attributes

What are Attributes?

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Image Gallery, Maps, Logs…

Find...
- …other caches hidden or found by this user
- …nearby caches of this type, that I haven't found
- …all nearby caches, that I haven't found
- …all nearby waymarks on Waymarking.com
- …all nearby benchmarks
- …nearby Hotels

For online maps...
- Geocaching.com Google Map
- MyTopo Maps
- Google Maps
- MapQuest
- Bing Maps
- Yahoo Maps
- Rand McNally
- MSR Maps (Formerly Terraserver)
- Open Cycle Maps
- Open Cycle Maps

80-Column Printout
Edit

2 Logged Visits · **View the Image Gallery**

😃1   🟢1
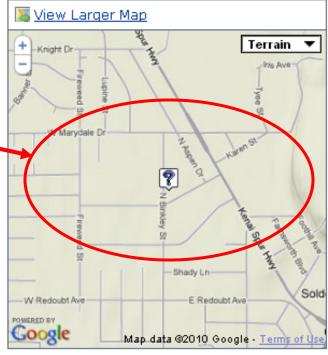
Warning! Spoilers may be included in the descriptions or links.

Location of Published Coordinates

Images

View Larger Map

Terrain
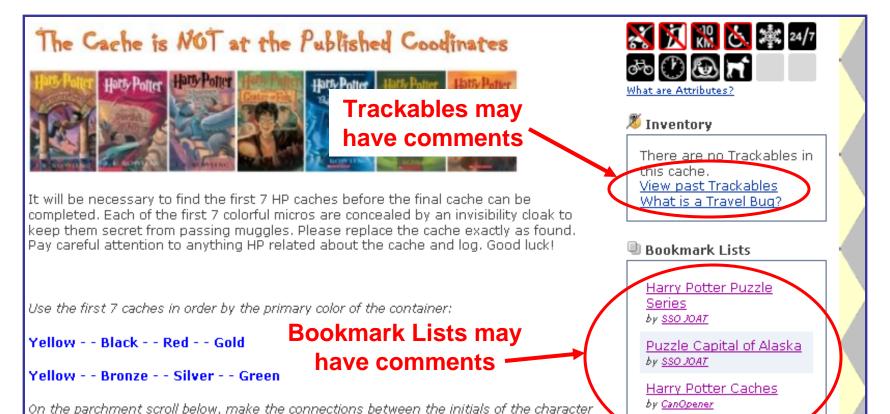
Notes about Printing Maps

Descriptions, Backgrounds, Bookmarks, Trackables…

Trackables may have comments

Bookmark Lists may have comments

Backgrounds

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HTML Source Code


```
                    <div class="UserSuppliedContent">

                        <span id="ctl00_ContentBody_ShortDescription"><p>The cache is <b>NOT</b>
at the published coordinates.</p>
<!--For demonstration purposes only, this is a comment or remark line.  It can be viewed in the
HTML source code, but is not visible on the Cache Listing when viewed in a browser.-->
</span>

                    </div>

                    <br />
                    <div class="UserSuppliedContent">

                        <span id="ctl00_ContentBody_LongDescription"><p>Can you help Scooby,
Shaggy, Fred, Velma, and Daphne solve this
mystery? So far in this episode, Velma has found a reference to
somewhere around <i>35R35G35B NW Ol' Factory Hill</i> but this clue
has only magnified the difficulty of this case. With your help,
it's a good bet that Scooby will be able to sniff this one out by
the end of the show.</p>
<br />
<img src=
"http://img.geocaching.com/cache/0c5b046d-d655-4512-8371-4f70bd14cef9.jpg"
alt="Zoinks Puzzle" /><br />
```

Remarks

The HTML source may reveal secrets in the "User Supplied" Sections

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Control, eh? Invisible Ink!

Normal view:

Highlighted:

Ctrl-A

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Invisible Ink (cont)

- Check out
- [GC3HB05](#)

Solving Puzzles

- Compile all information about the puzzle from the cache listing

- Group the info and try to make connections between elements

- There is no single method that will let you figure out every puzzle

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Solving (cont)

⊕ Solving a puzzle requires deep thought, research, and lots of scratch paper!

⊕ Don't give up! If you don't see the method today, set it down and come back later!

Breaking Things Down

Google *Everything*

- Thesaurus & Dictionary

- Look up all unusual words

- Specific words are chosen for a purpose as they should help lead to the solution

- An internet search of the right terms may reveal the puzzle's method or solution

Beware of Fluff!

☺ Puzzle builders can be very devious and mentally twisted people (*trust me, I know*)

☺ Many times, there will be false trails and extraneous information on the listing

☺ Often, what looks like the obvious bit of info may in fact be "fluff" that is only there as a distraction from the real puzzle

☺ Make sure you don't get "Tunnel Vision"!

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Solving Puzzles

- You know the solution is the **Coordinates**
- Look for groups of items that may represent numbers:

  15 digits in **60° 12.345' 150° 67.890'**

  10 digits in just the minutes portion

   6 digits in just the fractional minutes

- *Example:* If the puzzle has 10 images on it, each image could represent a number for the minutes portion of the coordinates

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Whole or Parts?

- The solution to the puzzle may or may not include the entire DMM coordinates of the cache

- Sometimes you'll see the published coordinates are simply "rounded down" to the whole minute

- This often means the solution is the 3 digits to the right of the decimal in the minutes portion of the coordinates, so you're looking for 6 numbers

- Published Coords: N60° 14.000' W155° 26.000'

- The answer might be: 60° 14.523' 155° 26.419' with the numbers **523** and **419** in the puzzle

Give These a Try!

Frank, Igor, Victor, and Elvira got on the Transylvanian West heading to Ordu for the annual Turkish Holiday Regatta where many of Eastern Europe's finest were gathering.

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- Acme sold 162,948 Super Widgets during the second quarter of 2011. Fixed quarterly production costs were $275,212 with a per widget manufacturing cost of $250. The net profit from widget sales for the second quarter was $27,263,000. How much did each widget sell for?

- Answers at the end of presentation

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Coord Formats

➤ Watch out for alternate Coordinate Formats, especially on math problems!

➤ A solution of **60.55123** could be:

➤ In our usual **DMM**, it is **60° 55.123'**

➤ If it is **DD**, then **60.55123°** or **60° 33.074'**

➤ If it is **DMS**, then **60° 55' 12.3"** becomes **60° 55.205'**

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Writing Out Coordinates

- **Warning!** We don't always use numbers!

- This: **N 60° 29.190' W 151° 07.715'**

- Becomes this:

North sixty degrees twenty nine point one hundred ninety minutes west one hundred fifty one degrees seven point seven hundred fifteen minutes

Encoding Coords

To help hide the words being encrypted, we will sometimes break the words into groups of perhaps 3, 4, or 5 letters like this:

nort hsix tyde gree stwe ntyn inep oint oneh undr edni nety minu tesw esto nehu ndre dfif tyon edeg rees seve npoi ntse venh undr edfi ftee nmin utes

Codes & Ciphers

- You're already familiar with the basic substitution cipher called the Caesar Shift
- Every cache page has the ROT13 Cipher listed on it:

```
Decryption Key
A|B|C|D|E|F|G|H|I|J|K|L|M
---------------------------
N|O|P|Q|R|S|T|U|V|W|X|Y|Z
(letter above equals below, and vice versa)
```

Caesar

- The 26 letters of the alphabet can be shifted any number of positions

- If you were to shift 2 places, then A=C, B=D, and C=E, and so on through Z=B

- While a 13 place shift gives A=N and N=A, any other shift will not result in the same switch both ways

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Codes & Ciphers

After running the previous coordinates through a simple Caesar Shift, we get this:

**YZCE SDTI EJOP RCPP DEHP YEJY
TYPA ZTYE ZYPS FYOC POYT YPEJ
XTYF EPDH PDEZ YPSF YOCP OQTQ
EJZY POPR CPPD DPGP YAZT YEDP
GPYS FYOC POQT QEPP YXTY FEPD**

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Reversed Shift

- A simple variation on the Caesar Shift

- Start with the regular alphabet, but rather than shifting the encoded line in Caesar style, reverse it from Z to A, like this:

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ZYXWVUTSRQPONMLKJIHGFEDCBA

Substitution Ciphers

♣ Anything can be used to represent the letters of the alphabet or even the ten digits which make up all numbers

♪ It can be pictures or symbols of anything, often puzzlers will just use strange Fonts

♀ The true puzzle is just finding out the key to decode the message back to plain text

Image Manipulation

- *Steganography* – Messages hidden inside the computer code of the image itself
- Save all images to your computer
- Look at the Image Properties
- Open image with a Photo Editor
- Zoom in and look all over the image for signs of editing, hints, codes, or even the coordinates themselves

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Image Manipulation

It's easy to hide stuff in Images

Do you see the Coordinates?

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Image Manipulation

Zoom In and there they are…

To make life even more interesting, imagine if we encoded the coordinates first. (hint… we have)

Use the Internet!

➤ The only way to get better at puzzle solving is to practice!

➤ This Blog posts a Geocaching Puzzle of the Day, every day from all over the USA: geocachingpuzzleoftheday.blogspot.com

➤ Everyone needs to work through the first 9 caches of the Puzzle Solving 101 series

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Solving Puzzles

A few "Rules" about solving puzzles…

✓ Never ask for help with a puzzle on public internet forums (e.g. Groundspeak forums)

✓ Never post the solution to a puzzle or give the final location anywhere on the internet

✓ Never post any hints about how to solve the puzzle in your online logs – If you do post any hints, expect your log to be deleted

✓ Finding the final cache without actually solving the puzzle doesn't justify a "find"

Resources

- GS Knowledge Books: http://support.groundspeak.com/

- Purple Hell: http://www.purplehell.com/

- Rumkin Cipher Tools: http://rumkin.com/tools/cipher/

- Omniglot Writing: http://www.omniglot.com/

- Puzzlehead Blog: http://www.puzzlehead.org/

- Online Substitution Cipher Solver:
  http://25yearsofprogramming.com/fun/ciphers.htm

- Parmstro's Puzzle Guide: http://parmstro.weebly.com/solving-puzzles.html

- Florida's Puzzle Solving 101 Cache Series by ePeterso2:
  http://www.geocaching.com/bookmarks/view.aspx?guid=37f3d8f3-62ba-40ac-b0ef-901807ba9c98

- Puzzle Capital of Alaska Bookmark List for the Central Kenai Peninsula:
  http://www.geocaching.com/bookmarks/view.aspx?guid=3e9b65ac-aebb-465f-9cb1-095a64292485

- GeocacheAlaska! Forums:
  http://geocachealaska.proboards.com/

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The Solutions!

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This sentence sounds pretty "fluffy", right? So, take a look at some of the oddities, for instance, note the capitalization used…

Frank, **I**gor, **V**ictor, and **E**lvira got on the **T**ransylvanian **W**est heading to **O**rdu for the annual **T**urkish **H**oliday **R**egatta where many of **E**astern **E**urope's finest were gathering.

Will you look at that!   FIVE TWO THREE

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The Solutions!

Acme sold 162,948 Super Widgets during the second quarter of 2011. Fixed quarterly production costs were $275,212 with a per widget manufacturing cost of $250. The net profit from widget sales for the second quarter was $27,263,000. <u>How much did each widget sell for?</u>

Show of hands… **Who Loves Math?**

162,948 x $250 = $40,737,000 total unit production cost

Add in $275,212 fixed and $27,263,000 net = $68,275,212

Divide by 162,948 widgets for $**419** each!

Yes, there are other mathematical ways to get this solution

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Redo, Redux, or Geo-Junk

GC3K7KH

- **Watch Out for Picketing Cavepeople**

  The Muckymuck

  Uffda! Rabbit Creek

  Who Am I
-
  AK-Okie #3

  Taku King

  City of Flowers

- **For the Love of the Hunt**

  Back to School Cache

  Happy Happy Joy Joy

  Ugly Mug

  Castor Canadensis

  400 days

  Up the Creek

  Swamp Cache

Redo, Redux, or Geo-Junk

GC3K7KH

* **Watch Out for Picketing Cavepeople GC16CRM**

  The Muckymuck GC14KT6

  Uffda! Rabbit Creek GC13VH2

  Who Am I GC10D30

* **AK-Okie #3 GC1RGA5**

  Taku King GC1PZ5E

  City of Flowers GC1F9N9

* **For the Love of the Hunt GC11MD0**

  Back to School Cache GC1X3WT

  Happy Happy Joy Joy GC1P50Z

  Ugly Mug GCT81R

  Castor Canadensis GCVNQR

  400 days GCZNXJ

  Up the Creek GC11PTY

  Swamp Cache GCGJ0N