Isopoda: Asellidae: First Record Of Phreatobitic Crustaceans Inhabiting Non-Karstic Drinking Water Wells In The Piedmont Region Of Georgia

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Introduction and Definition

- 65 Described Species of Asellid Isopods in the southeastern United States
- None noted from non-karstic drinking water wells
- Stygobites Vs. Phreatobites
  - Stygobites – Usually found in caves or karstic systems
  - Phreatobites – Found in ground water most commonly in interstitial spaces.

History

- In May 2006 the owner of a water front home on Lake Sinclair in Putnam County, Georgia reported problems with his well to the County Extension Office.
  - 30 year old bored well (24 inch concrete casing)
  - 40 feet deep
  - Approximately 250 feet from the lakeshore
  - Had become problematic over the previous year

Geology

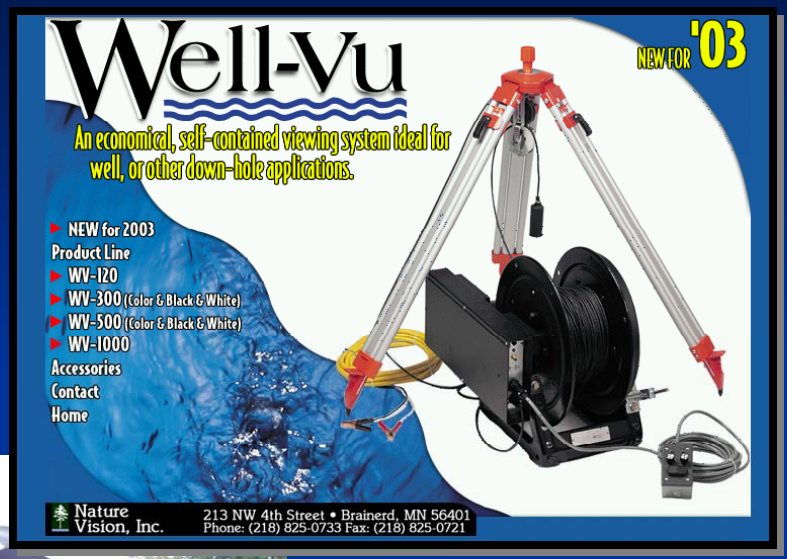
- Granite bedrock
- Overlaid with saphrolite
- Layers of clay and clay loam soils

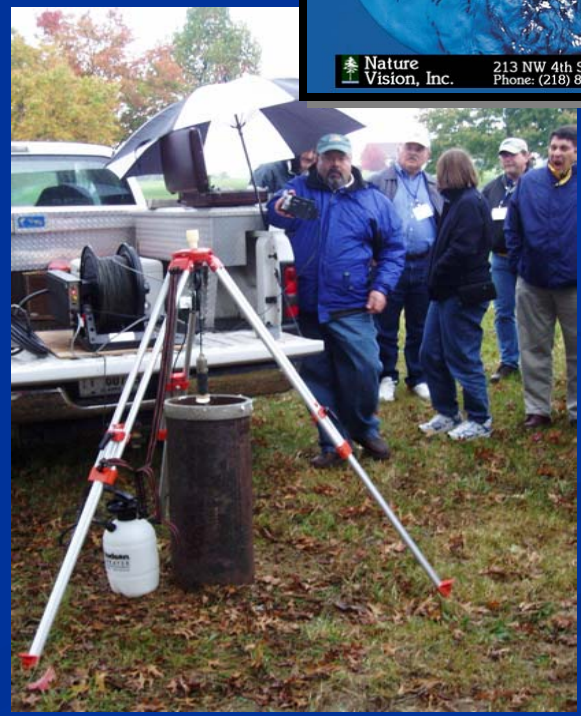
“The Biggest Problem”

- The well owner had Installed a cartridge filter system to help with mild turbidity.
- “When I change the filter cartridge it smells like old bait shrimp!”

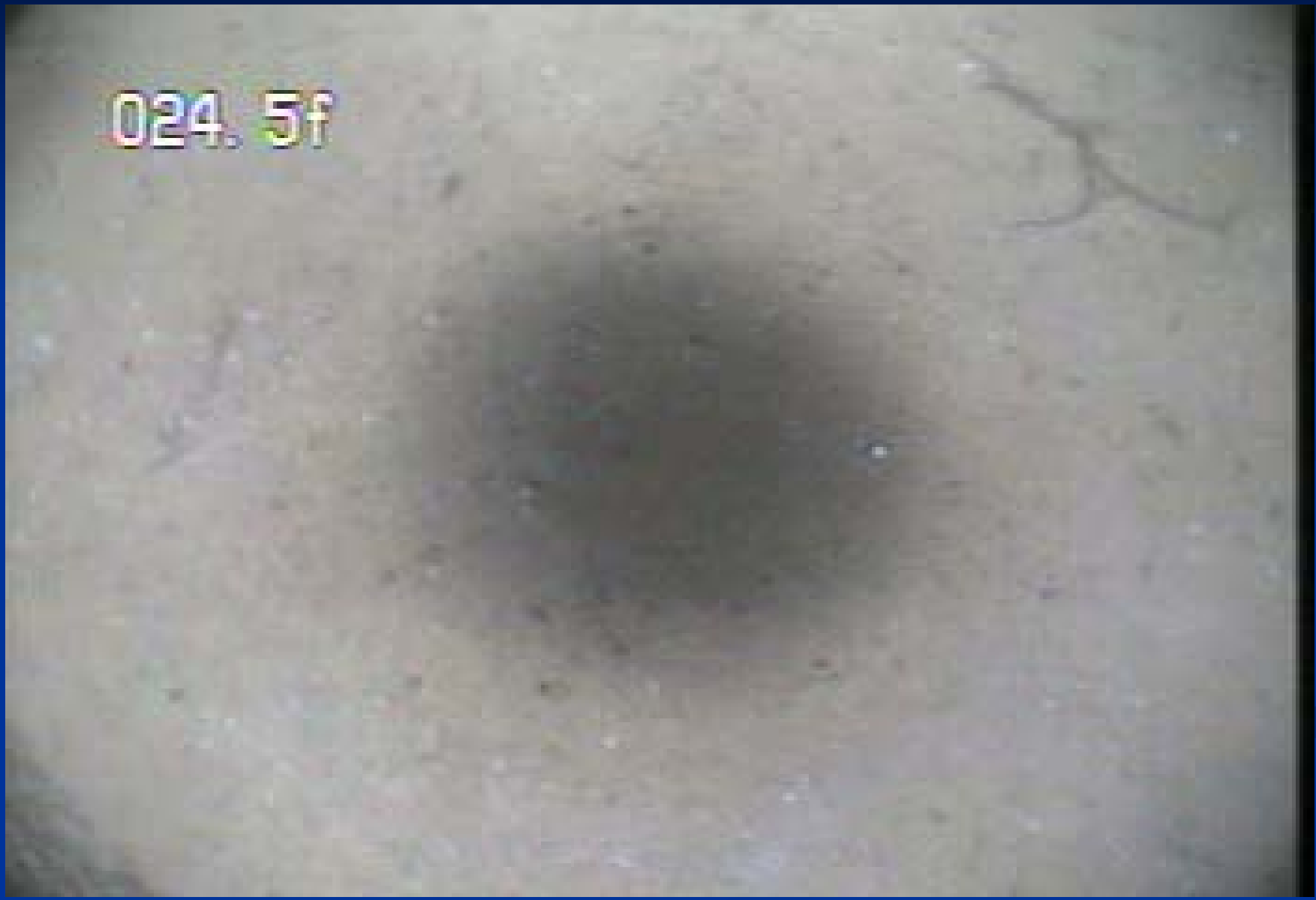
Methods

- Utilize the “Well View” Down Well Camera
- Examine the well for possible problems





Results



Obtaining Specimens

- July 2006 Attempted to catch specimens
- Used wire trap baited with bits of fresh fish
- Three attempts produced 11 specimens
- Sizes ranged from 1.5 to 3.0 centimeters in length

- Live in a competitive environment, hard to get a live specimen!

Close Up

Reproductive Female

1.5 centimeters in length

Close Up

- Large Reproductive Male
  3.0 centimeters long

Preliminary Identification

- Dr. Renee Bishop, Penn State University
- Dr. Tom Iliffe, Texas A&M University at Galveston

- Initial ID, Asellid Isopod
- But it did not match any known species including asellids normally associated with the southeastern United States

World Traveler!

- Specimens were sent to Australia
- Dr. George Wilson, Principal Research Scientist, Center for Evolutionary Research, Australian Museum of Natural History

- Compared the specimens to an extensive catalog of known asellid species

Findings

- Unknown species of Asellidae
- Possibly a new genus

Where Are We Now?

- DNA analysis conducted December 2006
- Results are being compared to known genera
- So far: No match has been found!

Any Questions?

Thank You!