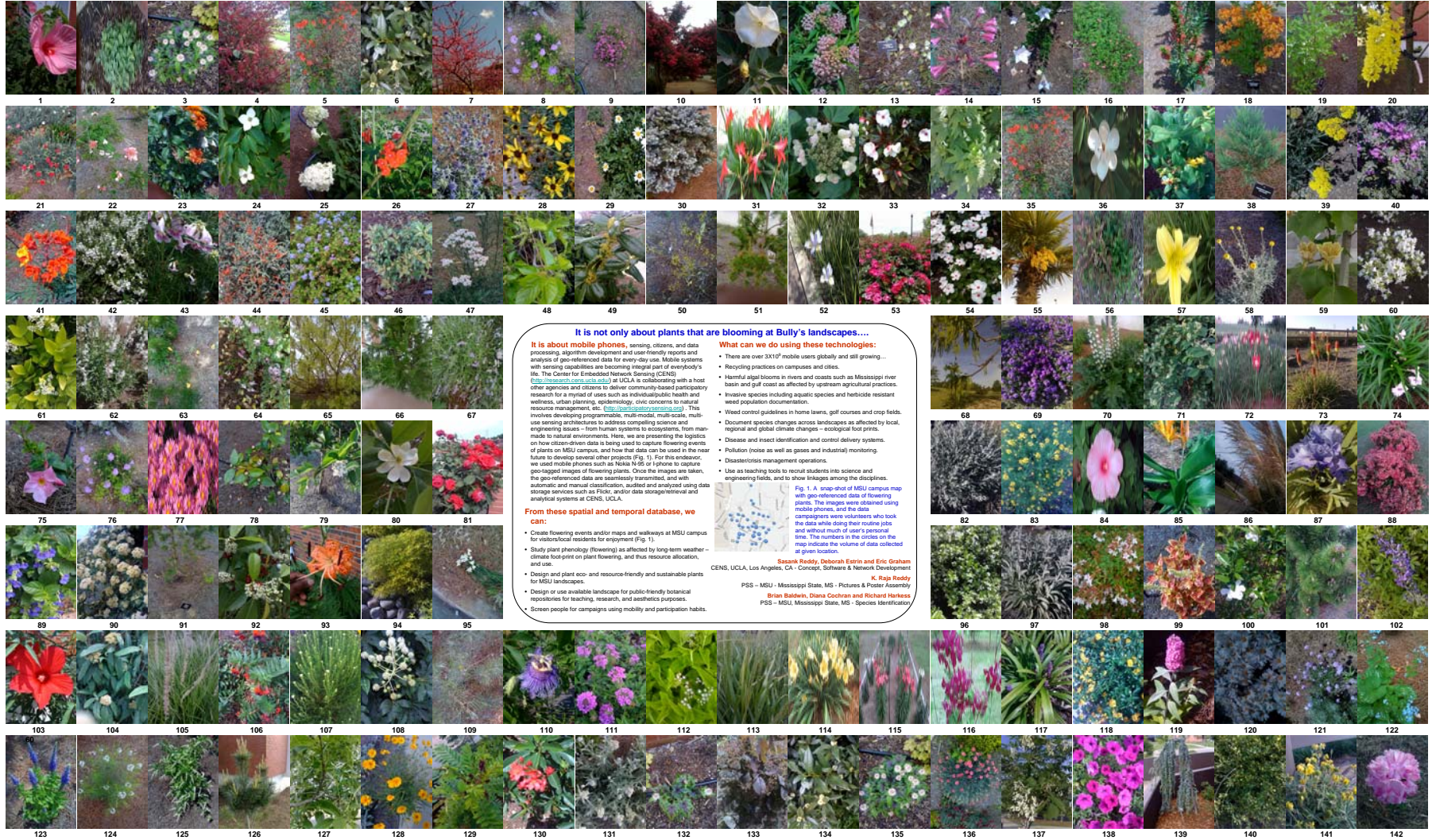




What's Blooming at Bully's Landscapes, Mississippi State University, Mississippi State, Mississippi



1. Hibiscus moscheutos
2. Rose 'Madame Butterfly'
3. Dahlia 'Bishop of Hatfield'
4. Tardieu cordata
5. Forsythia
6. Ligustrum chinensis
7. Fraxinus
8. Rose sp. (Pink)
9. Camellia japonica
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142. Camellia japonica



It is not only about plants that are blooming at Bully's landscapes...

It is about mobile phones, sensing, citizens, and data processing, algorithm development and user-friendly reports and analysis of geo-referenced data for every-day use. Mobile systems with sensing capabilities are becoming integral part of everybody's life. The Center for Embedded Network Sensing (CENS) (<http://research.cens.ucla.edu>) at UCLA is collaborating with a host of other agencies and citizens to deliver community-based participatory research for a myriad of uses such as individual/public health and wellness, urban planning, epidemiology, civic concerns to natural resource management, etc. (<http://www.cens.ucla.edu>). This involves developing programmable, multi-modal, multi-scale, multi-use sensing architectures to address compelling science and engineering issues - from human systems to ecosystems, from man-made to natural environments. Here, we are presenting the logistics on how citizen-driven data is being used to capture flowering events of plants on MSU campus, and how that data can be used in the near future to develop several other projects (Fig. 1). For this endeavor, we used mobile phones such as Nokia N-95 or iPhone to capture geo-tagged images of flowering plants. Once the images are taken, the geo-referenced data are seamlessly transferred, and with automatic and manual classification, audited and analyzed using data storage services such as Flickr, and/or data storage/retrieval and analytical systems at CENS, UCLA.

What can we do using these technologies:

- There are over 3X10⁷ mobile users globally and still growing...
- Recycling practices on campuses and cities.
- Harmful algal blooms in rivers and coasts such as Mississippi river basin and gulf coast as affected by upstream agricultural practices.
- Invasive species including aquatic species and herbicide resistant weed population documentation.
- Weed control guidelines in home lawns, golf courses and crop fields.
- Document species changes across landscapes as affected by local, regional and global climate changes - ecological foot prints.
- Disease and insect identification and control delivery systems.
- Pollution (noise as well as gasses and industrial) monitoring.
- Disaster/crisis management operations.
- Use as teaching tools to recruit students into science and engineering fields, and to show linkages among the disciplines.

From these spatial and temporal database, we can:

- Create flowering events and/or maps and walkways at MSU campus for visitors/local residents for enjoyment (Fig. 1).
- Study plant phenology (flowering) as affected by long term weather - climate feedback on plant flowering, and thus resource allocation and use.
- Design and plant eco- and resource-friendly and sustainable plants for MSU landscapes.
- Design or use available landscape for public-friendly botanical repositories for teaching, research, and aesthetics purposes.
- Screen people for campaigns using mobility and participation habits.

Fig. 1. A snap-shot of MSU campus map with geo-referenced data of flowering plants. The images were obtained using mobile phones, and the data campaigns were volunteers who took the data while doing their routine jobs and without much of user's personal time. The numbers in the circles on the map indicate the volume of data collected at given location.

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CENS, UCLA, Los Angeles, CA - Concept, Software & Network Development
Brian Baiden, Diana Cochran and Richard Herkes
K. Raja Reddy
PSS - MSU - Mississippi State, MS - Pictures & Poster Assembly
PSS - MSU, Mississippi State, MS - Species Identification

72. Hemerocallis sp.
73. Kopschia laevis (Rice)
74. Rudbeckia hirta (Black-eyed Susan)
75. Monarda mollis
76. Rudbeckia hirta
77. Rudbeckia hirta
78. Camellia japonica
79. Malva sp. (Cotton)
80. Magnolia virginiana
81. Artemisia absinthium
82. Artemisia absinthium
83. Helianthus annuus
84. Hibiscus moscheutos
85. Hibiscus moscheutos x japonicus
86. Coreopsis verticillata
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