Tablet-Based Mobile GIS Approaches to Archaeological Data Collection in Armenia

Ian Lindsay
Department of Anthropology
Purdue University
Tablet-Based Mobile GIS Approaches to Archaeological Data Collection in Armenia

1. mobile GIS in archaeology
2. Research problem: Late Bronze Age fortified landscapes in the South Caucasus
3. mobile GIS solutions for site survey in Armenia
Tablet-Based Mobile GIS Approaches to Archaeological Data Collection in Armenia

1. mobile GIS in archaeology
   a. move toward “paperless archaeology”
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   b. fancy Trimble DGPS and mobile GIS software, e.g., ArcPad (>5000)
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   a. move toward “paperless archaeology”
   b. fancy Trimble DGPS and mobile GIS software, e.g., ArcPad (> $5000)
   c. tablet-based mobile GIS (< $1000)
      i) built-in GPS (~ 5m), compass, network connection, GIS apps
         a) Google Earth
         b) Collector for ArcGIS (ESRI)
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1. Mobile GIS in archaeology
2. Field research: studying Late Bronze Age fortified landscapes in the South Caucasus
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Late Bronze Age Near Eastern trade network

- Probable sources of raw materials and goods
- Distribution of finds of similar raw materials and goods
- Possible route of Uluburun ship
- Selected trade route (water)
- Selected trade route (land)

LBA Near Eastern trade network

Eastern Anatolian Highland

(Pulak 2012)
LBA/Iron 1 Fortresses

Böyük Qaleh, northwest Iran (Biscione 2009)

Horom, Shirak Plain, Armenia

Tsaghkahovit, Tsaghkahovit Plain, Armenia

Aliler Kale, Van basin, Turkey (Sevin 2004)
LBA/Iron 1 Fortresses

Çubuklu, Van basin, Turkey (Özfirat 2009)

Knole, Georgia (Shanshashvili and Narimanishvili 2012)

Tsaghkahovit, Tsaghkahovit plain, Armenia (Lindsay 2011)

Çubuklu, Van basin, Turkey (Özfirat 2009)

Voskevaz, Ararat Valley, Armenia
LBA/Iron 1 Metalwork
South Caucasus
Material culture from Gegharot shrines

Mitannian cylinder seal

Domed balance weights

Metallurgical production

Textile production
Gegharot fortress
shrine complexes
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1998/2000 Site survey using handheld GPS, notebooks
2015-16 proposed survey areas
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2. Field research: studying Late Bronze Age fortified landscapes in the South Caucasus

3. mobile GIS solutions for site survey in Armenia
   a. field needs from mobile GIS system:
      i. efficient
      ii. collaborative
      iii. affordable
Formatting feature templates, publishing feature service in preparation for use with Collector for ArcGIS app
“Virtual survey” using Bing & Google aerial imagery and ground-truthing potential sites
Large burial fields
recording rate: ~50 tombs/person/hr
Pilot transect survey to examine site densities around LBA fortress

• 2.2 km² sample survey area

• 283 burials (~130 tombs/km²)
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Field results from pilot survey using iPads and ESRI’s Collector for ArcGIS app:

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   d. can record transects to test sampling strategy
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   c. iOS and Android compatible
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   c. Collector app is free
Thank You

Nicole Kong, GIS specialist, Purdue Libraries
Larry Biehl, ITaP

Funding sources:
Purdue Office of the Executive VP for Research and Partnerships
- Non-Laboratory Research and Equipment Program (2014)
- Transdisciplinary and Interdisciplinary Research Program (2014)
- Enhancing Research in the Humanities and Arts Grant Program (2015)