Benefits of GIS in Vector-Borne Disease Surveillance

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Geographic Information Systems

“A geographic information system (GIS) is a computer based tool for mapping and analyzing things that exist and events that happen on earth. GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps.”

ESRI

- Create Maps, Analyze Data, Visualize Data
- Access Data, Manage Databases, Query Databases
Benefits of GIS

- Cost Savings, Improved Efficiency
- Better Decision Making
- Improved Communications
- Better Geographic Information Record Keeping
- Managing Geographically
Extending GIS Functionality

• More Tools / Capabilities to GIS
  – New Tools to Accommodate Workflow
  – Tools Specific to YOUR Organization
  – Simplify GIS Technology
  – Provide Access to More Users
  – Automation
    • Map Updates and Distribution
    • Merging / Updating / Editing Data
    • Report Generation
Benefits of Extending GIS Functionality

- Meet YOUR GIS Needs
  - Unique Requirements
- Simplify GIS Technology
  - Without Sacrificing Functionality
- Serve / Share Data to Many Users
  - Make Use of the Technology
- INCREASE EFFICIENCY
  - Field Staff AND Office Staff
- REDUCE COSTS
Examples of Extended GIS

- ArcGIS Defense Solutions
- ArcGIS 3-D Analyst
- ArcGIS Business Analyst
- Wind Image
- Sentinel GIS™ (Office & Field)
  - SURVEILLANCE
    - Larvicide
    - Adulticide
    - Service Request
Sentinel GIS™ Extension for ArcGIS

- **Sentinel GIS™ Larvicide Tools**
  - Manage Sources, Record Inspections, Record Treatments, Reports
  - Access to all maps & historical data (Field and Office)

- **Sentinel GIS™ Adulticide Tools**
  - Record ULV Fogging Activities, Maps, Reports

- **Sentinel GIS™ Service Request Tools**
  - Manage, Complete, and Report Service Calls

- **Sentinel GIS™ Surveillance Tools**
  - Manage Traps, Pools, Tissue Samples, Maps, Analysis, Reports
### Mosquito Disease Summary Report: 7/1/2008 to 8/31/2008

**Disease:** West Nile Virus  
**Species:** All Species

**Report Created On:** Saturday, January 23, 2010

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GIS Tools for Field Workforce

• Extend GIS Tools to Field Workforce
  – Record All Field Activities

• Automate Map Updates

• Increase Efficiency
  – Navigation, Work Orders, Chemical Reporting

• Simplify GIS Processes
  – Complex Operations Made Simple
  – Easily Access Historical / Archive Data
  – Replace / Augment Paper Maps and Paper Records

• Goal to Reduce Operational Costs
GIS Tools for Field Workforce
Summary

• GIS Provides Many Tools Out-Of-The-Box
  – Map Surveillance Activities – Trap Sites, Dead Birds, Service Requests
  – Analysis of Surveillance Data – Maps and Reports
• Extending GIS Tools Increase Functionality
  – Automate Data Processes
  – Extend Surveillance GIS Tools to Field Technicians
  – Special Mapping and Display Tools
  – Specific Data Editing Tools
• **Reduce Costs and Increase Efficiency**
• **Simplify, Simplify, Simplify**
Map, Track, and ATTACK

Simple GIS™ Tools Specific to Mosquito Control

Sentinel GIS

Adulticide • Larvicide • Surveillance
Service Request