Modern Strategies for Wildlife Data Collection, Dissemination and Reporting

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Wildlife Survey Data Management (WSDM) Database

The WSDM database is an ArcGIS Geodatabase that contains information on over 250 threatened, endangered, and other Species of Greatest Conservation Need in Washington. Our database stores point and polygon wildlife occurrences and associated tabular information pertaining to surveys, site occupancy and productivity, and biological details (Fig. 1). This information is critical to survey planning and management activities that direct our wildlife conservation and recovery efforts.

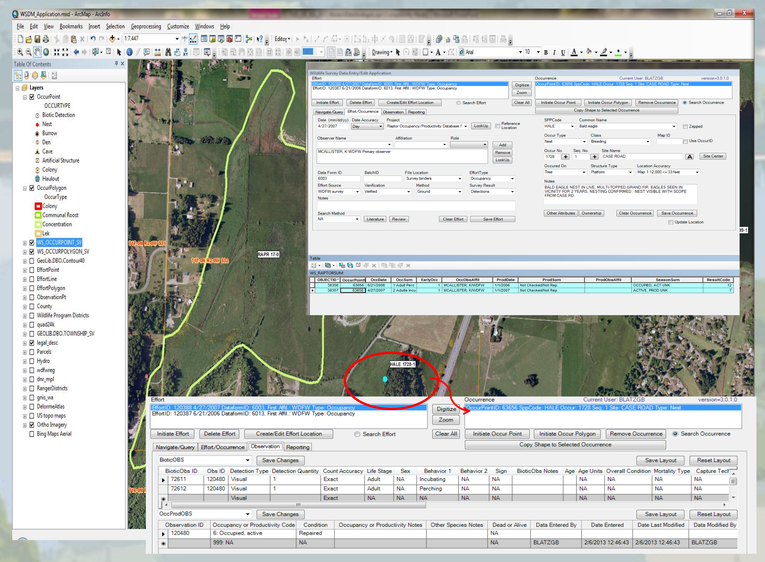

Figure 1. WSDM data entry add-in integrated into ArcMap.

Traditional, Ruggedized Mobile Data Devices

Ruggedized devices play a central role in collecting biological and spatial data in disconnected environments typical of wildlife surveys. Even as new techniques emerge, ruggedized devices are a cornerstone of field data collection and are used in a variety of physical settings (Fig. 2).

Figure 2. Ruggedized devices frequently used in biological monitoring.

WDFW Wildlife Observation Tool for Tablets and Smartphones

Agency biologists and professional partners can now report new and access existing priority fish and wildlife observations to and from WSDM using a mobile device connected to a cellular network or Wi-Fi (Fig. 3). This data reporting tool is also accessible on the desktop using a web browser (ArcGIS.com web map). GIS datasets (e.g. aerial photography, topographic maps, WSDM data) are transmitted to the devices using web services. This tool assists with both field and post-survey documentation by extending data entry capabilities to consumer-grade mobile devices and personal computers.

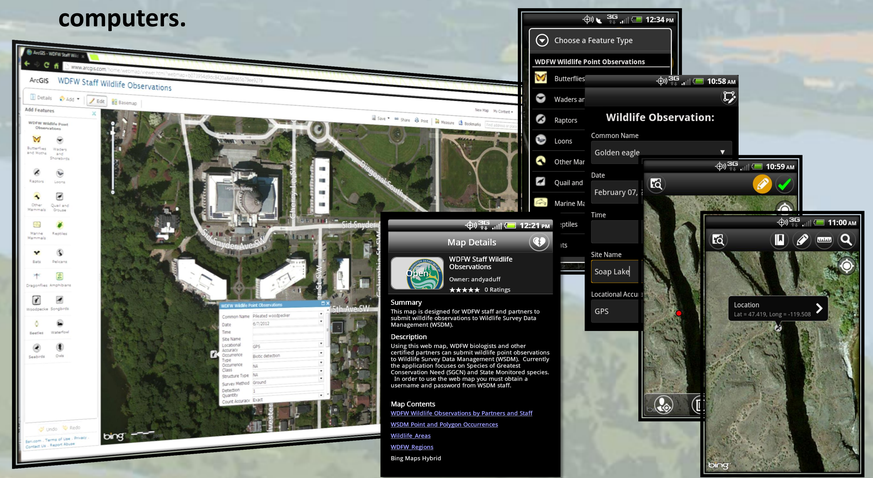

Figure 3. Web-based Wildlife Observation application available on a desktop, tablet, or smartphone.

Opening Access to Data with Web Services

Wildlife survey data are generalized and incorporated into WDFW's Priority Habitats and Species (PHS) map and digital data products, including an interactive data viewing and reporting tool that can be accessed on the internet (PHS on the Web) (Fig. 4). These resources are used by WDFW staff, citizens, landowners, conservation groups and governments to inform conservation and land use planning efforts.

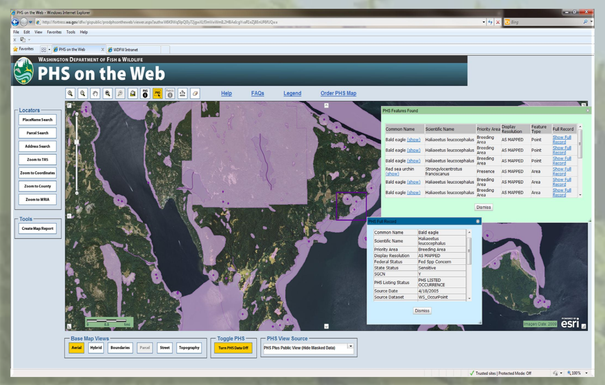

Figure 4. 'PHS on the Web' desktop data application.

Creating Efficiencies in Data Collection and Viewing

Web services have enabled real-time data entry and reporting for professional biologists and citizen scientists. Readily available and affordable mobile devices with built-in GPS provide a simple data collection system that can save resources and expand the volume and quality of information available for wildlife conservation and management by optimizing data workflows (Fig. 5)

Figure 5. Ecological Integrity Monitoring volunteers being trained at a WDFW monitoring site. Digital data workflows enhance the flow of information to and from the field.

Facilitating Public Engagement

WDFW's Wolf Observation reporting tool stores public reports of wolf observations along with photo, audio, and video files (Fig. 6). Data records are transferred over the web into an ArcGIS Geodatabase and reviewed by WDFW Biologists to help identify potential new wolf packs in Washington.

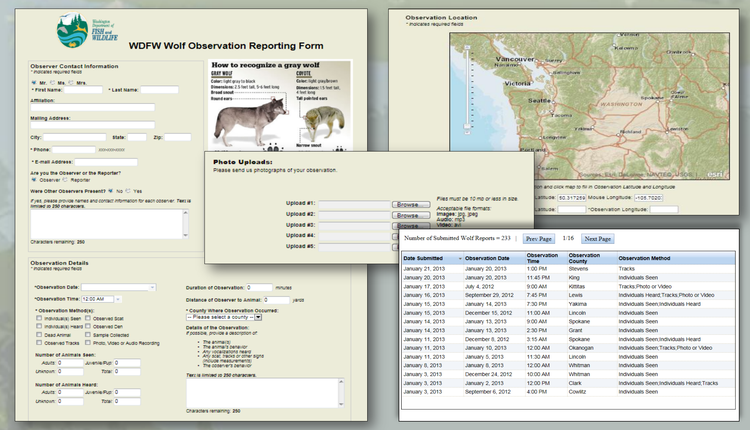

Figure 6. WDFW's Wolf Observation reporting tool

Acknowledgments

WDFW has partnered with ESRI to develop several of these tools.