

**ALASKA DEPARTMENT OF FISH AND GAME
WILDLIFE RESTORATION GRANT**

Grant Number: AKW-4 Wildlife Restoration FY2015

Project Number: 27.0

Project Title: Region II GIS Support

Project Duration: 1 July 2014 – 30 June 2015

Report Due Date: September 28, 2015

PRINCIPAL INVESTIGATOR(S): Elizabeth Solomon and Oriana Badajos

WORK LOCATION: Statewide

I. PROGRESS ON PROJECT OBJECTIVES DURING LAST SEGMENT

JOB/ACTIVITY 1A : To maintain and investigate new GIS operations and technologies, database applications, spatial data analysis and mapping tools, and cartographic products for research and management activities.

- Coordinated access to GIS data for Wildlife Conservation GIS users, including connections to the ADFG GIS server, outside statewide internet map servers, and data from other agencies and sources.
- Developed database reporting system for MRC (Kenai Moose Research Center) biologists to automate the reporting of capture-related drug inventory and use.
- Assisted research biologists with the use of various GIS and database analysis tools to perform tasks such as summarizing data, developing home ranges, analyzing pathmetrics, running data queries, and conducting temporal analyses.
- Continued support for the management and maintenance of extensive wildlife conservation telemetry datasets and relational databases on the ADFG database server.
- Served on the Data Management Working Group, chartered by the RCT to identify specific data management issues for research staff in regional and statewide programs in the DWC.
- Acquired hardware/software to begin testing new mobile mapping applications using ArcGIS Collector for potential field use.
- Attended the ESRI “Sharpen your GIS Skills” seminar, a course providing the latest resources and techniques on using ArcGIS online, Community Mapping, spatial analysis, and mobile GIS applications.

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- Developed a relational database for the Kenai Peninsula moose research projects.
Developed automatic upload tools to simplify the data management of large datasets.

JOB/ACTIVITY _1B

- Developed GIS tool to identify moose stopover sites from GPS locations based on the length of time an individual spends within a given geographic proximity.
- Developed Python tool to filter erroneous GPS locations based on speed of movement between successive locations and steepness of turning angles.
- Designed and maintained relational databases to store archived moose and caribou GPS locations; completed metadata records for archived datasets.
- Designed and deployed data migration workflow to decode raw GPS collar location data and convert to a usable GIS format.
- Assisted with the design of an avian point count sampling scheme along a network of logging roads in the Fairbanks area.

JOB/ACTIVITY 2A : Provide GIS products, consulting and technical support.

- Assisted area biologists around the region with the integration of various GPS data file formats/projections to GIS system in order to plot/view collected waypoints/tracklines during aerial surveys.
- Assisted Region II staff with GIS/GPS software upgrades, installation of various extensions and related products, and support with connectivity to the statewide ArcGIS server.
- Provided area offices and staff with troubleshooting and technical assistance for formatting and standardizing wildlife and other spatial data into GIS-ready formats (including projection and coordinate-system issues).
- Advised staff on design and export of final graphics, maps, posters, and reviewed other presentation-quality materials.
- Produced maps/graphics of Dall Sheep ranges and survey areas to be used in various presentations at the AK Chapter TWS annual meeting.
- Upgraded/migrated Kodiak brown bear database to latest database format for future data management applications.
- Designed GIS-based survey grid for preliminary black bear study on the Kenai Peninsula.
- Produced maps and graphics for various Board of Game staff presentations.
- Participated in meeting planning and registration activities for both the Alaska Chapter Wildlife Society annual meeting (Anchorage) and the 48th North American Moose Conference & Workshop (Girdwood).
- Oriana Badajos assumed the duties of acting GIS analyst after Liz Solomon left State service in June 2015.

JOB/ACTIVITY _2B

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- Produced cartographic products for an upcoming Wildlife Technical Bulletin submission with regard to the Delta caribou herd's seasonal distribution and trends over time.
- Provided training to permanent and temporary staff in the creation of geodatabases, importing data into geodatabases and entering geospatial metadata.
- Reviewed proposal for moose habitat enhancement on Tanana Valley State Forest lands through targeted timber sales and management of forest practices in areas where wildland fires have been suppressed.
- Consulted with research staff on processing GIS telemetry datasets for modeling migratory movements and calving ranges.
- Consulted with research staff on the use of digital aerial photography for censusing caribou populations.
- Attended 5-day training course entitled "Developing Microsoft SQL Server 2012 Databases", designed for participants to learn how to design relational databases and manage spatial data in native SQL geometry/geography formats.
- Completed 5-day training online training course entitled "ArcGIS for Server Bootcamp", covering the foundations of deploying GIS services, building custom web and mobile applications, and managing geodatabases with SQL Server.

II. PUBLICATIONS/PRESENTATIONS

- Produced maps/graphics of the Kenai Peninsula area and game management units for the ADFG publication: "*Moose News*".

Prepared by: Oriana Badajos

Date: 08/21/2015