

**FEDERAL AID  
ANNUAL PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME  
DIVISION OF WILDLIFE CONSERVATION  
PO Box 115526  
Juneau, AK 99811-5526

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

**GRANT NUMBER:** AKW-4 Wildlife Restoration FY2015

**PROJECT NUMBER:** 40.0

**PROJECT TITLE:** Region III GIS Support

**PROJECT DURATION:** 1 July 2014–30 June 2015

**REPORT DUE DATE:** 1 September 2015

**PARTNER:** None

**PRINCIPAL INVESTIGATOR:** Matthew J. Warren

**COOPERATOR:** None

**WORK LOCATION:** Region III (Interior and Northeast Alaska)

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**I. SUMMARY OF WORK COMPLETED THIS SEGMENT ON JOBS IDENTIFIED  
IN ANNUAL WORK PLAN**

**OBJECTIVE 1:** Maintain and investigate new GIS operations and technologies, database applications, spatial data analysis, mapping tools, and cartographic products for research and management applications.

**JOB/ACTIVITY 1A:** Maintain and investigate new GIS operations, tools, and applications.

- Coordinated access to GIS data for Wildlife Conservation GIS users, including connections to the ADF&G GIS server, outside statewide internet map servers, and data from other agencies and sources.
- Continued support for the management and maintenance of extensive wildlife conservation telemetry datasets.
- Developed a Brownian bridge movement model for North Slope caribou migration.
- Explored workflows for migrating wildlife telemetry data to a centralized SQL server database.
- Obtained landownership data and mapped landownership by category in GMU 20D.
- Developed a GIS tool to map most recent locations of GPS collars to aid in aerial tracking surveys.
- Examined movement of North Slope caribou in relation to the Dalton Highway.
- Analyzed moose movement in GMU 21E, including home range analysis, temperature and movement rate correlation analysis and behavioral change point analysis.
- Developed GIS tool to identify recent disturbance events in hunter-accessible areas which may provide enhanced opportunities for moose harvest in Region III.

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- Modeled caribou distribution in calving and postcalving seasons, and estimated the number of GPS collars needed to reliably model herd distribution.
- Completed the online training course “Programming ArcObjects with .NET for ArcGIS 10,” which provides the latest resources and techniques for creating custom user interfaces, applications and extensions for ArcGIS Desktop.

**JOB/ACTIVITY 1B: Provide GIS products, consulting, training, and hardware-software maintenance.**

- Assisted Region III 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).
- Produced maps/graphics of moose movement and behavior to be presented at the Alaska Chapter TWS annual meeting.
- Designed GIS-based survey grid for vegetation surveys on the Delta bison range.
- Edited cartographic products for an upcoming wildlife technical bulletin submission describing the Delta caribou herd’s seasonal distribution and trends over time.
- Provided training to management and research staff in the creation of geodatabases, importing data into geodatabases, and entering geospatial metadata.
- Designed spatial databases for storing ptarmigan and moose locations.
- Oversight of field data collection for high precision locations of grizzly bear dens on the North Slope.
- Organized and provided caribou telemetry datasets to Region II GIS staff in support of statewide Crucial Habitat Assessment tool development.

**II. SIGNIFICANT DEVIATIONS AND/OR ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD**

None.

**III. PUBLICATIONS**

None.

**IV. RECOMMENDATIONS FOR THIS PROJECT**

None.

**PREPARED BY:** Matthew J. Warren

**DATE:** 7 August 2015