

**Aerial Photocensus Capability to Monitor Wildlife Population Size**

**FY2014 Request: \$750,000**  
**Reference No: 56969**

**AP/AL:** Appropriation **Project Type:** Renewal and Replacement  
**Category:** Natural Resources  
**Location:** Statewide **House District:** Statewide (HD 1-40)  
**Impact House District:** Statewide (HD 1-40) **Contact:** Doug Vincent-Lang  
**Estimated Project Dates:** 07/01/2013 - 06/30/2016 **Contact Phone:** (907)267-2339

**Brief Summary and Statement of Need:**

This project will purchase digital cameras and software to complete aerial photocensus work on caribou herds and other big game species. The Division of Wildlife Conservation (Division) requires photocensus capabilities to monitor the population size of large migrating species (Western Arctic Caribou Herd - population estimate of 300,000 to 500,000). This effort has a significant impact on hunting and subsistence users. The current film based system for completing the photocensus no longer has technical support, and film is no longer available. Furthermore, the software to complete the shoot is no longer viable.

<b>Funding:</b>	<u>FY2014</u>	<u>FY2015</u>	<u>FY2016</u>	<u>FY2017</u>	<u>FY2018</u>	<u>FY2019</u>	<u>Total</u>
Gen Fund	\$750,000						\$750,000
<b>Total:</b>	\$750,000	\$0	\$0	\$0	\$0	\$0	\$750,000

<input type="checkbox"/> State Match Required	<input checked="" type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

**Operating & Maintenance Costs:**

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	0
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Prior Funding History / Additional Information:**

No prior funding history

**Project Description/Justification:**

The Division's current system consists of two black and white film cameras that are 40-50 years old and run the risk of becoming obsolete given the certainty that film will be unavailable in the near future. The ability to accurately assess caribou herd sizes is of vital importance to caribou management in the state of Alaska and obtaining these estimates is reliant on the use of aerial photography. There are 22 caribou herds in Alaska and each spans vast distances.

A major goal for wildlife research and management staff at the Department of Fish and Game (Department) is to obtain reliable estimates of abundance for species of interest. A majority of techniques used to estimate the abundance of wildlife rely on sampling to come up with overall population estimates. Estimates of abundance are paramount in being able to manage game populations and determine appropriate harvest limits. The unique biology of caribou allow researchers the opportunity to census entire herds if certain weather conditions are present. In the period of time following calving, caribou can form large aggregations while they seek relief from insects. Insect harassment intensifies under warm, calm weather conditions and caribou groups tend to form in

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places where cooler temperatures or more wind may exist such as along the coast or at higher elevations. When these large aggregations form it allows the photocensus technique to be employed while the entire herd may be contained in relatively few densely packed groups. If a caribou herd is sufficiently grouped, the photocensus plane will fly over each group and take pictures ensuring that the entire group is photographed, including shooting the photography so that there is overlap among each photograph. Current technology produces individual photographs (9" x 9" prints) from film that are hand counted by staff to obtain a total count of caribou in the herd. Future capabilities will not be limited to 9" x 9" prints.

The management of Alaska's largest caribou herds is completely dependent on the Department's ability to aerially photograph caribou aggregations when they occur.

Photocensus capabilities will be installed into two aircraft owned by the Division. Specific items expected to outfit two systems to complete photocensus work are listed below, with unit and cost estimates.

80 megapixel cameras, six needed \$65,000 each  
assorted lenses, 6-14 needed, \$5,000 each  
gyro mounts and inertial measurement units (IMUs), two needed, \$60,000 each  
GPS units, two needed, \$25,000 each  
computer setup for aircraft, two needed, \$20,000 each  
server for data storage, \$25,000  
flight management software, \$50,000  
Orthorectification software, \$25,000  
system builds and integration; and training of staff, \$50,000 - \$100,000