RM-CESU - Project Completion Report, FY 05

Project Title: Staff Training and Citizen Science on Common Loons in Glacier NP

Park: GLAC

Funding Source: Rocky Mountains CESU Education Funding ($5,000); from Crown of the Continent Research Learning Center ($150 support and $5,500 in-kind) and University of Montana ($1,000 in-kind)

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Project Description:

Glacier NP harbors 20% of the breeding population of Common Loons in the state of Montana. Common Loon numbers are decreasing nationwide and population trends in Glacier NP are uncertain. The Common Loon is considered a Migratory Nongame Bird of Management Concern by the U. S. Fish and Wildlife Service and is listed as a Species of Special Concern by the State of Montana. Loons are negatively affected by human activities such as shooting, pesticide contamination, fishing, degradation of habitat, oil spills, and disturbance at nest and nursery sites from recreational and other activities.

Current estimates about loons for Glacier are based on sporadic coverage by park staff and a few volunteers. Based on incomplete data, Glacier National Park has a high proportion (~20%) of the nesting loons in Montana. Current estimates are that Glacier loons produce 0.35 fledged young per pair per year, which is less than the 0.54 that is needed to maintain a stable population and less than that produced in the rest of the state. The reason for the potentially lower rate of productivity is unknown. A possible factor is direct human disturbance during vulnerable periods. Indications from this sporadic coverage are that the loons are not reproducing well in Glacier, suggesting population health is not good. However, we do not know how robust this information is. Therefore, there is a critical scientific need for the resource managers at Glacier National Park to have a better estimate of the number of loon pairs that successfully raise young and what causes nest or brood failure.

Glacier Loon Day is a day in mid-July when lakes in Glacier are sampled for the presence and reproductive success of Common Loons. Participants determine if lakes have single loons, paired loons, or loons with young. Most participants in Glacier Loon Day have been park staff, with a few visitors participating. Unfortunately, coverage has been sporadic (not all of the high priority lakes have been sampled each year) and park biologists have been concerned about potential misidentifications. Therefore, to get a good estimate of population health and nesting success, loon surveys need to be accurate and conducted on all priority lakes throughout the breeding season.

The objectives of this project were: (1) to create a training presentation for Glacier personnel (e.g., interpreters, rangers, and trail crew members) and other participants in Glacier Loon Day to improve accuracy and (2) to initiate a citizen science program on Common Loons in Glacier National Park to improve coverage of the lakes in time and space.

The desired educational outcomes of the citizen science project were threefold: (1) participants, including park staff, will learn how to conduct a scientific study of the distribution and nesting success of Common Loons in Glacier National Park; (2) they will know that they have collected meaningful scientific data; and (3) they will understand the current state of knowledge about the distribution of loons in Glacier, loon breeding biology, the impacts of recreationists on loon population health, and management concerns of wildlife biologists for Common Loons at Glacier.

We hired Therese Hartman to coordinate the staff training and citizen science program on Common Loons. Therese had knowledge of loon literature, personally knew loon experts, and had experience working with the public about many wildlife issues. Therese worked closely with Sallie Hejl in the creation of this program.

Therese created a powerpoint presentation describing international, national, and park-specific concerns about Common Loons, potential threats to population health, breeding biology, methods for how to sample loons without disturbing them, and species identification. Participants learned to discriminate between Common Loons, Common Mergansers, Barrow's Goldeneyes, and Common Goldeneyes. She worked with representatives from several non-governmental organizations (e.g., Flathead Audubon Society, the Montana Loon Society, Montana Common Loon Working Group) and state groups (Montana's Department of Fish, Wildlife, and Parks) to create the presentation, develop the citizen science program, and to find people interested in participating. Specifically, Gael Bissell and Lynn Kelly of the Montana Loon Society and Montana Common Loon Working Group, both of whom have created similar programs elsewhere in Montana, acted as additional advisors and cooperators for the program. Richard Hutto reviewed the content for the powerpoint presentation. Therese advertised the program widely to find volunteers. She then ran numerous training sessions to introduce park staff and citizen science volunteers to sampling methodology, safety training, and the current state of knowledge about loons. Therese also managed the volunteers' time and effort. She planned which volunteers would cover which lakes when. At the end of the season, she entered the data into WORF (Glacier's wildlife observation database).

In our proposal to RM-CESU, we proposed to focus on 15 high-priority lakes that have had known loon activity in recent years. We hoped to find some short-term and long-term volunteers. We thought that long-term volunteers would be able to devote several days to the program. In that case, we planned to have them monitor one lake periodically throughout the nesting season to begin to elucidate factors affecting nesting success.

Project Results:

Sallie Hejl and Therese Hartman of the Crown of the Continent Research Learning Center developed a highly successful citizen science program on the health of Common Loons in Glacier National Park. 46 volunteers helped us determine the number of adults and their nesting success on 45 priority lakes in Glacier NP. 33 citizen volunteers and 16 members of Glacier National Park's staff participated in Glacier Loon Day (July 16, 2005), determining that Glacier had 45-54 adult loons, 19-21 pairs of loons, and 5 chicks in 3 broods on priority lakes. Many of volunteers (1,948 hours) also visited priority lakes throughout the summer improving our estimate of loon population health. The additional effort made our numbers more robust. Season-long estimates of the number of adult loons and adult pairs were similar to the ones we found on Glacier Loon Day. The number of chicks was different, however. Two young chicks were seen before Loon Day that were no longer present in mid-July. Based on conservative Loon Day numbers, Glacier loons produce 0.24 fledged young per pair in 2005. Based on conservative season-long estimates, they fledged 0.33 in 2005. This program contributed to knowledge needed by park wildlife biologists. We shared our data with other wildlife biologists in Montana. The loon work complemented state and national efforts.

Theresa Hartman worked from mid-May until mid-July in 2005. She did an excellent job of creating a training powerpoint presentation, finding volunteers to help in this program, training park staff and volunteers, entering data, and coordinating citizen scientist participation.

Follow-up of this Project –

We plan to continue the program indefinitely into the future. We expect the number of volunteers to grow each year as people become excited about the program, plan to participate in following years, and invite their friends to join in.

The Glacier Fund has agreed to fund the citizen science project in 2006 ($16,000). Funding for 2007 is dependent upon the success of the program in 2006. Our plans are to build upon the success of this pilot program and create a robust determination of loon population health by starting earlier in the spring and following the loons until they leave in mid-October. In 2006, we will be able to sample more lakes more thoroughly than we did in 2005. We will also work toward creating a self-sustaining program. We will search for one to several volunteer coordinators that we can train in 2007 so that the coordinators can take over the program in 2008.

Publications, other reports expected/ with dates:

The citizen science program was described on the front page of the Daily Inter Lake on November 20, 2005.

In 2006, we will put finishing touches on the powerpoint presentation. The presentation is annotated so that a person using it can read from a script. We plan to share the presentation with our partners. The partners are welcome to tailor the presentation to meet their needs.