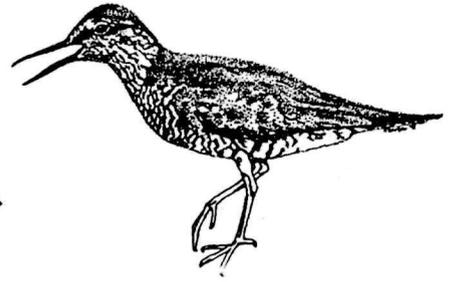


THE TATTLER

The Science Newsletter for
Denali National Park and Preserve



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BOO GO

The Denali caribou herd has undertaken a major movement out of the park and out of the Alaska Range, possibly prompted by the unprecedented snowfall in mid-September. Until September 23, the herd was distributed over its usual winter range in the park and Wolf Townships, except for a few animals that had remained south of the Alaska Range in the Cantwell and Dunkle Mine areas. On September 24, most of the herd (well over a thousand animals) began moving north between the Nenana and Teklanika Rivers, with some crossing the Parks Highway. Several caribou were reported killed by trains and cars in the ensuing days. Some Denali caribou have now moved as far north as Ester and North Pole, and are mixing in some areas with the Delta Caribou herd, which occupies the area east of the park and has also moved away from the Alaska Range this winter.

This is not the first time that there have been major movements of caribou northeast of the park. In late October 1981, an estimated 1000 caribou were seen by railroad workers and truck drivers moving east across the railroad, Nenana River and Highway 3 in the Ferry area. Later that winter, many tracks were again seen crossing Highway 3. No Denali Herd caribou were radio-collared in those days, so it was not clear whether these were Delta or Denali caribou. Biologist Layne Adams predicts that the caribou will come back, but maybe not until spring. The impact on wolves and their alternate prey may be dramatic.

Tom Meier
Wildlife Biologist

GLACIER MONITORING

DENA and outside researchers approached glacier monitoring from four directions during the '92 field

season. The program probed at the upper reaches, middles, termini, and in the debris left behind by some of the Alaska Range's most famous and most obscure glaciers.

At the end of August, Larry Mayo of USGS Fairbanks and Greg Probst visited the upper reaches of the Kahiltna and Traleika glaciers to conduct re-section work. They surveyed the spatial relationship of index stations set into the ice to benchmarks set into bedrock by Phil Brease and Larry last spring. The park and the USGS are investigating the accumulation and movement of the ice and conduct these re-sections in the spring and fall of each year.

The following week, Phil and Greg accompanied Bradford Washburn to McGonagal Pass to measure the movement of the middle reaches of the Muldrow. From McGonagal, they made infra-red distance measurements to a monument installed on the ice by Washburn in 1976 as part of the Muldrow Glacier Mapping Project. This work continues a data record spanning 5859 days and documenting an average rate of movement of 0.49 feet per day.

Over the course of the summer, Phil, Greg, Karrin Alstad, Paul Atkinson, Hubert Chakuchin, and a strong showing of ARA and NPS volunteers travelled to the termini of four glaciers on the north side of the Alaska Range to gather terminus location data. This project mapped and photographed each terminus to look for future advance or retreat of the ice. The project will document change over time and repeat surveys every two to four years. The teams successfully completed surveys of two of the glaciers, the West and Middle Forks of the Toklat. Unfortunately, clouds, rain, and snow descended upon the expeditions once they had reached the Red Mountain and Herron Glaciers, so survey parties will have to return next year to complete the work.

On the debris front, Dr. Alan Werner of Mount

Holyoke College arrived in August to continue his work mapping the ancient terminal moraines of the Muldrow/Peter's Glacier Complex. He and his team of four intrepid undergrads endeavored to untangle the overlapping mess of ice advances and retreats since the glacial maximum at 18,000 years before the present.

In addition, the Werner party radar-profiled the bottoms of Wonder Lake and a few smaller kettle lakes in the area. The profiles will provide depth references in sediment coring that the researchers will be performing through the ice in March. The cores will yield stratigraphy as well as a record of ancient pollen and give information on past vegetative regimes and glacial activity at the foot of Denali. Dr. Werner's research is supported financially by the National Science Foundation. NPS DENA staff provide logistical support. Thanks to all who pitched in. Of interpretive interest: Wonder Lake is 76 meters deep, Reflection Pond is only 8.

Greg Probst
Physical Sciences Tech
Phil Brease
Geologist

EARLY SNOW CAUSES DROWSINESS

Early snows sent bears scurrying for dens early this year. Winter arrived in Denali on September 10 and within the next 2 weeks 13 bears dug dens and were either in them or observed at them. Six additional bears entered dens between September 23 and 30. Of the ten remaining bears, 9 are adult males and one is an adult female. The adult female and 2 adult males were observed at caribou carcasses, perhaps ample justification to remain awake for a little while longer. One adult male was observed digging roots in a river bar. Last year bears entered dens more gradually, beginning with 5 bears during the period October 10 to 16. Five more denned the following week and 5 additional sometime in the next 3 weeks.

A full month of extra denning time could significantly reduce fat reserves for bears this winter. We may expect to see reduced cub production and survival, and possibly increased depredation problems around developed areas next spring and early summer. Conversely, bears may find an abundance of carrion in the spring, if moose suffer from the early winter

also. Add a healthy population of wolves and the disappearance of 60% of the Denali caribou herd that headed north out of the park when the snow hit, and things get a lot more complex. Research on these species will continue through 1993, so we expect to it to be a very educational year.

Jeff Keay
Research Wildlife Biologist

EXOTICS

The exotic plant monitoring program between Healy and the Denali Park entrance was finished by Assistant Resources Specialist Hubert Chakuchin. As suspected there is a certain amount of dandelions, brome grass and clover present along the George Parks Highway. Only the future will tell how these plants are growing in respect to native vegetation. There are some populations of dandelions, brome grass and lambsquarters inside the park road corridor. The small amounts of clover observed were manually eradicated to protect the integrity of the National Park ecosystem. The clovers (yellow and white leafed) will be monitored in following summers since it takes less energy to control a species that has not yet invaded in on the Denali Park Roadside. Another areas that has not yet been monitored is the Railway and the Denali Park Hotel area. The Denali Park Hotel area may not be of concern as a source of exotic plants since the maintenance staff uses native vegetation in their landscaping.

Hubert Chakuchin
Assistant Natural Resources Specialist

BEAR MANAGEMENT IN DENALI: SUMMER OF '92 IN REVIEW

Visitors to the Denali Wilderness this summer did not often go home without seeing at least several bears along the park road or in the backcountry. Both grizzlies and people were out and about in number this year, yet remarkably few bear-related incidents occurred.

As usual, many bears that are extremely habituated to buses and people were observed along the park road corridor. Two cubs, seen frequently in early summer with their mother in the Highway Pass area, started

showing an active interest in buses (gnawing on bumpers, playing with a camera tripod, etc.), but the family disappeared into the backcountry soon after and no further problems developed.

The Teklanika River in the vicinity of the rest stop and campground was frequented by many bears during the latter part of the season. Despite the uproar they caused, the bears that wandered through the rest stop and campground seemed to be interested primarily in soapberries and pea roots, not in people. On one occasion, a bear did obtain a small amount of margarine off a picnic table in Teklanika Campground, but a volley of firecracker rounds sent it galloping full-speed across the Teklanika River, never to be seen again.

As far as we know, no bears obtained food from people in the backcountry. One bear at the bottom of the McKinley Bar Trail had plenty of opportunity when two backpackers, upon seeing the bear, reacted inappropriately by dropping their packs and leaving the area. The bear did wander over to investigate the packs, but didn't touch the bagels and fig newtons that were sitting on top. Another bear reportedly followed several different backpackers on separate occasions in Backcountry Unit 34 (Mt. Galen area) in mid-July. We responded by closing the unit for a week; nothing more occurred after this brief cooling-off period.

While the park's strict food storage policies are working well to prevent bear-human conflicts in the Denali Wilderness, food storage remains a problem in other local areas. In mid-summer a grizzly was shot and killed by miners in the Kantishna Hills after another bear had ransacked an old cabin that was stocked with food. Later in the summer, two bears (one grizzly, one black) were shot along the George Parks Highway just outside of the park after they had spent several weeks in the area eating garbage and food. We are attempting to work cooperatively with the state, local boroughs, and neighboring businesses and landowners to improve food and garbage storage in these places, and thus prevent similar problems in the future.

Paul Atkinson
Bear Management Technician

ROCK CREEK LONG-TERM ECOLOGICAL MONITORING

The Hydrologic Cycle

The hydrologic component of the Denali Inventory and Monitoring Program studies the function of input vs. output. Knowing the inputs and outputs of mass and energy is critical to understanding the hydrologic cycle as well as the chemical flux and biological dynamics of the watershed. Field work in the '92 season gathered input and output data relating to the physics, chemistry, and biology of the system.

Looking at inputs, two permanent meteorological towers were installed by staff and a large contingent of volunteers; one tower at the 4500 foot level on Mount Healy, the other at treeline (3100 feet) on the west ridge of the drainage. These towers electronically record data pertaining to wind speed and direction, solar radiation, temperature, relative humidity, and precipitation. Also, Greg, Phil, and the Soils Conservation Service installed a snow pillow and snow course to look at inputs from frozen precipitation. Hopes are that Andrea Blakesley's NADP data will supplement the meteorological towers' data with information on precipitation chemistry. During the installation of the instruments many electronic gizmo related bugs showed up which, with any luck, are now squashed. Greg faces the chilling prospect of servicing the sites once a month all winter long.

On the output end, Ken Karle and Greg installed an automated stream stage recorder above the pump house to measure stream height. Fall data processing will correlate stream height measurements with manual measurements of stream flow to give a seasonal curve for Rock Creek. The only bug encountered with this device was a spring flood which washed it a short distance down the creek. A rugged little devil, it was scraped clean of mud and replaced more securely. The recorder happily recorded stream height all summer until it froze solid on September 23rd.

In addition, two monumented cross-sections look at stream channel morphometry, water chemistry, and biologic activity. Parameters investigated included

bed characteristics, turbidity, suspended sediments, pH, major ions, nutrients, specific conductance, and presence of "biologics" such as fecal mater, streptococcus, giardia, and benthic invertebrates. Work next year will look at bed particle size, pool to riffle ratios, and the presence of periphyton and fish. Alaska Regional Coordinator for I&M Lyman Thorsteinson has done initial fish work by catching (or so he assures us) arctic grayling at the confluence of Rock and Hines Creeks.

Greg Probst
Physical Sciences Tech
Ken Karle
Hydrologist

Soils Processes

Soils have a strong sensitivity to climate change and function as an indicator of ecosystem status. Any change in vegetation, input energy, or input chemistry readily changes soils chemistry and composition. Soils also have a direct relationship with productivity and function as a trap for aquatic and atmospheric contamination. To understand the role of soils in the Rock Creek watershed the USDA Soil Conservation Service and NPS DENA signed an inter-agency research agreement. The two agencies are working together to describe, map, sample, and monitor the soils of the drainage.

Soil transects taken adjacent to Rosanne Densmore and Karrin's vegetation monitoring plots and elsewhere within the drainage identified 8 distinct soil-type units. Sampling and description of the units provided information for a soils-type map drawn on a mylar overlay of a high altitude aerial photo of the drainage. The map highlights four sites for further sampling, lab analysis, and electronic sensor instrumentation. Three of the sites correspond to the vegetation plots in the spruce forest, at treeline, and on dry alpine tundra. The fourth site sits on the telemark hill and looks at permafrost because of its sensitivity to temperature increases. UAF consultants will assist DENA in the set up of electronic instrumentation on these sites next year. The soils stations will look at micro-weather, soil temperature at varying depths, soil moisture content, and redox reactions.

A proper season-end summary of these components of the Inventory and Monitoring Program is incomplete without mention of some of the I&M bloopers. For instance, we learned that it takes more than two people to tango with a 10 meter high, 200 pound meteorological tower in gusty winds near the top of Mount Healy. Closely related, we learned that, dropping from a height of 10 meters along an arc described by a 200 pound arm, an anemometer can dig itself a good depth into the tundra and shatter into a remarkable number of pieces (the number of pieces possibly directly related to the cost of the anemometer). We also learned that I&M dignitaries from WASO don't mind getting lost on a tour of the Rock Creek watershed. These hard lessons learned during the nascency of I&M can only help to make the program stronger in future years.

Greg Probst
Physical Sciences Tech
Phil Brease
Geologist

NRMTTP

As a member of the sixth class of Natural Resources Management Trainees, Natural Resources Specialist Assistant Hubert Chakuchin will attend a two week training course from November 8th to the 20th. The first week's training will be held in Brunswick, Georgia for Archeological, and Wildlife and Natural Resources Protection. The second week will be held in Jacksonville, Florida to attend George Wright Society's 7th Conference on Research and Resource Management.