

# *Refuge Notebook*

Volume 10 • 2008

This volume was compiled in 2016 by Jennifer Peura from the Kenai National Wildlife Refuge's archive of *Refuge Notebook* articles. Formatting has been improved, some hyperlinks (URI's) have been updated, and minor edits were made, but the articles have mostly been unchanged.

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## It's that time of year... be careful out there!

by Rick Ernst



*Photo of a moose collision with car.  
Credit: State Troopers*

It's that time of year when moose-vehicle collisions climb at an alarming rate. During winter months food is scarce and the big animals must travel through deep snow and ice. You can make their winter struggle a little easier by being alert when driving Kenai Peninsula roads this winter.

Many factors contribute to the climbing numbers of wildlife-vehicle collisions during winter—darkness, icy roads, driving too fast, not paying attention, lower visibilities, and poor vehicle maintenance, as well as an increasing human population. Motorists should keep windshields, mirrors and headlights clean. Make sure both headlights are working, as well as brake lights.

Accidents do happen but hitting a large wild animal such as a caribou or moose will very likely cause expensive vehicle damage and possible injury or even death. The average cost of a moose-vehicle collision in Alaska is \$8,400, according to the Alaska Moose Federation website. Remember that if you see an animal cross in front of you there may be another one following. Slow down—be extra cautious.

There is a group of state, federal and non-profit individuals working on reducing wildlife-vehicle collisions for the Sterling Highway between mileposts 58 (the junction with the east entrance to Skilak Lake Road near Jim's Landing) and 79 (where the two-lane becomes a four-lane in Sterling). The Alaska Depart-

ment of Transportation and Public Facilities is looking at rebuilding this section of highway, much of which crosses the Kenai National Wildlife Refuge. Both cow moose and caribou were collared with global positioning system (GPS) receivers that stored satellite-based locations every 30 minutes from October until April, and then every 2 hours until the collars automatically dropped off the animals on July 1. Fifty-nine collars were retrieved from moose and 4 from caribou over the past 2 years.

Data downloaded from the collars provided over half a million locations and documented 918 crossings of the Sterling Highway between milepost 58 and 79. You may have noticed the half-mile mileposts along this stretch of highway, and the large signs at the east and west ends warning motorists of the "High Wildlife Crossing Area next 18 miles." The Refuge has encouraged motorists to call the Wildlife Hotline (262-2300) if they observe wildlife along this stretch of highway; and report between which milepost markers they saw the animal, what species, and the date and time of the sighting. Posters explaining the study are posted at local Post Offices, stores, and visitor centers. Brochures further explaining the study are available at Visitor Centers in Kenai and Soldotna, and at the Kenai Refuge Headquarters.

Since the study began in November of 2005 we have received over 166 calls on the hotline reporting over 300 animals crossing or along the Sterling Highway. Mostly moose have been reported, but motorists have also reported caribou, black and brown bears, lynx, and coyotes. We appreciate everyone who has supported this effort by calling the hotline to report their sightings. Please remember the hotline is specific to the Sterling Highway between milepost 58 and 79.

There have been 122 wildlife-vehicle collisions on the Sterling Highway between milepost 58 and 79 between years 2000 and 2006. Based on the average of \$8,400 per accident, that is over one million dollars! Traffic volume along this section of highway continues to increase. As the number of vehicles and the speed of vehicles increases, the highway becomes more and more of a barrier to wildlife trying to cross.

Many times people look to some government agency or someone else to solve such problems. Well, this is a problem that we as individuals can all help to solve. Please be extra careful driving this winter. Take your time, obey the speed limit and remember to slow down when road or weather conditions worsen. Blowing snow, darkness, icy roadways and driving too fast can ruin your day when a moose steps out onto the high-

way in front of you.

Make one of your New Year resolutions to be extra careful while driving. You may save the life of a moose and possibly your own as well. Happy New Year!

*Rick Ernst has been a wildlife biologist and pilot at the Kenai National Wildlife Refuge since 1993. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Seward to Kenai mail trail

by Gary Titus

“A health to the man on the trail this night; may his grub hold out; may his dogs keep their legs; may his matches never misfire” poem first published in 1899 by Jack London.

The unsung hero's of the early years must surely have been the mail carriers who braved the elements to maintain that thin thread of contact with the outside world. During the brief summers mail traveled largely by water, but in the winter large stretches of Cook Inlet became unnavigable due to ice packs and bergs. Kenai might have no mail in or out from December to April, unless it could be carried overland by dog team.

By 1902 the mail delivery system in Alaska had over 2,160 miles of dog sled routes, 460 miles of dog sled and horse routes and 112 miles of railroad. More routes were added every year as gold strikes opened up new country, new towns developed and older towns grew. The longest trail ran from Seward to Nome and was called the Iditarod. A branch of the Iditarod left the trail at Kenai Lake and ran approximately 125 miles over frozen swamps and lakes to the village of Kenai on Cook Inlet. This trail was poorly marked and maintained and traveled through what would become Kenai National Moose Range and later re-named, Kenai National Wildlife Refuge.

In 1903 a Senate subcommittee visited Alaska and commented on the lack of a comprehensive transportation system. As a result of this visit the task of overseeing construction of roads and trails in this growing Territory was given to a Board of Commissioners. Two years later this became the Alaska Road Commission (ARC). The ARC rapidly became the main player in the development of Alaska's trails and roads, conducting formal surveys and constructing and marking thousands of miles of trails and roads over the next half century.

In the winter of 1923 a reconnaissance of the winter trail from Kenai Lake to Kenai was made by the ARC. This trip was made from Moose Pass to Kenai in four days employing one man as a guide and one dog team consisting of three dogs and one light sled. The route from the west end of Kenai Lake followed a Bureau of Public Roads light wagon road for a distance

of approximately 5 ½ miles along the south bank of the Kenai River. It crossed the river near Schooner Bend, on a bridge constructed in the fall and winter of 1920, the trail continued on the wagon road along the north side of the river for approximately two miles. The trail then ran on a bench above the river for a distance of four miles where at this point the trail turned north and left the river following up a small creek to a long lake (Lower Jean Lake). The trail then crossed a low pass continuing through low swamp and lakes to the Moose River and then down the river to the mouth. From there the trail followed an old native trail to Kenai.

Substantial work was done on the Seward-Kenai Trail following the 1923 reconnaissance. Two new shelter cabins at Mile 19 and Mile 37 respectively, from Kenai were constructed, one old cabin at mile 46 was repaired, 18 miles of new trails cut to a width of nine feet and 27 miles of old trail widened to five feet. The two new 14 x 16 log cabins had one door, two windows, corrugated iron roof, a sheet iron stove, five joints of pipe, and a pole bed, all the comforts of home. The building of the new cabins and repairing the old cabin were done at a cost to the Territory of Alaska of \$750 dollars. After spending a night sleeping directly below a drip in one of these cabins a musher suggested the need for some improvements.

The route wasn't an easy one for the mail carriers who at times had to transport as much as 1200 pounds of mail to Kenai with 600 pounds about the maximum load the dogs could pull over the long and rough trail. The carrier had 30 days to make the round trip but in good conditions he could do the trip in seven to eight days. The game warden for the Kenai Peninsula wrote in his January 1924 report the following; “Seward-Kenai mail carrier had come in previous day, dogs very worn from a long hard trip fighting soft snow and slush ice, carrier came up south side of (Kenai) lake crossing at Black point at much risk to himself and team”

As the population of the Kenai grew, roads were built, and the dogsled transportation was challenged by the airplane. Some improvements on the trail were questioned by the carriers as in an incident in the fall of 1929. The improvement on the trail was a cov-

ered bridge over the Kenai River near Schooner Bend. Just as a crew finished the bridge's fine, weather proof shed, up mshed the Seward-Kenai mail carrier with his string of dogs. The carrier stopped, surveyed the newly completed structure and demanded "how in the blank-blank a man was expected to cross a bridge without any snow on it" the carrier had a record load, including groceries and other commodities and the longer he looked at the bare bridge deck, the less he like it. Finally the workmen hauled snow onto the bridge so the dog team could pull the sled across.

In 1925 the ARC began building airports across Alaska opening a new era of mail delivery. With the loss of mail traffic many trails were inevitably aban-

doned. In 1939 the Alaska Road Commission finally quit maintaining its shelter cabins, ending an era in Alaska transportation.

Today the trail that crossed what is now the Kenai National Wildlife Refuge has disappeared, the cabins lost in highway improvement or forest fire and only memories remain of the mail carriers who brought the good and sometimes the bad news from the outside world.

*Gary Titus is the Wilderness Ranger, Cabin Manager and Historian at Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Kenai Peninsula gulls: worth a second look

by Toby Burke

Our local winter landscape often seems austere and lifeless especially those vistas that take in the Cook Inlet and the lower Kenai River Flats on a somber, gray day. The Kenai Flats are vast and seemingly empty in winter if not for the occasional lone raven glimpsed and heard crying in the distance, merely emphasizing the area's bleakness.

But look more closely against the monochrome landscape and with some difficulty you may see a few random gulls flying and gathering on the lower stretches of the river to feed and rest. The gulls barely stand out from their dull surroundings and appear nondescript to most. But to the discerning eye these gulls represent several hardy resident species and not too infrequently exotic species, distant wanderers from foreign shores.

Gulls are renowned for their habit of wandering far and wide from their normal breeding and winter ranges. These wandering gulls are usually juveniles that are not yet tied to normal breeding ranges or adults that have dispersed after a successful or failed breeding season. Accordingly, exotic gull species are discovered with remarkable regularity throughout the year but especially in fall and winter. So when it comes to gulls expect the unexpected.

One of the very best places to observe gulls on the entire Kenai Peninsula is the lower five river miles of the Kenai River, from the Warren Ames Bridge downstream to the mouth. The gulls reach their greatest concentration along the lowest one and a half miles, from the Port of Kenai downstream to Spruce Street at the mouth.

Exceptional numbers of gulls are present on the lower Kenai River continuously from mid-April through the early-September. This area is the home of a colony of no less than ten-thousand breeding Herring and Glaucous-winged Gulls and the various hybrid forms of the two species as well as a scattering of Mew Gulls.

Gull numbers peak from mid-July to mid-August and occasionally exceeding fifty-thousand individuals. At this time the massive Kenai dip-net, sport, and commercial salmon fisheries are in full swing; commercial fish processors are working at full capacity; lo-

cal breeding gulls have recently fledged their young; and breeding gulls and their recently fledged young from other colonies as well as local and distant non-breeding gulls descend on the smorgasbord of fish waste along the lower Kenai River.

This same area provides opportunities to observe gulls in winter. Though the gull numbers are greatly diminished as the vast majority of gulls have migrated out of our area, it is a time when limited fish processing occurs and with it relatively small but diverse concentrations of winter gulls form. These smaller concentrations of gulls are easier to scrutinize than the vast summer flocks and occasionally yield species that are uncommon or even rare to the Kenai Peninsula.

Jaegers, skuas, gulls, kittiwakes, and terns all belong to the family Laridae or gull family. Twenty-eight species of "gulls" have been documented on the Kenai Peninsula and its nearby waters.

Our three resident, or year round, gull species are Glaucous-winged, Herring, and Mew Gulls. Bonaparte's Gull, Black-legged Kittiwake, Parasitic Jaeger, Arctic and Aleutian Terns also breed on the Kenai Peninsula but are not year round residents.

Sabine's Gull, Pomarine and Long-tailed Jaegers are uncommon annual migrants through the Kenai Peninsula. Likewise, Caspian Terns have not yet been documented breeding on the Kenai Peninsula but they are also seen annually after their post-breeding dispersal from colonies in Prince William Sound. Non-breeding Glaucous Gulls also frequent our area. Juveniles are observed in small numbers year round but most frequently in winter.

Slaty-backed and Thayer's Gulls are vagrants encountered almost annually. Ring-billed, California, and Franklins Gulls are vagrants observed every one to three years. While Black-headed, Ivory, and Iceland Gulls are vagrants observed irregularly, at intervals of three to five years.

South Polar Skua, Western, Heermann's, Ross', and Black-tailed Gulls, Red-legged Kittiwake, and White-winged Tern are all extremely rare with only one or two documented sighting of each species on the Kenai Peninsula.

Another location to study concentrations of gulls

is the Kenai Peninsula Borough Dump located south of the city of Soldotna off the Sterling Highway. Gulls are often found feeding in the main dump basin or roosting nearby along its perimeter. Though this locale lacks ambiance it often rewards with excellent views of roosting gulls.

If you observe any of these less common gull species mentioned above please take time to report them to the Central Peninsula Bird Hotline sponsored by the Kenai National Wildlife Refuge. So get off the

couch and shake off those winter doldrums with a winter outing and maybe a serendipitous discovery of an uncommon winter gull.

*Toby Burke is a refuge biological technician who is intrigued by the status and distribution of Alaska and Kenai Peninsula birds and enjoys birding with his wife and family. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Celebrate winter at Kenai National Wildlife Refuge

by Candace Ward



*Photo of Snowshoers on Winter Fun Day in Kenai.  
Photo Credit: USFWS*

Winter is a challenging time for Alaskan animals facing cold temperatures and deep snow. Through a variety of wonderful adaptations wildlife cope with winter. Furbearers have thick, snow resistant coats. Hare and lynx move easily over snow with large snowshoe shaped feet. Others escape winter like bears digging dens and going into dormancy. While voles and shrews use snow as an insulating blanket to shelter un-

der and search for their food. We humans mimic their adaptations by layering with warm clothes, insulating our homes, sleeping extra hours, and traveling over the snow with snowshoes and skis.

To learn more about how Alaskan wildlife handle winter and how people can adapt and have fun in this chilly season, come to Winter Fun Day at Kenai National Wildlife Refuge on Saturday, February 9, from 10 am to Noon.

From 10 am – 11 am, there will be a variety of free activities, crafts, and games for families and kids of all ages. Refreshments include snow slush cones and hot chocolate. There will be a special free drawing for winter theme door prizes provided by Alaska Geographic.

At 11 am and again at noon, the movie – “Stranger in the Woods” will be shown. This 40-minute movie is for children of all ages and shares a magical winter mystery story.

A guided snowshoe walk is offered for first-time snowshoers from 11 am to Noon. The Refuge provides snowshoes. The walk covers 1/4 mile round trip and includes a variety of outdoor activities. Space is limited to 25 people. You need to be 9 years of age or older to go on the walk. Children must be accompanied by a responsible adult. To go on the walk, you need to pre-register with Education Specialist, Michelle Ostrowski by calling 260-2839.

Please join us for Winter Fun Day to celebrate our beautiful, snowy winter or get outdoors and create a fun day of your own!

*Candace Ward is a park ranger, who leads the Refuge’s Information and Education Program. For more information about Winter Fun Day, contact Kenai National Wildlife Refuge at 262-7021. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Noise in the Wilderness

by John Morton

If you've ever boated down the Kenai River during fishing season or hiked from one of the trailheads off the Sterling Highway, you probably noted how noisy it was even though you were in the great Alaskan outdoors. The rattle of an 18-wheeler or the dull whine of a motor boat can follow you for a long way in the woods. Noise can be a real spoiler when you're trying to get away from it all.

Ironically, Congress designated 1.3 million acres, fully two-thirds of the Kenai Refuge, as Wilderness. Wilderness is described in the 1964 Wilderness Act as an area which retains "its primeval character...with the imprint of man's work substantially unnoticeable" and which has "outstanding opportunities for solitude..." It's difficult to feel solitude when the sounds of other humans or their activities can be heard, sometimes over great distances.

Noise is typically measured in decibels (dB). The sensitivity of the human ear to sounds of different frequencies is denoted by dBa. The threshold of hearing is 0 dBa, normal conversation occurs at about 60 dBa, and the threshold of hearing damage is approximately 120 dBa. Because decibels are on a logarithmic scale, people generally associate a 10 dBa increase with a doubling of sound level.

Whenever I go hiking up the Skyline or Fuller Lakes trails, I'm always surprised at how far I have to travel to escape traffic noise. Three years ago, we measured noise on and adjacent to the Sterling Highway where it passes through the Refuge in July, a period of peak vehicle traffic. Noise averaged 72 dBa immediately on the highway, about the equivalent of typical construction equipment. However, we recorded values as high as 120 dBa for short periods, loud enough to cause permanent hearing damage!

Where the Sterling Highway passes through forested areas, most vehicle-generated noise was reduced to background levels within 200 yards of the highway. However, vehicles continued to be heard above background noise levels more than 500 yards from the highway where the highway passed through open areas such as wetlands.

In winter, snowmachines generate about the same noise levels as automobile traffic. Staff at Denali Na-

tional Park conducted pass-by tests using a 4-stroke Arctic Cat and a 2-stroke SkiDoo Skandic 500. These drive-by tests were conducted in 8 inches of powder with a 24-inch base, conditions that are more typical of a backcountry snowmachine experience than groomed trails. At full throttle, average sound levels were 67 to 76 dBa from 50 feet away, depending on whether they were 2- or 4-stroke engines. However, noise measurements alone can be a little deceptive. From the vantage of a treeless hill, an observer was able to hear snowmachine noise from 2.5 to 3.5 miles away depending on topography, wind and vegetation.

The Kenai Refuge is still a relatively quiet respite from more urbanized areas. As part of other wildlife monitoring, we measured ambient sound levels at 5-km intervals across the Refuge during the last three weeks in June 2004 and 2006. We measured 5-minute, integrated averages during early morning hours (0500–1000 hours) in the absence of rain and high winds. The mean sound level, averaged from 257 sites across our 2 million-acre Refuge, was 45.1 dBa. This value is a little higher than background noise levels (30–40 dBa) typically measured in other wildernesses.

Some of these early morning noise measurements were as high as 95 dBa, usually the result of low flying aircraft. To put this in perspective, 95 dBa indicates a 32-fold increase in noise over ambient sound. Motor vehicles traveling on the Sterling Highway represent an 8-fold increase in noise over typical background sound levels. Our data strongly suggest that, while the current soundscape is representative of undeveloped lands, noise pollution can be problematic at some sites on the Refuge, at least some of the time, for humans and probably wildlife at least some of the time.

The Kenai Refuge has provided some noise protection in wilderness areas. For example, we prohibit non-essential helicopter flights into Wilderness during the fall moose and caribou hunting seasons. This ban is not simply to avoid spooking the game. It is because we don't want to degrade the wilderness experience of hunters. Hunters are a big constituency of the refuge

and they enjoy the opportunity to “get away from it all” every bit as much as the hikers, bird watchers and photographers.

The absence of noise is a valuable commodity and people are willing to pay good money to experience it. Wilderness lodges market solitude along with their fishing, hunting and wildlife-viewing opportunities. When the solitude of a wilderness lodge is threatened, it can mean substantial loss of business. For example, wilderness fishing lodges on the Alaska Peninsula are seriously concerned that the proposed Pebble Mine could greatly increase aircraft flyovers and other activities which would degrade the wilderness experience of lodge guests. Similarly, a wilderness lodge in Sel-dovia Bay closed its doors several years ago because of blasting in a nearby rock quarry.

Noise pollution will almost certainly increase on

the Refuge as aircraft overflights, motor boats, highway traffic, and snowmachine use increase. In 2006, more than a million vehicles traveled down even the remotest sections of the Sterling Highway. On average, that's two vehicles every minute of every hour of every day! And at the current rate of population growth, over 1000 new residents are added to the Kenai Peninsula every year! These are startling statistics that reflect a vibrant economy but a diminishing wilderness experience for residents and tourists who seek it.

*John Morton is the Supervisory Fish & Wildlife Biologist at the Kenai National Wildlife Refuge. He is also adjunct faculty at the University of Alaska Fairbanks and Colorado State University. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Drive away those winter blues!

by Jetta Fonkert

Well, it's that time of year again; the feeling that you have endured through months of long dark nights, lots of snow that sooner rather than later melts, followed by colder than comfortable temperatures (did I really bring the cold from Fairbanks . . . ?) Sure we're gaining daylight but are we going to make it until spring? Have you found yourself having any of the following symptoms?

- inactivity
- weight gain
- social withdrawal
- sleep disturbance
- itchy scalp (oh wait, that's just the dry climate)

"Oh No!" you exclaim. Yup, the statistics are there, my friends. So now what? Well, experts around the world agree that light therapy in sufficient intensity and time is an important component in the successful treatment of the winter blues. But who wants to sit in front of a lamp for more than 2 minutes? Boring... What you need to do is drive away those winter blues!

## **Ranger Jetta's Top 10 Cures for the Common Fever Caused by Cabins:**

- 10. Drive up Ski Hill Road to the Visitor Center (Refuge Headquarters) and take a look around. Pick up something from the Alaska Geographic sales outlet for the out-of-town relative that you've been trying to drag up here for the past 30 years.
- 9. Check out one of the movies played every Saturday at the Visitor Center starting at noon. Discover parrots and giant otters in the Peruvian rain forest of "Manu," playing March 1st. Movies play at noon, 1, 2, 3, and 4 pm. You can always call the Refuge for a movie schedule.
- 8. Bring your galoshes and hike the 2.2 mile Centennial Trail located at the Visitor Center.

- 7. Grab your cross-country skis and check out the 30 plus miles of ski trails also located at the Visitor Center. Decide what trail you want to take and drag the family or invite a friend. Now is the time while there's still snow!
- 6. Find your snowshoes or winter boots and check out Seven Lakes Trail. The trail provides good snowshoeing and skiing opportunities and the trailheads are located at Kelly Lake Campground (along the Sterling Highway) and Engineer Lake Campground (mile 9.4 from the east entrance of Skilak Lake Road).
- 5. Load up the snowmachines and take a blast through the Caribou Hills (make sure you know where your going, what the regulations are and what the weather conditions are like. Call the Refuge for info and maps).
- 4. Grab a few buddies or pack up the kids and head out to Engineer Lake for some ice fishing action.
- 3. Grab the shotguns and hunt grouse or ptarmigan (open season is August 1– May 15 and bag limits for both is 10 per day; see page 109 of Alaska's hunting regulations for more info).
- 2. Go for the fur and set up that trap line you've always wanted to do (be sure you have a trapping license and follow trapping regulations; you also need to take the trapping and/or snaring class offered every fall at Refuge Headquarters prior to trapping or snaring on the Refuge.)
- 1. Rent a public use cabin for the weekend for maximum winter fun! Don't forget plenty of food and cooking utensils, cross-country skis, snowshoes, ice fishing gear, hiking boots, and whatever else you might need for a weekend full of fresh air, sunlight, and all the wonders of the outdoors.

If this doesn't drive away your winter blues, you need a more intense dose of sunlight. Try Maui . . .

Call the Kenai National Wildlife Refuge Headquarters at 262-7021 for more information on winter activities.

*Jetta Fonkert is a Park Ranger (Visitor Services) at*

*the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Harbingers of change—temperate owl species expanding in to Alaska and Kenai Peninsula

by Toby Burke

In 1959 Ira Gabrielson and Frederick Lincoln published the monumental ornithological work *Birds of Alaska*. This comprehensive work includes an annotated list of 311 naturally occurring bird species that had been observed in Alaska through June 1958. In 1978 Brina Kessel and Daniel Gibson updated the list through November 1977 totaling 381 bird species. In 1991 Gibson and Kessel again updated the list documenting 436 species. Gibson, Steven Heinl, and Theodore Tobish compiled 468 species through 2002. And as of January 1, 2007 the *Checklist of Alaska Birds* stood at a remarkable 478 species. If that isn't impressive enough as of January 1, 2008 it increased by seven to 485 species not to mention 26 additional unsubstantiated species.

*The Checklist of Alaska Birds* is primarily founded on the collection of voucher specimens but in the absence of an actual physical specimen audio, photographic, and video recordings are used to substantiate the state's naturally occurring species. Unsubstantiated species are those not meeting this rigorous documentation standard their presence being founded solely on compelling written details by one or more expert observers. Thus, through 2007, at least 511 naturally occurring bird species have been reliably observed in Alaska.

This year was an incredible year for new bird species in Alaska. Strays from Eurasia included Gray Heron and Brown Hawk-Owl observed on St. Paul Island and Sedge Warbler and Yellow-browed Bunting observed on St. Lawrence Island. Bullock's Oriole and Vesper Sparrow are North American breeders also newly documented in Alaska. Additionally, the checklist gained a new species as the result of a taxonomic division of Bean Goose, a Eurasian vagrant, into Taiga Bean-Goose and Tundra Bean-Goose.

Eurasian Collared-Dove, an Old World species, was also observed in Alaska in 2007 but observers did not submit supporting documentation in time to be considered for the latest checklist update. Interestingly, the Eurasian Collared-Dove escaped from captivity in the Bahamas in the 1970s, has become

firmly established in the southeastern United States, and through natural dispersal as well as deliberate releases has rapidly colonized North America. There is a good chance that we on the Kenai Peninsula may see the vanguard of this invasion within a few years.

The checklist does not include species whose occurrence in Alaska is considered unnatural, the result of human assistance, known or presumed. This includes captive birds, escaped or deliberately released, as well as ship-assisted arrivals. Accordingly, you will not see Humboldt Penguin on the checklist even though a Humboldt Penguin was captured alive in a southeast Alaska fisherman's net in 2002. It is strongly suspected that the penguin was transported to Alaska waters aboard a South American ship. Chilean and Peruvian fisherman commonly keep these docile penguins as shipboard pets. Nor will you see Brown Booby on the checklist even though one accompanied a yacht sailing 2,200 miles from Hawaii to the port of Kodiak in August 1999.

Other notable birds you will not see on the checklists are ones that are becoming increasingly common on the human landscape such as Rock Pigeon (domestic pigeon), Wild Turkey, Northern Bobwhite, and Ring-necked Pheasant. Considered commensals these species are not known to persist independent of humans and their altered environments. But it should be noted that we likely will see Ring-necked Pheasants included on some future *Checklist of Alaska Birds*. After numerous introductions it appears that they are breeding and expanding in the greater Homer area to the point that they may some day persist independent of humans.

Though also not native to Alaska, European Starling is already on the state checklist, not merely because it is believed to have made it to Alaska on its own, where it typically lives in urban and agricultural environments, but because it also persists, though not commonly, in the larger wilder landscape. European Starling along with the newly arrived Eurasian Collared-Dove and the rarely encountered House Sparrow and House Finch have the com-

mon and dubious distinction of being our only invasive bird species yet encountered in Alaska.

It must be noted that like most comprehensive bird checklists *the Checklist of Alaska Birds* reflects not only the contributions of many highly skilled and passionate professional ornithologists and wildlife managers but also the contributions of many highly skilled and passionate citizen scientists whose eyes, ears, and

minds are open to the diversity of our Alaska avifauna.

*Toby Burke is a refuge biological technician who is intrigued by the status and distribution of Alaska and Kenai Peninsula birds and enjoys birding with his wife and family. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Changing weather makes lakes and roads hazardous for Refuge users

by Brenda Nichol

It's that time of year again. The days are getting longer and warmer. Yippee! Unfortunately, longer, warmer days aren't always such a good thing.

As I write this, one of our law enforcement officers updated me with current conditions on Hidden Lake. After responding to assist someone whose vehicle had gone through the ice near the rocks at the north end of the lake, he said, "There's two inches of water over the ice. Ice is 20 inches thick in most areas, 15-20 inches in others, with thinning ice along the shore and around the rocks." Another refuge officer advised that ice on the north side of the lake goes out first, especially near the rock faces where the sun warms the area all day. He also said that there are a few warm springs in the lake that keep those areas warmer and the ice thinner. The vehicle was successfully pulled from where it had gone through the ice and was able to make it to the campground. Unfortunately, the tow truck that was responding said he went off the road because of very treacherous and icy road conditions on Skilak Lake Road.

Driving on any road this time of year can be dangerous and refuge roads possibly even more so. Some of the roads are maintained by State Department of Transportation and others by refuge maintenance staff, but most are not given the attention that main highway routes are.

Anyone planning to visit the refuge should be aware of current conditions. Feel free to call the refuge at (907) 262-7021 to find out if we have a recent update. Although we encourage you to contact us for conditions, verify them for your self before starting your adventure. This time of year, conditions are changing daily, so be safe!

**Editor's note:** In view of the recent reported changing weather, snow and ice conditions on the Kenai Refuge, we are rerunning an article by Chris Johnson from February 2006. In the following article Chris writes of his patrolling adventure on Hidden Lake.

## Hidden Lake Ice Fishing Adventure

By: **Chris Johnson**

I am going to tell a story on myself in the hopes that it may educate others and maybe save someone from going in the drink.

Last March we had been experiencing a warming spell for several weeks. The snow was leaving fast; most of the lakes on the Kenai Peninsula were snow free and had standing water on the ice. I was on patrol in the area of Hidden Lake about an hour or so before dark. Hidden Lake is located in the central Kenai Peninsula off of Skilak Loop Road within the Kenai National Wildlife Refuge. The Lake is approximately 2000 acres and has a developed campground on the south end of the lake. The fishing on Hidden Lake is primarily known for the good-sized lake trout and kokanee.

I spotted a group of fisherman with whom I had previous encounters regarding illegal methods of fishing, i.e., using live fish for bait and using too many fishing lines. In Alaska it is illegal to use live fish for bait while sport fishing in fresh water. This is to prevent introduction of non-native species of fish and fish diseases into our lakes and rivers. It is also illegal to use sport-caught fish for bait, dead or alive, although the head, tail, fins and viscera of legally caught sport fish can be so used. For ice fishing only two lines may be used through the ice. Additional lines may be used for fishing for pike and burbot in some waters, but not on Hidden Lake.

I set up surveillance on the suspects in the campground. I could see that they were preparing to go ice fishing, as they were loading ice fishing poles and an auger into the back of a truck. They loaded up and headed north on the lake. The ice on the lake was about two feet thick in most places. Six inches of strong ice will support a passenger vehicle and eight inches is the recommended thickness to support a pick-up truck. I followed on foot, sticking to cover

along the lake shore so my surveillance would not be compromised.

Approximately a mile down the lake I located a tip-up set up. A tip-up is an ice fishing device that is designed to sit over the top of a hole in the ice. It has a base that sits over the hole and a spool of fishing line dropped through the hole. A flag is attached to the spool so that when a fish takes the bait, the flag pops up and alerts the fishermen that they have a bite. The suspect fishermen were a couple miles further down the lake. I pulled up the line on the tip-up and found a live fish hooked in the back for bait. I dropped the line back into the hole and set the tip-up back up. I then hid in the woods near the tip-up to wait for the suspects to return to the tip-up.

Right at dusk the suspects' truck stops at the tip-up and one of the guys starts pulling up the line. I jump out of my hiding spot and identify myself as "Game Warden" and tell them that they are busted. As I said before, these guys were known to me. They proceed to tell me that the tip-up is not theirs but another guy's that is known to use live bait on occasion. I asked them why they were pulling up the tip-up then. They told me they did not like the other guy cheating and they were going to mess with his line. I told them that it was illegal to mess with other peoples' fishing or hunting activities.

It was dark by now and I could see a set of headlights towards the north end of the lake headed towards our location. I told the guys to get going and I would catch up to them later. I dropped the tip-up line back in the water, and hid along the shore again. About ten minutes later, a second truck stops and the driver gets out of the truck and starts pulling up the line on the tip-up. I again jump out and identify myself as "Game Warden" and tell him that he is busted. The guy who I am also acquainted with tells me that the tip-up isn't his but that it belongs to the first guy that pulled up the tip-up. He does not know that I had talked to the other guy. He finally admits that the tip-up is his and I give him a ticket for using live bait.

We then all head back to the campground. I pretend to leave, but continue my surveillance of the suspects, unknown to them. A short time later I watch both suspects head back out on the lake. This time I decide to follow them in my truck with the lights off so they didn't know that I am following them. It's pitch

dark and difficult to see with the naked eye. I am driving with a night vision monocular and can see fairly well. I spot both suspects at different locations on the lake and decide to contact the vehicle farthest to the south on the lake.

I am focusing on the suspect vehicle down the lake and forget where I am on the lake. I know that there are some areas on the lake that tend to have thin ice, particularly areas where there are dark-colored rocks just under the surface of the water. You probably know what happened next. I hit one of those areas of thin ice. I knew immediately what I did. I waited a few seconds for the vehicle to stabilize. I grabbed a flashlight and looked out the open driver's side window. I could see three or four feet of open water.

I crawled to the passenger side and found that the running boards were flush with the ice. I tested the ice, and found it strong enough to support my weight. I got out of the vehicle and surveyed the situation I was in. My truck was approximately 100 yards from shore. The body of the truck was supported on a large rock. All four tires were over open water. Under the front tires was a steep drop off about 20 or more feet. I emptied my truck out in case the truck went in farther and walked back to the campground, where another officer met me and gave me a ride home.

The next day I gathered up equipment and help. One of our maintenance men Al O'Guinn, my boss Jim Hall and I headed out to Hidden Lake to retrieve my patrol truck. On the way I received a call on my cell phone from one of the guys to whom I had written the ticket for using live bait. I thought he was going to gloat over me sticking my truck in the lake, adding insult to injury. He asked me if I had sunk my truck in the lake. I told him that I had and I was headed out to retrieve it. He asked me if I could take a look at his truck too; he had sunk his truck that same night in a different part of the lake. With a little thought, some hard work and a lot of prayer we were able to retrieve both vehicles.

*Chris Johnson is the Supervisory Law Enforcement Officer and Brenda Nichol is the Refuge Clerk. Both have worked at the Kenai National Wildlife Refuge since 1989. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Americans are losing their interest in Nature

by Ted Bailey

We Americans are apparently losing our interest in the natural world. Instead of regularly venturing outdoors like many of us used to, recent studies are showing that more Americans are shifting away from active outdoor-recreation to sedentary indoor electronic-media-dominated recreation, a tendency recently named “videophilia”. This change in the behavior of Americans and perhaps in people in other countries has been the subject of research by Oliver Pergams, University of Illinois, and Patricia Zaradic, Bryn Mawr College, Pennsylvania. Their most recent research was published in a February 4<sup>th</sup> article that appeared in *the Proceedings of the National Academy of Science*.

After hearing about these findings on the national news and reading an article about the study in a recent Newsweek magazine I obtained a copy of the original report from Dr. Pergams. In addition to only using visits to U.S. National Parks as a “proxy” to measure outdoor visits—data that some reviewers questioned from their first similar study in 2006—they added long-term per capita (proportion of the total population) visits to state parks, national forests, Bureau of Land Management (BLM) lands and visits to national parks in Japan and Spain. In addition, Pergams and Zaradic also analyzed the per capita sale of American hunting licenses (1950-2005), duck stamps (1935-2006), and fishing licenses (1950-2005) and numbers of people that went camping, hiking, and backpacking relative to the number surveyed. They did not evaluate use of snowmobiles and ATV’s because these forms of outdoor recreation haven’t been in use long enough to detect long-term trends.

Their results showed a “fundamental and pervasive” shift away from outdoor-recreation by Americans. The decline in visitation to all natural areas (national and state parks, national forests, and BLM lands) started between 1981 and 1991 and averaged a decline of about -1.2 percent per year. The peak year in per capita sales of duck stamps peaked way back in 1953, per capita sales of fishing licenses peaked back in 1981, the last high in per capita sales of hunting licenses was in 1983, and per capita visits to national parks peaked in 1987. They reported more Americans participated

in camping than any other form of outdoor-recreation (one out of five) but camping is also declining. Camping as a form of outdoor-recreation was followed in popularity by fishing then hunting. The only slight increases in outdoor-recreation were in hiking and backpacking. Interestingly, visits to national parks in Japan showed a similar decline prompting the researchers to suggest that the decline in outdoor-recreation may also be applicable to other countries in addition to the United States. The park-visitation data from Spain were not long enough and began too late to detect any similar declining trends in that country.

The apparent cause of this decline in outdoor recreation was termed “videophilia” defined by the authors as “the new human tendency to focus on sedentary activities involving electronic media.” The authors warn, “We are seeing a fundamental shift away from people’s interest in nature” and that this fundamental shift in behavior is of significance because “it has been found that environmentally responsible behavior results from direct contact with the environment and that people must be exposed to natural areas as children if they are to care about them as adults. Extended periods spent in natural areas, as well as creating a role model, seem to create the most environmentally responsible behavior and increased involvement in biodiversity conservation. Moreover, as today’s adult role models spend less time in nature, this generation of children is also likely to follow suit.”

Increased time spent with electronic media also has detrimental health and sociological impacts. In an earlier reports the authors maintained that “videophilia,” “has been implicated in negative psychological and physical effects, including obesity, loneliness, depression, and attentional problems. Internet use at home is shown to have a strong negative impact on time spent with friends and family as well as time spent on social activities.” One could argue from increasing health problems alone that Americans are already suffering from increased sedentary time spent indoors and less active time outdoors.

It would be interesting to determine if residents of the Kenai Peninsula conform to this nationwide trend in declining outdoor-recreation. The opportu-

nity to experience and actively enjoy nature in the outdoors was once one reason why at least some of us came to Alaska and the Kenai Peninsula abounds with many and diverse outdoor-recreation opportunities. Observing the fishing crowds at Russian River or on the Kenai River in the summer may suggest to some that we may not conform to these national declining trends. But this may be an aberration related to the local concentration of fish and to the attraction of other Alaskans and nonresidents seeking salmon and halibut in easily accessible Kenai Peninsula waters. There does not appear to be similarly increasing hordes of campers, hikers, backpackers, canoeists and hunters on the Kenai Peninsula, which makes me wonder if actively experiencing nature in the outdoors is still a priority for residents of the Peninsula today.

Finally, this apparent nationwide change in behavior from active outdoor recreation to sedentary indoor activities involving electronic media, especially among children, has somber implications for future conserva-

tion. A little known Senegalese ecologist, Baba Dioum, prophetically expressed such a concern in another way forty years ago (1968) at a meeting of the International Union for the Conservation of Nature General Assembly, "In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught." These concerns emphasize the value and importance of youth outdoor education programs such as those conducted on the Kenai National Wildlife Refuge.

*Ted Bailey is a retired Kenai National Wildlife Refuge wildlife biologist who has lived on the Kenai Peninsula for over 31 years. He is an adjunct instructor at the Kenai Peninsula College and maintains a keen interest in the Kenai Peninsula's wildlife and natural history. Both have worked at the Kenai National Wildlife Refuge since 1989. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Refuge trapper violates game laws

by Gary Titus

Animal trapping is perhaps one of the first methods of hunting. Traps were used by central European people to hunt mammoths thousands of years ago. Today the fur bearers are smaller, less dangerous, and better managed. Wildlife biologists support the use of regulated trapping for sustained harvest of some species of furbearers as an effective management tool, as a legitimate recreational activity, and for subsistence.

The trapping season for this winter on the Kenai National Wildlife Refuge is quickly coming to an end. This year was a difficult year for trappers because of light snow fall, rain and long stretches of below zero temperatures. Trappers on the Refuge must first take a class which covers ethics, methods of take, fur bearer's biology and regulations. The classes are well attended and are only required to be taken once, although many show up year after year. As a law enforcement officer, I have seen few violations this year and few complaints. Overall the trappers on the Refuge are a law abiding group but that wasn't always the situation.

Going back to the year 1911, when the Kenai Peninsula was sparsely settled, trapping was an occupation. The only game warden for the Peninsula, Christopher Shea, was located in Seward, Alaska. He patrolled his territory by dog team in the winter and by boats or on foot the rest of the year, making monthly reports to the Governor of the Territory. In his October 1911 report, he reported that his district was unusually free from complaints and had only a few minor violations. With but one exception, that exception was a man by the name of King Thurman. This is his story.

The trapper life followed a yearly cycle of activities. In the fall, before freeze-up, they moved to their cabins on rivers or lakes, taking a winter's grubstake with them. Work began in earnest after the first hard freeze. Then traps and snares were set, and the trappers began their winter routine of checking the trapline, returning to the cabin with the catch, skinning the animals, stretching the furs, and starting out once more to check and re-set the traps. Summers were spent at mining camps or commercial fishing.

Thurman followed this routine: he trapped on the Chickaloon and Rat (now Thurman) Creek drainages

and had several line cabins placed a day's travel apart. During the summer he traveled between his main cabin on the Kenai River and Rat Creek where he mined for gold. He first came to the attention of the Warden in October of 1911 when a complaint was filed stating that Thurman was setting his dogs loose on moose and feeding moose meat to his dogs. On November 2<sup>nd</sup> Thurman was arrested for violating the game law and was transported to Seward, arriving on November 3<sup>rd</sup>. The next day, at the preliminary hearing, he pled not guilty and demanded a jury trial and asked the court to appoint an attorney to defend him. The trial was set for November 6<sup>th</sup>. The witnesses testified and the evidence supported the violation. The jury adjourned to deliberate and after two hours they brought in a verdict of not guilty, which shocked the warden and even surprised Thurman.

In January of 1913, Thurman once again attracted the attention of the new Game Warden, J. Tolman, this time he was suspected of killing moose and poisoning the carcass to kill fur bearing animals. In March Deputy Marshal Evans, E. Chamberlin and Tolman left Seward with two dog teams and the search for Thurman was on. They found his trapping partner, Kulin on Swan Lake. At first Kulin said very little concerning the whereabouts of Thurman, but later told them he was out on his trap line. The trapline and cabin Thurman was using was downstream and that if Thurman got suspicious he would avoid the cabin.

They continued downstream, finding the cabin and laying the trap to catch Thurman. The plan was for the deputy and Chamberlin to take the dog teams and head back to Swan Lake, leaving Tolman at the cabin to capture Thurman. After a two hour wait Tolman heard a team of dogs come in and stop in front of the cabin. Thinking that it was Thurman with his sled he opened the door to grab him only to find the dogs and a sled. Thurman was suspicious and had jumped off the sled at the edge of the clearing where he could observe the cabin, upon seeing the warden he left in a hurry. Tolman seized the dogs, sled and gear.

King Thurman turned himself in on July 2<sup>nd</sup> and pled guilty and was fined \$100.00 or 50 days for killing a female yearling moose; he chose the 50 days. Dur-

ing this time he wrote a letter to the Governor to inform his honor that the game of the Kenai Peninsula was being wantonly destroyed and that he has always tried to abide by the law. It was in his own interest to preserve the game and although he would hate to see a game preserve set aside he felt it must be done if the game was to be preserved for future generations. Thurman also wrote that he was caused a great deal of trouble since his sled and gear was taken by the war-

den, leaving him afoot.

King Thurman continued his trapping and mining lifestyle for two more years until the fateful day he met the bear. But that's another story.

*Gary Titus has been the Backcountry Ranger, Cabin Manager, and Historian at the Kenai National Wildlife Refuge, since 2000. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# It's hiring season at Kenai National Wildlife Refuge

by Scott Slavik

Do you know a college or high school student who likes to work hard in the outdoors, doesn't mind getting their hands dirty, and is looking for work this summer? The Kenai Refuge has a few challenging, yet rewarding, job opportunities. These summer positions could be described as a dream job for the outdoors type, but are equally as attractive for a student who wants to work for a large federal resource agency and discover what's involved in managing a two million acre national wildlife refuge.

**Kenai Trail Crew: Four Positions for College Students:** The refuge will be hiring a seasonal trail crew to complete new construction and rehabilitation projects on refuge frontcountry hiking trails, remote backcountry routes, and Wilderness canoe trails. Projects will include trail re-routes, construction of footbridges, boardwalks, and timber stairs, and installation of drainage and erosion control structures. The crews will be trained to use a variety of hand and power tools, including chain saws, to complete routine trail maintenance (clearing brush, trimming branches, removing downfall, etc.) and new trail construction projects. Trail crew positions begin on May 12 and may last until September 26. Pay is \$16.25 per hour.

Perhaps the most challenging, yet exciting aspect, of the trail crew job is the opportunity to participate in extended overnight stays in the field to complete projects in remote areas of the refuge. What these "spike camps" lack in creature comforts is offset by the unique and memorable Wilderness experiences they offer. The work is physically demanding and the working conditions are not always ideal, but the crew members will enjoy some of the most beautiful scenery the Kenai Refuge has to offer.

**Assistant Youth Conservation Crew (YCC) Leader: One Position for a College Student:** This position assists the YCC Crew Leader with the administration, supervision, and operation of an 8-week program for eight high school youth. Crew projects include maintenance of Kenai Refuge trails, cabins, campgrounds, bulletin boards, signs, toilets, etc. Additional responsibilities include training crew members to use hand tools and equipment, insuring safe work practices, and maintaining logs and field notes regard-

ing work projects and enrollee work performance. The position begins on May 12 and finishes August 15<sup>th</sup>. Pay is \$12.52 per hour.

The trail crew and assistant leader positions are being filled using the Student Temporary Employment Program (STEP) hiring authority. To be eligible to work at the Kenai Refuge under the STEP hiring authority, applicants must be 18 years of age or older, be currently enrolled as a half to full time student (at least six credits) at a college or university during spring 2008, and be returning to a college or university enrolled as a half to full time student in fall 2008.

Application packages for the trail crew and assistant leader positions must be turned into Scott Slavik, Backcountry Park Ranger, at Kenai National Wildlife Refuge Visitor Center on Ski Hill Road in Soldotna by April 18, 2008. Eligible applicants will be interviewed by April 23, 2008. After interviewing, final selections will be made by April 25, 2008 and selected applicants will be notified.

**Youth Conservation Corps (YCC) Enrollee: Eight Positions for High School Students:** If there was a list of the best jobs available for local high school students, the Youth Conservation Corps (YCC) program would be at the top. Enrollees work and learn together by completing projects on the refuge that further the development and conservation of natural resources. This summer, the refuge will hire a crew of eight local youth between the ages of 15-18 to accomplish a variety of projects on the refuge including trail maintenance and rehabilitation, campground maintenance, litter pick-up and special projects. Participants will receive training in first aid, CPR, hand tool use, and bear safety.

Applications will be available at all local high schools, Job Service, and at the Kenai Refuge Headquarters starting March 31 and will be accepted until May 9. Selections are made through a random selection process, equally split between males (four) and females (four). The pay rate will be \$7.75 per hour and the employment period is June 9 to August 1.

Applications and additional hiring information for all of these positions is available at Kenai National Wildlife Refuge Visitor Center on Ski Hill Road in

Soldotna. For more information, please contact Scott Slavik (260-6163) at Kenai National Wildlife Refuge.

*Scott Slavik is a Backcountry Ranger on the Kenai*

*National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# The National Wildlife Refuge System is now 105 years young

by Doug Newbould

In March, the National Wildlife Refuge System (NWRS) marked its 105<sup>th</sup> anniversary as the only network of Federal lands devoted specifically to the conservation of wildlife and habitats. From its humble beginnings at Pelican Island in Florida, the National Wildlife Refuge System now consists of 548 Refuges and 37 Wetland Management Districts on more than 96 million acres. And as it so happened, I spent that anniversary day traveling between two of our National Wildlife Refuges: from Santa Ana NWR in the southern-most reaches of Texas to my home unit here at the Kenai NWR.

One of the contrasts between these two crown jewels of the NWRS could not have been more apparent that day, as the weather forecast for McAllen, Texas was for a high temperature of 102° with a predicted relative humidity of 1%. In weather geek circles, those weather readings are what we call—Hot & Dry, and something we might expect in Death Valley or the Mojave in March. When I landed in Anchorage later that day the temperature was 20°, with plenty of ice and snow to remind me that winter had not quite released its grip on south-central Alaska.

I had just completed a week of U.S. Fish & Wildlife Service fire management meetings as the Alaska Region's representative on the National Fire Operations and Safety Team. The team meets twice a year to discuss wildland fire operations and firefighter safety issues and to develop procedural and policy recommendations for the National Fire Leadership Team. We're basically a sub-committee of nine regional fire professionals who develop proposals/products for review and approval by the national decision-makers. Gathering each spring and fall, we rotate our meetings from region to region in order to meet local fire staffs and hear about local issues.

While visiting the Santa Ana NWR (near Alamo, Texas), we had the honor of meeting some of the refuge and fire management staff who conserve and protect almost 200,000 acres of refuge lands in the South Texas Refuge Complex (STRC)—which encompasses three National Wildlife Refuges and more than

100 land parcels from the south Texas coast and Laguna Atascosa NWR up the Lower Rio Grande River Valley to the Falcon Dam northwest of Roma, Texas.

This complex of Refuge lands encompasses only about 5% of the remaining native landscape and habitats of the Lower Rio Grande Valley, where ocelots, indigo snakes and an amazing variety of birds such as green jays, great kiskadees and chachalacas reside. In fact, two of the Refuges in the complex, Laguna Atascosa and Santa Ana, are respectively, the #1 and #2 Refuges in the NWRS for total bird species (almost 500 combined). This is an amazing statistic when you consider that Santa Ana NWR is only about 2,000 acres in size. In contrast, about 150 species of birds have been detected on the Kenai NWR, which at nearly 2 million acres, is almost 1,000 times larger than Santa Ana.

To me it's interesting to compare and contrast two refuges that seem so far apart climatically, geographically, ecologically and programmatically. And yet, there are similarities. Both refuges were established during World War II: Kenai in 1941 and Santa Ana in 1943. The Kenai National Moose Range was established to protect the 'giant Kenai moose' and Santa Ana was established to protect migratory birds. Isn't it fascinating that while our nation's attention was focused upon the great world war, the very American process of conserving wildlife and habitat continued unabated?

While the diversity of wildlife and habitats in the South Texas Refuge Complex is astounding (1,200 species of plants, 700 vertebrate species including 500 birds, 300 butterflies and 11 distinct biological communities, from the Chihuahuan thorn forest to the tidal wetlands along the Gulf Coast), the fragmentation of those lands and habitats adds a whole other dimension and level of complexity to conservation and fire management practices.

With a combined staff of about 65 employees and a couple dozen wonderful volunteers (during the peak birding season—winter), the folks at the STRC have developed some innovative and unique solutions for some of the conservation challenges they face. In their

efforts to restore native habitats on some of the disturbed agricultural lands in the Lower Rio Grande Valley, they have established a native plant nursery at Santa Ana. And to protect the fire-intolerant, old-growth Mesquite forest habitat and the species that call the Santa Ana Refuge home, Refuge staff and volunteers provide daily guided tours for about 150,000 visitors annually.

Wildland fire management is just one of many critical refuge programs at the STRC, but without the dedicated service of the men and women in the fire staff refuge managers might not achieve many of the purposes and objectives of the refuges in the complex. Just like the Kenai NWR, over 90% of the wildland fire ignitions in the Complex are human-caused. With limited wildland firefighting resources in south Texas, FWS fire managers have partnered with several municipal/volunteer fire departments in the Valley to manage a very active wildland fire regime.

During our visit to the region, our team was able to observe the effective cooperation of these agencies as collaboratively, they responded to—and successfully suppressed multiple wildland fires, protecting several communities and sensitive habitats in the process. We too, at the Kenai NWR, must and do work collaboratively with our land and fire management partner agencies to effectively respond to wildland fires.

At first glance, the Refuges in south Texas might seem to have little in common with our Refuges here in Alaska. But upon further examination, you can see why our similarities and common mission and purposes have resulted in the National Wildlife Refuge System. Happy birthday, NWRS!

*Doug Newbould is the Fire Management Officer for the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Join Refuge staff for exciting spring events

by Candace Ward

The enthusiastic staff at Kenai National Wildlife Refuge is busy preparing for a lively spring. Mark your calendar for events that pique your interest and join us for rewarding experiences.

April 17 - "Be Bear Aware" Home School Program: Education Specialist Michelle Ostrowski and Conservation Intern Eve Smallwood have created a new program for home schoolers on bear natural history and ways to prevent bear/human conflicts. To participate, contact Michelle at 260-2839.

April 19 & 20 - Kenai Peninsula Home Show: Stop by the bear safety booth staffed by many agencies (Including Kenai NWR) who are working together to prevent bear/human conflicts. Learn simple, yet practical ways to be bear aware and to "bear proof" your home and yard. Sign up to win a variety of door prizes including a heavy duty bear resistant trash receptacle.

April 25 - 27 - Kenai Peninsula Sport, Recreation & Trade Show: Visit the Kenai NWR booth organized by Park Ranger Jetta Fonkert, and hosted by many Refuge staff. This year's booth shares ways we can prevent the spread of invasive plants that crowd out wild plants that both wildlife and people need to survive. Come by the booth for free invasive plant guides and to enter a free drawing for wildflower and wild berry prizes.

April 30 - May 16 - Spring Environmental Education Field Trips - There are still slots left for K - 3<sup>rd</sup> classroom teachers interested in getting their students outside for fun, wildlife oriented field trips. Programs include Animals & Their Senses (K), Amazing Animals (1<sup>st</sup>); Habitat is Where It's At (2<sup>nd</sup>); and Plants, Animals & Their Environment (3<sup>rd</sup>). To make a reservation, contact Michelle Ostrowski at 260-2839.

May 7 & 8, 6-10 pm - Basic Hunter Safety - For many years, Refuge Manager Robin West and other Refuge staff have worked with the Alaska Department of Fish & Game to provide Basic Hunter Safety classes. To register for the May 7 & 8 class at the Kenai NWR EE Center, contact the Alaska Department of Fish &

Game at 262-9368.

May 9 - Clean Up/Green Up Event - Each spring Refuge staff and volunteers join together to clean up Refuge lands from the accumulated build up of winter trash. Not only do these efforts provide a sense of satisfaction to those participating, but they also create a more beautiful Kenai Peninsula for our summer visitors. To lend a hand, contact Art Tovar, Facilities Manager, at 260 - 2832. If you would like to have your class or youth group help spruce-up the Refuge, contact Michelle Ostrowski, at 260-2839.

May 10, 9 am - 3 pm - Kids Water Safety Carnival: Join Refuge staff - Michelle Ostrowski, Jetta Fonkert, Eve Smallwood, and many dedicated members of the community at Skyview High School for fun, "hands on" activities that teach kids water safety.

May 17 - 9 am - 5 pm: Bow Hunter Safety: For many years, Wildlife Biological Technician Todd Eskelin has worked with the Alaska Department of Fish & Game to provide Bow Hunter Education for Peninsula bow hunters. To register for the May 17 class at the Kenai NWR EE Center, contact the Alaska Department of Fish & Game at 262-9368.

Birding Events: Refuge biology staff - Toby Burke, Todd Eskelin, and Liz Jozwiak, participate each year in peninsula birding events as experts in bird identification and behavior. Watch for them running observation stations and leading field trips at the Kachemak Bay Shorebird Festival and Kenai Shorebird Celebration. For more information, visit the following websites: [www.homer.alaska.org/shorebird.htm](http://www.homer.alaska.org/shorebird.htm) and <http://www.kenaiwatershed.org/shorebird.html>.

Have fun leaping into spring to learn something new or to lend a hand to make the Kenai Peninsula a better place.

*Candace Ward works as a park ranger leading the Refuge's information and education program. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Complacency is a wildfire's friend

by Jeff Richardson

Every year, all wildland firefighters are required to take an eight hour fireline safety refresher course. A key element of this annual training is a review of recent fires in the United States where burn-overs, shelter deployments, accidents, injuries or fatalities have occurred.

There are safety professionals in the fire service who study these incidents in an effort to find the causes, identify unsafe work practices and trends, and recommend corrective solutions. They have determined there are four major common denominators of fire behavior on tragedy (fatal and near-fatal) wildland fires. Such fires often occur:

- On relatively small fires or deceptively quiet areas of large fires,
- In relatively light fuels, such as grass, herbs and light brush,
- When there is an unexpected shift in wind direction or wind speed,
- When fire responds to topographic conditions and runs uphill.

Another common denominator of tragedy fires is complacency. We firefighters and fire managers have learned again and again, that we cannot afford to let our guards down. We know that fire can and often does behave erratically. We know that fires can blow up and run with little or no warning, even after an extended period of minimal or subdued fire behavior. And we know local winds are often unpredictable and shifts can occur abruptly. On a hot day, working hard, and under pressure to accomplish assigned tasks, a firefighter must make the extra effort to maintain good situational awareness and sense trouble before it's too late.

Complacency is not just an issue for firefighters; it is an issue for anyone whose private property may lie in the path of an approaching wildfire. It's just as important for homeowners to maintain good situational awareness as it is for firefighters. If you live in the wildland-urban interface in a fire-prone ecosystem, sooner or later you're going to have to deal with fire.

Just as firefighters prepare for the season with education, training, gear checks and drills, homeowners need to educate themselves about the risks of wildfire, learn how to mitigate hazards, take preventive measures and remain alert during the fire season.

To me, one of the most interesting facts about interface fires, is that most homes that succumb to fire are not destroyed by the flame front, but by firebrands that swirl out of the flames and smoke. Is your home protected from the hazard of these glowing embers? Have you cleared flammable debris and materials from your gutters, from beneath your porches and decks, and elsewhere around the house? Are there screens covering your eave and foundation vents and gable openings on your home? Are there other flammable surfaces or accumulations of burnable materials where embers might lodge and burn unnoticed until too late?

When firefighters move through interface neighborhoods ahead of a fire to secure what property they can, they employ a triage system to evaluate whether houses can be saved. They use this method to deploy resources most effectively, and to maintain an acceptable level of safety for firefighters and residents.

The triage system is pretty simple. Firefighters look at the type of house construction, the amount of cleared space around the house, the amount and nature of flammable material in the yard, and they evaluate outbuildings and hazardous materials to decide if a house:

- Needs little or no attention,
- Needs protective measures but can be saved, or
- Cannot be saved.

There is usually no time to argue or debate. Firefighters know what the fire is doing, know their capacity to fight it and understand how the house and fuels around it will respond when the fire arrives. If you have done your part as a conscientious homeowner, chances are good your house can be saved with little or no effort by the firefighters.

Another common denominator of fatal or near-fatal fires is that often there is not just one cause but a

chain of events—a sequence of smaller, seemingly inconsequential errors that begin to snowball, going unnoticed until tragedy is almost inevitable.

The same denominator may be common where homes and wildfire interface. Those who lose their homes to wildfire, often acknowledge they could have taken steps to prevent the loss. The very first step to correct this risky behavior is—don't think it can't hap-

pen to you. Complacency is your enemy and wildfire's friend.

*Jeff Richardson is a former employee and firefighter for the Kenai National Wildlife Refuge. He now makes his home in Central Oregon. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# The game is on

by Todd Eskelin

There is a secret competition going on in the woods and swamps around the Kenai Peninsula. Only a handful of players are playing and when all is said and done, there is no winner. It all started when I went to Homer on October 20, 2007 to look for a Cedar Waxwing that had been reported at a residence out East End Road. Yes, that was before gas prices reached \$4.00 per gallon. I found three Cedars after a 1 1/2 hour search and wait on a cold blustery day. That was the 200<sup>th</sup> bird species I have documented on the Kenai Peninsula. There is already an Alaska 200 club, but I wondered if there are any other Kenai Peninsula 200 club members out there.

After a few posts to the various list serves I have determined there is at least one other out there and several that are closing in on the mark. What this also did was allow us to draw from all the local birders out there and compile a new checklist of all the birds ever seen on the Kenai Peninsula. So far we are up to 273 species. It is hard to believe that number is just for the Kenai Peninsula. If you want to get in on the game, you have to brush up on your birding skills and there is no better way than attending our local birding festival next weekend.

The Kenai Birding Celebration has passed a milestone in its brief but successful history. It began as a couple of people who wanted to help others get better at bird identification. Staff from the Kenai Watershed Forum, Kenai National Wildlife Refuge, and Soldotna Birding Club organized an event that had classroom-style discussions and field trips so local birders could experience a shorebird festival without traveling and without the intimidation of “professional” birders.

Many birding festivals come and go. There is usually lots of good attention the first year or two and then things die off. This has not happened with the Kenai Birding Festival and in fact it has grown and continues to grow, marking the fourth year for this event. If I remember correctly we had about 25 people that first

year and last year we had over 60 people at most of the talks and field experiences. Fortunately, it is still small enough to ask that nagging question that you always thought was too silly to ask.

We also recognized that the kids of our community are our future and the future of birding, so last year we added a kid’s component and this year it has been expanded. We received tremendous response from the idea of having a bird related art competition. How better to understand what kids see than asking them to draw, paint, photograph or sculpt their impressions. The kids have submitted incredible pieces and this will likely be an annual event. Judging will be done by the public, so come over to the Kenai Visitor and Cultural Center and show your support for their efforts.

Also new on the schedule this year, is a birding float trip on the Upper Kenai River. Each boat will have an expert birder on board to help with identification and since we are going in drift boats, there is limited space. There is a fee for the float trip and advance registration is required, so contact the Kenai Watershed Forum or check out their web page at the end of this article. How better to hone your waterfowl skills than to float on the river with your own personal guide?

The Kenai Birding Celebration will be May 2, 3, and 4. Come to one event or come to several; all ages are welcome and encouraged. For a complete list of activities check out the Kenai Watershed Forum web page at: <http://www.kenaiwatershed.org/shorebird.html> You may also call the Watershed Forum at (907) 260-5449.

*Todd Eskelin is a Biological Technician at the Kenai National Wildlife Refuge. He specializes in birds and has conducted research on songbirds in many areas of the state. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# A national treasure in your own backyard

by Claire Caldes

Many Peninsula Clarion readers are aware of the Kenai National Wildlife Refuge located here in our own backyard. Some readers, however, may not know that the Kenai Refuge is a member of a much larger system of wildlife refuges scattered throughout the United States.

The National Wildlife Refuge System is dedicated specifically to wildlife conservation. It is a network of habitats that benefit wildlife, provide unparalleled outdoor experiences for all Americans, and protect a healthy environment. Since President Theodore Roosevelt designated Florida's Pelican Island as the first wildlife refuge in 1903, this network of lands has grown to encompass 96 million acres, protected within 548 wildlife refuges and more than 36,000 fee and easement waterfowl production areas.

Refuges are managed by the U.S. Fish and Wildlife Service which is a Federal agency whose mission is to work with others to conserve fish and wildlife and their habitats for the continuing benefit of present and future generations of the American people. Wildlife refuges are home to more than 700 species of birds, 220 species of mammals, 250 reptile and amphibian species, and more than 200 species of fish. Each year, millions of migrating birds use refuges as stepping stones to rest as they fly thousands of miles south for the winter and return north for the summer. Refuges also provide habitat for more than 250 threatened or endangered plants and animals.

There is at least one wildlife refuge in each of the 50 states, and one within an hour's drive of every major U.S. city, providing much-needed refuge for people as well as wildlife. Ninety-eight percent of refuges are open to the public, where visitors can enjoy outdoor activities such as wildlife viewing, boating, hunting, fishing, hiking, camping, participate in environmental education activities, and find natural and cultural history interpretation. More than 40 million people visit refuges each year.

In Alaska, there are sixteen wildlife refuges totaling more than 76.8 million acres, accounting for eighty percent of the total acreage for the National Wildlife Refuge System. These refuges are the wildest of wild places, ranging in size from the 303,094 acre Izem-

bek Refuge at the end of the Alaska Peninsula, to the 19.6 million acre Arctic Refuge stretching from the Brooks Range to the Arctic Ocean. More than 18 million acres of Alaska refuge lands have been designated by Congress as Wilderness Areas and are part of the National Wilderness Preservation System.

Here on the Kenai Refuge, sixty-six percent of refuge's 1.97 million acres is designated wilderness. The refuge's wealth of habitat, scenery, fish and wildlife draws over a million visitors each year, more than any other refuge in the state. It is one of only two refuges in Alaska that are accessible by road; the other is Tetlin Refuge located near Tote.

Alaska's refuges are a valuable component of the state's economy. Public hunting and fishing opportunities bring in thousands of dollars from license and equipment sales into state and local coffers and support a statewide guide and outfitter industry. Add to this the tourist dollars which are generated by refuges attracting visitors to the area because of the beautiful pristine scenery Alaska refuges provide and protect.

The Kenai Refuge ranks among the highest in the Refuge System for economic value of wildlife-dependent recreation to local communities. A 2006 economic study of a sampling of refuges nation-wide showed that total local economic effects associated with recreational visits to the Kenai Refuge generated \$59.0 million with associated employment of 734 jobs, \$24.3 million in employment income and \$8.6 million in total tax revenue. Additionally, the refuge's return in the economic value to local communities is almost twenty-two dollars for every one dollar spent from our refuge operation budget.

The National Wildlife Refuge System is a major component in this nation for providing natural areas for wildlife and the American people. The Kenai Refuge is a vital part of the local communities because of its scenic beauty, outdoor recreational opportunities and its tourist attraction attributes. So, as the weekend approaches, do yourself a favor and indulge in one of the many recreational opportunities the Kenai Refuge has to offer. Enjoy your National Wildlife Refuge located here in your own backyard.

*Claire Caldes is the Oil and Gas Liaison for the Kenai*

*National Wildlife Refuge and has worked at nine different wildlife refuges located in Colorado, Arizona, Texas, Utah and Alaska during her career with the U.S. Fish*

*and Wildlife Service. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Kachemak Bay Shorebird Festival coming to Homer this weekend

by Liz Jozwiak

If you missed out on our local birding activities at the Kenai Birding Celebration last weekend, and want to look for a variety of rare or unusual birds, or see waves of shorebirds moving in and out of the tide like a flowing curtain, then you will have another opportunity this weekend in Homer.

The Kachemak Bay Shorebird festival is in its 16<sup>th</sup> year. I look forward to being a “shorebirder” for this annual four day event because it is a sign that Spring has kicked in and Summer is just around the corner. More than 25 species of shorebirds and waterfowl stop and feed in Kachemak Bay on their way to breeding grounds further North. This year, the Festival theme is Shorebirds as International Ambassadors: Connecting Birds, Habitats and People. The keynote speaker is Richard Crossley, a co-author and contributing photographer to the Shorebird Guide. Whether you are a beginner, intermediate or advanced birder, or even a non-birder, you will enjoy this fun weekend celebration.

The list of activities is diverse, and includes field events, bird walks, Bay tours by boat and kayak, workshops, classroom presentations, Junior birder’s badge activities, harbor dock tours, contests, optics and digiscoping education, live bird presentations, and even a concert by Bruce Cockburn.

For the beginning birder there are several short guided walks that take you into the birding hot spots, like Beluga Slough, Bishop’s Beach, and Mud Bay. There will be shorebird viewing stations set up in the

late afternoons/evenings at high tide on the Homer spit (look for folks in orange vests). Stop by and look through the spotting scopes at the various species of peeps, or ask the guides where the rare or most unusual birds have been seen that day. For instance, there were six Emperor Geese mixed in with a group of Greater white-fronted Geese in Beluga Slough on May 6<sup>th</sup>; so you never know what may pop up.

Before you depart for Homer, you can also go online to see the latest report of Homer bird sightings at <http://www.islandsandocean.org> or call their bird hotline at (907) 235-PEEP for the most up-to-date reports. Don’t forget to pick up a copy of the Kachemak Bay Shorebird Festival guide at the Kenai National Wildlife Refuge headquarters, or the Soldotna Chamber of Commerce Visitor Center, or see a list of events and activities online at <http://www.homer.alaska.org>.

Whether you want to improve your shorebird identification skills, or just enjoy a day of birding out in Mud Bay, Beluga Slough, or on the Spit, Homer is the place to be this weekend.

*Elizabeth Jozwiak is a wildlife biologist for the Kenai National Wildlife Refuge, USFWS in Soldotna, Alaska. While her primary focus is carnivores, she takes every opportunity to go birding, and is the local coordinator for the Kenai Loonwatch program. Liz has been leading walks at the Kachemak Shorebird Festival since 2001. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Get outdoors and connect with the Refuge this summer!

by Michelle Ostrowski



Visitor enjoying a view of Skilak Lake. Photo Credit: Sarha Siefken

The Kenai Peninsula is often referred to as “Alaska in Miniature” since it has many of the fantastic outdoor things Alaska has to offer in an easily accessible location. Unfortunately those of us who live in Alaska sometimes take for granted that this playland is in our own backyards. There is a national trend that adults and children are spending more and more time indoors, and less and less time outdoors. With this decrease in outdoor time, there is a disconnect between the American people and nature.

The U.S. Fish & Wildlife Service is expanding its efforts to connect people with the natural world in such a way that they’ll care about and thus care for America’s natural resources. The service has adopted a program called “Connecting People with Nature: Ensuring the Future of Conservation” as one of its six national priorities. USFWS Director Dale Hall has stated, “If we want conservation in the future, we have to have future conservationists.”

Being outdoors is important to our development—intellectually, emotionally, socially, spiritually, and physically. Refuges across the United States are making efforts to find new and creative ways to draw people of all ages back to the outdoors and the Kenai Refuge is no exception. We are expanding our efforts to connect our community with the outdoors. We invite you to join us for the following free Refuge-

sponsored outdoor events and activities this summer. Please note some require pre-registration.

**Whistles and Backpacks on the Keen-Eye Trail:** This is a Trail Explorer program for ages four and up at the Refuge headquarters in Soldotna. Participants fill out a trail worksheet while learning about boreal forest and wetland habitats and receive a whistle upon completion. Two themed backpacks (“Introduction to Birding” and “Get A Closer Look”) will also be available for family checkout during normal visitor center hours, everyday June through August, to explore the surrounding trails.

**Celebrate Wildflower Fun Day (June 20) and Wild Berry Fun Day (August 15):** These two community special events take place at the Environmental Education Center. These events will be from 11am to 3pm and will include displays, games, craft activities, theme inspired snacks, and guided ½ mile wildflower or wild berry identification walks on the Keen-Eye trail. Pre-registration is required for the guided walks.

**Guided Fitness Walks:** Join us for 1 ½ hour walks on the 2-mile Centennial Trail located at our headquarters in Soldotna. Walks start at 2pm on June 26, July 15, and August 19 and pre-registration is required. These walks will combine topics such as plant and berry identification, trail fitness, orienteering, and more.

**Get Outside and Get Dirty Summer Camp:** For the first time, the Refuge is offering a weeklong summer camp July 28 through August 1 from 9am-3pm each day. For this trial summer, it will only be available to students going into 4<sup>th</sup> or 5<sup>th</sup> grade this fall. The majority of the week will be spent outdoors learning about orienteering, plants and animals, and habitats. Through trail exploration, crafts, science experiments, digital photography, journaling and more, we hope to inspire kids to learn about nature’s wonders. There will be a required supply fee and pre-registration.

**Campfire Programs:** Held at Hidden Lake Campground Fridays and Saturdays beginning June 20 and lasting through the end of July, and also the first three Saturdays in August. Natural history programs start at 8pm at the amphitheatre.

**Discovery Hikes with a Park Ranger:** Held on Burney's Trail at Hidden Lake Campground at 1pm on June 28, July 12, and August 2. These hikes are moderate (1.2 miles). Call Jetta Minerva at 260-2811 to pre-register for these hikes.

**Borrow a Fishing Pole for Free:** The Kenai Fish & Wildlife Field Office, Kenai Community Library, and Trustworthy Hardware have created a Fishing Rod Loan Program. The Program is for kids aged 16 and under, and will provide fishing rods (for trout and salmon) that can be checked out from the Kenai library—just like checking out a library book! All you need to do is complete a registration form at the library, have a parent or legal guardian sign for the rod and head out to go fishing.

For directions, pre-registration, or additional program information please call Michelle Ostrowski at

260-2839 or e-mail [michelle\\_ostrowski@fws.gov](mailto:michelle_ostrowski@fws.gov). You can also e-mail Michelle to be added to our event notification list. Special youth group programs (scouts, boys and girls club, daycares, etc) are available upon request. Call for more information.

It's time to start planning your outdoor summer fun We invite you to join us for a refuge sponsored event or get out on your own to camp, fish, hike or watch wildlife on your National Wildlife Refuge.

*Michelle Ostrowski is the education specialist at the Refuge and has assisted with educational school groups and outreach since 1997. She is one of 10 Alaska Refuge Employees on the national USFWS Connecting People With Nature Working Group which seeks to get more people outdoors. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Kenai Lowlands marginal habitat for expanding marten

by *Andy Baltensperger*

The capture of a marten in 2002 by Refuge staff in the Swanson River oilfield after a nearly century-long absence of marten prompted this study to examine the current and historic distribution of marten across the entire Kenai National Wildlife Refuge. To accomplish this, I employed a variety of detection methods including harvest reports, carcasses from trappers, pelt sealing records, museum records, anecdotal observations and an aerial videography track survey flown in 2006. I summarized these surveys in a database spanning the last century with over 150 marten detections on the Kenai Peninsula, 70 of which occurred west of the Kenai Mountains in the last 30 years. This database provides strong evidence that marten have re-colonized the western Kenai Lowlands after a 100-year absence.

The reasons for the conspicuous absence of marten were the subject of the behavioral component of my research. I examined how marten use snow and habitat conditions, which could be key environmental factors that limit marten populations on the western Kenai. Snow cover at least eight inches deep is important for insulating resting marten and their prey during periods of below-freezing temperatures. Mature, closed canopy forest with ample structure and debris are also important habitat components which provide marten with protection from predators, access to prey, and dry resting sites in the winter.

During the past two winters, I radio-collared and back-tracked marten in three study areas in the Kenai Mountains and Lowlands in order to understand marten use of snow and forest cover while resting and foraging. Marten in the Lowland study area foraged equally in white spruce/birch and black spruce forests, but rest sites were found only in white spruce/birch forests. White spruce forests generally contained more squirrel middens and deadfall, both important rest sites. I also found that while marten did not show any significant preference for specific snow depths while resting or foraging, average snow depths used by marten in the Mountains were four times deeper than sites used in the Lowlands, highlighting a fundamental difference in environmental conditions available to marten between the two regions.

Snow depths at rest sites in the Lowlands averaged just seven inches, in contrast to 50 inches in the Mountains. The Lowland shallow snow suggests that marten are exposed to higher levels of thermal stress in the Lowlands. Using historic temperature and snow depth averages since 2000, I calculated the number of days at the Kenai Moose Research Center and at Cooper Lake during which snow cover was not deep enough to be insulating during below freezing periods (“stress days”). The Moose Research Center averaged over four times the number of stress days than Cooper Lake in the Mountains. The majority of stress days occurred between November and January, a period frequently characterized by a combination of shallow snow and cold temperatures. I believe that, despite the availability of suitable forest cover in many areas, the Kenai Lowlands may represent sub-optimal habitat for marten because of its cold winters with thin snow cover.

Marten are, however, highly adaptable, and in spite of these marginal conditions, they have managed to expand their distribution from the Mountains westward across the Kenai Lowlands in the past decades. Instead of relying on snow cover to insulate them while resting, they are using alternative rest sites such as squirrel middens. Squirrel middens are warm and dry, and depths of 12 inches are sufficient to insulate marten from low temperatures even in the absence of snow cover. In contrast, in the Mountains, where snow depths were more than ample, marten rested beneath deep snow in sites under fallen trees and alder thickets. These differences in rest site selection are a good example of behavioral adaptation to different environmental conditions.

One might expect that suboptimal habitat and higher thermal stress in the Lowlands would cause poorer population health. I found that body weights and fat reserves of necropsied marten from the Lowlands were marginally lower than those from Mountain populations. This suggests that Lowland marten are largely compensating for their more stressful environment by using alternative rest sites and finding sufficient prey to maintain thermodynamic requirements. Additionally, half of adult females collected from the

Lowlands showed evidence of past pregnancies, indicating the presence of breeding populations in the Lowlands.

I am concerned, however, about the age and sex ratios of harvested marten. Lowland harvests showed equal numbers of males and females, in contrast with a two to one male to female ratio in the Mountains. Also, Lowland harvests were comprised of older individuals, half of which were older than two years, in contrast to Mountain populations with a median age of one year. These data suggest that harvest pressure is cutting deeper into the breeding population in the Lowlands, whereas Mountain harvests are removing primarily younger, surplus individuals. While marten have re-colonized many areas of the western Kenai, Lowland populations remain sparse and potentially vulnerable to over-harvest and climatic variation.

Although marten distribution on the Kenai Peninsula has expanded after a 100-year absence, will this trend continue in the face of a warming climate? Marten populations thrive in mature forests, with closed canopies and a consistent, deep snow pack. The interplay of several forces related to climate change will certainly alter all three of these habitat components and ultimately shape the future of marten on the Kenai.

Warmer temperatures will likely reduce thermal stress on marten especially in the Lowlands, assuming

they can continue to find suitable resting sites. Average maximum snow depths in the Mountains have been increasing at rates of 0.44 inches/year, and 0.06 inches/year in the Lowlands over the past 38 years, but it will be interesting to see whether these trends continue as winter temperatures continue to rise.

As the Kenai becomes drier and fires become more frequent, Lowland spruce forests may be converted to early successional hardwood stands less suitable for marten. More frequent spruce-bark beetle outbreaks could increase the amount of woody-debris available as potential rest-sites, but they may at the same time decrease overhead cover and the prey base. Predicting population trends given the balance between opposing environmental trends is difficult, but something that will intrigue Kenai biologists as they examine furbearer ecology in the future.

I would like to thank everyone at the Kenai National Wildlife Refuge and all area trappers who contributed to making my research a success.

*Andy Baltensperger is a graduate student at Colorado State University, finishing work on his M.S. thesis on the Kenai National Wildlife Refuge. More details of Andy's marten study were reported in the Refuge Notebook of November 9, 2007. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# New report chronicles the history of the Kenai Peninsula landscape for the last 20,000 years

by Ed Berg



*This granite boulder, called a glacial erratic, was dropped just west of Robinson Loop Road between Soldotna and Sterling. It was probably carried about 100 miles south from the Talkeetna Mountains by ice of the Moosehorn glacial advance 20-21,000 years ago. The boulder measures 50 feet high by 100 feet long. It is one of a series of granitic monoliths that form a north-trending train across the northwestern Kenai lowland. Credit: Dick Rege*

In my 30-some years of traveling around the Kenai Peninsula, I have often puzzled about the origin of various features on the landscape. For example, why do you go up a big step as you drive east out of Sterling? What formed all the flat-bottomed muskegs that run south from Sterling to Kasilof and Ninilchik, down to Anchor Point? What formed the Homer spit? What are the two distinct layers visible in the Kenai River bluff west of the Warren Ames bridge?

We now have good answers to many of these questions, based largely on the long career of geologist Dick Rege, now retired from the Alaska Division of Geological & Geophysical Surveys (DGGS). Dick and his two brothers and sister grew up in Soldotna, where their father Harry operated Rege's Garage for many years. After finishing his PhD in geology at Arizona State University, Dick returned to Alaska and worked in the Interior and on the Kenai. One of his big projects was mapping the surface geology of the Trans-Alaska

oil pipeline corridor, and DGGS has now contracted him to map the corridor of the proposed natural gas pipeline from Delta Junction to the Canadian border.

Dick, now settled once again in Soldotna, has spent almost 30 years studying the glacial and post-glacial history of the Kenai and much of this work is summarized in a new DGGS publication, *A Guide to the Late Quaternary History of Northern and Western Kenai Peninsula, Alaska*. Co-authors are Alfred Sturmman, myself, and Patty Burns. Dick wrote most of the text on landscape history, Al Sturmman prepared six beautiful large folding color maps showing the glacial landforms, I wrote the sections on vegetation and climate history and spruce bark beetle outbreaks, and Patty Burns coordinated the whole project.

We wrote this guide for a three day "Friends of the Pleistocene" fieldtrip last Labor Day weekend. The book has 13 roadstops along the Sterling Highway from Turnagain Pass to Homer, and a 14<sup>th</sup> stop at Grewingk Glacier, across Kachemak Bay. A side trip takes the Spur Road to Captain Cook State Recreation Area north of Nikiski. The 112-page book is formatted like *An Alaska Milepost*, where features are described by milepost markers driving south from Turnagain Pass. You can get out of the car at each stop, read the book, look at the maps, photos and diagrams, and find out how features such as moraines, glacial lakebeds, and eroding bluffs were formed.

This is not the kind of book that you read from cover to cover in one sitting. Rather, it should be nibbled at and pondered, as Professor David Wartinbee from the Kenai Peninsula College expressed it. Look up one of your favorite areas and read the surrounding paragraphs, and see how this area came to be. How has the climate changed at this site since the ice pulled out thousands of years ago? What vegetation has grown here since that time? How many times in the last several centuries have spruce bark beetles thinned this forest?

In the book we tried to summarize recent research on the Kenai landscape, much of it done under sponsorship of the Kenai National Wildlife Refuge. Re-

searchers from as far as Northern Arizona University, Alaska Pacific University, University of Alaska Fairbanks and Anchorage, Columbia University, Lehigh University, University of Illinois, Duke University and others, as well as from the U.S. Geological Survey and the Alaska Volcano Observatory have carried out a wide variety of studies on and around the Kenai Refuge over the last dozen years. The general theme has been “paleoecology,” looking at climate, fire, bark beetles and vegetation history of the landscape on timescales ranging from decades to millennia. Many of these studies have not yet been published, so the reader gets a sense that this is very much “a work in progress.” We did however include an extensive bibliography of earlier work.

Recent interest in climate change has motivated many of these studies, and the Kenai Refuge has provided a 2-million acre laboratory where these studies could be carried out under relatively pristine natural conditions. Graduate student Kacy McDonnell from Alaska Pacific University for example just finished her masters thesis showing that peatlands on the Refuge are drying out and experiencing an invasion of shrubs and black spruce, for the first time since the end of the last major glacial period 18,000 years ago. This drying out process started 150 years ago at the end of the Little Ice Age, but it has greatly accelerated since the late 1960s. This research and much more is summarized in the book.

To fully appreciate this book I recommend that readers early on acquaint themselves with our timetable of glacial advances. The last major glacial period is called the Wisconsin glaciation nationwide, but is locally known as the Naptowne glaciation after the original name for Sterling, where some of the moraines are particularly well displayed. The Naptowne glaciation had four glacial advances: the Moosehorn (oldest), Killey, Skilak, and Elmendorf (youngest). During Moosehorn time (32,000 to 18,500

years ago) glaciers came from the west across Cook Inlet from the Alaska Range, stopping just west of Sterling; the Swanson River Road follows these westside Moosehorn moraines. Moosehorn ice also came out of the Kenai Mountains to the east, and in some places (e.g., Kasilof) this ice butted up against the westside ice. In other places narrow glacial lakes separated the two lobes; the old lakebeds now form the flat-bottomed muskegs beloved by snow machiners that the run from Sterling to Anchor Point.

The Moosehorn advance was the biggest advance, and each successive new advance (Killey, Skilak, and Elmendorf) was shorter than its predecessor. The Moosehorn advance ran out of Kachemak Bay as far as Anchor Point, whereas the Killey advance went only to the Baycrest overlook, and the Skilak advance formed a terminal moraine which is now the Homer spit. With the Elmendorf advance the Kachemak Bay glaciers only came down to the shore and didn't fill up the Bay as did the earlier advances.

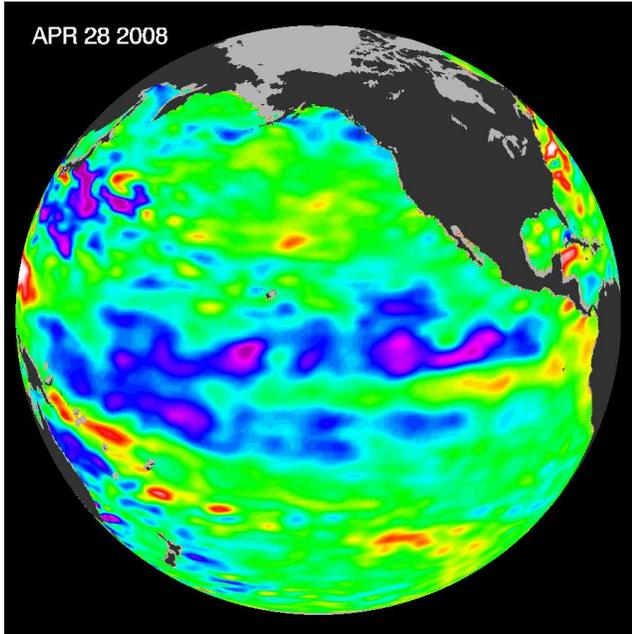
The six large-format color maps accompanying the Guide show the fronts of the each glacial advance, and help to visually simplify the sometimes quite complex pattern of overlapping glacial advances.

The Guide and maps can be downloaded free from the DGGs website at <http://www.dggs.dnr.state.ak.us/pubs/pubs?reqtype=citation&ID=15941>, although the type on the maps is too small to read if the maps are printed on standard 8 ½ x 11 inch paper. For \$25 you can order a nice spiral-bound edition from DGGs, along with the six full-sized maps on permanent quality paper on a 1-inch-to-the-mile (1:63,360) scale.

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. He teaches several courses at the Kenai Peninsula College on themes of this Guide, the next course being “Cycles of Nature” in September. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Lingering La Niña about to end; El Niño in sight, say ocean models

by Ed Berg



*Satellite image of fading La Niña cool water in the tropical Pacific Ocean. Purple color represents the coolest water, about 5°F below average. Green color is average temperature, and red color is 5°F above average. Temperatures represent departures from seasonal averages, and are computed over a 10 day period centered on April 28<sup>th</sup>. Ocean models predict that the cool water (purple) will be replaced by El Niño warm water (red) water later this summer. (Image from US-French Jason satellite, Jet Propulsion Laboratory, University of California)*

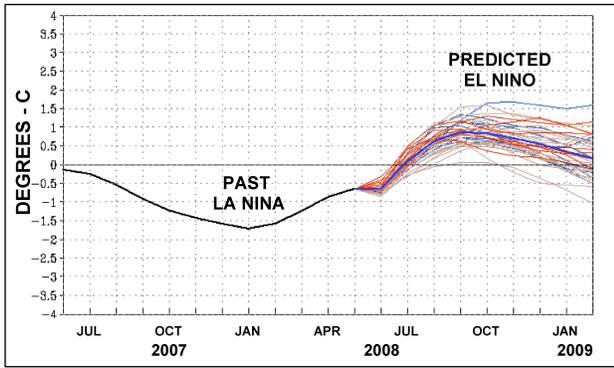
It has been a long winter and a late spring in Alaska. We've had some sunny days on the Kenai but nighttime temperatures can still dip close to the frost line. Basically, we are coming off a 10-month La Niña and a classic La Niña winter. It appears that now however the tide is turning and a warm El Niño may be on the way.

The El Niño – La Niña cycle originates down in the equatorial Pacific Ocean, and in one way or another it affects the whole Pacific basin including Alaska.

The trouble began early in January 2007 when a pool of cool water began to develop in the eastern tropical Pacific, off the coast of South America. The easterly tradewinds intensified and spread the cool water westward, as a giant blue tongue along the Equator, as represented on satellite images. The cool blue tongue expanded westward toward Australia, peaking in January of this year. By February warm water began to appear along the coast of South America and is now expanding westward, heating up the La Niña tongue from behind.

In the next few months the equatorial Pacific will enter a “neutral” condition, according to ocean temperature models, but towards fall the warm water could develop into a red El Niño tongue of even warmer water that extends all the way from South America to Australia. Alternatively, the neutral condition could lapse back into another La Niña. Unfortunately the El Niño – La Niña models can only look confidently a few months ahead, at the present state of the art.

The La Niña tongue of cool water in the equatorial Pacific affects wind patterns in complex ways that ultimately bring cold weather to Alaska and increased storms to the central US such as we saw last winter. The El Niño – La Niña cycle or “El Niño – Southern Oscillation” (ENSO), as it is known to meteorologists, has a strong effect on Kenai weather. At the 1999 bottom of the last La Niña (1998-2000), Kenai airport annual temperatures were down about 2° F and precipitation was about four inches (18%) above average. Generally, Kenai and Homer annual temperatures correlate with standard ENSO indices at about the 60% level, where 100% would be perfect agreement. This correlation indicates that although the ENSO cycle does have a fairly strong effect on our temperatures, there are other important factors, such as the position of the jet stream, the strength of the wintertime Aleutian Low, and the periodic blasts of cold air that we get from the arctic.



*A series of ocean temperature models predict continued warming of the equatorial Pacific Ocean and the onset of an El Niño by late summer. Officially, an El Niño occurs when the ocean temperature is more than 0.5° C above average, and La Niña occurs when ocean temperature is more than 0.5° C below average, in the Niño 3.4 zone along the Equator. If the models are correct, we should have a warm winter in Alaska. (Graphic modified by author from NASA website)*

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The present La Niña is still quite visible in the satellite image of the sea surface temperatures in the Pacific basin. The purple color is the coolest water, about 5° F below average. The green is average seasonal temperature, and the red is 5° F above average. The satellite uses a high-precision microwave altimeter to

measure the height of the sea surface (to within two inches) and then calculates the sea surface temperature. The warmest water in this picture stands about 13 inches higher than the coolest water, due to thermal expansion of the water column. These pictures can be viewed every two weeks back to 1992 at <http://topex-www.jpl.nasa.gov/science/jason1-quick-look/>.

There are a number of ocean temperature models that try to predict the ebb and flow of El Niños and La Niñas. They are based on slightly different assumptions, and their predictions can diverge substantially looking forward many months, as shown in the graph. For the next several months, however, they all forecast at least short-term warming. These forecasts are for a narrow band along the Equator west of South America, called Niño 3.4, which is the birthplace of El Niño and La Niña.

Most of the forecasted temperatures exceed the 0.5° C threshold for an El Niño, but several of the more conservative models forecast a only a half-hearted warming and then a return to La Niña by November. Skeptics might rightly complain this sounds all too much like stock market forecasting! Anyway, place your bets, and check out the NOAA website from time to time to see how this story unfolds. It could mean a warmer fall and winter with lots of snow for good skiing and snowmachining, unless the weather dice take a different roll.

The NOAA El Niño website is at [http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/).

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. He teaches several courses at the Kenai Peninsula College on themes of this Guide, the next course being "Cycles of Nature" in September. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Celebrate wildflowers at Kenai National Wildlife Refuge

by Candace Ward



*Fireweed photo. Credit: USFWS/Kenai Refuge Staff*

The summer solstice marks the peak of wildflower season in south-central Alaska. To make the most of this special time, join us at Kenai National Wildlife Refuge to learn more about wildflowers at our Celebrate Wildflowers Fun Day. This event takes place on Friday, June 20 from 11am to 3pm at the Kenai National Wildlife Refuge Environmental Education Center, located one mile from Soldotna off Ski Hill Road. Enjoy displays, games, craft activities, and wildflower inspired snacks. Guided half-mile wildflower identification walks will take place at 1pm and 3pm. Walks are limited to 15 people each and you need to pre-register with Education Specialist, Michelle Ostrowski, at 260-2839.

You can discover lots of wildflowers as you walk and hike the Kenai Peninsula this summer. Each habitat from wetlands to alpine tundra has distinctive wildflowers. Wetland blooms to enjoy include brown chocolate lilies, purple wild iris, pink bog rosemary, white cloudberry, and yellow monkey flower. Woodland favorites include white dwarf dogwood, pale pink twinflower, white starflower, and pale pink wintergreen. Disturbed roadsides are showy with purple lupine and deep pink wild rose.

Though mid-June is the time for the most concentrated wildflower blooms in the lowlands, a second wave of the flowers can be found in alpine areas from late June to early July. When hiking from 800 to 2,000 ft., look for blue harebells, pink moss campion, yellow spotted saxifrage, and white gentian.

A few commonly encountered wildflowers require caution—white-flowered baneberry, purple monkshood and purple larkspur are all very poisonous. It is recommended that you wash your hands after even lightly touching these plants to prevent any of their oils from being transferred to your hands and eventually to your mouth. Another flowering plant to avoid is the large white-flowered cow parsnip that produces an oil that causes severe skin irritation in people and animals

Wildflower season is a great time to find the flowers of wild berries, so you can stake out good berry patches for late summer and early fall. Look for white wild raspberry flowers in disturbed areas by roadsides and trails. White low bush cranberry flowers tinged with pink are found in woodlands and wetlands. White bell-shaped blueberry flowers are found in wetlands and alpine areas.

Not only do Alaskans enjoy beautiful wildflower displays all summer, but also thanks to the hardy pink fireweed, we have one of the most colorful wildflower “exits” of any place in the world. In late July, roadsides, meadows, and mountainsides are a vivid pink with awesome displays of showy fireweed.

While Alaska is renowned for its scenery, fish, and wildlife, let’s not forget how remarkable our state is for its beautiful wildflower displays. To protect our wildflower heritage far into the future, remember to view

or photograph these showy blooms, but refrain from collecting them to insure there will be seeds for next year's blooms.

Take time to enjoy wildflowers with us during Celebrate Wildflowers Fun Day or go outdoors on your own to appreciate these colorful and beautiful Alaska residents.

*Candace Ward works at Kenai National Wildlife Refuge as a park ranger specializing in visitor service and education. Her favorite wildflower books are A Field Guide to Wildflowers by Verna Pratt and The Flora of Alaska by Eric Hulten. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## The grizzly death of King Thurman in 1915 reminds author of his own narrow escape

by Gary Titus

The sudden appearance of a large grizzly and her newborn cub turned an early summer hike into a hike for survival. It all started one cloudy day, June 13, 2001. As a reward for a long day of working on my cabin at Twin Lakes across Cook Inlet, my companion and I were enjoying a day of hiking and watching Dall sheep. The climb up the mountain behind the cabin started on an old hunting trail, now seldom used by hunters but mostly traveled by game animals, was uneventful.

We stopped several times to look over the beautiful Twin Lakes region and to glass for Dall sheep and other game then we continued our hike to a high peak. The winds picked up and threatened to blow us off the mountain so after a quick lunch and a few photographs, we started our journey down the route we had come up.

Reaching timberline, we stopped to change into lighter clothing and to admire a waterfall before continuing onward after a few more photographs. We threw on our daypacks and started down a steep section, when a large grizzly and her newborn cub suddenly appeared. That day, we entered the books of those mauled by bears. While we survived the mauling in the wilderness with the aid of friends and medivac helicopter, the continuing story of King Thurman is a tale of someone who was not so lucky.

My last article about King Thurman (Refuge Notebook 3/21/2008) ended with him spending 50 days in the Seward jail for poaching a cow moose; the year was 1913. To refresh your memory I will recap the highlights of that story.

King Thurman was a trapper and prospector living in the mountains of the Kenai Peninsula where he hardly ever went unarmed. He was somewhat of a hermit, like many of his kind, and apparently did not care for the company of his fellows. He preferred to live alone. His trap line was in the western flanks of the Chugach Mountains and the Chickaloon region, where he had several cabins. When he was not in the mountains pursuing gold and game, he spent his time closer to civilization at his cabin on the Kenai River

near present day Cooper Landing.

The cabin on the Kenai River was where Thurman had come under the close observation by the Peninsula game wardens over the years. Here he had gained the reputation as the worst game violator on the Kenai. Now you would think King Thurman would have seen the problems of violating the law after a summer in jail and maybe he had. The wardens did not think so. Warden J. Tolman wrote the Governor the following; "Thurman and his Partner Kulin belong to a gang of no good scrubs who have a red flag floating over their cabins, you will most likely be kept in touch with him as long as he stays in the country for there is no doubt but he will continue his violations."

Now Thurman must have mended his ways, or maybe just became more careful hiding his poaching, because the next we heard of him was in 1915. The headlines of the *Seward Weekly Gateway* on January 29, 1915 read; "BELIEVES THURMAN WAS KILLED BY BEAR." There are many accounts written in newspapers, books, and magazines regarding the mauling of Thurman, all recount the mauling differently. Here I will tell the story as it could have happened.

In the summer of 1914, Thurman had been packing supplies in to his mine and stopped at the Cooper Creek Mine on the banks of the Kenai River to visit with big game guide Ben Sweezy. King told Ben of a grizzly bear near his cabin that he had passed on shooting, as the summer bearskin was no good. King went on to say he had a queer feeling it was a mistake not shooting that bear and that he might regret it later. Sweezy told him he had been in the woods too long, and it was time to go to town and be around people. Thurman, preferring his time alone, continued on to his mine where he kept busy building a boat, tending a garden, cutting wood, prospecting, trapping and hunting.

A fellow trapper went looking for King in late July of 1915 and grew concerned when he was unable to locate him. After looking for several weeks, he returned to Seward and reported his belief that a bear had killed Thurman.

Thurman remained missing for several more months until two trappers happened upon a cabin on Rat Creek and decided to look at it with the mind to spend the night. On entering, they saw the body of Thurman lying in a bed. The remains were in horrible condition; the whole right side was torn and chewed up; the left hip, and right arm and calf of the right leg were also chewed up. At his side was a twenty-two caliber revolver with one fired shell in the chamber. His rifle was in the cabin, fully loaded, and outside the cabin was a water bucket punctured with teeth marks.

In the cabin, a diary was found with the last entry made on Saturday, July 25, 1914, and stated; "Came to Flat Cabin." On his body was a paper dated July 26, 1914 and read; "To whom it may concern, this camp outfit belongs to the undersigned, Please do not take it and disappoint the owner, King D. Thurmond." Below this were these words, apparently added later; "Have ben tore up by a brown bear. No show to get out. Good-bye. I'm sane but have to sufering the of death."

Thurman must have realized that he was beyond all medical aid, being a great distance from any help

and to end his misery, he shot himself. The cabin was his funeral pyre since his remains were in no condition to move. Today we know the stream flowing out of Trout Lake as Thurman Creek. Thurman knew it as Rat Creek, and it was there he died regretting that he had not shot that bear.

While King Thurman may have regretted not shooting the bear that mauled him, I had several times seen the bear that subsequently mauled me. I have even seen it since, but I have never regretted not shooting it.

*Gary Titus has been the Backcountry Ranger, Cabin Manager, and Historian at the Kenai National Wildlife Refuge, since 2000. In spite of bear trouble, Gary thoroughly enjoys flying over to his remote cabin on Twin Lakes, where he was neighbor of the late Richard Proenneke, author of "One Man's Wilderness: An Alaskan Odyssey Book." Gary is the coauthor with Catherine Cassidy of "Alaska's No.1 Guide: The History and Journals of Andrew Berg 1869-1939." Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# New Deputy Refuge Manager enjoying the Kenai after five years in Bethel

by Doug Staller

In early June of this year, I moved to the Kenai Refuge as the new deputy manager, coming from Bethel and the 19 million-acre Yukon Delta National Wildlife Refuge.

I knew that life in Bethel was going to be different from the very first night when we stepped off the plane after the very long flight from Fargo, North Dakota; all the signs were bilingual, but I couldn't recognize Yup'ik.

Life in Bethel revolved around three schedules: Alaska Airlines, salmon runs, and the first and last barges of the year. I must say that I won't miss the flights from Anchorage to Bethel and cramming every nook and cranny of luggage with things that were much cheaper "in town." Every now and then I still pinch myself to make sure I'm not dreaming as I look at the mountain and ocean views that are so striking on the Kenai.

Before Alaska, I served as refuge manager at Tewaukon Refuge Complex in North Dakota—I like to tell folks I moved to Bethel because the weather was better. Prior to that assignment, I worked in the Refuge System headquarters office as Division chief of Visitor Services and Communications.

Fire assignments took me across the prairies of the Midwest, to deserts in New Mexico and the outskirts of Yellowstone Park. Burns, Oregon, Bismarck, North Dakota, and Pickensville, Alabama were other stops along my career path that my very patient wife Marge has enjoyed or in some cases, endured, to be more precise. Marge and our nine-year-old son Dalton are especially excited about the Kenai move, I'm glad to report. Our black lab and cockatiel, I'm not too sure about.

In April of this year, I was honored to be part of a team that received a cooperative conservation award from the Secretary of Interior for our work with Sea Lion Native Corporation and the village of Hooper Bay

on reducing the impacts of all-terrain vehicles on migratory birds. The team was one of two from Alaska and twenty nationwide recognized on Earth Day at a ceremony in Washington D.C.

My move from the Yukon Delta to Kenai exemplifies the wide diversity of the Refuge System here in Alaska. Most of Yukon Delta Refuge is a vast complex of wetlands that are one of the world's most important nesting areas for migratory birds. The Kenai Refuge on the other hand with its mountains, glaciers, lakes and rivers is a composite of all the ecosystems found in our state. Because Yukon Delta is roadless, we were totally dependent on aircraft and boats to accomplish our work. At least a portion of the Kenai is accessible by vehicles. The Kenai Refuge is a destination for visitors from across the state and country. Due to its remote location and the difficult access, Yukon Delta doesn't receive many visitors, but there are 43 villages within the exterior boundaries of the refuge that depend on the natural resources to support their subsistence way of life.

Alaska boasts sixteen National Wildlife Refuges. Each is unique in its own way. These refuges range from the many islands of Alaska Maritime Refuge to the vast coastal plain of Arctic Refuge. Only two of the Refuges are on the road system (Kenai and Tetlin). Along with more than 500 refuges in other parts of the country, they all have an important role to play in conserving the wildlife heritage of our country and helping.

The Kenai Refuge has a long history of conservation achievements in Alaska, and I am honored to have the opportunity to add to this legacy.

*Doug Staller is the new deputy refuge manager at the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## The wild part of wildlife

by Todd Eskelin

It's a boy; no, it's a girl. Wait, it looks like three boys and five girls. Ah... A very cool and late spring has led to yet another year of baby birds bouncing off windows, sitting in the driveway, and basically acting like the bunch of 4-week-olds that they are. Believe it or not, it only takes most songbirds about four weeks from the time they hatch until they are out of the nest in search of knowledge and food. They don't yet know how to feed themselves, and it is often several days to a week before they can fly, but they are still mobile and can raise quite a ruckus.

If you are a hawk or other predator that likes birds, this is the easiest time to hunt. The proud songbird parents are off gathering pounds of caterpillars and other soft-bodied delicacies, and eight little babies are screaming at the top of their lungs to be fed.

I have been watching a junco family at my house as the young stand on a pile of seeds and then squawk until dad picks up a seed from under their feet and places it into a mouth. These squawkings are not exactly the sponge my little daughter has turned out to be, but they are learning nonetheless.

Songbird populations can accept a certain amount of loss. That is why the parents produce four to eight eggs. At least 50% of the eggs will never make it through the first year of life. Birds basically produce at least double so that as young get picked off each summer, there will still be enough survivors to carry the species for future years.

That's where we humans enter the picture. We often believe that we are doing baby birds a service when we "rescue" them from the driveway. We all want to do a good deed and what better way to show our kids a good example than by rescuing a baby bird from certain peril when its irresponsible parents have abandoned the helpless infant?

This scenario could not be further from the truth. There is no substitute for parental love and care for the offspring. While techniques of raising infant birds have improved, the likelihood that they will make it back into the wild and breed as normal birds is extremely low.

Another common myth is that baby birds have

been abandoned. The parents are likely off gathering food and as long as you are near by, they will rarely bring food all the way to the young for fear that you will see where the fledglings are hiding in the bushes.

I once was called out to a house where a family of baby robins had been "abandoned" in the back yard. The kids had set up a station a short distance away and were vigilantly watching the two young robins, so that when I arrived I would be able to go right to them and rescue them.

Upon arrival it was clear that the babies had not been abandoned, but they were very hungry. Mom and dad were perched a short distance away, hiding in a spruce tree. Each had a mouthful of green caterpillars and was waiting for the coast to clear so they could feed their hungry young. It was hard, but necessary to explain to the kids that they were actually keeping the babies from being fed and that I was not going to capture and rescue them.

There is no blame, just an understanding that my generation grew up with "Roadrunner" and "Daffy Duck," while this generation watches "Animal Rescue" and "The Jeff Corwin Experience." Don't get me wrong; I like watching the shows myself and there is nothing wrong with these shows. They are a great educational tool, but we must guard against kids who watch these shows and have an immediate desire to handle and rescue wild critters that don't need rescuing. Who hears the "Don't do this at home" warnings, when there are baby tigers on the screen?

So, the next time you see baby birds wandering around your yard, rest assured the parents are likely nearby, waiting to return with some food. Disturbing the babies will only delay the arrival of their meal ticket. Please resist pleas from your kids to save the baby birds, and teach the kids to stay way back and enjoy watching the parents bringing food to their young.

*Todd Eskelin is a Biological Technician at the Kenai National Wildlife Refuge. He specializes in birds and has conducted research on songbirds in many areas of the state. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Giving back to get ahead; Summer interns bring conservation ethic to Kenai National Wildlife Refuge

by Julia Nagle



*This summer, Student Conservation Association (SCA) interns Samantha Dingfelder, Emily Williams, Eve Smallwood, and Julia Nagle will contribute over 3,000 hours of volunteer service at Kenai National Wildlife Refuge helping visitors and presenting wildlife programs. Credit: Eve Smallwood.*

Summer is an ideal time to highlight the work done by volunteer interns at the Kenai National Wildlife Refuge. Student Conservation Association (SCA) interns contribute to Refuge operations and conservation projects while exploring possible careers in conservation, visitor services, environmental education and the natural sciences.

Emily Williams, Samantha Dingfelder, Eve Smallwood, and I recently arrived as seasonal conservation interns with the national Student Conservation Association (SCA) program. We hail from Titusville, FL, Warsaw, MO, and Springfield, IL, and Pittsburgh, PA, respectively. We provide information about the Kenai NWR to the public at the Refuge's Visitor Center and the Visitor Contact Station, as well as giving natural history campfire talks on weekends, and assisting with various trail maintenance tasks throughout the summer.

As needs outpace budgets on America's public lands, the efforts of SCA volunteers have become essential. Some 50,000 young people have volunteered

through SCA since 1957 at not only national wildlife refuges, but at national and state parks and forests as well. The energy and idealism of the volunteers allows federal and state land-management agencies, as well as non-profit organizations, to meet the needs of the public in ways which wouldn't otherwise be possible.

SCA members learn a "conservation ethic" through their hands-on service, and it benefits both the land and the individual. This experience leads many of them to become lifelong stewards of the land, and 60% of SCA interns go on to successful careers in many areas of conservation. At the Kenai National Wildlife Refuge, four permanent staff members got started through the Student Conservation Association Program. These include wildlife biologist Liz Jozwiak, Law Enforcement Ranger Rob Barto, Backcountry Ranger Scott Slavik, and Environmental Education Specialist Michelle Ostrowski.

The Student Conservation Association is dedicated to encouraging a new generation of conservation leaders, advancing the land ethic, and helping to conserve our nation's natural and cultural resources. The organization places nearly 3,000 high school, college and graduate student members in the field each year, and they provide more than 1.5 million hours of conservation service in national parks, forests and other public lands.

I've always wanted to visit Alaska, and SCA provided an ideal opportunity for me to simultaneously experience this incredible wilderness while gaining valuable work skills and giving back to the public through volunteerism. I'd recommend this program for anyone who loves the outdoors and wants to make a difference.

For more information about the Student Conservation Association (SCA), contact Kevin Hamilton at 603.543.1700, x185, or via email at [khamilton@theSCA.org](mailto:khamilton@theSCA.org), or visit the SCA website: [www.thesca.org](http://www.thesca.org).

For more information about the Kenai National Wildlife Refuge internship experience, contact Julia Nagle at 412-680-8667 or [jnagle37@gmail.com](mailto:jnagle37@gmail.com).

*Julia Nagle, 24, is a graduate of Columbia Univer-*

*sity with a degree in urban studies and political science. She plans to pursue graduate work in public policy. This is her second SCA internship. She first got hooked on volunteering for SCA in high school and worked as part*

*of a high school trail crew. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Draft Refuge plan available for public comment

by Robin West

There is an old saying, “People don’t plan to fail; they fail to plan.” Personally I find formal planning exercises a bit tedious—always rich in process and sometimes poor in product. I do recognize the truth of another old saying however: “If you don’t know where you are going, any old path will get you there.” Without well-established plans there is a tendency for people (and agencies or organizations) to wander. Congress recognized this when they passed legislation in 1997 that required all national wildlife refuges in the Nation (currently 548) to complete comprehensive conservation plans every 15 years.

Kenai National Wildlife Refuge completed its first comprehensive conservation plan in 1985 (a requirement of the Alaska National Interest Lands Conservation Act of 1980). With the new legislative requirement, as well as the old plan clearly becoming dated, the Refuge initiated revision to the plan over five years ago, and in May of this year released a draft for public review and comment.

Comprehensive conservation plans are a bit of a misnomer. They are broad “umbrella” documents that generally cover all aspects of refuge management. They are not so detailed, however, that the day-to-day (comprehensive) management details are provided. They lay out goals and objectives to ensure the purposes for which the refuge was established are being fulfilled. They also ensure national policy is being incorporated, that reasonable consistency is being employed in management decision-making, and that uses proposed to be continued or initiated are compatible with refuge purposes and the mission of the National Wildlife Refuge System. The planning process also allows for a range of alternatives to be evaluated for issues important to the public with each possible option being required to be consistent with laws, regulations, policies, and the goals and objectives of the plan.

The groups of issues, and range of alternatives, frequently draw the most attention in the public review and comment process. The issues included in the Kenai draft plan were generated by the public in a scoping exercise that kicked off the current planning process. In general, these issues fell into five categories: 1) How will the Refuge address large-scale

habitat changes and the use of fire? 2) How will the Refuge manage existing facilities for public use while ensuring natural resource protection? 3) How will the Refuge enhance wildlife-dependent recreation opportunities? 4) How will the Refuge manage increasing public use to ensure protection of resources and visitor experience? 5) How will the Refuge balance motorized access with protection of resources and visitor experience?

While there are many aspects to the five issues above, I believe the major components of the issues, as addressed by the draft plan proposed preferred alternatives, are best summarized as follows. Issue 1 proposes to maximize the use of fire for resource benefits where it makes sense to do so. Issue 2 addresses general long-term management of current industrialized areas and proposes to eventually (after oil and gas activity ceases) to develop Swanson River Oil Field for public access and restore Beaver Creek Oil Field for wildlife habitat values. It also addresses options for the Mystery Creek (ENSTAR Natural Gas Pipeline) corridor. Issue 3 proposes to legalize the personal use of reasonable amounts of natural resources (shed antlers and edible plants). Issue 4 looks at crowding concerns, particularly on the Upper Kenai River and the area immediately below Skilak Lake. It proposes camping restrictions, additional limits on commercial operators, and a mechanism to restrict general public use should use levels rise to where it becomes difficult for people to find a place to fish. Finally, Issue 5 evaluates aircraft and snow machine access and proposes to increase aircraft landing opportunities in the Chickaloon Bay area.

To review the alternatives in detail, people can come by the Refuge headquarters in Soldotna and pick up a CD of the entire plan, or a printed summary. Additionally, copies can be requested by mail, email, or phone by contacting: Rob Campellone, Planning Team Leader; U.S. Fish and Wildlife Service; 1011 E. Tudor Road, MS-231; Anchorage, AK 99503; Phone (907) 786-3982; email [fw7\\_kenai\\_planning@fws.gov](mailto:fw7_kenai_planning@fws.gov). The draft plan may also be viewed on-line at: <http://www.r7.fws.gov/nwr/planning/plans.htm>

Comments are due to the Planning Team Leader at

the above address by September 1, 2008. The Refuge is also scheduling several public open house meetings to help facilitate public comment gathering. The first meeting will be held 5 to 8pm at the Kenai River Center in Soldotna on Friday August 1, followed by a meeting 4:30 to 7:30pm at the Islands and Oceans Visitor Center in Homer on Monday August 4, and 4:30 to 7:30pm in the Gordon Watson Conference Room (U.S. Fish and Wildlife Service Regional Office) 1011 East Tudor Road in Anchorage Tuesday August 5.

Everyone who has interest in Kenai National Wildlife Refuge management is encouraged to review

the draft revised comprehensive conservation plan and provide comments. Reviewers are welcome to address any issue of interest, whether it is currently captured to their liking in the draft plan or not. All substantial comments will be addressed in the final plan, and after any necessary re-writes, it is our hope to have a final plan completed early to mid-2009.

*Robin West has worked for the U.S. Fish and Wildlife Service in Alaska for nearly 30 years and has been manager of Kenai National Wildlife Refuge since 1995. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Combat fishing on the Russian River hasn't always been so civil

by Gary Titus

A shot broke the silence of a clear, warm day on the banks of Russian River, and a 30-40 rifle bullet sliced through Bill's right forearm, cut hair off Barney's neck, and slammed into a log in a fishing cabin. Otto had pulled the trigger, and he thought he had good reason to do so.

The day had started like any other day; the river was full of sockeye salmon, more than enough to keep the men busy. The smokehouse fire was smoking and ready for a new load of bright red fillets.

Three fishermen, Otto Glatz, Bill Abbott and Barney Flaherty, were catching salmon for the fall and winter commercial market. They were staying at a camp called Kelly Olsen's which was located at the junction of the Kenai and Russian Rivers. The camp consisted of four tents, a high cache for keeping salmon and a log house for smoking the fish. The camp was neither tidy nor clean.

So, what made Otto cut loose on his fishing partners on that beautiful summer day?

Well, fishing on the Russian was tough on the nerves, even in 1912. Bill Abbott was very particular about how to fillet a salmon, and was watching Otto like a hawk. Otto just couldn't fillet by "the book according to Bill."

Bill had had enough, and just couldn't resist making a snide remark about Otto's ability to carve fish. Otto responded in German with a remark that had to do with the ancestry of Bill. Otto was so angry, he put down his knife and retired to his tent, hoping to calm down.

At noon, when the partners knocked off for lunch, the conversation heated back up regarding the proper method of cleaning fish. That's when Otto had all he could take, picked up his 30-40 rifle and fired the shot.

Barney begged and begged Otto to put down the gun before someone became seriously injured. That provided a diversion for Bill, and he ran upstream to the Kenai Dredging Company to get his arm bandaged.

Otto soon realized that Bill was gone, and he figured Bill had headed to Seward to get the marshal. Otto decided to turn himself in and immediately set

out for Seward to turn himself in and to tell his side of the story before Bill could.

Only a few years after Otto, Bill, and Barney worked at commercial salmon harvesting, the Russian River fishery had changed to a sport fishery. By 1915 the Russian River had the reputation as the "greatest fishing stream on the North American continent," according to the Seward Weekly Newspaper.

Not all came to fish or shoot at their partners. Mrs. J. H. Sears visited the stream in August of 1915. Not wanting to fish, she decided to jump in for a swim.

There was only one problem; Mrs. Sears immediately became part of a huge school of salmon. The salmon had no trouble swimming upstream, but Mrs. Sears was making no headway. Finally, she gave up and swam and crawled through the wiggling mass of salmon to reach the shore.

The Russian River continued to grow in popularity, and a road was extended from the town of Cooper's Landing to the Forest Service Boundary near the confluence in the late 1920s.

That didn't mean that accessing the Russian was easy. Fisherman had to first take the train to Kenai Lake, and then catch a boat 20 miles down Kenai Lake to Cooper's Landing.

Finally, if they could find Charles Lien, they were in luck.

You see, Charles owned the first automobile on this seven-mile road, a Model-T Ford, and for fifty cents he would rent it and let you drive it to the Schooner's Bend bridge. From there, it was a short walk to the Russian River.

Later, the road was extended to the Chugach Forest boundary, and the first Russian River "ferry" was established in the 1930s by Henry "Hank" Lucas, a well-known hunting guide. Hank extended his guiding season by ferrying fisherman across the river and landing them below the confluence using a 25-horsepower outboard motor on a 16-foot riverboat. He charged a buck a head.

Hank set up a tent near the present day ferry parking lot that he used as a base camp. Fishing and fillet-

ing are not only frustrating for fishermen; bears also have their bad days. Unfortunately for Hank, these bears would take out their frustration by ripping up Hank's tents.

The land area around the Russian River confluence has not really changed much over the passing years. It can still be frustrating for fishermen and bears, with four months of intense fishing activity.

So please remember to clean your salmon in the

proper manner and enjoy your fishing trip to the Russian River. Be courteous to other fishermen and the bears.

And, oh yes, leave your 30-40 at home.

*Gary Titus is a wilderness ranger and historian at the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Abandoned campfires continue to plague the Kenai Peninsula

by Doug Newbould

Devoted Refuge Notebook readers might remember an article I wrote back in July of 2000, 'Most Wildfires on the Refuge Caused by Campfires.' At the time, I was very impressed and somewhat dismayed by the fact—that abandoned and escaped campfires were by far and away the most common cause of Refuge wildfires, and were responsible for most of the large fires in Kenai NWR history.

The most notable of those wildfires were the 1947 Skilak Fire (310,000 acres), two fires in 1969—Russian River (2,570 acres) and Swanson River (79,000 acres), the 1974 Chickaloon Fire (3,780 acres), the 1991 Pothole Lake Fire (7,900 acres) and the 1994 Windy Point Fire (2,800 acres). While the cause of the 2004 Glacier Creek Fire (6,900 acres) was officially—unknown, circumstantial evidence indicated a human cause and a campfire was the most likely culprit.

Now, eight years after that article, I am compelled to raise the subject again and report that while some aspects of the fire regime seem to be changing, some are not—including the all-too-common occurrence of abandoned campfires. A few years ago, after a typically busy Memorial Day weekend, Refuge employees and firefighters discovered and extinguished more than 30 abandoned campfires. So far this fire season Refuge employees and fire staff have located and put out at least 19 abandoned and unattended campfires, one of which escaped its fire ring and was burning in the duff, making it a reportable wildfire.

And according to the Kenai-Kodiak Area Office of the Alaska Division of Forestry, Chugach National Forest and State Forestry firefighters have extinguished an additional 15 campfires on the Peninsula this season. Four of those campfires escaped their confines to become reportable wildfires.

While suppression/management of the large human-caused wildfires typically cost the state and federal government land management agencies (and taxpayers) millions of dollars every year, the costs of prevention, law enforcement, engine patrols, aerial reconnaissance or detection and suppression activities

related to unattended/abandoned/escaped campfires are also significant.

Besides the effort and costs associated with managing these unwanted fires, the most frustrating part of the problem to me is that these fires are, or should be—preventable. And while I'm sure the national media campaigns (Smokey the Bear and others) and our local prevention and education efforts make a difference, the seemingly high numbers of abandoned campfires here on the Peninsula indicate at least some degree of failure on our parts. Either we're just not reaching everybody with the prevention message or we're not deterring those who intentionally leave burning campfires behind, or both.

So the question I'm asking myself, my fellow fire managers and you is, 'how can we reach that portion of the million or so annual Peninsula visitors and residents who through accident, ignorance or spite, leave their campfires burning in developed campgrounds or in the remote reaches of the wilderness?' I am at a loss how to improve our current practices, other than to suggest more law enforcement (ticketing/fining violators).

However, being a positive person and not wanting to 'ruin' folks' recreational experiences with tickets and fines, my preference is to develop better prevention and education materials and outreach. But, I'm not sure what that program will look like so I'm asking for your input. If any of you have a high school student who is looking for an idea for their next Caring for the Kenai contest proposal—here you go. If any of you who read this article have a good idea we can develop into a successful outreach campaign, there is at least a Refuge t-shirt in it for you (at my expense).

If you have a bright idea to prevent abandoned campfires on the Refuge, please email me at [doug\\_newbould@fws.gov](mailto:doug_newbould@fws.gov) or call me at (907) 260-5994.

*Doug Newbould is the Fire Management Officer for the Kenai National Wildlife Refuge. Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## What I did at Refuge summer camp

by Michelle Ostrowski



*Besides learning & getting dirty, we also found time to socialize & be silly. Photo credit: KNWR Staff*

There are sports camps, music camps and lots of other summer camps to help children learn and make the most of their summers. This year, for the first time, 14 fourth and fifth graders with an interest in the outdoors participated in the Kenai Refuge's "Get Out & Get Dirty" summer camp. "My favorite things at camp were dissecting fish, treasure hunting, predator-prey game, Andy Goldsworthy-inspired trail art, making new friends, fairy houses, and touching trees," according to camper Jackson Blackwell. From July 28-August 1<sup>st</sup>, we were busy from 9am and didn't stop until 3pm. Most of the kids were amazed at how fast six hours flew by and didn't want to leave when their parents came to pick them up. On the other hand Eve Smallwood, my co-counselor, and I were exhausted but smiling after those same six hours.

Each day parents told us how much fun the kids were having and what interesting things the kids shared with them about the day's adventure. One parent stated, "I'm learning so many new things from him. Brian came home Friday and made the most beautiful Fairy House in our back yard. I was AMAZED! Thanks for showing him the importance of appreciating and enjoying the beautiful outdoors."

Getting kids outdoors, appreciating, and connecting with nature were our goals when we decided to create this program. The Kenai Peninsula community has a great resource (the Refuge) practically in their

backyard. We wanted to invoke a "sense of wonder" in these children and ultimately to help ensure future conservationists.

Fortunately, the rain gave us a break and the weather cooperated for the entire week although we were prepared to be outside rain or shine. The only complaints we heard from the kids were about the relentless mosquitoes. Using binoculars, magnifiers, dip nets, and other tools we were able to get a closer look at some of the creatures living in the Refuge. A magpie, which had been injured here in Soldotna, even came to visit one day courtesy of Myke Bon with Alaska WildBird Rehabilitation Center in Wasilla.

The kids learned how and why biologists use radio telemetry to track wildlife. They all understand the basics of map and compass use, some important knot tying techniques, can identify the major tree species on the peninsula, and each camper made a survival kit and a plant press with about 16 local plants. The week was 99% outdoors and 100% hands-on. When Patti Berkham from Alaska Department of Fish and Game came in to dissect salmon with us, half the kids jumped right in to get fish guts all over their hands. The other half hesitated, but by the end everyone smelled fishy.

Another highlight was "Animal Olympics" where teams learned about animal adaptations through fun games. So many of the activities the campers enjoyed during the week can be done with few supplies and in a variety of natural settings. Hopefully they will teach their parents, siblings, and friends some of the things they learned.

I would like to send out a big "thanks" to the 14 camp participants who made being outdoors extra fun for me during camp week. You know who you are: Moon Wolverine, Sun Fox, Storm Eagle, Rain Lynx, Lightning Moose, Stone Coyote, Sun Salmon, Stone Bear, Star Owl, Thunder Puffin, Rain Wolf, Sun Marten, Stone Caribou, and Rain Otter! I also couldn't have done it without the help of Eve, my education intern who is from Illinois volunteering with the Refuge until October. It is my hope that the Refuge can repeat this program again next summer and maybe even add a 2<sup>nd</sup>/3<sup>rd</sup> grade half day "Critter Camp."

Other outdoor-inspired events at the Refuge in-

clude Wild Berry Fun Day happening TODAY on Ski Hill Road from 11am-3pm with activities, crafts, snacks and guided berry identification hikes. On August 19<sup>th</sup> join us for a fitness walk on the two mile Centennial Trail starting at 2pm. "Connecting People with the Outdoors" is the theme to this years Refuge open house scheduled for Saturday September 27, 2008. Guest speaker Taz Tally, Homer author of *50 Hikes In Alaska's Kenai Peninsula*, will share some of his experiences hiking and taking pictures on the Peninsula. We will also be teaching some basics on how to use a map and compass, outdoor family activities, a trail scavenger hunt, and will be providing guided walks.

All guided hikes require pre-registration. Lastly, all local K-6 teachers are encouraged to call and book a fall field trip with the Refuge to get their students outdoors. Call Michelle at 260-2839 for more information.

*Michelle Ostrowski, aka Snow Wolverine, is the education specialist at the Refuge and has worked with educational school groups and outreach since 1997. She is one of 10 Alaska Refuge Employees on the USFWS Connecting People With Nature Working Group helping to GET MORE PEOPLE OUTDOORS. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## We work hard so you don't have to!

by *Samantha Dingfelder*

Hiking is already considered a strenuous activity and a good source of exercise, but it is supposed to be enjoyable too! Trail crews at the Kenai National Wildlife Refuge labor all summer to improve the hiker's experience on the Refuge. Our trail crews provide maintenance from cutting dead and down trees to building bridges and cleaning up overgrown vegetation, so every hiker can see all the views the Refuge has to offer.

Scott Slavik, one of the Refuge's backcountry rangers for eighteen years, acts as the volunteer and trail coordinator for a High School Student Conservation Association (SCA) Program, Youth Conservation Corp (YCC) Program, and a seasonal Refuge trail crew.

Scott's energetic personality and work ethic has helped these trail crews complete seven trail projects this summer. Three major improvements include a new bridge on Fuller Lakes Trail, portages on the Swan Lake Canoe System, and major rerouting on Cottonwood Creek Trail. Other trail projects include maintenance of Doc Pollard Horse Trail, Emma Lake Trail, Moose Creek Trail, and Seven Lakes Trail.

As a seasonal outsider and hiker, I am personally grateful and impressed with the amount of work that is entailed with each project and how willing every crew member is to get the job done well and in a timely manner. There are less physical summer jobs most teenagers and college students could choose to make money during the summer, but these trail crew members knew the labor these projects entailed and still enjoyed the challenge.

Three weeks ago, I had an opportunity to help the seasonal trail crew for a couple of hours on the Cottonwood Creek Trail Project. Scott had offered to shuttle me across Skilak Lake on one of my days off, so I could hike Cottonwood and when I arrived I was greeted by our seasonal and YCC trail crews. They helped me unload my gear from the boat and set up my tent for the night.

At 7:30 am the next morning I awoke to the hus-

tle and bustle of everyone getting ready for the day. I got dressed, packed a daypack, ate breakfast and headed up the trail. I had reached the top by noon but had mentally noted along the way all the things that needed to be cut or moved. Little did I know I would later be the one to help move them.

I hiked around the saddle for another two hours taking pictures and observing wildlife and on my way back ran into Dane Ketner and Jeremiah Marok, two backcountry trail crew members from Anchorage. They had just finished a lunch break and were loading up their gear to head back down. I wanted to help them, after all they had given me a free shuttle and helped me with my gear plus I was curious to know exactly what trail maintenance included.

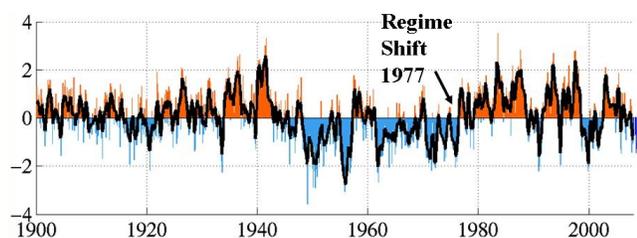
To sum it all up "trail maintenance" according to me means "one who is high spirited with good knees and feels the need to practically run down the mountain while holding a chainsaw, 12-gauge shotgun, and a heavy daypack all the while bushwhacking and clearing the trail of alders and Devil's Club." Needless to say it was exhilarating and fun but definitely tiring. Never underestimate the power of manual labor!

If I have the opportunity to return next summer to the Refuge, I would enjoy branching out to work for the trail crew or biology program. After my brief experience with the trail crew, I appreciate the trails I hike on the Refuge. Not only do I value the nature that surrounds me but the path and effort it took to get me to my vista.

*Samantha Dingfelder, 22, is currently in her senior year of undergraduate studies in the field of Wildlife Biology and Geology at Northwest Missouri State University. This is her first SCA internship. She hopes to pursue her career with U.S. Fish and Wildlife or other federal government conservation organization. Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Death of the PDO: Has the 30-Year heat wave ended?

by Ed Berg



*The Pacific Decadal Oscillation (PDO) index of North Pacific sea surface temperatures. Credit: Ed Berg/USFWS.*

One of Mark Twain's more famous one-liners says that, "Reports of my death have been greatly exaggerated." Grim prediction by some climatologists that North Pacific sea surface temperatures (and hence Alaska weather) will be cooler for the next several decades may likewise turn out to be exaggerated. But then again, maybe not.

The death in question is that of the warm phase of the "Pacific Decadal Oscillation" or PDO. The PDO is long-term cycle of North Pacific ocean temperatures that oscillates between warm and cold phases every few decades, with a complete cycle of 50 to 70 years. The PDO turned strongly warm in 1977, and it had a big effect on Alaska and the Pacific Northwest. Post-1977 annual air temperatures at the Kenai airport, for example, have increased by 2.5° F. The warming effect has been especially strong in the winter, with December and January temperatures increasing by 4.9 and 6.8° F, respectively.

After 1977 warmer ocean temperatures brought in increased salmon runs and more halibut to Alaska, but the shrimp fishery was hammered because shrimp like colder water. The warm North Pacific has also brought more southern fish to Alaska, such as various shark species.

Nathan Mantua, a climatologist at the University of Washington, designed a statistical index that summarizes the monthly ocean temperatures from dozens of stations and buoys around the North Pacific (see graph). He revises this index every few months and displays it on his website at <http://www.jisao.washington.edu/pdo/>.

Mantua deliberately removes any long-term trend from this index, such as might be due to global

warming, because he wants to emphasize year-to-year changes and turning points, which can have fairly immediate implications for fish stocks, winter fuel demand, and other weather-dependent economic factors.

Mantua's PDO graph does indeed show a recent downturn in the PDO, beginning in August 2006, with only a slight recovery last summer in June, July and August, before substantially deepening through last winter and this summer, with the lowest point so far in July of this year.

You can see on the graph that there have been two previous substantial downturns of the PDO (1988-90 and 1998-2000) similar to the present downturn, and they were followed by strong recoveries. These past recoveries provide hope for a recovery from the present downturn. On the other hand, if the warm and cool phases really are 25-35 years long, we are quite ripe for a downturn at 31 years since the 1977 warm upturn.

Just how well established is the PDO cycle? If it was a well-understood cycle like ocean tides with centuries of observational data and solid physical theory, we could feel confident about predicting the next turn of this climatic tide. Unfortunately, climate cycles are much more complex than ocean tides; they have a much shorter historical data record, and the physical causes are simply not known.

Mantua's PDO index starts in 1900 because prior to 1900 there weren't enough meteorological stations around the North Pacific to reliably calculate the index.

To get a handle on the PDO prior to 1900, investigators have used a variety of substitute or "proxy" records to estimate older PDO patterns. The best proxies are tree-ring records because tree-ring widths provide a rough annual record of temperatures in moist climates and of precipitation in dry climates. PDO tree-ring records extend back to 933 AD. Other proxies include drought/flood records from China (to 1470 AD), corals from Mariana (to 1840s), and geoduck clams from Puget Sound (to 1870s).

The proxy records indicate that the PDO has been a fairly stable 50- to 70-year cycle for the last 200 years or so, but prior to that it was much more variable. Dur-

ing various times from the 1200s to 1700s, the PDO weakened or shifted to a shorter time scale of two to three decades. During a severe extended drought in the western U.S. and Canada between 933 and 1300 AD, the PDO was strongly negative; the long-term cycle was still present with varying degrees of negativity and rarely turned positive.

Given the variable track record of the PDO over the last millennium, most (but not all) climatologists are hesitant to make any strong proclamations about the “death” of the post-1977 PDO warm phase and the onset of several decades of cooler North Pacific weather, especially in the face of global warming, because there simply aren’t any well-tested models that can predict the PDO several years in advance, let alone several decades.

But, setting scientific caution aside, what are the consequences if the PDO has in fact shifted gears down into a cool phase? Old timers on the Kenai will remember the cooler and wetter summers of the PDO cool phase of 1950s to mid-1970s, as well as the substantially colder winters. Global warming may ameliorate such temperatures, but weather like that of last winter and this summer is typical of a PDO cool phase.

If we have indeed entered a PDO cool phase, winter fuel demand will increase, which will put more pressure on fuel oil prices. Interest in building super-insulated homes with solar panels and wind generators will likely increase dramatically.

There will still be warm El Niño periods but they won’t be as warm as those of recent decades, and the La Niña periods, such the present time, will probably be colder than recent La Niñas.

Politically, global warming skeptics will cheer and say that global warming has been disproved. In the long run, however, the skeptics will probably have to eat serious crow when the PDO shifts into its next warm phase in several decades and global temperatures really start cooking, like a superheated version of the 1977 warming.

Environmentalists will worry that the public and the politicians will lose interest in reducing greenhouse gases if the weather turns cooler for several decades. The issue of “peak oil” and ever-increasing oil prices, however, will no doubt keep people well-focused on reducing their carbon-based energy consumption and hence their greenhouse gas emissions, regardless of their opinions about the reality of global warming.

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. Climate cycles will be among the topics of his one-credit “Cycles of Nature” course taught at the Kenai Peninsula College campuses in Soldotna and Homer, starting September 9<sup>th</sup> and 11<sup>th</sup>, respectively. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Mockers on the move

by Todd Eskelin

The mouth of the Kasilof River has been a focal point for many activities this summer including personal use dipnetting, commercial fishing, ATV and horseback riding on the beach. Even the destructive hoodlums find pleasure at the flats driving trucks and ATVs or 4-wheelers over the dunes and destroying the fragile habitat.

On August 29<sup>th</sup> the activity of the day was birding. One of our local birders was out for a morning trip to the flats. The target was shorebirds and as the tide began to recede the shorebirds were streaming in to the newly exposed mud. It wasn't the Semipalmated Sandpipers on their way to Ecuador or the Bar-tailed Godwit embarking to New Zealand that caught the birder's attention on this morning.

It was a relatively drab grey and white bird with a long black tail that turned his head away from the mud flats. It was hanging out in the parking area on the north side flitting from spruce to spruce. Initially, it appeared to be one of the Northern Shrikes that often patrol that area, but there was that unmistakable long bill that didn't fit. A quick look through the binoculars confirmed what he thought he was seeing. There in the spruce tree was a Northern Mockingbird!

Don't let the name fool you. The normal breeding range of the "Mocker" is from roughly New York across the country to Nebraska and on to Nevada. They are really considered a bird that prefers a warmer climate than Alaska offers. In fact, there have only been about 10 or 12 records of this species in the state. Of those statewide sightings, mockers have ever been spotted on the Kenai Peninsula.

The bird is so widely distributed in the southern states that many a song has been written about the melodic song they produce. Texas loved them so much that they made the Northern Mockingbird their state bird in 1927. No offense intended, but you know the bird has to be special for Texas to adopt anything that has "Northern" in the name.

Unfortunately, the Kasilof bird did not entertain the birder with song, but this species has been documented to remember 25-30 different songs. If one viewed this ability to learn songs as a sign of intelligence, the mockingbird would be one of the geniuses of the bird world. One caveat is that these birds are mimickers. So, none of their material is original. Not only will they imitate other birds or animals they hear, but will also belt out the sound of car alarms or sirens.

So what is a mockingbird doing in Alaska? It is likely a result of reverse migration. This phenomenon happens when smaller birds are wired wrong and end up migrating 180 degrees from their intended target.

Another possibility is that within many bird species there is a small portion of the population which are pioneers. They often go to a new area and die because the conditions are not suitable for them to make a living. As the climate changes to something more favorable, these pioneers make it and become the seed population for the species in an entirely new area.

Whatever brought this new species to the Kenai Peninsula, one local birder was gracious to get a view of it. The brief appearance was quite disheartening to the rest of us who didn't even get a glimpse. Mockingbirds often like berry trees in the wintertime, so keep your eyes peeled for this bird to show up in mountain ash trees early this fall. I leave you with the following quote.

"Mockingbirds don't do one thing but make music for us to enjoy." The first caller to call the bird hotline and report the author of this Pulitzer Prize winning novel will receive a prize.

*Todd Eskelin is a Biological Technician at the Kenai National Wildlife Refuge. He specializes in birds and has conducted research on songbirds in many areas of the state. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Refuge Loons help biologists track toxic environmental mercury across North America

by Ted Bailey



*Researchers from the BioDiversity Research Institute, Rick Gray (left) and Chris DeSorbo (right), prepare to release two captured loons back to their territorial lake. Credit: Ted Bailey.*

This summer I was privileged to help researchers capture several common loons on the Kenai National Wildlife Refuge as part of a long-term monitoring project to track toxic environmental mercury across North America. Scientists use loons as ecological indicators to track levels of mercury contamination because loons are at the top of the food chain in aquatic systems and they are long lived; some live over 30 years. Because of their limited natal and breeding dispersal patterns, loons are exposed to local environmental conditions over long periods of time, and accumulate environmental contaminants such as mercury in the tissues of their body.

Mercury is a highly toxic contaminant. In some places mercury has been discharged directly into water as an industrial pollutant. Perhaps the most famous of this type of mercury pollution was first revealed in Minamata, Japan in 1956 when mercury poisoned hundreds of people that ate fish and shellfish in Minamata Bay and adjacent Shiranui Sea. Early symptoms included numbness of limbs and lips, tremors and other forms of nerve damage. Babies born of mercury-poisoned mothers were severely deformed, mentally

retarded, blind and deaf. By 2001, over 2,000 people living there had been “officially” diagnosed with “Minamata Disease”—or mercury poisoning—1,784 of whom died.

But in relatively pristine areas such as Alaska the element mercury can also enter aquatic systems such as lakes through its transport in the air and its deposition on the surface of the water. It is now believed that most the atmospheric mercury that is deposited in Alaska comes across the Pacific Ocean from Asia, especially from the numerous coal burning power plants in China. Alaska loons will thus have the capacity to serve as monitors of this “Asian plume” as China brings more coal-fired power plants online in future years.

Once atmospheric mercury it is deposited in lakes, sulfate-reducing bacteria convert the elemental mercury into biologically active methylmercury, the most toxic form of mercury, which then enters the food chain and eventually ends up in fish and predators that eat fish. One of these predators in lakes is the common loon, which feeds almost entirely on fish.

From the blood and feathers of loons that were first sampled on the refuge in 1995 and similar samples taken from loons across North America, David Evers of the BioDiversity Research Institute in Maine and other researchers, have shown that loon blood mercury concentrations significantly increased from west to east across the following regions of North America: Alaska, the northwestern United States, Upper Great Lake, New England and the Canadian Maritime provinces. Mercury levels generally increased from western to eastern North America, because of wind direction and the numerous coal-burning power plants emitting mercury in the atmosphere across the continent.

Loons in Alaska were used as the reference site because they had the lowest levels of measured mercury while those in the New England Region had the highest. Loons with high levels of mercury contamination had reduced productivity (lower rates of egg laying, nesting and hatching success and chick survival) and

exhibited behavioral alterations (reduced nest site and territory fidelity) that also lowered productivity.

Loons with elevated mercury levels produced 41% fewer fledged young than those in lakes relatively free of mercury and had deformed flight feathers, which made it more difficult for them to fly.

The capture of loons on the refuge this summer was a follow-up to the earlier studies on the refuge in 1995-7 and 2003. Researchers from the BioDiversity Research Institute and refuge biologist Liz Jozwiak targeted individual loons that were previously captured and banded on the refuge to determine if their levels of mercury contamination had increased over time.

I was invited to accompany this year's capture operation which used a new day-time technique that takes advantage of the loons' territorial behavior because I was involved in the first captures on loons on the refuge in the 1990s. We then captured loons in the dark during the night.

On the day I helped this summer we successfully captured both the territorial male and female—

simultaneously—on one lake, and one of another territorial pair on a nearby lake. As in the 1990s I again experienced awe as I held one of these magnificent creatures—sometimes called the “spirit of the northern lakes”—in my arms while its measurements and blood and feather samples were taken.

I also experienced a sense of remorse for briefly disturbing these wonderful animals before we released them unharmed back into their territorial lakes. But I knew the information these refuge and other loons provide will eventually help scientists better understand the role and effects of toxic mercury in our environment.

*Ted Bailey is a retired Kenai National Wildlife Refuge wildlife biologist who has lived on the Kenai Peninsula for over 32 years. He is an adjunct instructor at the Kenai Peninsula College and maintains a keen interest in the Kenai Peninsula's wildlife and natural history. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Fall Fun Day events at the Kenai National Wildlife Refuge

by Candace Ward



*Make the most of autumn—come out to Kenai NWR for Sept. 27 Fall Fun Day. Photo of road with trees on each side turning into the fall colors. Photo Credit: Jetta Minerva/USFWS*

Fall is such a wonderful time to be outdoors—whether you go birding, berry picking, hiking or fishing, each day is a feast for the eyes as the landscape changes dramatically

You can enjoy this season even more by coming out for the Refuge's annual Fall Fun Day. The event takes place on Saturday September 27 from 10am to 2pm at the Refuge Visitor Center and Environmental Education (EE) Center on Ski Hill Road in Soldotna.

This year's schedule of events includes:

10am – 2pm: Head to the EE Center for family activities that will focus on birding, hiking & orienteering. A special kid's scavenger hunt will take place outdoors and once completed, each child receives a prize. Also for kids there will be a fun and creative craft project. Sign up for hiking and birding related door prizes donated by Alaska Geographic. Complimentary goodies and hot drinks will also be provided.

1pm – 2pm: Hiking the Kenai Peninsula Slide Show - Join photographer and naturalist, Taz Tally, as he relates his hiking adventures on the Kenai Peninsula. His new book, 50 Hikes in Alaska's Kenai Penin-

sula, will be available for purchase and for him to sign after his program.

10am – 4pm: The Visitor Center will feature two films, Alaska's Coolest Animals and Alaska's Coolest Birds, alternating on the hour between 10am and 4pm. These award winning films highlight the cinematography work of Homer wildlife photographer, Daniel Zatz.

For those that enjoy outdoor activities, the following hikes and walks are offered. Please call 262-7021 to pre-register as space is limited.

10am – Noon: Centennial Trail – 2.2 miles for ages 16 and older - Hike with geologist/photographer Taz Tally as he shares the geology and ecology of the Kenai lowlands. He will also give tips for photographing wildlife and landscapes.

11am – Noon: Forest Loop – ¾ mile walk for ages 10 and older – Go bird watching with wildlife biological technician Toby Burke and look for fall migrants and year round resident birds.

Noon – 12:45 pm: Keen Eye Nature Trail – 1/4 mile walk for all ages – Have fun exploring nature with Conservation Intern Eve Smallwood using hand lenses and doing fun activities to discover the subtle mysteries in nature.

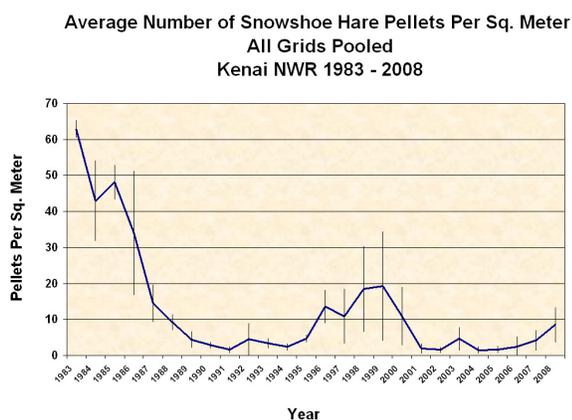
2 – 2:45 pm: Keen Eye Nature Trail – 1/4 mile walk for all ages – Go exploring with education specialist Michelle Ostrowski to discover through a variety of activities how fall changes affect wildlife and people and signal us to get ready for winter.

So make sure you go outdoors to enjoy autumn's delights before the snow flies by joining us at our Fall Fun Day.

*Candace Ward is a park ranger, who leads the Refuge's information and education programs. For more information about Fall Fun Day, contact Kenai National Wildlife Refuge at 262-7021. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Kenai snowshoe hare population monitoring presents puzzling results

by Toby Burke



*A graph image of the average number of snowshoe hare pellets per sq. meter. All grids pooled Kenai NWR 1983-2008. Tony Burke/USFWS.*

The snowshoe hare (*Lepus americanus*) is a common resident of the boreal forests of North America. Specifically, it ranges from the forested extents of northern Canada and Alaska southward to the northern U.S. Border States and into the northern Sierra and central Rocky Mountains.

The snowshoe hare provides a classic example of a species with huge cyclic oscillations in its population densities. These cyclic oscillations may be on the order of 20 to 1 in the southern portions of its range or 3400 to 1 in the northern portions of its range. It is amazing to think that field studies have revealed densities of 3,400 snowshoe hares per square mile at the peak of their cycle and densities of 1 per square mile at the bottom of their cycle, little more than 1 year later.

In favorable habitat in northern Canada populations of 10,000 hares per square mile have been estimated by researchers. It has been hypothesized that the less complex food web with fewer buffer species and simpler environmental conditions may be responsible for these spectacular fluctuations experienced in their northern range.

This boom and bust cycle experienced by snowshoe hares and their predators lasts approximately 10 years. This 10 year cycle is also experienced by nu-

merous other prey species such as grouse, ptarmigan, passerine birds, squirrels, small mammals, and even cranes since predators will be forced to switch prey species when snowshoe hares become scarce.

Snowshoe hares are preyed upon by a large array of predators but most significantly by the mammalian predators—lynx and coyote and the avian predators—great-horned owl and northern goshawk. Golden eagle, red-tailed hawk, northern hawk owl, northern harrier, wolf, wolverine, red fox, pine marten, weasel, mink, and even squirrels, also predate heavily upon snowshoe hares, the smallest of these predators only being capable of taking leverets (young hares).

Kenai National Wildlife Refuge biologists initiated a series of snowshoe hare research plots in 1983 for the purpose of determining relative hare abundance in early- to mid-successional forests. These newly reforested habitats are what develop within the first few decades after a major forest disturbance such as a forest fire.

These forests are the preferred habitat of snowshoe hares not only on the Kenai Peninsula but content-wide since they provide abundant, accessible forage for browsing and cover from predation.

In 1947 and again in 1969, major forest fires altered large forested areas of Kenai National Wildlife Refuge. In the ensuing decades these forests developed in to optimal snowshoe hare habitat. A total of five research grids were established within portions of these former burns to determine relative snowshoe hare abundance. Each grid consists of a series of 49 - 1 square meter plots. Each year during the summer months all snowshoe hare pellets, their pellet-like excrement, are counted and recorded within these square meters plots and then removed so only 1 year of pellets are allowed to accumulate until the next year's survey.

From these five grids biologists can gauge relative abundance of snowshoe hares on a yearly basis within the sampled habitat based on the abundance of their pellets. It follows that when hare pellets are abundant so are hares and when hare pellets are scarce so are hares.

Interesting enough when the results of the five grids are analyzed separately or collectively for the last 25 years refuge biologists are not observing the classic nine to 11 year snowshoe hare cycle observed in most of boreal North America. While that is not unusual since snowshoe hares cycles of six to 13 years are well documented in other parts of North America what is unusual is that the Kenai cycle may be substantially longer.

More than 200 years of meticulous fur buying records from the Hudson's Bay Company revealed the

renowned 10 year snowshoe hare cycle now clearly evident over most of North America. After only 25 years of snowshoe hare monitoring refuge biologists can not yet say that a Kenai snowshoe hare cycle is clearly evident.

*Toby Burke is a refuge biological technician who is intrigued by the status and distribution of Alaska and Kenai Peninsula birds and enjoys birding with his wife and family. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Strong cycles show boom-and-bust lifestyle for snowshoe hares

by Ed Berg

Last week's Refuge Notebook reviewed the ups and downs of central Kenai snowshoe hare populations since 1983. Snowshoe hares have been down since 2001 and now are just beginning to climb out of their long low phase toward their next peak, according to our annual counts of hare fecal pellets at five sites.

Snowshoe hares have a strong population cycle that runs 9-11 years in many places, and more like 12-14 years on the Kenai. For animals with well-defined population cycles, there are two basic questions: first, why do they cycle? And second, why are their cycles so regular? These are two very different questions, and in this article I'll address the first question about what causes hares to flourish for several years and then become scarce for a period of years. In a future article I'll review the evidence for the hare cycle being synchronized by the 11-year sunspot cycle.

Life is not easy for snowshoe hares. They are truly everybody's favorite prey species, and experience 70% mortality per year. That is, only 30% of the hare population survives from one year to the next, and this is in the good years. To offset this mortality they have to "breed like rabbits," typically having 1-4 litters per year, with up to 14 leverets (babies) per litter (the average is 5).

The traditional explanation for the snowshoe hare cycle is that, as hare numbers increase, so do the numbers of one of their predators, the lynx. Supposedly the lynx numbers increase to the point that they overeat the hares, then the hare population crashes, and the lynx population crashes a year or two thereafter. With few lynx around, the hare population will begin to rebuild and the cycle repeats itself.

Canadian researchers conducted a series of clever experiments over a period of 20 years (including two hare cycle peaks) in the Kluane area of the Yukon to test this and other explanations. They set up 1-square kilometer experimental plots, where they could count hares by catch-and-release methods or use radio-collars. Two of the plots were fenced with a wire mesh large enough to let hares in and out, but electric wires excluded large mammalian predators like lynx

and wolves. On two unfenced plots the experimenters provided as much food (rabbit chow and spruce tops) as the hares could eat. Three plots were controls where the hares were simply counted, with no food or fencing.

More hares were initially attracted to the free food in the unfenced plots, as might be expected, but during the crash phase of the hare cycle when predators were abundant, the hare population declined sharply at the same rate as in the control plots. This showed that the hare cycle in Kluane is not driven by food shortage. The hares were not in any way starving to death; they were simply being eaten by increased numbers of predators.

On the Kenai, by contrast, we suspect that the decrease in hardwood browse in our post-fire maturing forests does at least retard the recovery of hares from the low phase. Like Kluane we don't see starving hares in the winter, but our hare pellet census plots are located in maturing old burns (of 1947 and 1969) and they certainly suggest declining peak phase hare populations compared to anecdotal reports of higher hare peaks in the early days of these large burns.

One of the Kluane electric fence plots was provided with free food, but the other had no added food. During the crash phase the hares in the plot with both fence and food survived best of all the plots, but their numbers still decreased to only 20% of their peak phase numbers. Hares on the unfenced food plots declined to about 5% of their peak phase numbers, so the fence did help somewhat but not a lot.

One lesson of this study is that there are more predators involved than simply lynx. Red squirrels were effect predators on the leverets. Hawks, goshawks, and owls, as well as lynx and coyotes were important predators of juveniles and adults.

The fenced pens could exclude the lynx and coyotes but not the birds. The fenced pens with and without free food both saw declines in hare survival rate, although the hares in the free food pen didn't decline quite as much. This suggests that well-fed hares are better able to escape avian predators.

Most interesting to me in this study are the “psychological” aspects. It turns out that stress is a major player in the hare cycle. Bunnies are sensitive creatures, which probably comes as no surprise to anyone who has ever raised rabbits. Stress effects first appear when the female hares’ reproductive output begins to drop just as the population cycle begins its upswing (such as on the Kenai right now).

An Alberta study showed, for example, that the average number of leverets dropped from 17 to 15 during the first three years of the population increase phase, and then dropped more sharply to eight leverets during the final two years before the population peaked. In the Kluane study survival of both adults and nursing juveniles also began to decline as soon as the population started to increase, before the predators arrived in large numbers.

These effects suggest to me that social interactions among the hares (like crowding and competition) may have been the main source of stress during the early years of the population increase, and then there is a shift to fear of predation as the number of predators increase.

Whatever the cause of the stress, it permanently marked the mothers. The researchers captured fe-

male hares at both the low and peak phases of the population cycle, and raised them in cages for five to seven years under very benign conditions (free food, no crowding, etc.). The peak phase females never recovered their full fertility; even in the third year of captive breeding the peak phase females had less than half the number of offspring as the low-phase females. It must have been hare hell at the peak of the cycle!

These studies in Kluane and the Kenai show that a variety of predators (in addition to lynx), stress, and in some cases food supply all play a role in the hare cycle, but probably acting in different ways and different degrees in different areas. We can imagine such factors affecting many other kinds of animals and causing fluctuations of their numbers, for example moose, fish, and human beings. The remarkable thing about snowshoe hares is the regularity of their cycle, which is more-or-less synchronized all across boreal North America. But that is a story for another day...

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. He thanks Ted Bailey for assistance in writing this article. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Refuge education intern contributes to Kenai Peninsula youth while gaining valuable career experience

by Eve Smallwood



*Eve Smallwood and camper Anna Loehr investigate an insect at Summer Camp. Photo Credit Kenai NWR Staff*

When I got the phone call last November that I'd been accepted for a position as an environmental education intern at the Kenai National Wildlife Refuge, I remember jumping around and yelling, "I'm going to Alaska!" I was ecstatic!

As a forestry major that had never lived outside of Illinois, I was eager for the chance to get to know another part of the country and get some hands-on training in the environmental education (EE) field. I love the outdoors and working with kids, but my forestry courses had only briefly touched on the subject of EE. What better way to learn about becoming an environmental educator than to get some experience spending the next eight months working directly with the Refuge's education specialist, Michelle Ostrowski, do-

ing environmental education programs with a variety of audiences.

One of my primary responsibilities at the Refuge was facilitating field trips. Local students come to the Refuge to learn about topics from fire ecology to wetlands, and much more! Many field trips take place at the Refuge Environmental Education Center in Soldotna, while others go to the Skilak Wildlife Recreation Area in the heart of the Refuge. The majority of our time on field trips is spent outside. In the winter, we get students into snowshoes to learn about how wildlife adapt in winter in Alaska. As we lead students on these hikes, we play educational activities and games to help them learn about these topics. We try to make sure the students are having fun while gaining valuable information about the outdoors at the same time.

At the end of one field trip, as the students prepared to return to school, I heard one kid groaning about having to go back to "learning." I laughed and told him we had been learning all kinds of things throughout the field trip. He had been having such a good time, he didn't realize he was learning too!

Along with helping lead field trips, I also got to create some of my own programs and activities for groups such as the Girl Scouts and local homeschool students. During the summer, I also created a new campfire program, "Have You Hugged a Tree Today?" with another intern that we presented at Hidden Lake Campground. I also helped out with the Refuge's various Fun Days, including Winter Fun Day, Wild Berry Fun Day, and Fall Fun Day. These community events provide a fun atmosphere for families and friends to learn about the Refuge and to enjoy the outdoors while doing activities, going on guided walks, making a craft or snacking on a theme-based treat.

One of my favorite projects at the refuge was helping create the first "Get Out & Get Dirty" Summer Camp for kids. On the one sunny week in July, fourteen 4<sup>th</sup> and 5<sup>th</sup> graders came to the Refuge and had a blast learning about outdoor-related topics. We did activities such as salmon dissection, insect catching,

plant and tree identification, wilderness survival, map and compass use, nature art, and scat identification. The list goes on! It was certainly one of my favorite weeks all summer, and I know the kids had just as much fun.

Teaching kids about the outdoors really is fun, but it is much more than that. We hope that by teaching children about natural environments and how they function, the children will develop an increased interest in the outdoors and become environmental stewards. We are also optimistic that the kids will develop a personal relationship with the Refuge so that they may help care for it, and will bring others to share the natural wonders that the Refuge has to offer. Just the other day I was at the Refuge Headquarters when a car pulled up with one of the kids who had recently been on a field trip. He had brought his family back to go on a hike. The adult driving told me, "This is one way to get people out here!" We certainly hope so!

This internship has been an inspirational stepping stone for me. It gave me the assurance that being an

environmental educator is truly what I am passionate about and that I am on the correct career path. It gave me experience that I could not have received solely from my college courses. I have also been privileged to see the beauty of Alaska. As I leave Alaska and the Kenai National Wildlife Refuge, I will take with me good memories, increased confidence, and new skills that will help me reach my goal of becoming a great environmental educator.

Thank you to all of the people who enriched my experience here, especially to my mentor and friend, education specialist Michelle Ostrowski.

*Eve Smallwood has been an Environmental Education Intern at the Kenai National Wildlife Refuge for the past eight months. She is heading back to Illinois before moving on to her next adventure. Anyone who is interested in participating in an environmental internship in the United States should visit the Student Conservation Association (SCA) website at <http://www.thesca.org>. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## A family float trip down the Yukon River

by John Morton



*Straight off the water to the telephone, Mika Morton, 11, reconnects with civilization in Eagle after 700 miles on the Yukon River. Her sister Charly, 6, is not in such a rush. The Morton family made the 4-week wilderness trip from Whitehorse, Yukon Territory to Eagle, Alaska by canoe in June. Photo Credit: John Morton/USFWS.*

Two years ago, I took a course in Wilderness Stewardship that was hosted in Girdwood. Four days of training helped me to remember how special our wilderness is in Alaska, and I vowed that I'd have a wilderness "experience" with my kids while they were still young. My rule of thumb is that a trip needs to be at least 10 days long before I stop fretting about work or unpaid bills, or whether or not I turned off the stove.

So in early June of this year, we launched on a 700-mile canoe trip down the Yukon River from Whitehorse to Eagle. "We" included two families, mine and the Usab's, friends from the eastern shore of Maryland. We crammed four adults and our four kids, ranging in age from six to 13, into three canoes and set off for almost four weeks of what we originally (and optimistically) called just a "float down the river."

Now, I've canoed as much as 250 miles a day on the upper Yukon River as a two-time competitor in

the Yukon Quest. But it's equally challenging when young kids are involved and you're worried about making sure they're having fun and are SAFE. This is a tall order when they're inhaling mosquitoes, paddling through water as cold as ice with big hydraulics or camping in bear country.

Our "wilderness" trip got a rocky start as we passed a sign below Whitehorse that cautioned about treated effluent being discharged into the river. Several miles below town we ran into a grocery cart sticking out of a muddy bar in a bend on the river. As we paddled across the 30-mile long Lake Lebarge, made famous by Robert Service's poetic celebration of the Cremation of Sam McGee, we saw abundant signs of humans everywhere: tent sites, rusted cans, old cables, and broken glass.

But gradually these modern archaeological artifacts disappear as we get into dining on grayling and wild onions further down the river. Saxifrage, bluebells, cinquefoil, wild sweet pea, and fleabane are flowering everywhere. Ravens stick their heads into the holes of cliff and bank swallows to feed on nestlings and eggs. As we pass one of many spectacular cliffs along the river, a pair of peregrine falcons double teams a swallow and snatches it out of the air in front of our canoes.

The outbreak of leaf miners on aspen and birch makes the trees growing along the banks unusually silvery as a result of the larvae eating all of the green chlorophyll tissue under the waxy cuticle that covers each leaf.

At one point, we see a black bear trying desperately to swim to shore before we intercept its trajectory with our canoes. Red-breasted merganser broods are everywhere.

Older signs of First Nation people and the Klondike gold rush that we see further down the river seem part of the natural landscape in a way that the modern litter below Whitehorse did not. Below the mouth of the Teslin River we poke around the abandoned village of Houtalinqua, which once serviced the Klondike steamers and transmitted telegraphs. At the mouth of the Big Salmon River, we have lunch at a site that was once a village for the Tutchone, an Athabaskan tribe,

and later a fur trading post.

At the fully restored Fort Selkirk, below the mouth of the Pelly River, the kids (and the adults) are entertained and educated by Papa Don, a transplanted Ojibwa Indian, who tells handed-down stories of important things to know like why bears have short tails. You'll have to go there yourself to find out the answer.

Somewhere along the way, we pass Stewart's Island which once hosted a couple of communities, including the cabin where Jack London overwintered before the Klondike Gold Rush. He only spent a year in the Yukon, during which time he got scurvy and lost all of his money. But his eidetic memory of the conversations that he had with other miners and trappers during the winter of 1897 gave him the setting for his many subsequent books, including *Call of the Wild*. His cabin was later moved to Dawson City as a historical site, where it was literally cut in half horizontally. The lower half remains there but the upper half was taken to Oakland, California, where Jack hailed from and where a duplicate cabin has been restored.

And somewhere along the way, I get to watch our kids grow up just a little bit more. Despite the absence

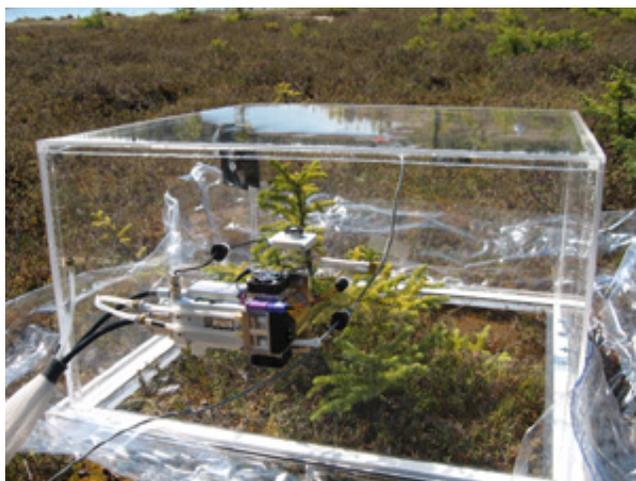
of electronic gadgetry, which I had forbidden, they have memorable times panning for gold, fishing, paddling, poking fires, telling stories, and singing. Mika, my eleven year old daughter, grins wildly from the bow as we shoot through Five Finger Rapids. Charly, my six year old daughter, never, ever complains although at one point she is pretty close to being hypothermic.

We so settle into traveling on the river that when we're stuck in our tent for two nights as it rains for 30 hours straight somewhere along the International border between Yukon and Alaska, we just enjoy sleeping and reading and eating and being with each other. I'm not sure who said it's the journey that counts, not the destination, but I think we accomplished a bit of what I had hoped for two years ago.

*John Morton is the Supervisory Fish & Wildlife Biologist at the Kenai National Wildlife Refuge. He is also adjunct faculty at the University of Alaska Fairbanks and Colorado State University. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Are the Kenai's drying wetlands sources or sinks of CO<sub>2</sub> to the atmosphere?

by Sue Ives



Graduate student Sue Ives uses an infrared gas analyzer to measure carbon dioxide CO<sub>2</sub> uptake and discharge in wetlands on the Kenai National Wildlife Refuge. Photo Credit: Sue Ives/USFWS

While hiking through a large Kenai Peninsula wetland a few years ago, I noticed an odd thing—the wetland appeared unusually dry. There were large depressions with nothing but cracks in the soil surface, indicating that these depressions typically hold water but were dry at the time of my visit. Much of the vegetation appeared wilted and water-stressed, and try as I might, I couldn't dig a hole deep enough to find the water table in an environment where water is typically near the surface. This trip had me thinking—what will the effects of climate change be on our Kenai Peninsula wetlands?

A bit of reading turned up recent work supporting my observations. Aerial photo comparisons from the 1950s to the 1990s documented a decrease in the amount of open water and grass habitats on the Kenai Peninsula at the same time as an increase in forested habitats. Other work showed that black spruce and dwarf birch shrubs are moving into Kenai Peninsula Sphagnum-sedge wetlands.

Northern peatlands, such as the large wetland

complexes that occur throughout the Kenai Peninsula Lowlands, are vast stores of terrestrial carbon and their response to climate change is globally important. As these wetlands dry and woody vegetation moves in, two competing processes are at work: carbon sequestration (storage) through photosynthesis and carbon release through respiration. Depending on which process dominates, drying wetlands can be either a sink or a source of carbon dioxide (CO<sub>2</sub>).

Carbon sequestration is the long-term storage of CO<sub>2</sub> removed from the atmosphere. Plants naturally sequester carbon through the process of photosynthesis, when they use the energy provided by sunlight to transform CO<sub>2</sub> to organic compounds and tissue within the plant. As wetlands dry and shrubby vegetation moves in, there are more leaves available to perform photosynthesis and more carbon is sequestered.

Respiration occurs both in plants and in the soil microbial community, releasing CO<sub>2</sub> into the atmosphere. Low soil temperature and high soil water content generally constrain respiration in wetlands. However, as wetlands dry, these constraints are lifted and one would expect to see an increase in ecosystem respiration.

So as wetlands dry, the constraints on both photosynthesis and respiration are lifted and we would expect to see higher levels of photosynthesis (sequestering carbon in the wetland) and higher levels of respiration (releasing carbon from the wetland to the atmosphere).

My work on the Refuge over the past summer has focused on identifying which process dominates: are drying wetlands a source of CO<sub>2</sub> to the atmosphere due to increases in respiration, or are they a sink which sequesters atmospheric CO<sub>2</sub> in newly established woody vegetation?



*Aerial view of the wetland where Sue Ives is making CO<sub>2</sub> measurements. The boardwalk allows her to make measurements at exactly the same points throughout the year without trampling the vegetation. Photo Credit: Rick Ernst /USFWS*

I have been able to measure the amount of CO<sub>2</sub> captured through photosynthesis as well as the amount released through respiration along a moisture gradient in a Kenai Peninsula wetland. From wettest to driest, the sampled communities are dominated by Sphagnum moss, sedges, dwarf birch, and black spruce. As anticipated, preliminary results indicate that the two drier communities, dwarf birch and black spruce, show higher levels of both photosyn-

thesis and respiration throughout the growing season. What's interesting is that as the growing season progressed photosynthesis far outpaced respiration in the two drier plots, leading to nearly twice as much carbon sequestration in the drier communities than in the wetter communities during the month of July.

At this point, you're probably thinking that this wetland drying trend could actually be good for climate change, if drying wetlands sequester more carbon. Well, there's one more piece to the puzzle to consider. As the snow begins to fall and the leaves drop from the trees, plants are beginning to slow down for the winter and will stop photosynthesizing until next spring. But while photosynthesis will shut down for the winter, soil microbial respiration will continue for many more months. This continued release of CO<sub>2</sub> to the atmosphere through respiration may well negate any differences in CO<sub>2</sub> sequestration in the summer months. I plan to continue monitoring throughout the winter so that I can measure the total annual flux of the wetland. I am quite eager to see how this balance between photosynthesis and respiration plays out!

*Sue Ives is a graduate student at Alaska Pacific University working with Professor Roman Dial and Refuge Ecologist Ed Berg. More information on drying Kenai wetlands can be found in past Refuge Notebooks. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## The important stuff?

*by Robin West*

The news these days seems to be filled with more than a few topics that make life a little less than pleasant: war on terror, world economic slowdown, corruption in politics, global warming... These things are changing countless lives—some in very real ways, and some in creating a seemingly constant drag down on the human spirit. As such, it gives one pause to reflect on what is important in our own lives. For most perhaps our core values involving faith, freedom, family, friends, and finances shape our frame of mind, but with all of that said, most of us also have very tangible things that give us the quality of life we desire. For me this has always been the love of wild places and wild things.

As a child I spent most of my free time wandering open fields; catching insects, frogs, and snakes; hunting; trapping; fishing; and camping. When I wasn't actually engaged in my outdoor pursuits I was often planning them, or simply day dreaming about the next adventure.

For me the love of the outdoors became a career, but it has also been much more than that. It has also been a lifestyle that has allowed me to find peace in God's creation; to feel alive and healthy climbing mountains, breathing fresh air, and enjoying the bounty of the land. It has provided me accomplishment in seeing new places and species, capturing unique photographs or just memories, and harvesting fish and game that I might pursue. It has provided me comfort with the warmth of the morning sun and the beauty of snow-capped mountains or a star-lit night. It has provided me joy with sharing a spectacular vista, sunset, or campfire with friends and family.

I know that many people share this connection to the land as I do; however, in this day of increasing urbanization and business I also believe that it is becoming less important for many. That is a shame. The simple rewards of spending time out-of-doors should not be cast aside. Children of all ages should learn all they can about the natural world—it provides a lifetime of opportunities. And it is always there, whether the Dow Jones Industrial average is up or down, wild places and the critters that call them home remain unchanged, as long as society continues to conserve and

protect them.

This is why I feel so strongly about taking care of the Kenai National Wildlife Refuge. It is more than a job. The Refuge symbolizes the quality of life for so many of the area's local residents and visitors alike. And while there will always be room for argument about the specifics of how an area is managed, taking care of the area for future generations is the paramount objective.

More to the point, I receive regular advice regarding increasing or decreasing hunting, fishing, or trapping opportunities, or increasing or decreasing motorized or other access options. Frankly, our human values don't always agree when it comes to how to recreate or use or protect wildlife. But where we can take solace is the general agreement that wildlife are important (whether you want to watch them, eat them, or just like knowing they are there) and as such protecting important wildlife habitats is crucial.

The United States can be proud of its National Wildlife Refuge System—a unique system of lands and waters set aside for the over 700 species of birds, 220 species of mammals, 250 reptile and amphibian species, and 200 species of fish that call them home. There are currently 545 national wildlife refuges in the United States—at least one in each of the 50 states—and one within an hour's drive of most major U.S. cities.

More than 40 million people visit the 98% of refuges that are open to the public to pursue one or more outdoor activities. The National Wildlife Refuge System can provide a peaceful interlude for an hour or two, or offer a week's long escape into true wilderness. If you have not discovered the value of spending time out-of-doors, or have been delinquent in recent time in shedding the cell phone and skipping the nightly news, I invite you out to the Kenai Refuge for a visit.

If you are planning a vacation Outside, or elsewhere in Alaska, consider checking out a refuge there during your visit. Seeing a manatee at Merritt Island NWR in Florida, or an alligator along the boardwalk in Okefenokee NWR in Georgia are easy add-ons to a trip to Disney World that are sure to create memories equal to a ride down Splash Mountain or the purchase of a mouse-ear hat souvenir!

Try bird watching on the Texas coast or bird hunting at any of the thousands of waterfowl production areas in the upper Midwest, or fishing at more than 260 refuges open to the sport. Outdoor opportunities aren't too bad right here at Kenai either! Check out our web site at <http://kenai.fws.gov/>.

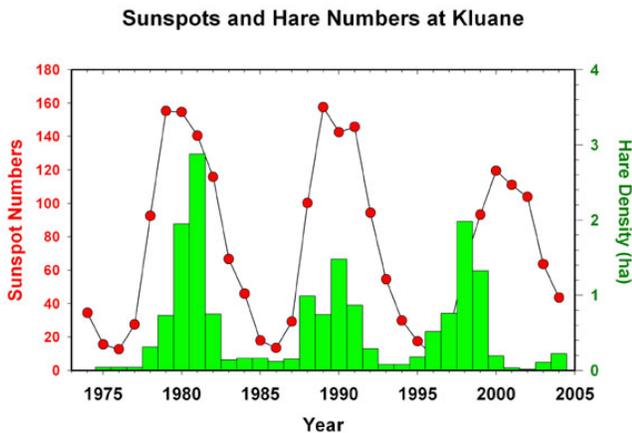
So regardless of how the elections turn out or whether you have witnessed your retirement fund

evaporate in recent months, take the time to enjoy some important stuff—get outside and enjoy!

*Robin West is the manager of Kenai National Wildlife Refuge and enjoys the outdoors for both work and play. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Snowshoe hares and porcupines track sunspot cycle in some areas, at some times

by Ed Berg



*Snowshoe hare populations roughly track the sunspot cycle near Kluane Lake in the Yukon Territory. Unpublished data from Charles Krebs, University of British Columbia.*

In my *Refuge Notebook* of October 3<sup>rd</sup> I described some of the causes of the boom-and-bust snowshoe hare cycle. During the increase phase of the hare cycle predator numbers also increase, through influx and improved reproductive success. Lynx, hawks, goshawks, and owls predate the adult hares, and red squirrels hammer the babies. Psychological stress cuts the mother hares' reproductive output in half, and the population crashes. The predators then go hungry, disperse, or switch to voles and other prey.

The beaten down hare populations can take many years to recover, especially if the supply of winter browse is low, either due to having been overeaten or if the forests are maturing. Kenai hares are only now starting to recover from the last low phase which began in 2001, possibly due to a shrinking hardwood browse supply as the forest matures in the big 1947 and 1969 burn areas.

Canadian researchers have examined the 10-year hare cycle in many areas all across the boreal forest of Canada. Hudson Bay Company records of hare pelts cover 1788 to 1903, and trapper questionnaires cover 1904 to 1935. A record of hare browse marks on white spruce in the Kluane (Yukon) area goes back to 1751.

Two very striking facts emerged from the Canadian data.

First, the hare cycle is roughly synchronized all across Canada. The cycles generally peak at about the same time, in some areas a year or two sooner, in others a year or two later. This is a simply astounding fact for an animal that doesn't migrate. Hares are not like migratory ducks or even caribou. Why would hares in the Yukon track the same cycle as hares in New Brunswick? This is truly a major puzzle!

The second fact is even more astounding: the hare cycles all across Canada generally track the 11-year sunspot cycle. More precisely, they track the sunspot cycle during periods of high highs in the sunspot cycle. Like the ocean tides, sunspots have runs of high highs and runs of low highs. At present we appear to have come off a run of high highs (1947, 1957, 1968, 1979, and 1989) which averaged 80% more sunspots than the preceding run of low highs (1883, 1893, 1905, 1917, 1928, and 1937). The last high (2000) reached only 79% of the 1947-89 mean, which probably indicates that we are starting into a period of low highs and that the hare peaks will not coincide well with sunspot peaks.

The Hudson Bay Company fur records and trapper questionnaires show that the hare cycle generally peaked four years after the sunspot cycle peak. Since the 1969 sunspot high, however, the hare cycle has peaked sooner, within a year or two, or even before the sun spot high, for reasons unknown, as shown in the graph.

What could possibly make these hare cycles track the sunspot cycle, even roughly? The most likely hypothesis is weather, especially annual snow accumulation. Climatologists have long noted sunspot cycle correlations with atmospheric variables such as air temperature, air pressure, and precipitation. The correlations vary regionally, and can change from positive to negative, or be completely non-existent, in different parts of the world.

The instrumental weather record at Kluane, and indeed throughout most of boreal Canada, is not long enough to make a tight statistical case for tying to-

gether snowshoe hare cycles, snow accumulation, and sunspots. A recent study of porcupine cycles, however, was done in southern Quebec which has a long weather record (back to 1877). In this area adjoining the St. Lawrence River, winter precipitation tends to be greatest two to four years after sunspot cycle peaks.

Using tree-ring dating of porcupine gnawing scars on jack pine, graduate student Ilya Klvana at the University of Quebec developed a 130-year record of porcupine abundance. The porcupine scars (and hence porcupine numbers) were most abundant during sunspot lows (five to six) years after the sunspot peaks). During these years, winter precipitation and presumably snow accumulation was less, making it easier for porcupines to get around in the winter. Porcupines have short legs and don't do well in deep soft snow.

This study is the most convincing example that I have seen of a connection between sunspots and an animal population cycle. The strength of the connection here seems to be through winter precipitation which, in this area, correlates strongly with the sunspot cycle at the periodicities of both 11 and 22 years. Klvana found, however, that the sunspot connection with weather was rather local; weather records from several other stations within a couple hundred miles did not show the same 11- and 22-year cycles.

The chief difficulty with sunspot and weather correlations is finding a mechanism for how sunspots could affect weather, in any way at all. Sunspots and other forms of solar activity produce a very slight (0.1%) increase in the brightness of the sun, but it is very hard to see how this tiny bit of brightness could affect the weather. Clouds on the other hand can easily knock the sun's brightness down by 50% with an obvious dramatic effect on the weather.

Danish physicist Hans Svensmark has recently proposed a mechanism that may explain the solar activity and weather connection, both on the scale of the 11- and 22-year sunspot cycles, as well as on the scale of geologic time with the Earth's four alternating "ice-house" and "hothouse" cycles over the last 600 million years.

According to Svensmark's theory, clouds are produced by the steady stream of cosmic rays coming in

from outer space. Cosmic rays are created by exploding super novae, and are most intense when the solar system is passing through the arms of our galaxy, which have lots of super novae. The normal or default condition for the Earth is to have a lot of incoming cosmic rays, and hence a lot of clouds, especially the lowest level clouds which have the greatest affect on weather.

When the sun is active, however, it ejects huge quantities of electrically charged particles out into the solar system. These moving charges produce a temporary magnetic field called the "heliosphere." The heliosphere partially shelters the Earth from cosmic rays, so there are fewer clouds and sunnier weather.

It would be easy to test this theory if we had good meteorological records of cloud cover. Unfortunately, weather stations generally don't record cloud cover, and it is only since 1980 that satellites have provided cloud cover data for the whole Earth. In his provocative book *The Chilling Stars: A New Theory of Climate Change* (2007) Svensmark argues that the correlation between low-level cloud cover and cosmic ray intensity is quite high. Cloud cover and cosmic rays were low, for example, during the 1989-1991 sunspot high, and again declined sharply through the 2000-2002 sunspot high.

Svensmark proposed his cosmic ray theory as an alternative to the greenhouse gas theory of climate change, but most climatologists would argue that in the last several decades human-caused CO<sub>2</sub> has become the driving force of climate change, and that solar activity has become a relatively minor player. This may well be the case, but Svensmark must be credited for proposing a testable mechanism that connects solar activity to weather and hence to animal population cycles, at least in the past if not in the future.

Even if Svensmark is right about cosmic rays producing clouds, it still remains to be shown that cloudy winters have heavier snowfall, and that this increased snowfall either helps or hinders the hares. We're making progress on this story, but there is a lot more to be learned!

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Great “reads” for winter nights

by Candace Ward

As a nature lover I not only enjoy exploring outdoors, but I am always on the lookout for intriguing books about natural history and people who live and work in the outdoors. As we head into those long (hopefully cozy) winter nights, here are a few great nature “reads” that I recommend.

Bernd Heinrich, scientist, educator, and naturalist, has written wonderful books based on his research and personal experience outdoors in North America and northern Europe. Of his many works, I have most enjoyed *Winter World*, *Ravens in Winter*, *Mind of the Raven*, and *The Snoring Bird*.

Here is a warm-hearted excerpt from *Ravens in Winter*—“One of the raven parents finally returns and lands on a ledge just below the nest. The adult (it is a female, as I will determine shortly) stays. She bends down and with her great thick bill gently nibbles among the feathers on the top of the head of one of the young. She continues the treatment to the base of the young bird’s bill, and then she tenderly preens the tiny feathers around the eye. The youngster seems to find this treatment pleasurable because it stops fidgeting, closes its eyes, and makes soft low comfort sounds. After ten minutes she reaches over it and starts on the next, then preens the other two as methodically. All told, she works on them for over half an hour.”

Another excellent winter “read” for bear lovers is *Into Brown Bear Country* by former Kenai NWR Refuge Manager, wildlife biologist and Cooper Landing resident Will Troyer. Will shares over 50 years of his professional and personal observations and research on brown bears.

Here is a dramatic excerpt from the “Bear as Predator” chapter – “The sow, Blondie, charged to the left, but the moose turned to face the challenge. Blondie kept up her consistent harassment until for some unknown reason, the calves bolted. The cow placed herself in front of the nearest one. In a flash, Blondie saw her opportunity, rushed past the cow, and in one quick swap of her paws knocked the other calf off its feet, crushing its neck with her powerful jaws. The cow moose trotted away rapidly with the remaining offspring. Blondie uttered a few low woofs and her yearlings rushed to her side. The feast began.”

One of my all-time favorites that I have read more than once is *One Man’s Wilderness*, a modern-day Alaskan classic by Richard (Dick) Proenneke. This journal-style first-person narrative chronicles Dick’s labor of love building a log cabin solo in the Twin Lakes country of the Lake Clark region during the summer of 1968.

Dick Proenneke’s experiences observing his wildlife neighbors are wonderful. Here is a favorite excerpt—“December 22 – Wolves on the ice. I first saw them as little specks on the ice. Then the leader broke away and the others dropped back to each side to form a wide triangle. They stopped often to turn and look at the stillness surrounding them. Now they came on in at a trot. Through the spotting scope I could make out their narrow heads, erect ears, and long muzzles. I would like to see those green eyes close up. I moved. They froze like statues, 100 yards away. Suddenly one bolted nervously and loped down the ice. The others followed. Too bad I had been in the open when I first saw them. I think I could have gotten a closer look.”

One last favorite to leave you with is *Tisha* by Robert Specht, the story of a young teacher who taught in the remote Alaskan village of Chicken in 1927.

One excerpt any newcomer to Alaska can relate to is when Tisha asks Fred, “When do I stop being a Cheechako and become an Alaskan?”

He replies, “Well, some people never really become Alaskans. They never get to like it the way it is. They just tolerate it. It’s hard to explain. Maybe because it’s something you have to feel inside. All these old sourdoughs around here—they’re real Alaskans. They fought the cold, built cabins, and barely stayed alive. They were lonely, went hungry, but they made it.”

Tisha asks a universal question that many of us have pondered when Alaska has challenged us, “Do you think I’ll make it?”

To find out if she did, you’ll have to get the book at the local library, book stores in the community, or here along with the other books I mentioned at our Alaska Geographic sale outlet in the Refuge Visitor Center. Here’s wishing you great winter outings and

arm-chair adventures with these wonderful books on winter nights.

*When not reading and spending time outdoors, Candace Ward is a park ranger, who leads the Informa-*

*tion and Education Program at the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## New bird species expand the Kenai Peninsula list

by Todd Eskelin



*The Asiatic Barn Swallow looks like its American counterpart, but differs by having a complete breast band and a whiter belly. Photo Credit: Justin Adolph*

Several weeks ago in the Refuge Notebook we highlighted the occurrence of a new bird species on the Kenai Peninsula. This was the brief sighting and photo of a Northern Mockingbird at the mouth of the Kasilof River. This was however not the only new species we added to the Kenai Peninsula bird checklist in 2008. There were actually 4 new species and one new subspecies that boosted the total number of bird species on the Peninsula to 277.

With the climate undergoing changes, we're likely to see new species showing up every year and, if you throw in the fact that bird watching is a very fast growing activity in the U.S., we are prime for reports of new species here on the Kenai Peninsula.

The first new species sighted for the year was a Spotted Towhee at Seaside Farm out East End Road from Homer. This is a very birdy spot and Mossy

Kilcher has done a wonderful job landscaping her property to be very enticing to birds. This site has been home to previous new records for the Kenai Peninsula, including an American Goldfinch in 2003. Unfortunately for the rest of us, the Spotted Towhee stuck around just long enough for Mossy to get a photo and was never resighted. Spotted Towhees range up and down the west coast and breed as far north as British Columbia, but are still listed as casual in Alaska with most if not all of the sightings coming from Southeast Alaska.

The next bird to show up was actually a subspecies and not a full-blown new species, but it was so interesting, I want to share it anyway. It was equally as impressive as any of the new species and was completely unexpected. I received a call from Justin Adolph, that he had a strange swallow hanging out at his house near Cabin Lake and he thought it was a barn swallow. His description fit, but he only had a poor picture that didn't really tell the whole story.

So, I went out and hunted for Justin's bird. I did manage to get one fleeting glance at the bird as it flew over my head and darted through the neighborhood, but all I could see was that it was definitely a barn swallow. I looked several more times and was never lucky enough to be there at the right time, but a few days later Justin captured a very nice photo of an Asiatic Barn Swallow paying tribute to the American flag on the front of the house.

After four or five days in the Cabin Lake area, the bird was not resighted again. It was well done by Justin to not only recognize it as a new species, but then to be quick enough with his camera to get identifiable shots. The Asiatic Barn Swallow differs from the American subspecies mainly by a complete breast band and a whiter belly. The Asian sub-species of barn swallow shows up occasionally in western Alaska and has been seen as far south and east in North America as Washington.

There was a little lull in good bird sightings and then along came a Western Kingbird that decided that the Seward Little League fields were a good place to hawk for insects. The Alaska Checklist indicates that this species is casual in Alaska, which means sight-

ings in the state are not annual, but we would expect continued sporadic sightings in years to come. This sighting was a bummer because there was a little snag in our alert system and none of the normal emails or phone calls were made to let people know about this bird for about three days.

On Monday a few people went to Seward and spotted the Western Kingbird right where it had been for several days. On Tuesday, when I showed up, the typical Seward wind had been howling all night long and the bird was nowhere in sight. Besides the wind, the fields were overrun with recreational dog walkers and kite fliers. Then the grounds crew came to mow the field and alas it was not meant to be, so we headed home empty handed.

A bit later in the summer the above-mentioned Mockingbird showed up but did not reveal itself any birders besides the photographer.

Then on September 15<sup>th</sup> a Short-tailed Albatross was spotted south of the Chiswell Islands. While this species is known to be in the Gulf of Alaska, it had yet to be documented in “Kenai Peninsula” waters. The arbitrary boundary we drew last year was very close to where the albatross was spotted. With the aid of a GPS and mapping software, I determined the albatross was inside the line by less than two miles.

The Short-tailed Albatross is considered somewhat of a success story. This bird was hunted to near ex-

inction by the late 1930s. By then, the only remaining breeding area was on the Japanese island of Tori Shima. After World War II it was believed that the species was extinct as no birds returned to breed on the island. Fortunately, some of the juvenile birds returned from several years at sea and tried to breed. In 1954, with approximately 50 individuals remaining on the island and attempting to breed, the first egg in years was hatched. As of 2003, the world population was believed to be around 1800 birds. It is not unprecedented to see them on a ferry trip from Homer to Dutch Harbor, but they prefer to fish along the continental shelf so a sighting within 25 miles of the Kenai Peninsula coast is very nice.

In a nutshell, it has been a pretty good year for birding despite the fowl weather this summer, pardon the pun. To top it off, we broke the earliest arrival or latest departure dates for 16 of the 277 native species of birds on the Kenai. If you would like to see the entire list or the early and late record dates, contact me at the Kenai National Wildlife Refuge 262-7021.

*Todd Eskelin is a Biological Technician at the Kenai National Wildlife Refuge. He specializes in birds and has conducted research on songbirds in many areas of the state. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## *Last Child in the Woods* spawns a social movement

by Ed Berg

Every so often a book comes along that captures people's attention because it illuminates a dimly perceived problem and issues a ringing call of alarm. In the 1950s wild birds were disappearing from yards and woodlands. Rachel Carson's book *Silent Spring* articulated this decline and pointed the finger at DDT as the culprit. In the 1990s Theo Colburn's book *Our Stolen Future* sounded a similar call about endocrine-disrupting chemicals in plastics and pesticides that cause reproductive disorders in many species of animals including human male infants. Both of these books aroused public indignation and generated a variety of remedial legislation.

Similarly, Richard Louv's book *Last Child in the Woods* puts a finger the "nature-deficit disorder," where children today spend most of their time indoors and have very little contact with nature. Many of today's kids grow up on TV and computer games. Furthermore, parents have become increasingly fearful about letting kids play outdoors, especially away from the house in the woods or other undeveloped areas. This book strikes a very resonant chord in those of us who grew up playing outside, going camping, and generally hanging out in the woods and other unpaved places.

Being the father of a grown daughter in her mid-30s, I haven't been an active parent for quite a few years. I was only dimly aware that most modern kids are being raised quite differently than I or my daughter was raised. My parents didn't get TV until I was in high school, and I was far too busy with homework to watch TV. In primary school however I eagerly followed the radio adventures of the Lone Ranger, and Sergeant Preston and Yukon King, which prompted my grandfather (a stern old college professor) to admonish me against filling my mind with such trash. But the radio was only an hour or two a week, and most of my non-school daylight hours were spent outside building forts and tree houses, collecting rocks and bugs, and going for long meanders in the woods, with my buddies or by myself.

By the time my daughter arrived in the early 1970s, television had become a dominant cultural force in American life. My wife and I had serious doubts about

the effect of this force on people in general and children in particular, so we kept the TV watching for our daughter down to Saturday morning cartoons and *Little House on the Prairie*. All this was happening well before the home computer revolution of the 1990s and its digital derivatives such as Game Boys, Play Stations, and the World of Warcraft.

One of the more poignant quotes in *Last Child in the Woods* is from 4<sup>th</sup> grader Paul in San Diego who candidly acknowledged that, "I like to play indoors better, 'cause that's where all the electrical outlets are." Comments like this send shudders down the spines of nature lovers. John Muir would roll over in his grave.

Louv's book has touched a nerve in parents and environmental educators around the U.S., and they are making all kinds of efforts to get the children out the door into the Great Outside. Richard Louv now chairs the Children and Nature Network and finds himself very busy speaking around the U.S. and appearing on radio and TV shows.

The call of the "No Child Left Inside" (NCLI) movement—and it has indeed become a movement—has been heard by various government agencies, as well as by Congress. The U.S. Fish and Wildlife Service has its "Let's Go Outside program," the U.S. Forest Service calls it "More Kids in the Woods," and the National Park Service has its "Junior Rangers." Many states, starting with Connecticut, have passed "No Child Left Inside" initiatives. Most recently, the U.S. House of Representatives passed HR 3036, The No Child Left Inside Act, by a vote of 293 to 109. This act provides funds to state agencies for environmental education programs and for upgrading environmental literacy of teachers. A similar bill is pending in the Senate (S.1981).

I recently received a survey questionnaire from the Ecological Society of America, of which I am a member, inquiring about my childhood experiences that promoted interest in ecology and love of nature in general. The survey results will be used to plan a national meeting of ecologists in 2010 on the subject of uniting children with nature.

The NCLI movement seems to be going worldwide; the International Union for the Conservation

of Nature (IUCN) devoted a special session to “Reversing a World-Wide Trend: Strategies for Solving Nature-Deficit Disorder” at a recent World Conservation Congress in Barcelona.

Even on the Kenai—in the heart of the Great Outdoors, we like to think—parents and teachers are seeing too many children glued to electronic media during their precious few free hours not occupied with school, programmed activities, and homework. The fact that so many months of the year are cold and dark probably keeps Alaska kids indoors even more than in most of the Lower-48 states.

A recent “Connecting Children with Nature” forum in Homer, convened by long-time naturalist-educator Carmen Field, generated a wide-ranging discussion about the barriers to getting people outdoors, adults as well as children. Indeed, the barriers are formidable: busy schedules, over-worked parents, weather and the compulsive attraction of electronic media. One parent volunteered to start a “meet up” group with an e-mail list where people could announce outings that anyone could join, such as a hike down Diamond Creek, bird watching on the Spit, snow tubing at Ohlson Mountain, or a trip across the Bay. Several others volunteered to put together a short guide book of interesting places to go hiking. The emphasis was very much on involving both kids and parents in the activities.

I should say that we have some excellent family outdoor opportunities coming up at the Kenai National Wildlife Refuge headquarters in Soldotna over the next few months. We will offer two guided fitness snowshoe hikes on Winter Trails Day, Saturday, January 24<sup>th</sup>; one for beginners (families and kids) with quarter-mile walk, starting at 11 am, and one slightly more advanced (for older youth and adults) two mile

hike at 1 pm. In January we will also be introducing all ages of homeschoolers to the art of snowshoeing (dates TBA), and we are working with the Kenaitze Indian Tribe Diabetes Prevention program to help people keep active during the winter months.

February 14<sup>th</sup> is the Refuge’s annual Winter Family Fun Day which highlights hands-on winter activities, crafts and snacks in addition to guided snowshoe walks. Winter school fieldtrip snowshoeing programs (grades four through six) will occur mid-February to mid-March and this year we will be piloting some 2<sup>nd</sup> and 3<sup>rd</sup> grade programs as well. Contact Education Specialist, Michelle Ostrowski at 260-2839 for more information on any of these programs (all snowshoe walks require pre-registration). If you have your own snowshoes or x-country skis, don’t forget that the Kenai Refuge Visitor Center has groomed trails open to the public all winter long.

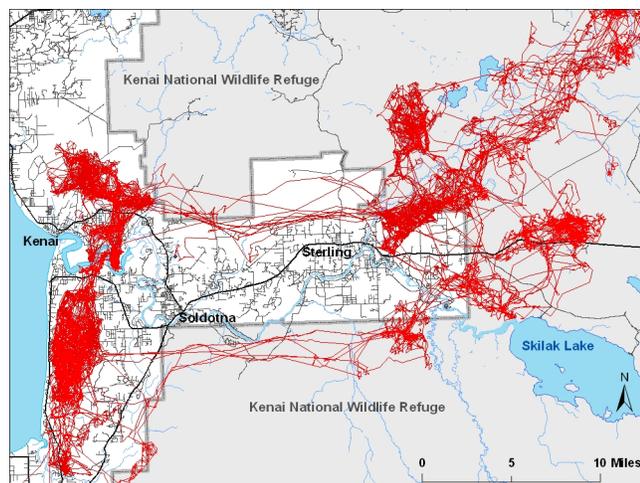
With Christmas coming up, it can be a great family outing to cut a Christmas tree on the Refuge, keeping in mind that trees must be cut more than 150 feet from any road, lake, stream, trail, campground or picnic area, and not around the Refuge Headquarters or Ski Hill Road.

*Last Child in the Woods* is a fascinating read and I recommend it highly, not just for parents but for anyone concerned that our next generation of citizens has an active love of nature and a desire to protect it from the inevitable pressures of a more crowded world. There’s lots of information available on the Children and Nature Network website: [www.cnaturenet.org](http://www.cnaturenet.org).

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Why did the caribou cross the road?

by Rick Ernst



Map of caribou movement in Kenai. Click on image to enlarge. Photo Credit: Rich Ernst

Caribou are fascinating creatures here on the Kenai Peninsula. They are well adapted for our cold climate with short ears and tails, as well as hollow hair which insulates them against extreme cold. They also have large rounded hooves for pawing through snow to reach lichens—a preferred winter food. The hooves spread wide to support the animal when walking on snow, and act as paddles when swimming.

The central Peninsula is one of the few places where you can see caribou in your back yard, in your neighborhood, or from the road. In order to learn more about these animals, we have collared them with radio transmitters, and in more recent years, with global positioning satellite (GPS) collars. While the average radio collar costs \$300, a GPS collar can run up to \$1750. The cost difference is large but so is the benefit. GPS collars can be programmed for obtaining locations, can include a “drop off” mechanism to release the collar on a specific date and time, can store a large amount of data, and do not burden the animal for life.

With the radio collar, a biologist must track the animal from the ground or the air to obtain location data. This involves a vehicle or an airplane which (especially with high fuel costs) can greatly increase the cost of each location “fix” obtained. However the GPS collar uses satellites to obtain a location fix and then records the information within the collar. Depending

on the goals of the study, you can program the collar to obtain a fix at various times.

We first used GPS collars on the Kenai Lowland Herd in November 2000. We programmed the collars to obtain a location ever 13 hours throughout the year. As part of the Sterling Highway Wildlife-Vehicle Collision Study we collared caribou starting in November 2006 to identify specific crossing areas of the Sterling Highway between Milepost 58 and 79. These collars were programmed to obtain a fix every 30 minutes from November until April, and then every two hours until the collar dropped in September of the following year.

The limiting factor on programming a location fix frequency is the battery pack. The more locations you obtain, the shorter the battery life of the collar. This is critical because you must retrieve the collar in order to obtain the data. If the battery fails before the collar can be retrieved, the transmitter will stop sending out a signal and you will have no way to track or locate the collar. All the data stored on the collar will be lost. This can be disastrous for the researcher.

GPS collars have been a tremendous aid to more accurately documenting home ranges for the Kenai Lowland Herd as well as determining the timing and location of migration routes between their summer and winter ranges. Caribou winter over a vast area between the Moose River and Funny River. Their summer range is smaller and includes wetlands north of the Kenai Airport and the Kenai gas fields surrounded by K-Beach Road. Two critical road crossings for caribou during the summer are the Kenai Spur west of the intersection with Beaver Loop, and K-Beach near the intersection with Bridge Access Road.

While Kenai Lowland caribou are frequently observed by locals and visitors along K-Beach, Bridge Access, Beaver Loop and the Kenai Spur roads, it is evident from the GPS data that caribou avoid roadways. Of 61,009 locations from nine GPS-collared caribou only 278 were within 100 feet of any road – that is less than half of one percent! If we extend the distance to within 500 feet of any road 1,857 locations occurred, that is still only three percent of all the GPS locations.

The red lines show the movements of nine cari-

bou with GPS satellite locator collars during 2006-2007. These caribou belong to the Kenai Lowland Herd. The summer range is shown by the dense red color on the west side covering the Kenai gas fields, and the Kenai River flats to north of the Kenai airport. The winter range lies generally east of Sterling. The route lines clearly indicate that the caribou avoid roadways and developed areas

Even though the caribou clearly avoid roads, they must travel across roads to get back and forth from winter to summer ranges. And some fall prey to vehicles when they do cross roads, especially the Sterling Highway, Kenai Spur, Beaver Loop, K-Beach and Bridge Access. Approximately four caribou are killed each year in collisions with vehicles. While this is a small number, the Kenai Lowland Herd is only around 100 animals. This herd has not been hunted since 1994 due to its small size.

One concern of managers is that cow caribou in the Kenai Lowland Herd are aging and will become less productive in coming years. Typically male caribou live about seven to eight years while females live

slightly longer—up to 10 years. However, one caribou we captured was from the original transplant to the Kenai back in 1986. She was at least 17 years old. Each individual animal has its own set of circumstances which influence its health and life span. Injuries, disease, parasites, predation (both wild and domestic) and vehicle collisions can all shorten a caribou's life.

We can help caribou survival by driving attentively and watching for caribou crossing the road, especially when weather and road conditions are poor. Also during calving season in May and June, please do not let your dog run loose. Dogs, especially in groups, can kill caribou calves.

The Kenai Lowland caribou are one of the highlights of living in this area. With some care we can help ensure their presence here for years to come.

*Rick Ernst has been a wildlife biologist and pilot at the Kenai National Wildlife Refuge since 1993. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## A Boreal Owl provides an encounter with an elusive species

by Ted Bailey

Although I have conducted research on many interesting species—striped skunks in Ohio, bobcats in Idaho, wolverines in Montana, leopards in South Africa—and have conducted or been involved in studies of moose, caribou, brown bears, wolves, coyotes, lynx, marten, bald eagles, trumpeter swans and wood frogs on the Kenai Peninsula, one of my continuing enjoyments of living on the Kenai Peninsula is the anticipation of seeing a species or some animal behavior that I've never seen before. Each day that I am fortunate to spend time outdoors I know there is that possibility.

I had such an experience late in the evening on September 15. However, I did not encounter a rarely seen wolverine, seldom-seen lynx or even an elusive wolf. But it was a species I had never seen before in its natural habitat even after living here over 32 years!

In near darkness walking through a small patch of forest near our home a robin-sized bird reluctantly flushed from a tree in front of me and landed on a nearby branch. I would not have been able to identify it were it not for my light-gathering binoculars. But once my eyes became adjusted to the dim light, I discovered I was looking at a rarely seen species—a diminutive boreal owl—and it was intently looking back at me.

Although boreal owls apparently are fairly common in our boreal forests they are seldom seen. First, they are very small, the heavier females weighing only about 6.4 ounces and the males about 3.8 ounces. They are only eight to nine inches long with a wingspan from 21-24 inches. Years ago I heard the plaintive calls of one in the distance off Swan Lake Road near Campfire Lake but despite looking for it, I never saw it. I even helped restore to health an injured boreal owl that we kept several weeks at the Refuge Headquarters before releasing it into the wild, but I never encountered one in its natural habitat.

The boreal owl I saw in September seemed as interested in me as I was in it. It flushed ahead of me from a low spruce branch and flew about thirty feet to a willow tree facing me and rocked its head several

times for a better view. After five minutes it flew directly toward me just clearing my head and landed on a birch limb behind me, closely inspecting me again. After several minutes it flew toward me again, this time landing only about fifteen feet away about six feet above the ground. And while watching the owl this time, it appeared to regurgitate something that fell to the ground.

Finally the tiny owl flew off into the darkness of the nearby spruce trees. Assuming I would not see it again, I began to walk away, but as I was leaving the owl appeared from behind me, flew low past me and disappeared ahead of me into the darkness. Returning the next day I found a tiny one-inch pellet it had regurgitated that contained the remains of what I believe was a red-backed vole.

There have been few studies of boreal owls. Perhaps the most detailed study was that conducted by researchers from the University of Idaho in the 1980s. It was based on radio tagged boreal owls in the Northern Rocky Mountains of Idaho, Montana and Wyoming. Most (75%) boreal owls there nested at altitudes greater than 5,196 feet and had large home ranges for such small birds: an average of 3,585 acres in the winter and 2,921 acres in the summer. They fed mainly on small mammals such as voles, flying squirrels, pocket gophers, chipmunks, and jumping mice.

The boreal owls in the Northern Rocky Mountains nested high above ground in the cavities of trees that had been excavated by pileated woodpeckers. Boreal owls hunt from low perches at night, seldom hunt during the daytime and occasionally cache in the forks of trees their small mammal prey to eat later.

Boreal owls on the Kenai Peninsula begin establishing their territories and start to breed from about March through April. Their call is a soft and rapidly repeated “po-po-po-po”.

I feel fortunate to have finally seen a boreal owl in its natural habitat and to have heard them call. But most of all, its reassuring just to know that they are really out there even if they are rarely seen.

*Ted Bailey is a retired Kenai National Wildlife*

*Refuge wildlife biologist who has lived on the Kenai Peninsula for over 32 years. He is an adjunct instructor at the Kenai Peninsula College and maintains a keen interest in the Kenai Peninsula's wildlife and natural history. For more information on boreal owls see the Alaska*

*Department of Fish and Game's website at: <http://www.adfg.state.ak.us/pubs/notebook/bird/borealow.php>. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

# Beyond the boundaries of the Kenai National Wildlife Refuge

by Heather Johnson and Mike Edwards



*Before restoration: A section of the Kenai River with cement blocks added to try to reduce bank erosion. The cement blocks are not fish-friendly. Photo Credit: Heather Johnson/USFWS*

When we think about the work of the U.S. Fish and Wildlife Service, we usually think about federal employees working on federal lands, such as the Kenai or Alaska Maritime National Wildlife Refuges. We don't think about these employees assisting private citizens with projects on private land. Yet, across the nation, each year, thousands of upland and wetland acres and hundreds of river miles are restored on private lands to enhance fish and wildlife habitat. This is all happening through a program called Partners for Fish and Wildlife. The program celebrated its 20<sup>th</sup> anniversary in 2007.

The Partners Program began in the northern Midwest with an outcry to the U.S. Fish & Wildlife Service to reduce the loss of wetland and native prairie in the Prairie Pothole Region of the United States. There was a great deal of "sod busting" going on to plow up native prairie and drain wetlands to plant crops that could turn a profit. The Service, the state agencies, conservation groups, duck hunters, and local citizens

were observing that after the "sod busting" occurred, the loss of thousands of ducks, geese, shorebirds, and cranes soon followed. They began looking for a way to slow down the agricultural development and look for positive solutions.

In the same Midwestern states, there are many National Wildlife Refuge units administered by the U.S. Fish & Wildlife Service. Refuge employees began to think creatively about how they could play a role. A small group of visionary conservationists sat down and said, "We can't do conservation work only on federal and state land. We have to work with private and tribal landowners as well. If we want to have native prairie and wetlands, we have to find a way to work with landowners to not only provide habitat for wildlife, but find a way to help landowners stay profitable on their land." This small group of visionaries helped to start the first private land habitat restoration projects in the Midwest that later led to one of the most successful national U.S. Fish & Wildlife Service programs—the Partners Program.

Over twenty years ago, key partners went and lobbied Congress for the first Partners Program funding. It wasn't much money, but it was a start. They developed some guiding principles, which led to a program policy that still exists to this day. The guiding principles and program policy are based on trust, respect, honesty, flexibility, and open communication. The founders of the Partners Program thought long and hard about how to make a private land habitat restoration program work. They learned that it has to be simple and practical, with few hoops to jump through. And, 20 years later, their vision is a huge reality that has translated into thousands of private landowner agreements across the nation.

The Partners Program was established in Alaska in 1995 with a modest amount of funding that supported eight stream bank restoration projects on the Kenai River and one fish passage project near Yakutat. The Alaska program has grown steadily since 1995. Initially the program was administered from the Regional Office in Anchorage; funding increases have al-

lowed the Program to grow and there are now Partners Program biologists stationed in US Fish and Wildlife Field Offices in Fairbanks, Anchorage, Juneau, and Soldotna.



*After restoration: The same section of the Kenai River after removing the cement blocks and stabilizing the bank with a technique using brush layering and cabled spruce trees. The willow cuttings in the brush layering will take root and provide riparian vegetation while the spruce trees will slow bank erosion and provide habitat for small fish, such as salmon fry. Photo Credit: Heather Johnson/USFWS*

Locally, the focus of the Partners Program has been on interjurisdictional fish (i.e., salmon), with an emphasis in three key areas; stream bank restoration,

riparian zone protection, and fish passage improvement. In working in these key areas we teamed up with the Alaska Department of Fish and Game to create a very successful restoration partnership known locally as the Cost-Share Program. In the 13 years of the Cost-Share Program, over 430 projects have been completed that resulted in over 13,700 feet of stream bank re-vegetation/rehabilitation, over 38,600 feet of stream bank protection (elevated, light penetrating grate walks and cabled spruce tree revetments) and 3,300 feet of structures that are detrimental to juvenile salmon removed from streams, primarily on the Kenai River. Although the majority of our Partners projects have involved salmon habitat, the program also supports projects that benefit other species such as migratory birds or resident fish species of conservation concern.

To learn more about the Partners Program on the Kenai Peninsula, as well as other Service companion programs, such as the Coastal Program, Fish Habitat Action Plan, and Fish Passage program, please contact Mike Edwards at the Kenai U.S. Fish & Wildlife Field Office, 43655 Kalifornsky Beach Road, Soldotna, Alaska 99669; 907-260-0125 or [mike\\_edwards@fws.gov](mailto:mike_edwards@fws.gov)

*Heather Johnson is the Mountain-Prairie Region Deputy Regional Coordinator for the Partners for Fish and Wildlife Program. She is on a 30-day job swap to the Kenai National Wildlife Refuge as part of the US Fish and Wildlife Service's Advanced Leadership Development Program. Mike Edwards is the Partners for Fish and Wildlife Biologist for the Kenai Peninsula. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*

## Soldotna area Christmas Bird Count slated for Saturday, December 27, 2008

by Liz Jozwiak



*Gray Jays are a common bird seen on the Soldotna Christmas Bird Count. Photo Credit: Heather Johnson*

The 109<sup>th</sup> annual Christmas Bird Count season is under way; tens of thousands of volunteer birders are scouring their designated areas in over 2000 circles this Holiday season throughout North America. Once again local birders from the Kenai/Soldotna area are invited to participate in the Soldotna Annual Christmas Bird Count to be held tomorrow.

The Audubon Christmas Bird Count (CBC) is an early-winter nationwide bird census, where volunteers follow specified routes through a designated 15-mile (24-km) diameter circle, counting every bird they see or hear all day. It's not just a species tally—all birds are counted all day, giving an indication of the total number of birds in the circle that day.

All individual CBC's across North America, including Canada, are conducted in the period between Dec. 14 to Jan. 5 each season, and each count is conducted in one calendar day in a given area. Birders from Seward, Anchorage, Homer, and other areas of Alaska also participate in this annual event.

The history of how the Christmas Bird Count be-

gan is quite interesting! The CBC began over a century ago when 27 conservationists in 25 localities, led by scientist and writer Frank Chapman, changed the course of ornithological history.

On Christmas Day in 1900, the small group posed an alternative to the "side hunt," a Christmas day activity in which teams competed to see who could shoot the most birds and small mammals. Instead, Chapman proposed that they identify, count, and record all the birds they saw, founding what is now considered to be the world's most significant citizen-based conservation effort, and a more than century-old institution.

Since Chapman's retirement in 1934, new generations of observers have performed the modern-day count. Today, over 55,000 volunteers from all 50 states, every Canadian province, parts of Central and South America, Bermuda, the West Indies, and Pacific Islands, count and record every individual bird and bird species seen in a specified area.

The data collected by observers on these Audubon Society Christmas Bird Counts over the past century have allowed researchers, conservation biologists, and interested individuals to study the long-term health and status of bird populations across North America.

In the 1980's, CBC data were used to document the decline of wintering populations of the American black duck, after which conservation measures were put into effect to reduce hunting pressure on this species. Trend information from the Christmas Bird Count and the Breeding Bird Survey is used to evaluate the status of species both in the breeding and non-breeding seasons. Christmas bird count data are now being used to see how birds may be reacting to global climate change.

The Soldotna Christmas Bird Count originated in 1983 with the center of the 15-mile diameter circle being the Kenai National Wildlife Refuge headquarters and covering most of the Soldotna area, including a good stretch of the lower and middle Kenai River.

Although the count was discontinued in 1992, it restarted in 1999 and has been running ever since with the dedication of local birder Jack Sinclair who has

been the local Audubon compiler of the data each year.

Some of the more common birds seen during the Soldotna CBC have been the bald eagle, black-billed magpie, common raven, common redpoll, pine grosbeak, pine siskin and boreal and black-capped chickadee.

Some uncommon or rarely encountered species observed on the 2008 Soldotna count last year were a trumpeter swan (observed by Merrill Sikorski), a boreal owl, three northern shrike, and two rock sandpipers (seen at the Port of Kenai).

Birders, or anyone interested in participating in this year's Christmas bird count, should meet at the Kaladi Brothers Coffee on Kobuk Street in Soldotna at 9:00 am so that birding groups can be assembled and observation areas assigned.

CBC participants are organized into groups—or field parties—by the organizer or Compiler of the Count. Each field party covers a specific area of the 15-mile diameter circle on a specific route. Inexperienced birders will be grouped with more seasoned CBC veterans to help familiarize them with where to go and what to look for.

For anyone wanting to pre-register, or just interested in the Christmas Bird Count, there is a wealth of information available on-line at [www.audubon.org/bird/cbc/](http://www.audubon.org/bird/cbc/), or on the local Kenai Bird Club's website at: [www.keeneybirders.org](http://www.keeneybirders.org).

Each participant should dress warmly, and try to bring a good set of binoculars and a bird identification book for species most often found in Alaska. You may also want to bring a camera to document any rare or unusual sightings. There is a \$5 fee per field participant which will help defray the cost of production and

publication of the 109<sup>th</sup> Christmas Bird Count issue of *American Birds* magazine.

Anyone having an active bird feeder in the count area is encouraged to help. Counting the single highest number of a species at a feeder at any one time, including any unique feathered visitors, is a big help to the count. All you will need to do is contact the local compiler so that you may report your results on the Count Day. No fees are charged for persons under 18 years of age, or for those planning to survey their backyard bird feeders during the Christmas Bird Count.

Participants do not have to be experts, but only have a desire to get outside and look for birds. The birding effort normally concludes at dusk (about 4 pm) or when weather precludes any measurable returns.

After a great day of birding, all participants are invited to submit their tally sheets and birding photos during a potluck social at 6:00 pm at the Kenai National Wildlife Refuge's Environmental Education log cabin located next door to the Kenai NWR headquarters/parking lot on Ski Hill Road.

For more information, contact Toby Burke at the Kenai NWR 252-0349 or Jack Sinclair at 262-7817. Also, if you come across a chickadee or northwestern crow with an upward elongated curved (i.e., deformed) bill, please report it to us at the Kenai National Wildlife headquarters (262-7021). This information will contribute to an important regional study on the causes of bill deformities in southern Alaska.

*Elizabeth Jozwiak is a wildlife biologist for the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.*