

Assessing the pulse of life on the Kenai National Wildlife Refuge

by Ted Bailey

When you visit a doctor's office for medical exam, the first thing the nurse checks is your pulse and blood pressure. Those measurements along with your temperature and the color of your tongue, often give the doctor a pretty good idea of your current health and well-being. Sometimes further tests, such as blood and x-rays, may be required before the doctor can draw more specific conclusions about your health.

Although wildlife biologists are not doctors, we use similar approaches to check the health of wildlife on the Kenai National Wildlife Refuge. Because wild animals won't come to biologists for annual check-ups, we have to go out to observe or physically capture them to check on their health. We need to know about their health because the basic purpose of the Refuge, as mandated by Congress, is to conserve wildlife populations and their habitats. This means we have to know where our creatures live, the status of their health, and whether their numbers are going up or down.

Many, but not all, wildlife species are regularly monitored on the Refuge. We can readily observe large conspicuous animals such as moose and caribou from an aircraft under certain conditions; usually, their numbers, sex and relative age are fairly easy to determine. Other species, such as bears, wolves and lynx are secretive; they hide out in dense cover and are tough to monitor. Furthermore, they are often the most problematic species to conserve, so we make extra efforts to assess their populations, using radiocollars. When we capture an animal to install a radiocollars, we weigh it, take body measurements and a blood sample, and usually give it a shot of vitamin B and an antibiotic. By radio-tracking the animal weekly or monthly, we can determine reproductive success (for females) and causes and rates of mortality.

We monitor trumpeter swans and bald eagles by flying over their nests where we can see the number of young chicks, and monitor small birds of the forests and fields with Breeding Bird surveys along Refuge roads in June. These Breeding Bird Surveys are done at the same time each year in conjunction with similar surveys throughout North America. We usually

can't see these birds in the thick cover, so we depend on listening for their distinctive songs and calls. We monitor wood frogs during their brief egg laying period in the early spring by counting their egg masses along the edges of small ponds.

We find that it is important to monitor wildlife populations over a period of many years or decades because some species fluctuate greatly from year to year, while others may not change appreciably for ten years or more. For example, even though we have hundreds of lakes and ponds on the Refuge, the nesting trumpeter swan population has seldom exceeded 40 pairs per year since 1957, and it appears that nesting swans are extremely sensitive to human disturbance, especially float planes, boats, and canoes.

Moose and snowshoe hare populations are directly related to the post-fire age of the forest and the amount of available hardwood browse, although severe winters and other factors also influence their numbers. Wolf and lynx populations are determined by the numbers of moose and snowshoe hares, respectively, and the impacts of trapping and hunting. Our wood frog monitoring (which began with the help of Soldotna High School science students in 1991) indicates that many small breeding ponds used by wood frogs are disappearing because of increasingly hot summers and lower water tables.

The key point about wildlife monitoring is that the numbers only make sense over a period of years. Any species can have a bad year, or a very good year, but what is the long-term trend? This spring, for example, should be a good time to check again on the wood frogs. With all the snow, pond levels should be up. If we don't see lots of wood frog eggs, we will suspect that the long-term decline since 1991 is real and we'll have the data to show it.

Ted Bailey, a Supervisory Wildlife Biologist, has been responsible for the [Kenai National Wildlife Refuge's](#) biological programs since 1977. He and his wife Mary live near Soldotna. They previously lived in South Africa where Ted conducted research on leopards.