

Bear Family Group by Lynn Rogers

As you know, I radio-tracked black bears in northeastern Minnesota for 23 years under the auspices of the University of Minnesota and the U.S. Forest Service. The study was centered 22 miles south of the Ontario border with some of the study animals roaming into Ontario. The Canadian Shield extends into northeastern Minnesota, so my habitat was similar to that across the border. For this letter, I reviewed several peer-reviewed publications that resulted from that study; particularly Wildlife Monograph No. 97 entitled "Effects of food supply and kinship on social behavior, movements, and population growth of black bears in northeastern Minnesota." Attached is a list of references I reviewed for this letter.

As you know, the states of Minnesota and Michigan (where I conducted my first two years of study) have never had a spring bear hunt. It is sociologically unacceptable to hunt game animals in the spring when they are emerging from hibernation and their cubs are dependent. It is particularly unacceptable to use hounds in spring. Of the 27 states and 11 provinces and territories that allow bear hunting, the use of hounds in spring is banned in all but Alaska, Idaho, and British Columbia. In the proceedings of the Western Black Bear Workshop, published in 1994, six wildlife managers representing five western states co-authored a statement that "hounds chasing black bears during the spring season may have a direct impact on mortality of young bears during food poor years. Most individual bears are losing weight during the spring period, and the expenditure of energy during one, several, hound chases may be more that the bear can afford. Nursing females are separated from cubs and killed, leaving the cubs to starve to death or be killed by predators." And, "during spring seasons cubs can be caught on the ground by the hounds. When this happens the cubs are usually killed by the dogs." The use of hounds in the spring is simply unacceptable.

In my experience as a hunter, hounds

are usually started from a bait that bears visit or from where a bear crossed a road. To find the road crossing, hunters look for tracks or put a hound on the hood and drive until the hound smells a bear and bellers.

All cubs orphaned in the spring die. When a mother is killed in the spring, her cubs begin a slow death. At first, the cubs wait quietly for her in the safety of a tree. As the pain of hunger grows in their bellies, they begin to squall for her. Eventually, they are killed by a predator or die slowly of starvation. Cubs' mouths are still adapted mainly for sucking in April and early May, and their teeth are not yet developed enough to chew vegetation. In late May and June, they begin eating solid food but they still need the mother's rich milk to survive and grow. Dr. George Kolenosky, an Ontario MNR biologist, studied seven cubs that were orphaned between May 24 and June 4 and died of starvation 11 to 30 days later. In the 10 hours preceding their deaths, they lay on the ground unable to get up when a person approached. As cubs weaken with starvation, they become increasingly vulnerable to predation, so not all cubs get to the final stage of weakness witnessed in that study.

The use of dogs to hunt bears from April 15 to May 15 means that mother bears and their dependent cubs are being disrupted when the cubs are most vulnerable and that the mothers are being chased when they are still in a state of semi hibernation. Black bears remain in a semi hibernation state for up to 3 weeks after emerging, so many of the bears, especially females and sub-adult males, remain somewhat lethargic for several days or weeks. The impact of chasing bears with hounds during the 3 weeks before and after hibernation, when bear metabolism is slowed down, is unknown. Dr. Ralph Nelson, a medical researcher from the University of Illinois and the leading authority on black bear physiology, questioned the practice of chasing bears with hounds during these periods and stated "The state of hibernation is normally associated with periods of inactivity. The physiologic condition of hibernating bears under such prolonged exertion (from chases with hounds) is unknown. Many houndmen comment, that fall chases often result in "pop-up" bears that do not run far before tiring. This

response is usually attributed to the bears being fat but perhaps because the bear is already hibernating. Impact of hound chase seasons in the fall after onset of hibernation warrant consideration and detailed examination.

Bears in northeastern Minnesota typically emerge in mid-April. Frost reaches deepest into the ground just before the spring melt and the temperatures in spring are essentially the same as the soil. As outside temperature warm, the bears exit and spend the day lying in the sun rather than in their damp cold dens. Lethargy tapers off as vegetation emerges in sufficient quantity for efficient foraging. Lone bears slowly gain weight or lose weight on the emerging vegetation, but lactating mothers lose weight until berries ripen in late June. Adult males don't always wait for the emerging vegetation, however. They emerge with near maximum levels of testosterone, and some begin roaming within a few days, sometimes wading through melting snow that is still chest-deep.

In years with light snow or an early thaw, most bears emerged early—between March 27 and April 8. This may very well happen this spring with the unusually mild winter and possibly early spring. Family groups are usually less available to hunters during the first couple weeks of the spring season because of their more sedentary habits. If the bears' annual schedule of activity is moved up by the warm weather, family groups will be at greater risk.

The most important bears to protect in the population are family groups. Well-regulated hunts should include protection for family groups, especially in northern regions such as Ontario where cubs grow slowly and are easily recognizable as cubs even in fall or the following spring. Protecting family groups protects breeding females, and maintaining a strong female population is the key to conserving bear populations. It is pretty standard in the management of polygynous game species (e.g., deer, elk, moose, pheasants, turkeys, etc.) to protect females. A few polygynous males can fertilize many females. It is particularly important to protect the

individual females that demonstrate high reproductive success. Not all female black bears are created reproductively equal according to an Ontario study by Dr. George Kolenosky who showed that 25 percent of the mature females produced 66 percent of the cubs in his study area near North Bay. He showed that it takes females 6.2 years, on the average, to produce their first litters and only 2 more years for each additional litter, which is similar to my findings in northeastern Minnesota. Hunting regulations that preserve mature females help populations recover from locally excessive hunting kills, which can occur in years of poor natural food when bears are excessively attracted to hunters' baits.

Preserving family groups also enables cubs to reach a more desirable size before they are killed. When Minnesota was developing its bear hunting regulations in 1970 and 1971, I took an informal survey of hunter attitudes toward shooting cubs, and there was nearly unanimous support for protection of cubs. Cubs in northeastern Minnesota generally weigh 4 to 9 pounds when they leave their dens in April and weigh 30-70 pounds by the time they enter dens in October. A few cubs that supplemented their diets at garbage dumps were heavier. The importance of mothers in family groups continues past the months that cubs are dependent upon milk, so preserving mothers in family groups contributes to the survival of the cubs and yearlings. Dr. George Kolenosky (unpublished report) stated that cubs in east central Ontario have three times greater survival to 16 months of age than cubs orphaned between May 24 and August 16. I found that cubs in family groups have about 50 percent greater survival to 16 months of age than cubs orphaned in late summer and fall (cubs orphaned in spring all die, of course). I put radio-collars on 14 cubs that were orphaned in late summer or fall. Of these, two were soon shot, two were killed by trains, one died of unknown causes, one was killed by predators, one

probably died of starvation and 7 survived past 17 months of age. Without their mother's milk and their mother's knowledge of natural feeding areas, many of these cubs concentrated their activities around human residences, supplementing their diets with garbage. This may have increased their survival through 16 months of age (when they were still small and cute), but may have reduced long term survival. Only two of the 14 survived to reproduce.

Mothers provide benefits beyond milk. For example, in late summer and fall, many mothers show their cubs feeding areas up to 60 miles outside their territories. Cubs remember the distant feeding areas and return to them independently when they grow up. They pass the knowledge to their cubs, in turn, and the trips become a tradition that may be especially important in year of scarce local food. Knowledge of distant food sources may enable bears to find food without becoming nuisances in years of local food shortages.

Mothers benefit their cubs during hibernation. After the mothers lead their families back to their territories in the fall, the mothers do most of the work constructing winter dens. During the five to seven months of hibernation, mothers allow the cubs to snuggle against her to reduce heat loss. However, orphans make separate dens and hibernate alone, and the increased overwinter heat loss results in increased weight loss. This weight loss could be critical to, survival in cases of marginal nutritional status. Short of that, the worsened condition upon emerging in spring is disadvantageous to reproductive success.

When families emerge from their dens in spring, the mothers continue to be important to the survival and reproductive success of her offspring. Mothers protect the yearlings from predators, including other bears, and they protect their territories, which they will share with their offspring for years after family breakup. The immediate threat to the territory is from bears looking to create or expand their territories, especially in spring. Where mothers are harvested, invaders take over the undefended territories and regard the orphans as intruders to be killed.

Protection continues after the family

breakup in June, when each yearling settles into a separate sub-territory within the mother's territory. The mother protects the yearlings indirectly by patrolling her territory, including the sub-territories and excluding intruders. Mothers invest this energy into territorial protection partly to enhance the survival and reproductive success of their daughters (males disperse as sub-adults). Mothers give the daughters almost exclusive feeding privileges in the sub-territories. As the daughters grow and require more space, the mothers attempt to shift their own territories away from their daughters, helping the daughters to establish full-fledged territories and reproduce. Where mothers are harvested and neighbors take over the territories, orphans lose their exclusive feeding areas. Yearlings may be killed. Older survivors must avoid the new territorial owners and as a result have reduced feeding efficiency, which delay maturation and reduces reproductive success.

Protecting female black bears is as important as protecting the females of any other polygynous game species, but female black bears are difficult to recognize except when they are with their cubs. One of the big problems with spring hunts is that mothers spend so much time away from their cubs at that time of year that it is difficult for hunters to recognize lactating mothers. This is a reason why spring hunts are banned in states that allow bear hunting. Mothers visit baits often leave their cubs up a tree a distance away rather than bringing them to baits that are frequented by humans and other bears. Mother's nipples are difficult to see because the mothers have not yet shed their long winter fur, and hunters sitting in tree stands over baits have an especially hard time seeing the nipples. Even in normal foraging mothers frequently leave their cubs in spring. As part of our study in northeastern Minnesota, we monitored the movements of mothers with cubs and found that mothers foraged up to 3.2 kilometers away from their cubs and spent a great deal of time away from them in spring. Spring hunts put an unfair burden on hunters to distinguish

lactating mothers. Although many hunters believe they can distinguish lactating females, a study done in Colorado showed that lactating mothers comprised approximately the same proportion in the spring kill that they did in the population, showing no effective selection by hunters despite regulations against the taking of nursing females. Colorado has now banned spring hunts altogether.

By fall, mothers usually allow their cubs to accompany them to bait sites, and regulations protecting family groups in fall could be effective in preserving them.

As a hunter, I believe that both ethics and biology must be considered to create the kind of well-managed hunt that will be acceptable to the hunters and the public.

Editors Note: Lynn Rogers is a life long hunter, he worked with Minnesota State Archery Association and Legislature to evaluate bear to big game status in Minnesota. He then worked with the Minnesota DNR to establish hunting regulations, when legislature proposed a ban on baiting in 1975. Lynn testified in defense of baiting bear.