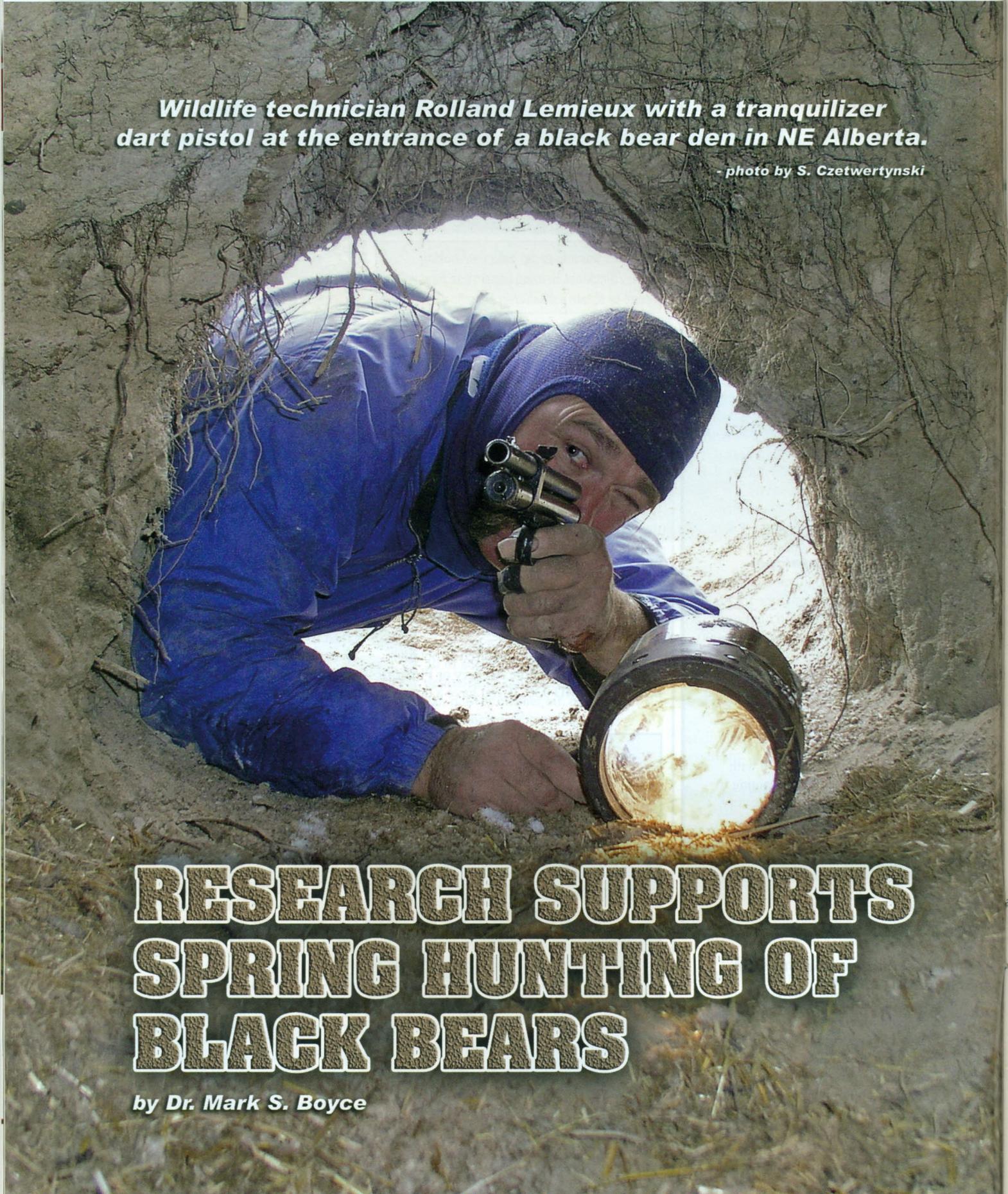


**Wildlife technician Rolland Lemieux with a tranquilizer  
dart pistol at the entrance of a black bear den in NE Alberta.**

*- photo by S. Czetwertynski*



**RESEARCH SUPPORTS  
SPRING HUNTING OF  
BLACK BEARS**

*by Dr. Mark S. Boyce*



Dr. Mark S. Boyce

**O**n January 15, 1999 Ontario Minister of Natural Resources (MNR), John Snobelen, announced that Ontario would close its spring bear

hunt. This ended an aggressive campaign by the Bear Alliance to stop spring bear hunting; a \$2 million campaign financed by an organization called the Schad Foundation and founded by plastics-industry mogul Robert Schad. Clearly, people with money can exert extraordinary political influence. During the first week of January 1999 Robert Schad met with Ontario's Premier Mike Harris to explain his objections to spring baited hunting for black bears on the grounds that female bears shot by hunters might orphan small cubs that could never survive without their mothers. The next week the Ontario government proclaimed that it would not tolerate cubs being orphaned by hunters mistakenly shooting females during a spring hunt.

This decision to terminate the spring hunt was not a position supported by research. A long-term research project by Ontario Ministry of Natural Resources (MNR), led by Martyn Obbard, had estimated cub survival and other population characteristics in south-central Ontario, showing that orphaning of cubs was not a problem. Law prohibits shooting a black bear that is accompanied by cubs. But accidents happen and occasionally lactating females have been killed.

Based on the Ontario studies, MNR biologist Ken Morrison reported that at most 274 black bear cubs might be orphaned by accidental shooting of female black bears during the spring hunt. Given that Ontario has a huge population of black bears estimated to be about 110,000 animals, 274 deaths is trivial in context, amounting to less than 1/4 of one percent of the population. The number is so small that we cannot reliably estimate a mortality rate so low with data that can be obtained in wildlife studies. But that's not how the International Fund for Animal Welfare (IFAW) and Robert Schad saw it. They were outraged that the Ontario government would condone a wanton orphaning of 274 black bear cubs, and they used the MNR data to launch their successful media blitz designed to shut down the hunt.



- photo S. Czetwertynski

Rolland Lemieux and graduate student Sophie Czetwertynski with black bear cubs removed from a den near Conklin Alberta. After being weighed and measured the cubs were returned to the den.

Unfortunately, at the time of the Ontario MNR decision to stop the hunt the science on the effects of hunting on bear cub survival were inconclusive. Indeed, former Alberta Fish and Wildlife biologist, Rob Wielgus, did his Ph.D. research at UBC on grizzly bears in Kananaskis concluding that hunting had serious consequences for bears. Wielgus' idea was that after an adult male bear is killed, its place is taken by a younger subordinate male, and the first thing that a new male would do is to kill as many cubs as possible to bring females into estrus. This would allow him to breed with the females to populate his home range with his own offspring rather than those of the male that had been removed by a hunter. Otherwise,

male bears would not be expected to kill their own offspring. The idea was dubbed the sexually selected infanticide (SSI) hypothesis. Wielgus' SSI hypothesis met with fierce resistance among biologists partly because he had few data on which to base his conclusions, but also because it contradicted the current understanding of bear biology. Previous studies had documented that adult male bears (both black bears and grizzly bears) kill cubs whenever they got a chance, so shooting adult males should mean higher survival of cubs. However, better data in support of SSI were forthcoming from research on brown bears in Norway and Sweden conducted by former U of A graduate student, Jon Swenson.

*continued on next page*

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## The American Black Bear

There are an estimated 750,000 black bears in North America of which Alberta's population exceeds 35,000.

In comparison, Ontario boasts more than 110,000 black bears yet spring bear hunting is illegal—a decision made on emotion rather than science.

An estimated 40,000 black bears are harvested each year across North America by hunters with more than half those coming from Canada.



Rolland Lemieux with Karelian bear dog and female black bear with three yearlings removed from den during winter. Cinnamon colour variants like the middle yearling are common among Alberta black bears. — photo S. Czetwertynski

Shortly after moving to the University of Alberta in 1999 I learned about this controversy and saw a need to conduct research to sort out the facts. Hunters and wildlife managers in several Canadian provinces were concerned about the precedent established in Ontario and feared that anti-hunting lobbies such as IFAW would seek to terminate spring hunting for



Fig. 1: Bucket trap used to capture black bears. A leg snare is placed surrounding the opening to capture the bear by a front leg when it reaches into the bucket for the bait.



Fig. 2: Leg snare set at the opening of a bait cubby prior to covering the snare.



Fig. 3: Drag attached to chain and spring to reduce stress on the black bear pulling in an attempt to escape the snare. The rubber tubing prevents the snare from synching too tight and allows blood flow to the paw. This arrangement essentially eliminated injuries to black bears captured in the study.

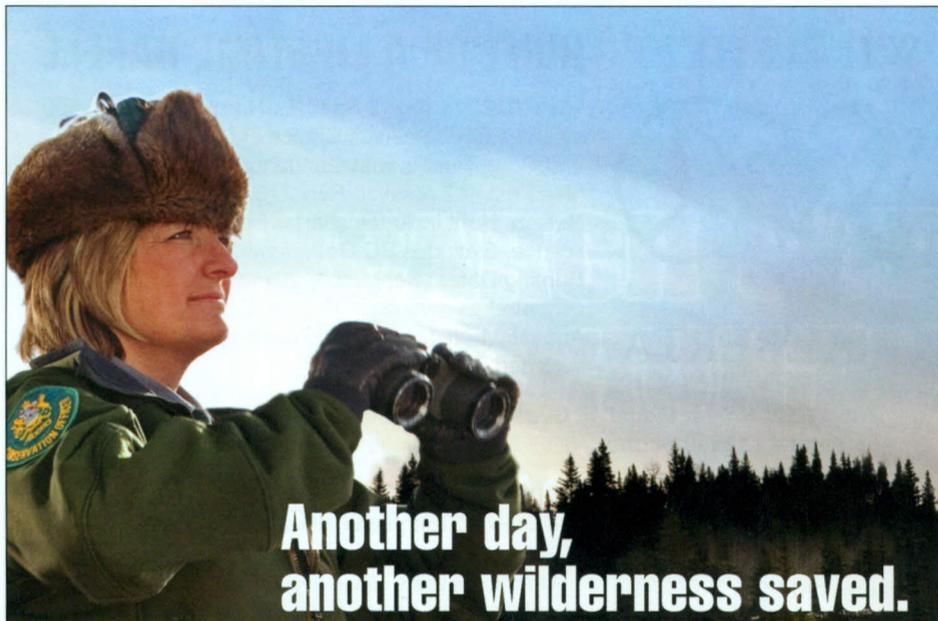
black bears elsewhere.

During the Alberta Fish and Game Association annual convention in February 2000, Minister of Environment Gary Mar reassured AFGA that he would support continued spring bear hunting because removal of adult males enhanced the survival of bear cubs. My immediate reaction was that Minister Mar's statement was premature and not based on the scientific understanding of the day. Clearly, the only resolution was to design research that would secure the data needed to make sound management decisions.

Ryk Visscher agreed with me and helped find funding from the Alberta Professional

Outfitters Society (APOS) to launch a project on the effects of spring baited hunting on black bear demography. I advertised for a graduate student and recruited Sophie Czetwertynski from Quebec to oversee the field effort for her Ph.D. thesis. Sophie had experience as a bear hunting guide in Quebec working for Rolland Lemieux, who was a skilled trapper and wildlife technician. Together we secured funding from a long list of sponsors including the Alberta Conservation Association, Safari Club International, FNAWS, RMEF, Alberta Bowhunters, Pope and Young, NSERC, APOS, AFGA, and Alberta Pacific. We chose Cold Lake Air Weapons Range (CLAWR) as a study area because it had not been hunted since the 1950s, and because there had been several previous black bear studies in the area during the 1970s to 1990s by Gerry Kemp, Barry Young, Glen Sargeant, Dave Garshelis (currently with Minnesota Department of Natural Resources), and Bob Ruff (University of Wisconsin). North of the CLAWR we enjoyed terrific support by two outfitters, Don and Tuffy Ayres, who baited black bears in the area and guided non-resident hunters in two areas that we identified as our hunted study areas.

Four years later we had amassed data from more than 590 captures, conducted 243 winter den visits, and we deployed 130 radio collars. The research has been completed with our study published in 2007, and the Ontario work published in 2008. In both studies hunter harvests of black bears reduced population density and reduced the survival of adults. As a consequence of reduced density we observed increased survival of young bears. In both Ontario and Alberta we found increased reproduction in the hunted population with bears breeding at a younger age. In Alberta we were able to demonstrate increased survival



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of cubs and in both populations there was increased recruitment of young bears into the breeding population. These responses in survival and reproduction permit sustainable harvests of black bear populations and support management practices used in Alberta.

We found no evidence for the SSI hypothesis in black bears. However, as is often true in science, the fact that we couldn't find such an effect doesn't mean that it does not happen sometimes. Maybe young males will kill cubs when they take over a new home range.

**"Our Alberta studies demonstrated that cub survival is higher in hunted populations of black bears." - Dr. Mark S. Boyce**

But no one has shown this to be true and our experimental removal of large male black bears from CLAWR failed to stimulate any response. Clearly the density-dependent response was so strong that it would overwhelm any signal from SSI. Essentially SSI can be ignored for harvest management of black bears.

**What about the purported orphaning of cubs by hunters?**

Our research contradicts the position of the Ontario MNR because if anything hunting results in reduced mortality of young bears.



**Rolland Lemieux takes aim to dart a black bear in its den near Conklin, Alberta.**

Because killing bears with cubs is prohibited, hunters kill mostly males. Typically about 70% of the black bears shot by hunters are males, and most of the remaining 30% are females that do not have cubs. By reducing bear density the remaining bears are able to begin breeding at an earlier age and survival of both cubs and yearlings is enhanced. Minister Gary Mar had it

right after all.

Will we see spring bear hunting in Ontario? We like to think that such decisions would be based on the best available science, but the fact is that emotions, not science, tend to prevail in management of bears. Yet, I believe that black bear harvest management in Alberta is secure for the foreseeable future. ■



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