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COST OF WILDLIFE-RELATED MOTOR VEHICLE ACCIDENTS

Wildlife-related Motor Vehicle Accidents

The cost of wildlife-related motor vehicle accidents to the residents of British Columbia is substantial. The financial impact on the province can be broken down into the following:

- Reported Accidents
- Unreported Accidents
- Accident Clean-up
- Lost Provincial Hunting License Revenues
- Lost Value of Wildlife

Reported Accidents

In addition to killing wildlife, wildlife-related motor vehicle accidents represent a serious threat to the motoring public. These accidents can result in human fatalities, injuries, and damage to motor vehicles (Table 15). Any accident may also result in multiple human fatalities.

Table 15. Wildlife-Related Fatal, Injury and Property Damage Only Accidents (1987 to 1995)

Year	Fatal Accidents	Total Number of Deaths	Injury Accidents	Property Damage Only Accidents
1987	1	1	198	2,226
1988	0	0	256	2,596
1989	1	3	199	2,590
1990	1	1	237	2,821
1991*	1	2	241	1,925
1992	2	6	238	1,975
1993	0	0	248	1,954
1994	3	9	256	2,072
1995	3	5	221	1,678

*Note: In 1991, the minimum reportable aggregate property damage accident value increased from \$400 to \$1000.

Source: Highway Accident System, Highway Safety Section, Engineering Branch, MoT

In British Columbia, the majority of motor vehicles are insured by the Insurance Corporation of British Columbia (ICBC). On average, ICBC processes approximately 6600 wildlife-related accident claims a year¹. The average cost of these claims was about \$2200. Between 1997 and 2000, ICBC paid out over \$67 million in wildlife-related motor vehicle accident claims (Table 16). In 2000, ICBC had over 8,800 wildlife-related accident claims.

Table 16. ICBC Wildlife-related Motor Vehicle Accident Claims (1997 to 1999)

	1997	1998	1999	2000	Total
Claims	\$15.1 million	\$15.8 million	\$17.7 million	\$18.9 million	\$67.5 million

Source: Insurance Corporation of British Columbia, 2001

ICBC estimates its accident claims capture 75% of the number of wildlife-related accidents that occur in British Columbia. Few people in British Columbia do not carry comprehensive insurance. With ICBC insurance policies, there is no penalty for a comprehensive claim so such claims do not affect policy premiums. Of the 25% of the number of British Columbia wildlife-related motor vehicle accidents ICBC estimates go unreported to it, ICBC estimates 10% involve out-of-province vehicles, 10% involve vehicles with less than \$100 in damage, and 5% of the accidents are reported to other insurance companies in British Columbia.

The societal costs of motor vehicle-related accidents have also been estimated by the British Columbia Transportation Financing Authority and the impact to the Province is considerable (Table 17)².

Table 17. Societal Costs of Motor Vehicle Accidents (BCTFA)

Accident Severity Class	Societal Cost
Fatality	\$4.17 million
Injury	\$97,000
Property Damage	\$6,000

Source: Highway Safety Improvement Program Manual, MoT

Unreported Accidents

¹ Gilfillan, G., 2001, Personal Communication, Project Manager, Winter Road Research & Development, Kamloops, B.C.

² Perkins, M., 1999, Highway Safety Improvement Programs Manual, British Columbia Ministry of Transportation

Except for fatal accidents, not all wildlife-related motor vehicle accidents which occur in British Columbia are reported in the province. Some accidents involve tourists or visitors from outside British Columbia. In such cases, many wildlife-related accidents are reported in other jurisdictions. Other accidents involve minor damage vehicle owners either ignore or pay for the repairs privately.

If one assumes the 6600 accidents reported to ICBC represent 75% of the actual number of vehicle damaging, wildlife-related accidents that occurred on Provincial highways, one can estimate an additional 1650 vehicles were damaged in wildlife-related accidents.

If one assumes these motor vehicles accidents incurred an average of \$2300 in damages, the total unreported damage incurred by motor vehicles in British Columbia in 1999 totaled \$3.8 million.

Accident Clean-up

Ministry Maintenance Contractors incur costs due to staff and equipment time required for the clean-up of wildlife-related accidents and the disposal of animal remains. Depending on the size of the animal involved and the location of the accident, the cost of clean-ups can vary dramatically. While smaller animals, such as porcupine and skunks, may be handled by a single person in one vehicle, larger animals, such as moose, elk, and caribou, often require two or three people with two vehicles and a hydraulic boom.

If one assumes the following staff and equipment time costs:

- \$25 for small-sized animals (fox, porcupine, skunks, etc),
- \$100 for medium-sized animals (bear, cougar, deer, mountain sheep, etc), and
- \$350 for large-sized animals (caribou, elk, moose, etc);

Ministry Maintenance Contractors spent over \$580,000 dealing with wildlife-related accident clean-up and disposal in 2000. Between 1991 and 2000, it is estimated Ministry Maintenance Contractors spent over \$5.2 million on wildlife-related accident clean-up and disposal. These expenditures do not include the costs incurred by the Maintenance Contractors for insurance premiums and lost employee productivity or the Workers' Compensation Board for compensation payments when workers get injured dealing with wildlife-related accidents.

Lost Provincial Hunting License Revenues

In British Columbia, hunting license sales generate millions of dollars for the Provincial Government each year. The value of hunting licenses varies greatly

between species and whether or not the hunter is a British Columbia resident (Table 18).

If every wild game animal reported killed on provincial highways represented an opportunity to sell a hunting license, the Province of British Columbia lost between \$80,000 and \$400,000 in hunting license revenues in 2000. If a 3 to 1 factor of unreported to reported animals killed is used, the Province of British Columbia could have lost between \$300,000 and \$1.5 million in hunting license revenues in 2000.

Table 18. Provincial Hunting License Fees for Residents and Non-residents

Species	Resident fees (\$)	Non-resident fees (\$)
bear	20	130
caribou	20	150
cougar	30	150
deer	15	75
elk	25	150
grizzly bear	80	530
moose	25	150
mountain goat	30	200
mountain sheep	590	400

Source: British Columbia Ministry of Water, Land and Air Protection (MWLAP)

Lost Value of Wildlife

The Wildlife Branch of the British Columbia Ministry of Water, Land and Air Protection (MWLAP) has done extensive analysis of the economic value of wildlife resources in the province³. In British Columbia, participants in hunting and viewing make estimated current expenditures of about \$466 million each year that are directly associated with their wildlife-related recreation.

The expenditures by participants in wildlife-related activities and their impacts on income and employment are spread throughout the Province and make important contributions to many rural economies. In 1996, MWLAP estimated expenditures on resident hunting and wildlife activities supported about \$205 million of Provincial Gross Domestic Product and \$136 million of household income⁴.

Lost Value of Wildlife for Resident and Non-resident Hunters

Approximately 100,000 British Columbia residents purchase hunting licenses annually and spend an estimated 1.5 million days hunting in the province each year⁵. Approximately 4,500 non-residents spend about 46,000 days hunting in British Columbia each year⁶.

One measure of the value of wildlife lost due to motor vehicle-related accidents can be estimated by determining how much hunters are willing to pay to hunt.

³ Reid, R., 2001, Personal Communication, Economist, British Columbia Ministry of Water, Land and Air Protection (MWLAP), Wildlife Program, Victoria, B.C.

⁴ Ibid

⁵ Ibid

⁶ Ibid

MWLAP surveyed thousands of resident hunters in 1996 to determine their “willingness to pay” in order to obtain an animal from a certain species (Table 19). According to MWLAP, the “willingness to pay” by British Columbia hunters to obtain a certain species of animal can be considered the equivalent of the “true net market value” of that species. For non-resident hunters, the “net return” to the Province is determined to be the value of their expenditures less the cost to the Province for supplying the services they need⁷.

Table 19. Resident and Non-resident Hunters Net Value to British Columbia

Species	Net Value to British Columbia	
	Resident Hunters (\$)	Non-resident Hunters (\$)
bear	950	2,340
caribou	2,960	2,930
cougar	2,050	3,400
deer	1,270	7,450
elk	3,250	3,290
moose	1,250	1,680
mountain sheep	4,700	4,170

Source: British Columbia Ministry of Water, Land and Air Protection (MWLAP), Wildlife Program

For every wild game animal reported killed on provincial highways in 2000, the Province of British Columbia would have earned over \$6 million in the market value of the animals to resident hunters. If a 3 to 1 factor of unreported to reported animals killed is used, the Province of British Columbia would have lost over \$23 million from resident hunters in 2000.

The value of non-resident hunting in British Columbia is significant. Non-resident hunters contribute to the provincial economy by purchasing hunting licenses and supplies, and hiring hunting guides. If every wild game animal reported killed on provincial highways represented an opportunity for non-resident hunters to hunt in the Province, the Province of British Columbia would have lost over \$30 million in net returns in 2000. If a 3 to 1 factor of unreported to reported animals killed is used, the Province of British Columbia would have lost over \$113 million in net returns from non-resident hunters in 2000.

The true market value of wildlife may be more accurately determined by public auction, but only if all hunting opportunities were auctioned. As a fund raising initiative supported by the Alberta Provincial Government, the Rocky Mountain Elk Foundation auctioned one non-resident elk hunting permit (“tag”) and one

⁷ Reid, R., 2001, Personal Communication, Economist, British Columbia Ministry of Water, Land and Air Protection (MWLAP), Wildlife Program, Victoria, British Columbia

non-resident bighorn sheep tag in 1998, 1999 and 2000. The successful bids on the tags are shown in Table 20.

Table 20. Rocky Mountain Elk Foundation Elk and Bighorn Sheep Tag Auction Results

Auction Item	1998	1999	2000
Elk tag (non-resident)	\$20,874	\$26,265	\$32,340
Bighorn Sheep tag (non-resident)	\$607,500	\$495,000	\$308,000

Source: Nicholson, J., 2001, Personal Communication, Rocky Mountain Elk Foundation, Edmonton, Alberta

In January, 2000, MWLAP auctioned off a mountain sheep hunting license in Reno, Nevada for \$260,000 (Canadian dollars) as a fund raising initiative for the British Columbia Habitat Conservation Trust Fund to help support mountain sheep management⁸. In 2001, MWLAP auctioned off another mountain sheep hunting license for \$170,000 (Canadian dollars)⁹. Although the successful bids in the auctions for British Columbia and Alberta wild game animals continue to be considerably higher than the value MWLAP has generally determined for these types of animals, the auction results show certain species wildlife are considered very valuable by some hunters. One should note these auction results are extreme values and they are not representative of typical hunter values.

Lost Value of Wildlife for Non-hunting Residents

No species-specific figures are available for the value of wildlife to non-hunting residents¹⁰. Regardless, the presence of wildlife generates considerable economic activity in British Columbia. MWLAP estimates 863,000 provincial residents spent 18 million days in direct wildlife activities with the main purpose of watching, photographing, feeding and studying wildlife in the field in 1996¹¹.

The impact of motor vehicle-related accidents on wildlife species with critically low populations can have serious implications on wildlife viewing activities. Species, such as mountain goats and mountain sheep, which attract viewing attention, have low reproduction rates and limited areas of habitat. Consequently, the loss of even a few members of a small herd in motor vehicle-related accidents can threaten the survival of the herd and reduce the long-term provincial economic benefits generated by residents viewing the herd.

⁸ Reid, R., 2001, Personal Communication, Economist, British Columbia Ministry of Water, Land and Air Protection (MWLAP), Wildlife Program, Victoria, British Columbia

⁹ Ibid

¹⁰ Ibid

¹¹ Ibid

MWLAP estimates British Columbia residents participating in direct wildlife activities, where the main purpose of a trip was to see wildlife in the field, spent almost \$392 million in 1996, contributing over \$174 million to the Provincial Gross Domestic Product.