BLACK BEAR HUNTING TO REDUCE FOREST DAMAGE

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Abstract: Before 1973, the State of Washington had a spring black bear (*Ursus americanus*) season from 1 April to 30 June throughout most of the area west of the Cascades in an attempt to alleviate damage to forest tree reproduction. Extensive efforts by professional control hunters were still needed to keep damage at an acceptable level. Indications that sport hunting might be more effective in controlling damage resulted in an effort to concentrate sport hunting in problem damage areas. The general spring season was discontinued and a system of special hunts, by unit, was established. The extent of the area open to hunting was reduced by about 75 percent. Success of the program was evaluated by comparing 3 years' data collected under the unit system with 3 years' data from the general open season. The bear kill increased from an average of 503 per year in the general open season to 740 per year under the unit system. Bear tag sales increased by 81 percent during the same period.

The black bear is one of the most important big game species in Washington. The state provides a greater annual harvest of black bears than any other state or province. From a population of 27,000 bears, over 3,400 are taken yearly (Poelker and Hartwell, Washington Game Dept. Biol. Bull. 14, 1973) (Table 1). Over the years, the black bear's status has changed from unprotected varmint to desirable trophy animal and back again. With increased popularity and hunter interest, it appears the black bear's status as a respected and valued member of the big game community is assured both now and for the future.

Table 1. Annual population estimate, sport harvest, and control harvest of black bears in Washington, 1966-75.

Year	Population estimate	Sport harvest	Control harvest
1966	20,000	4,710	460
1967	20,000	3,180	450
1968	22,000	4,150	426
1969	22,000	3,410	419
1970	22,000	3,470	226
1971	22,000	4,100	216
1972	27,000	3,400	227
1973	27,000	2,830	211
1974	27,000	3,910	213
1975	27,000	3,760	192

The black bear is classified as a game animal in Washington. Seasons exist statewide and the annual bag limit is 1 or 2 bears, depending on the area. A tag is required to hunt black bears, and harvested bears must be reported on a card issued to hunters. Each year, the setting of the black bear seasons generates much interest among sportsmen and personnel of the forest industry. The most dynamic and unique aspect of our management program is the spring black bear season. This season is directly correlated with the black bear's propensity to damage second-growth timber in western Washington. Black bears damage trees by tearing off the bark at the base of the tree and exposing the sapwood, which they eat. Trees that are completely girdled die; those partially girdled become infected with fungus, which causes deterioration, or experience a retardation in growth rate. A comprehensive discussion of bear damage is provided by Poelker and Hartwell (Washington Game Dept. Biol. Bull. 14, 1973).

SYSTEM DEVELOPMENT

Although bear damage has been recognized as a problem for many years by foresters and game managers, both have been handicapped by a lack of knowledge, concerning the animal and concerning the long-term effects of bear damage on timber reproduction. In an attempt to gain needed information, the Washington Department of Game established a cooperative black bear research project starting in 1963 (Federal Aid Project W-71-R). Involved in the project with the Game Department were the Washington Department of Natural Resources, the Bureau of Sport Fisheries and Wildlife, the U.S. Forest Service, and private industry. The major goal of the project was to obtain data upon which an objective bear management program could be based.

Data obtained during the Cooperative Black Bear Study showed that a specific black bear could normally be expected to inhabit the same genreal area from 1 year to the next during a particular season. This occupied area was smaller than expected, averaging approximately 50 km^2 for males and 5 km^2 for females (Polker and Hartwell, Washington Game Dept. Biol. Bull. 14, 1973). During the study, the possibility of alleviating bear damage by seasonal regulation of the sport harvest was often expressed. With this objective in mind and information on areas occupied by black bears, a plan evolved through which it was hoped that both an increase in recreational opportunity for sportsmen and a reduction in bear damage might be obtained.

SYSTEM DESCRIPTION

The plan devised resulted in a major revision of black bear hunting seasons at the January 1973 Game Commission meeting (Washington State Game Comm. 1973). The plan, developed by the Department of Game in cooperation with other state agencies, sportsmen's groups throughout the state, and private industry, involved the establishment of spring damage units open to black bear hunting from 1 April to 30 June. Selection of units was based on the existence of bear damage, accessibility to sport hunters, and suitability for sport-hunting efforts. Areas outside the spring damage units were closed to bear hunting, thus concentrating spring bear hunting in current damage areas. Spring bear seasons in the past were established solely to alleviate bear damage. Since these seasons were generally open throughout much of western Washington, the concentration of effort necessary to reduce damage was not achieved. It was felt that by concentrating sport hunting in problem areas, sportsmen could be more effective in reducing damage.

The bear kill report card, mentioned previously, is used to provide information on the success of the program. Additional information on reduction of damage is obtained through aerial and ground surveys of damage areas within the spring bear units.

The goal of this program is to involve sportsmen in alleviation of a game damage problem while increasing their own recreational opportunities. As sportsmen's success increases, the necessity for professional control of bear damage decreases.

Because a large proportion of black bears harvested in western Washington are taken with hounds, boundaries of spring damage units are established to facilitate hound hunting. A 3-year trial of this program to evaluate its potential was completed in 1975.

RESULTS

Table 2 shows a comparison of spring bear harvests in western Washington during the past 6 years. The kill for the 1970-72 period was taken from 13 counties in western Washington without regard to bear damage and averaged 503 bears per year, or 0.016 bear killed per km^2, 6 times as great as the unrestricted 1970-72 harvest. During the 1973-75 period, an average of 37 percent more bears per year were taken by sport hunters in only 22 percent of the area formerly open. The highest bear kill per square kilometer recorded for any unit during the evaluation period was 0.844.

Data from the bear kill report, showing sex and age of bears and method of hunting, are given in Table 3.

Table 2. Comparison of sport harvest of black bears, April-June, during 1970-72 and 1973-75 periods.

Year	Bear harvest	Open area (km^2)	Bear kill per km^2
1970	490	30,000	0.016
1971	630	30,000	0.020
1972	390	30,000	0.012
1970-72 average	503	30,000	0.016
1973	650 (87)[a]	6,300	0.103 (0.116)[b]
1974	680 (90)	8,175	0.084 (0.096)
1975	740 (77)	7,758	0.096 (0.104)
1973-75 average	690 (85)	7,411	0.095 (0.104)

[a] Additional kill by control hunters.
[b] Adjusted to include kill by control hunters.

Table 3. Method of hunting and sex and age of black bears, by percent, in spring harvest, 1973-75.

Year	Method		Male		Age		
	Hounds	Other	Hounds	Other	Adult	Yearling	Cub
1973	90	10	48	53	83	15	2
1974	88	11	58	54	86	14	0
1975	91	9	49	40	77	21	2
1973-75 average	90	10	52	49	82	17	1

The higher-than-average take of adult bears in the spring is most likely a combination of the older-aged population characteristic of a damage area and hound-hunter selection for larger bears.

Interest in black bear hunting has increased dramatically since implementation of the unit-based spring season. Yearly average black bear tag sales are 81 percent higher than during the 1970-72 period when about 5 times the area was open.

Table 4. Comparison of bear tag sales, April-June, during 1970-72 and 1973-75 periods.

Year	April	May	June	Total
1970	140	264	278	682
1971	341	278	315	934
1972	178	251	361	790
1970-72 total	659	793	954	2,406
1973	614	596	481	1,691
1974	154	685	611	1,450
1975	270	618	323	1,211
1973-75 total	1,038	1,899	1,415	4,352
Percent increase	57.5	139.5	48.3	80.9

Table 5. Spring black bear harvest, 1970-72 and 1973-75, based on information obtained from returned bear harvest report cards.

Year	April	May	June	Total
1970	16	41	38	95
1971	21	42	44	107
1972	14	31	34	79
1970-72 average	17	38	39	94
Percent of total	18	41	41	100
1973	42	63	45	150
1974	21	42	56	119
1975	7	53	42	102
1973-75 average	23	53	48	124
Percent of total	19	43	38	100
1970-75 total	121	272	259	652
1970-75 average	20	45	43	108
Percent of total	18	42	40	100

Of the 3 months included in the spring bear season, 82 percent of the kill occurred in May and June over the 6-year period (Table 5). Monthly kill patterns were generally the same under the 1973-75 system as in 1970-72.

DISCUSSION

Collected data indicate that the new sport-hunting program is doing a far better job of harvesting bears in damage areas and that bears in nondamage areas are being preserved. This program allows professional control efforts to be directed towards special problem areas as the general control of bear damage is being satisfactorily handled by sport hunters. Field surveys of damage areas by landowners, control hunters, and game department personnel showed that bear damage was reduced or eliminated in most areas where spring seasons were established. Landowners have become more supportive of the spring season as the success of the program became evident.

Evaluation of 3 years' experience with the unit system for spring bear hunting indicates that a successful management option has been developed. This option should remain a permanent program for timber protection in bear damage areas unless satisfactory alternatives are discovered. After 25 years of working with this problem, it is apparent that bear damage is not a passing phase in management of forest land. With increasing dependence on tree farming to sustain the timber industry, land will continually be developing a greater potential for bear damage. The problem facing both foresters and game managers is how best to meet this situation. Knowing this, our management is geared to deal with new damage areas as they develop. Similar sport-hunting seasons were set in 1976 and 1977. Hound hunting is essential for adequate harvesting of damage-causing bears. Professional control by WFPA will take care of areas not hunted by sportsmen.

The Cooperative Black Bear Study has provided participating agencies and the forest industry opportunity for a long, in-depth look at black bear management. A management problem was recognized and cooperative research conducted to identify possible management alternatives. The success of black bear management in Washington in the future will be based almost entirely on the contributions of those who were involved in the many phases of the study.