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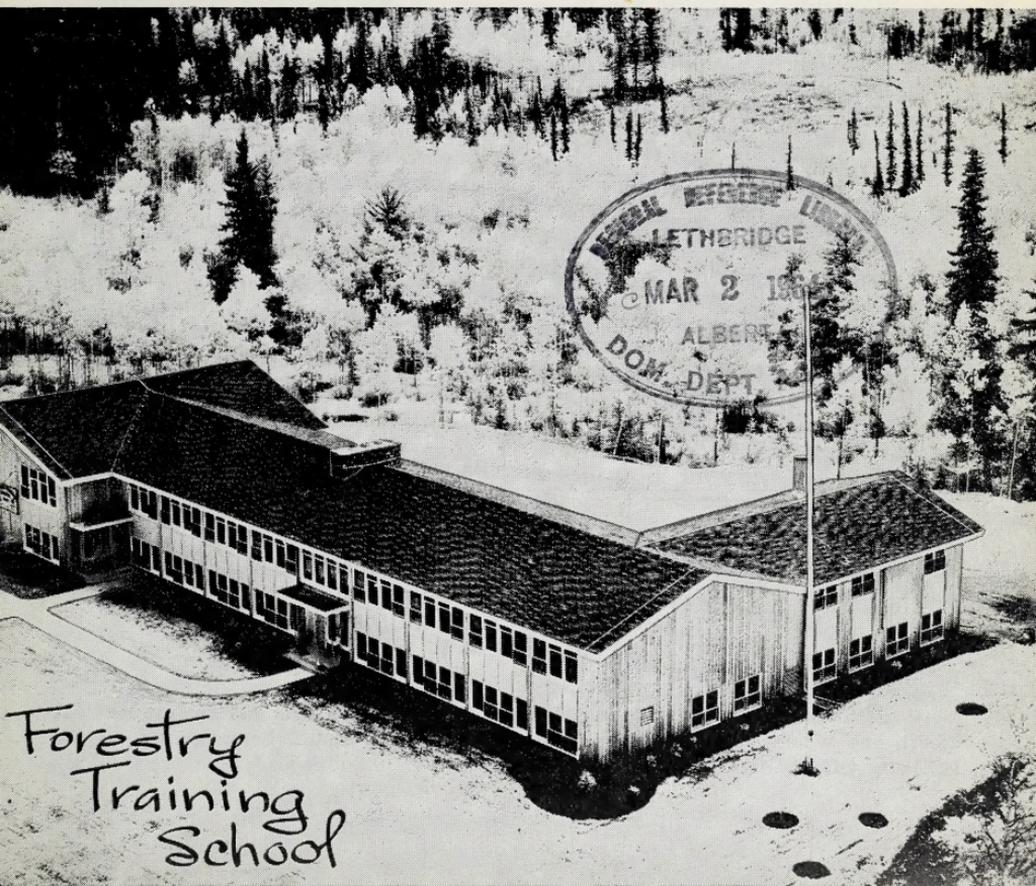
Land Forest Wildlife



Vol. 6, No. 5

Edmonton, Alberta

January-February, 1964



Forestry
Training
School

Land Forest Wildlife

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DEDICATED TO THE WISE USE AND MANAGEMENT OF
THE PROVINCE'S RENEWABLE NATURAL RESOURCES:
ITS LAND, ITS FOREST AND ITS WILDLIFE.

HON. NORMAN WILLMORE,
Minister.

E. S. HUESTIS,
Deputy Minister.

EDITOR—W. H. MACDONALD

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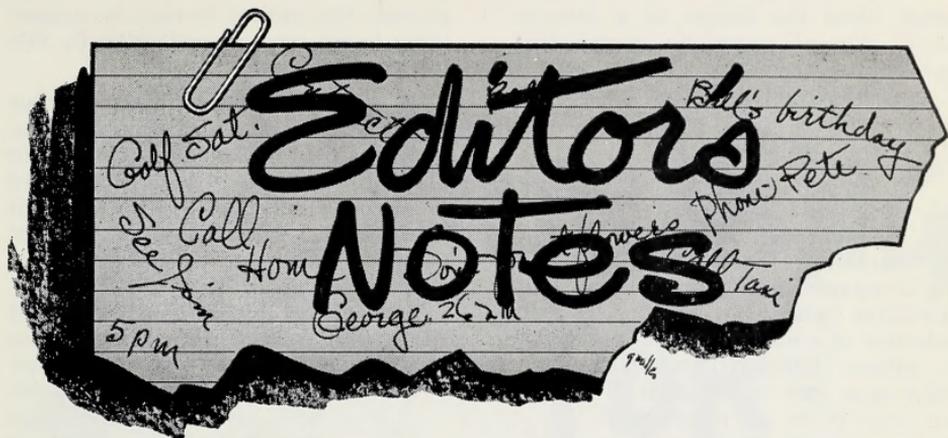
J. G. Stelfox — 15, 16, 17, 19, 21 and 22.

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PEST CONTROL — A MODERN DILEMMA

An exciting booklet, entitled "Handbook on Biological Control of Plant Pests", arrived on our desk the other day thanks to fishery biologist Ron Thomas. The publication was produced by the Brooklyn Botanical Garden and is a special printing of "Plants and Gardens", Vol. 16, No. 3. It contains seventeen articles dealing with plant pest control. Writings range from general theses to specific control programs. Even some of the headings are fascinating: "What is Biological Control?", "Biological Control with Lady Beetles", "Natural Enemies of Aphids", "Parasite Hunters", "Gallery of Insect Friends" and "Use of Resistant Varieties to Control Insects"; to cite a few. Most articles are illustrated with exceptionally fine black and white photos or sketches. Indeed, rarely has such a prized manuscript reached this layman's blotter.

At the risk of treading on dangerous ground, we would like to quote a few passages out of context, if only to illustrate how startlingly ignorant most of us are about these affairs.

Answering the question, "What is biological control?", Theodore W. Fisher states: "Fundamentally, biological control is the suppression of the reproductive potential of organisms through the actions of other organisms. *In nature* (italics ours), this is a continuing action

which mainly is responsible for the fact that only one percent of the approximately 1,000,000 named plant-feeding insects and mites are listed as pests of agriculture world-wide." In other words, unsolicited biological control is effective 99 times out of 100; it would not seem to be too difficult a job for human ingenuity to initiate similar processes for the pesky remaining one percent which is nurtured chiefly by horticultural specialization and manipulated environment.

Insects belonging to the order of wasps, bees and ants (hymenoptera) exert splendid aphid control. Commenting on their effect, Evert Schlinger tells us that: "There are about 200 known species of parasites (aphid controllers), some of which attack only one species and some of which attack as many as 30 different species of aphids. Each female wasp, depending upon the species, is capable of killing 150 to 500 aphids. This is accomplished by inserting a single egg inside each small aphid encountered. The minute egg hatches in two or three days and the tiny wasp larva begins to feed on the aphid's fat tissues."

Professor Schlinger also discusses the activities of the better known "aphid lion", larva of the common green lacewing. And most of us have seen the fragile syrphids or hover flies shifting

about amid the foliage of a favorite shrub. We can almost be assured that aphids are present when this occurs. Larvae of hover flies "feed voraciously on hundreds of aphids before transforming into pupae".

In a beautifully written passage, Alexander and Elsie Klots, discussing the role of bees, ants and wasps in the balance of nature, state: ". . . Hymenoptera unquestionably show a remarkable 'adaptive behavior' in their selection of a host species, in paralyzing it without killing it, in either laying their eggs upon it, within it or near it or in carrying it to a previously prepared nest. The emerging young, unread and untutored, feeding upon the carefully preserved material but sparing the vital organs until last to preserve the host, are equipped with a pattern of behavior that seems intricate in design albeit simple in aim."

Allied with insect control of plant pests are more recent studies of control by introduction of disease organisms. Freeman McEwan says about microbial insecticides: "In recent years many entomologists have studied these insect diseases with renewed vigor. It has been shown that some of these can be used to man's advantage in his war against various insects."

Author McEwan reassures the microbe fearing hypochondriac with the following statement: "They (diseases of insects) may be fungi, bacteria, viruses or other microscopic organisms but, as far as is known, none of the organisms which cause diseases in insects are harmful to other forms of life."

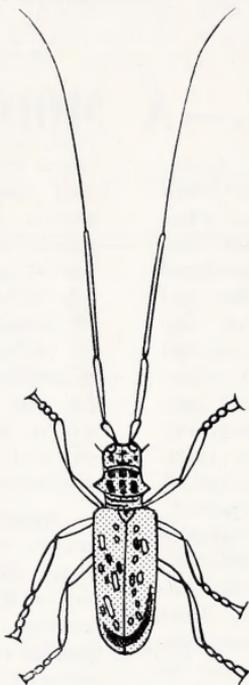
The story of screw worm eradication in south-east United States by means of radiation sterilization of male specimens is well known, chiefly because it was so successful. An excellent description of this project is provided by one of its participants, Raymond C. Bushland. He

pursues the subject further to suggest other insect control possibilities by this intriguing method.

A better focus for thinking about controls cannot be found than the summary provided by Roland C. Clement in his brief discussion on the effect of bird predation. Referring to the "modern dilemma in insect control", author Clement writes: "We have so oversimplified the landscape, in agriculture, in forestry and in our communities that the *effective overlapping of predator functions* (italics ours) has been severely reduced.

And our increasing problems with insects make it plain that, in trying to substitute insecticides for natural regulatory controls performed by a complex of parasitic and predatory forms, man is trying to do the impossible. We are very much in the predicament of the man with a saw and an unsteady table, cutting first one leg a little to restore balance, then another, and so on until only stumps remain. Because our butcherings of the landscape have so upset natural balances that certain insects have gotten out of hand, we naively approach the problem with a panoply of technological instruments but *no ecological insights* (italics ours) into the sins that are being visited upon us. Insecticides merely oversimplify the landscape further by reducing the number of predators and parasites while the target pests develop resistance."

For the price of one dollar (\$1.00), those who wish to read further in this field can secure the 100 page booklet, "Handbook on Biological Control of Plant Pests". Make cheques payable to Brooklyn Botanic Garden and order directly from the Garden at 1000 Washington Avenue, Brooklyn 25, New York, U.S.A. No student of the natural sciences can afford to remain totally unfamiliar with these entomological affairs.





TRAINING FOR SERVICE

The Thirteenth Forestry Training School

Late in September, 1963, twenty forest officers left the familiar precincts of their districts and travelled to Hinton, Alberta, to attend classes of the thirteenth annual forestry training school term. These men were selected trainees, chiefly junior officers, whose employment with the Alberta Forest Service made them eligible for special training in skills required by their responsibilities. The class of '63 ranged in age from 21 to 37 years (average—28 years), and in experience from 1 to 10 years (average—3 years). The officers came from widely separated points in the province; Art Giroux travelled by aircraft and railway from Fort Chipewyan, a distance of close to 600 miles, while Archie Miller motored the 60 odd miles from his Muskeg ranger station to Hinton. A service patriarch among this group of near novices was 10 year man Len Westhaver who is not a forest

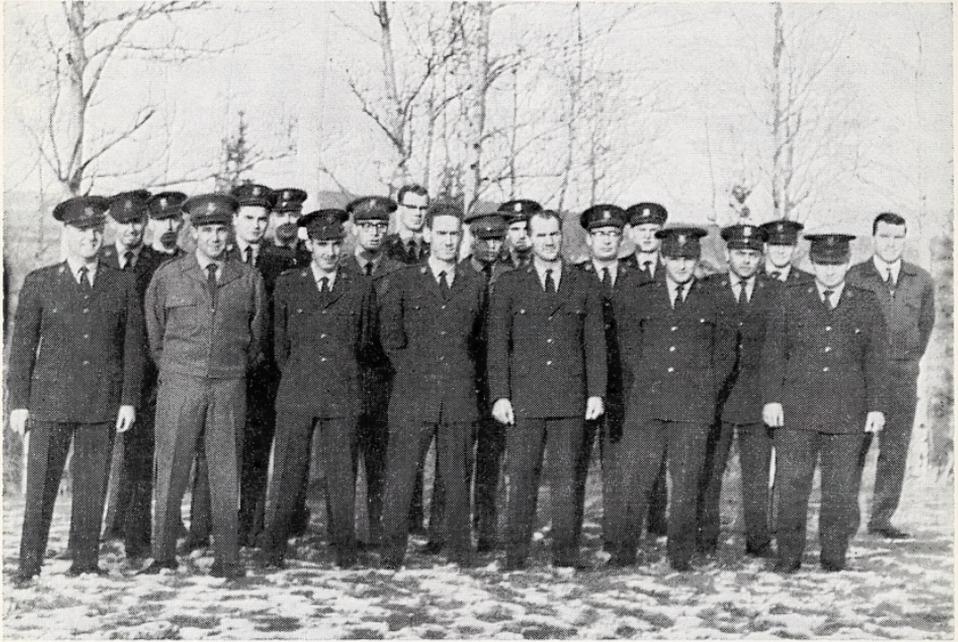
ranger but a "check scaler" working out of Edson. The balance of the class were all rangers or assistants working in single ranger districts. Regardless of district, background, age or experience, every "scholar" came to Hinton intent upon succeeding both in academic endeavour and subsequent forestry vocation.

School Site

The forestry training school is attractively established on a wooded hillside within the townsite of Hinton (see "Land-Forest-Wildlife", Vol. 3, No. 1). Through the windows of its spacious lounge and games room, the viewer's gaze spans the broad valley of the Athabasca river, including the towering mill of the North Western Pulp and Power Limited.

The school building provides complete accommodation for 20 students:

CLASS OF '63



sleeping quarters are divided to take two men per room; a modern kitchen and bright dining quarters provide good meals on a strict schedule; bathing, sanitary and laundry facilities are available; the less industrious resident may purchase the services of a local commercial laundry. A blackboarded classroom, main lounge and service offices fill out the balance of the structure.

School Operation

Excerpts from the forestry syllabus adequately describe objectives and methods of the training course:

"The primary purpose of the school is to provide forest rangers with a thorough grounding in the scientific and practical aspects of forestry and to train them in all those operations and activities that are essential for rangers working in the field for the forest service. Although forestry is the foundation on which the syllabus is built, the course is flexible and includes lectures on fish, wildlife, public relations, public

speaking and law. Emphasis is placed upon application of the knowledge gained and various field projects are designed to test the student's ability to apply what he has learned.

"Forest and topographic conditions in the Hinton area offer a variety suited to training in forestry work. Local woods-using industries provide opportunity for study of different types of utilization. The school supply of forestry equipment gives each man an opportunity to become familiar with the tools of his trade; the library maintained at the school provides a good source of reference material.

"During the eleven weeks course, instruction is provided in such subjects as fire control, mensuration, surveying, timber operations, forest management and silviculture, fish and wildlife and many others.

"About one-third of the course work is conducted in the field; the remaining time is spent in class-room. Classes are held daily from 8:00 a.m. to 5:00 p.m.

with a one hour break for lunch, except on Saturday afternoon and Sunday.

"Two senior members of the school staff conduct nearly two-thirds of the school term. Remaining lectures and demonstrations are given by senior personnel of the Alberta government, Federal government, the University of Alberta and others.

"Regular lectures are supplemented by talks from speakers qualified in their particular fields and by motion pictures. Various forms of indoor and outdoor recreation equipment are provided for evening entertainment.

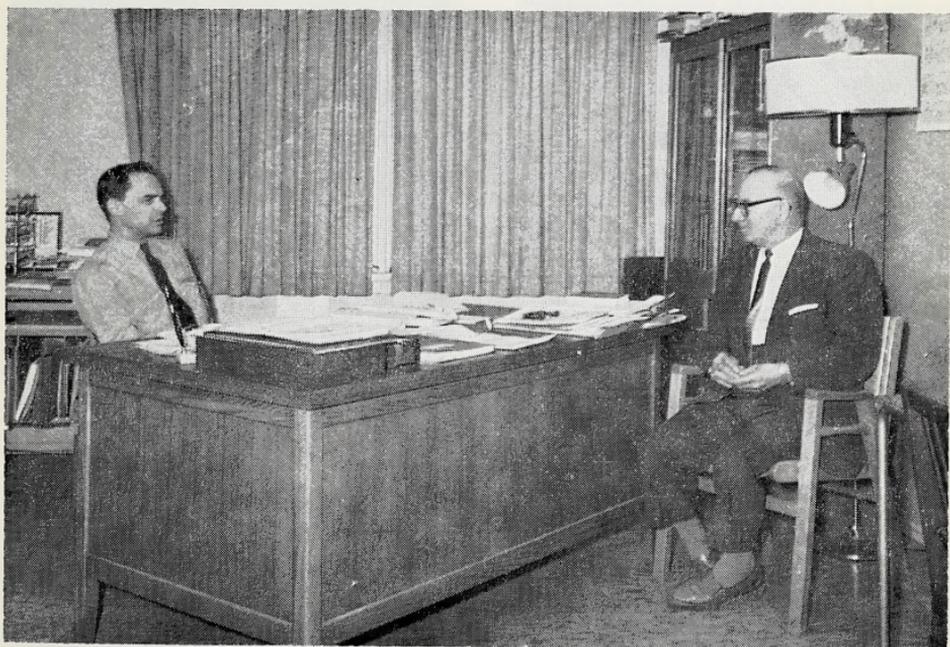
"Final examinations are held in all major subjects. Each student receives a rating based on observation of his apparent ability. This together with his examination marks is made a permanent record on his government employee file. A mathematics correspondence course is given to all prospective students in order to bring them to a reasonably common level of proficiency."

Students (and school visitors) are roused at 6:45 a.m. by the eerie wail of

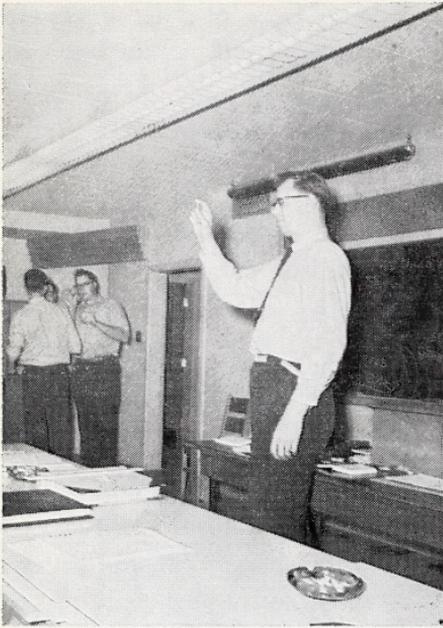
the school alarm siren, an unearthly sounding instrument of torture used to gain attention for meal times, class termination and other scheduled routines. Following the 'wake up' signal, a second 'howl' is unleashed at 7:00 a.m., presumably to rouse the tardy and to remind everyone within earshot that dawdling is not tolerated. A third assault on the ears, at 7:15 a.m., announces breakfast. Classes are similarly assembled at 8:00 a.m. Each class period is approximately 50 minutes long, followed by a ten minute break. There are four periods each morning and afternoon.

Curriculum

The forestry school is made up by 468 hours of instruction and practise. Fire control takes the largest bite, 103 hours, closely followed by forest mensuration subjects which occupy 94 hours. Fire control studies are broken down into sections on fire prevention, detection and suppression. The behavior of fire under a variety of conditions and systems for the estimation of fire danger



School supervisor Murphy (left) discusses lecture material with law instructor, Fish and Wildlife's Rocky Hales.



Student Dave Brown learns about "basal area" and the wedge prism in the class-room and

facilities are closely allied with the survey techniques used in timber cruise and mensuration. Both involve the use of maps, aerial photos, compass, distance calculation and drafting. A total time of 50 hours is set aside for these subjects under such headings as "care and use of field instruments", "taking and following bearings", "measurement of slopes", "mapping methods and plane table" and "lettering and drafting".

For 26 hours the ranger-student becomes a fish and wildlife officer, while he is led through what are usually such semi-familiar studies as identification of birds, animals and fishes, fundamentals of ecology, principles of fish and wildlife management and the enforcement of laws and regulations designed on behalf of conservation and recreation in this field.

In 17 hours a short introduction to elementary mechanics is conducted.

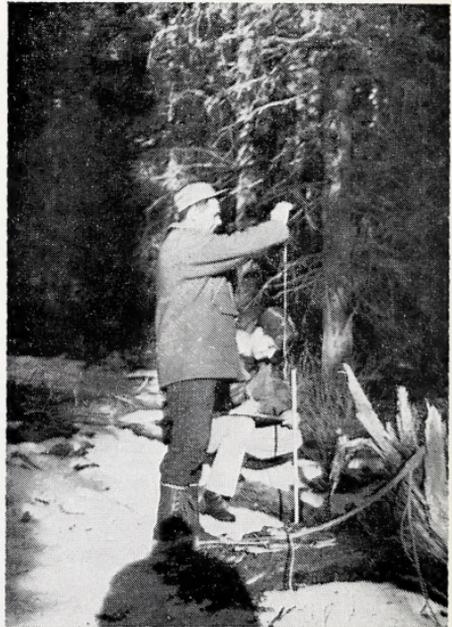
Twenty-two hours are devoted to the elements of construction and maintenance for roads, bridges, culverts, lookout towers and buildings.

or hazard are learned. The role played by fire fighting tools, including aircraft, radio, parachutes and pumps is taught. Finally the ranger is shown how to evaluate fire damage and to properly process the vast file of cost accounts that accumulates during a major fire.

Forest mensuration is concerned with standards and procedure for calculating the amount of wood in commercial and other quantities that exists in a unit forest area. It includes instruction and practise in techniques of sampling, cruising, compilation and scaling. The subject involves a considerable amount of field work, designed to give students adequate opportunity to gain experience in the application of class-room instruction.

Commercial timber operations are studied in terms of licences and business forms required; logging and milling practises; the application of forestry laws and regulations; inspections, records, audits and reports. Twenty-two hours are allocated to these affairs.

Duties associated with the construction of roads, trails and aircraft landing



. . . . Gordon Bossenberry puts his prism to practise during a timber cruise; recorder is Maurice Mitchell.

Representatives of the R.C.A.F. Survival School and St. John Ambulance Corps provide instruction and, though horses are used rarely, rangers are still taught the intricacies of the "diamond hitch" during a short "packers" course.

Students are introduced to the vast new world of forest management and silviculture in a series of discussions covering 17 hours. Elementary botany occupies them for another seven periods.

Public speaking, public relations and suitable office methods and procedures are taken up in 21 hours.

A crammed course in law enforcement, including such items as gathering evidence, use of legal forms, court procedure and legal terminology is climaxed by staging a mock trial in the classroom. This course takes up 16 hours.

Forest entomology and pathology are introduced through a series of discussions ranging over 12 hours. Another three periods are spent on the basic principles of range and watershed management.

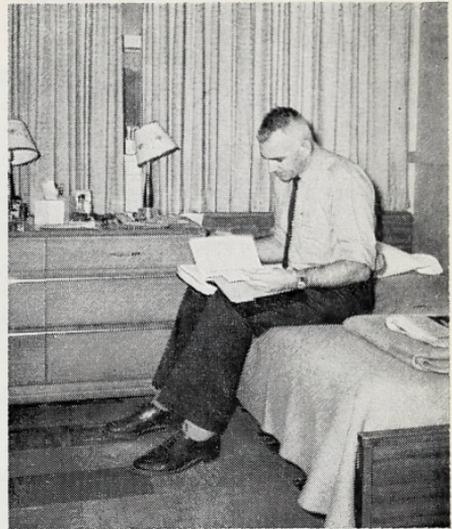
A total time of 43 hours is held in reserve for miscellaneous lectures, review of course material, extra study and examinations.

Other Training and Costs

The forestry training course outlined above is one of several different school terms handled at the Hinton quarters. In January and again in May, government fish and wildlife officers receive instruction similar in design to the forestry course and differing only in topics more closely related to their duties.

A refresher course for more experienced forest rangers is planned for 1964. Forest protection tower and lookout men receive instruction every year. Principles of good administration are taught to forest superintendents. Junior forest warden classes are entertained during July and August. A two-week course in effective fire fighting supervision is provided annually to selected trainees from forest industrial ranks (see "Land - Forest - Wildlife", Vol. 6, No. 1).

Supervision of these classes and administration of the school building is capably handled by forester Peter



Forest officer John Stepaniuk of Wabasca tackles some "homework".

Murphy and his assistant, Jack Macnab, who between them also handle 63 per cent of tuition. Caring for the many details of operation is forestry clerk Stan Siwy. Cooks are hired to accommodate each class of students. Catering to the appetites of the 1963 forestry class were John and Eva Callaghan. A grounds and building caretaker is provided by the government department of public works.

At current rate of use, the annual budget for school operation, including salaries and wages, is approximately \$50,000. This sum includes an appropriation for operating the Junior Forest Warden organization in Alberta. Terry Whiteley, chief of these activities, maintains an office at the school and is quite properly considered to be attached to education affairs. The annual budget breaks down roughly as follows:

Category	Percent of Total
Salaries	50%
Boardinghouse Supplies	20%
Kitchen Wages	16%
Vehicle Use and Travel	7%
Printing and Stationery	3%
Miscellaneous	4%
Total	100%

WITH GUSTO



Battle of the Bulge

By far the largest material purchase is for items termed boardinghouse supplies. These are chiefly food supplies and, according to clerk Stan Siwy who kept a cost account of one series of 6,188 meals served during the 1962 forestry school term, the food cost per meal for each man averages 58 cents. Kitchen wages add another 35 cents per man-meal to make the total average meal cost 93 cents.

An informal poll taken of students at recent training school terms reveals almost unanimous approval for meals served. Indeed, when men used to the active outdoor work of a forest ranger are exposed to the relative confinement of a school term, many gain considerable weight. Remarks about bulging waistlines become common items in classmate banter. Similar to products of any camp kitchen, the fare supplied at Hinton school is robust and hearty, aligned to outdoor appetites and served in quan-

tities to suit the heaviest eater, as it must be. About the only really mortal criticism and the one most likely to bring about a cook's downfall, is the revelation that he did not serve enough. No kitchen can afford the tag of parsimony. Training school fare leans toward liberality and supervisor Murphy advises that early season gluttons who still retain their woodsman's appetites are forced by either girth or indigestion to temper their eating habits within two weeks of arrival.

Exercise is offered both in the form of outdoor practise of class-room technology and in games. Most popular sport when weather permits is volleyball. Indoors the table tennis set is almost constantly in use. There is, of course, plenty of room for walking in the hills surrounding Hinton townsite. On week-ends, nearby Miette hot springs and the tourist designed facilities at Jasper National Park attract their share of student visitors. The sincere advocate of exercise need not want for physical

activity if the inclination is strong enough.

The Celibate Society

The course of studies is sufficiently intense to keep many students tied to their desks during off hours. "Home-work", as it might be called in other school circumstances, is a constant chore for the average scholar. Courses have been purposely designed to limit the amount of free time available to reasonable proportions if the trainee is to graduate with adequate marks. It is not uncommon to see room-mates plying one another with test questions late at night, especially as the examination period approaches.

Perhaps one of the most valuable by-products of the training program is the opportunity for communication of ideas and experiences between class members. Rooms are not assigned by school staff; there are ten rooms and twenty men; each new arrival drops his personal gear on a bed to signify his choice. Two former friends may combine to make their choice of accommodation mutually

agreeable but such arrangement is not always possible. In fact, many of the trainees may not have a close friend among the company of their new associates. However, every officer can almost be assured of having at least one pal before he departs 11 weeks later. In many cases, some well founded friendships are attained as a result of mutual experiences and shared opinions. It seems not unlikely that some occasional antipathy is generated as well, though usually forgotten when classes terminate.

As a course of study proceeds the student body, with few exceptions, becomes a well coordinated group of men. This is to be suspected since its members come to the school from similar backgrounds, from almost identical vocation and with mutual objectives. Supervisor Murphy advises that rarely is there any disquieting conflict or disturbance. In the ten years that he has been in charge, Pete Murphy cannot recall a single school "drop-out" or any forest officer leaving the service due to training responsibilities.



Students and instructors take a "break" in the school lounge.



Law instructor briefs student Owen Bolster during recess in mock trial.

On the other hand, there are differences in the standards of effort and enthusiasm between the class of one year and that of another. Two or three members who combine informal leadership with enthusiastic endeavour can promote above average effort for the whole class. Conversely a class that lacks this leadership or has it replaced by leaders or senior members who tend to grumble will likely learn less and be graded accordingly. In spite of group standards there are, however, individual exceptions at both ends of the scale.

The social atmosphere of a school in session is very similar to the more familiar flavor found among a corps of armed forces trainees. Most of the

students are married (15 out of 20 in the '63 class) and those are likely to miss the habitual sights, sounds and comforts of a domestic life. In a rare instance a student may be accompanied by his family but he must pay for outside accommodation; Hinton school has no "married" quarters. Usually pressures of economy, child school attendance, and the simple need of maintaining an established household dictate that the student's spouse shall remain at home. If home is not too far away, week-end visits at the student's expense are not improbable.

The normal pattern of social behavior among barracked men is too well known to require much elaboration. Forms of language tend to become more colorful; playful harassment, banter and repartee become more socially acceptable, humour is slightly less refined than the domestic variety and entertainment, evolving out of the group, is possibly a bit more ribald than the individual would customarily endure. On the other hand, serious discussions take place readily and these are not always related to the work or study at hand. Men invariably grow more philosophical when removed from the responsibilities engendered by vocational environment and placed in what they must consider an area of temporary suspension. One of the principle assets of boarding school atmosphere is the brief freedom it allows the inhabitants to ponder and discuss subjects that are not dictated by day to day duties. In such time as might be left for "chin" sessions there is little doubt that even the most sluggish minds are attracted by less mundane theories than those which commonly occupy them. These are not the flights of fancy with which an individual day dreams; they are expressed views, tested against the common ideal, refined and modified by the expressions of others. If work, study and accomplishment are foundations of success, serious group communication is the mortar of maturity. The training school at Hinton provides plenty of opportunity for every phase.

R. I. P.

On December 10th, 1963, the almost unnoticed passage of an Alberta government order-in-council marked a noteworthy event in provincial wildlife administration. The order in question, dispensing with the payment of bounties for cougars killed in Alberta, wrote "finis" to a long and sometimes heated debate over the status of carnivores among wildlife populations and the efficacy of bounties in Alberta wildlife management policies. It is the view of game biologists and administrators that common sense has finally triumphed.



During varying periods of time, since 1941, the Alberta government has paid bounties on crows, magpies, coyotes, wolves and cougars. The amount of money disbursed totals \$571,278.00. Crow and magpie destruction campaigns, carried out through an arrangement with the Alberta Fish and Game Association, that survived from 1943 to 1954, cost \$83,574.00. The death of 65,398 coyotes earned the whopping total of \$312,888.00. Nearly 12,000 wolves tapped the provincial treasury for \$159,081.00 and 862 cougars brought their killers \$15,735.00. The coyote bounty program was discontinued on December 1st, 1948, and, exactly six years later, in 1954, wolves were given equal blessing.

It seems fair to say, in the light of zoological research, that populations of

"pests and predators" bear the same ratio to their environment today as they did in 1941. Thus it is logical to assume that control program beneficiaries profited by an amount exceeding half a million dollars for merely harvesting a wildlife crop; a privileged recreation for which hunters of other birds and animals must pay a license fee. Indeed, many sportsmen today support the view that hunting carnivores (wolves, cougars, etc.) can readily be classified as recreation and should be licensed accordingly.

OUCH!

Ted Burkell, genial Alberta Manager of Ducks Unlimited, raised his gun and took one final blast following the close of the bird hunting season. His aim was perfect and No. 4 shot is imbedded in the posterior of "Land-Forest-Wildlife" editor MacDonald. It seems our notice of the D.U. booklet, "Prairie Ducks and Geese", raised such a "rucus" that both Edmonton and Winnipeg offices have run out of copies.

Ted advises that they have ordered a reprint and that requests on hand will be filled when new copies are received.

As for those of us at L.F.W., we are proud of the action resulting from notice of the D.U. book in our last issue. At the same time, we apologize to Angus, Ted and Helen for the inconvenience generated.

W. H. M.

A PATRIARCHAL RED-SHOULDER

A male red-shouldered hawk that had been banded at the Patuxent Wildlife Research Center on February 25, 1944, was recovered there on February 8, 1963. The hawk must have been at least 20 years old, for it was adult when first captured. It was recovered and released approximately 440 yards from the original point of banding.

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Maryland Conservationist.

ELK IN NORTH- WEST ALBERTA



by **JOHN G. STELFOX,**

Wildlife Biologist, Dept. of Lands and Forests.



J. G. Stelfox

The wapiti, commonly referred to as elk in North America, is the largest of the round-antlered deer in the world. A migrant from the "Old World", its close relatives include the red deer, the Indian sambar, the Japanese sika deer and the spotted axis deer. All are characterized by round antlers, set on the skull at an oblique angle, and featuring a brow tine.

In primitive times elk ranged over much of North America from Arizona to northern British Columbia and from coast to coast. Only a century ago, elk were plentiful on the Great Plains that now form the states of Nebraska, Iowa and North and South Dakota.¹⁾ They were observed on the plains of southern Alberta in 1754 by Anthony Henday,²⁾ and are reported to have existed along the plains of the Peace river between Vermilion Falls and Fort St. John in 1792 by Alexander Mackenzie and in 1810 by Harmon. The Wapiti river south

of Grande Prairie probably also contained an elk population as its name was derived from this species. During the period 1792-1810, elk were distributed throughout Alberta within 50 to 100 miles of the Northwest Territories. However, by 1894, elk had been greatly reduced and were practically eliminated north of the North Saskatchewan river. After further reductions between 1897 and 1908 the elk were restricted to a few herds in the Saskatchewan and Brazeau river valleys.³⁾ By 1913 the remnants of Alberta's once large wapiti herds consisted of probably not more than 365 animals of which a dozen or so were located in the Brazeau, 20 to 50 in the Highwood, and between 150 and 300 in the Old Man river drainages.⁴⁾

The following decimating factors contributed jointly to the disappearance of elk in the province:

1. **Severe Winters**

Most buffalo disappeared from northern Alberta between 1825 and 1850.⁵⁾ Remnant bison herds east of Peace River were eradicated during the three severe winters of 1886-88, according to reports of local Indians. These



winters probably decimated elk herds as well. Cattle numbers in southern Alberta were drastically reduced during the winters of 1886-87 and 1906-07.⁶⁾ Quite possibly elk, which are primarily grazers, received similar setbacks during these periods. The writer believes this series of severe winters contributed to the general decline of elk herds in the province between 1810 and 1913.

2. The Development of Ranching and Farming

The spectacular expansion of the livestock industry in southern and central Alberta during the late 1800's and early 1900's materially reduced the acreage of grasslands available to elk.

3. Excessive Meat Hunting

The unrestricted shooting of elk by road and railway construction camp and logging camp employees at the turn of the century probably depleted elk numbers in some areas. This would be especially true during winter when elk were concentrated into large herds.

4. Widespread Fires

Local Indians west of Rocky Mountain House report that extensive fires in that region in the 1860's so reduced game populations that Indian bands were forced to move from the region in search of game. Fires of this intensity undoubtedly reduced elk numbers, and resulted in unfavourable range conditions for a short subsequent period.

RECOVERY

Beginning with the small Brazeau herd in 1913, and assisted by a transplant of 88 elk to Jasper in 1920⁷⁾ and 27 to Hinton in 1936, elk populations in northwest Alberta have flourished and expanded until once more they inhabit much of their primitive range between the Peace and Brazeau rivers and east of the B.C. border to the Swan Hills. Naturally, with agriculture forming an important economy in some regions, the extent of future elk distribution can never equal former incidence. However, there are some compensating factors created by human endeavor, including the creation of a sustained supply of

favorable range within the boreal forest by extensive logging operations. A brief history of elk expansion in regions north of the Brazeau river over the past 47 years follows. To understand this expansion the build-up is traced from four population nuclei, namely:

1. The Brazeau herd
2. The Hinton herd (transplant)
3. The Jasper herd (transplant)
4. The Peace river (B.C.) herd.

The Brazeau Herd

This small herd, consisting of from five to fifteen animals in 1913, increased slowly until 1930. In 1924 elk were reported only in the Ruby Creek area where they were increasing but had not yet reached the nearby Whitehorse, Cardinal and Rocky rivers. An extensive fire during the 1920's reportedly created favorable elk range in the '30's along the headwaters of the Brazeau, Cardinal and McLeod rivers with the result that by 1939 they were plentiful in this area.

Northward between the Brazeau and McLeod rivers and east to Wolf creek, elk numbers were spotty in 1932 and not

until 1936 were they seen in the McLeod river area south of Edson. By 1940 they were well distributed throughout this region. None was reported north of Edson or east of Wolf creek until about 1950. Since then they have moved eastward across Carrot creek and the Cynthia highway to the Pembina and Saskatchewan rivers. Presently they are well distributed throughout the area south of the Edmonton-Jasper highway to the Brazeau and west of the Chip lake-Lodgepole highway to Jasper Park.

A light, scattered distribution north of Edson between the McLeod and Athabasca rivers has occurred since 1950. This build-up stems chiefly from a movement northward along the McLeod and Edson rivers and Sundance creek. Elk have spread northward along the McLeod river to Shining Bank creek and north along Sundance creek to the Athabasca river. This elk build-up was probably enhanced when, in 1950, 22 animals from Elk Island Park were introduced into the region west of Whitecourt.

The Hinton Herd

Between 1912 and the transplant of 27 animals near Hinton in 1936, elk were not known to exist east of Sulphur river, north of the Athabasca river. In 1931 a few elk were present west of the Sulphur river near the Big Smoky river. The transplanted elk flourished and spread west and northwest towards Rock lake as well as northeast along the Athabasca river. They appeared at the mouth of Moberly creek along the Wildhay river by 1947 and the Marsh Head creek meadows west of Whitecourt by 1955, again possibly assisted by the Alberta government transplant in 1950. As early as 1951 their tracks were seen in the Goose Tower area of the Swan Hills, over 200 miles from Hinton. A noticeable movement of elk across the Whitecourt-Valleyview highway towards the Swan Hills occurred after 1958. Some had penetrated into the north slopes of these hills south of High Prairie in Twp. 69, Rge. 17, W. 5th Mer. by 1961 and into the southeast portion near Ft. Assiniboine by 1962. The most



Grave Flats region, Brazeau district.

easterly distribution in the Swan Hills is now Twp. 63, Rge. 5, W. 5th Mer. (Fig. 1).

Elk are now well distributed throughout the area east of the sixth meridian and north of the Athabasca river to the Berland river. North of the Berland they are very scarce except along Marsh Head creek.

The Jasper Herd

A transplant of 88 elk in Jasper National Park in 1920 is believed responsible for present elk populations along Rock creek, the headwaters of the Wildhay river and along the Big Smoky river system as far north as Codesa.

By late 1926 this transplanted herd had built up to an estimated 1,000-1,200 elk which "occupied every valley in the Park".³⁾ The expansion carried elk into the Rock creek area north of the Park by way of the Snake Indian river and Willow creek. The movement probably continued westward along Rock creek and the Wildhay river to the Sulphur

river and proceeded down the Sulphur towards the Smoky. In 1931 a few were seen west of the Sulphur near Grande Cache. Once the Smoky river was reached, the movement north towards Grande Prairie was quite rapid. Elk were observed near the mouth of the Kakwa river, along the Smoky river in 1936. Some elk reached the Wapiti river area, about 15 miles southeast of Grande Prairie, by 1939-40. Prior to this, none had been observed along the Smoky or in the region westward to the B.C. border. During the early 1940's a small herd built up along the east side of the Smoky about 15 miles below the mouth of the Cutbank river. During the same period some of the Rock creek herd was building up around Rock lake. Since 1943 and particularly since 1950 the Smoky herds have expanded westward to include portions of the Cutbank, Wapiti, Narraway, Kakwa rivers and Sheep creek. During this time the Rock lake herd was moving eastward along the Wildhay river.

(Continued on page 19)



Kvass Flats, near upper Smoky river, north of Jasper National Park.

NORTHWEST TERRITORIES

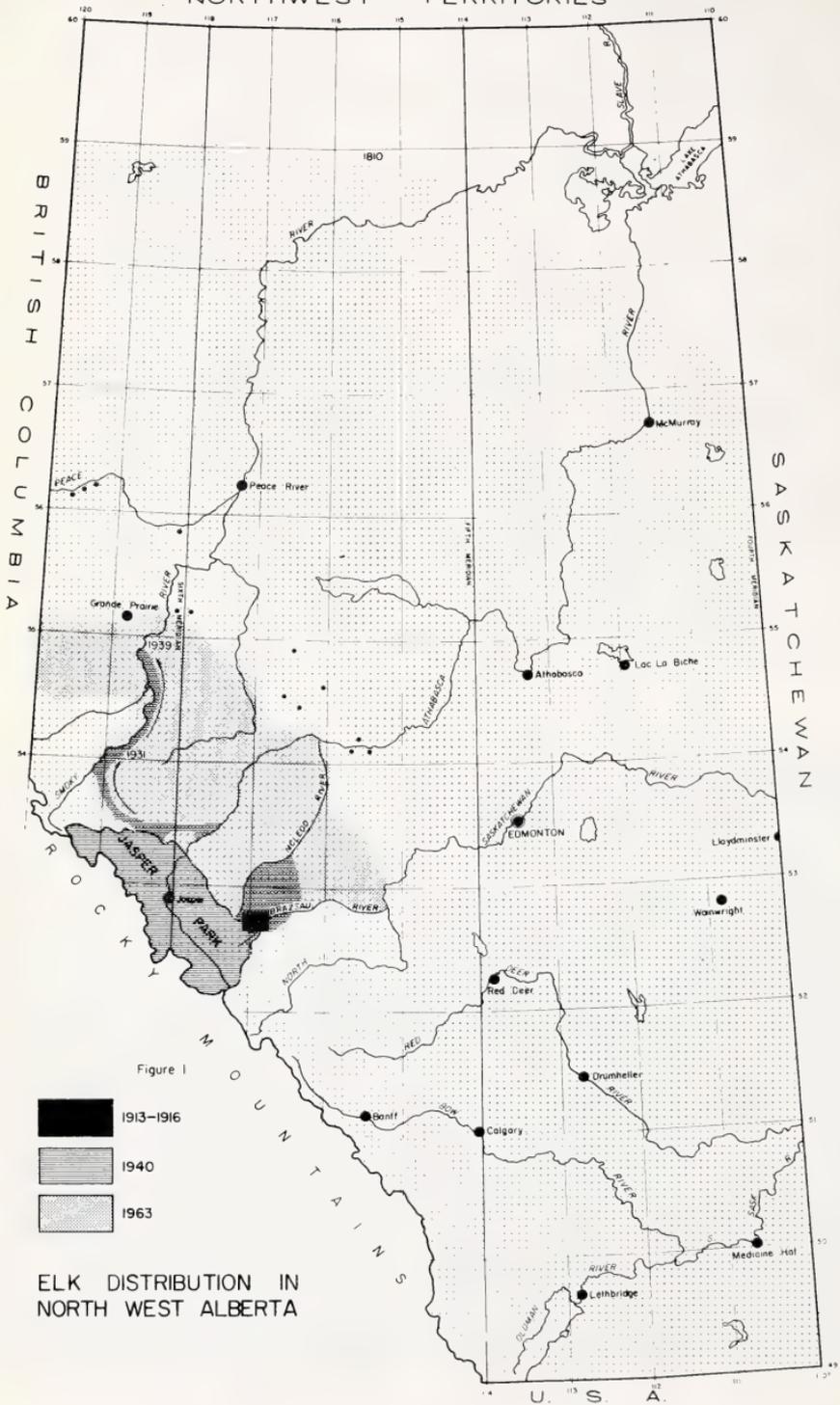


Figure 1

- 1913-1916
- 1940
- 1963

ELK DISTRIBUTION IN NORTH WEST ALBERTA



Headwater mountain range of Sulphur and Berland rivers.

(Continued from page 17)

As well as moving northward along the Smoky, elk moved eastward into the Economy creek area by 1954 and up the Simonette river, a distance of 25 miles, by 1962.

The first movement north of the Valleyview-Grande Prairie highway was noticed in 1960 along the Smoky hills. By 1962 elk had moved into the Codesa area about 15 miles south of the Peace river. During the same period they were also observed north of the Wapiti river near Pipestone creek and the junction of the Wapiti and Narraway rivers.

The Peace River (B.C.) Herd

Recently, elk herds along the Peace river in British Columbia have built up and expanded.⁸⁾ Part of this expansion presumably followed eastward along the Peace river into Alberta.

In 1961 five or six elk were sighted about 15 miles east of the B.C. boundary along the south banks of the Peace.

Later in the year a bull elk was seen 20 miles further downstream in the Many Islands area. In 1963 elk were once more observed in this locality, placing the present eastward limit along the Peace at least to Twp. 84, Rge. 8, W. 6th Mer. It is possible that some elk from the Codesa herd have already reached the Peace river near the mouth of the Burnt river.

PRESENT DENSITIES

Beginning with the small population of between 175 and 365 specimens in 1913, elk increased slowly in Alberta prior to 1940 (see Figure 1 and Table 1). A glimpse of the province-wide populations reflected through the annual harvests is presented in Table 1. Checking station figures do not indicate total harvests; they tally the amount of game of various species harvested by hunters who stop at a station after the hunt. By this means, checking stations can provide comparative data from year to

(Continued on page 21)

Table 1

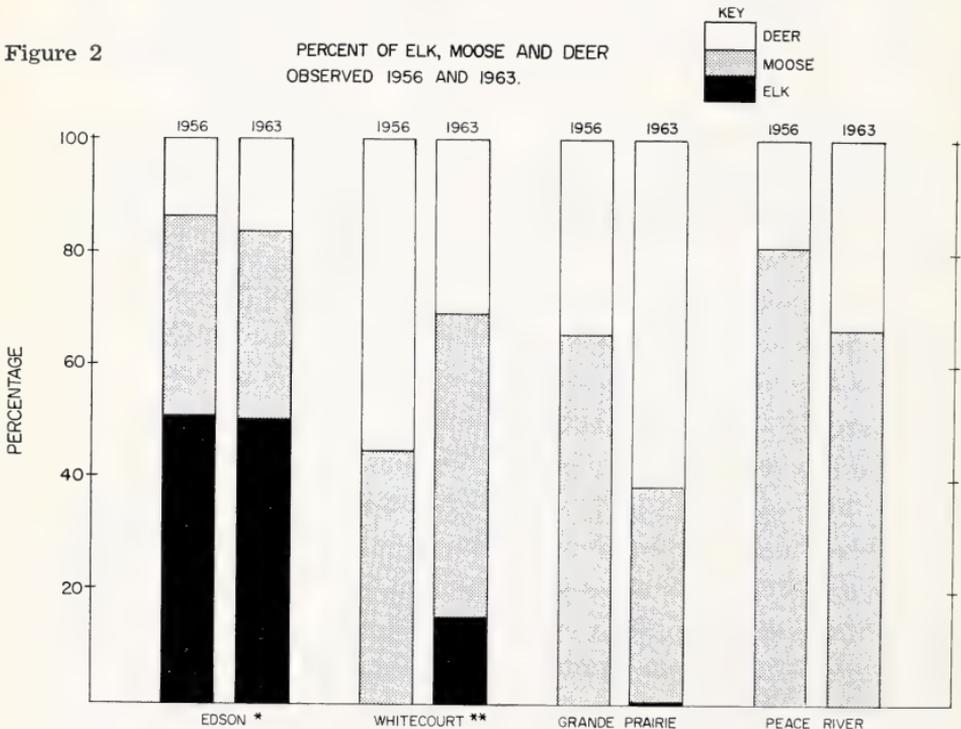
ELK HARVESTS IN ALBERTA (1907-1963)

Elk Harvests Province-Wide and Checked Through Northern Stations

Year	Entwistle				
	Province-Wide	& Entrance	Whitecourt	Simonette	Wapiti
1907-09	0	--	--	--	--
1910	7	--	--	--	--
1911-14	0	--	--	--	--
1915	1	--	--	--	--
1916-19	0	--	--	--	--
1920	1	--	--	--	--
1921-30	0	--	--	--	--
1931	50	0	--	--	--
<hr/>					
1952	940	--	--	--	--
1953	1,060	--	--	--	--
1954	2,295	--	--	--	--
1955	2,312	67	--	--	--
1956	1,319	56	1	--	--
1957	--	103	4	0	0
1960	2,050	268	5	0	0
1961	3,268	320	5	1	0
1962	2,000	313	20	3	7
1963	--	278	9	7	26

Figure 2

PERCENT OF ELK, MOOSE AND DEER
OBSERVED 1956 AND 1963.



FORESTRY DIVISIONS

* Included with the Edson division is the Drayton Valley District.

** Only the Whitecourt division north of the #16 hwy. is included.

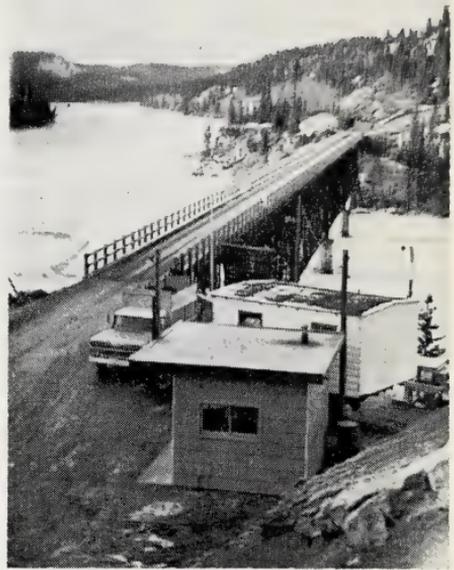
(Continued from page 19)

year to indicate changes in species composition of regions in which the hunters bag their game.

Table 1 reveals a negligible harvest prior to 1931 when an estimated 50 elk were taken. Following a province-wide closed season in 1932, the next open season was declared in 1941, though only in the Crowsnest area south of the Crowsnest Pass and in the Pembina-Brazeau area. A similar season occurred in 1942 and 1943 with the Livingston area included in the huntable area in 1944. In 1945 elk could also be hunted in the Clearwater and Red Deer areas. In 1946 the season ran from November 1st to December 13th on males and during the same period on both sexes south of the Castle river. Due to insufficient harvest the season was extended on both sexes through January and February. In 1947 the season was opened throughout the province.

Increasing elk populations in southwestern Alberta resulted in abolishment of the Carbondale Game Preserve in 1954 and an open season on both sexes of elk. Since 1954 generally good elk populations in western Alberta have resulted in liberal seasons on both males and females.

North of the Brazeau river, elk populations increased steadily since 1940 to attain a present population of 8,000-11,000 animals with a 1963 harvest estimated at about 1,000 elk. A good indication of the increase, as reflected in province-wide harvests determined from license returns and hunter checks and from north of the Brazeau in numbers handled through voluntary checking stations, is shown in Table 1. Figures for 1907-55 (data during the 1940's are missing) represent province-wide harvests while those from 1955-63 are both province-wide plus those checked through five voluntary checking stations north of the Brazeau river. The table indicates a general increase in elk harvest north and west of Whitecourt since 1955 and also shows that the first elk was checked through stations south of Grande Prairie in 1961 at the Simon-



Entrance game checking station at Athabasca river crossing.

ette station and 1962 at the Wapiti station.

The increase in elk numbers also shows up in Forest Officer winter game reports comparing the years 1956 and 1963 (Figure 2). No elk were reported in the Grande Prairie and Whitecourt divisions (North of #16 hwy.) in 1956 but several were seen in 1963.

FUTURE PROSPECTS

The present distribution now extends from the Brazeau to the Peace river, covering most of the suitable elk habitat except for farming areas within the Peace River agricultural block. Future expansion of existing elk populations is expected to be slower and more limited due to the unsuitable nature of much of the boreal forest north of Peace river.

The semi-wooded fringe areas of the Swan Hills are suitable for elk and will likely witness a marked increase in elk numbers in the near future.

A general filling-in of elk herds in the semi-wooded slopes, the burned-over and logged-over forest land south of Grande Prairie is anticipated over the next several years.

Three elk transplants in northern Alberta in 1920, the early 1930's and 1950 assisted the expansion of elk populations at those periods because suitable habitat was available and unused by other grazing animals. Recent transplants (1955-57), in northeast Alberta, were less salutary because they conflicted with established farming in the region. Damage to standing and stacked farm crops did occur and for this reason future transplants to any agricultural region of the Province would be unwise. In any event, elk are moving into fringe settlement areas on their own and future management programs will have to aim at control of herds to reduce farm crop damage as much as possible.

Changing environment, milder winters and controlled harvesting have

brought the present elk population and distribution to a relatively high level in northwest Alberta. However, a variety of influences affect the future of elk, some detrimental, some favorable. Severe winter weather, as experienced in years 1955-56 and 1961-62 undoubtedly cause a fluctuation in populations. Increased use of forest grass-lands by domestic stock may restrain elk herd expansion in some areas. On the other hand, the danger from large scale forest fire is minimized by an effective government forest protection service, and small fires plus continued logging of mature timber stands will serve to increase the extent of suitable elk range. As with other wildlife, the key to future prosperity for elk in Alberta lies in the application of planned management concepts. These include adequate harvest together with protected environment and a broad acceptance by both hunters and other citizens that this regal antlered species has a logical place in Alberta woodlands where it should be persuaded to thrive and exist forever.



ENTWISTLE GAME CHECKING STATION

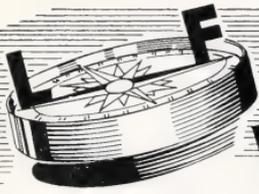
LITERATURE CITED

- 1) O'Connor, J., and Goodwin, George G., 1961 — The big game animals of North America. E. P. Dutton & Co. Inc., New York.
- 2) MacGregor, J. G., 1955 — Anthony Henday. Alberta Golden Jubilee Anthology. McClelland and Stewart Ltd.
- 3) Preble, E. A., 1908 — North American Fauna No. 27, U.S.D.A. Bureau of Biol. Survey.
- 4) Millar, W. N., 1916 — The big game of the Canadian Rockies Conservation of Fish, Birds and Game. Proc. Of Committee meeting, Nov. 1 and 2, 1915.
- 5) Soper, J. Dewey, 1941 — History, range and home life of the northern bison. Ecological Monographs 11:347-412, Oct. 1941.
- 6) Jameson, S., 1955 — When cattle barons ruled. Alberta Golden Jubilee Anthology. McClelland and Stewart Ltd.
- 7) Lloyd, H., 1927 — The Canadian Field-Naturalist, Vol. XLI, Transfers of Elk for Re-stocking.
- 8) Anonymous, 1962 — Elk increasing their range in British Columbia. Wildlife Review 10(2): 22 Dec. 1962.

I wish to acknowledge the contributions made by the following persons whose sight records and records of past game abundance and distributions made this article possible.

S. E. Beebe (Forest Officer, Dixonville), C. G. A. Campbell (Forest Officer, Spirit River), J. Conley (Grande Prairie), E. Hill (Edmonton), L. Jeck (Guide and Outfitter, Jasper), J. Joachim (Muskeg), S. D. Kerik (Fish and Wildlife Officer, Grande Prairie), D. G. Lowe (Fish and Wildlife Officer, High Prairie), Wm. Magee (Entrance), J. H. McLaughlin (Spruce Grove), Inspector G. Mitchell (Edmonton Police Dept.), L. Nagy (Harmon Valley), R. J. Naylor (Asst. Forest Supt., Rocky Mountain House), J. Shand-Harvey (Entrance), H. Stelfox (Rocky Mountain House), R. C. Thomas (Fisheries Biologist, Edmonton), K. C. Wheat (Forest Officer, Ft. Assiniboine) and all forest officers who submitted information in their winter game reports.

J. G. S.



IN PUBLIC SERVICE

Department of Lands and Forests



A. D. PAUL



Jovial, sociable Art Paul retired from provincial government service at a very young 65 years of age on January 6th, 1964.

Born in eastern Canada, Art moved to the Lomond, Alberta, district with his parents early in the 20th century. When the town of Lomond held its 50th anniversary celebrations in 1963, Art Paul was among the guests.

Following graduation from the University of Alberta where he obtained a degree in agriculture, Art was employed by the Alberta Research Council in exploratory soils survey. This term of employment lasted from 1929 to 1932 when a shortage of government funds

terminated Art's career along with those of some of his associates.

The following years, "the dirty thirties", were no kinder to Art Paul than to many other Albertan's. He worked part-time with the University of Alberta, enlisted with the ill fated Bedaux expedition in northern Alberta and British Columbia in 1934 and applied his talents to the Alberta wheat milling and baking research group, prior to entering the service of the government Department of Lands and Mines in 1939.

In the Alberta government he first served on Lands and Mines' technical branch staff in its land settlement survey section. In 1943 he transferred to the public lands division of the department where he has been employed continuously since. At retirement Art was supervisor of land classification for his department.

Art and Elizabeth Paul had two children. A daughter, Loreen, was killed in eastern Canada during the havoc of hurricane Hazel in 1954. Son Glen, a forestry graduate of Montana State University, is aiming toward a degree in Education at San Diego branch of the University of California and is presently teaching in the San Diego area.

Art Paul's retirement was marked in December by a staff party with considerable flavor. Art was well known as an out-going, genial person, whose stories were not easily forgotten and who was not above perpetrating the odd practical joke. His associates did not neglect to return the favor in kind, with simulated portraits of their humorous friend, forming part of the departure ceremonies.

IN THE MAIL



Letters to the editor will be published under a pseudonym if requested but they must be accompanied by the writer's proper signature and address. Letters are welcome and particularly so if they are brief and deal with a topic currently being treated in Land-Forest-Wildlife or with one of general interest in the field of renewable natural resources. Land-Forest-Wildlife reserves the right to decide whether any letter shall be published in its columns and to condense any letter.

RESPECT FOR WILDLIFE

Editor:

Letters and articles such as written by Frank A. Somerville in the last issue of LAND-FOREST-WILDLIFE, reflect the shallow thinking of their authors. It is conceivable that if the bear could communicate with us, we would find that perhaps we were considered a nuisance to him. As for being a predator, why should this be a basis for persecuting him, when man himself is the greatest predator of all.

I am a zoologist and naturalist photographer and have found that respect for the lives of the animals with whom we share this earth, can only be acquired through intelligent thinking. The thorough study of any species is essential in reaching an understanding of them and consequently a fair and just attitude toward them.

He who cannot co-exist in harmony with his fellow creatures is usually afraid of them, and this leads one to suspect that he cannot co-exist in harmony with his fellow man. I would suggest that Mr. Somerville trade his rifle for a camera. This separates the men from the boys.

Let me re-word Mr. Somerville's first paragraph—

It has been distressing in recent years to see the trend in public attitude toward *not* labelling *man* a nuisance or a predator."

John O. Emery,
Toronto, Ontario.

We would like to assure reader Emery that Frank Somerville is just as distressed as he is about inhumane attitudes regarding wildlife. However, he equally deplores waste and since, in Alberta, bears are legal game for part of the year and will be shot as long as open seasons are granted, Mr. Somerville kindly offered his practical advice.

SKUNK PHARMACY

Editor:

On page 22 of the October-November issue of LAND-FOREST-WILDLIFE there is an article about the man that got a shot of skunk defense in his eyes, and the relief it gave from wearing glasses. This brings to mind what father said happened some ninety years ago in Nebraska. The boys of the settlement had to drive the cattle to the river for water. On the way back one day they

found a skunk, and were teasing it when a boy who had been doctored all winter for sore eyes got a shot of skunk essence in the face. He began yelling that it was burning his eyes; they washed his face to ease the pain and his eyes healed in a very short time.

Now there must be something worth knowing about this stuff and I am of the opinion your researchers should take it seriously. It could then be produced synthetically, and would be a wonderful help to those of us who must wear glasses.

Norman D. Calkins,
Coronation, Alberta.

Judging by comments similar to Mr. Calkins', this is a known remedy of earlier years. Possibly modern pharmacy has created equally effective medicaments for sore eyes. Strangely, none of our readers volunteered to carry out some personal research—can't say we blame them.

CHICKAKO TROUT

Editor:

In paragraph 3 of "Crazy Chickako Trout", Land-Forest-Wildlife, Vol. 6, No. 4, is the statement "Anglers were allowed to harvest trout by hand, or dip net if they wished; but legal creel limits were, of course, imposed". Now as I understand the Act or Regulation, there is no legal limit for what I call an illegal operation.

Firstly there is the question of the licence, Angling or Commercial. If it is an angling licence, angling is defined as "fishing by the use of a rod, line and hook, or a hook and line", section 2(b) of the Alberta Fisheries Regulation. Section 17 of the same Regulations states, "a person may, when angling, use a landing net or gaff hook to assist him in landing a fish that has been caught by angling". I am aware of the fact that there are no Fisherman's or Commercial licences issued for that body of water.

Now my point is that, from an enforcement angle, this could start a trend that would be difficult to control.

It is stated in the article that the fish were in bad shape from the lack of oxygen in the lake, but this is true of an awful lot of lakes in the province at different times of the year. The situation is parallel to the spawning runs in the spring which could be seriously depleted if dip nets were allowed.

In conclusion I would say that it was bad enough to allow a thing like this to happen, but to advertise it in a nation wide publication is something I fail to understand.

L. R. Johnston,
Olds, Alberta.

Mr. Johnston is an Alberta fish and wildlife officer and, technically speaking, is of course quite correct in his criticism. We sent him an editor's apology with some qualifications that will have to remain confidential. His letter is published to remind Alberta anglers that their government officers are wide awake and quite prepared to carry out their enforcement duties wherever these may be necessary.

WELCOME POSIES

Editor:

Would it be possible for me to get a reprint of your article "The Provoked Naturalist", Land-Forest-Wildlife, Vol. 6, No. 4?

W. A. Low,
Vancouver, B.C.

and

Editor:

Just a line to say that I think your editorial "The Provoked Naturalist" in Oct.-Nov. '63 issue, is a real gem.

I have made copies for my colleagues in this department, and for my students. I hope it receives wide publicity.

Congratulations:

Oliver H. Hewitt (Professor),
Ithaca, New York.

No reprints available but thanks anyway.

HERE AND THERE

Incredible Journey

A 37 pound sturgeon, netted by commercial fishermen, was checked by Alberta fish and wildlife officers Scott, of Calgary, and Macdonald, of Medicine Hat, on Rattlesnake Reservoir in autumn 1963. If the fish was not introduced into the lake by man it would have had to come originally from St. Mary's Reservoir. Enroute the fish would have to pass through Pot Hole Coulee Reservoir, Ridge Reservoir, Cross Coulee Reservoir, Big Chin Reservoir, Stafford Reservoir, Chin Reservoir, through the siphon south of Bow Island and into Rattlesnake Reservoir. This would have entailed passing through a total of six lakes and over 200 miles of canal. If the fish did get to Rattlesnake via this irrigation system it may have been enroute for years.

The fish was still alive when checked and was returned to the lake.

E. B. Cunningham,
Fishery Biologist.

For The Ladies

An English biologist recently cut a queen in three pieces. In trying to discover how a queen bee keeps her colony together, he found her influence is a scent more compelling than any compounded by French perfumers. The surgery came about when he wanted to know what part of her is most attractively scented. Abdomen, thorax and head, each put in separate cages, did not have much effect on a queenless cluster, but when the severed parts were crushed, the workers rallied around the crushed head. So the queen's powerful perfume must come from her head, probably from the mandibular glands.

Reprinted from:
Texas Game and Fish.

Housewives Agree

Flies and other insects probably can learn, feel anger and pain and exhibit motivated behavior just like higher forms of life, a scientist has reported.

Their tiny brains have all the nerve machinery necessary for kinds of behavior once believed possible only with the complex brains of vertebrates, according to Dr. Vincent G. Dethier, a zoologist-psychologist at the University of Pennsylvania.

All that's necessary to prove this is a microscope, electronic measuring devices and "the desire to think little", Dr. Dethier told the 130th meeting of the American Association for the Advancement of Science.

Reprinted from:
The Calgary Herald.

Error Corrected

Joe Gurba, department of agriculture pest control official, gently set us straight on our caption of a photo on page eleven of the last issue of "Land-Forest-Wildlife".

We termed the photo of insect larvae "tent-caterpillars". "Not so," said Joe; "they are spruce sawfly larvae." Thanks Joe—we rather wondered about tent caterpillars living on spruce and should have checked our information further.

W. H. M.

Did You Know?

The limbs of a tree always remain the same distance from the ground. Limbs grow in thickness and length as the tree grows, but the tree gains height only at the top its crown, adding diameter to its entire length.

Reprinted from:
"Colorado Outdoors".

HINTON, ALBERTA -- 1913



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Dept. of Lands and Forests