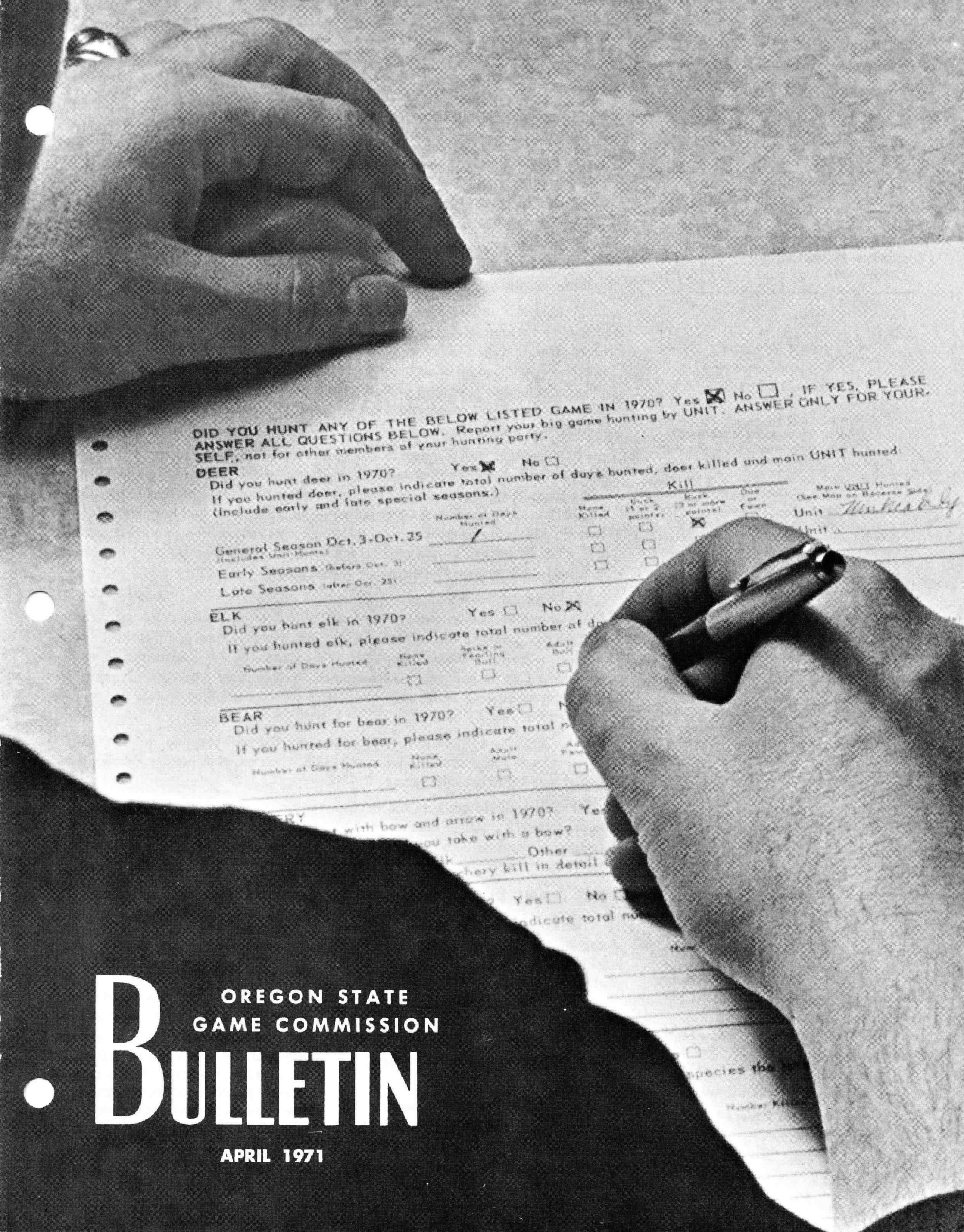


OREGON STATE GAME COMMISSION BULLETIN

APRIL 1971

OREGON STATE GAME COMMISSION
BULLETIN

Volume 26, Number 4
APRIL 1971

RON E. SHAY, Editor
H. C. SMITH, Staff Artist
A. L. MILLER, Photographer

Published Monthly by the
OREGON STATE GAME COMMISSION
1634 S. W. Alder Street — P. O. Box 3503
Portland, Oregon 97208

JOHN W. McKEAN, Director

Second-class postage paid at Portland, Oregon.

Please report promptly any change of address. Send in address label from a recent issue with notice of change. Include zip code number. Bulletin is circulated free of charge.

The Cover

The hunter success questionnaire utilizes a random sample to determine annual harvests of game. Statistics often are applied to wildlife management problems. See feature article.

— *Photo by Al Miller*

HUNTER SAFETY TRAINING PROGRAM

Instructors Approved

Month of February	26
Total to Date (corrected)	2,299

Students Trained

Month of February	485
Total to Date	164,853

Firearms Casualties Reported in 1971

Fatal	0
Nonfatal	2

". . . the public convenience, interest or necessity . . ."

The Federal Communications Act of 1934 states a broadcast license shall be issued if the "public convenience, interest or necessity will be served." There has been much debate over just what this means, but we find it very difficult to see where the recent David Wolper production "Say Goodbye," aired by NBC-TV and its affiliates, fits into any of these categories.

Since the airing of the emotion-racked program it has been revealed that out and out filmic misrepresentations were used to try to paint the hunter as a slaughterer of wildlife and the one essentially responsible for the demise of various species.

A legal suit against Wolper Productions and the sponsor Quaker Oats was considered by the State of Alaska because of the sequence in the program concerning polar bears. Wolper took footage of a bear being tranquilized for scientific purposes and inter-cut it with actual legal hunting scenes to make it appear as if the hunter was shooting a mother polar bear and abandoning the cubs. Other portions of the filmed program, though not proven fakes yet, stretched the credulity of anyone familiar with hunting and the outdoors.

In presenting such a program the sponsors and the TV stations certainly aren't fulfilling any of the stated aims of broadcast stations as spelled out in the 1934 Act under which they operate. Chester Phelps, president of the International Association of Game, Fish and Conservation Commissioners, put it succinctly in a letter to NBC when he said, "Manipulations such as those shown make no contribution to wildlife conservation. They do succeed in undermining public faith in wildlife officials in their efforts to manage and preserve these valuable resources."

Unfortunately, a well done program aired shortly after "Say Goodbye" probably didn't attract as many viewers as it would have had the "tear-jerker" not preceded. NBC News producer Robert Northshield put together a program entitled "Man's Thumb on Nature's Balance" that tried to show some of the complexities of wildlife management. It was a factual presentation designed to make one think . . . something that needs to be done if one is to understand even the basics of ecology and wildlife management.

The NBC News "Man's Thumb on Nature's Balance" program truly was in the public interest and necessity if we in this country are going to become knowledgeable enough to learn to live with nature.

It is difficult to see how the Wolper production "Say Goodbye" aired by NBC and sponsored by Quaker Oats can qualify in any of the three categories of public convenience, interest or necessity! — *R. E. S.*

BIG GAME REGS TO BE SET

The single public hearing for the setting of the 1971 big game regulations will be held on May 22 at the Portland office of the Game Commission. Prior to the public hearing, staff suggestions regarding the rules will be publicized. Written suggestions concerning the seasons will also be considered by the Commission.

The public segment of the hearing will start at 10 a. m. at S. W. 17th and Alder in Portland. Only the season lengths, bag limits, and other details on big game will be discussed. The opening dates were set in January.

Rabbits Wronged

A couple of our sharp-eyed readers caught us in a goof in the February issue where we discussed hares. We inadvertently said the rabbits and hares belonged to the order of rodents whereas they are properly placed in the order Lagomorpha Two small incisor teeth behind the prominent front ones are one of the major points of difference.

By WARREN ANEY
Systems Ecologist

—Odell Lake kokanee matured at a mean fork length of 15 inches in 1969.

—Nestucca cutthroat trout anglers catch an average of .311 fish per hour.

—3-year-old brown trout in the Little Deschutes average 246 eggs per female.

—Rogue River steelhead anglers catch about 10% of the annual run of about 150,000 fish.

—At a density of 90 deer per square mile, blacktail deer browsed 45% of the Douglas fir in the Tillamook Burn.

—80% of tagged bull elk observations in Coos County were within four square miles of tagging site.

—Elk use of logged areas peaks 5 years after logging.

—Steens Mountain mule deer averaged 1.7 live fetuses per doe.

—Mule deer buck herds averaged 13% spikes, 38% two-points, 17% three-points, and 32% four-points or better in 1969.

These are statistics. They may or may not have much meaning to you. They are part of the mass of statistics gathered and studied annually by Oregon's wildlife managers.

Right now you may be thinking that "statistics" is about the dullest subject yet. You are right. Statistics are dull . . . but they do measure interesting things. For example, when I say "average thoracic circumference of 36 inches" I am talking about some rather uninteresting statistical data. But what 36 inches measures may be something particularly interesting to me—if I'm a beauty contest judge—or of rather commonplace academic interest if I'm studying blacktail deer.

I'll try not to bore you with a dull description of statistics but rather try to describe some of the more interesting things we've examined with statistics.

WHAT STATISTICS IS (ARE?)

Statistics *is* the science of data analysis; statistics *are* what statisticians, analysts, economists, beauty contest judges, biologists, engineers, and hundreds of other persons rely on to give some meaning to phenomena which they study. Disraeli said there are three kinds of lies: lies, damned lies, and statistics. Figures don't lie, you've heard, but liars sure do figure. Statistics (as a science) is what keeps statistics (as a collection of data) from lying . . . or at least from being misunderstood.

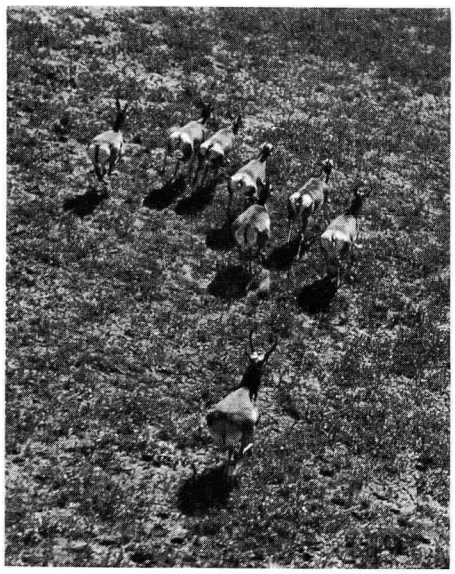
The science of statistics is based on proven mathematical and probability theory. By means of statistical principles we can use the so-called exact science, mathematics, to study the so-called inexact sciences of biology, sociology, economics, psychology, and even physics and chemistry.

STATISTICS USED BY WILDLIFE BIOLOGISTS

There are three general classes of statistics used by the Game Commission in evaluating wildlife resources: *total counts, estimates, and indexes.* (Some people prefer "indices" as the plural of index—I like "indexes" because I think "indices" should be the plural of "indice.")

Total counts are what we would all like to have but can hardly get. Did you ever stop to consider the job it would be to count every deer in the state of Ore-

We do try to count all of the ducks and geese in Oregon at the beginning of the year. This is possible because they concentrate and like each other's company while doing their thing.



Since most of the antelope in the state are concentrated in a restricted area, it is possible to attempt a total count. Such is not true in the case of deer and elk.

gon? It took nearly 2,000 special workers and 2 million dollars to conduct the 1970 census of Oregon's human population—and people cooperate (at least they don't usually run away when a census taker approaches) and they live in houses where they're easy to find.

We do try to count most of the ducks and geese that are in Oregon at the beginning of the calendar year as part of the nationwide migratory bird census. But waterfowl are fairly easy to find and they tend to congregate in large concentrations since they like to swim and they like each other's company while doing their thing.

We also try to count most of the pronghorn antelope every March since they are present in a relatively restricted part of the state (if you call 24,000 square miles of southeastern Oregon restricted) and gather in fairly large herds in the open sagebrush flats. The major tools for both waterfowl and pronghorn census are an airplane, an experienced pilot, and a tallywhacker*.

Fish are even more difficult to census, with one outstanding exception. Migratory fish such as salmon and steelhead are very cooperative at climbing fishways over dams, falls, and other obstacles in their migratory path. It is relatively easy to guide these fish past a window behind which an observer sits with the tallywhacker. Result: a total count of migrating fish.

*You won't find this one in your Funk & Wagnall's. It's biologist talk for a hand-operated mechanical counter.

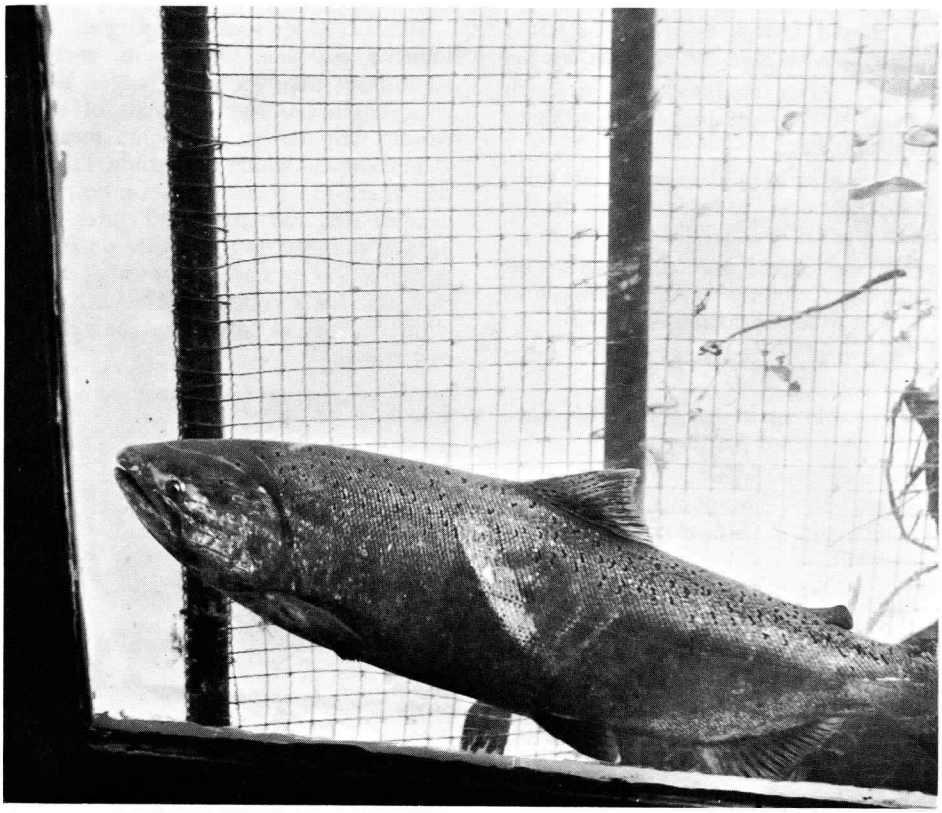
Estimation is a biologist's first recourse when he cannot easily obtain a total count. In many cases estimation may be more efficient than a total count in terms of cost and time. Actually, most total counts are really only a precise estimate. When you measure your height you are really making a precise estimate of how tall you are. Your height varies from hour to hour (you're taller in the AM than in the PM). Rulers vary in their accuracy and whoever measures you varies in their precision and their interpretation of what the ruler says. So when you say you're six foot two, you probably are actually somewhere between six foot one and three-quarters and six foot two and one-quarter; or, putting it more succinctly, six foot two plus or minus one-quarter inch.

Wildlife data is usually much less precisely measured than this. However, the science of statistics helps us overcome this lack of precision. It's like weighing peas on a truck scale—it isn't very precise for weighing one pea but if you piled 55 million peas on the scale it should give you a pretty good estimate of the average weight of one pea:

$$\text{Est. Wt. of 1 Pea} = \frac{\text{Wt. of 55 Million Peas}}{\text{55 Million}}$$

By this same general means, wildlife biologists come up with meaningful data on fish and wildlife resources. No, we don't weigh trout eggs on a truck scale—but we do make many observations to estimate one meaningful average. For instance, if we check one angler who has two trout, this does not mean all anglers average two trout. If we check 5,909 anglers who have 10,109 trout, we can say with some assurance that they averaged 1.7 trout per angler.

The accuracy of an estimate depends largely on how data for the estimate was obtained. Usually estimates are obtained by taking a sample from the body of all available data. Accuracy depends on how large the sample is and how rep-



Migratory fish such as salmon and steelhead cooperate with counters by climbing through fishways with windows at dams. This is one of the few cases where a total wildlife count is possible.

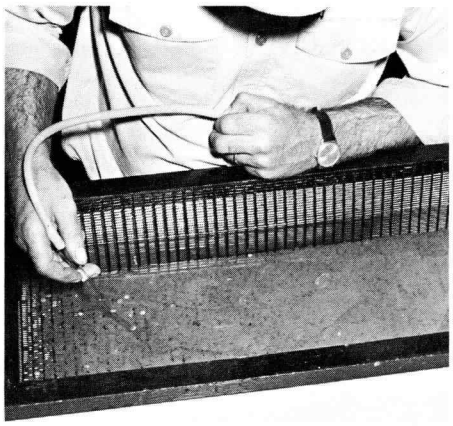
resentative it is. A 100% sample would be a total count and no estimation would be needed. Since very large samples are very expensive, very time-consuming, and therefore very inefficient, most of the time we deal with samples of less than 10% of all available data. For example, in 1968 in the Maupin area of the Deschutes River we checked 9.9% of the anglers present. In our annual mail survey of hunters we contact 7% of Oregon's licensed hunters.

Much of the accuracy of an estimate depends on how the sample is taken. Sampling may be random, systematic, sequential, sporadic, or catch-as-catch-can (CCC†). Of these methods, scientific random sampling produces the most accurate results.

A good example of CCC sampling is the roving reporter who stops and interviews people on the street. A highly sophisticated scientific random sample is Gallup's public opinion polls. Which method do you think gives a reliable estimate of public opinion: The roving reporter who questions five people he happens to meet on the street, or a sophisticated sampling of several thousand people's opinions by Gallup's trained staff of interviewers?

Game Commission biologists use all four sampling techniques to obtain their estimates. The annual hunter mail survey and several angler surveys all use some form of scientific *random* sampling. Bitterbrush utilization, range condition, and goose reproduction are estimated from samples taken *systematically* at deliberately preselected sites. *Sequential* sampling occurs whenever the decision is made to measure and tag every 100th fish passing through a fishway or to stop and check every 10th hunter leaving a hunting area. *Sporadic* sampling typically occurs when a biologist decides to check hunters or fishermen. Whether or not he checks a particular individual may depend on the biologist's mood, the sportsman's mood, the weather, how far the biologist has to walk to get to the sportsman, how curious the biologist is about how the sportsman is doing, what the biologist's boss says about how much time he should spend checking sportsmen, and a host of other varying reasons.

CCC sampling (catch-as-catch-can, remember?) occurs typically when a biologist, under assignment to classify 300 deer for herd composition estimation, goes out day after day whenever weather permits to areas where he expects to see large numbers of deer. When he spots a group of deer he counts them all, classifying each animal as buck, doe, or fawn. If he cannot see or classify all animals in the group, he discards that sample as incomplete and goes on looking for more deer. This CCC sampling technique is also used to estimate elk and antelope herd composition, upland game average



Trout eggs are not weighed individually or on a truck scale. However, observations make it possible to estimate totals by volume.

†This highly technical term is the sole responsibility of the author and will not be found in any other statistical publication.

TOTAL COUNTS OF FISH AND WILDLIFE IN OREGON — Some Examples

Species	Year	Number	Accuracy	
Pronghorn Antelope	1969	6,326	Pretty poor	
Ducks	1969	225,178	Fair	
Geese	1969	55,613	Fair	
Steelhead, Sandy River	1967-8	2,949	Excellent	(Marmot Dam fishway)
Chinook, Sandy River	1967-8	61	Excellent	(Marmot Dam fishway)
Coho, Sandy River	1967-8	669	Excellent	(Marmot Dam fishway)
Steelhead, Clackamas River	1967-8	(792 upstream)		
		(35,713 downstream)	Excellent	(N. Fork Dam fishway)
Chinook, Clackamas River	1967-8	(501 upstream)		
		(2,058 downstream)	Excellent	(N. Fork Dam fishway)
Coho, Clackamas River	1967-8	(1,497 upstream)		
		(81,433 downstream)	Excellent	(N. Fork Dam fishway)
Steelhead, Rogue River	1968	7,821	Excellent	(Gold Ray Dam fishway)
Chinook, Rogue River	1968	22,997	Excellent	(Gold Ray Dam fishway)
Coho, Rogue River	1968	149	Excellent	(Gold Ray Dam fishway)
Steelhead, N. Umpqua River	1968	15,041	Good	(Winchester Dam fishway)
Chinook, N. Umpqua River	1968	9,386	Good	(Winchester Dam fishway)
Coho, N. Umpqua River	1968	1,647	Excellent	(Winchester Dam fishway)
Cutthroat, N. Umpqua River	1968	2,200	Excellent	(Winchester Dam fishway)
Steelhead, Columbia River	1970	112,509	Excellent	(Bonneville Dam fishway)
Chinook, Columbia River	1970	384,772	Excellent	(Bonneville Dam fishway)
Coho, Columbia River	1970	80,116	Excellent	(Bonneville Dam fishway)
Pink Salmon, Columbia River	1970	150	Excellent	(Bonneville Dam fishway)
Chum Salmon, Columbia River	1970	209	Excellent	(Bonneville Dam fishway)
Sockeye Salmon, Columbia River	1970	70,763	Excellent	(Bonneville Dam fishway)
Shad, Columbia River	1970	329,275	Excellent	(Bonneville Dam fishway)
Steelhead, Willamette River	1970	408	Excellent	(Willamette Falls fishway)
Chinook, Willamette River	1970	7,558	Excellent	(Willamette Falls fishway)
Coho, Willamette River	1970	37,309	Excellent	(Willamette Falls fishway)
Pronghorn Antelope Harvest	1968	377	Poor	
Pronghorn Antelope Hunters	1968	666	Poor	

TABLE 2 — ESTIMATES OF BIG GAME IN OREGON — Some Examples

Species	Value Estimated	Estimate	Year	Sample Size	Method Sampling
Blacktail Deer	Bucks per 100 Does	34	1969	1,014 Bucks	CCC
	Fawns per 100 Does	62	1969	1,852 Fawns	CCC
Mule Deer	Bucks per 100 Does	14	1969	1,732 Bucks	CCC
	Fawns per 100 Does	65	1969	7,913 Fawns	CCC
	Spike Bucks	13%			
	Two-point Bucks	38%	1969	1,732 Bucks	CCC
	Three-point Bucks	17%			
	Four or more-point Bucks	32%			
Bitterbrush	Browsing utilization	61%	1968-69	149 Transects	Systematic
Roosevelt Elk	Bulls per 100 Cows	4	1969	122 Bulls	CCC
	Calves per 100 Cows	41	1969	1,268 Calves	CCC
Rocky Mountain Elk	Bulls per 100 Cows	6	1969	264 Bulls	CCC
	Calves per 100 Cows	46	1969	2,196 Calves	CCC
Pronghorn Antelope	Bucks per 100 Does	25	1969	293 Bucks	CCC
	Fawns per 100 Does	50	1969	594 Fawns	CCC
Blacktail Deer	Buck harvest	52,110			
	Antlerless harvest	10,250			
	Hunters	111,940			
	Hunter days	810,360			
Mule Deer	Buck harvest	67,770			
	Antlerless harvest	21,250			
	Hunters	163,260			
	Hunter days	617,040			
Roosevelt Elk	Bull harvest	2,990			
	Cow harvest	270	1968	24,000 hunters	Random
	Hunters	20,300			
	Hunter days	95,600			
Rocky Mountain Elk	Bull harvest	4,170			
	Cow harvest	1,980			
	Hunters	45,600			
	Hunter days	288,700			
Black Bear	Harvest	2,900			
	Hunters	10,100			
	Hunter days	37,500			

brood size, size distribution of trout in a lake, and species composition of fish in a reservoir.

Sporadic and CCC sampling can give meaningful data if the sample size is large enough and if it happens to be fairly representative. But the other methods are more efficient and more reliable.

Indexes are used whenever it is impractical to estimate or obtain a total count on some type of data. An index is a measurement which may be related to the desired data but the exact relationship is not known. For example, you may not remember how many people work in your office but you can tell me how many desks there are; or you cannot tell me how many acres you have in wheat but you can tell me how long it took you to plant it. These are indexes, and if my office has 30 desks and yours has 20, then my office has approximately $\frac{(30-20)}{30} = \frac{1}{3}$ more workers than yours. Of course, your office may have a whole lot more office boys who don't have desks, in which case the conclusion that my operation is 1/3 larger than yours is not a valid one.

Similarly, game biologists can obtain some idea of what is going on in the field by counting deer tracks along a certain dirt road, or elk droppings in a series of 1/1000-acre plots, or the number of pheasants seen over a certain 2-mile route. Each of these—total tracks counted, droppings per acre, and birds per mile—is a useful index that is related to the number of animals or birds in the area. Believe it or not, droppings per acre is one of the most useful indexes used by wildlife biologists.

As with the office employee example, indexes can often be misleading. Game Commission biologists have counted deer seen along hundreds of miles of pre-established census routes every spring since the late 1940s. In 1969 biologists counted 14.1 mule deer per mile in the Heppner area and 2.3 deer per mile in the Desolation area. Can we conclude there are 7 times as many deer in the Heppner area as there are in the Desolation area? In 1968 biologists counted 4.7

Game biologists can get an idea of what is going on by counting the number of pheasants seen on a certain two-mile route. Selection of the routes according to how typical they are may affect how good the sample is.

deer per mile in the Desolation area. Can we conclude we lost over half of the Desolation area deer between 1968 and 1969? Remembering that these are just indexes and that we do not know exactly how these indexes relate to the actual number of deer present, we know that we *cannot* reach these conclusions. We cannot even say for sure that deer are more numerous in the Heppner Unit than in the Desolation Unit.

The Desolation Unit may have proportionately more trees and brush so deer can stay out of sight and not get counted, like the office boys without desks. Or the Heppner biologist may have a particularly gregarious deer herd that likes to concentrate in open areas, so the Heppner biologist can see relatively more deer per mile.

All we can say with some degree of assurance is that there were more Desolation area deer present in 1968 than in 1969—this conclusion is based on the knowledge that 1968 and 1969 counts were over the same routes and under roughly similar conditions. We have real reason to doubt that the relationship between deer seen and deer present is direct, so that half as many deer seen does not mean half as many deer present.

WHAT IT ALL MEANS

Statistics are useful to summarize, describe, and explain the natural situation which faces Oregon's biologists. Ideally, these statistics are accurate total counts or estimates based on reliable procedures such as random sampling, complete census, or systematic unbiased data collection. Frequently, however, the biologist must make do with inefficient sampling methods and imprecise indexes since he simply cannot obtain the data required by more accurate methods. In these cases a biologist's training and experience come into play in helping him interpret and utilize the data before him.

WHERE WE'RE GOING FROM HERE

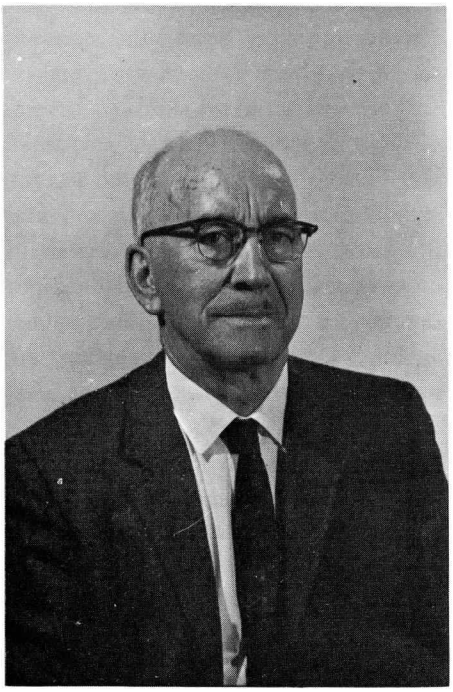
With increasing availability of new resource inventory techniques, increasing use of computers for data gathering and analysis, and increased skill and training of Oregon's biologists, we are now seeing great strides being made in the accuracy and efficiency of Oregon's fish and wildlife statistics. Already we have seen increasing use of scientific sampling procedures for measuring offshore salmon angling, Deschutes River angling, and statewide hunter success. Studies are being made of fish and wildlife populations to determine what techniques should be used to better measure their condition, habitat, and utilization. Indexes may be discarded when it is found they do not accurately reflect any relevant resource value.

Sure, statistics is (are?) dull—but it does (they do?) measure some interesting things.

TABLE 3 — INDEXES OF FISH AND WILDLIFE IN OREGON — Some Examples

Species	Value Indexed	Index	Sample Size	Year	Accuracy
Black-tailed Deer	Winter loss	0.4 deer/mile	1,029 miles	1969	Very poor
	Deer present	3.6 deer/mile	3,625 miles	1969	Poor
Mule Deer	Winter loss	0.2 deer/mile	2,526 miles	1969	Poor
	Deer present	12.0 deer/mile	3,808 miles	1969	Fair
Roosevelt Elk	Elk present	5.2 elk/mile	611 miles	1969	Poor
Rocky Mountain Elk	Elk present	7.5 elk/mile	3,071 miles	1969	Fair to good
Gray Squirrels	Squirrels present	0.6 sq./mile	112 miles	1969	Poor
Pheasants	Birds present	0.9 birds/mile	2,603 miles	1969	Good
Valley Quail	Birds present	0.8 birds/mile	4,134 miles	1969	Good
Mountain Quail	Birds present	0.2 birds/mile	2,364 miles	1969	Fair
Chukar Partridge	Birds present	2.6 birds/mile	1,834 miles	1969	Fair
Hungarian Partridge	Birds present	0.1 birds/mile	1,952 miles	1969	Poor
Blue & Ruffed Grouse	Birds present	0.2 birds/mile	2,159 miles	1969	Poor
Sage Grouse	Birds present	1.6 birds/mile	703 miles	1969	Fair
Doves	Birds present	2.7 birds/mile	1,556 miles	1969	Fair
Coyotes	Coyotes present	.019 coyotes/mile	8,904 miles	1969	Poor
Snipe	Birds present	.144 birds/acre	4,872 acres	1969	Poor
Coho Salmon	Spawning	34.4 fish/mile	80.35 miles	1968	Fair
Chinook Salmon	Spawning	19.9 fish/mile	17.55 miles	1968	Poor
Steelhead Trout	Fishing success	15 hours/fish	13,748 anglers	1967-8	Good
Rainbow Trout	Diamond Lake fishing success	2.5 fish/angler	105,891 anglers	1968	Good
Rainbow Trout	Metolius River fishing success	0.7 fish/angler	56 anglers	1968	Poor

Commissioner Amacher Resigns



John Amacher of Winchester submitted his resignation from the Game Commission in a recent letter to the Governor. Mr. Amacher, who has been on the Commission for 12 years, cited as the reason ill health which no longer permits him to serve in the manner he feels necessary.

Born in Switzerland, Amacher came to the United States after World War I and became a naturalized citizen. He was involved in a wide range of natural resource activities and has a park named after him adjacent to the North Umpqua River near his home. He was named Oregon's Citizen of the Year by the Portland Civic Club and Conservationist of the Year by the Oregon Wildlife Federation.

Amacher's philosophy as stated to Charles Stanton of the Roseburg News-Review has been, ". . . if I was to be a part of this country I should do what I could to help keep it great." His efforts as a conservationist have reflected this. He has made a great contribution to the resources and people of Oregon as a member of the Game Commission.

Governor Proclaims Earth Week

Governor Tom McCall has joined the governors of the other 49 states in proclaiming April 18 through 24 "EARTH WEEK."

This third week in April will annually be a time when citizen conservation groups, schools, and government resource agencies will promote understanding, appreciation, and recognition of man's interdependence with nature.

According to Governor McCall, "Our overriding goals should be to stop polluting our environment; to bring vitality and health to our renewable resources of water and air, soil, and wildlife; and to make the most prudent use of the nonrenewable resources of the earth.

"Oregon's goal of protecting and enhancing our environment and maintaining the vaunted livability we cherish needs annual restatement and rededication."

EARTH WEEK . . . April 18-24.

CHICKAREE OR PINE SQUIRREL

Few people who have been in the woods very much have not experienced the raucous scolding of the chickaree or red or pine squirrel. These saucy tree dwellers are found in most of the timbered areas of Oregon. They make their home in hollow trees or leafy nests built among the branches of trees.

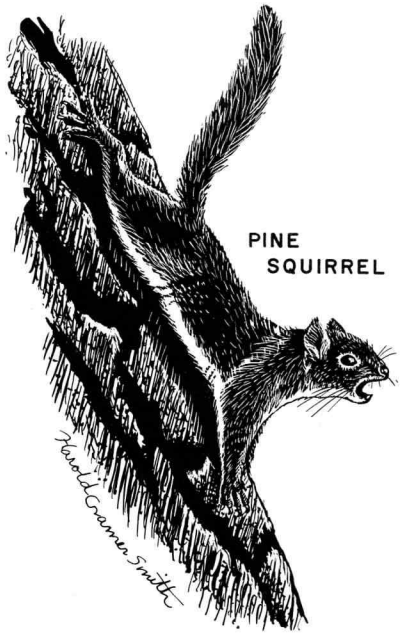
The color of the chickaree easily distinguishes it from other members of the squirrel family. Upper body parts are brownish red and the lower or under part of the body is bright orange. These colors vary somewhat depending on what area the squirrel is found in, with some varieties almost white on the underparts; but the basic pattern is the same. The back is quite dark and the underside or belly is light.

Adult chickarees may weigh about one-half pound and are up to one foot long. They are the only reddish-colored squirrel regularly found in trees. Their lack of stripes and noisy call distinguish them readily from the chipmunks that occasionally go into low trees.

Like the gray squirrel, the chickaree is active throughout the year and feeds largely on seeds, cones, and other vegetable matter. The young are born at various times during the summer and there are usually four per litter.

The chickaree seldom gets into much trouble with nut growers since it tends to stay in more wooded areas, but it is often accused of eating numerous bird eggs. Enemies of the chickaree include mink, marten, bobcat, and various hawks and owls. Also the domestic cat, gone wild, takes a goodly number of the young and unwary animals.

Though they vary in size and coloration, chickarees have one thing in common. They are the noisemakers of the woods. Their loud chattering cry early in the morning or to warn of intruders is well known to anyone who has been hiking or camping.



OREGON STATE GAME COMMISSION
1634 S.W. ALDER STREET
P.O. BOX 3503
PORTLAND, OREGON 97208