Proceedings of the 49th
Western Forestry Conference

December 10, 11, 12, 1958

San Francisco, California

A Conference of Private, State, Governmental Foresters of Western United States and Canada. Loggers, Engineers, Forest Industry Managers, and Men Interested in Forest Management, Forest Protection, the Business of Forestry and the Development of the Natural Resources.

WESTERN FORESTRY AND CONSERVATION ASSOCIATION
(Founded 1909)

712 U. S. National Bank Building

Portland 4, Oregon

THURSDAY AFTERNOON

(The Conference was called to order by President Reed at 2:05 p.m. and proceeded as follows:)

MR. REED: Gentlemen. We have come to the part of our program which is an annual occurrence at our conferences, in which we announce to you the prize winners of the essay contest, which is carried on through the various schools of forestry in the Western States and British Columbia. I would like at this time to ask Mr. Reid Kenady and Dean Gordon Marckworth of the University of Washington, and Mr. Robert Ziemer and Dean Henry Vaux of the University of California to come to the speaker's platform.

(gentlemen come forward)

MR. REED: As you know, with any contest of this type we have a lot of excellent essays. The judges have a difficult job, but eventually they determine that here is a Number 1 and Number 2 choice. I personally would not relish the job of determining between the Number 1 and Number 2; but the job had to be done.

The second best essay was submitted by Reid Kenady of the University of Washington. I will ask Professor Marckworth to take over and tell us a little about Reid Kenady.

PROF. MARCKWORTH: Thank you, Mr. President. Members of the Conference. I'm very happy to be here for two reasons today. One is to present Reid Kenady and the other is that six years ago when the Conference was held here, our student was the first-place winner and I was unable to be on hand. However, my friend Charlie Cowan did an excellent job.

There is a good deal I could say about Reid Kenady. As you can see, he was born. You can't see though that he was born in Indiana. But his folks had the presence of mind to leave Indiana and come to the State of Washington where he received most of his formal education.

He spent four years in the Air Force, as he said, "fighting the battle of Cape Cod." I imagine that's a pretty pleasant way to spend four years in the Air Force.

Reid is married. He has two children. two girls, a new daughter was born this fall. He has done considerable in the way of achievement. At the present time he is President of the Forest Club. He is the recipient of a Crown Zellerbach scholarship. He was elected to membership in Xi Sigma Pi and in Phi Sigma. He was a teaching assistant last year. This year he is a research assistant doing some research work in cooperation with the Atomic Energy Commission and spent last summer in the islands in the South Pacific.

Mr. Chairman, I'm very happy to present Reid Kenady to you.

(applause)

MR. REED: Reid Kenady, on behalf of the Western Forestry and Conservation Association, it is my privilege to present to you the second prize for the essay contest of 1958 with good wishes from all of us.

(award is presented-applause)

MR. KENADY: I just wish to express my thanks to Dean Marckworth for the wonderful introduction. Part of it was true. My thanks also to President Reed and the members of the Association who have made this trip possible for me, and the presentation of this award. Thank you.

(applause)

MR. REED: Being a native Californian and since we are now holding our 49th Conference in California, it is with extreme pleasure that I can announce that the Number 1 essay winner this year is from the University of California. I would at this time like to welcome to the speaker's platform Dean Henry Vaux of the University of California School of Forestry who will introduce to you Robert Ziemer.

DEAN VAUX: Thank you, Chairman Wally. It's a real source of gratification to me too to have a chance to participate this afternoon in this Western Forestry prize essay contest award. I think probably every Forestry School head in the country would agree that the one comment that we receive most from alumni, from people who employ foresters, and kindred qualiffied sources, is that continually we need to do more and more to improve the ability of our forestry graduates in the use of written English. Not that their written English is poor, you understand, but that there is always very substantial room for improvement. I think the Western Forestry prize: essay contest has been playing a very important role in calling the attention of students to a problem which perhaps some of them would have a little bit rather overlooked.

And, of course, it's particularly gratifying to see the interest of our students in this contest and to see one of our men compete successfully in the contest this year.

The winner of the first-prize essay is Mr. Robert R. Ziemer of the class of 1959 at the University of California. Mr. Ziemer was born in Oklahoma. An Oklahoman and an Indianian. I suppose this is a commentary on the sociology of the Pacific Coast today.

He, like his colleague Mr. Kenady, soon found there were greener pastures in the West and is now a resident of Fullerton, California. He entered the University of California as a junior student, having taken his preliminary work at Fullerton Junior College. Bob Ziemer too is a member of Xi Sigma Pi, the national forestry academic honorary fraternity. He is Vice President of our Forestry Club. He is co-editor and business manager of our student annual, *Timber*, and a vice president for California of the Association of Western Forestry Clubs.

In addition to his academic work and his extra-curricular activities, he's been picking up some valuable field background with summer assignments for the Forest Service in fire protection work and timber management and other activities. It's a very real pleasure for me, and I take a lot of pride in presenting to you, Bob Ziemer, who will eventually deliver to you his essay on a subject which is of great interest, I know, and I'm sure you'll find it worth while, "The Problems of Logging on Forest Lands of High Recreational Value." Bob?

(applause)

MR. REED: Bob, it's my extreme pleasure on behalf of the Association to present you with the Number 1 essay award check, and we will be looking forward to hearing you read your essay.

(award is presented) (applause)

MR. ZIEMER: Thank you very much, Dean Vaux. Mr. President, members and friends of the Association. I would at this time like to express my sincere appreciation for being granted the opportunity to present my essay before you today.

Prize-Winning Essay

LOGGING UPON FORESTED AREAS OF HIGH RECREATIONAL VALUE

By Robert R. Ziemer
University of California

Once again the sound of the logger's axe breaks the silence of the southern California swamp. This is a sound which has been heard in these forests very little since the turn of the century. Actually there had never been a great deal of logging, except by the early inhabitants for local use. The mountains were disliked by the early Spanish Californians because the lower elevations were covered with dense chaparral, which made poor pasture land for cattle, as well as undue hardships for the Vaqueros. Thus, when the Mexican governors were making grants to fortunate individuals, there was little encroachment upon the mountain lands.[1] As a result these mountains, over a period of time, came to be regarded by the public as areas which are more or less dedicated for watershed and recreational use. The people have long felt that the forests of these mountains were reserved for their exclusive use.

To the public, these mountains afford an excellent and beautiful background for weekend picnics and Sunday drives. To a forester, however, the clothing of these mountains give the impression of a stand of over-aged trees which are subject to high mortality from the attack of insects. The recreationalist's evaluation of a forest is based upon appearance, attractiveness, and general impression. They do not appreciate maturity, high risk, stagnation, clear bole, or growth rate per acre per year.

As a direct result of the early logging practices of the United States, a certain amount of sentiment has been built up concerning logging; especially in areas which are reserved for recreational or wilderness use. Certain conservation groups have developed a philosophy of giving a free rein to nature's forces of destruction and renewal, and ignore completely the entrance of man upon the scene with his opposing role of destruction by fire and protection for recreational and aesthetic use. This philosophy can be summed up by a quotation from the publications of leading conservation groups of the nation in which they advocate that "snags, as well as beetle-infested and down trees have been a part of this environment for hundreds of years and that there is now need for man to attempt to improve upon it!"[2] and that these areas are "best managed when left unmanaged."[3]

Consequently, before a management plan can be accepted by the public, they must be educated to the principles of forest management. It is the forester's job to prove that timber harvesting and recreational values can be coordinated.

Economic Justification

The problem of the coexistance of forest recreation and forest management is becoming increasingly complex and will continue to become more pressing in the near future. This is due to the rapidly expanding population, linked with a shorter work week and more rapid transportation. As a result more people each year are spending their leisure time in the forested areas of the nation. The need for forest recreation is seen in the 40 million visits to national forests, 48 million visits to national parks as well as millions more to state parks in 1955. This represents a 125% increase in forest recreation on the national forests since 1946.[4]

At the present time, the forests of southern California support perhaps the heaviest recreational pressures of any national forest or recreational forest of the nation. These forests are not heavily timbered, but there are probably no forest lands in the world with a higher economic value. It would be next to impossible to set a dollar value upon the 775,000 acre-feet of water which is shed from these mountains annually[5], let alone upon the value of these areas to the near 10,000,000 people who visit them annually, upon the great num ber of organization camps, and upon the more than 10,000. summer homes in the area.[4]

This appears to be just a sample of what is to be expected in forest recreation throughout the nation in the foreseeable future. The recreational use of public forest land in California has been projected to 1965 in Table 1.

TABLE 1

Increase in uses in 1965, as compared with 1955 [1]

	Percent
NATIONAL PARKS	
Yosemite	38
Sequoia-Kings Canyon	71
Lassen Volcanic	80
NATIONAL FORESTS	
Camp grounds	55
Picnic areas	80
Winter sports areas	71
Organization camps	50
Hotels and resorts	95
Recreational residences	54
Wilderness areas	106
Other forest areas	106

If these trends are to continue, there must be a corresponding change in the eyes of the public toward the compatibility of forest utilization and recreational values, or the lumber industry will not survive. This change will not occur spontaneously, but only through public education and ac-ceptance of the objectives of feasible log-ging operations upon recreational areas.

OBJECTIVES OF MANAGEMENT

The basic objective of managing timber stands for recreation is to protect, pre- serve, and improve the stand, so that it will best serve the recreational use. This ob- jective can probably be accomplished through first making an intelligent zoning of all public forest and park areas as to possible management plans which may be

[1]Zivnuska, John. "*A projection of the recreation use of public forest areas in California to 1965*." Forest Science, 3. p. 217, Sept. 1957.

applied to specific areas. An attainment of the objectives, in general use recreation areas; would entail:

1. The removal of trees which are a hazard to human safety, such as snags potential windfalls.
2. The removal of trees which are insect-infested or diseased and are consequently a hazard to the safety of the rest of the stand or adjoining stands.
3. The removal of trees which will probably become insect-infested or diseased, and the removal of which will benefit the future stand, provided the benefit to the future stand outweighs the present loss of the tree.
4. The propagation of young trees to replace those which were lost in the operation.
5. The removal of any trees must be accomplished with minimum damage to the remaining trees and the surface.[4]

The basic concept of timber management for recreational use holds, regardless of the use to which the area is designated. However, timber management is especially difficult in wilderness and wild areas where virgin, conditions should prevail. In a strictly technical sense, a forest cover is not necessary in a wilderness, but people do not find beauty or enjoyment in an area which has no cover. Perhaps people find this permissible in small tracts, because it would add to the variations of the cover, but not in entire drainages which have been devastated. A consideration must a made in these areas whether fire, insects, diseases, and old age can be managed without destroying the wilderness values at stake. This problem arose in 1957 in the Sequoia-Kings Canyon Na-tional Park where a beetle infestation oc-curred in epidemic proportions that "could radically effect the composition of a superlative natural forest stand"[6] which the National Park Service was obligated to preserve and protect. The result was a sanitation-salvage operation in which 4 million bd. ft. of timber was logged in 1957 and an estimated 6 million bd. ft. was to be logged last summer in the Sequoia National Forest and National Park. Before lagging began, the public was fully informed of the objectives and consequences involved and as a result accepted it as a necessary measure. Public education, as previously stated, is necessary if any utilization or salvage program is to be accepted upon areas which are used for recreational purposes.

The Operation

The handling of stands for future recreation will require a strict adherence to the objective as well as careful planning. The type and condition of the stand, the probable lapse of time between cutting, and the type of use must be considered. The objective must be to leave a residual stand which will serve the purpose. Consequently mature and over-mature trees, as well as sound, large trees which will probably live for years and which are not dangerous must be left.

A type of marking used in eastern Oregon timber types which are comparable to southern California proved to be very successful. The crew was composed of two markers and a tally man. Only high risk trees were marked. These averaged 1.2 trees or 1,606 bd. ft. per acre. The tally man ran compass, tallied marked trees, and prepared a map showing the location of each marked tree. Copies of this map were distributed among the logging crew; which, as a result, reduced the cost of sales supervision, falling, skidding, and scaling, and led to a more orderly removal of the marked trees. The two markers worked a 2 1/2-chain strip on each side of the tally man. This crew marked an average of 128 high risk trees or 174,000 bd. ft. per day and covered 108 acres.[7]

Because of the usual low volume per acre encountered in a sanitation-salvage, the operation, in order to be successful must be highly mobile. Such an operation was started in the Barton Flats area of southern California in 1953. Prior to 1953 the method of handling the beetle infestations was by direct control, in which the infested trees were felled and treated. This is a very costly operation, costing roughly $20 per tree. In 1951 the estimated control cast reached $22,000.8 As a result the Forest Service became interested in establishing a sanitation-salvage operation upon this area. In an effort to interest an organization that could handle such an operation, the Forest Service auctioned 7 million bd. ft. of timber in the Barton Flats area in 1953, which was bought by the Big Bear Timber Company. The operation carried on by this Company is typical of the type which is applicable to the southern California forests as well as to east side Sierra and eastern Oregon forests and will become more prevalent as recreation pressures increase.

An estimate of the original stand composition in the Barton Flats sale was as follows:[1]

Item	*Bd. ft. per acre*
All live saw timber - - - - - -	12,320
Volume in high risk	
Risk IV - - - - - - - - - - - -	800
Poor risk III - - - - - - - - - -	720
Good risk III - - - - - - - - - -	830
Total - - - - - - - - - - - -	2,350

Upon public lands only risk IV trees[2] were cut along highways and in heavily used camps and picnic areas. Poor risk III trees were taken in the more remote areas. The average intensity of cut was 1 to 3 thousand bd. ft. per acre. Upon private lands, in the same area, the average cut was 2 to 5 thousand bd. ft. per acre. Both risk III and IV were cut, with mechanical risk trees, mistletoe infested trees, fire scorched trees, etc., also being taken. The result was a more complete job of management being done upon the private land. The stumpage ran higher on public land, $15 to $20 per thousand, while being $8 to $15 per thousand on the private land. Slash disposal constitutes a 100'/o pile and burn operation, or a lop and scatter procedure with chipping being required along roads for 300 feet, which makes an additional cost of $4 to $5 per thousand. Logging costs are an estimated 20% higher than normal, being $20 to $30 per thousand, including hauling. The company is able to log 50 to 75 thousand bd. ft. a day using mobile equipment composed of a truck-crane loader with D-7 and D-8 tractors.[10]

As a result of this operation, 11.9% of the original stand volume was cut, which amounted to 1.7 trees per acre from a total of 14.8 trees per acre, or 11.5% of the total. The residual risk trees amounted to 880 bd. ft. per acre, which is close to the original estimate of 830 bd. ft. in the good risk III class.[10]

Similar operations upon recreational forests have occurred throughout the nation. In the Custer State Park of South Dakota, a very strict set of logging regulations have been adopted which may be applicable to other parks or areas that are heavily used for recreation. All logging roads are constructed so that they may be used for fire protection and administration. Slash must be piled and burned along roads and in draw bottoms, while it is lopped and scattered on the slopes and ridges. No skidding is permitted, except with horses, to prevent damage to reproduction and to the soil cover. All snags must be felled and logging is not permitted during high fire danger or periods of soft ground conditions.

In dealing with sanitation-salvage material the incidence of stain, especially in the smaller ponderosa pine logs, is far greater in insect-killed than in fire-killed timber. As a result, what would have been "select" boards either becomes "stained select" of lower value, or drops to "No. 4 common".[7]

As a result of the increased cost o£ logging and the probable lower grades, at least in smaller logs, there is a need of lower than normal stumpage prices, if this type of operation is to survive in certain localities.

Results

After a sanitation-salvage operation is completed, there is available upon the area a good road system which can be utilized for subsequent control action, either by direct or indirect measures, de-pending upon the concentration of trees requiring treatment. The observations fol-lowing salvage operations in various areas show large reductions in the number of trees subsequently infected Upon the Bar- ton Flats area in 1955, one year after cut-ting, 69 infected trees were observed on the 5,500 acres, which represents 12.6 bd. ft. per acre. In 1956, two years after log-ging, 86 trees were observed to be in-fected, which represents an increase of 15 bd. ft. per acre. These losses represent over a 90 % reduction annually in loss £ol lowing treatment, as compared to losses prior to treatment.[12]

At Black's Mountain Experimental Forest it was demonstrated that a sanitation-salvage cutting reduced losses over a ten-year period by greater than 70%. The annual reduction ranged from 67% to 92%. Consequently, in areas of eastside type similar to Black's Mountain, about 1,100

[1] Halt, Ralph C.. *"Sanitation-Salvage Controls Bark Beetles in Southern California Recreation Area."*Journal of Forestry,,January 1958, p. 10-11.

[2] Risk ratings for Ponderosa and Jeffery Pines in eastside forest areas of California as described by salmon and Bongberg.[9]

bd. ft. per acre of high risk trees may be expected at the second cutting fifteen or twenty years after a sanitation-salvage operation in which risk III and IV trees are removed.[13]

The results obtained in these two areas demonstrate a feasible answer to the problem and cost of control of insect infestations in eastside timber types and its application to present and future recreational areas. Some individuals fear that if logging is permitted upon recreational areas now it will set a precedent which will be applied directly to other areas. This fear is not well based, because the cutting of trees upon recreational areas presents individual problems, in that the stands are rarely dense enough to enable the removal of trees without inflicting damage upon the recreational values to some extent. The recreation manager generally has only a small area to care for; if he makes an error in his cutting policies his recreation area may be destroyed. Consequently, each area must be treated as an individual problem, in which only the basic concepts of sanitation-salvage become policy. The end result of this flexible policy is a forest of green trees with no snags, no decadent trees, and a reduced fire hazard. Forest recreation benefits as a result.

Future Possibilities

As recreational pressures increase there will be a corresponding movement toward closer utilization of trees, as well as much cleaner logging procedures than those presently-in use. This will come with increased technology in the lumber industry. Recently entire tree logging has been applied in Canada, Russia and the United States. Perhaps better, slash can be chipped at the roadside and the chips sold or used to mulch trails or roads. Close utilization is not only good practice, but achieves a desirable aesthetic result.

Biological control of forest pests, in which natural enemies of injurious forest insects are introduced to areas of epidemic conditions, is a possibility which will require further research into the ecology of the forest pests.

Helicopter logging is a new facet with which little work has been done at present. However, experimental trials have been conducted recently. A study of the results show definite possibilities of applying this to remote regions or wilderness areas. The cost of the operation seems to be comparable, or actually lower, than the road building costs in some areas. The trees are felled, bucked, and then removed from the area to the landing by helicopter. The result is a cleaner operation in which no roads or skid trails mar the site.

Summary

A timber stand for recreational use is managed in order to protect, preserve, and improve the stand and its value. If this basic requirement cannot be met, the area should be subjected to a different management regimen,or none at all.The problem of recreational management will be enlarged as the population pressures in these areas increase. Consequently, a problem which faces foresters now is how to conduct the management of an area, so that it will be compatible with recreational values. Recently, there have been several logging operations in areas upon which recreation is the primary use. The foremost of these operations is found in the Barton Flats area of southern California. The logging in this area has been exemplary.This associated with public education as to the objectives of such an operation has led to a general acceptance of this type of logging. Forest recreation offers one of the finest mediums for selling good forestry practice to the general public, if the salesmanship is of such a caliber that the public will want to buy.

(applause)

MR. REED: Thank you very much, Bob, for not only a fine paper but a very excellent presentation.

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[3] Kilgore, Bruce M. *"More Salvage at Olympic."* National Parks Magazine. Oct.-Dec. 1957. Vol. 31 No. 131. p. 152.

[4] Sieker, John. *"Management of Timber Stands On Recreation Areas."* Proceedings; Society of American Foresters' Meeting: Converting the Old-Growth Forest, Portland, Oregon, 1955. pp. 106-109.

[5] Rosecrans, W. S. *"Logging in Recreational Forests."* American Forests. May 1957. pp. 20-22.

[6] Klotz, Alvin. *"Time Bomb in High Sierras."* American Forests. March 1958. p. 50.

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