



Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

**WILLAMETTE BASIN
COMPREHENSIVE STUDY**
Water and Related Land Resources



MAIN REPORT

WILLAMETTE BASIN TASK FORCE - PACIFIC NORTHWEST RIVER BASINS COMMISSION

1969

EUGENE, OREGON, SUNDAY, DECEMBER 10, 1972

It's 2002 A.D.: Better have your forest passbook ready

By BOB BURTON
Of the Register-Guard

It is the year 2002. You have a few days off, and you would like to visit the Willamette National Forest. So you take a look in your recreation coupon book to see what you are allowed this year.

Hunting? No, that's out, you went hunting two years ago and you are only allowed to go hunting once every tenth year.

How about fishing? No, you went once last year and it will be two more years before you're allowed to go fishing again.

It sounds like something out of a science fiction movie, but that's the way it might be 30 years from now in the Willamette National Forest (WNF), says Richard Gale, a University of Oregon associate professor of sociology and a member of the Eugene Group of the Sierra Club.

Gale recently discussed possible limits to recreational use of the WNF as part of a series on the optimum level of population in the Pacific Northwest, sponsored by the university's Environmental Studies Center and Graduate School. He painted a bleak picture of the future for those who love the out of doors.

Study based on predictions

Last summer, while working on special studies for the supervisor's office of the WNF, Gale became interested in the future of that area. He decided to do a study based on predictions of the population level and recreational needs of the Willamette Valley in the year

capacity is 20 visits per acre of lake or reservoir per year.

- 1,840,000 visits to Class IIIb sites. To qualify as a Class IIIb site a free-flowing river or stream must have a one-quarter-mile corridor of growth on both sides. The WNF estimates that it has 800 miles of rivers and streams of which 460 miles currently support fish. Uncertain that all of the miles of rivers and streams would qualify, Gale only used those that supported fish. The BOR capacity is 12.5 visits per acre of corridor per year.

- 900,000 visits to Class IV sites. The WNF has 36,143 acres of outstanding natural areas and the BOR capacity is 25 visits per acre per year.

- 254,744 visits to Class V sites. The WNF has 254,744 acres in wilderness and the BOR capacity is one visit per acre per year.

Using the predicted population of 930,000 for the year 2002, Gale then worked out the number of 8-hour visits needed in the WNF to give the valley residents in that year the number of visits they needed for an optimum quality of life as defined in "Ecology and the Economy."

At this point Gale made two additional assumptions. One was that out of the total number of optimum visits available in each class to valley residents, one-half would be made to the WNF. The other was that one-quarter of the carrying capacity of the WNF would be allotted to non-valley recreationalists, whom he considered to be



"Sorry . . . you fished once last year!"

for Botanical Documentation

2002 to determine whether the WNF could support those needs.

In an attempt to determine the number of people who would be using the WNF in the year 2002, Gale used a study entitled, "The Willamette Valley: Choices For The Future."

In that study, prepared during the last two years for the Willamette Valley Environmental Protection and Development Planning Council by a San Francisco consulting firm, the predicted population of the Salem, Corvallis and Eugene areas for the year 2002 is 930,000.

Gale assumed people from those three areas would be the most likely to use the Willamette National Forest.

Gale then used a study published in 1972 by the Urban and Rural Related Lands Committee of the Pacific Northwest River Basins Commission, to determine the recreational needs of a valley resident in the year 2002.

In that report, entitled "Ecology and the Economy," one of the criteria for optimum livability for a valley resident in the future is the availability of 135 recreational occasions each year, Gale said. These include:

- One hundred 3-hour visits to Class I sites, which are defined as urban parks, cultural, recreational and sports centers, and open space for such activities as jogging and bicycle riding.

- Four 8-hour visits to Class II sites, which are defined as state and county parks, and Bureau of Land Management and national forest developed recreational sites.

- Twelve 8-hour visits to Class III sites, which are defined as multiple-use management areas.

- Eight 8-hour visits to Class IIIa sites, including four 8-hour visits to hunting and wildlife observation areas and four 8-hour visits to fishing areas, which are defined as lakes and reservoirs.

- Two 8-hour visits to Class IIIb sites, which are defined as free-flowing rivers and streams.

- Six 8-hour visits to Class IV sites, which are defined as outstanding natural areas.

- One 8-hour visit to Class V sites, which are defined as wilderness areas.

- Two 3-hour visits to Class VI sites, which are defined as historic and cultural sites.

Gale then used Bureau of Outdoor Recreation (BOR) statistics which designate a "carrying capacity," the number of eight-hour visits one acre of land in a class can support per year without damage to the land or without changing the nature of the experience, to determine the number of 8-hour visits the WNF could support annually in class I through V.

He arrived at a total capacity for the WNF of 5,235,944 8-hour visits, with the breakdown as follows:

- 450,000 visits to Class II sites. The WNF has 1,797 developed campsites and the BOR capacity is 250 visits per acre per year.

- 1.3 million visits to Class III sites, which equal the total acreage of commercial timberland outside of dedicated areas at the BOR capacity of one visit per acre per year.

- 40,000 visits to Class IIIa hunting and wildlife observation area sites. The WNF has not formally designated areas for this, but Gale assumes 20,000 acres of high country could be managed this way with a BOR capacity of two visits per acre per year.

- 451,200 visits to Class IIIa fishing sites. The WNF has 22,560 acres of lakes and reservoirs and the BOR

people from Portland and from out of the state.

Gale then developed a chart. He listed in the first column the number of optimal visits a valley resident should be able to make to the WNF in the year 2002, and in the second column the actual number of visits an individual could make given the carrying capacity of the WNF.

| | Optimal Visits | Actual Visits |
|--------------------|----------------------|-------------------------|
| Class II | two per year | one every third year |
| Class III | six per year | one per year |
| Class IIIa-hunting | two per year | one every 10th year |
| Class IIIa-fishing | two per year | one every third year |
| Class IIIb | one per year | one per year |
| Class IV | three per year | one every year and half |
| Class V | one every other year | one every fourth year |

Gale said the important thing is not so much the actual figures, since they are based on predictions, assumptions, averages and someone's concept of the optimum quality of life, but the idea these figures represent.

If we do come close to that population level and the carrying capacity of the WNF remains the same, we are going to be faced with restrictions on our recreational use of the Willamette National Forest, and some day we might find ourselves carrying coupon books which regulate our recreation, he said.

Al Sorseth, recreation staff officer of the WNF, agreed with Gale that there will be restrictions in the future. "The important thing is not the figures, but the concept," Sorseth said.

"It looks like we are going to have that kind of population in the future," he said. "Ten years ago our projections for yearly use of the WNF looked completely crazy and now we find that we were conservative on population. It could be even more alarming than some people are saying. We are going to have the additional population, and we aren't going to have another acre of land."

Acquisition not solution

Sorseth said he did not think a solution to the problem was acquisition of more federal land, since the general public appears to be against that idea at this time.

Gale also said there seemed to be no easy solution, but he did suggest some possible partial answers.

"One possibility," said Gale, "is to take a closer look at the carrying capacities set up by the BOR. It may be that some of them are too low. Another possibility is changing some of the existing acreage in classes that have low carrying capacities and developing that acreage, so it will fall in a class category that has a higher capacity.

"For example," Gale said, "you can change a wilderness area into a developed recreation area and increase the carrying capacity from one eight-hour visit per acre per year to 250 eight-hour visits per acre per year. But if you do this you are losing what I feel is land that is unique to the WNF, and once you make this change you can't change it back to wilderness."

Gale said current activities in the WNF, such as logging and road construction, would have direct impact on the future. "If you allow logging all the way down to a stream, you are taking land that once produced 12.5 visits per acre (Class IIIb), and turning it into land that produces one visit per acre (Class III). This reduces the carrying capacity for future use."

Gail, who was 35 years old last Sunday, said he hoped that when he retired on that date in 30 years, he could celebrate his 65th birthday in at least a Class II area.

The "Optimal Recreationist" - - Optimum Livability

- Enjoys total of $1\frac{1}{2}$ active participation and 1 spectator or sightseer occasion per week - 130 occasions per year (cost per \$3 (excluding trans.) or \$400 year)
- Has roughly 1 acre of open space within 100 miles (access not ownership) (total open space cost \$320 per year)
- Has total transportation of 10,000 miles/year (total cost \$700/year)
 - 4,000 private (ground or air) at 10.5¢/mile
 - 2,500 public ground at 4¢/mile (round-trip commute totalling 5 miles a day would use half of this -- existing Lane Mass Transit fare is $2\frac{1}{2}$ times this cost)
 - 2,500 public air at 7¢/mile
- Recreational visits to different types of areas (distribution of 130 occasions)
 - 100 3-hour visits to Class I sites (urban parks, cultural, recreation, and sports centers, open space (presumably near urban area)) annually (equals about twice a week - Hendricks Park, Eugene Symphony, jogging, bike ride, football game, etc.)
 - 4 8-hour visits to Class II sites (state and county parks, BLM and NF developed recreation sites) annually (equals one weekend overnight camping trip and one ski trip)
 - 12 8-hour visits to Class III sites (Multiple Use Management Areas) (equals 1 camping trip along Smith River, several Sunday drives, picnic on Weyerhaeuser lands, hike to Verdun Rock)
 - 4 8-hour visits to Class IIIa sites (hunting and wildlife observation areas) (equals 1 day visit to Wildlife Refuge near Corvallis, overnight to Klasmath Falls area, 1 day hunt in Elk Range on Willamette National Forest)
 - 4 8-hour visits to Class IIIa sites (fishing areas- lakes and reservoirs) (equals 1 day at Fern Ridge, 1 overnight at Gold Lake, 1 day at Pamela Lake)
 - 2 8-hour visits to Class IIIb sites (free-flowing rivers and streams) (equals day hike along McKenzie River, picnic along Willamette River)
 - 6 8-hour visits to Class IV sites (outstanding natural areas) annually (six) (equals 1 2-day trip to Crater Lake, 1 visit to Oregon Dunes National Recreation area (day only), 1 day visit to Waldo Lake)
 - 1 8-hour visit to Class V sites (Wilderness Areas) annually (equals 1 day hike from McKenzie Highway to Collier Glacier)
 - 2 3-hour visits to Class VI sites (historic and cultural sites) (equals 1 visit to Dee Wright memorial on McKenzie Highway and 1 visit to Cape Perpetua Visitor Center)

The Recreational Carrying Capacity of the Willamette National Forest

(Based on WNF data in the 1971 Annual Report. Carrying capacity per acre is based on Bureau of Outdoor Recreation (BOR) estimates given in Ecology and the Economy.)

(All figures in 8-hour visits.)

- 450,000 visits to Class II sites (WNF has 1,797 developed campsites - we are assuming 1 acre per campsite, although NF standards are 2.5 campsites per-acre -- BOR capacity is 250 visits/acre/year)
 - 1,300,000 visits to Class III (Multiple Use Management Areas) (This is equal to total commercial timberland outside of dedicated areas. BOR estimates carrying capacity at 1 visit/acre/year.)
 - 40,000 visits to Class IIIa (Hunting and Wildlife Observation Areas) (WNF has no formally designated areas -- we assume that 20,000 acres of high country may be managed in this way. BOR estimates carrying capacity of 2 visits/acre/year.)
 - 451,200 visits to Class III a Fishing sites (lakes and reservoirs) (WNF has 22,560 acres of lakes and reservoirs -- BOR estimate based on current use is 20 visits/acre of lake or reservoir/year)
 - 1,840,000 visits to Class IIb (Free-flowing rivers and streams) (WNF estimates 800 miles of rivers and streams (at least 2 feet wide and 1 foot deep), of which 460 miles currently support fish. BOR estimates 1/2 mile corridor on both sides, or 320 acres per mile. Carrying capacity is 4000 visits/mile/year or 12.5 visits/acre of corridor/year. Under these use standards, it is very doubtful that all 800 miles will qualify -- we will use miles which currently support fish.)
 - 900,000 visits to Class IV (outstanding natural areas) sites (WNF has total of 36,143 acre - 22,000 in Waldo Lake Recreation Area, plus Quaking Aspen Swamp, Lower Mountain, etc. -- BOR estimate is 25 visits/acre/year)
 - 254,744 visits to Class V (Wilderness) sites (WNF has 254,744 acres in Wilderness -- BOR estimate is 1/2 24 hour visit/acre/year or, roughly, 1 8-hour visit/acre/year)
- 5,235,944 8-hour visits capacity (excluding possible visits to Dee Wright Observatory - Class VI area)
- 2,000,000 12-hour visits is approximate current use level
- 3,235,944 is current visitor-day "surplus"

5,000,000 visitor-days is prediction for 1981 (according to 1971 WNF Annual Report)

Ranking of BOR Carrying Capacities for Recreational Lands (for lands on the WNF)

- 250 8-hour visits/acre/year Class II (Developed recreation areas)
- 25 8-hour visits/acre/year Class IV (Outstanding Natural Areas)
- 20 8-hour visits/acre/year Class IIIa (Lakes and reservoirs)
- 12.5 8-hour visits/acre/year Class IIb (Corridors of free-flowing rivers and streams)
- 2 8-hour visits/acre/year Class IIIa (Hunting and wildlife observation)
- 1 8-hour visit/acre/year Class III (Summary for Class III - areas not in special sub-category) (Multiple Use Management Areas)
- 1 8-hour visit/acre/year Class V (Wilderness)

| (All figures are 8-hour visits) | Total Optimal (Valley Res) | WNF Optimal (Valley Res) | WNF Allocation to Non-Valley |
|---------------------------------------|--------------------------------|-----------------------------|---------------------------------|
| Class II (Campgrounds) | 3,720,000 | 1,860,000 | 112,000 |
| Total Demand (1,972,000) | minus WNF Capacity (450,000) | = | 1,522,000 <u>short</u> |
| Class III (Multiple Use Management) | 11,160,000 | 5,580,000 | 325,000 |
| Total Demand (5,905,000) | minus WNF Capacity (1,300,000) | = | 4,605,000 <u>short</u> |
| Class IIIa (Hunting & Wildlife) | 3,720,000 | 1,860,000 | 10,000 |
| Total Demand (1,870,000) | minus WNF Capacity (40,000) | = | 1,830,000 <u>short</u> |
| Class IIIa (Fishing - Lakes & Reserv) | 3,720,000 | 1,860,000 | 112,000 |
| Total Demand (1,972,000) | minus WNF Capacity (451,200) | = | 1,521,000 <u>short</u> |
| Class IIIb (Free-flowing rivers) | 1,860,000 | 930,000 | 460,000 |
| Total Demand (1,390,000) | minus WNF Capacity (1,840,000) | = | 450,000 <u>surplus</u> |
| Class IV (Outstanding Natural Areas) | 5,580,000 | 2,790,000 | 225,000 |
| Total Demand (3,015,000) | minus WNF Capacity (900,000) | = | 2,115,000 <u>short</u> |
| Class V (Wilderness) | 930,000 | 465,000 | 63,686 |
| Total Demand (528,686) | minus WNF Capacity (254,744) | = | 273,942 <u>short</u> |
| Totals | 30,690,000 | 15,345,000 | 11,416,942 <u>short</u> |

| <u>For an Individual:</u> | Total Optimal (Valley Res) | WNF Optimal (Valley Res) | WNF Sub-Optimal (Valley Res) |
|---------------------------|-------------------------------|-----------------------------|---------------------------------|
| Class II | 4/year | 2 | 1 every 3rd year |
| Class III | 12/year | 6 | 1/year |
| Class IIIa (Hunt) | 4 | 2 | 1 every 10th year |
| Class IIIa (Fish) | 4 | 2 | 1 every 3rd year |
| Class IIIb (River) | 2 | 1 | 1/year |
| Class IV | 6 | 3 | 1 every year-and-a-half |
| Class V | 1 | 1/2 | 1 every 4th year |

The "Optimal Logger"

(Can produce equivalent of "typical Weyerhaeuser acre") as reported in Register-Guard editorial of November 21, 1972)

3,248 cubic feet of lumber
 1,272 cubic feet of plywood
 1,026 cubic feet of particleboard
 2,234 cubic feet of linerboard
 6,341 cubic feet of chips and logs
 14,121 cubic feet of "salable" material
 3,247 cubic feet of waste or fuel (for expanded EWEB hog fuel generator)

On a 100-year rotation (Weyerhaeuser's is probably closer to 60), this equals an annual production of 141 cubic feet per acre of salable material