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Her voice quavering slightly, Wilson High School's smiling new Rose Festival princess told her still-cheering fellow students, "I really didn't think I would win. Everybody else up here is so good."



PRINCESS SARA
Wilson

Princess Sara Wood, who turned 18 Wednesday, joined the Rose Festival Court on Thursday.

As her name was called in the Trojans' auditorium, a group of about 30 students, mostly girls, shot to their feet shrieking.

Born in Modesto,
Princess Sara

■ A study based on 40 years of data concludes that past harvesting practices markedly increased streamflows

By **PETER D. SLEETH**
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of The Oregonian staff

The effects of past logging practices on mountain streams are far more extensive and enduring than previously thought, federal researchers have declared in a study that reviews more than four decades' worth of data gathered in the Willamette National Forest.

Clear-cutting forests and building roads were found to increase peak flows in mountain streams by as much as 50 percent, a finding that establishes a long-disputed link between

logging and swollen streams.

While the findings might seem trussed in common sense, the bulk of past studies has not supported such a conclusion. Extensive clear-cutting and road-building have been a staple of timber harvests in the Northwest for 50 years.

Should the research be widely accepted, it could accelerate a movement in place within the U.S. Forest Service that calls for the obliteration of many old logging roads and a move away from clear-cutting.

The researchers' work found that in some cases streamflows increased by

as much as 20 percent to 50 percent after a watershed was logged. The effects diminished gradually but were apparent 25 years after clear-cutting.

Perhaps the most significant finding is the apparent synergy between logging roads and clear-cutting. The logging roads appear to act something like a pipeline — rapidly injecting flows of rain and snowmelt running off clear-cuts into streams.

The study by Gordon E. Grant, a Forest Service hydrologist at the Pacific Northwest Research Station, and Julia A. Jones of Oregon State University is to be published in the April

issue of Water Resources Research, the journal of the American Geophysical Union.

The study does not speak to what happens in major events such as the February floods, because of a lack of sufficient records on large floods to allow a valid study.

"What we're looking at is a legacy of clear-cutting and roads over the past 40 years," Grant said. "There is a strong component of history here, and we are noting there are long-term legacies from

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The legacy of clear-cutting and road-building

Swollen streams tied to logging

Tro **mers**

Study: Findings contradict earlier works

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past practices that continue into the future."

The authors work at two of the nation's most prestigious centers of forestry research. They have compiled one of the most exhaustive studies on the subject yet, taking in more than 40 years of data. It has been "extensively" reviewed by other scientists who checked for flaws in methodology, Grant said.

But it already is proving controversial.

Its findings contradict some previous studies that showed logging and road-building had little or no effect on peak flood flows in large drainages. And critics, both from industry and the Oregon Department of Forestry, say that the new study is badly flawed.

"I felt that the conclusions in this study far overreach the data that is presented," said Kate Sullivan, a hydrologist with Weyerhaeuser.

Sullivan said that none of her studies of about 60 drainages showed that logging had any major effects in big floods. She said she thought that the information cited in the new report did not show significant effects in big floods.

"She has never published any of

her data," Grant said of Sullivan's comment. "So it is impossible for me to react."

The question of the relationship between logging and major floods became a political hot potato after February's high waters. Environmentalists tried to condemn all logging because of its contribution to the floods, while the timber industry pooh-poohed those claims.

"We don't know," Grant said. "I don't know of anyone that can answer that question, no matter what they're political persuasion is."

Increasingly, scientists and others are pointing to land management practices in forests as the culprit for damage to stream beds and fish habitat, as well as increased runoff and flooding. But little definitive science has been available.

To get at the question, Grant and Jones studied stream-flow data from three small basins — those less than 250 acres — and three large basins up to 250 square miles in size.

The three small basins were monitored beginning in the 1950s, before any logging was done, and then afterward. One valley was left alone, a second was 25 percent clear-cut with roads and a third was logged completely with no roads in it.

What the study showed was that for five years after clear-cutting, peak flows in streams in the basins were 50 percent higher than before logging. Twenty-five years after the logging, the flows are 25 percent higher than they were before logging took place.

In the larger valleys, Jones and Grant relied on records of past timber harvesting and streamflows to do their study. But the results were virtually the same as in small basins. Past studies found that large basins didn't have the same impacts from logging.

"Previously, we had thought the effects of small basins would cancel out downstream" as they flowed into large basins, Jones said.

But large basins showed the same effects from logging, the study showed.

Clear-cut logging is down to a fraction of post-World War II levels in federal forests in the Pacific Northwest. Road-building also has declined as environmental restrictions have eased the pressure to log forests.

But extensive networks of old roads and clear-cuts may pose problems for flood management in the future.

Expo building funds near OK

Multnomah County Commissioners took a half-step Thursday toward shifting \$9 million in hotel tax revenues to a fund to pay for a new building at the Multnomah County Exposition Center.

Government officials hope to have the building finished in time for a scheduled March 28, 1997, opening of a touring Smithsonian Institution exhibit.

Commissioners approved measures that bring the county closer to Metro on several issues related to the transfer of county properties to the regional government. But it will take at least two weeks for Metro and the county to work out terms of the transfer, which will include the Expo Center.

If new snags arise to delay the transfer, they could jeopardize the wide-ranging "America's Smithsonian" exhibit, which is on a two-year, 12-city tour. County and Metro officials said Thursday they expect to work out a deal that will permit the structure to be built in time for the exhibit's opening.

