



Pacific Northwest Research Station
USDA Forest Service



Got Science?

Getting Science to People Who Care about Forests

Valerie Rapp

Sherri Richardson-Dodge









Science FINDINGS

PNW
PACIFIC NORTHWEST
SCIENCE CENTER

INSIDE
Science affects the way we think together.
Cover story: Science affects the way we think together.
Cover story: Science affects the way we think together.

FISHER CONSERVATION IN THE PACIFIC SE FIELD DATA MEET GENETICS



When researchers combine field data with genetic information, they can better understand the genetic diversity of a population. This is important for conservation efforts, especially in the Pacific Northwest, where many fish species are at risk.

When researchers combine field data with genetic information, they can better understand the genetic diversity of a population. This is important for conservation efforts, especially in the Pacific Northwest, where many fish species are at risk.

Science FINDINGS

PNW
PACIFIC NORTHWEST
SCIENCE CENTER

INSIDE
Science affects the way we think together.
Cover story: Science affects the way we think together.
Cover story: Science affects the way we think together.

THE GEOMORPHIC RESPONSE OF RIVERS TO DAM REMOVAL



OUT, OUT, DAM SPOT! THE GEOMORPHIC RESPONSE OF RIVERS TO DAM REMOVAL

When a dam is removed, the river channel often widens and deepens. This process, known as geomorphic adjustment, can take years or even decades to complete. The removal of dams can have significant impacts on the surrounding landscape and ecosystem.

When a dam is removed, the river channel often widens and deepens. This process, known as geomorphic adjustment, can take years or even decades to complete. The removal of dams can have significant impacts on the surrounding landscape and ecosystem.

After a dam is removed, the river channel often widens and deepens. This process, known as geomorphic adjustment, can take years or even decades to complete. The removal of dams can have significant impacts on the surrounding landscape and ecosystem.

When a dam is removed, the river channel often widens and deepens. This process, known as geomorphic adjustment, can take years or even decades to complete. The removal of dams can have significant impacts on the surrounding landscape and ecosystem.

IN SUMMARY
When a dam is removed, the river channel often widens and deepens. This process, known as geomorphic adjustment, can take years or even decades to complete. The removal of dams can have significant impacts on the surrounding landscape and ecosystem.

Science

FINDINGS

"Science affects the way we think together."
—Lisa Tiedens

SEX AND THE SINGLE SQUIRREL: A GENETIC VIEW OF FOREST MANAGEMENT IN THE PACIFIC NORTHWEST



A western flying squirrel may be a forest's best friend, eating up the unwanted seeds of the Douglas fir tree.

"A squirrel lowering its weight does make the seed out more available for my birds," says [author's name].

Since forest fires and other events have been changing the genetic makeup of the forests in the Pacific Northwest, researchers have been looking for ways to manage them. One way is to use genetic information to help predict how they will respond to forest management. The researchers have found that some species, which include management con-

ditions, are more likely to be genetically diverse than others. In addition, a study of the genetic diversity of species in the Pacific Northwest found that the genetic diversity of species in the Pacific Northwest is higher than in other regions.

Forest management can be done in many ways, and genetic information can help in the planning process. Genetic information can help predict how species will respond to forest management. The researchers have found that some species, which include management con-

IN SUMMARY

Genetic diversity is important for the health of a forest. It helps a forest recover from natural disturbances and human activities. Genetic diversity also helps a forest adapt to changing conditions. In the Pacific Northwest, genetic diversity is high, but it is being lost due to forest management. This loss can be prevented by using genetic information to help plan forest management.

Genetic diversity is important for the health of a forest. It helps a forest recover from natural disturbances and human activities. Genetic diversity also helps a forest adapt to changing conditions. In the Pacific Northwest, genetic diversity is high, but it is being lost due to forest management. This loss can be prevented by using genetic information to help plan forest management.

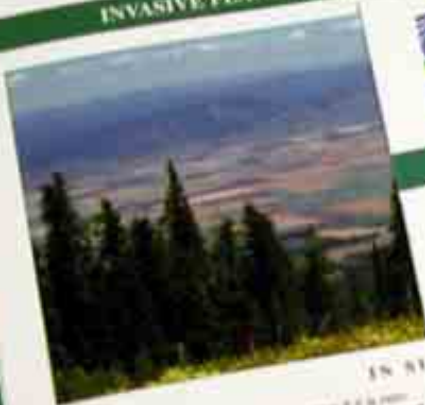
Genetic diversity is important for the health of a forest. It helps a forest recover from natural disturbances and human activities. Genetic diversity also helps a forest adapt to changing conditions. In the Pacific Northwest, genetic diversity is high, but it is being lost due to forest management. This loss can be prevented by using genetic information to help plan forest management.



Pacific Northwest Research Station

Science Update

INVASIVE PLANTS IN 21ST CENTURY LANDSCAPES



IN 81

A single species is defined as invasive if it is non-native to the ecosystem under consideration, and it is causing or likely to cause economic or environmental harm or harm to human health. Invasive plant species are generally introduced to the Pacific Northwest in the mid 1900s with the growth of European settlement. Invasive species such as bull thistle, spotted knapweed, yellow starthistle, cheatgrass, and Japanese knotweed have altered fire regimes, changed ecosystems, affected biological diversity, degraded ecosystems, reduced water quality, and changed natural fire regimes. These and other invasive plants affect ecosystems from seed germination to growth, survival, and spread.

Invasive plant species have become a significant component of forests across Oregon. At least one non-native species was found on 70 percent of forested plots surveyed across Oregon. However, results differed with



United States Department of Agriculture



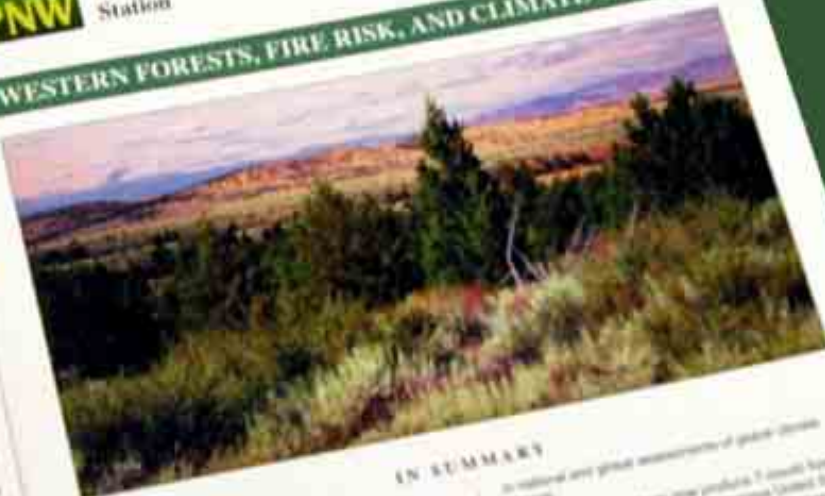
Forest Service



Pacific Northwest Research Station

Science Update

WESTERN FORESTS, FIRE RISK, AND CLIMATE CHANGE



IN SUMMARY

Climate warming may lead to an increase in forest growth, which means an increase in potential wood production. However, increased carbon dioxide will also lead to a decrease in forest growth in some regions. The overall effect of climate change on forest growth will depend on the balance of these factors, which are still being studied.

Advanced computer models are predicting the that national-scale projections of tree growth in the 21st century. In an earlier report, we found that through the next 100 years, the western United States will see an increase in forest growth. This is due to a combination of factors, including increased carbon dioxide levels, which will lead to faster growth. However, increased temperatures and drought conditions will also lead to a decrease in growth. The overall effect of climate change on forest growth will depend on the balance of these factors, which are still being studied.

in national and global assessments of plant growth change.

The computer model can now predict a range of possible outcomes for the western United States. The model is based on a range of climate change scenarios, including a range of carbon dioxide levels. The model's results suggest that there will be a net increase in forest growth in the western United States, but that the increase will be smaller than previously thought.

Research results were published by scientists from the USDA Forest Service Pacific Northwest Office, Research Station, working with others from Oregon State University and from across the world. The findings suggest that there will be a net increase in forest growth in the western United States, but that the increase will be smaller than previously thought.



United States Department of Agriculture



Forest Service



Pacific Northwest Research Station

www.fs.fed.gov

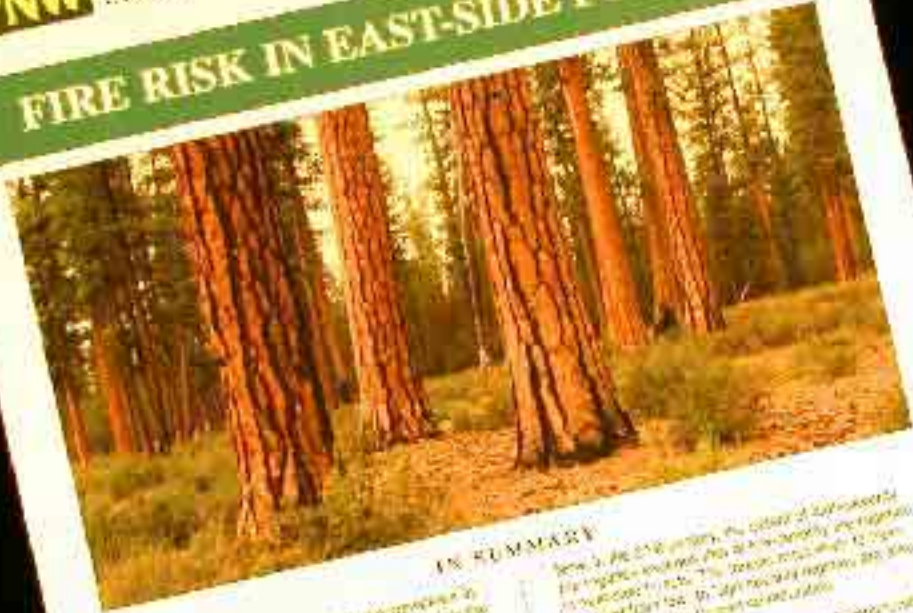
Issue 2
January 2014



Pacific Northwest Research Station

Science Update

FIRE RISK IN EAST-SIDE FORESTS



IN SUMMARY

Western U.S. forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.

Forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.

Forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.

Forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.

Forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.

Forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.

Forest managers are increasingly concerned about the risk of fire in their forests. This concern is based on the fact that the number of fires in the western U.S. has increased in recent years, and the size of these fires has also increased.



Forest Service
Pacific Northwest Research Station

Forest Service
Pacific Northwest Research Station

Forest Service
Pacific Northwest Research Station

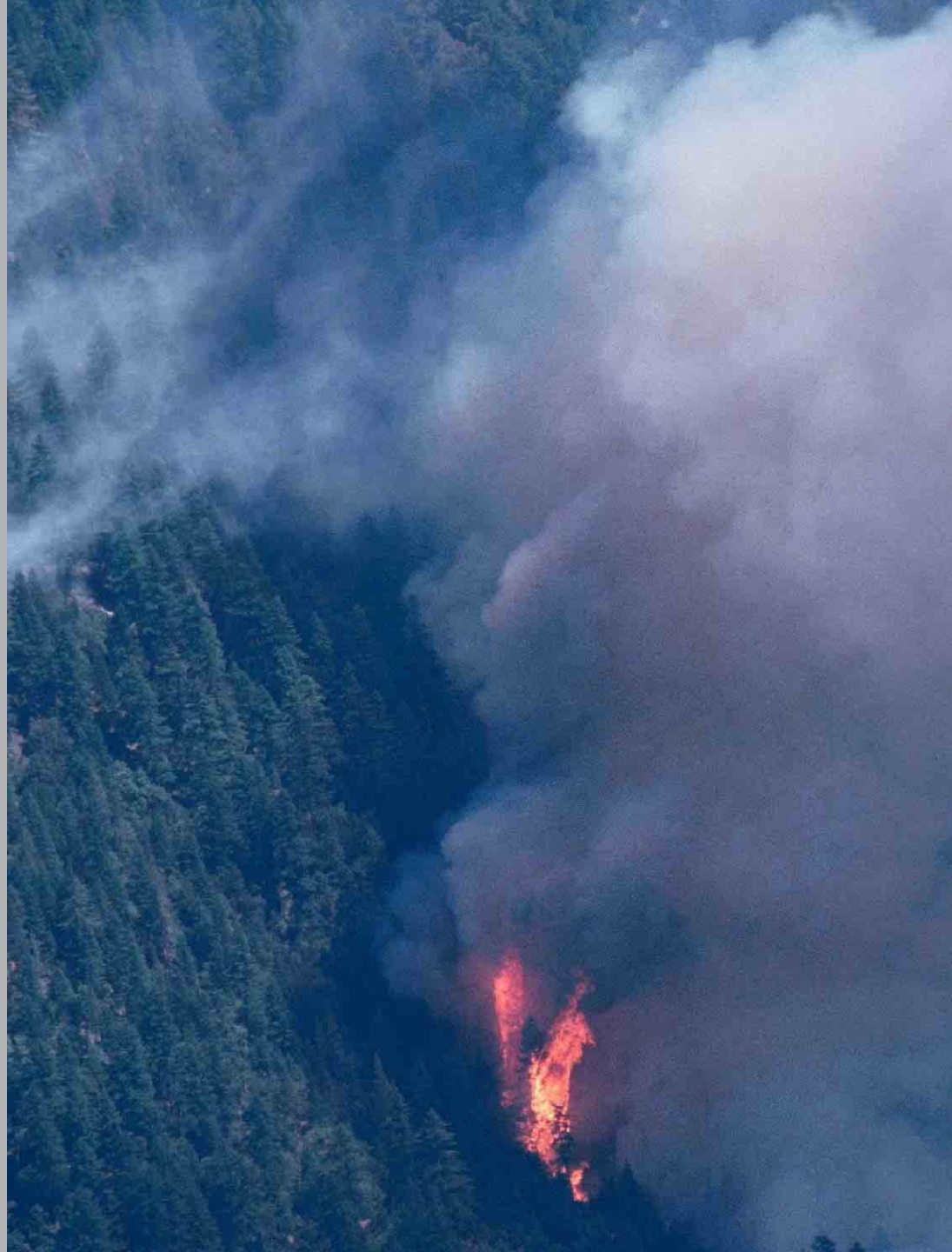


RED LION HOTEL
ON THE RIVER



- Summer of 2002
- Nearly 7 million acres burned
- Large timber fires





Senators fail to pass drug plans for elderly

Senators and Democrats in the House passed measures and support for the 2002 budget to fund a program.

WASHINGTON — Congress' Democrats and Republicans agreed to new funding for the program that would help the elderly pay for their health care.

The measure would help the elderly pay for their health care by providing a tax credit for the cost of their health insurance.

The measure would also provide a tax credit for the cost of their health insurance. The measure would also provide a tax credit for the cost of their health insurance.

The measure would also provide a tax credit for the cost of their health insurance. The measure would also provide a tax credit for the cost of their health insurance.

The measure would also provide a tax credit for the cost of their health insurance. The measure would also provide a tax credit for the cost of their health insurance.

The measure would also provide a tax credit for the cost of their health insurance. The measure would also provide a tax credit for the cost of their health insurance.

White House condemns Israeli strike

A strongly worded statement says the Israeli strike is a target for the UN.

WASHINGTON — The White House has condemned an Israeli strike on a target in the West Bank, saying it is a violation of international law.

The White House said the strike was a violation of international law and that the UN should be asked to take action.

House OKs anti-terrorism funds

House OKs anti-terrorism funds

WASHINGTON — The House of Representatives passed a bill to provide \$1 billion for anti-terrorism programs.

The bill would provide \$1 billion for anti-terrorism programs.

The bill would provide \$1 billion for anti-terrorism programs.

The bill would provide \$1 billion for anti-terrorism programs.

The bill would provide \$1 billion for anti-terrorism programs.

The bill would provide \$1 billion for anti-terrorism programs.

The bill would provide \$1 billion for anti-terrorism programs.

Firefighters facing bigger, wilder foe

Experts say the wilder foe is now superheated wildfires growing beyond human control.

Wildfires are becoming more intense and more difficult to control.



By Bill Mearns

Wildfires are becoming more intense and more difficult to control.

Wildfires are becoming more intense and more difficult to control.

Wildfires are becoming more intense and more difficult to control.

Wildfires are becoming more intense and more difficult to control.

Wildfires are becoming more intense and more difficult to control.

WILDER WIND-FIRE

Wildfires are becoming more intense and more difficult to control.



Wildfires are becoming more intense and more difficult to control.

Wildfires are becoming more intense and more difficult to control.

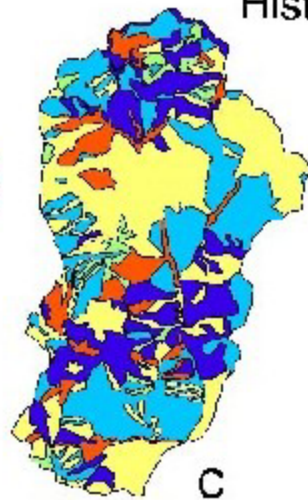
Wildfire



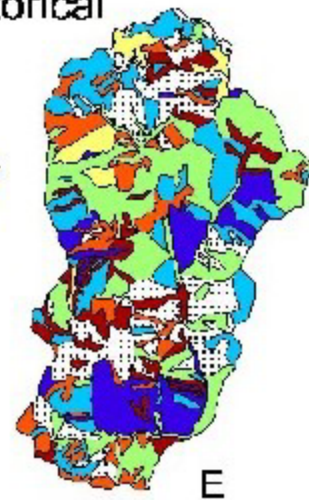
Historical



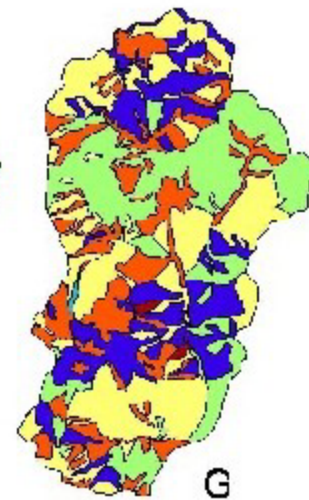
A



C

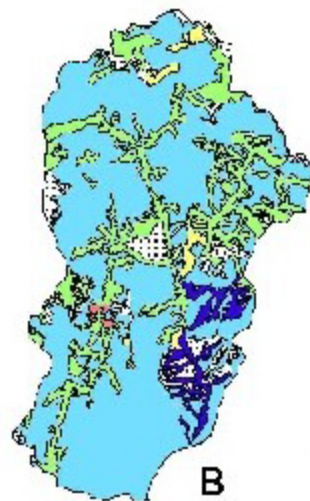


E

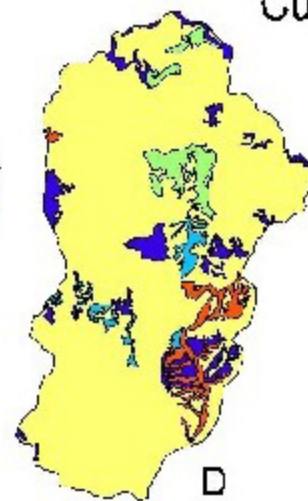


G

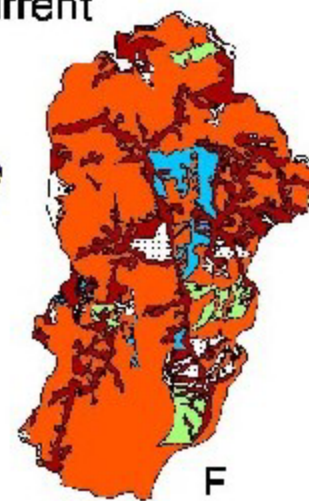
Current



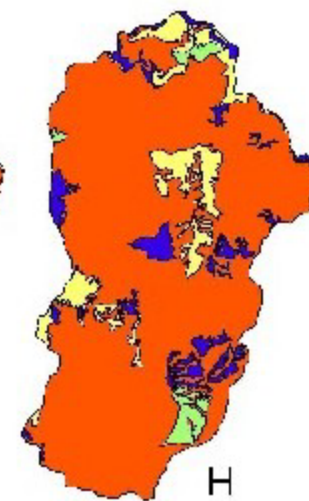
B



D



F



H

Structure



Fuel loading



Crown fire potential



Flame length











Getting science to people:

- Use easily understood language.
- Explain the basics.
- Stimulate thinking.
- Provide sources for detailed followup.

Some keys to success are:

- Organization recognizes the importance of communications.
- Publications are part of a strategy.
- Portfolio has multiple products.
- Consistent, reliable, credible.
- Tell a compelling story.

USDA Forest Service
Pacific Northwest Research Station

