Heat Stress – Know the Signs and Dangers

Recent deaths from severe heat stroke have grabbed the attention of the region. These losses could have been prevented if the signs and dangers of heat stress were recognized and acted on. Last year was the hottest on record and 2006 is not expected to be cooler.

Heat stress is a danger in any work requiring physical exertion, but it is a greater threat in outdoor work in extreme temperatures. Lack of air circulation and high humidity amplify problems associated with heat stress. Loggers and forest workers regularly face these conditions. Their safety depends on mental and physical alertness, which can be greatly compromised by heat stress.

When conducting strenuous work in extreme conditions, it is important to understand, recognize, and address the signs and dangers of heat stress.

continued on page 3
In Memory of David Kludt

David Kludt, the originator and leader of the Idaho Logging Safety Program passed away on January 19, 2006 in a traffic accident. We at PNASH would like to recognize his great commitment to the safety and health of loggers, thank him for his advice, and send our condolences to his family and friends.

You Can Inform NIOSH/CDC on Forestry and Logging Safety Issues

The National Institute for Occupational Safety and Health (NIOSH) an institute under the Centers for Disease Control and Prevention is seeking information on important occupational safety and health issues, including diseases, injuries, exposures, populations at risk, and needs of the occupational safety and health system. Input is also requested on the type of research and partners needed to make a difference.

Your input will be considered when creating the National Occupational Research Agenda (NORA) for the next decade. You can submit your comments electronically at www.cdc.gov/niosh/nora or e-mail them to niocindocket@cdc.gov.

The PNASH Center has forwarded to NIOSH the information we received through the development of the Occupational Research Agenda for Northwest Forestlands (available at http://depts.washington.edu/pnash/research_summaries.php#haz_three). But five years in a changing industry is a long time and we encourage you to share with NIOSH current insights on serious worker safety concerns. This information will enable NIOSH along with partners from around the country to anticipate and respond to worker and workplace needs.
### What are the Dangers of Heat Stress?

<table>
<thead>
<tr>
<th>Description</th>
<th>Heat Cramps</th>
<th>Heat Syncope (Fainting)</th>
<th>Heat Exhaustion</th>
<th>Heat Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A temporary fluid and electrolyte imbalance; salt depletion in conditions of heavy physical exertion</td>
<td>Pooling of the blood in the lower extremities in unacclimatized workers who are required to stand in the heat for long periods of time.</td>
<td>A reduction of body water content or blood volume. It occurs when the amount of water lost (as sweat) exceeds the volume of water taken in during the heat exposure.</td>
<td>Body fails to regulate core temperature. Sweating slows or stops completely preventing the body from releasing the excess heat.</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Painful muscle spasms in the arms, legs, and abdomen</td>
<td>A brief loss of consciousness. In a worker who is performing any substantial labor, consider it HEAT STROKE, call 911, and cool down immediately by any method.</td>
<td>Profuse excessive sweating, cool clammy pale skin, weakness and lassitude, dizziness, nausea and vomiting, weak rapid pulse and early neurological symptoms (e.g., headache, anxiety, or impaired judgment).</td>
<td>Same as heat exhaustion + core body temperature &gt;104°, altered mental status (irrational behavior, psychosis, aggressive behavior, incoherent speech), the skin can be hot, flushed, pulse may be bounding, and rapid.</td>
</tr>
<tr>
<td>Consequences if Untreated</td>
<td>May be accompanied by heavy sweating and thirst, heralding impending heat exhaustion.</td>
<td>Loss of consciousness regained once the person falls to the ground. Watch for injuries secondary to falling.</td>
<td>I left untreated may rapidly progress to HEAT STROKE and subsequent death.</td>
<td>Loss of consciousness, coma, organ failure and death.</td>
</tr>
<tr>
<td>Treatment</td>
<td>Rest in a cool environment. Give fluids and salty foods or an electrolyte solution such as sports drinks. Salt tablets are not recommended due to the risks of overdosing.</td>
<td>Keep the individual lying down with feet raised, cool with wet cloths and ventilation, provide fluids and then move to a cooler location. Do not return to work and refer for medical evaluation.</td>
<td>Rest in a cool place and reduce body temperature. Replace water and salts; a good source for both are sports drinks.</td>
<td>Call 911! Cool down the body immediately with every available means—most effective is a ice water bath or wet down entire body with copious amounts of water and vigorously fan.</td>
</tr>
</tbody>
</table>

### Combat these dangers with three steps:

1. **Hydrate**
   
   Adequate hydration is the most important step to combating heat stress. When the heat index is high, workers should drink copious amounts (1 quart every hour) frequently throughout the work shift; they should consume at least one cup every 15 minutes or a pint every half hour - in order to stay properly hydrated. Workers should be trained not to wait until they feel thirsty to drink; if they are thirsty they may already have lost 2% of their body's water. The onset of heat exhaustion can begin after losing 3% of the body's water and heat stroke occurs once 8% is lost. The bottom line is, if a worker is not regularly urinating or has dark urine, they are dehydrated and at risk for heat illnesses!

2. **Assess**
   
   Assess the relative danger of the worksite. Be aware that high heat, high humidity, low air circulation all create a more dangerous working environment. Any time more than one of these variables is present, the danger is compounded. Wearing occlusive non-breatheable clothing in combination with heavy exertion compounds these worksite risks and can alone lead to heat illness.

3. **Acclimate**
   
   If an employee is new to a job or is returning after time away: ease them back into full-time work over the course of 5 days. Starting at half time (50% effort) and increasing to full time (increase by 10% each day) can greatly reduce the employee's susceptibility to heat stress.

### Heat Stress Resources

- WA Labor and Industries:  
- OR OSHA:  
  [http://www.cbs.state.or.us/external/osh/subjects/heat_stress.htm](http://www.cbs.state.or.us/external/osh/subjects/heat_stress.htm)
- OSHA:  
- CDC:  
- WA SHARP Program:  
Northwest Injury and Fatality Update

In 2004, according to Bureau of Labor and Statistics (BLS), 97 loggers died in the U.S. This means that logging had the highest fatality rate of any industry. 21 of these fatalities occurred in the Northwest (AK, ID, OR, WA). These numbers result in a fatality rate for WA and OR that is even higher than the national average.

The fatality rate for the Oregon logging industry between 2000-2004 (96.6 per 100,000 workers) was 66% higher than the average rate between 1992 and 1999 (58). Additionally, the average fatality rate for the Oregon logging industry from 2000-2004 is 35 times greater than the fatality rate for the state’s workforce at large (2.72) over that same period. (OR-OSHA: Occ. Safety and Health in Oregon’s Forests).

Injury rates in Oregon and Washington have been on an upward trend. However, one positive piece of information is that after rising in both 2002 and 2003, serious injuries (those identified as causing the loss of at least one work day) were down slightly in both Oregon and Washington in 2004.

Oregon OSHA points out that one of the most important aspects of safety in the logging industry is experience. This is consistent with the fact that 45% of injuries occur in the first year and over 30% of those injuries occur within the first month of employment (OR-OSHA: Occ. Safety and Health in Oregon’s Forests). OR-OSHA research indicates that while experience can help keep you safe, the industry’s increasing rate of employee turnover and decreasing overall employment means fewer experienced workers in the woods.

Figure 1: Total Northwest Logging Deaths (BLS)

Figure 2: Oregon and Washington Logging Injury Rates (per 100 full time workers)

Figure 3: Accepted Injury Claims by Job in Oregon Logging and Forest Services (OR-OSHA: Occ. Safety and Health in Oregon’s Forests)
Forestry Workforce Challenges

The Pacific Northwest logging workforce is beset by pressures including continued reduction in the workforce, the aging of the most skilled workers, and high turnover of new employees. These pressures contribute to fatality injury incidents.

For information on the challenges facing the NW lumber industry in the recruitment of the new employees see the article “Knocking on wood: With workers aging, the wood industry has wary eye on future” Sherri Buri McDonald, The Register-Guard. Published: Sunday, March 26, 2006.

Available online:

See the following article by John Garland for more information of the “Logging Workforce of the Future.”

Injury and Illness Surveillance Resources

- NIOSH Fatality Assessment and Control Evaluation (FACE) Program
  http://www.cdc.gov/niosh/face/

- WA Safety and Health Assessment & Research for Prevention (SHARP)
  http://www.lni.wa.gov/Safety/Research/About/

- Oregon OSHA
  http://www.orosha.org/

- Center for Research on Occupation and Environmental Toxicology (CROET), Logging Resources
  http://croetweb.com/links.cfm?topicID=31

- North American Industry Classification System, Standard Industrial Classification BLS Injury, Illness, and Fatality
  http://www.bls.gov/ifi/

Note: in 2003 BLS moved from the SIC standards to NAICS, for info on the differences see:
http://www.census.gov/epcd/www/naicsdev.htm
Logging Workforce of the Future

Dr. John J. Garland, Professor & Timber Harvesting Extension Specialist
Oregon State University, John.Garland@oregonstate.edu, 541-737-3128

The aging of the US workforce is well documented. As the population changes, safety and health issues of the “Baby Boomers” have been studied. Specific labor forces also merit investigation. For example, in the past, logging typically was an occupation for younger workers. However, in Oregon the logging workforce is aging (see Figure 1). The percentage of workers in logging over age 45 has increased from 1991 to 2004 and is higher than those found for 2003 US male workers overall (US Dept. of Labor).

The shift toward older logging workers is likely due in part to general population demographics and to structural changes in the forestry sector, which has seen reduced employment since the early 1990s. As firms contracted during the rugged economic period, older and more experienced workers likely stayed in logging while those newer to the work moved on.

From a safety standpoint, older workers generally have better safety performance. However, recent Oregon statistics cause concern. Accidents for older workers proportionately increased over a five-year period (Oregon Consumer & Business Services Division).

The size of Oregon’s logging workforce has changed somewhat since 2000, but the shift toward more accidents for older workers is apparent for loggers over 45. In 2000, loggers above age 45 had 24% of accidents, while in 2004 it reached 33%. Following this knowledge, we need to explore tailored safety strategies that change work methods and reduce workloads for older workers.

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NEW RELEASE

OCCUPATIONAL SAFETY AND HEALTH IN OREGON’S FORESTS

Periodic summary publications by Oregon’s Department of Consumer & Business Services (DCBS) are useful to understand the nature and trends in accident claims. Oregon DCBS has a new publication, Occupational Safety and Health in Oregon’s Forests: Logging and Forestry Services CY 2000-2004, which summarizes information for Oregon’s logging and forestry services sectors. Tables and graphs are provided for claims by occupation, accident exposure or event, and nature of the injury or disease. Fatalities in logging and forestry services are also chronicled. Comparisons are made to other western states and to Oregon’s other occupations. This useful document provides guidance for those interested in safety and health improvements and the statistical basis for understanding logging and forestry services.

Available at: http://www.cbs.state.or.us/imd/rasums/2998/04web/04_2998.pdf
Protect the Operator - ROPS, TOPS, & Seat belts

Mechanization of forest operations has greatly improved the general safety of the worker. However, the increased use of machines has introduced new hazards such as noise and vibration exposure, and equipment rollovers, which can cause traumatic injury and death. Rollovers are common logging vehicles and other mobile machinery, such as forwarders, skidders, feller-bunchers, processors, harvesters, and loaders and can occur unexpectedly on graded or flat ground.

An experienced logger, working as a bulldozer operator, was killed when the crawler tractor he was operating tumbled off a steep skid road into a ravine. The operator was climbing a 20-25 degree slope reopening an old skid road when the bulldozer slid off of the road against a tree. The operator apparently regained control when it slipped off a 60-70 degree side-hill and tumbled about 150 ft. to the logging road below. At this point the operator was ejected and the bulldozer bounced another 450 ft. into a ravine. The event was not witnessed. Fatal injuries were thought to occur when the victim was thrown around in the cab before being ejected. The victim in this incident is reported to have been wearing personal restraints while operating heavy equipment.

- NIOSH FACE Program
OR Case Report, 2003-OR-029-01

National OSHA regulations outline rollover protective structure (ROPS) and tip-over protective structure (TOPS) specifications. OR OSHA was the first to mandate that equipment manufactured after July 1, 2004 comply with the International Organization for Standards (ISO) 3411:1995 and with the Society of Automotive Engineering (SAE) requirements. Look for a permanently attached metal tag to identify structural certification.

<table>
<thead>
<tr>
<th>Rollover Hazards</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control At Excessive Speed and Sharp Turns</td>
<td>Operate at a safe speed for the conditions</td>
</tr>
<tr>
<td>Small obstruction causing bounce and loss of control</td>
<td>Turn at the top or bottom of the slope</td>
</tr>
<tr>
<td>Sharp turns on slopes</td>
<td></td>
</tr>
<tr>
<td>Ground Conditions</td>
<td></td>
</tr>
<tr>
<td>Operating too close to banks, track edges, and on unconsolidated material or fill</td>
<td>Pay attention to machine positioning. Stay on stable ground or part of track</td>
</tr>
<tr>
<td>Downhill turning off tracks to shortcut</td>
<td>Don't shortcut between tracks</td>
</tr>
<tr>
<td>Backing into a dangerous position especially down a gully sides or guts to reach trees or logs</td>
<td>Stay in a position where the machine is stable</td>
</tr>
<tr>
<td>Operating on slopes that are too steep for the safety and comfort of the machine or operator</td>
<td>Planning must properly match machines and topography. Hazards must be identified and controls in place before work commences. Do not at any time operate on slopes that are beyond your skill level</td>
</tr>
<tr>
<td>Turning while operating on a cross slope and rolling over</td>
<td>Avoid riding onto even small obstructions, such as stumps and minor ground undulations, they can cause a sudden change of center of gravity, resulting in a rollover</td>
</tr>
<tr>
<td>Brake Failure</td>
<td></td>
</tr>
<tr>
<td>Rolling back while operating on a slope</td>
<td>Regular maintenance to ensure that brakes hold the machine on any slope it operates on</td>
</tr>
</tbody>
</table>

In Oregon, operator protection requirements have been phased in to allow manufacturers and machine owners to comply with new requirements. Specific requirements are spelled out in Oregon’s Forest Activities Code rules (437-007-0775, available on the OR OSHA website). Machines not equipped with operator protection requirements will have their use restricted to safer operating environments.

The use of ROPS and TOPS alone does not insure operator safety during an accident. OSEA also requires seat belts in mobile logging machinery. Evidence from rollover incidents shows that the machine usually crushes victims who are thrown from the cab.

There may never be a machine that will be 100% rollover proof, so it’s vital for operators to understand equipment limitations, and recognize and implement protective devices such as ROPS, TOPS, and seat belts.

It could save your life!

Standards Questions?
Contact your regional OSHA office or call 1-800-321-OSHA (6742), http://www.osha.gov/

The Agricultural Safety and Health Centers are beginning a national campaign to prevent tractor-related injuries and fatalities in America. In agriculture, tractors are the 1st cause of death and serious injury. The costs are immeasurable to families and friends and can be prevented through practicing basic safety and using ROPS, TOPS, seat belts and machine guards.
Outreach to Reforestation, Pineros, Contractors in California

Bill Krycia, Regional Manager, Cal/OSHA
wkrycia@dir.ca.gov, 916-263-2803

The United States Department of Labor, the United States Forest Service, and the California OSHA program have been collaborating to provide a series of interactive outreach sessions for both Forest Service staff and reforestation contractors who work and bid on contracts on Forest Service lands located in California. The sessions have covered wage and hour issues, employee transportation safety, and occupational safety and health issues. “We’re trying to include basic issues, like the need for a good safety program, as well as to provide updates on newer regulations like California’s heat illness prevention standard,” says Bill Krycia of Cal/OSHA. “Reforestation contractors are subject to California’s logging standards when they’re using chainsaws to ‘thin’ trees up to 20 inches in diameter,” says Krycia. “We want to make sure the contractors understand that.”

The sessions were held in early 2006 at Forest Service facilities in Redding, Clovis, and Nevada City, California. Additional outreach sessions will be held in Northern California. Enhanced joint agency enforcement efforts are also part of the collaborative effort.

Mr. Krycia will also address the issue of the Pineros at the Western Center for Agricultural Health and Safety’s 2006 Symposium in September at Asilomar, CA.

The conference site is: http://agcenter.ucdavis.edu/Announce/R2P2006.php

Pineros Hazard Awareness Checklist

✓ The Injury and Illness Prevention Program
California requires all employers to have this safety program that identifies all hazards employees may be exposed to and provides training and instruction in a language that employees understand.

✓ Communications equipment
Several sections of the California Code (Title 8 California Code of Regulations) require employers to have an effective means of communicating to summon emergency medical help. Cell phones do not always work in the remote areas where the reforestation workers are located.

✓ First aid
In addition to providing the standard first aid items, reforestation employers engaging in activities consistent with the hazards of logging need to provide a stretcher. Here again, communications equipment to summon emergency medical assistance is crucial. Employers have to have a plan for emergency medical assistance in place at the time of work.

✓ Potable water
The employer shall provide ample quantities of cool, pure, accessible, potable water. At times when heat illness could occur, the minimum quantity to be provided to each person would be 2 gallons per day.

✓ Sanitation
The employer shall provide sanitation facilities. In situations where standard facilities may be infeasible, the employer still has an obligation to provide alternate remedy for the needs of the employees.

✓ Chainsaw safety
The employer has an obligation to provide protective equipment, training, and other safeguards consistent with exposures to the hazards of California’s logging safety orders.

✓ Transportation
Employee transportation safety to and from the worksite is covered by the regulations of the California Highway Patrol, and in some cases the US Dept. of Labor.

✓ Heat related illness
California’s new emergency standard requires training, water, and the provision of preventative rest breaks and shade. See http://www.dir.ca.gov/dosh/heatillnessinfo.html

✓ Ergonomic hazards
California has several rules that apply to reforestation activities, regarding the use of short-handled tools and the practice of hand weeding, and thinning.
The Pineros: Men of the Pines

“Across vast tracts of rugged ground from Maine to California, Latinos do the dirty work in America’s woods. They plant trees by the millions, thin out snarls of vegetation that stunt the growth of commercial timber and slash away the dense mats of brush and spindly trees that stoke forest fires.

They are pineros, the men who work in the pines. They are the major source of manual labor in America’s forest industry, the muscle behind the Healthy Forest Initiative - often paid in tax dollars to work on public lands.”

This is the introduction to a series of journalistic investigations into the life of the Pineros. These articles have captured national attention and in 2006 won the Taylor Family Award for Fairness in Newspapers. This series, written by Tom Knutson of the Sacramento Bee, began on November 13, 2005. While there are many opinions in response to Knutson’s article – this story has given a voice to the Latino forest worker and has raised public awareness on safety concerns.

To read the series, The Pineros: Men of the Pines, visit: http://www.sacbee.com/content/news/projects/pineros/

To read the recent (May 7th) companion article, Untrained Migrants Fight Fires, visit: http://www.sacbee.com/content/news/story/14252695p-15068755c.html

Recently, Craig Welsh of the Seattle Times wrote on a similar topic, A War in the Woods, search for the title at: http://www.seattletimes.nwsource.com/
Communicating Safety - Visual Learning for Non-English Speaking Workers

Many can relate to the frustration associated with maintaining effective communication. Imagine trying to work in a country where you struggle to read, speak, or understand the language. From the moment of hire and throughout the duration of a job, clear and effective communication is key in preventing injury and death. When workers, owners, and safety professionals speak different languages, extra steps are needed to make sure the message is understood.

Logging and forestry depend on migrant labor to meet industry demands. The majority of this workforce is Latino, many of whom speak Spanish. But not all Latinos working in the Northwest speak the same dialect of Spanish or speak Spanish as their primary language. When seeking educational aids, think about the population. Where are they from? What language is predominantly spoken? Can they read? According to a National Business Roundtable report, one-third of all new immigrants lack a high-school diploma. If workers cannot read, written safety information will not be effective. Ideally, training and communications take place on a personal basis, but other strategies to overcome literacy boundaries can include videos, audiotapes, and visual educational materials.

Logging Hazard Training Cards (Spanish and English)

Several bilingual web sites offer low-literacy or semi-literacy materials on general health issues but very few offer forest worker specific resources. John Garland, Oregon State University (in conjunction with Oregon OSHA) has constructed forest-specific hazard and training cards in Spanish and English. In addition, Dr. Garland has developed a glossary of English/Spanish terms for the Forest Activities Code. For PDF versions of the cards and the glossary visit: http://depts.washington.edu/pnash/ORforest_training.php or for more information contact Dr. Garland, John.Garland@oregonstate.edu, 541-737-3128.

If you can’t find the aids you need consider developing your own. The first step is to define the message. What information is essential to work safety and accurately?

Visual Learning

When working with cultures with a strong oral tradition or with groups with limited literacy, teaching with visual models will be more effective than distributing written materials.

When developing visual learning materials, consider the following:

• Present one concise idea.
• Make the message relevant to real-life situations.
• Create clear, two-dimensional images without excessive shading, details, or text.
  • If text is used - keep it simple.
• Show the right way to do something, and be consistent.
• Field test materials for comprehension – you may be surprised by the results.
  • We have been trained at an early age to “read” signs and symbols. People from other cultures may not “read” the message the same way.

Another step in strengthening the bridge of communication is to groom one of the workers to be a champion for distributing and explaining safety and health information. Workers are more likely to trust someone who knows the job, who speaks the same language, and shares a similar background.

For more information on developing materials for semi-literate audiences contact the PNASH Center, pnash@u.washington.edu, (800) 330-0827
<table>
<thead>
<tr>
<th><strong>Spanish Resources</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor Occupational Health Program (LOHP)</strong> offers training resources and publications such as, “The Right to Understand” a manual designed to introduce health and safety trainers to the needs of workers with limited literacy skills and to provide tools and tips for material development (510) 642-550, <a href="http://ist-socrates.berkeley.edu/~lohp/">http://ist-socrates.berkeley.edu/~lohp/</a></td>
</tr>
<tr>
<td><strong>OHSU/Hood River Community Health Outreach Project, La Clinica del Carino</strong> offers general health information for workers and their families through pamphlets developed by project participants <a href="http://www.ohsu.edu/library/hoodriver/pamphlets/pamphletindex.shtm">http://www.ohsu.edu/library/hoodriver/pamphlets/pamphletindex.shtm</a></td>
</tr>
<tr>
<td><strong>National Center for Farmworker Health</strong> offers semi-literate patient educational materials for general health issues including heat stress (800) 531-5120, <a href="http://www.ncfh.org/00_ns_rc_pateduc.php">http://www.ncfh.org/00_ns_rc_pateduc.php</a></td>
</tr>
<tr>
<td><strong>MEDLINEplus</strong> offers bi-lingual health information from the National Library of Medicine <a href="http://www.nlm.nih.gov/medlineplus/spanish/medlineplus.html">http://www.nlm.nih.gov/medlineplus/spanish/medlineplus.html</a></td>
</tr>
<tr>
<td><strong>National Alliance for Hispanic Health</strong> hosts hotline and helplines, safety and health fact sheets <a href="http://www.hispanichealth.org/">http://www.hispanichealth.org/</a></td>
</tr>
<tr>
<td><strong>Migrant Clinicians Network</strong> offers a federal directory of migrant clinics, safety and health, and environmental and occupational health resources <a href="http://www.migrantclinician.org/">http://www.migrantclinician.org/</a></td>
</tr>
<tr>
<td><strong>Healthfinder - US Department of Health and Human Services</strong> hosts links to government agencies, nonprofit organizations, and universities to help the public find health and human services information <a href="http://www.healthfinder.gov/">http://www.healthfinder.gov/</a></td>
</tr>
<tr>
<td><strong>National Institute for Occupational Safety and Health (NIOSH)</strong> safety and health facts sheets <a href="http://www.cdc.gov/spanish/niOSH/index.html">www.cdc.gov/spanish/niOSH/index.html</a></td>
</tr>
<tr>
<td><strong>Occupational Safety and Health Association (OSHA)</strong> hosts a Logging E-Tool, <a href="http://www.osha.gov/SLTC/eetools/logging/mainpage.html">http://www.osha.gov/SLTC/eetools/logging/mainpage.html</a>, to assist employers in developing and implementing safe work practices and programs which comply with requirements and reduce the risks. The Oregon OSHA Web site also hosts links to Spanish language dictionaries, and bi-lingual training modules <a href="http://www.orosha.org/">http://www.orosha.org/</a></td>
</tr>
<tr>
<td><strong>Environmental Protection Agency (EPA)</strong> offers general health effects, pesticides, and sun exposure information, <a href="http://www.epa.gov/espanol/pesticidas.htm">http://www.epa.gov/espanol/pesticidas.htm</a></td>
</tr>
<tr>
<td><strong>Healthy Roads Media</strong> funded by the National Library of Medicine, this site provides health information in several languages, including Russian, Somali, Bosnian, Spanish and Vietnamese. <a href="http://www.healthyradsm.com/">http://www.healthyradsm.com/</a></td>
</tr>
<tr>
<td><strong>Translators on the Web</strong> links to translation services <a href="http://www.theodora.com/translators.html">http://www.theodora.com/translators.html</a></td>
</tr>
<tr>
<td><strong>National Institute for Literacy</strong> provides copies of NIFL publications, bi-lingual operators are available <a href="http://www.nifl.gov/">http://www.nifl.gov/</a></td>
</tr>
<tr>
<td>Some equipment manufacturers offer training videos in Spanish.</td>
</tr>
</tbody>
</table>
Northwest Forestry Industry & Safety Events

2006
September 20 - 22
2006 Pacific Logging Congress
5th Live In The Woods Show
Longview Fibre Nehalem Tree Farm • Clatskanie, Oregon
“Education Has No Borders”
http://www.pacificloggingcongress.org/

September 19 - 22
Central Oregon Occupational Safety & Health Conference
Eagle Crest Resort • Redmond, Oregon
http://www.cbs.state.or.us/external/osha/conferences/index.html

October 18 - 19
Southern Oregon Occupational Safety & Health Conference
Smullin Center • Medford, Oregon
http://www.cbs.state.or.us/external/osha/conferences/index.html

October 25 - 27
Northwest Occupational Health Conference
The Coast Wenatchee Center Hotel and Wenatchee Convention Center • Wenatchee, Washington
http://www.pnsaiha.org/

2007
March 12 - 15
Oregon Governor’s Occupational Safety & Health Conference
Oregon Convention Center • Portland, Oregon
http://www.cbs.state.or.us/external/osha/conferences/OSHA_conference/OR_govs.html

Date unknown
(Most likely the last week of February)
Oregon Logging Conference
P.O. Box 10669, Eugene, Oregon 97440 USA
U.S. Phone: 1-800-595-9191, International Phone: 541-686-9191
E-mail: oregonlogging1@aol.com

October
(Conference dates have not been set)
Alaska Governor’s Safety and Health Conference
Anchorage, AK
www.labor.state.ak.us/lss/asac.htm

Note: Logging safety courses are offered to members of state contract logging associations. Please contact your association for more information.