Appendix F, Table F-2 Continued

The following attachments from Dick Artley represent opposing views, with various themes: Attachment 1-timber harvest activities (p. 1), attachment 4-roads (p. 69), attachment 8-fire benefits (p. 125), attachment 9-use of glyphosate (p. 155), attachment 11-wildland-urban fire (p. 259), attachment 15-best science (p. 281), and attachment 18-herbicide label directions (p. 295). All these attachments are included in this document, and are a considered a continuation of Appendix F, Table F-2. After each opposing view in each attachment, a Forest Service (FS) response is included.

Opposing Views
Attachment #1

Scientists Reveal the Natural Resources in the Forest are Harmed (and some destroyed) by Timber Harvest Activities

Note to the Responsible Official who reads these opposing views: There are negative effects caused by nearly all actions … this includes the actions necessary to harvest trees. The public deserves to consider projects proposed to occur on their land with the knowledge of the pros and cons of the project.

The Responsible Official will find that none of the literature sources for the opposing views is specific to this project. Information contained in books and/or scientific prediction literature is never specific to individual projects. They describe cause and effects relationships that exist when certain criteria are met … at any location under the vast majority of landscape characteristics.

Indeed, the literature in the References section of the draft NEPA document for this project is not specific to the project yet its used to help design this project.

The opposing views presented below are not always right or wrong. When responding to opposing views that the Responsible Official believes are “reasonable” please discuss them in the context of this project. In other words, could the resource damage occur as a result of this project.
Once again, this gives the public complete project understanding. This allows them to submit meaningful comments.

**Introduction**

The following scientific statements describe the natural resources that most likely will sustain damage as a result of timber harvest activities.

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**Timber Harvest Opposing View #1** - The following document contains pertinent color pictures showing logging damage, thus the article text is not shown here. Please use the link below to access the article.

Al-jabber, Jabber M. *Habitat Fragmentation:: Effects and Implications*
Clearcuts and forest fragmentation, Willamette NF, Oregon.
From: Cascadia Wildland Project, Spring 2003

**Response:**
No clear-cutting is proposed. This project proposes thinning (commercial and non-commercial) only in young stands/plantations less than 80 years old (generally 25 to 60 years old) comprised of dense conifer trees (mainly Douglas-fir) that have very little understory vegetation. Thinning and associated actions are designed to speed the development of late-successional and old-growth forest habitats within these stands, which would improve habitat diversity and reduce fragmentation of wildlife habitat in the project area. (Preliminary Analysis (PA), chapter 1, background section).

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**Timber Harvest Opposing View #2** - “Timber harvest operations have been shown to have many effects on adjacent watercourses and on the aquatic ecosystems they support. This may occur from introductions or loss of woody debris, loss of riparian vegetation, accelerated stream bank and bed erosion, the alteration of natural channel form and process, and the reduction of stream habitat diversity. However, the existing literature
indicates one of the most insidious effects of logging is the elevation of sediment loads and increased sedimentation within the drainage basin.

Sediment generation from various forestry practices has been studied extensively in the past. Forestry practices which generate suspended sediments include all operations that disturb soil surfaces such as site preparations, clear-cutting, log skidding, yarding, slash burns, heavy equipment operation and road construction and maintenance.”


Response:
Project design criteria (Appendix A), such as no-cut buffers for streams and potentially unstable areas, and restrictions for yarding, roadwork (e.g., new temporary roads would not cross streams), and season of operations are expected to minimize or prevent levels of stream sedimentation that would exceed natural background levels. Please refer to the EA, chapter 3, aquatic habitat and species, and soils and water quality sections; and appendices D and H for additional information. Potential sediment sources mentioned in this paper include stream bank disturbance, in-stream activities, clear cutting and road building. This project does not include any clear cutting no temporary roads are allowed to cross streams. There are streamside buffers to protect stream banks from disturbance. Road maintenance is proposed, but that will reduce the potential to mobilize any sediment that might reach streams

Timber Harvest Opposing View #3 - “Timber harvest will remove dead and dying material from the site and inhibit the recruitment of downed woody material as time progresses. Timber harvest and associated reduced structural complexity and reduced age and size class diversity are all known to reduce population abundance and diversity of ants and a number of birds. For instance, ants are documented to require downed woody material in a variety of sizes and in all stages of decomposition (Torgersen and Bull, 1995). This is an attribute that is negatively correlated with harvest of the dead and dying trees and positively correlated with
natural succession, especially after disturbance. Ants and birds are known to predate on insect species which cause mortality to trees, serving as a potentially important population control in the case of epidemics or before they occur \cite{Campbell1983}. Structural and functional characteristics associated with unlogged forests are also important for canopy arthropods, which play an important role in regulating pest outbreaks \cite{Schowalter1989}.

Structural complexity, functional diversity, diversity of ecological process and diversity of structure in roadless areas are all expected to be less susceptible to the outbreak of pests and regulate insect activity in surrounding homogenized forests \cite{SchowalterMeans1989,Franklin1989}.\cite{SchowalterMeans1989,Franklin1989}.

**Response:**
The project proposes to enhance existing poor structural complexity and functional diversity of stands, and ecological processes (EA, chapters 1 and 2).

A large body of scientific evidence also indicates that increased edge effect and increased sunlight into stands, resulting from reduced canopy cover associated with timber harvest, can directly promote the population abundance, productivity and persistence of insects which cause mortality to trees of \cite{Roland1993,RothmanRoland1998,KoukiMcCulloughMarshall1997,BellingerRavlinMcManus1989}.

“Applying Ecological Principles to Management of the U.S. National Forests”
*Issues in Ecology* Number 6 Spring 2000

**Response:**
The project proposes to enhance structural complexity, bio-complexity, and species diversity, which would improve functional diversity within stands (PA, chapter 1). No harvesting of existing dead or dying trees is proposed. Dead wood would be created as part of stand treatments. Un-thinned portions of young stands (greater than 50%) and skips/clumps would provide future sources of dead wood (snags and down wood).

Plantation thinning has occurred on this forest for several years, with no outbreak of insect infestation. Insect outbreaks are not a major source of forest impacts on the Siuslaw. A project design criterion in Appendix A restricts the timing of the creation of dead wood to minimize any potential insect infestation.
The paper focuses primarily on the impacts of clear-cuts. The project does not propose clear-cutting. Canopy cover within plantations would range between 40% and 70% after thinning in the short term.

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**Timber Harvest Opposing View #4** - “The biggest ecological con job in years is being waged by the U.S. Republican party and their timber industry cronies. They are blaming the recent Western wildfires on environmentalists, and assuring the public that commercial logging will reduce the risk of catastrophic wildfires.”


**Response:**
Reducing wildfire risk through timber harvesting is not practiced on the Siuslaw because large stand-replacing wildfires are very infrequent.

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**Timber Harvest Opposing View #5** - “According to a 1998 poll by a firm that has worked for several Republican House members and two presidents, 69 percent of Americans oppose commercial logging on federally owned land. The Forests Service’s own poll showed that 59 percent of Americans who expressed an opinion oppose timber sales and other commodity production in national forests.”

“Many Americans are surprised to learn that logging is even allowed on public lands. Alas, it has been since the Organic Act of 1897 first authorized logging in America's new forest reserves. That legislation called
for watershed protection and a steady supply of timber - what the Forest Service calls ‘multiple use.’ "

“But the agency has been unable to balance those goals. More often than not, the integrity of the forest ecosystem has been sacrificed to maximize timber and other commodities. And at taxpayer expense, notes Bernie Zaleha, chair of the End Commercial Logging on Federal Lands (ECL) campaign. The Forest Service lost $2 billion on its logging program from 1992 to 1997, according to the General Accounting Office. It spends more on building roads and preparing sales than it gets back in timber receipts.”

Barry, John Byrne. “Stop the Logging, Start the Restoration” from *The Planet* newsletter
June 1999, Volume 6, Number 5

**Response:**
The project would implement actions designed to encourage the development of late-successional forest characteristics within young stands and reduce fragmentation. No clear-cutting is proposed. Selling timber from young stands proposed for commercial thinning would provide revenue to help fund several of these actions. Timber sales must be sold at or above advertised rates. Advertised rates include costs, such as those associated with sale preparation and roadwork. With few exceptions, timber sales are sold higher than the advertised rates, resulting in revenue. This revenue helps fund actions, such as dead wood creation and under-planting within stands that would be commercially thinned.
The article is a 13 year-old piece that focused on clear cutting activities. The current thinning program on the Siuslaw is focused on encouraging the development of late-successional forest characteristics. The article also focused on increasing fragmentation caused by clear cutting; thinning does not contribute to increased fragmentation.

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**Timber Harvest Opposing View #6** - “Federal auditors have found that the Forest Service frequently fails to assess, prevent or correct environmental damage from logging on the national forests.”
After inspecting 12 timber projects in the field from 1995 to 1998, the Agriculture Department's inspector general found that all were deficient and that 'immediate corrective action is needed.'

A new report on the audits found that the environmental studies required before logging was approved were poorly done, the rules to protect streams and wildlife habitat from undue damage during logging were not followed, and the steps planned to repair some of the harm after logging were not carried out.

The inspector general, Roger C. Viadero, reported on Jan. 15 to Mike Dombeck, chief of the Forest Service, that the review had found "numerous serious deficiencies." Agency officials generally agreed with the report's conclusions and recommendations.”


**Response:**
The report focuses on poorly done environmental documents and inadequate monitoring of projects. The Central Coast Ranger District performed an extensive analysis for this project. Comments were solicited from the public and other agencies to improve the analysis. In addition, federal regulatory agencies were also involved with the project because of the presence of Endangered and/or Threatened species. Project design criteria (Appendix A), which includes monitoring requirements, are included to prevent or minimize environmental damage. The public and other agencies are encouraged to review project activities.

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**Timber Harvest Opposing View #7** - "The timber harvest shouldn't be dominant. It should be on an equal plane with recreation concerns, with wildlife concerns, hunting, fishing, protecting our cultural heritage. That's what the American public is asking us to do."

Dombeck, Mike Ph.D. "Through the Woods"
Response: The Northwest Forest Plan has designated all of the lands in the project as Late-successional Reserve, Riparian Reserve, and Matrix. Timber harvest is used as a tool to encourage the development of late-successional and old-growth forest habitat conditions, which is a purpose and need for the project. All resources are evaluated and include project design criteria (Appendix A) for protection or enhancement.

Timber Harvest Opposing View #8 - “I recently read a letter from a line officer who chided local managers for being behind schedule relative to meeting the region’s ‘timber targets.’ My expectation is that line officers will demand similar accountability for meeting watershed restoration, fish and wildlife habitat, riparian, recreation, cultural resource, and wilderness management goals.”

“We need to do a better job talking about, and managing for, the values that are so important to so many people. Values such as wilderness and roadless areas, clean water, protection of rare species, old growth forests, naturalness -- these are the reasons most Americans cherish their public lands.”

"Fifty years ago, Aldo Leopold wrote his seminal work, A Sand County Almanac. In it, Leopold spoke of his personal land ethic and the need for land managers to extend their own ecological conscience to resource decisions. The Forest Service natural resource agenda is an expression of our agency's land ethic. If we are to redeem our role as conservation leaders, it is not enough to be loyal to the Forest Service organization. First and foremost, we must be loyal to our land ethic. In fifty years, we will not be remembered for the resources we developed; we will be thanked for those we maintained and restored for future generations.”

Dombeck, Mike Ph.D.
a message on "Conservation Leadership" sent to all USFS employees on July 1, 1998
Response:
The project proposes restoring ecosystem function in the watershed. Timber harvest is used as a tool to help achieve these objectives, especially within young stands.

Timber Harvest Opposing View #9 - “For much of the past century the Forest Service, entrusted as the institutional steward of our National Forests, focused its management on an industrial-scale logging program. The result of the massive logging and road construction program was to damage watersheds, destroy wildlife habitat and imperil plant and animal species.”

“The continued logging of our National Forests also wastes American tax dollars and diminishes the possibilities of future economic benefits. The Forest Service lost $2 billion dollars on the commercial logging program between 1992-1997. Annually, timber produces roughly $4 billion while recreation, fish and wildlife, clean water, and unroded areas provide a combined total of $224 billion to the American economy. Forests purify our drinking water - 60 million Americans get their drinking water from National Forests. When the dramatic values of ecological goods and services are taken into account, it is clear that protecting National Forests creates more economic benefits than continued logging.”

Ehrlich, Anne Ph.D., David Foster Ph.D. and Peter Raven Ph.D. 2002
“Call to End Logging Based on Conservation Biology,” Native Forest Network.
http://www.nativeforest.org/campaigns/public_lands/stb_5_30_02.htm

Response:
The purpose of thinning is to speed the development of late-successional and old-growth forest habitats within young stands. Timber harvest is a by-product of obtaining this goal.
Timber Harvest Opposing View #10 - “The Bush administration has announced plans to greatly increase logging on federal lands in order to reduce the risk of wildfires. The Forest Service is using the fear of wildfires to allow logging companies to remove medium-and large-diameter trees that they can sell, rather than just the small trees and brush that can make fires more severe. There is little evidence to show that such logging will prevent catastrophic fires; on the contrary, logging roads and industrial logging cause wildfires. Bush is a well known supporter of the timber industry and has accepted huge sums of money from wealthy timber company leaders. He is promoting misinformation about forest fires in order to benefit timber industry campaign contributors.”

“Bush Fire Policy: Clearing Forests So They Do Not Burn”
FOREST CONSERVATION NEWS TODAY, August 27, 2002
http://forests.org/archived_site/today/recent/2002/tiporefl.htm

Response:
Reducing fire risk through timber harvesting is not practiced on the Siuslaw National Forest because of the infrequent occurrence of large-scale wildfire in the moist climate of the Central Coast Range.

Timber Harvest Opposing View #11 - "The proposition that forest values are protected with more, rather than less logging, and that forest reserves are not only unnecessary, but undesirable, has great appeal to many with a vested interest in maximizing timber harvest. These ideas are particularly attractive to institutions and individuals whose incomes depend upon a forest land base. (page 2)"

"On the other hand, approaches that involve reserving of a portion of the land base, or harvest practices that leave commercially valuable trees uncut to achieve ecological goals, are often considered much less desirable as they reduce traditional sources of timber income. (page 2)"

Response: The project proposes actions that would improve watershed conditions and forest health. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.

Timber Harvest Opposing View #12 - “Consequently, we specifically criticize the “simplified structure-based management” approaches derived from simple structural models and traditional silvicultural systems such as clearcutting. In our view, the assumptions underpinning simplified structure-based management (SSBM) are not supported by the published scientific literature on structural development of natural forests, disturbance ecology, landscape ecology and conservation biology, or by the relationships between ecosystem structures and processes. In this report, we review scientific findings associated with each of these areas with particular attention to the over-simplified structural models associated with SSBM and the importance and viability of forest reserves to achieve various ecological goals. (page 2)

“We do not believe, however, that scientific literature or forestry experience supports the notions that intensively managed forests can duplicate the role of natural forests, or that sufficient knowledge and ability exist to create even an approximation of a natural old-growth forest stand.” (page 3)


Response: The Northwest Forest Plan defines our management objectives and provides guidance on obtaining these objectives. In addition, new literature is constantly reviewed to refine our approaches and techniques.
Jerry Franklin and other scientists have visited our Forest in the field, regarding post-thinning reviews of our plantations and have expressed support of the thinning program.

Timber Harvest Opposing View #13 - “But the majority of the protesters were angry about Bush’s plans to implement rules that would thin our national forests to reduce fire risk. Cascadia Forest Alliance volunteer Carrie Taylor said Bush’s plan to log mature and old forests “will only increase fire risks while providing taxpayer subsidized logs to the timber industry.”

“According to the Cascadia Forest Alliance, under the Bush proposal, ‘environmental laws and citizen involvement will be undermined or suspended so that federal land management agencies can increase logging and roadbuilding on public lands, one of the timber industry's highest priorities.’”


Response:
Reduction of fire risk is not a part of the purpose and need for this project.

Timber Harvest Opposing View #14 - "Most of the trees that need to be removed to reduce accumulated fuels are small in diameter and have little or no commercial value."

"Mechanically removing fuels (through commercial timber harvesting and other means) can also have adverse effects on wildlife habitat and water quality in many areas. Officials told GAO that, because of these effects, a large-scale expansion of commercial timber harvesting alone for removing materials would not be feasible. However, because the Forest Service
relies on the timber program for funding many of its activities, including reducing fuels, it has often used this program to address the wildfire problem. The difficulty with such an approach, however, is that the lands with commercially valuable timber are often not those with the greatest wildfire hazards."

Government Accounting Office
“Western National Forests: A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threats”
GAO/RCED-99-65

Response:
Reduction of fire risk is not a part of the purpose and need for this project.

Timber Harvest Opposing View #15 - “The recent concern over the poor health of western pine ecosystems has been attributed at least partly to inappropriate silvicultural practices, both before and since the national forests were established. (4) Because of the timber industry's needs, logging in mixed conifer stands has emphasized cutting the large pines and leaving the true firs and Douglas-fir to dominate the remaining stands. (5) However, true firs and Douglas-fir are more susceptible to the damage (including insect and disease attacks as well as direct damage) that has occurred during the decade-long drought in the interior West, and thus may contribute to the risk of catastrophic wildfires. Salvage sales are one tool that can be used to improve forest health, (6) but critics object to granting the agency the discretion to use timber sales to correct problems partially created by past timber sales."

“A more general concern in some quarters is over Forest Service "bias" toward timber outputs, at the expense of ecosystem conditions and other resource values. While timber harvests are important, other important values are not measured, and managers are not rewarded for achieving these other values. (7) Some have attributed this "bias" to inappropriate incentives, particularly related to the agency’s numerous trust funds and special accounts. (8) The Forest Service has several trust funds and
special accounts that are either funded by timber revenues or provide funds for timber management (or both). (9)”

“One trust fund often cited by critics is the Knutson-Vandenberg (K-V) Fund. This account receives an unlimited portion of timber sale receipts, to be used for reforestation, timber stand improvements, and other resource mitigation and enhancement activities in timber sale areas. Forest Service managers can, therefore, fund their programs from timber sales; in the words of one critic, wildlife managers have an incentive to support timber sales that damage wildlife habitat, because they can use the revenues to mitigate that damage and to keep themselves and their staffs employed. (10)”


Response:
Needs for the project include accelerating the development of late-successional and old-growth forest habitat, improving the quality and diversity of habitat, and enhancing the health of aquatic ecosystems. Reduction of fire risk is not a part of the purpose and need for this project.

Timber Harvest Opposing View #16 - “In April 1999, the General Accounting Office issued a report that raised serious questions about the use of timber sales as a tool of fire management. It noted that "most of the trees that need to be removed to reduce accumulated fuels are small in diameter" -- the very trees that have 'little or no commercial value.' “

“As it offers timber for sale to loggers, the Forest Service tends to 'focus on areas with high-value commercial timber rather than on areas with high fire hazards,' the report said. Its sales include 'more large, commercially valuable trees' than are necessary to reduce the so-called accumulated fuels (in other words, the trees that are most likely to burn in a forest fire).”
“The truth is that timber sales are causing catastrophic wildfires on national forests, not alleviating them. The Sierra Nevada Ecosystem Project Report, issued in 1996 by the federal government, found that ‘timber harvest, through its effects on forest structure, local microclimate and fuel accumulation, has increased fire severity more than any other recent human activity.’ The reason goes back to the same conflict that the G.A.O. found: loggers want the big trees, not the little ones that act as fuel in forest fires.”

“After a ‘thinning’ timber sale, a forest has far fewer of the large trees, which are naturally fire-resistant because of their thick bark; indeed, many of these trees are centuries old and have already survived many fires. Without them, there is less shade. The forest is drier and hotter, making the remaining, smaller trees more susceptible to burning. After logging, forests also have accumulations of flammable debris known as "slash piles" -- unsalable branches and limbs left by logging crews.”

Hanson, Chad Ph.D., “Commercial Logging Doesn't Prevent Catastrophic Fires, It Causes Them.” Published in the New York Times, May 19, 2000
http://www.commondreams.org/views/051900-101.htm

**Response:**
Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.

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**Timber Harvest Opposing View #17** - "The Forest Service keeps the vast majority of timber sale revenues, which gives it a perverse incentive to do more cutting. It has developed a huge bureaucracy around the selling of timber from national forest land."

Hanson, Chad, Ph.D. “Logging for Dollars in National Forests”
Special to The Sacramento Bee - November 14, 2001
http://www.johnmuirproject.org/news-logging-for-dollars.html

**Response:**
All silvicultural activities, including thinning, are designed to encourage the attainment of late-successional forest characteristics. Timber harvesting is a by-product of such treatments.

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**Timber Harvest Opposing View #18** - “Recent editorials by timber industry spokespeople are a wildly misleading attempt to promote increased logging of western U.S. forests under the guise of reducing wildland fires …”

Hanson, Chad Ph.D., “Logg**ing Industry Misleads on Climate and Forest Fires.” Guest Commentary in New West, July 11, 2008

[http://www.newwest.net/topic/article/logging_industry_misleads_on_climate_and_forest_fires/C41/L41/](http://www.newwest.net/topic/article/logging_industry_misleads_on_climate_and_forest_fires/C41/L41/)

**Response:**
Reduction of fire risk is not a part of the purpose and need for this project.

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**Timber Harvest Opposing View #19** - "Logging reduces the organic parent material (duff and woody residues) available for soil-formation processes."

Harvey, A. E., M. J. Larsen, and M. F. Jurgensen
“Distribution of Ectomycorrhizae in a Mature Douglas-fir/larch Forest Soil in Western Montana”
*Forest Science,* Volume 22, Number 4, 1 December 1976 , pp. 393-398(6)
[http://www.ingentaconnect.com/content/saf/fs/1976/00000022/00000004/art00007;jsessionid=l2sdf2hphia2.alexandra](http://www.ingentaconnect.com/content/saf/fs/1976/00000022/00000004/art00007;jsessionid=l2sdf2hphia2.alexandra)

**Response:**
Only selected sub-dominant trees will be removed. Tops of 20% of the trees that would be removed would be retained (Appendix A), and snags would be created, which would eventually become down wood (Appendix A). No under burning is planned; roadside fuels adjacent to open roads would be treated. Skyline cable logging is planned for
most of the area to reduce impacts. Refer to the EA, chapter 3, soils and water quality section, soil productivity sub-section for potential effects to the resource.

Timber Harvest Opposing View #20 - "For too long, we foresters took the public for granted, assuming unwavering support for those who grow the nation’s wood fiber. Few noticed when the public's mood changed, and those who did were often ridiculed by disbelieving colleagues. Now we come to a day of reckoning: the public believes forests are too important to be entrusted to foresters. To restore lost confidence, foresters must first come out of hiding. We have a lot of explaining to do because, where forests are concerned, the public will no longer support what it cannot see and understand. Regaining the public’s trust will take time. We must be prepared to answer hard questions about what we are doing and how our actions are impacting the environment. We must also help the public think through its forest management options. When we lay out these options, we must speak of much more than trees. Only then will our critics know we love forests as much as they do."

Houston, Alan Ph.D., "Why Forestry is in Trouble with the Public." Evergreen magazine, October 1997. http://evergreenmagazine.com/web/Why_forestry_is_in_trouble_with_the_public-v2.html

Response:
The public was involved through the scoping process and had opportunities to comment. The project was described in the SOPA, a public notice was placed in our paper of record, and letters were sent to interested parties on the Forest mailing list. Our publics have generally expressed support for our efforts in managing for late-successional and old-growth forest habitats.

Timber Harvest Opposing View #21 - "SEC. 3. FINDINGS."
Congress finds the following:

Commercial logging has many indirect costs which are very significant, but not easily measured, such as flooding damage and relief of flooding damage through Federal funds, damage to the salmon fishing industry; and harm to the recreation and tourism industries."

H. R. 1494 text. April 4, 2001
http://www.agriculturelaw.com/legis/bills107/hr1494.htm

Response:
The EA addresses these issues in Chapter 3. Because of the nature of proposed actions, project design criteria (Appendix A), and results of several similar, past actions on the Forest, damage associated with flooding and other factors raised in opposing view # 21 was not considered an issue for this project.

Timber Harvest Opposing View #22 - "Human tampering with nature has not been without costs. Human manipulation of existing ecosystems has also sometimes had unfortunate consequences."

Hudak, Mike Ph.D. “From Prairie Dogs to Oysters: How Biodiversity Sustains Us” from his book review of
The Work of Nature: How the Diversity of Life Sustains Us
by Yvonne Baskin, 1997
Newsletter of Earth Day Southern Tier, February/March 1999, p. 2
http://www.mikehudak.com/Articles/FromPrairieDogs9902.html

Response:
The EA provides a detailed analysis of the potential effects of actions in order to allow the deciding official to make an informed decision. Project design criteria (Appendix A) provide the basis for our effects analyses. The analyses, using best available science, conclude that effects from proposed actions would not be substantial.
Timber Harvest Opposing View #23 - “In general, rate of spread and flame length were positively correlated with the proportion of area logged (hereafter, area logged) for the sample watersheds. Correlation coefficients of area logged with rate of spread were > 0.57 for five of the six river basins (table 5). Rate of spread for the Pend Oreille and Wenatchee River basins was strongly associated (r-0.89) with area logged. Correlation of area logged with flame length were > 0.42 for four of six river basins (table 5). The Deschutes and Methow River basins showed the strongest relations. All harvest techniques were associated with increasing rate of spread and flame length, but strength of the associations differed greatly among river basins and harvesting methods.” (pg.9)

“As a by-product of clearcutting, thinning, and other tree-removal activities, activity fuels create both short- and long-term fire hazards to ecosystems. The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree. Even though these hazards diminish, their influence on fire behavior can linger for up to 30 years in the dry forest ecosystems of eastern Washington and Oregon.”


Response:
In the short term, the fire hazard would increase after thinning, until the fine fuels decay (3 to 4 years). Crown spacing would increase after thinning, reducing the potential for fire spreading across tree canopies. Because the Siuslaw National Forest is in a temperate rainforest ecosystem, the decay rate for fuels would relatively high, reducing the fire hazard over the long term.
Timber Harvest Opposing View #24 - "The Quincy Library Group's (QLG's) fuelbreak strategy represents a giant step backwards from the progressive development of rational fire policies established by the 1995 Federal Wildland Fire Management Policy and Program Review."

"The fact that the QLG admits that its Plan is inconsistent with these new policies (indeed, is almost gleefully defiant of them) says a lot about the credibility of the QLG's self-purported fire management expertise."

"In spite of (or more likely because of) the intensive 'fuels reduction' activities associated with commercial logging, the Fountain Fire was truly catastrophic in its effects."

"Even 'kinder, gentler' commercial logging still inflicts environmental impacts such as eroded topsoil, degraded water quality, destroyed wildlife habitat, and extirpated species that are every bit as much symptoms of forest health problems as large-scale, severe wildfires."

"And after spending millions of dollars creating the SNEP Report, it seems wise to use its information, not ignore it or opportunistically select out statements clearly worded as assumptions, values, or goals which run contrary to factual research findings. The QLG Plan has much more to do with timber extraction than with genuine fire protection, and in that respect, it constitutes more of a forest health threat than a real solution."

"The QLG Bill resembles similar 'panic legislation' that was passed during the early 1970s in which, following some large-scale wildfires in California, Congress allowed the Forest Service to access emergency firefighting funds to conduct 'presuppression' timber sales. Many fuelbreaks were cut in the Sierras during this period, and while costs rapidly rose into tens of millions of dollars, most of these fuelbreaks failed to perform adequately during wildfire suppression incidents. Congress quickly had to take away this funding source from the Forest Service. What has become of these old fuelbreaks? Almost without exception, the agency failed to monitor or maintain them, and in a modern-day version of 'cut and run' logging, many of these old fuelbreaks have converted to chaparral brush and 'dog-hair' thickets … a much more flammable vegetation type than the original forest cover. The QLG Bill appears to be 'deja vu' without evidence of Congress or the QLG being aware of this history of previous fuelbreak programs."

**Response:**
Reduction of fire risk is not a part of the purpose and need for this project.

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**Timber Harvest Opposing View #25** - “The notion that commercial logging can prevent wildfires has its believers and loud proponents, but this belief does not match up with the scientific evidence or history of federal management practices. In fact, it is widely recognized that past commercial logging, road-building, livestock grazing and aggressive firefighting are the sources for "forest health" problems such as increased insect infestations, disease outbreaks, and severe wildfires.”

“How can the sources of these problems also be their solution? This internal contradiction needs more than propaganda to be resolved. It is time for the timber industry and their supporters to heed the facts, not fantasies, and develop forest management policies based on science, not politics.”


**Response:**
Reduction of fire risk is not a part of the purpose and need for this project.

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**Timber Harvest Opposing View #26** - "Since the 'New Perspectives' program of the early 1990s, the agency has tried to dodge public opposition to commercial logging by using various euphemisms, such as this gem
from the Siskiyou National Forest: Clearcuts are called 'minimum green tree retention units.' Accordingly, Forest Service managers have believed that if they simply refer to logging as 'thinning,' or add the phrases 'fuels reduction' or 'forest restoration' to the title of their timber sale plans, then the public will accept these projects at face value, and business-as-usual commercial logging can proceed. In the face of multiple scandals and widespread public skepticism of the Forest Service's credibility, it seems that only Congress is buying the agency's labeling scheme."

Ingalsbee, Timothy Ph.D. “Logging without Limits isn't a Solution to Wildfires” published in the Portland Oregonian, August 6, 2002
http://www.klamathforestalliance.org/Documents(loggingwithoutlimits.html

Response:
Needs for the project include accelerating the development of late-successional and old-growth forest habitat, improving the quality and diversity of habitat, and enhancing the health of aquatic ecosystems. Reduction of fire risk is not a part of the purpose and need for this project.

Timber Harvest Opposing View #27 - “Thus, the use of commercial logging for fire hazard reduction poses yet another paradox: Logging removes the trees that normally survive fires, leaves behind the trees that are most often killed by fire, increases flammable fuel loads, and worsens fire weather conditions." (pg. 5)

Ingalsbee, Timothy Ph.D. “The wildland fires of 2002 illuminate fundamental questions about our relationship to fire.”
The Oregon Quarterly, Winter 2002
http://fireecology.org/research/wildfire_paradox.pdf

Response:
Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.
Timber Harvest Opposing View #28 - "In the face of growing public scrutiny and criticism of the agency's logging policies and practices, the Forest Service and their enablers in Congress have learned to mask timber sales as so-called 'fuels reduction' and 'forest restoration' projects. Yet, the net effect of these logging projects is to actually increase fire risks and fuel hazards."

"Decades of encouraging private logging companies to take the biggest, oldest, most fire-resistant trees from public lands, while leaving behind a volatile fuel load of small trees, brush, weeds, stumps and slash has vastly increased the flammability of forestlands."

"In addition to post-fire salvage logging, the Forest Service and timber industry advocates in Congress have been pushing pre-fire timber sales, often falsely billed as hazardous fuels reduction or 'thinning' projects, to lower the risk or hazard of future wildfires. In too many cases, these so-called thinning projects are logging thick-diameter fire-resistant overstory trees instead of or in addition to cutting thin-sized fire-susceptible understory trees. The resulting logging slash and the increased solar and wind exposure can paradoxically increase the fuel hazards and fire risks."


**Response:**
Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.
Timber Harvest Opposing View #29 - “More than any other recent human activity, the legacy of commercial timber extraction has made public forests more flammable and less resilient to fire. Firstly, clearcut and high-grade logging have historically taken the largest, most fire-resilient, most commercially-valuable trees, and left behind dead needles and limbs (logging debris called "slash"), along with smaller trees and brush that are less commercially valuable but more flammable than mature and old-growth trees. The net effect is to increase the amount of available hazardous fuel.”

“Secondly, the removal of large overstory trees also changes the microclimate of logged sites, making them hotter, drier, and windier, which increases the intensity and rate of spread of wildfires. Third, the creation of densely-stocked even-aged plantations of young conifers made sites even more flammable since this produced a solid mass of highly combustible conifer needles within easy reach of surface flames. These changes in the fuel load, fuel profile, and microclimate make logged sites more prone to high-intensity and high-severity wildfires.”


Response:
Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.

Timber Harvest Opposing View #30 - “Linear developments may result in habitat avoidance for grizzly bears. Logging-truck traffic in the Kimsquit Valley in British Columbia resulted in a 78% reduction in use of the “Zone of Hauling Activity” by radio collared bears compared to non-hauling periods (16). For 14 hours/day, 3%-23% of each bear’s home range was unavailable to them because of disturbance.”
“The impacts of land-use activities on wolverines are likely similar to those on grizzly bears. Wolverines seem to have been most affected by activities that fragment and supplant habitat, such as human settlement, extensive logging, oil and gas development, mining, recreational developments, and the accompanying access. Wolverine populations that are now at the edge of extirpation have been relegated to the last available habitat that has not been developed, extensively modified, or accessed by humans.”


Response:
Grizzly bears and wolverines do not inhabit the Siuslaw National Forest. The wildlife habitat and species section in the EA discloses the effects on affected wildlife. The Wildlife Report and Biological Evaluation (Appendix E) provides more detailed information.

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Timber Harvest Opposing View #31 - “History, not science, refutes the claim that logging helps to prevent forest fires.

The forests of the West are far more vulnerable to fire due to a century of industrial logging and fire suppression. Logging has removed most of the older, fire-resistant trees from the forests.

Fire suppression has encouraged many smaller and more flammable trees, brush and dense plantations to fill the holes. Logging has set the forests of the West up to burn big and hot.

More logging will not fix this.”

Keene, Roy “Logging does not prevent wildfires”
Guest Viewpoint, the Eugene Register Guard
January 11, 2009
Response:
Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.

Timber Harvest Opposing View #32 - “Fear of wildfire is heavily used to sell these forest “restoration” schemes. Logging has not been proven, in practice, to reduce fire frequency or intensity. Historically, the largest, most destructive blazes, like the Tillamook conflagration, were caused from logging or fueled by slash. Unlogged forests, cool and shaded, are typically more fire resistant than cut over, dried-up stands choked with slash and weeds.

Large-scale logging (by any name) has devalued our forests, degraded our waters, damaged soils, and endangered a wide variety of plants and animals. How will the current round of politically and environmentally propelled ‘restorative’ logging proposals differ, in practice, from past logging regimes?”

Keene, Roy Restorative Logging? “More rarity than reality”
Guest Viewpoint, the Eugene Register Guard
March 10, 2011
http://eugeneweekly.com/2011/03/03/views3.html

Response:
Needs for the project include accelerating the development of late-successional and old-growth forest habitat, improving the quality and diversity of habitat, and enhancing the health of aquatic ecosystems. Reduction of fire risk is not a part of the purpose and need for this project.
Timber Harvest Opposing View #33 - "Timber harvesting operations affect hydrologic processes by reducing canopy interception and evapotranspiration. Many studies have documented changes in soil properties following tractor yarding (Stone, 1977; Cafferata, 1983), and low-ground-pressure skidding (Sidle and Drlica, 1981). More recently, researchers have evaluated cable yarding (Miller and Sirois, 1986; Purser and Cundy, 1992). In general, these studies report decreased hydraulic conductivity and increased bulk density in forest soils after harvest."

Keppeler, Elizabeth T. Robert R. Ziemer Ph.D., and Peter H. Cafferata
"Effects of Human-Induced Changes on Hydrologic Systems."
An American Water Resources Association publication, June 1994
http://www.fs.fed.us/psw/publications/ziemer/Ziemer94a.PDF

Response:
The EA, soils and water quality section discloses soil productivity, soil stability, and hydrology effects. These analyses are supported by appropriate literature citations in the references section. Appendix A contains specific design criteria to minimize the effects to soils on pages 12 to 18.

Timber Harvest Opposing View #34 - "Among these four species of amphibians, the spotted salamander is most likely to be affected adversely by the logging as this species of salamander relies on dense forests with full canopies (Harding, 1997)."

"Looking at the study on a larger scale, the potential for changes caused by logging is great. Absence of trees could influence water temperature by altering available sunlight, conductivity by changing the amount of organic matter that collects in the vernal ponds, or pH if the logging process deposits foreign residues to the area. Also heavy equipment used to harvest the timber has the potential to alter the terrain."

"Modifications to the landscape could change how water flows and collects at the surface and change the size, shape, and location of the vernal ponds. Loss or alteration to small temporary water sources less than four hectares can be extremely detrimental to amphibians water (Semlitsch,
2000). Without vernal ponds amphibians would have difficulty inhabiting forested areas because they rely on the ponds as breeding grounds. If logging disturbs the ponds, amphibian populations could diminish in the areas that surround these vernal pools."


**Response:**

Water sources, such as ponds (usually beaver ponds) or streams are protected with buffers (Appendix A). Effects to water quality are disclosed in the EA, chapter 3, soils and water quality section. Effects to wildlife are disclosed in the EA, chapter 3, wildlife habitat and species section.

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**Timber Harvest Opposing View #35** - “The Congressional Research Service (CRS) recently addressed the effect of logging on wildfires in an August 2000 report and found that the current wave of forest fires is not related to a decline in timber harvest on Federal lands. From a quantitative perspective, the CRS study indicates a very weak relationship between acres logged and the extent and severity of forest fires. To the contrary, in the most recent period (1980 through 1999) the data indicate that fewer acres burned in areas where logging activity was limited.”

“Qualitative analysis by CRS supports the same conclusion. The CRS stated: "[T]imber harvesting removes the relatively large diameter wood that can be converted into wood products, but leaves behind the small material, especially twigs and needles. The concentration of these fine fuels on the forest floor increases the rate of spread of wildfires." Similarly, the National Research Council found that logging and clearcutting can cause rapid regeneration of shrubs and trees that can create highly flammable fuel conditions within a few years of cutting.”

Laverty, Lyle, USDA Forest Service and Tim Hartzell U.S. Department of the Interior
http://frames.nacse.org/6000/6269.html

Response: Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, sub-dominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature natural stands.

Timber Harvest Opposing View #36 - “I will turn first to forest thinning aimed at reducing fire risks. There is surprisingly little scientific information about how thinning actually affects overall fire risk in national forests.”

“How can it be that thinning could increase fire risks? First, thinning lets in sunlight and wind, both of which dry out the forest interior and increase flammability. Second, the most flammable material - brush, limbs, twigs, needles, and saplings - is difficult to remove and often left behind. Third, opening up forests promotes brushy, flammable undergrowth. Fourth, logging equipment compacts soil so that water runs off instead of filtering in to keep soils moist and trees healthy. Fifth, thinning introduces diseases and pests, wounds the trees left behind, and generally disrupts natural processes, including some that regulate forest health, all the more so if road construction is involved.”

Lawrence, Nathaniel, NRDC senior attorney
“Gridlock on the National Forests” Testimony before the U.S. House of Representatives Subcommittee on Forests and Forest Health (Committee on Resources) December 4, 2001.

Response: Reduction of fire risk is not a part of the purpose and need for this project. The EA, soils and water quality section discloses soil productivity, soil stability, and hydrology effects. These analyses are supported by appropriate literature citations in the references section. Appendix A contains specific design criteria to minimize the effects to soils on pages 12 to 18. Closing roads and fuel treatments adjacent to open roads would substantially reduce the potential for wildfire starts, since 93% of the fires on the Siuslaw National Forest are
The fire hazard would increase after thinning, until the fine fuels decay in 3 to 4 years. Crown spacing would increase after thinning, reducing the potential for fire spreading across tree canopies. Because the Siuslaw National Forest is in a temperate rainforest ecosystem, the decay rate for fuels would be relatively high, reducing the fire hazard over the long term.

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**Timber Harvest Opposing View #37** - “Those who would argue that this form of logging has any positive effects on an ecosystem are clearly misinformed. This type of logging has side effects related to wildfires, first and foremost being that the lumber companies aren't interested in hauling out all the smaller trees, branches, leaves, pine needles, sawdust, and other debris generated by cutting all these trees. All this debris is left on site, quickly dries out, and is far more flammable sitting dead on the ground than it was living in the trees. Smaller, non-commercially viable trees are left behind (dead) as well - creating even more highly flammable fuel on the ground.


**Response:**
Reduction of fire risk is not a part of the purpose and need for this project. Within young stands, subdominant trees would be removed to encourage the growth of larger trees. No timber harvesting would occur in mature, natural stands.

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**Timber Harvest Opposing View #38** - "We concluded that commercial timber sales do not meet the criteria for forest restoration." (Pg. 11)

Response:
The report referenced for opposing view #38 focuses on timber sales that are designed to reduce fire risk. Harvesting timber to reduce fire risk is not part of the project’s purpose and need. The silvicultural treatments, including thinning, are designed to encourage the attainment of late-successional forest characteristics; timber harvest is a by-product of these treatments.

Timber Harvest Opposing View #39 - “In hopes of ending conflicts over "multiple use," an independent scientific committee has proposed that "ecological sustainability" should become the principal goal in managing the U.S. national forests and grasslands, which since 1960 have been under a congressional mandate to serve industry, recreation, and conservation all at once.”

Mann, Charles C. Ph.D. and Mark L. Plummer Ph.D.
“Call for ‘Sustainability’ in Forests Sparks a Fire”
http://www.sciencemag.org/content/283/5410/1996.summary

Response:
Silvicultural treatments, including thinning, are designed to encourage the attainment of late-successional forest characteristics; timber harvest is a by-produce of these treatments.

Timber Harvest Opposing View #40 - "Logging removes a mass that harbor a myriad of organisms, from bacteria and actinomycetes to higher
The smaller organisms, not visible to the unaided eye, are still important components of the system."

Maser, C. Ph.D., and J. M. Trappe Ph.D.  
"The Seen and Unseen World of the Fallen Tree", 1984  
USDA Forest Service, GTR-PNW-164  
http://www.fs.fed.us/pnw/publications/pnw_gtr164/ 

**Response:**  
Only selected sub-dominant trees would be removed. Tops of 20% of the trees that would be removed would be retained (Appendix A), and snags would be created, which would eventually become down wood (Appendix A). 40 to 75 trees per acre would be retained in treated stands (Appendix A). No-cut buffers or leave areas would be implemented. No under burning is planned. Skyline cable yarding is planned for most of the area to reduce impacts. Appendix A includes project design criteria to minimize soil impacts (pages 12 to 18). 

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Timber Harvest Opposing View #41 - "Logging removes mature and maturing trees which conserve essential elements, whereas the area containing new very young planted trees following logging are susceptible to erosion and essential element loss." (pg.5)  

"Logging removes tree parts that would have created and maintained diversity in forest communities." (pg. 44)

"The Forest to the Sea: A Story of Fallen Trees"  
USDA Forest Service, GTR-PNW-GTR-229  
http://www.fs.fed.us/pnw/publications/pnw_gtr229/ 

**Response:**  
Only selected sub-dominant trees would be removed. Tops of 20% of the trees that would be removed would be retained (Appendix A), and snags would be created, which would eventually become down wood (Appendix A). 40 to 75 trees per acre would be retained in treated stands (Appendix A). No-cut buffers or leave areas would be implemented. No under burning is planned. Skyline cable yarding is planned for most of the area to reduce impacts. Appendix A includes project design criteria to minimize soil impacts (pages 12 to 18).
Timber Harvest Opposing View #42 - "In addition to the direct effects of habitat loss and fragmentation, logging typically reduces ecosystem health by:

a) damaging aquatic habitats through siltation, reduction in stream complexity and increased water temperatures.”

McIntosh, B.A., J.R. Sedell, J.E. Smith, R.C. Wissmar
S.E. Clarke, G.H. Reeves, and L.A. Brown
GTR-321 93-181
http://www.fs.fed.us/pnw/publications/pnw_gtr321/

Response:
The current thinning program on the Siuslaw is designed to encourage the development of late-successional forest characteristics. Maximizing economic return is not part of the purpose and need. The article attached for opposing view #42 also focuses on increasing fragmentation caused by clear cutting, which is not proposed under this project. Thinning is designed to reduce habitat fragmentation in the long term. Appendix A, which is the basis for the effects disclosed in the EA, chapter 3, contains criteria designed to protect water quality and aquatic habitats (pages 11 to 19).

Timber Harvest Opposing View #43 - “Logging practices can indirectly result in changes in the biological components of a stream, and can have direct and indirect on the physical environment in streams.

The primary environmental changes of concern are the effects of siltation, logging debris, gravel scouring, destruction of developing embryos and alevins, blockage of streamflow, decrease in surface and intragravel dissolved oxygen, increase in maximum and diel water temperatures,
changes in pool/riffle ratios and cover, redistribution of fishes, reduction in fish numbers, and reduction in total biomass.”


Response:
Appendix A, which is the basis for the effects disclosed in the EA, chapter 3, contains criteria designed to protect water quality and aquatic habitats (pages 11 to 19). Refer to the soils and water quality section and the aquatic habitat and species section of the EA, chapter 3; and appendix H for effects of actions on streams.

Timber Harvest Opposing View #44 - "Biodiversity in managed ecosystems is poor. Less biodiverse communities and ecosystems are more susceptible to adverse weather (such as drought) and exotic invaders, and have greatly reduced rates of biomass production and nutrient cycling."

"All of these studies show that ecosystem functioning is decreased as the number of species in a community decreases. Declines in functioning can be particularly acute when the number of species is low, such as in most managed ecosystems including croplands or timber plantations."

"Recent evidence demonstrates that both the magnitude and stability of ecosystem functioning are likely to be significantly altered by declines in local diversity, especially when diversity reaches the low levels typical of managed ecosystems."

**Response:**
One of the project’s objectives is to speed the development of late-successional and old-growth habitat. The existing stands tend to be monocultures (Douglas-fir) of young, even-aged conifers, with low biodiversity. The project proposes to enhance biodiversity by creating dead wood, planting diverse species of trees in the understory, creating gaps and clumps, and encouraging the development of understory vegetation by allowing sunlight to reach the forest floor.

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**Timber Harvest Opposing View #45** - "As a result of the Forest Service's well-documented mismanagement over many years of the timber sale program, taxpayers also have been stuck with the tab for hundreds of millions of dollars worth of subsidies to a profitable timber industry."


**Response:**
The 2002 report attached with opposing view # 45 focuses on the poor condition of the existing road systems and the use of FS funds to build logging roads. The project proposes to repair and maintain existing roads to improve stability and safety, to close some roads to reduce maintenance costs and reduce impacts to soils and water quality, and decommission roads that are not needed to improve stability and reduce impacts to soils and water quality. All these actions would also reduce maintenance costs in the long term. Revenue from the sale of timber helps to repair and maintain roads, which would help address the backlog in road maintenance. Also, separate projects, such as the Legacy Roads Project, are beginning to address the backlog in road maintenance and to reduce the existing road network.

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**Timber Harvest Opposing View #46** - "Agroforestry does reduce biodiversity. In forests used for logging, whole-landscape management is
crucial. Here, emphasis is placed on areas of intensive use interspersed with areas for conservation and catchment purposes. Management strategies for sustainable forestry are being developed, but there is a need for further interaction among foresters, ecologists, community representatives, social scientists, and economists."


**Response:** The project proposes landscape management designed to increase biodiversity within young stands, protect soils and water quality, and improve wildlife and aquatic species habitats in the long term. The North Fork of the Siuslaw River Watershed Analysis (1994) is a guiding document for this project and was the product of a diverse group of stakeholders.

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**Timber Harvest Opposing View #47** - "The U.S. Forest Service has been sitting on a public opinion survey it commissioned, not knowing what to do with the results. The problem is that most people surveyed want more wilderness and less logging on the Green Mountain National Forest (GMNF), while the federal agency seems to want to build more roads and cut more trees."

"The survey conducted by Dr. Robert Manning of the School of Natural Resources at the University of Vermont, polled 1,500 Vermont households in the spring of 1995. A survey with similar results was completed last fall for the White Mountain National Forest in New Hampshire. 'It is clear that New England residents value the national forest for many reasons, but non-material values, such as aesthetics and ecological protection, are more important than material values, such as economic development,' said Dr. Manning."

"The responses to several survey questions indicate a strong public desire for more areas of wild, untouched nature on the GMNF and less
roadbuilding and logging. Very few people supported clearcutting and other types of industrial logging, especially if natural beauty or wildlife habitat were harmed."

"For example:

- 82 percent wanted to ban clearcutting,
- 82 percent said logging should not hurt scenic beauty,
- 80 percent of the respondents wanted to protect remaining undisturbed forest; and
- 72 percent urged prohibition of logging if bear or other wildlife habitat would be harmed."

"Only 36 percent felt that management of the GMNF should emphasize timber and lumber products; and only 15 percent felt that jobs are more important than protection of endangered species."

"'The results of this survey and a similar one on the White Mountain National Forest in Vermont should serve as loud wake-up calls to the U.S. Forest Service,' said Northup. 'Forest Service officials have two choices: either begin a major overhaul of the agency's management programs or ignore the wishes of the people they are supposed to serve'."


**Response:**
The project proposes to speed the development of late-successional and old-growth forest habitats by thinning young, mono-cultured, dense, and even-aged managed stands. No clear-cutting is proposed. Project design criteria (Appendix A) serve to protect or enhance natural resources.
**Timber Harvest Opposing View #48** - “Still, forestry experts warned in the 2000 plan that logging should be used carefully and rarely; in fact, the original draft states plainly that the "removal of large merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk."

“Now, critics charge that the Bush administration is ignoring that warning. Neil Lawrence, a policy analyst with the Natural Resource Defense Council, claims that Washington has taken a far more aggressive approach to incorporating commercial logging in its wildfire prevention plans. As a result, Lawrence and other critics say, the National Fire Plan is becoming a feeding ground for logging companies. Moreover, critics claim the administration's strategy, far from protecting the lives and homes of those most at risk, could actually increase the likelihood of wildfires.”

Okoand Ilan Kayatsky, Dan. “**Fight Fire with Logging?**” *Mother Jones*, August 1, 2002

http://motherjones.com/politics/2002/08/fight-fire-logging

**Response:**
Harvesting timber to reduce fire risk is not a part of the purpose and need for the project. The project involves thinning sub-dominant trees from young, mono-cultured, dense, and even-aged managed stands, which would encourage the growth of residual trees.

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**Timber Harvest Opposing View #49** - “In response to catastrophic wildfires, wide-reaching forest management policies have been enacted in recent years, most notably the Healthy Forests Restoration Act of 2003. A key premise underlying these policies is that fire suppression has resulted in denser forests than were present historically in some western forest types. Therefore, although reducing the threat of wildfire is the primary goal, forest managers commonly view fuel treatments as a means to restore historic forest structure in those forest types that are outside of their historic range of variation. This study evaluates where both wildfire mitigation and restoration of historic forest structure are potentially needed in the ponderosa pine–dominated montane forest zone of Boulder County,
Colorado. Two spatial models were overlain: a model of potential fireline intensity and a model of historic fire frequency. The overlay was then aggregated by land management classes.

Contrary to current assumptions, results of this study indicate that both wildfire mitigation and restoration of historic forest structure are needed in only a small part of the study area, primarily at low elevations.

Furthermore, little of this land is located on Forest Service land where most of the current thinning projects are taking place. We question the validity of thinning as a means both to reduce the threat of wildfire and to restore historic forest structure in the absence of site-specific data collection on past and present landscape conditions.”

http://www.ingentaconnect.com/content/routledg/anna/2006/00000096/00000003/art00001

Response:
Harvesting trees to reduce fire risk is not a part of the purpose and need for this project.

Timber Harvest Opposing View #50 - "Private lands are more suitable for timber production. National Forest land is on average of lower productivity and on steeper, higher elevation terrain than are private forestlands."

http://www.fs.fed.us/rm/pubs_rm/rm_gtr234.html

Response:
Silvicultural treatments, including thinning, are designed to encourage the attainment of late-successional forest characteristics; harvesting timber is a by-product of such...
treatments. However, the Siuslaw National Forest includes some of the most productive timber lands in the world; they are classified as site class 2 (King).

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**Timber Harvest Opposing View #51** - "Fire severity has generally increased and fire frequency has generally decreased over the last 200 years. The primary causative factors behind fire regime changes are effective fire prevention and suppression strategies, selection and regeneration cutting, domestic livestock grazing, and the introduction of exotic plants."


**Response:**
Harvesting trees to reduce fire risk is not a part of the purpose and need for this project

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**Timber Harvest Opposing View #52** - “Less than 5% of America’s original forests remain, and these forests are found primarily on federal lands. Logging in the last core areas of biodiversity is destroying the remaining intact forest ecosystems in the United States. At the current rate of logging, these forests and their priceless biological assets will be destroyed within a few decades.

We urge Congress to pass the Act to Save America’s Forests. It is the first nationwide legislation that would halt and reverse deforestation on all our federal lands. By implementing protective measures based on principles of
conservation biology, the bill provides a scientifically sound legislative solution for halting the rapid decline of our nation's forest ecosystems.

The Act to Save America's Forests will:

- Make the preservation and restoration of native biodiversity the central mission of Federal forest management agencies.
- Ban extractive logging in core areas of biodiversity and the last remnant original forest ecosystems: roadless areas, ancient forests and special areas of outstanding biological value.
- Protect sensitive riparian areas and watershed values by banning extractive logging in streamside buffer zones.
- End clearcutting and other even age logging practices on federal land.
- Establish a panel of scientists to provide guidance to federal forest management.

We believe it is our professional responsibility to ask Congress to align Federal forest management with modern scientific understandings of forest ecosystems. Passage of the Act to Save America's Forests will give our nation's precious forest ecosystems the best chance or survival and recovery into the 21st century and beyond.”

Raven, Peter, Ph.D., Jane Goodall, C.B.E., Ph.D., Edward O. Wilson, Ph. D. and over 600 other leading biologists, ecologists, foresters, and scientists from other forest specialties. From a 1998 letter to congress.
http://www.saveamericasforests.org/resources/Scientists.htm

Response:
Timber harvest under the project would be limited to young, dense, managed stands, and would be a by-product of stand treatments. No clear-cutting is proposed. No roadless areas or proposed roadless areas occur within the project area. Riparian areas are protected by extensive no-harvest buffers. The Northwest Forest Plan, which provides management direction for this area, was developed by panel of scientists.
Timber Harvest Opposing View #53 - “The Act to Save America’s Forests is based on the principles of conservation biology. It would make the protection native biodiversity the primary goal of federal forest management agencies. The bill would protect over 20 million acres of core forest areas throughout the nation, including ancient forests, roadless areas, key watershed, and other special areas. It is a comprehensive, sustainable, and ecologically-sound plan for protecting and restoring the entire federal forest system.

If the current pace of logging planned by the Forest Service continues, nearly all of America’s ancient and roadless wild forests will soon be lost forever. According to a recent report by the World Resources Institute, only one percent of the original forest cover remains in large blocks within the lower 48 states. The Act to Save America’s Forests incorporates the solution recommended by the report, namely to protect core forest areas from any logging and to allow sustainable forest practices around these protected forests. Endorsed by over 600 leading scientists, this bill may be the last hope for America’s forests.”

Raven, Peter, Ph.D.,
from his February 9, 2001 letter to Senator Jean Carnahan
http://www.saveamericasforests.org/Raven.htm

Response:
Timber harvest under the project would be limited to young, dense, managed stands, and would be a by-product of stand treatments. No “Ancient Forests” or roadless areas would be impacted by this project.

Timber Harvest Opposing View #54 - “It is well established that logging and roadbuilding often increase both fuel loading and fire risk. For example, the Sierra Nevada Ecosystem Project (SNEP) Science Team
(1996) concluded that “timber harvest…. has increased fire severity more than any other recent human activity” in the Sierra Nevada. Timber harvest may increase fire hazard by drying of microclimate associated with canopy opening and with roads, by increases in fuel loading by generation of activity fuels, by increases in ignition sources associated with machinery and roads, by changes in species composition due to opening of stands, by the spread of highly flammable non native weeds, insects and disease, and by decreases in forest health associated with damage to soil and residual trees (DellaSala and Frost, 2001; Graham et al., 2001; Weatherspoon et al., 1992; SNEP Science Team, 1996). Indeed a recent literature review reported that some studies have found a positive correlation between the occurrence of past logging and present fire hazard in some forest types in the Interior Columbia Basin (DellaSala and Frost, 2001).”

Roberson, Emily B. Ph.D., Senior Policy Analyst, California Native Plant Society
Excerpt from a letter to Chief Dale Bosworth and 5 members of congress
http://www.plantsocieties.org/PDFs/Fire%20letter%20CNPS%208.02%20letterhead.pdf

Response:
Fire issues identified in the attached link for opposing view #54 are different than the fire issues associated with the project.
Closing roads and fuel treatments adjacent to open roads would substantially reduce the potential for wildfire starts, since 93% of the fires on the Siuslaw National Forest are started by people. In the short term, the fire hazard would increase after thinning, until the fine fuels decay (3 to 4 years). Crown spacing would increase after thinning, reducing the potential for fire spreading across tree canopies. Because the Siuslaw National Forest is in a temperate rainforest ecosystem, the decay rate for fuels would relatively high, reducing the fire hazard over the long term.

Timber Harvest Opposing View #55 - “I will discuss my views on how activities related to timber harvest adversely affect coastal salmonids in California by destroying, altering, or otherwise disturbing the freshwater habitats upon which these fish depend during crucial phases of their life cycle. I base these opinions on my research and observations in the field, as well as my review of and familiarity with the scientific literature and publications of government agencies, commissions, and scientific review
panels. Below I discuss in some detail the life history and habitat needs of coho salmon to illustrate how timber harvest and related roads affect this threatened species. Although Chinook salmon and steelhead trout have similar life histories and habitat needs, and also are negatively affected by timber harvest, I will use coho salmon in my discussion.”

“Loss or degradation of stream habitat has been and remains the single most significant cause of the decline of anadromous salmonids in general in the Pacific Northwest. In my experience the most pervasive and severe impacts to coastal watersheds in California inhabited by coho salmon result from logging and associated activities. These activities cause significant alteration and degradation to coho salmon habitat by 1) increasing sediment input to salmon bearing streams and their tributaries: 2) by decreasing input of LWD into waterways; 3) by altering streamflow regimes, increasing the likelihood of scouring flows and flooding; and 4) by increasing water temperatures. These pervasive changes due to timber harvest decrease the complexity and suitability of coho salmon habitat, including adversely affecting insects and other organisms that provide food for fish.”


Response:
Refer to the EA, chapter 3, soils and water quality section and aquatic habitat and species section for disclosure of effects; and Appendix H (Fish Biological Evaluation) for more detailed information.

Timber Harvest Opposing View #56 - “People moving to the region may do so for reasons related to the social environment and the physical landscape but not care about specific Federal land management practices. We found this not to be true, since 92 percent were concerned with how
Federal lands were managed. The most frequent preferences for managing Federal lands were water/watershed and ecosystem protection (table 3). Timber harvesting was cited by 16 percent, grazing and ranching by 6 percent, and mineral exploration/mining by less than 1 percent. Overall, protective strategies made up 76 percent of the preferred management strategies and commodity-based strategies 23 percent. This same trend is evident for the second and third most stated preferences. These findings also contradict the longstanding view of the Federal lands as a public warehouse of commodities to be harvested and jobs to be filled. For newcomers in the rural West, the value of these public lands is related to protecting and preserving them.”


**Response:**
Silvicultural treatments, including thinning, are designed to speed the development of late-successional forest characteristics. Timber harvest is a by-product of those treatments.

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**Timber Harvest Opposing View #57** - “Once clear-cutting has occurred, regulation and human silvicultural practices become responsible for the revegetation that follows. The creation of new forest succession patterns are the result of human control over the growing environment. Rather than proceeding at a natural pace, humans attempt to speed up the forest succession process to quickly return to a situation where harvesting is again possible. Reforestation of the disturbed area after clear-cutting also emphasizes maintaining control over the distribution and quality of forest species.

Simplification is a state that results from the forest being harvested before it reaches maturity. Logging simplifies forest ecosystems (Dudley et al 1995) by narrowing the age range of the stand and suppressing diversification through repeated harvesting, burning to remove slash, and replanting with
hybrid seedlings. Simplification affects the health and productivity of the forest because simplified forests lack the variety found in older stands, including species diversity, vertical structure, and microhabitat. From an ecological standpoint, a simplified forest of a particular age has less overall bio-mass per acre than a natural forest of the same age, but a simplified forest produces a higher volume of merchantable timber.

Scott, Mark G.  
“Forest Clearing in the Gray’s River Watershed 1905-1996”  
A research paper submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in GEOGRAPHY  
Portland State University, 2001  
http://www.markscott.biz/papers/grays/chapter1.htm

Response: One of the project’s objectives is to speed the development of late-successional and old-growth habitat. The existing stands tend to be monocultures (Douglas-fir) of young, even-aged conifers, with low biodiversity. The project proposes to enhance biodiversity by creating dead wood, planting diverse species of trees in the understory, creating gaps and clumps, and encouraging the development of understory vegetation by allowing sunlight to reach the forest floor.

Timber Harvest Opposing View #58 - “Within this volatile atmosphere the Bush Administration presented a new proposal for fire prevention called the "Healthy Forest Initiative." The plan received wide coverage in the national media in August and September 2002 and continues to be at the center of an attempt to significantly shift public land management in the United States. At the core of the plan is an effort to create private sector incentives to promote logging/thinning projects in the national forests.”

Short, Brant, Ph.D. and Dayle C. Hardy-Short Ph.D.  
"Physicians of the Forest": A Rhetorical Critique of the Bush Healthy Forest Initiative”  
Electronic Green Journal, Issue #19, December 2003  
http://escholarship.org/uc/item/4288f8j5

Response:
Harvesting timber to reduce fire risk is not part of the purpose and need for the project. Silvicultural activities, including thinning, are designed to encourage the attainment of late-successional forest characteristics.

Timber Harvest Opposing View #59 - “Logging on the National Forests provides less than 5% of the nation's timber supply, but costs the taxpayers more than 1 billion dollars in subsidies every year. Nor is logging a good job provider compared to recreation, which by Forest Service estimates provides over 30 times the economic benefits of logging. These forests are the last remnants of the virgin forests that covered the country, and now have far more value as forest ecosystems, watershed/water supply protection, and recreational assets than for logging. In fact, the justification for the Weeks Act in 1911 which established national forests in the east, was watershed protection.

(A major barrier to the Forest Service changing its ways is that these increased recreational economic benefits flow into the local economy, not to the Forest Service itself, whereas extractive uses of the national forests contribute directly to Forest Service budgets.)

“Our nation is engaged in a great debate over the real purpose of our national forests, with the weight of public opinion swinging more and more strongly toward preservation. Certainly this nation should not be subsidizing logging when it is clear that we understand so little about the functioning of these enormously complex and ancient forest ecosystems that provide millions of people with clean air and water, as well as homes for a myriad of plants and wildlife that can live nowhere else.”

Sierra Club. 2005 “Ending Commercial Logging on Public Lands”
http://northcarolina.sierraclub.org/pisgah/conservation/ecl.html

Response:
One of the project’s objectives is to speed the development of late-successional and old-growth habitat. The existing stands proposed for treatment tend to be monocultures (Douglas-fir) of young, even-aged conifers, with low biodiversity. The project proposes
to enhance biodiversity by creating dead wood, planting diverse species of trees in the
understory, creating gaps and clumps, and encouraging the development of understory
vegetation by allowing sunlight to reach the forest floor.

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**Timber Harvest Opposing View #60** - “Timber harvesting in British
Columbia influences (a) forest hydrology; (b) fluvial geomorphology; (c)
terrain stability; and (d) integrated watershed behavior. Impacts on forest
hydrology are well understood and include increased average runoff, total
water yield, increased storm runoff and advances in timing of floods.
Stream channels and valley floors are impacted differently by fine
sediment, coarse sediment and large woody debris transport. Terrain
stability is influenced through gully and mass movement processes that are
accelerated by timber harvesting. Impacts on integrated watershed
behavior are assessed through disturbed sediment budgets and lake
sediments.”

Slaymaker, Olav Ph.D. “*Assessment of the Geomorphic Impacts of Forestry in British Columbia*”
http://www.bioone.org/doi/abs/10.1579/0044-7447-29.7.381

**Response:**
Appendix A, which is the basis for the effects disclosed in the EA, chapter 3, contains
criteria designed to protect water quality and aquatic habitats (pages 11 to 19).
In the EA, chapter 3, refer to the soils and water quality section and the aquatic habitat
and species section; and appendix H for effects of actions on streams.

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**Timber Harvest Opposing View #61** - “In sum, 100 years of fire
suppression and logging have created conditions that threaten central
Oregon’s natural resources and communities.”
“Thus it is inexplicable that the solution proposed by President Bush and some members of Congress emphasizes fire suppression and commercial logging, the very practices that created today’s crisis. The federal government continues to attempt to suppress over 99% of all wildland fires. The Forest Service continues to measure its success not in terms of ecosystems restored, but in fires put out. The President’s Healthy Forest Initiative, as embodied in H.R. 1904, promotes commercial logging at the expense of citizen participation and oversight of the forests we own.”


**Response:** Harvesting trees to reduce fire risk is not part of the purpose and need for the project.

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**Timber Harvest Opposing View #62** - “Fire, just like insects and disease, are a natural and beneficial part of forest ecosystems and watersheds. Without these natural processes the forest ecosystems quickly degrade. Excessive logging removes and reduces cooling shade adding to the hotter, drier forests along with logging debris creating a more flammable forest. Current "forest management" practices, road building and development cause forest fires to rage for hundreds of miles.

The Sierra Nevada Ecosystem Project said in a report to the U.S. Congress that timber harvests have increased fire severity more than any other recent human activity. Logging, especially clear cutting, can change the fire climate so that fires start more easily, spread faster, further, and burn hotter causing much more devastation than a fire ignited and burned under natural conditions. If we stop the logging and stop building fire prone developments, we minimize the loss of lives and property suffered by people in fires.
As long as the people of America let politicians, timber executives, and the Forest Service get away with it - it will not stop. Those corporations that profit will continue to lie, cheat and steal to continue to make more money from our losses. Just like big tobacco.”


Response:
Harvesting trees to reduce fire risk is not part of the purpose and need for the project.

Timber Harvest Opposing View #63 - “The agency’s commercial timber program can contribute to the risk and severity of wildfire in the National Forests, yet Congress devotes nearly one-third of the Forest Service’s entire budget to this wasteful program.” (pg. 1)

“Do not utilize the commercial timber program to reduce the risk of fire. Commercial incentives undercut forest health objectives and can actually increase the risk of fire.” (pg. 9)

“Commercial logging, especially of larger, fire-resistant trees, in the National Forests is one of several factors contributing to the risk and severity of wildfire.” (pg. 19)

“Commercial logging and logging roads open the forest canopy, which can have two effects. First, it allows direct sunlight to reach the forest floor, leading to increased evaporation and drier forests.5 As a consequence, ground fuels (grass, leaves, needles, twigs, etc.) dry out more quickly and become susceptible to fire. Second, an open canopy allows more sunlight to reach the understory trees, increasing their growth.6 This can lead to weaker, more densely-packed forests.” (pgs. 19-20)
“Congress and the Forest Service continue to rely on the commercial logging program to do something it will never accomplish – reduce fire risk. The commercial logging program is designed to provide trees to private timber companies, not to reduce the risk of fire.” (pg. 20)

*Taxpayers for Common Sense*. “*From the Ashes: Reducing the Harmful Effects and Rising Costs of Western Wildfires*”
http://www.ourforests.org/fact/ashes.pdf

**Response:**
Harvesting trees to reduce fire risk is not part of the purpose and need for the project.

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**Timber Harvest Opposing View #64** - “Indiscriminate logging is not a viable solution to reducing wildfire risk. Logging can actually increase fire danger by leaving flammable debris on the forest floor. Loss of tree canopy lets the sun in, encouraging the growth of brush, increases wind speed and air temperature, and decreases the humidity in the forest, making fire conditions even worse.”

Thomas, Craig. “Living with risk: Homeowners face the responsibility and challenge of developing defenses against wildfires.” Sacramento Bee newspaper, July 1, 2007.

**Response:**
Harvesting trees to reduce fire risk is not part of the purpose and need for the project.

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**Timber Harvest Opposing View #65** - "Timber harvest, through its effects on forest structure, local microclimate, and fuels accumulation, has increased fire severity more than any other recent human activity."(pg.62)

University of California; SNEP Science Team and Special Consultants 1996 *Sierra Nevada Ecosystem Project: Final Report to Congress*
Response:
Harvesting trees to reduce fire risk is not part of the purpose and need for the project.

Timber Harvest Opposing View #66 - "During the post-World War II housing boom, national forests were viewed as a ready supply of building material. The increased demand for timber from national forests led to more widespread use of commodity-oriented harvesting techniques such as clearcutting. Along with the increased logging that followed, concern over the environment increased. In the 1960's and 1970's, several laws were enacted to protect forests. Additional laws formalized the concept of "multiple-use," whereby the uses of timber, forage, and water shared equal footing with wildlife conservation and recreation opportunities."


Response:
The Northwest Forest Plan has designated the lands in the project area as Late Successional Reserve, Riparian Reserve and Matrix Area. Timber harvest is used as a tool to encourage the development of late-successional forest conditions within young stands.

Timber Harvest Opposing View #67 - "The development of sound forest-management policies requires that consideration be given to the economic benefits associated with competing uses of forest resources. The benefits that may be provided under different management regimes include both use values (such as those provided by timber harvesting and recreation) and passive-use (or nonuse) values, including existence value, option..."
value and quasi-option value. Many of these benefits are not revealed in market transactions, and thus cannot be inferred from conventional data on prices and costs."


**Response:**
The Northwest Forest Plan has designated the lands in the project area as Late-successional Reserve, Riparian Reserve, and Matrix. Timber harvest is used as a tool to encourage the development of late-successional and old-growth forest habitat conditions within young stands. All resources are evaluated and include project design criteria (Appendix A) for protection or enhancement.

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**Timber Harvest Opposing View #68** - “Unfortunately, there are number of massive logging proposals, disguised as hazardous fuels treatments, that have put environmentalists at odds with the Forest Service. Nearly all of these proposals focus primarily on the removal of mature and old-growth trees. These proposals continue even with overwhelming evidence that commercial logging is more of a problem than a solution. There's simply a cognitive disconnect between the Forest Service's scientists and its timber sale planners, whose budgets are dependent upon selling valuable mature trees.

Ironically, this very type of logging, experts inform us, is likely to increase, not decrease, the frequency and severity of wildland fires.

In the Forest Service's own National Fire Plan, agency scientists warned against the use of commercial logging to address fire management. The report found that ‘the removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk.’

Voss, René
“Getting Burned by Logging,” July 2002
The Baltimore Chronicle
http://www.baltimorechronicle.com/firelies_jul02.shtml

Response:
Harvesting timber to reduce fire risk is not part of the purpose and need for the project. The Northwest Forest Plan has designated the lands in the project area as Late-successional Reserve, Riparian Reserve, and Matrix. Timber harvest is used as a tool to encourage the development of late-successional and old-growth forest habitat conditions within young stands. All resources are evaluated and include project design criteria (Appendix A) for protection or enhancement.

Timber Harvest Opposing View #69 - “Another surprising finding is that mechanical fuels treatment, commonly known as logging and thinning, typically has little effect on the spread of wildfires. In fact, in some cases, it can increase wildfires’ spread and severity by increasing the fine fuels on the ground (slash) and by opening the forest to greater wind and solar penetration, drying fuels faster than in unlogged forests.”

Wuerthner, George. “Logging, thinning would not curtail wildfires”
The Eugene Register-Guard, December 26, 2008
http://wuerthner.blogspot.com/2008/12/logging-thinning-would-not-curtail.html

Response:
Reduction of fire risk is not a part of the purpose and need for this project.

Timber Harvest Opposing View #70 - “Logging equipment compacts soils. Logging removes biomass critical to future soil productivity of the forest. Logging disturbs sensitive wildlife. Logging typically requires roads and skid trails which create chronic sources of sedimentation that degrades water quality and aquatic organism habitat. Logging roads and skid trails are also a major vector for the spread of weeds. Logging disrupts nutrient...
cycling and flows. Logging can alter species composition and age structure (i.e. loss of old growth). Logging can alter fire regimes. Logging can change water cycling and water balance in a drainage. The litany of negative impacts is much longer, but suffice it to say that anyone who suggests that logging is a benefit or benign is not doing a full accounting of costs.”

Those who suggest that logging “benefits” the forest ecosystem are using very narrow definitions of “benefit.” Much as some might claim that smoking helps people to lose weight and is a “benefit” of smoking.”

Wuerthner, George “Who Will Speak For the Forests?”
NewWest, January 27, 2009
http://www.newwest.net/topic/article/who_will_speak_for_the_forests/C564/L564/

Response:
The Northwest Forest Plan has designated the lands in the project area as Late-successional Reserve, Riparian Reserve, and Matrix. Timber harvest is used as a tool to encourage the development of late-successional and old-growth forest habitat conditions in young stands. All resources are evaluated and include project design criteria (Appendix A) for protection or enhancement.

Timber Harvest Opposing View #71 - "After logging, peak pipeflow was about 3.7 times greater than before logging."

"The use of heavy logging equipment was expected to compact the soil, reduce infiltration rates, and increase surface runoff. In addition, heavy equipment might collapse some of the subsurface pipes, increasing local pore water pressure and the chance of landslides (Sidle, 1986)."

http://www.fs.fed.us/psw/publications/ziemer/Ziemer92.PDF
Response:
Refer to chapter 3, soils and water quality--soils productivity and hydrologic processes sections. The referenced literature mainly discusses effects from clear-cut logging, which is not being proposed. Refer to the soils and water quality section of the EA, chapter 3 for effects on the resource. Appendix A includes criteria designed to minimize these effects (pages 12 to 19).

Timber Harvest Opposing View #72 - “As conservation-minded scientists with many years of experience in biological sciences and ecology, we are writing to bring your attention to the need to protect our National Forests. Logging our National Forests has not only degraded increasingly rare and valuable habitat, but also numerous other services such as recreation and clean water.”

“Unfortunately, the past emphasis of management has been on logging and the original vision for our National Forests has failed to be fully realized. During the past several decades, our National Forests have suffered from intense commercial logging. Today almost all of our old growth forests are gone and the timber industry has turned our National Forests into a patchwork of clearcuts, logging roads, and devastated habitat.”

“It is now widely recognized that commercial logging has damaged ecosystem health, clean water, and recreational opportunities-- values that are highly appreciated by the American public. The continued logging of our National Forests also wastes American tax dollars and diminishes the possibilities of future economic benefits. The Forest Service and independent economists have estimated that timber accounts for only 2.7 percent of the total values of goods and services derived from the National Forests, while recreation and fish and wildlife produce 84.6 percent.”

From an April 16, 2002 letter to President Bush asking him to stop all logging in the national forests.
http://www.forestwatch.org/content.php?id=108
Note: After the link has been opened, scroll to the bottom and follow the link to “Scientist's No Logging Letter.pdf 64KB” This will show the complete letter and the signatories.
The names of the 221 Ph.D. level scientists that signed the letter are:

Dr. E.O. Wilson, Ph.D.
Harvard University,
Department of Biology,
Professor

Dr. Anne Ehrlich, Ph.D.
Stanford University,
Department of Biological
Sciences, Sr. Research
Associate, Center for
Conservation Biology

Dr. Peter Raven, Ph.D.
Missouri Botanical Garden,
Director, 2000 National
Medal of Science winner

Dr. David R. Foster, Ph.D.
Harvard University, Director
Harvard Forest

Dr. Kenneth P. Able, Ph.D.
University at Albany, SUNY
Department of Biological
Sciences, Professor

Dr. Kraig Adler, Ph.D.
Cornell University, Vice
Provost for Life Sciences,
Professor of Biology

Dr. Steven C. Anderson,
Ph.D.
University of the Pacific,
Department of Biological
Sciences, Professor Emeritus

Dr. William D. Anderson, Jr.,
Ph.D.
Grice Marine Biological
Laboratory

Dr. Robert Angus, Ph.D.
University of Alabama-
Birmingham, Department of
Biology, Professor

Dr. Jonathan W. Armbruster,
Ph.D.
Auburn University,
Department of Biology,
Assistant Professor of
Biology, Curator of Fishes

Dr. David R. Atkinson, Ph.D.
Cornell University, Professor
of Ecology & Evolutionary
Biology

Michelle A. Baker, Ph.D.
Utah State University,
Department of Biology,
Assistant Professor

Dr. Henry L. Bart, Jr., Ph.D.
Tulane University, Museum
of Natural History, Director
and Curator of Fishes

Dr. Fakhri Bazzaz, Ph.D.
Harvard University,
Department of Biology,
Mallinckrodt Professor of
Biology

Dr. Donald L. Beaver, Ph.D.
Michigan State University,
Department of Zoology/The
Michigan State University
Museum, Professor Emeritus

Dr. David L. Bechler, Ph.D.
Valdosta State University,
Department of Biology,
Department Head

Dr. Chris Benkman, Ph.D.
New Mexico State University,
Department of Biology,
Associate Professor

Dr. Brad Bergstrom, Ph.D.
Valdosta State University,
Department of Biology,
Professor

Dr. Tim M. Berra, Ph.D.
Ohio State University,
Evolution, Ecology &
Organismal Biology,
Professor Emeritus

Dr. Benjamin Blount, Ph.D.
University of Georgia,
Department of Anthropology,
Professor

Dr. Dee Boersma, Ph.D.
University of Washington,
Department of Zoology,
Professor

Dr. Eric Bolen, Ph.D.
University of North Carolina-
Wilmington, Department of
Biology, Professor of Wildlife
Ecology

Dr. Herb Boschung, Ph.D.
University of Alabama-
Tuscaloosa, Department of
Biological Sciences,
Professor Emeritus

Dr. Richard Bradley, Ph.D.
Ohio State University,
Department of Evolution,
Ecology, and Organismal
Biology, Professor

Dr. Greg Brown, Ph.D.
Alaska Pacific University,
Department of Environmental
Science, Associate Professor
Dr. David M. Bryant, Ph.D.
Harvard University,
Department of Earth and
Planetary Science, Member,
Zi Sigma Pi, the Honorary
Fraternity of Foresters

Dr. Deborah Buitron, Ph.D.
North Dakota State
University, Department of
Biological Sciences, Adjunct
Professor

Dr. Rabel J. Burdge, Ph.D.
Western Washington
University, Department of
Sociology, and
Environmental Studies,
Professor Emeritus,

Dr. Nancy M. Butler, Ph.D.
Gustavus Adolphus College,
Department of Biology,
Assistant Professor

Dr. William Calder, Ph.D.
University of Arizona,
Professor of Ecology and
Evolutionary Biology

Kevin Caldwell, Ph.D.
Appalachian Ecological
Consultants, Botanist

Dr. Todd Campbell, Ph.D.
University of Tennessee,
Department of Ecology and
Evolutionary Biology, Post-
Doctoral Research Associate
The Institute for Biological
Invasions

Kai Chan, Ph.D.
Princeton University,
Department of Ecology and
Evolutionary Biology

Dr. Jiquan Chen, Ph.D.
Michigan Tech University,
School of Forestry and Wood
Products, Associate

Professor, Landscape
Ecology & Ecosystem
Science

Dr. Joel E. Cohen, Ph.D.
Rockefeller University,
Professor of Populations

Cormac Collier, Ph.D.
Cape Cod National
Seashore, Biological
Technician

Dr. Jeff Connor, Ph.D.
Michigan State University,
Department of Botany and
Plant Pathology, Associate
Professor, Kellogg Biological
Station, Associate Editor
Evolution

Carol Conway, Ph.D.
University of California-Davis,
Department of Ecology

Dr. Joseph Cook, Ph.D.
University of Alaska, Curator
of Mammals and Professor of
Biology

Dr. Jeffery D. Corbin, Ph.D.
University of California-
Berkeley, Department of
Integrative Biology, Post-
Doctoral Fellow/ Lecturer

Dr. Richard G. Coss, Ph.D.
University of California-
Davis, Graduate Groups in
Psychology, Ecology, and
Animal Behavior Professor

Dr. Tom Cottrell, Ph.D.
Central Washington
University, Department of
Biology, Plant Ecologist

Central Washington
University, Department of
Biology, Plant Ecologist

Dr. Brian I. Crother, Ph.D.
Southeastern Louisiana
University, Department of
Biology, Associate Professor

Dr. Thomas W. Culliney,
Ph.D.
Hawaii Department of
Agriculture, population
ecologist

Dr. Gretchen C. Daily, Ph.D.
Stanford University,
Department of Biological
Sciences, Bing
Interdisciplinary Research
Scientist, Editor, Nature's
Services: Societal
Dependence on Natural
Ecosystems

Dr. James Danoff-Burg,
Ph.D.
Columbia University, Center
for Environmental Research
and Conservation, Associate
Research Scientist

Dr. Margaret B. Davis, Ph.D.
University of Minnesota,
Department of Ecology,
Evolution and Behavior,
Regents Professor of
Ecology, retired

Dr. Larry Dew, Ph.D.
University of California-Davis,
Department of Anthropology

Dr. Calvin B. DeWitt, Ph.D.
University of Wisconsin-
Madison Professor of
Environmental Studies
Director, Au Sable Institute of
Environmental Studies
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Position</th>
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<tbody>
<tr>
<td>Dr. Janis L. Dickinson, Ph.D.</td>
<td>University of California-Berkeley Museum of Vertebrate Zoology, Assistant Research Zoologist Hastings Natural History Reservation</td>
<td></td>
</tr>
<tr>
<td>Dr. C. Kenneth Dodd, Jr., Ph.D.</td>
<td>University of Florida Department of Wildlife Ecology and Conservation, Courtesy Associate Professor, President, The Herpetologists' League</td>
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<tr>
<td>Dr. David Edds, Ph.D.</td>
<td>Emporia State University, Department of Biological Sciences, Professor</td>
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<td>Dr. Joan Edwards, Ph.D.</td>
<td>Williams University, Department of Biology, Professor of Biology</td>
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<td>Dr. Timothy J. Ehlinger, Ph.D.</td>
<td>University of Wisconsin-Milwaukee, Department of Biological Sciences, Assistant Professor</td>
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<td>Dr. Paul Ehrlich, Ph.D.</td>
<td>Stanford University, Department of Biological Sciences, Professor of Biological Sciences</td>
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<td>Dr. W. Hardy Eshbaugh, Ph.D.</td>
<td>Miami University, Department of Botany, Professor Emeritus</td>
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<td>Dr. William J. Etges, Ph.D.</td>
<td>University of Arkansas, Department of Biological Sciences</td>
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<td>Dr. Joseph E. Faber, Ph.D.</td>
<td>West Virginia University-Parkersburg, Division of Natural Sciences, Assistant Professor</td>
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<td>Dr. Elizabeth Fensin, Ph.D.</td>
<td>N.C. Division of Water Quality, Environmental Biologist</td>
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<td>Dr. G. Edgar Folk, Ph.D.</td>
<td>Iowa State University, Department of Physiology, Professor of Environmental Physiology</td>
<td></td>
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<tr>
<td>Dr. Johannes Foufopoulos, Ph.D.</td>
<td>Princeton University, Department of Ecology and Evolutionary Biology, Visiting Assistant Professor</td>
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<td>Dr. ElizaBeth A. Fox, Ph.D.</td>
<td>Princeton University, Department of Ecology and Evolutionary Biology, Lecturer</td>
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<tr>
<td>Patricia Gensel, Ph.D.</td>
<td>University of North Carolina, Professor of Biology, President Botanical Society of America</td>
<td></td>
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<tr>
<td>Dr. Cameron Ghalambor, Ph.D.</td>
<td>University of California-Riverside, Department of Biology</td>
<td></td>
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<tr>
<td>Dr. Barrie K. Gilbert, Ph.D.</td>
<td>Utah State University, Department of Fisheries and Wildlife--Ecology Center, Senior Scientist</td>
<td></td>
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<tr>
<td>Dr. Douglas S. Glazier, Ph.D.</td>
<td>Montana State University, Department of Biological Sciences, Assistant Professor</td>
<td></td>
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<tr>
<td>Dr. Robert B. Hastings, Ph.D.</td>
<td>Southeastern Louisiana University, Department of Biology, Professor of Biological Sciences</td>
<td></td>
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<tr>
<td>Dr. Robert H. Gray, Ph.D.</td>
<td>Umatilla Chemical Agent Disposal Facility, Principal Investigator</td>
<td></td>
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<tr>
<td>Dr. Jay Greenberg, Ph.D.</td>
<td>University of Rochester Medical Center, Department of Biochemistry and Biophysics</td>
<td></td>
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<tr>
<td>Dr. Correigh Greene, Ph.D.</td>
<td>University of California-Davis, Section of Evolution and Ecology</td>
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<tr>
<td>Dr. Ed Grumbine, Ph.D.</td>
<td>University of California-Santa Cruz, Extension Sierra Institute</td>
<td></td>
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<tr>
<td>Dr. David G. Hankin, Ph.D.</td>
<td>Humboldt State University, Telonicher Marine Lab Professor of Fisheries Biology</td>
<td></td>
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<tr>
<td>Dr. Andrew Hendry, Ph.D.</td>
<td>University of Southwestern Louisiana University, Department of Biology, Professor of Biological Sciences</td>
<td></td>
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<tr>
<td>Dr. Andrew Hendry, Ph.D.</td>
<td>Junia College, Department of Biology, Professor of Biology</td>
<td></td>
</tr>
</tbody>
</table>
University of Massachusetts-Amherst, Organismic and Evolutionary Biology Program

Dr. James D. Hengeveld, Ph.D.
Indiana University, Department of Biology, Assistant Professor & Lab Coordinator

Dr. Frank H. Heppner, Ph.D.
University of Rhode Island, Department of Biological Sciences, Professor of biological sciences

Dr. David M. Hillis, Ph.D.
University of Texas-Austin, Director, School of Biological Sciences

Dr. Mark Hixon, Ph.D.
Oregon State University, Department of Zoology

Dr. Karen Holl, Ph.D.
University of California-Santa Cruz, Department of Environmental Studies

Dr. Robert W Howarth, Ph.D.
Environmental Defense Oceans Program, Senior Scientist and Program Manager

Dr. Bruce Hungate, Ph.D.
Northern Arizona University, Department of Biological Sciences, Assistant Professor

Dr. Alan Hutchcroft, Ph.D.
Rockford College, Bartels Professor of Chemistry

Dr. David W. Inouye, Ph.D.

University of Maryland, Professor & Director, Graduate Program in Sustainable Development and Conservation Biology

Dr. Charles Jackson, Ph.D.

Dr. Dan Janzen, Ph.D.
University of Pennsylvania, Professor

Dr. Robert L. Jeanne, Ph.D.
University of Wisconsin-Madison, Department of Entomology, Professor of Entomology and Zoology

Dr. Paul A. Johnsgard, Ph.D.
University of Nebraska-Lincoln, Department of Biological Sciences, Foundation Professor of Biological Sciences

Dr. Erik S. Jules, Ph.D.
Humboldt State University, Department of Biological Sciences, Assistant Professor

Dr. James R. Karr, Ph.D.
University of Washington, Department of Environmental Health, Professor of Aquatic Sciences and Zoology, Adjunct Professor of Civil Engineering

Dr. Sylvan R. Kaufman, Ph.D.
Harvard University, Biological Labs, Postdoctoral Fellow

Dr. Sterling Keeley, Ph.D.
University of Hawaii-Manoa, Department of Botany, Professor and Chair

Dr. Melody J. Kemp, Ph.D.
University of Notre Dame, Department of Biological Sciences, Postdoctoral Research Associate

Dr. Keith T. Killingbeck, Ph.D.
University of Rhode Island, Department of Biological Sciences

Dr. David R. Klein, Ph.D.
University of Alaska-Fairbanks, Institute of Arctic Biology, Professor Emeritus

Dr. Walter Koenig, Ph.D.
University of California-Berkeley, Museum of Vertebrate Zoology

Dr. Alan Kohn, Ph.D.
University of Washington, Department of Zoology, Professor Emeritus, Formerly President of Society for Integrative and Comparative Biology

Dr. Arthur H. Kopelman, Ph.D.
State University of New York, Department of Science and Mathematics, Professor of Science, President Coastal Research and Education Society of Long Island

Dr. Don Kroodsma, Ph.D.
University of Massachusetts, Department of Biology, Professor

Dr. Kenneth Krysko, Ph.D.
University of Florida, Florida Museum of Natural History, Collections Manager, Division of Herpetology

Bernard Kuhajda, Ph.D.
University of Alabama-Tuscaloosa, Department of Biological Sciences

Stephen P. Kunz, Ph.D.
Certified Senior Ecologist, Certified Wetland Scientist

Dr. Doug LaFollette, Ph.D.
Wisconsin Secretary of State

Dr. Robert O. Lawton, Ph.D.
University of Alabama-Huntsville, Department of Biological Sciences

Estella Leopold, Ph.D.
University of Washington, Department of Botany, Professor

Dr. John J. Lepri, Ph.D.
University of North Carolina, Department of Biology, Associate Professor of Biology

Dr. Malcolm P. Levin, Ph.D.
University of Illinois at Springfield, Department of Environmental Studies, Department Chair

Dr. John Lichter, Ph.D.
Bowdoin College, Biology Department and Environmental Studies Program, Assistant Professor

Dr. William Z. Lidicker, Ph.D.
University of California, Berkeley, Professor of Integrative Biology, Emeritus

Dr. David R. Lighthall, Ph.D.
California Institute for Rural Studies, Executive Director

Dr. John T. Lill, Ph.D.
University of Missouri-St. Louis

Dr. Randy Linder, Ph.D.
University of Texas-Austin, School of Biology Sciences/Section of Integrative Biology

Dr. Robin A. Matthews, Ph.D.
Western Washington University, Huxley College of Environmental Studies, Professor, Director, Institute for Watershed Studies

Dr. Thomas P. Maxwell, Ph.D.
University of Maryland, Institute for Ecological Economics, Professor

Dr. Audrey Mayer, Ph.D.
University of Cincinnati, Department of Biological Sciences

Dr. Terrence P. McGlynn, Ph.D.
University of San Diego, Assistant Professor of Biology

Dr. James B. McGraw, Ph.D.
West Virginia University, Department of Biology, Eberly Professor of Biology & Aldo Leopold Leadership Program Fellow

Don McKenzie, Ph.D.

University of Washington, College of Forest Resources, Research Ecologist

Dr. John McLaughlin, Ph.D.
Western Washington University, Huxley College of Environmental Studies, Department of Environmental Sciences, Assistant Professor

Dr. David McNeely, Ph.D.
Langston University, Department of Biology, Professor

Dr. Geoff Meaden, Ph.D.
Canterbury Christ Church University College, Department of Geography Marine Fisheries GIS Unit

Dr. Bruce Means, Ph.D.
Florida State University, Department of Biological Sciences, Adjunct Professor of Biological Science, Executive Director Coastal Plains Institute

Dr. Robert J. Meese, Ph.D.
University of California, Department of Environmental Science and Policy

Dr. Gary K. Meffe, Ph.D.
University of Florida, Department of Wildlife Ecology and Conservation, Adjunct Professor, Editor, Conservation Biology

Dr. DeForest Mellon, Ph.D.
University of Virginia, Department of Biology, Professor of Biology
Dr. John Miles, Ph.D.
Western Washington University, Huxley College of Environmental Studies, Professor, Director Center for Geography and Environmental Social Sciences

Dr. Arlee M. Montalvo, Ph.D.
University of California-Riverside, Department of Botany and Plant Sciences, Asst. Res. Plant Population Biologist & Lecturer

Dr. Harold Mooney, Ph.D.
Stanford University, Department of Biological Sciences, Paul S. Achilles Professor of Environmental Biology

Dr. Cliff Morden, Ph.D.
University of Hawaii-Manoa, Department of Botany, Professor Center for Conservation Research and Training

Dr. Timothy C. Morton, Ph.D.
University of Chicago, Department of Biology, visiting Assistant Professor, Ecological Society of America

Dr. Peter B. Moyle, Ph.D.
University of California-Davis, Department of Wildlife, Fish, and Conservation Biology, Professor of Fish Biology

Dr. Helmut C. Mueller, Ph.D.
University of North Carolina, Department of Biology & Curriculum in Ecology, Professor Emeritus

Dr. Steven Mullin, Ph.D.
Eastern Illinois University, Department of Biological Sciences, Professor

Dave Neely, Ph.D.
University of Alabama, Biodiversity and Systematics

Dr. Richard Niesenbaum, Ph.D.
Muhlenberg College, Department of Biology Associate Professor of Biology, Donald and Anne Shire Distinguished Teaching Professor

Dr. Elliott A. Norse, Ph.D.
President, Marine Conservation Biology Institute, Author: Ancient Forests of the Pacific Northwest

Dr. M. Philip Nott, Ph.D.
The Institute for Bird Populations

Dr. Gary Nuechterlein, Ph.D.
North Dakota State University, Department of Biological Sciences, Professor

Dr. Philip Nyhus, Ph.D.
Franklin & Marshall College, Department of Geosciences, Assistant Professor

Dr. Dennis Ojima, Ph.D.
Natural Resource Ecology Laboratory, Colorado State University, Senior Research Scientist, Aldo Leopold Leadership Fellow

Dr. Gordon H. Orians, Ph.D.
University of Washington, Professor Emeritus of Zoology

Dr. Michael Ort, Ph.D.
University of Northern Arizona, Department of Geology, Associate Professor Center for Environmental Sciences and Education

Dr. Richard S. Ostfeld, Ph.D.
Institute of Ecosystem Studies

Dr. Ken Parejko, Ph.D.
University of Wisconsin, Department of Biology, Associate Professor

Dr. Dennis Paulson, Ph.D.
University of Puget Sound, Slater Museum of Natural History, Director

Dr. Ann Phillipi, Ph.D.

Dr. Stuart Pimm, Ph.D.
Columbia University, Center for Environmental Research and Conservation, Professor of Conservation Biology

Dr. Mary V. Price, Ph.D.
University of California-Riverside, Department of Biology, Professor of Biology

Dr. Mark Pyron, Ph.D.
Ball State University, Department of Biology, Assistant Professor

Dr. Peter A. Quinby, Ph.D.
Paul Smith's College, Natural Resources, Science and Liberal Arts, Assistant Dean and Associate Professor

Dr. John T. Ratti, Ph.D.
University of Idaho- Moscow, Department of Fish and Wildlife

Dr. Stuart Reichler, Ph.D.
University of Texas- Austin, School of Biology Sciences

Dr. Janita Rice, Ph.D.
California State University

Dr. Carol Riley, Ph.D.

Dr. Caroljane B. Robertson, Ph.D.

Dr. George Robinson, Ph.D.
State University of New York at Albany, Department of Biological Sciences, Associate Professor

Joe Rocchio, Ph.D.
Colorado Natural Heritage Program, Wetland Ecologist

Dr. Charles Romesburg, Ph.D.
Utah State University, Department of Forest Resources, Professor

Dr. Thomas Rooney, Ph.D.
University of Wisconsin-Madison, Department of Botany

Dr. Barry Rosenbaum, Ph.D.
University of Colorado, Research Associate, Institute of Arctic and Alpine Research

Dr. Scott D. Russell, Ph.D.
University of Oklahoma, George Lynn Cross Research Professor of Botany, Director, Samuel Roberts Noble Electron Microscopy Laboratory

Dr. John M. Rybczyk, Ph.D.
Western Washington University, Huxley College of Environmental Studies, Assistant Professor

Dr. Karin Sable, Ph.D.
University of Puget Sound, Department of Economics

Dr. Edward Saiff, Ph.D.
Rampapo College of New Jersey, Department of Biology, Professor of Biology, Fellow, American Association for the Advancement of Science

Dr. Alan H. Savitzky, Ph.D.
Old Dominion University, Associate Professor of Biological Sciences

Dr. John O. Sawyer, Ph.D.
Humboldt State University, Emeritus Professor of Botany

Dr. William H. Schlesinger, Ph.D.
Duke University, Dean, Nicholas School of the Environment and Earth Sciences, James B. Duke Professor of Biogeochemistry

Dr. Stephen H. Schneider, Ph.D.

Dr. Alan H. Savitzky, Ph.D.
Old Dominion University, Associate Professor of Biological Sciences

Dr. John O. Sawyer, Ph.D.
Humboldt State University, Emeritus Professor of Botany

Dr. William H. Schlesinger, Ph.D.
Duke University, Dean, Nicholas School of the Environment and Earth Sciences, James B. Duke Professor of Biogeochemistry

Dr. Stephen H. Schneider, Ph.D.

Stamen University,
Department of Biological Sciences

Dr. Peter Schulze, Ph.D.
Austin College, Associate Professor of Biology, Director, Center for Environmental Studies

Dr. Sharron K. Sherrod, Ph.D.
University of Denver, Department of Biology, Professor

Dr. Fraser Shilling, Ph.D.
University of California-Davis, Section of Microbial and Cellular Biology, Chair Committee on Conservation, Society for Integrative and Comparative Biology

Erin A. Shope, Ph.D.
Brevard University, Environmental Educator

Dr. Clifford Slayman, Ph.D.
Yale School of Medicine Cellular and Molecular Physiology, Professor of Physiology

Dr. Christoper C. Smith, Ph.D.
Kansas State University, Division of Biology

Dr. Bradley F. Smith, Ph.D.
Dr. Robert D. Stevenson, Ph.D.
University of Massachusetts-Boston, Department of Biology, Associate Professor of Biology

Dr. Glen R. Stewart, Ph.D.
California State Polytechnic University-Pomona, Department of Biological Sciences, Professor of Zoology

Dr. Craig Stockwell, Ph.D.
North Dakota State University, Department of Zoology, Assistant Professor

Dr. Phillip K. Stoddard, Ph.D.
Florida International University, Department of Biological Sciences

Dr. Philip C. Stouffer, Ph.D.
Southeastern Louisiana University, Department of Biological Sciences, Associate Professor

Dr. Boyd R. Strain, Ph.D.
Duke University, Department of Biological Sciences, Professor Emeritus

Dr. Michael C. Swift, Ph.D.
St. Olaf College, Department of Biology, Department of Biology-University of Virginia, sabbatical

Dr. Douglas W. Tallamy, Ph.D.
University of Delaware, Department of Entomology and Applied Ecology, Professor

Dr. Daniel M Vernon, Ph.D.
Whitman University, Department of Biology

Dr. Richard A. Wahle, Ph.D.
Bigelow Laboratory for Ocean Sciences, Research Scientist

Dr. David B. Wake, Ph.D.
University of California, Professor of Integrative Biology, Curator, Museum of Vertebrate Zoology

Dr. Skip Walker, Ph.D.
North Fork Siuslaw LMP
Appendix F, Table F-2 (cont.)

University of Alaska-Fairbanks, Institute of Arctic Biology

Dr. Lawernce R. Walker, Ph.D.
University of Nevada- Las Vegas, Department of Biology, Professor of Biology

Dr. Diana H. Wall, Ph.D.
Colorado State University, College of natural Resources, Professor, Director, Natural Resources Ecological Laboratory

Dr. Donald M. Waller, Ph.D.
University of Wisconsin-Madison, Department of Botany, Editor, Evolution

Dr. David O. Wallin, Ph.D.
Western Washington University, Huxley College of Environmental Studies-Department of Environmental Sciences, Associate Professor

Dr. Glen Walsberg, Ph.D.
Arizona State University Professor of Biology

Dr. Nickolas M. Waser, Ph.D.
University of California-Riverside, Department of Biology, Professor of Biology, President, Rocky Mountain Biological Laboratory

Dr. Judith S. Weis, Ph.D.
Rutgers University, Department of Biological Sciences, Professor of Biology, Past President

American Institute of Biological Sciences

Dr. John F. Weishampel, Ph.D.
University of Central Florida, Department of Biology

Dr. Gregory Welch, Ph.D.
University of Maine, Professor Darling Marine Center

Dr. Robert G. Wetzel, Ph.D.
University of Alabama-Tuscaloosa, Department of Biological Sciences, Bishop Professor of Biology

Dr. Peter S. White, Ph.D.
University of North Carolina-Chapel Hill, Department of Biology, Professor, Director North Carolina Botanical Garden

Dr. Bill Willers, Ph.D.
University of Wisconsin-Oshkosh, Department of Biology, Emeritus Professor of Biology

Dr. Joe Williams, Ph.D.
Colorado State University, Department of EPO Biology

Dr. Ernest J. Willoughby, Ph.D.
St. Mary's College of Maryland, Department of Biology, Professor of Biology

Dr. Michael Windelspecht, Ph.D.
Appalachian State University, Department of Biology, Assistant Professor of Biology

Dr. Marti Witter, Ph.D.

Dr. Helen Young, Ph.D.
Middlebury College, Department of Biology Professor

Dr. Joy B. Zedler, Ph.D.
University of Wisconsin-Madison, Department of Botany and Arboretum, Aldo Leopold Professor of Restoration Ecology

Dr. Marion Klaus, Ph.D.
Sheridan College
Comment: The Responsible Official ignores the statements of 221 unbiased, highly educated biological scientists who point out the common natural resource degradation resulting from commercial timber sales based on the word of a handful of foresters and silviculturists who will gain personally when the timber sale is sold. Clearly, the Responsible Official prefers to let representatives from resource extraction corporations choose the projects on the forest.

Response:
The Northwest Forest Plan has designated the lands in the project area as Late-successional Reserve, Riparian Reserve, and Matrix. Timber harvest is used as a tool to encourage the development of late-successional and old-growth forest habitat conditions within young stands. All resources are evaluated and include project design criteria (Appendix A) for protection or enhancement.

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Timber Harvest Opposing View #73 - “Recently, so called "salvage" logging has increased on national forests in response to a timber industry invented "forest health crisis" which points the finger at normal forest processes of fire, fungi, bacteria, insects and other diseases. In fact the crisis in the national forests is habitat destruction caused by too much clearcutting.

My long-term studies of forest diseases in Idaho show the loss by disease and insect activity in all age classes of forests to be less than or slightly more than 1 percent per year over the past thirty-eight years. These findings are consistent with Forest Service national level data.

Forests are structured systems of many life forms interacting in intricate ways and disturbances are essential to their functioning. It’s not fire disease fungi bacteria and insects that are threatening the well being of forests. Disease, fire, windthrow, and other disturbances are a natural part of the forest ecosystem and assist in dynamic processes such as succession that are essential to long term ecosystem maintenance. The real threat facing forests are excessive logging, clearcutting and
roadbuilding that homogenize and destroy soil, watersheds and biodiversity of native forests.”

Partridge, Arthur Ph.D., Statement at a Press Conference with Senator Robert Torricelli about S. 977 and HR 1376), the Act to Save America’s Forests April 28, 1998, U.S. Capitol

Response:
The Northwest Forest Plan has designated the lands in the project area as Late-successional Reserve, Riparian Reserve, and Matrix. Timber harvest is used as a tool to encourage the development of late-successional and old-growth forest habitat conditions within young stands. All resources are evaluated and include project design criteria (Appendix A) for protection or enhancement.

Timber Harvest Opposing View #74 - “CONCLUSIONS
In our overview of the impacts of forest management activities on soil erosion and productivity, we show that erosion alone is seldom the cause of greatly reduced site productivity. However, erosion, in combination with other site factors, works to degrade productivity on the scale of decades and centuries. Extreme disturbances, such as wildfire or tractor logging, cause the loss of nutrients, mycorrhizae, and organic matter. These combined losses reduce long-term site productivity and may lead to sustained periods of extended erosion that could exacerbate degradation.

Managers should be concerned with harvesting impacts, site preparation disturbances, amount of tree that is removed, and the accumulation of fuel from fire suppression. On erosion-sensitive sites, we need to carefully evaluate such management factors.”

http://forest.moscowfsl.wsu.edu/smp/docs/docs/Elliot_1-57444-100-0.html
Response:
Erosion-sensitive sites were identified and evaluated. Appendix A includes several criteria to protect soil erosion and productivity (pages 12 to 19). Criteria, such as no-cut buffers for streams and potentially unstable areas are included.

Opposing Views
Attachment #4

Roads Damage the Proper Ecological Functioning of the Natural Resources in a Forest

Note to the Responsible Official who reads these opposing views: There are negative effects caused by nearly all actions … this includes forest road construction. The public deserves to consider projects proposed to occur on their land with the knowledge of the pros and cons of the project. None of the sources for the opposing views is specific to this project. Information contained in books and/or scientific prediction literature are not specific to individual projects. They describe cause and effects relationships that exist when certain criteria are met.

Indeed, the literature in the References section of the draft NEPA document is not specific to the project yet its used to help design this project.

The opposing views presented below are not always right or wrong. When responding to opposing views that the Responsible Official believes are “reasonable” please discuss them in the context of this project.

Once again, this gives the public complete project understanding.

Road Construction Opposing View #1 - “Fragmentation has been considered as one of the most major factors that lead to the decline of many wildlife species (Brittingham and Temple 1983, Yahner 1988, Winslow et al. 2000) because fragmentation tends to decrease population productivity (Robinson et al. 1995). Therefore, Meffe states that
“fragmentation has become a major subject of research and debate in conservation biology” (Meffe et al. 1997, p. 272). Forest fragmentation usually occurs when large and continuous forests are divided into smaller patches as a result of road establishment, clearing for agriculture, and human development (Robinson et al. 1995, Meffe et al. 1997).” (Pg. 1)

“Generally, habitat fragmentation is an ecological process in which a large patch of habitat is divided into smaller patches of habitats. Usually, this process is caused by human activities (roads, agriculture, and logging). It also reduces the value of the landscape as habitat for many species (plants and animals). Fragmentation alters natural habitat in many ways, including reduction of patches’ sizes, increment of distances between similar patches, and increment of edges and predation (Brittingham and Temple 1983, Robinson et al. 1995).” (Pp. 2 and 3)

Al-jabber, Jabber M. 2003
“Habitat Fragmentation: Effects and Implications”

Response:
Based on past actions, there are several problems (EA, chapter 1) that the project proposes to address, such as encouraging the development of late-successional forest and old-growth forest habitats. By treating (e.g., thinning, creating dead wood, and under-planting) scattered young stands, the intent is to create larger blocks of late-successional habitat, which would reduce habitat fragmentation that resulted from past harvest activities. Thinning would remove a portion of the sub-dominant trees to encourage the growth of larger trees. The project does not propose clear-cutting.

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Road Construction Opposing View #2 - "Debris slides over a 20-year period were inventoried on 137,500 acres of forested land in the Klamath Mountains of southwest Oregon. Frequency during the study period was
about one slide every 4.3 years on each 1,000 acres—an erosion rate of about 1/2 yd$^3$ per acre per year. Erosion rates on roads and landings were 100 times those on undisturbed areas, while erosion on harvested areas was seven times that of undisturbed areas. Three-quarters of the slides were found on slopes steeper than 70 percent and half were on the lower third of slopes."

"Soil erosion rates due to debris slides were many times higher on forests with roads, landings, and logging activity than on undisturbed forests."

Amaranthus, Mike P. Ph.D., Raymond M. Rice Ph.D., N. R. Barr and R. R. Ziemer Ph.D. "Logging and forest roads related to increased debris slides in southwestern Oregon."


[http://www.humboldt.edu/~rrz7001/pubs/Ziemer85.PDF](http://www.humboldt.edu/~rrz7001/pubs/Ziemer85.PDF)

**Response:** The Soils and Water Quality section of the EA contains an analysis of ground stability in the project area. Project design criteria such as buffers, season of operation, and slope restrictions would be implemented to protect steep and unstable areas, and minimize or prevent erosion.

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**Road Construction Opposing View #3** - "‘Roads may have unavoidable effects on streams, no matter how well they are located, designed or maintained. The sediment contribution to streams from roads is often much greater than that from all other land management activities combined, including log skidding and yarding.’ (Gibbons and Salo 1973). Research by Megahan and Kidd in 1972 found that roads built in areas with highly erosive soils can contribute up to 220 times as much sediment to streams as intact forests.”
Response: The project would decommission 13.5 miles of roads and close 50.3 miles or roads. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A includes the design criteria to minimize or prevent sediment impacts to aquatic systems.

Road Construction Opposing View #4 - “Plot-level studies have demonstrated the ability of forest roads to intercept and route both subsurface and surface overland flow more efficiently to the stream network. Significant amount of subsurface throughflow can be intercepted by the road, as a function of the road cut depth and the current saturation deficit, and then redirected, concentrating the flow in particular areas below the road. Road drainage concentration increases the effective length of the channel network and strongly influences the distribution of erosional processes. The concept of wetness index has been used in the study as a surrogate for subsurface throughflow, and the effect of forest roads on subsurface throughflow rerouting has been assessed by evaluating the changes in terms of draining upslope areas. A threshold model for shallow
slope instability has been used to analyse erosional impacts of drainage modifications. In the model, the occurrence of shallow landsliding is evaluated in terms of drainage areas, ground slope and soil properties (i.e., hydraulic conductivity, bulk density, and friction angle). The model has been used to generate hypotheses about the broader geomorphic effect of roads. Modelling results have been compared with available field data collected in north-eastern Italy.”

Borga, M., F. Tonelli, G. Dalla Fontana and F. Cazorzi

“Evaluating the Effects of Forest Roads on Shallow Landsliding”


[http://www.cosis.net/abstracts/EAE03/13312/EAE03-J-13312.pdf](http://www.cosis.net/abstracts/EAE03/13312/EAE03-J-13312.pdf)

**Response:** The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads, and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. A detailed analysis of the effects on hydrologic process, based on the best available science, is disclosed in the EA, chapter 3, Soils and Water Quality, Hydrologic Processes section. Appendix A contains the design criteria to minimize sediment impacts to aquatic systems.

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**Road Construction Opposing View #5** - “A large scale land use experiment has taken place over the last 40 years in the mountainous
areas of the northwestern U.S. through timber harvesting. This land use change effects the hydrology of an area through two mechanisms:

- Clear-cut logging which causes changes in the dynamics of Rain-On-Snow (ROS) events due to changes in the accumulation and ablation of snow caused by vegetation effects on snow interception and melt; and

- Construction and maintenance of forest roads which channel intercepted subsurface flow and infiltration excess runoff to the stream network more quickly.”

Bowling, L.C., D. P. Lettenmaier, M. S. Wigmosta and W. A. Perkins “Predicting the Effects of Forest Roads on Streamflow using a Distributed Hydrological Model” from a poster presented at the fall meeting of the American Geophysical Union, San Francisco, CA, December 1996.

http://www.ce.washington.edu/~lxb/poster.html

**Response:** The project proposes no clear-cut logging. Thinning would reduce unnaturally dense stands created after clear-cut logging to densities more similar to naturally occurring stands. Vegetative canopy cover after thinning would range from 40-70%. About 13% of the project area would be thinned. As part of the project, 13.5 miles of road would be decommissioned and 50.3 miles of road would be closed. Road reconstruction, culvert replacements, decommissioning and closures would reduce existing adverse effects of roads to the aquatic ecosystem.

A detailed analysis of the expected effects of roads, based on the best available science, is disclosed in the EA, chapter 3, Soils and Water Quality section. Appendix A contains the design criteria to minimize sediment impacts from roads to aquatic systems.
Road Construction Opposing View #6 - "Many of the conclusions and assumptions contained in the Roads Report are based on analysis of the positive contributions of roads. Negative socio-economic effects of roads have been, in large part, glossed over. The general view expressed in the Roads Report is that overall, roads make a positive socio-economic contribution."

"The Socio-Economic Effects section has been constructed to overwhelmingly support the contention that the benefits of roads outweigh the costs. In order to arrive at such a conclusion, however, certain important economic costs and concepts have been omitted."

"A serious problem with the Roads Report is its lack of discussion concerning the economic costs arising from the negative ecological effects of roads. Despite overwhelming scientific data linking roads and sedimentation (Bennett 1991; Grayson et al. 1993; Lyon 1984; Megahan 1980; McCashion and Rice 1983; Wade 1998; Williams 1998), the socio-economic costs of mitigating the effects of this sedimentation receive no mention in the Roads Report. Such costs are central to and should be included in any socio-economic assessment of forest roads."

**Response:** The project proposes to repair and maintain roads, decommission roads, and close roads. These road actions would be designed to reduce or eliminate existing, chronic sources of sedimentation from roads on the landscape. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria for road use, maintenance, and reconstruction are designed to reduce or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science, is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological
Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains the design criteria to minimize or prevent sediment impacts to aquatic systems.

Road Construction Opposing View #7 - "The present road system constitutes a legacy of current and potential sources of damage to aquatic and riparian habitats, mostly through sedimentation, and to terrestrial habitats through fragmentation and increased access" (Amaranthus et al 1985).

"The failure of the Report to properly address mitigation costs associated with the ecological effects is a serious problem that needs to be addressed in future drafts. Similarly, passive-use values need to be taken seriously and considered throughout the Roads Report. In order to rectify these problems, most of the Socio-Economic Effects subsections will have to be reworked. Failing to do so, the Roads Report will paint an incomplete picture of the costs and benefits associated with the Forest Service's road program."


December 1998.

http://www.wildlandscpr.org/forest-service-roads-synthesis-scientific-information-socio-economic-impacts

Response: The project proposes to repair and maintain roads, decommission roads, and close roads. These road actions would be designed to reduce or eliminate existing, chronic sources of sedimentation from roads on the landscape. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria for road use, maintenance, and reconstruction are designed to reduce or prevent the potential for sediment to be delivered to stream channels.
Road Construction Opposing View #8 - "Sediment input to freshwater is due to either the slower, large-scale process of soil erosion, or to rapid, localized “mass movements,” such as landslides. Forest practices can increase the rate at which both processes occur. Most sediment from forestry arises from landslides from roads and clearcuts on steep slopes, stream bank collapse after riparian harvesting, and soil erosion from logging roads and harvested areas. Roads, particularly those that are active for long periods of time, are likely the largest contributor of forestry-induced sediment (Furniss et al. 1991)."

"Sediment can increase even when roads comprise just 3% of a basin (Cederholm et al. 1981)."

"More than half the species present in the study area will likely be negatively impacted by sedimentation from logging roads."

"In areas made highly turbid (cloudy) from sedimentation, the foraging ability of adults and juveniles may be inhibited through decreased algal production and subsequent declines in insect abundance, or, for visual-feeding taxa dependent on good light, through their inability to find and capture food. Highly silted water may damage gill tissue and cause mortality or physiological stress of adults and juveniles."

Bunnell, Fred L. Ph.D., Kelly A. Squires and Isabelle Houde. 2004

"Evaluating effects of large-scale salvage logging for mountain"
pine beetle on terrestrial and aquatic vertebrates."


http://warehouse.pfc.forestry.ca/pfc/25154.pdf

**Response:**
The project proposes to repair and maintain roads, decommission roads, and close roads. These road actions would be designed to reduce or eliminate existing, chronic sources of sedimentation from roads on the landscape. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria for road use, maintenance, and reconstruction are designed to reduce or prevent the potential for sediment to be delivered to stream channels and impact aquatic species and habitat (Appendix A).

A detailed analysis of the expected sediment effects to stream channels, based on the best available science, is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section.

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**Road Construction Opposing View #9 -** "The road construction and right-of-way logging were immediately detrimental to most aquatic invertebrates in South Fork Caspar Creek"

"Salmonid populations decreased immediately after the road construction."

"Sustained logging and associated road construction over a period of many years do not afford either the stream or the 'fish population a chance to recover."

Burns, James W., *Some Effects of Logging and Associated Road
**Construction on Northern California Streams.**” *Transactions of the American Fisheries Society*, Volume 1, Number 1, January 1972. 


**Response:** A Purpose and Need of the Project is to enhance the health of aquatic ecosystems (EA, Chapter 1; EA, Chapter 2, Table 1). All 1.5 miles of new temporary road construction would occur on stable ridges that are not connected to stream channels. Project design criteria in Appendix A would be implemented to minimize or prevent sediment delivery to stream channels from road reopening, reconstruction and haul. About 13.5 miles of road would be decommissioned and 50.3 miles closed. About 1,670 pieces of large wood would be added to 19.5 miles of fish habitat to improve habitat quantity and quality, and freshwater survival of juvenile salmonids. About 220 acres of riparian areas would be planted or thinned to restore native tree species diversity and densities. Dispersed recreation sites would be managed to reduce adverse effects to riparian conditions.

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**Road Construction Opposing View #10** - “In the temporal analysis, from 1950 to 1993, logging and road building in the study area clearly modified landscape patterns. Increased landscape fragmentation is evident in measures of smaller mean patch and core areas, reduced patch size variability, increased patch and edge density, and higher edge contrast.”

Buttenfield, Barbara P. Ph.D. and David R. Cameron “*Scale Effects and Attribute Resolution in Ecological Modeling*”
A paper presented at 4th International Conference on Integrating GIS and Environmental Modeling
Banff, Alberta, Canada, September 2 - 8, 2000
[http://www.colorado.edu/research/cires/banff/pubpapers/158/](http://www.colorado.edu/research/cires/banff/pubpapers/158/)

**Response:** The Purpose and Need of the Project includes the need to accelerate the development of late-successional and old-growth forest habitat, improve the quality and diversity of forest habitat, and to enhance the aquatic ecosystem. Actions to meet the purpose and need would reduce fragmentation that resulted from past harvest activities.
Road Construction Opposing View #11 - “The total area of land converted to road surface and shoulder clearance for permanent logging roads can represent a significant loss of former habitat in densely roaded regions. In this study, six acres of forest habitat were lost for every linear mile of road. Stewards of natural areas and managed forests who are concerned about the potential impacts of secondary roads on sensitive species should construct fewer and narrower roads with little or no edge clearance.”

deMaynadier, Phillip G. and Malcolm L. Hunter, Jr. “Road Effects on Amphibian Movements in a Forested Landscape” http://www.magicalliance.org/Fragmentation/road_effects_on_amphibian_moveme.htm

Response: The Project would decrease in road surface area by 13.5 miles due to road decommissioning. No new permanent roads are proposed for construction with this project. New temporary roads and landings would impact about 6 acres, which is 0.01% of the 42,700 acres in the project area. About 1.5 miles of temporary roads would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use.

Road Construction Opposing View #12 - "Roads often cause serious ecological impacts. There are few more irreparable marks we can leave on the land than to build a road."

Dombeck, Mike Ph.D., US Forest Service Chief, 1997-2001

Remarks made to Forest Service employees and retirees at the University of Montana. February 1998.
Response: The Project would decrease in road surface area by 13.5 miles due to road decommissioning. No new permanent roads are proposed for construction with this project. New temporary roads and landings would impact about 6 acres, which is 0.01% of the 42,700 acres in the project area. About 1.5 miles of temporary roads would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use.

Road Construction Opposing View #13 - "Few marks on the land are more lasting than roads."

"The negative effects on the landscape of constructing new roads, deferring maintenance, and decommissioning old roads are well documented. Unwanted or non-native plant species can be transported on vehicles and clothing by users of roads, ultimately displacing native species. Roads may fragment and degrade habitat for wildlife species and eliminate travel corridors of other species. Poorly designed or maintained roads promote erosion and landslides, degrading riparian and wetland habitat through sedimentation and changes in streamflow and water temperature, with associated reductions in fish habitat and productivity. Also, roads allow people to travel into previously difficult or impossible to access areas, resulting in indirect impacts such as ground and habitat disturbance, increased pressure on wildlife species, increased litter, sanitation needs and vandalism, and increased frequency of human-caused fires."
EPA entry into the Federal Register: March 3, 2000 (Volume 65, Number 43) Page 11675, "National Forest System Road Management."

http://www.epa.gov/fedrgstr/EPA-GENERAL/2000/March/Day-03/g5002.htm

Response: The Project would decrease in road surface area by 13.5 miles due to road decommissioning. No new permanent roads are proposed for construction with this project. New temporary roads and landings would impact about 6 acres, which is 0.01% of the 42,700 acres in the project area. About 1.5 miles of temporary roads would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A and G) were developed to reduce the spread of invasive species.

Road Construction Opposing View #14 - “Fragmentation caused by roads is of special interest because the effects of roads extend tens to hundreds of yards from the roads themselves, altering habitats and water drainage patterns, disrupting wildlife movement, introducing exotic plant species, and increasing noise levels. The land development that follows roads out into rural areas usually leads to more roads, an expansion process that only ends at natural or legislated barriers.”

“Forest Fragmentation and Roads”
Eastern Forest Environmental Threat Assessment Center
U.S. Forest Service - Southern Research Station
http://www.forestthreats.org/publications/su-srs-018/fragmentation

Response: The Project would decommission 13.5 miles and close 50.3 miles of road. No new permanent roads are proposed for construction with this project. The project proposes to have a net reduction in the amount of open roads on the landscape, which would reduce the effects of road-related fragmentation.
Road Construction Opposing View #15 - “A huge road network with vehicles ramifies across the land, representing a surprising frontier of ecology. Species-rich roadsides are conduits for few species. Roadkills are a premier mortality source, yet except for local spots, rates rarely limit population size. Road avoidance, especially due to traffic noise, has a greater ecological impact. The still-more-important barrier effect subdivides populations, with demographic and probably genetic consequences. Road networks crossing landscapes cause local hydrologic and erosion effects, whereas stream networks and distant valleys receive major peak-flow and sediment impacts. Chemical effects mainly occur near roads. Road networks interrupt horizontal ecological flows, alter landscape spatial pattern, and therefore inhibit important interior species. Thus, road density and network structure are informative landscape ecology assays. Australia has huge road-reserve networks of native vegetation, whereas the Dutch have tunnels and overpasses perforating road barriers to enhance ecological flows. Based on road-effect zones, an estimated 15–20% of the United States is ecologically impacted by roads.”


Response: The Project would decommission 13.5 miles and close 50.3 miles of road. No new permanent roads are proposed for construction with this project. The project proposes to have a net reduction in the amount of roads on the landscape, which would reduce road-related ecological impacts in the project area.
Road Construction Opposing View #16 - “Questions to consider: Roads dramatically alter forest ecosystems

1. Does the management prescription account for the ecological effects of the road construction and maintenance activities associated with carrying out such activities?

2. Have alternatives to road building been considered? How does the plan attempt to address the effects of roads?” (page 37)


A National Wildlife Federation publication sponsored by the Bullitt Foundation


**Response:** Roadwork, such as road decommissioning and closure are designed to reduce the existing effects that roads have on the landscape in the project area. Roadwork, such as road repair and maintenance is design to reduce or eliminate chronic sources of sediment that currently exist in the project area. New temporary roads (1.5 miles) are limited to stable ridge systems, would not cross any stream channels, and would be water-barred and closed after use. All road actions proposed by the project would have an overall net reduction of impacts in affected watersheds that are encompassed by the project area. Helicopter logging was considered for areas where roads would not be feasible or would cause unacceptable impacts to soils and water resources.
Road Construction Opposing View #17 - “The authors warned that cutting roads into current roadless areas could bring much more harm to wildlife, soil and fisheries than the beetle-killed trees pose to the forest.”

Frey, David “Logging Won’t Halt Beetles, Fire, Report Says”

NewWest.net, 3-03-10

http://www.newwest.net/topic/article/logging_wont_halt_beetles_fire_report_says/C41/L41/

Response: No inventoried roadless areas exist within the Project area.

Road Construction Opposing View #18 - "Rarely can roads be designed and built that have no negative impacts on streams. Roads modify natural drainage patterns and can increase hillslope erosion and downstream sedimentation. Sediments from road failures at stream crossings are deposited directly into stream habitats and can have both on-site and off-site effects. These include alterations of the channel pattern or morphology, increased bank erosion and changes in channel width, substrate composition, and stability of slopes adjacent to the channels."

"All of these changes result in important biological consequences that can affect the entire stream ecosystem. One specific example involves anadromous salmonids, such as salmon and steelhead, that have complex
life histories and require suitable stream habitat to support both juvenile and adult life stages."

"A healthy fishery requires access to suitable habitat that provides food, shelter, spawning gravel, suitable water quality, and access for upstream and downstream migration. Road-stream crossing failures have direct impacts on all of these components."

Furniss, Michael J., Michael Love Ph.D. and Sam A. Flanagan


Response: The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats.

Road Construction Opposing View #19 - “Barry Noon, a professor of wildlife ecology at Colorado State University, noted that scientific research
has consistently shown the adverse effects of roads on hydrologic processes and fish and wildlife populations.

““One of the key things to recognize is the effects of the roads extend far beyond their immediate footprint,” Noon said. For example, “in terms of hydrology, the roads are leading to faster runoff of water, often with great increases in sedimentation, particularly following storm events, and roads in watersheds often lead to increases in the intensity of floods.”“

These changes degrade fish habitat because of the increased sedimentation that leads to decreases in water quality, Noon said. And roads fragment wildlife habitat and create areas that animals avoid, often as result of increased hunting, he said.”

Gable, Eryn “Battling beetles may not reduce fore risks – report”  
*Land Letter*, March 4, 2010  

**Response:** The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats. Proposed road actions would reduce fragmentation of wildlife habitat in the long term, compared to existing conditions.

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**Road Construction Opposing View #20 -** "Roads and skid trails have been identified as a major contributor to increased turbidity of water draining logging areas resulting in increases from 4 to 93 parts per million
Forest roads have been found to have erosion rates from one to three orders of magnitude greater than similar undisturbed areas (Megahan, 1974) and perhaps account for as much as 90 percent of all forest erosion (Megahan, 1972). Forest roads can also cause soil erosion and stream sedimentation, which adversely impact on the nation’s water quality (Authur et al., 1998).


**Response:** The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads. No road construction is proposed in roadless areas.
Road Construction Opposing View #21 - "Roads have well-documented, short- and long-term effects on the environment that have become highly controversial, because of the value society now places on unroaded wildlands and because of wilderness conflicts with resource extraction."

"(Road) consequences include adverse effects on hydrology and geomorphic features (such as debris slides and sedimentation), habitat fragmentation, predation, road kill, invasion by exotic species, dispersal of pathogens, degraded water quality and chemical contamination, degraded aquatic habitat, use conflicts, destructive human actions (for example, trash dumping, illegal hunting, fires), lost solitude, depressed local economies, loss of soil productivity, and decline in biodiversity."


Response: The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads.
Road Construction Opposing View #22 - "Fires in the roaded areas are more intense, due to drier conditions, wind zones on the foothill/valley interface, high surface-fuel loading, and dense stands."

Hann, W.J. et al. 1997
Landscape dynamics of the Basin. Pp. 337-1,055
in: Quigley, T.M. and S.J. Arbelbide (eds.)
*An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins*: Volume II. USDA Forest Service, PNW-GTR-405

**Response:** Residual canopy cover of thinned stands, road decommissioning and closures (93% of fires on the Siuslaw National Forest are human-caused), and treating fuels adjacent to open system roads would sufficiently reduce fire hazard risks in the project area. After about 12 years of thinning on this Forest, there has not been one incident of wildfire associated with stand treatments.

Road Construction Opposing View #23 - “Many forested landscapes are fragmented by roads, but our understanding of the effects of these roads on the function and diversity of the surrounding forest is in its infancy. I investigated the effect of roads in otherwise continuous forests on the macroinvertebrate fauna of the soil. I took soil samples along transects
leading away from the edges of unpaved roads in the Cherokee National Forest in the Southern Appalachian mountains of the United States. Roads significantly depressed both the abundance and the richness of the macroinvertebrate soil fauna. Roads also significantly reduced the depth of the leaf-litter layer. These effects persisted up to 100 m into the forest. Wider roads and roads with more open canopies tended to produce steeper declines in abundance, richness, and leaf-litter depth, but these effects were significant only for canopy cover and litter depth. The macroinvertebrate fauna of the leaf litter plays a pivotal role in the ability of the soil to process energy and nutrients. These macroinvertebrates also provide prey for vertebrate species such as salamanders and ground-foraging birds. The effect of roads on the surrounding forest is compounded by the sprawling nature of the road system in this and many other forests. My data suggest that even relatively narrow roads through forests can produce marked edge effects that may have negative consequences for the function and diversity of the forest ecosystem.”

Haskell, David G. Ph.D. 1999 “Effects of Forest Roads on Macroinvertebrate Soil Fauna of the Southern Appalachian Mountains”

http://www.jstor.org/stable/2641904

Response: The project proposes to reduce the overall effects of roads on the landscape through road repair and maintenance, road decommissioning, and road closure.

Road Construction Opposing View #24 - “Roads remove habitat, alter adjacent areas, and interrupt and redirect ecological flows. They subdivide wildlife populations, foster invasive species spread, change the hydrologic network, and increase human use of adjacent areas. At broad scales, these impacts cumulate and define landscape patterns.”

Hawbaker, Todd J. Ph.D., Volker C. Radeloff Ph.D.,
Response: The project proposes to reduce the overall effects of roads in affected watersheds and reduce habitat fragmentation. Other actions proposed would treat invasive plants to reduce their influence in forest ecology. Design criteria (Appendix A and G) would to reduce the spread of invasive species.

Road Construction Opposing View #25 - “Last winter was unusually wet in the Pacific Northwest. The result was landslides all over caused by logging roads; five people died, spawning streams were ruined, water supplies were contaminated and the flooding was tremendously aggravated. According to David Bayles, conservation director of the Pacific Rivers Council, aerial surveys documented more than 650 landslides in February in Washington and Oregon alone. The stupidest and most dangerous practice is allowing logging roads on steep slopes — that's really asking for it.

You may ask yourself why the taxpayers are expected to pony up to build roads for profitable logging companies. Build roads for the timber companies in order to stimulate the U.S. logging, paper and building industries. There's just one problem. A lot of U.S. logs get shipped overseas, mostly to Japan. We're actually subsidizing Japanese companies while doing terrible damage to our environment and not helping the U.S. job scene much except when it comes to cutting
Start with the assumption that the U.S. Forest Service, a component of the Department of Agriculture, is simply an auxiliary branch of the timber industry and you’ll pretty much have the picture of what’s going on. Last winter, the Forest Service refused a bid at a timber auction from an environmentalist who wanted to save, not harvest, a stand of evergreens in the Okanogan National Forest in Washington. Instead, the Forest Service accepted a bid of $15,000 from a logging company that cut 3.5 million board-feet of lumber in that stand. Try to find a price like that at Home Depot.”

Ivins, Molly
Creators Syndicate, August 3 1997 08 03
http://www.creators.com/opinion/molly-ivins/molly-ivins-august-3-1997-08-03.html

Response: Except for new temporary roads (1.5 miles), the project proposes to use existing roads that are stable. New temporary roads would be located on stable ridge systems, not on steep slopes. Roads located on unstable mid-slopes or not needed for future use would be decommissioned.

Road Construction Opposing View #26 - "Although disturbance patches are created by peak flow and debris flow disturbances in mountain landscapes without roads, roads can alter the landscape distributions of the starting and stopping points of debris flows, and they can alter the balance between the intensity of flood peaks and the stream network's resistance to change.”

Jones, Julia A. Ph.D., Frederick J. Swanson Ph.D.
**Response:** Road stability would be improved through road repair and maintenance. Other roads that are not needed and are typically on mid-slopes or valley bottoms that impact debris flows and peak floods would be decommissioned. No new permanent road construction is proposed under this project.

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**Road Construction Opposing View #27** - "In the Pacific Northwest, the two main processes that contribute to sediment production are mass failure and surface erosion from forest roads (Fredriksen 1970, Reid and Dunne 1984). In the Clearwater River basin in the State of Washington, as much as 40 percent of the sediment produced in the watershed was attributed to logging roads (Reid 1980)."


**Response:** The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A
contains project design criteria to minimize sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads.

Road Construction Opposing View #28 - "It is indisputable that roads are one of the greatest threats to the ecological integrity of forested systems and associated river, wetland, lake, and coastal ecosystems. Yet, the USFS has failed to adopt a policy that mandates reversing the worst ecological effects of roads, or that precludes incursion of roads into roadless areas. Despite widespread recognition of these facts, the USFS diverts staff and money to extraordinarily costly salvage logging projects at the expense of reducing the extent of the road network or undertaking needed fine-fuels reductions in unburned forests."

Karr, James R. Ph.D., Christopher A. Frissell Ph.D., Jonathan J. Rhodes, David L. Perry Ph.D. and G. Wayne Minshall Ph.D.

Excerpt from a letter to the Subcommittee on Forests & Forest Health


http://www.nativeforest.org/campaigns/wildfire_info_center/letter_from_beschta.htm

Response: The project proposes to reduce the overall effects of roads on the landscape through road repair and maintenance, road decommissioning, and road closure. Unstable roads were identified and excluded from use. No roads are proposed for construction in roadless areas.
Road Construction Opposing View #29 - “Forest fragmentation, as scientists call the intentional felling of woodland, is actually two processes. In populated areas such as the Atlantic seaboard, it means reduction in the size of forest tracts, usually due to suburbanization and development. In less inhabited areas--northern New England, for example--forest fragmentation refers to isolation of one patch of forest from another by logging, or by the building of roads or power lines.”

Lawren, Bill 1992 “Singing the Blues for Songbirds: Bird lovers lament as experts ponder the decline of dozens of forest species”
National Wildlife

Response: The Project would decommission 13.5 miles and close 50.3 miles of road. No new permanent roads are proposed for construction with this project. The project proposes to have a net reduction in the amount of open roads on the landscape, which would reduce the effects of road-related forest fragmentation. Stand treatments are designed to speed the development of late-successional and old-growth forest habitat, which would reduce forest fragmentation in the long term (EA, Chapter 1).

Road Construction Opposing View #30 - "The compaction of forest road soils is known to reduce aeration, porosity, infiltration rates, water movement, and biological activity in soils. Research indicates that soil bulk density, organic matter, moisture, and litter depths are much lower on roads than on nearby forest lands. Macropores, which provide soil drainage and infiltration, have been shown to significantly decrease in size as a result of road construction and use. Reduced infiltration and increased compaction promote soil erosion, especially during the seasonal southwestern monsoon rains (Elseroad 2001)."
"Physical disturbances caused by road construction and vehicle use create ideal conditions for colonization by invasive exotic plant species. The use of roads by vehicles, machinery, or humans often aids the spread of exotic plant seeds. Once established, they can have long-term impacts on surrounding ecosystems and can be difficult to remove."

"Roads are known to cause habitat fragmentation. Many create ecological 'edges' with different plant species, light levels, and hiding cover, all of which may alter animal survival, reproductive success, and movement patterns. The introduction of exotic plants can disrupt the availability of native vegetation used by wildlife for food and shelter (Trombulak and Frissell 1999)."

"Forest roads often develop a water-repellent soil layer caused by lack of vegetative cover and changes in soil composition. This can substantially influence how runoff is processed. Erosion, the formation of water channels beside the road, and increased sediment loads in nearby streams are common results of this process (Baker 2003)."

"Because they provide easier access to many forest tracts, forest roads often allow more human-caused fires to be ignited."

Lowe, Kimberly Ph.D., "Restoring Forest Roads."
A Northern Arizona University Ecological Restoration Institute publication


http://www.eri.nau.edu/en/information-for-practitioners/restoring-forest-roads
Response: The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. A detailed analysis of the effects on hydrologic process, based on the best available science, is disclosed in the EA, chapter 3, Soils and Water Quality, Hydrologic Processes section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads.

Proposed actions (EA, chapter 2, Table 1) and project design criteria (Appendix A) would reduce the effects of road-related forest fragmentation on the landscape. The project would control or eradicate invasive plants. The project would decommission and close roads, which would reduce the potential for human-cause fires.

Road Construction Opposing View #31 - "Almost everywhere people live and work they build and use unimproved roads, and wherever the roads go, a range of environmental issues follows."

"Among the environmental effects of unimproved roads, those on water quality and aquatic ecology are some of the most critical. Increased chronic sedimentation, in particular, can dramatically change the food web in affected streams and lakes."
"The nearly impervious nature of road surfaces (or treads) makes them unique within forested environments and causes runoff generation even in mild rainfall events, leading to chronic fine sediment contributions."

"If we look at the issue of what we need to learn or the research priorities for forest road hydrology, I would argue that the areas of cutslope hydrology and effectiveness of restoration efforts are perhaps most critical."

"At a few sites in the mountains of Idaho and Oregon a substantial portion of the road runoff (80–95%) came from subsurface flow intercepted by the cutslope (Burroughs et al., 1972; Megahan, 1972; Wemple, 1998)."

Luce, Charles H. Ph.D., 2002. "Hydrological processes and pathways affected by forest roads: what do we still need to learn?"


[http://www.fs.fed.us/rm/boise/teams/soils/Publications/Luce%202002%20HP.pdf](http://www.fs.fed.us/rm/boise/teams/soils/Publications/Luce%202002%20HP.pdf)

Response: Road stability would be improved through road repair and maintenance. Other roads that are not needed and are typically on mid-slopes (cut-slopes) or valley bottoms that impact water quality and aquatic hydrology would be decommissioned. One of the project’s objectives is to reduce road-related effects at the watershed scale within the project area.

Road Construction Opposing View #32 - "Roads in the watershed contribute to sediment production by concentrating runoff, thereby
increasing sediment load to the stream network. Most unimproved (dirt) roads connect either directly or indirectly with streams and, therefore, act as extensions of stream networks by effectively increasing watershed drainage density and subsequently sediment loads to streams. In the South Fork subwatershed of Squaw Creek, road connectivity has resulted in an increase in effective drainage density of approximately 250%. Throughout the Squaw Creek watershed, it is estimated that dirt roads potentially contribute as much as 7,793 metric tons/year to the watershed sediment budget."


**Response:** The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads.
Road Construction Opposing View #33 - “One of the greatest impacts of roads and (especially motorized) trails is their effect on the hydrology of natural landscapes, including the flow of surface and ground water and nutrients. These hydrologic effects are responsible for changes to geomorphic processes and sediment loads in roaded areas (Luce and Wemple 2001).” (pg. 12)


Response: The project would decommission 13.5 miles of road and close 50.3 miles. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. Design criteria (Appendix A) for road maintenance and reconstruction are designed to minimize or prevent the potential for sediment to be delivered to stream channels.

A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, soils and water quality, hydrologic processes section.

Road Construction Opposing View #34 - "A study was made on 344 miles of logging roads in northwestern California to assess sources of erosion and the extent to which road-related erosion is avoidable. At most, about 24 percent of the erosion measured on the logging roads could have been prevented by conventional engineering methods. The remaining 76 percent was caused by site conditions and choice of alignment. On 30,300 acres of commercial timberland, an estimated 40 percent of the total
erosion associated with management of the area was found to have been derived from the road system."


Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape (EA, chapter 3, soils and water quality, soils productivity section). New temporary roads would be located on stable ridge systems, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize erosion and minimize or prevent sediment from entering streams.

Road Construction Opposing View #35 - "Research has shown that roads can have adverse impacts on the water quality on the forest landscape (Authur et al. 1998; Binkley and Brown 1993; Megahan et al. 1991). The forest road system has been identified by previous research as the major source of soil erosion on forestlands (Anderson et. al 1976; Patric 1976; Swift 1984; Van Lear et al. 1997). Furthermore, roads are cited as the dominant source of sediment that reaches stream channels (Packer 1967; Trimble and Sartz 1957; Haupt 1959)."

McFero III, Grace, J. "Sediment Plume Development from Forest Roads: How are they related to Filter Strip Recommendations?"
Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape (EA, chapter 3, soils and water quality, water quality and soils productivity sections). New temporary roads would be located on stable ridge systems, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.

Road Construction Opposing View #36 - “Overall, roads had a greater impact on landscape structure than logging in our study area. Indeed, the 3-fold increase in road density between 1950–1993 accounted for most of the changes in landscape configuration associated with mean patch size, edge density, and core area.”

McGarigal, Kevin Ph.D., William H. Romme Ph.D. Michele Crist Ph.D.and Ed Roworth Ph.D. “Cumulative effects of roads and logging on landscape structure in the San Juan Mountains, Colorado (USA)” Landscape Ecology, Volume 16, Number 4 / May, 2001 http://www.springerlink.com/content/w12557624742tv77/

Response: The project proposes to reduce road density by decommissioning 13.5 miles of road. The project proposes to reduce open-road density by closing 50.3 miles of road (EA, chapter 1, table 1). These actions would reduce road-related impacts within the landscape, compared to existing conditions.
Road Construction Opposing View #37 - “Road construction in remote areas appears to be the major long term impact of resource extraction industries and the most significant problem facing grizzly bears in most locations. Open roads are an influence in all 5 ways that people affect bears. Vehicles on roads can harass bears, displace them from quality habitats, and cause reduced bear use of altered habitats, such as cutting units. Bears that are displaced from roads may cause social disruption in areas away from roads. Finally, roads permit access for many people and some of these will shoot bears.” (Pg. 62)

McLellan, Bruce N. “Relationships between Human Industrial Activity and Grizzly Bears”
Bears: Their Biology and Management, Vol. 8
International Conference on Bear Research and Management
February 1989 (1990), pp. 57-64

Response: The project proposes to decommission roads (13.5 miles) and close roads (50.3 miles). Impacts of roads on wildlife in the project area would be reduced by these actions, compared to existing conditions (EA, chapter 3, wildlife habitat and species, wildlife habitat section).

Road Construction Opposing View #38 - “Erosion from forest roads can be a large source of sediment in watersheds managed for timber production.”

Megahan, Walter F. Ph.D. “Predicting Road Surface Erosion from Forest Roads in Washington State”
from a presentation presented at the 2003 Geological Society of America meeting.

Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape (EA, chapter 3, soils and water quality, water quality and soils productivity sections). New temporary roads would be located on stable ridge systems, and would be water-barred and closed after use. Project design criteria (Appendix A,
Pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.

Road Construction Opposing View #39 - “Today, addressing the adverse impacts of forest roads is consistently identified as one of the highest watershed restoration priorities in U.S. forests—in many forested watersheds in the western United States there is a greater road density than stream density. It is simply irrational to spend millions of dollars subsidizing further forest road construction when we are simultaneously spending millions of dollars to offset detrimental effects associated with similar actions in the past.”

Montgomery, David Ph.D., Statement at a Press Conference with Senator Robert Torricelli about S. 977 and HR 1376, the Act to Save America’s Forests April 28, 1998, U.S. Capitol

Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape (EA, chapter 3, soils and water quality, water quality and soils productivity sections). New temporary roads would be located on stable ridge systems, would not cross streams, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.

Road Construction Opposing View #40 - “Nothing is worse for sensitive wildlife than a road. Over the last few decades, studies in a variety of terrestrial and aquatic ecosystems have demonstrated that many of the most pervasive threats to biological diversity - habitat destruction and
fragmentation, edge effects, exotic species invasions, pollution, and overhunting - are aggravated by roads. Roads have been implicated as mortality sinks for animals ranging from snakes to wolves; as displacement factors affecting animal distribution and movement patterns; as population fragmenting factors; as sources of sediments that clog streams and destroy fisheries; as sources of deleterious edge effects; and as access corridors that encourage development, logging and poaching of rare plants and animals.”

"Most public agencies disregard the ecological impacts of roads, and attempt to justify timber roads as benefiting recreation and wildlife management. Even when a land manager recognizes the desirability of closing roads, he or she usually contends that such closures would be unacceptable to the public."

“The Forest Service and other public agencies will claim that road closures, revegetation, and other restorative measures are too expensive to be implemented on a broad scale. But much of the approximately $400 million of taxpayers’ money squandered annually by the Forest Service on below-cost timber sales goes to road-building. Road maintenance is also expensive. Virtually all of this money could be channeled into road closures and associated habitat restoration. This work would be labor-intensive, and providing income to the many laid off loggers, timber sale planners, and road engineers -- for noble jobs, rather than jobs of destruction!"

Noss, Reed F., Ph.D. 1995. “The Ecological Effects of Roads or the Road to Destruction” Wildlands CPR

http://www.wildlandscpr.org/ecological-effects-roads
**Response:** The project proposes to decommission roads (13.5 miles) and close roads (50.3 miles). Impacts of roads on wildlife in the project area would be reduced by these actions, compared to existing conditions.

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**Road Construction Opposing View #41** - “Numerous studies have reported lower densities of breeding Ovenbirds (*Seiurus aurocapillus*) adjacent to forest edges. However, none of these studies has considered habitat use and reproductive success to address mechanisms underlying the observed pattern, and most were conducted in fragmented landscapes and ignored juxtapositions of forest with narrow openings such as roads. We studied the influence of forest roads on Ovenbird density in an extensively forested region of Vermont, evaluating habitat use and reproductive success relative to mechanisms proposed to explain the density-edge relationship. Territory densities on seven study plots were 40% lower within edge areas (0 to 150 m from unpaved roads) than within interior areas (150 to 300 m from roads). We simulated the distribution of Ovenbird territories and concluded that passive displacement, where birds perceive habitat interfaces as boundaries and limit their territories entirely to forest habitat, did not account for the observed density-edge pattern. Territory size was inversely related to distance from roads, providing an alternative explanation for reduced densities near edges and suggesting that habitat quality was higher away from roads. Pairing success was lower within edge areas than within interior zones, but the difference was not statistically significant. The proportion of males that produced fledglings did not differ between edge and interior areas. We conclude that habitat quality for Ovenbirds may be lower within 150 m of unpaved roads in extensive forested landscapes, affecting territory density and possibly reproductive success.”

http://www.fs.fed.us/rm/pubs_other/rmrs_1999_ortega_y001.html
Response: Although ovenbirds are not native to the Pacific Northwest, there are several other species of song birds present in the project area. Project actions, such as road decommissioning and closure would reduce road-related effects on song birds, compared to existing conditions.

Road Construction Opposing View #42 - “Increasingly, previously extensive, continuous tracts of forest are being reduced to widely dispersed patches of remnant forest vegetation by logging and road-building, but few measures of the effects of roads on forest fragmentation are available. Fragmentation affects animal populations in a variety of ways, including decreased species diversity and lower densities of some animal species in the resulting smaller patches. This study seeks to quantify the effects of roads and logging activities on forest habitat.”

“Roads precipitate fragmentation by dissecting previously large patches into smaller ones, and in so doing they create edge habitat in patches along both sides of the road, potentially at the expense of interior habitat. As the density of roads in landscapes increases, these effects increase as well. McGurk and Fong (1995) considered the additive effects of clearcuts and roads, but did not measure the amount of associated edge habitat. Thus a more direct measurement of the impacts of roads on landscapes is needed.”

http://cpluhna.nau.edu/Research/contribution_of_roads_to_forest.htm

Response: The Project would decommission 13.5 miles and close 50.3 miles of road. No new permanent roads are proposed for construction with this project. The project proposes to have a net reduction in the amount of open roads on the landscape, which would reduce the effects of road-related forest fragmentation. Stand treatments are limited to thinning (no clear-cutting is proposed), and are designed to speed the development of late-successional and old-growth forest habitat, which would reduce forest fragmentation in the long term (EA, Chapter 1).
Road Construction Opposing View #43 - “Erosion on roads is an important source of fine-grained sediment in streams draining logged basins of the Pacific Northwest. Runoff rates and sediment concentrations from 10 road segments subject to a variety of traffic levels were monitored to produce sediment rating curves and unit hydrographs for different use levels and types of surfaces. These relationships are combined with a continuous rainfall record to calculate mean annual sediment yields from road segments of each use level. A heavily used road segment in the field area contributes 130 times as much sediment as an abandoned road. A paved road segment, along which cut slopes and ditches are the only sources of sediment, yields less than 1% as much sediment as a heavily used road with a gravel surface.”


Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape (EA, chapter 3, soils and water quality, water quality and soils productivity sections). New temporary roads would be located on stable ridge systems, would not cross streams, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.

Road Construction Opposing View #44 - "Roads are associated with high sediment inputs and altered hydrology, both of which can strongly influence downstream channel habitats. Roads are also important as a source of indirect human impacts and as an agent of vegetation change and wildlife disturbance."
"Any ground disturbance increases the potential for erosion and hydrologic change, and roads are a major source of ground disturbance in wildlands. Compacted road surfaces generate overland flow, and much of this flow often enters the channel system, locally increasing peak flows. Localized peak flows are also increased where roads divert flow from one swale into another, and where roadcuts intercept subsurface flows."

"Overland flow from the road surface is a very effective transport medium for the abundant fine sediments that usually are generated on road surfaces. Road drainage also can excavate gullies and cause landslides downslope in swales. Cut and fill slopes are often susceptible to landsliding, and road-related landsliding is the most visible forestry-related erosional impact in many areas."

Reid, Leslie M. Ph.D., Robert R. Ziemer Ph.D., and Michael J. Furniss

http://www.fs.fed.us/psw/publications/reid/4Roads.htm

Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape (EA, chapter 3, soils and water quality—hydrologic processes, water quality, and soils productivity sections). New temporary roads would be located on stable ridge systems, would not cross streams, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.
Road Construction Opposing View #45 - "Disturbances from roadbuilding and logging changed the sediment/discharge relationship of the South Fork from one which was supply dependent to one which was stream power dependent, resulting in substantial increases in suspended sediment discharges."

"Road construction and logging appear to have resulted in increases in average turbidity levels (as inferred from suspended sediment increases) above those permitted by Regional Water Quality Regulations."


USDA Forest Service, Research Paper PSW-146.


Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape, compared to existing conditions (EA, chapter 3, soils and water quality—hydrologic processes, water quality, and soils productivity sections). New temporary roads would be located on stable ridge systems, would not cross streams, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.
Road Construction Opposing View #46 - "Sediment eroded from gravel roads can be a major component of the sediment budget in streams in this region (Van Lear, et al., 1995)."


Response: Activities associated with road repair and maintenance, road decommissioning, and road closure would reduce chronic sources of road-related erosion on the landscape, compared to existing conditions (EA, chapter 3, soils and water quality—hydrologic processes, water quality, and soils productivity sections). New temporary roads would be located on stable ridge systems, would not cross streams, and would be water-barred and closed after use. Project design criteria (Appendix A, pages 6, 7, and 11-19) would be used to minimize or prevent sediment from entering streams.

Road Construction Opposing View #47 - “Early studies of elk were among the first to address effects of roads on wildlife, establishing a precedent for subsequent research on a wide range of terrestrial and aquatic species. These early elk-roads studies included those reported in a symposium on the topic in 1975 (Hieb 1976), the seminal studies of Jack Lyon in Montana and northern Idaho (Lyon 1979, 1983, 1984), the Montana Cooperative Elk-Logging Study (Lyon et al. 1985), and work by Perry and Overly (1977) in Washington and Rost and Bailey (1979) in Colorado.
As research and analysis techniques have become more sophisticated, particularly with the advent of geographic information systems (GIS) and high-resolution remote imagery, the study of effects of roads on terrestrial and aquatic communities has evolved into a unique discipline of “road ecology” (Forman et al. 2003). Road effects are far more pervasive than originally believed and include such disparate consequences as population and habitat fragmentation, accelerated rates of soil erosion, and invasion of exotic plants along roadways. Indeed, “in public wildlands management, road systems are the largest human investment and the feature most damaging to the environment” (Gucinski et al. 2001:7). Summaries of the effects of roads on wildlife habitats and biological systems in general have been compiled by Forman and Alexander (1998), Trombulak and Frissell (2000), Gucinski et al. (2001), Forman et al. (2003) and Gaines et al. (2003).”


**Response:** Past timber harvest and road construction activities led to habitat fragmentation in the planning area. Our current project (EA, chapter 1) proposes to encourage the development of late-successional forest and old-growth forest habitats. By treating (e.g., thinning, creating dead wood, and under-planting) scattered young stands, the intent is to create larger blocks of late-successional habitat, which would reduce habitat fragmentation that resulted from past harvest activities. Thinning would remove a portion of the sub-dominant trees to encourage the growth of larger trees. The project does not propose clear-cutting.

The project would also decommission 13.5 miles of roads and close 50.3 miles of roads. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. This project is not proposing to build new permanent roads on the landscape. These road treatments proposed by this project would also work to reduce habitat fragmentation.
Along with the above road work, repairing and maintaining roads would also reduce soil loss and erosion from existing roads. A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads.

Project design criteria (Appendix A, Cultural Plants and Invasive Plants section) are in place to reduce the spread of and also treat invasive plants that could colonize roads or be transported on logging equipment.

Road Construction Opposing View #48 - “The consequences of road construction to wildlife are generally negative. Roads result in increased human access, habitat fragmentation, disturbance, and in some cases direct mortality due to vehicle collisions.”

“Research has documented an 80% decline in grizzly bear habitat use within 1 km of open roads used by motorized vehicles in Montana. This has been ascribed either to bears avoiding humans or to the selective over-harvest of bears habituated to humans that would otherwise more fully use areas heavily influenced by people.”

Schwartz, Chuck Ph.D. - March 1998 “Wildlife and Roads”
The Interagency Forest Ecology Study Team (INFEST) newsletter http://www.sf.adfg.state.ak.us/sarr/forestecology/fsroads.cfm

Response: Past timber harvest and road construction activities led to habitat fragmentation in the planning area. Our current project (EA, chapter 1) proposes to encourage the development of late-successional forest and old-growth forest habitats. By treating (e.g., thinning, creating dead wood, and under-planting) scattered young stands, the intent is to create larger blocks of late-successional habitat, which would reduce habitat fragmentation that resulted from past harvest activities. Thinning would
remove a portion of the sub-dominant trees to encourage the growth of larger trees. The project does not propose clear-cutting.

The project would also decommission 13.5 miles of roads and close 50.3 miles of roads. The only new roads that would be built are temporary roads (about 1.5 miles), and would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. This project is not proposing to build new permanent roads on the landscape. The road treatments proposed by this project would also serve to reduce habitat fragmentation.

Road Construction Opposing View #49 - “The effects of forest roads on hydrology are related to the effects of forest clearing. Most logging requires road access, and the roads often remain after the logging, so there are both short and long-term effects. Forest road surfaces are relatively impermeable. Water readily runs over the road surface and associated roadside ditches, often directly to a stream channel, with the net effect of extending channel networks and increasing drainage density. In addition to providing conduits for overland flow, forest roads involve slope-cuts and ditching that may intersect the water table and interrupt natural subsurface water movement. This diversion of subsurface water may be quantitatively more important than the overland flow of storm water in some watersheds. The importance of roads in altering basin hydrology has been underscored in paired-watershed studies and recent modeling studies. “ (Pgs. 730 and 731)

Shanley, James B. and Beverley Wemple Ph.D.
“Water Quantity and Quality in the Mountain Environment”
http://www.uvm.edu/~bwemple/pubs/shanley_wemple_law.pdf

Response: The project is not proposing to build new, permanent roads on the landscape. The only new roads built would be temporary roads that would only impact about 1.5 miles. However, these roads would be constructed on stable ridge tops, would
not cross any stream channels, and would be water-barred and closed after use. The project would also decommission 13.5 miles of roads and close 50.3 miles of roads. Road repair and maintenance would also be implemented. These road actions would serve to reduce soil loss and erosion from existing roads.

A detailed analysis of the expected hydrological effects of new temporary roads, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Hydrologic Processes section, and Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section. Appendix A contains project design criteria to minimize hydrological impacts of roads to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation, and overall negative hydrological effects associated with roads.

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Road Construction Opposing View #50 - "Roads are often the major source of soil erosion from forested lands (Patric 1976)."

"Generally, soil loss is greatest during and immediately after construction."

Swift Jr., L. W. "Soil losses from roadbeds and cut and fill slopes in the Southern Appalachian Mountains."


**Response:** This project is not proposing to build new, permanent roads on the landscape. The new temporary roads would only impact about 1.5 miles. However, these roads would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. In addition this project would also decommission 13.5 miles of roads and close 50.3 miles of roads. Road repair and maintenance is also proposed. These actions would serve to reduce soil loss and erosion from existing roads.
A detailed analysis of the expected sediment effects to stream channels, based on the best available science is disclosed in the EA, chapter 3, Soils and Water Quality, Hydrologic Processes section; and Water Quality-Sediment Production and Delivery section; and in the Fisheries Biological Evaluation, Suspended Sediment, Turbidity and Stream Substrate section (Appendix H). Appendix A contains project design criteria to minimize or prevent sediment impacts to aquatic species and habitats. The overall effect of the project would be to reduce soil erosion and stream sedimentation associated with roads in the project area.

Road Construction Opposing View #51 - “More subtle causes of habitat loss include the construction of roads and power lines. These linear barriers also have been correlated with a decline in neotropical migrant songbirds (Berkey 1993; Boren et al. 1999; Ortega and Capen 2002). Whether by forest conversion or the construction of roads and power lines, fragmentation subdivides habitat into smaller and smaller parcels. The result is an increase of edge habitat, or the boundary between intact forest and surrounding impacted areas. Small forests with large amounts of edge habitat are a hostile landscape for nesting neotropical migratory songbirds. In these areas, songbirds face two great threats: 1) the loss of eggs and nestlings to predators and, 2) parasitism by cowbirds.”

Switalski, Adam "Where Have All the Songbirds Gone? Roads, Fragmentation, and the Decline of Neotropical Migratory Songbirds" Wildlands CPR, September 8, 2003 http://www.wildlandscpr.org/node/213

Response: The project does not propose building new, permanent roads on the landscape. The new temporary roads would impact about 1.5 miles; however, these roads would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. The project would also decommission 13.5 miles of roads and close 50.3 miles of roads. Propose road treatments would serve to reduce habitat fragmentation.

By treating (e.g., thinning, creating dead wood, and under-planting) scattered young stands, the intent is to create larger blocks of late-successional habitat, which would reduce habitat fragmentation that resulted from past harvest activities. Thinning
would remove a portion of the sub-dominant trees to encourage the growth of larger trees. The project does not propose clear-cutting.

Road Construction Opposing View #52 - “Roads are a widespread and increasing feature of most landscapes. We reviewed the scientific literature on the ecological effects of roads and found support for the general conclusion that they are associated with negative effects on biotic integrity in both terrestrial and aquatic ecosystems. Roads of all kinds have seven general effects: mortality from road construction, mortality from collision with vehicles, modification of animal behavior, alteration of the physical environment, alteration of the chemical environment, spread of exotics, and increased use of areas by humans. Road construction kills sessile and slow-moving organisms, injures organisms adjacent to a road, and alters physical conditions beneath a road. Vehicle collisions affect the demography of many species, both vertebrates and invertebrates; mitigation measures to reduce roadkill have been only partly successful. Roads alter animal behavior by causing changes in home ranges, movement, reproductive success, escape response, and physiological state. Roads change soil density, temperature, soil water content, light levels, dust, surface waters, patterns of runoff, and sedimentation, as well as adding heavy metals (especially lead), salts, organic molecules, ozone, and nutrients to roadside environments. Roads promote the dispersal of exotic species by altering habitats, stressing native species, and providing movement corridors. Roads also promote increased hunting, fishing, passive harassment of animals, and landscape modifications. Not all species and ecosystems are equally affected by roads, but overall the presence of roads is highly correlated with changes in species composition, population sizes, and hydrologic and geomorphic processes that shape aquatic and riparian systems. More experimental research is needed to complement post-hoc correlative studies. Our review underscores the
importance to conservation of avoiding construction of new roads in roadless or sparsely roaded areas and of removal or restoration of existing roads to benefit both terrestrial and aquatic biota.”


http://www.transwildalliance.org/resources/200922144524.pdf

**Response:** The new temporary roads would impact about 1.5 miles; however, these roads would be water-barred and closed after use. The project proposes to reduce effects of roads on the landscape, by repairing and maintaining roads, decommissioning roads (13.5 miles), and closing roads (50.3 miles). These actions, coupled with the project design criteria (Appendix A), would reduce road-related erosion and adverse impacts to terrestrial and aquatic biota.

Appendix A, Thin and Harvest Actions section, contains project design criteria to minimize the biological and physical effects of temporary roads and criteria to minimize or prevent the impacts of log hauling. The effects of the proposed roadwork on terrestrial and aquatic species are found in the EA, Chapter 3, Wildlife Habitat and Species, and Aquatic Habitat and Species sections. The Wildlife Report and BE, (Appendix E) and Fisheries Biological Evaluation (Appendix H) provide more detailed analyses.

Project design criteria (Appendix A, Cultural Plants and Invasive Plants section; and Appendix G) are included to manage the spread of invasive plants, and control or eradicate invasive plants colonies along roads that could be transported by vehicles or operations equipment.

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**Road Construction Opposing View #53** - "Roads are a major contributor to habitat fragmentation because they divide large landscapes into smaller patches and convert interior habitat into edge habitat. As additional road construction and timber harvest activities increase habitat fragmentation across large areas, the populations of some species may become isolated, increasing the risk of local extirpations or extinctions (Noss and Cooperrider 1994)."
"Habitat fragmentation creates landscapes made of altered habitats or developed areas fundamentally different from those shaped by natural disturbances that species have adapted to over evolutionary time (Noss and Cooperrider 1994 in Meffe et al. 1997). Adverse effects of habitat fragmentation to both wildlife populations and species include:

"Increased isolation of populations or species, which leads to:

- Adverse genetic effects; i.e. inbreeding depression (depressed fertility and fecundity, increased natal mortality) and decreased genetic diversity from genetic drift and bottlenecks,

- Increased potential for extirpation of localized populations or extinction of narrowly distributed species from catastrophic events such as hurricanes, wildfires or disease outbreaks,

- Changes in habitat vegetative composition, often to weedy and invasive species,

- Changes in the type and quality of the food base,

- Changes in microclimates by altering temperature and moisture regimes,

- Changes in flows of energy and nutrients,

- Changes in the availability of cover and increases edge effect, bringing together species that might otherwise not interact,
potentially increasing rates of predation, competition and nest parasitism, and

- Increased opportunities for exploitation by humans, such as poaching or illegal collection for the pet trade.

Watson, Mark L. "Habitat Fragmentation and the Effects of Roads on Wildlife and Habitats." Background and Literature Review 2005.

Response: Past timber harvest and road construction activities led to habitat fragmentation in the planning area. The project (EA, chapter 1) proposes to encourage the development of late-successional forest and old-growth forest habitats. By treating (e.g., thinning, creating dead wood, and under-planting) scattered young stands, the intent is to create larger blocks of late-successional habitat, which would reduce habitat fragmentation that resulted from past harvest activities. Thinning would remove a portion of the sub-dominant trees to encourage the growth of larger trees. The project does not propose clear-cutting.

The project would also decommission 13.5 miles of roads and close 50.3 miles of roads. Temporary roads (1.5 miles) would be constructed on stable ridge tops, would not cross any stream channels, and would be water-barred and closed after use. This project does not propose to build new permanent roads on the landscape. Proposed road actions would also serve to reduce habitat fragmentation.

Road Construction Opposing View #54 - "Our analysis also indicated that >70 percent of the 91 species are affected negatively by one or more factors associated with roads."
"Roads in forested areas increase trapping pressures for martens and fishers, resulting in significantly higher captures in roaded versus unroaded areas (Hodgman and others 1994) and in logged versus unlogged areas, in which the difference was again attributed to higher road densities in logged stands (Thompson 1994). Secondary roads also might increase the likelihood that snags and logs will be removed for fuel wood. This could impact fishers, martens and flammulated owls, and also could have a negative effect on the prey base for goshawks (Reynolds and others 1992)."

"An additional, indirect effect of roads is that road avoidance leads to underutilization of habitats that are otherwise high quality."

Wisdom, Michael J., Richard S. Holthausen Ph.D.
Barbara C. Wales Ph.D., Christina D. Hargis Ph.D.
Victoria A. Saab Ph.D., Danny C. Lee Ph.D.
Wendel J. Hann Ph.D. Terrell D. Rich, Mary M. Rowland,
Wally J. Murphy, and Michelle R. Eames

"Source Habitats for Terrestrial Vertebrates of Focus in the Interior
Columbia Basin: Broad-Scale Trends and Management Implications


Response: The project proposes to reduce overall effects from roads on the landscape, compared to existing conditions. Road decommissioning (13.5 miles) and road closure (50.3 miles) would lessen impacts on wildlife species. The effects on wildlife are found in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Stand Conditions section. A more detail analysis is included in the Wildlife Report and BE (Appendix E)."
Road Construction Opposing View #55 - “According to the DEIS, the Forest now manages a total of 5,914 miles of roads across the Forest. Scientific literature has established that roads have numerous widespread, pervasive and, if left untreated, long-lasting biological and physical impacts on aquatic ecosystems that continue long after completion of construction. (Angermeier et al. 2004). Roads increase surface water flow, alter runoff patterns, alter streamflow patterns and hydrology, and increase sedimentation and turbidity. Roads are the main source of sediment to water bodies from forestry operations in the United States. (US EPA 2002). Road construction can lead to slope failures, mass wasting and gully erosion. Road crossings can act as barriers to movement for fish and other aquatic organisms, disrupting migration and reducing population viability. (Schlosser and Angermeier 1995). Chemical pollutants that enter streams via runoff, such as salt and lead from road use and management, compound these impacts. Most of these adverse effects are persistent and will not recover or reverse without human intervention. The techniques for road remediation are well established, agreed upon and readily available. (Weaver et al. 2006).” (Pg. 2)

Wright, Bronwen, Policy Analyst and Attorney Pacific Rivers Council

Excerpt from a May 11, 2009 letter to the Rogue River-Siskiyou National Forest Travel Management Team

http://www.pacificrivers.org/protection-defense/comment-
letters/Rogue%20River%20Siskiyou%20TMP%20DEIS.pdf

Response: Project design criteria (Appendix A) and project proposals to reduce road presence on the landscape (road decommissioning), reduce vehicle access (road decommissioning and closure), and reduce chronic sources of erosion and sedimentation (road decommissioning, road closure, and road repair and maintenance)
would reduce adverse road-related effects to soils, water quality, aquatic ecosystems, and wildlife species and habitats, compared to existing conditions.

Road Construction Opposing View #56 - “Fires do not leave a large road network in place (assuming the blaze was not suppressed otherwise there may be dozer lines, etc.). Logging creates roads that fragment habitat and generally increase human access, both of which affect the use of the land by wildlife. Moreover, roads and logging equipment can become vectors for the dispersal of weeds.”

Wuerthner, George 2008 “Ecological Differences between Logging and Wildfire”
http://wuerthner.blogspot.com/2008/12/ecological-differences-between-logging.html

Response: Project design criteria (appendices A and G) and project proposals to reduce road presence on the landscape (road decommissioning), reduce vehicle access (road decommissioning and closure), and reduce chronic sources of erosion and sedimentation (road decommissioning, road closure, and road repair and maintenance) would reduce adverse road-related effects to soils, water quality, aquatic ecosystems, and wildlife species and habitats, compared to existing conditions.

Road Construction Opposing View #57 - “Forest fragmentation occurs when large, contiguous blocks of forest are broken up into isolated islands by development, roads, or clearing for agriculture. Just as inbreeding among the royal families of Europe spread hemophilia, forest fragmentation negatively impacts the long term sustainability of both plant and animal communities. Geographic isolation results in inbreeding and diminishes biodiversity.”

Zimmerman, E.A. and P.F. Wilbur “A Forest Divided”
Response: Past timber harvest and road construction activities led to habitat fragmentation in the planning area. The project proposes to encourage the development of late-successional forest and old-growth forest habitats. By treating (e.g., thinning, creating dead wood, and under-planting) scattered young stands, the intent is to create larger blocks of late-successional habitat, which would reduce existing habitat fragmentation in the long term. Thinning would remove a portion of the sub-dominant trees to encourage the growth of larger trees. The project does not propose clear-cutting.

Opposing Views
Attachment #8
The Natural Resources in the Forest Benefit from Fire

Note to the Responsible Official who reads these opposing views: There are negative effects caused by nearly all actions ... this includes the actions that manipulate the landscape after a fire. The public deserves to consider projects proposed to occur on their land with the knowledge of the pros and cons of the project.

The Responsible Official will find that none of the literature sources for the opposing views is specific to this project. Information contained in books and/or scientific prediction literature is never specific to individual projects. They describe cause and effects relationships that exist when certain criteria are met ... at any location under the vast majority of landscape characteristics.

Indeed, the literature in the References section of the draft NEPA document for this project is not specific to the project yet its used to help design this project.

The opposing views presented below are not always right or wrong. When responding to opposing views that the Responsible Official believes are “reasonable” please discuss them in the context of this project. In other words, could the resource damage occur as a result of this project.

Once again, this gives the public complete project understanding. This allows them to submit meaningful comments.
Wildfire benefits Opposing View #1 - "Recently burned areas represent an important type of habitat that many species of animals have evolved to utilize. Snags (standing dead trees) provide critical nesting and foraging habitat for birds and small mammals, and as they decay and fall, create additional habitat for small mammals and terrestrial amphibians as coarse woody debris."


Response: The Project does not propose timber harvesting to reduce risk of wildfires. A purpose and need of the Project is to improve wildlife habitat within the project area. By creating and developing high quality snag habitat though thinning and snag creation, the project would benefit several species that use this habitat type. The EA, Chapter 2, Table 1 shows that about 20,420 nesting cavities and snags would be created from trees in commercially thinned stands, and from 520 trees in mature stands.

Wildfire benefits Opposing View #2 - "Lindenmayer et al. (2004), note that "To many ecologists, natural disturbances are key ecosystem processes rather than ecological disasters that require human repair"."
Response: Some of the actions proposed by the Project, such as snag creation and the creation of early seral habitat, attempt to partially mimic what fire would naturally create. Stand-replacing fires occur in this temperate rain forest about once every 300 years, with the last such fire occurring about 160 year ago. Past timber harvest actions have altered natural habitats and ecosystem processes, reducing the ability of these habitats and processes to function naturally. Thus, the project proposes actions now to help speed the recovery of these habitats and processes within the project area, rather than waiting a much longer time for natural processes, such as fire to do so.

Wildfire benefits Opposing View #3 - “Yellowstone is a ‘fire-adapted ecosystem,’ which means wildfire helps maintain the health of the area’s wildlife and vegetation. Most park fires are caused by lightning and, whenever possible, monitored and managed, but not necessarily extinguished.”


Response: Comment noted. The effects of the project on fire in the Project area are disclosed in the Project EA, Chapter 3, Fire and Fuels section.
Wildfire benefits Opposing View #4 - “Finally, as mentioned above, wildfires can also generate benefits. Many plants regrow quickly following wildfires, because fire converts organic matter to available mineral nutrients. Some plant species, such as aspen and especially many native perennial grasses, also regrow from root systems that are rarely damaged by wildfire. Other plant species, such as lodgepole pine and jack pine, have evolved to depend on stand replacement fires for their regeneration; fire is required to open their cones and spread their seeds. One author identified research reporting various significant ecosystems threatened by fire exclusion — including aspen, whitebark pine, and Ponderosa pine (western montane ecosystems), longleaf pine, pitch pine, and oak savannah (southern and eastern ecosystems), and the tallgrass prairie. [57] Other researchers found that, of the 146 rare, threatened, or endangered plants in the coterminous 48 states for which there is conclusive information on fire effects, 135 species (92%) benefit from fire or are found in fire-adapted ecosystems.” [58]

“Animals, as well as plants, can benefit from fire. Some individual animals may be killed, especially by catastrophic fires, but populations and communities are rarely threatened. Many species are attracted to burned areas following fires — some even during or immediately after the fire. Species can be attracted by the newly available minerals or the reduced vegetation allowing them to see and catch prey. Others are attracted in the weeks to months (even a few years) following, to the new plant growth (including fresh and available seeds and berries), for insects and other prey, or for habitat (e.g., snags for woodpeckers and other cavity nesters). A few may be highly dependent on fire; the endangered Kirtland’s warbler, for example, only nests under young jack pine that was regenerated by fire, because only fire-regenerated jack pine stands are dense enough to protect the nestlings from predators.”

Congressional Research Service Report
“Forest Fire/Wildfire Protection”
February 14, 2005
http://www.coloradofirecamp.com/congressional_research/forest-fire-wildfire-effects.htm
Response: Comments noted. We documented similar Project-related issues in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.

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Wildfire benefits Opposing View #5 - “Forested landscapes may be thought of as living “crazy quilts,” with patches formed occasionally through the action of natural and human-caused disturbances like fire, windstorms, and logging. Prior to the advent of modern logging technology, virtually every North American forest experienced occasional renewal through the action of fire. In some places, fire was a frequent visitor, killing very few large trees as it burned harmlessly through the forest litter and grass. In most places, though, fire burned only occasionally, creating patches of severely burned forest as it raced through the canopy under extreme weather conditions. In these patches, old forests were killed, soon to be replaced by young, rejuvenated stands. This cycle of forest maturation, death, and replacement was critical to maintaining the diversity and vitality of the ecosystem.”

“Dead Trees and Healthy Forests : Is Fire Always Bad?”
The Wilderness Society, March 2003

Response: Comments noted. We documented similar Project-related issues in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.
Wildfire benefits Opposing View #6 - “Trees killed by wildfire and left standing take on roles that change the ecological services they previously provided as components of a green-tree system. They still offer some shade, which in a burned environment can slow the heating of surface waters and the soil surface. They may also provide more rapid recruitment of large wood into streams. Decomposing fallen trees provide nutrients, shelter, and early structure for a rejuvenating forest floor.”

“Burned forests typically support significantly different bird communities, with many species dependent on stand-replacement fires to maintain their populations across the landscape. Usually there’s an increase in cavity-nesting, insectivorous birds such as woodpeckers and certain species of flycatchers.”


Response: Comments noted. We documented similar Project-related issues in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section. The Project does not propose any post-fire timber harvesting.
Wildfire benefits Opposing View #7 - “Since those early days, millions of dollars have been spent on campaigns to prevent forest fires. But researchers now know that fire is not necessarily bad. It can be a natural part of a healthy grassland or forest ecosystem.

Fire reduces the buildup of dead and decaying leaves, logs and needles that accumulate on the forest floor. It reduces or eliminates the overhead forest canopy, increasing the sunlight that stimulates new growth from seeds and roots.

Many plants and animals have adapted to fire.

Both lodgepole pine and jack pine have resin-sealed cones that stay on trees for many years. The heat of fire melts the resin and the cones pop open. Thousands of seeds then scatter to the ground and grow into new stands of pine.

Woodpeckers feast on bark beetles and other insects that colonize in newly burned trees.

And so, 20 years ago, Parks Canada decided that it wouldn't interfere in natural processes such as fire, insects and disease unless it had to — that is, unless people or neighbouring lands were threatened.”

“Fighting fire in the forest”
CBC News, June 17, 2009

Response: The Project does not propose actions specifically designed to prevent forest fires. The Fire and Fuels section (Project EA, Chapter 3) discloses that there would be a short-term increase in fire risk in thinned units. These fire risks
would be mitigated, as disclosed in the project design criteria (Appendix A, pages 20 and 21).

Wildfire benefits Opposing View #8 - “Wildfires are a natural occurrence and serve important ecosystem functions. Forest landscapes are dynamic and change in response to variations in climate and to disturbances from natural sources, such as fires caused by lightning strikes. Many tree species have evolved to take advantage of fire, and periodic burns can contribute to overall forest health. Fires typically move through burning lower branches and clearing dead wood from the forest floor which kick-starts regeneration by providing ideal growing conditions. It also improves floor habitat for many species that prefer relatively open spaces.”

“Forest Fires”
The Environmental Literacy Council, 2008
http://www.enviroliteracy.org/article.php/46.html

Response: Comments noted. We documented similar Project-related issues in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.
Wildfire benefits Opposing View #9 - “Animals, as well as plants, can benefit from fire. Some individual animals may be killed, especially by catastrophic fires, but populations and communities are rarely threatened. Many species are attracted to burned areas following fires — some even during or immediately after the fire. Species can be attracted by the newly available minerals or the reduced vegetation allowing them to see and catch prey. Others are attracted in the weeks to months (even a few years) following, to the new plant growth (including fresh and available seeds and berries), for insects and other prey, or for habitat (e.g., snags for woodpeckers and other cavity nesters). A few may be highly dependent on fire; the endangered Kirtland’s warbler, for example, only nests under young jack pine that was regenerated by fire, because only fire-regenerated jack pine stands are dense enough to protect the nestlings from predators.

In summary, many of the ecological benefits of wildfire that have become more widely recognized over the past 30 years are generally associated with light surface fires in frequent-fire ecosystems. This is clearly one of the justifications given for fuel treatments. Damage is likely to be greater from stand replacement fires, especially in frequent-fire ecosystems, but even crown fires produce benefits in some situations (e.g., for the jack pine regeneration needed for successful Kirtland’s warbler nesting).”

“Forest Fire/Wildfire Protection”
CRS Report for Congress, February 14, 2005
http://www.coloradofirecamp.com/congressional_research/forest-fire-wildfire-effects.htm

Response: We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. We documented similar Project-related issues in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.
Wildfire benefits Opposing View #10 - "Natural forest disturbances, including fire, kill trees but remove very little of the total organic matter. Combustion rarely consumes more than 10 to 15 percent of the organic matter, even in stand-replacement fires, and often much less. Consequently, much of the forest remains in the form of live trees, standing dead trees, and logs on the ground. Also, many plants and animals typically survive such disturbances. This includes living trees, individually and in patches."

"These surviving elements are biological legacies passed from the pre-disturbance ecosystem to the regenerating ecosystem that comes after. Biological legacies are crucial for ecological recovery. They may serve as lifeboats for many species, provide seed and other inocula, and enrich the structure of the regenerated forest. Large old trees, snags, and logs are critical wildlife habitat and, once removed, take a very long time to replace."


Response: We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. The Project proposes to improve wildlife habitat by creating snag and early seral habitat in commercially thinned stands, and creating snags in mature stands. These actions would benefit a variety of wildlife species. The Project EA, Chapter 3, Wildlife Habitat and Species section, and Soils and Water Quality-Soil productivity section; and the Wildlife Report and BE (Appendix E) discuss this aspect of the Project.
Wildfire benefits Opposing View #11 - “Research had documented that, in some situations, wildfires brought ecological benefits to the burned areas — aiding regeneration of native flora, improving the habitat of native fauna, and reducing infestations of pests and of exotic and invasive species.” (pg 2)

Gorte, Ross W. Ph.D.
from a CRS report for Congress, January 18, 2006
http://www.ncseonline.org/nle/crsreports/06Feb/RL30755.pdf

Response: We documented similar Project-related issues in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.

Wildfire benefits Opposing View #12 - “Ecologists and fire experts unanimously agree that fire has served an essential role in certain ecosystems for millennia. The ecological benefits of fire include: the creation of critical wildlife habitat in standing dead trees, increased nutrients and productivity in soil systems when burned material decomposes, improved conditions for surviving old growth trees when a surface fire moves through a system, and the regeneration of some fire dependent trees like lodgepole pine (Pinus contorta). Fire also increases
availability of other fundamental building blocks of ecosystems such as
moisture and sunshine by opening up the canopy and returning nutrients to
the soil. Natural fire cycles maintain the diversity of habitats available to all
the species in the ecosystem, from wildlife to wildflowers to fungi.”

Gregory, Lisa Dale Ph.D.
“Wildland Fire Use: An Essential Fire Management Tool”
A Wilderness Society Policy and Science Brief
December 2004
http://wilderness.org/Library/Documents/upload/ScienceBrief-
WildlandFireUseEssentialTool.pdf

Response: We documented similar Project-related issues in the EA, Chapter 1,
Problems to be Addressed section, and Evidence Used by the District Ranger in
Deciding to Address These Problems section.

Wildfire benefits Opposing View #13 - “In 2007, we are witnessing one of the
"worst" wildfire years in recent history, as measured in acres burned, suppression
costs, and loss of property. We tend to view loss of property or timber value, and
aesthetics. This perspective was greatly promoted by the U.S. Forest Service and
the highly successful Smokey the Bear campaign that continues, albeit much
reduced. When examined from a more objective, ecological perspective, the
benefits of wildfire greatly exceed the negatives. This illustrated presentation
examines the ecology of wildfire and presents the case that our anthropocentric
perspective often clouds a more balanced understanding of nature where even
bears are benefactors of fire.”

Haney, Alan Ph.D.
Introduction to the keynote presentation
of the 8th annual Wisconsin Association of Lifelong Learning conference
University of Wisconsin Stevens Point, October 25, 2007
Response: Similar benefits of fire are discussed in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.

Wildfire benefits Opposing View #14 - “We do not need to be afraid of the effects of wildland fire in our forests. Fire is doing important and beneficial ecological work,” said the report’s author, Dr. Chad Hanson, a forest and fire ecologist and Director of the John Muir Project. “It may seem counterintuitive, but the scientific evidence is telling us that some of the very best and richest wildlife habitat in western U.S. forests occurs where fire kills most or all of the trees. These areas are relatively rare on the landscape, and the many wildlife species that depend upon the habitat created by high-intensity fire are threatened by fire suppression and post-fire logging.”


Response: Similar benefits of fire are discussed in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section.
Wildfire benefits Opposing View #15 - “As summer wildfire season begins in earnest throughout much of the West, it's important for the public and policymakers to recognize the important role that severely burned forests play in maintaining wildlife populations and healthy forests. Severely burned forests are neither "destroyed" nor "lifeless."

From my perspective as an ecologist, I have become aware of one of nature's best-kept secrets - there are some plant and animal species that one is hard-pressed to see anywhere outside a severely burned forest.”

“An appreciation of the biological uniqueness of severely burned forests is important because if we value and want to maintain the full variety of organisms with which we share this Earth, we must begin to recognize the healthy nature of severely burned forests. We must also begin to recognize that those are the very forests targeted for postfire logging activity. Unfortunately, postfire logging removes the very element - dense stands of dead trees - upon which many fire-dependent species depend for nest sites and food resources.”


Response: Similar benefits of fire are discussed in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section. We recognize that fire plays an important role in keeping forest ecosystems healthy. The Project does not propose any post-fire timber harvesting.
Wildfire benefits Opposing View #16 - "Trees in a burned landscape, both dead and alive, continue to provide homes for wildlife after a fire and form the building blocks of new forests."


Response: Similar benefits of fire are discussed in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section. We recognize that fire plays an important role for forest ecosystems. The Project does not propose any post-fire timber harvesting.

Wildfire benefits Opposing View #17 - “For Pyne and many others who study wildfires, the conventional understanding of firefighting has led us to the misguided conclusion that this is a struggle we can win. In much of the West, fire is an ordinary part of the landscape, a feature as essential to many ecosystems as rivers and grasses. Periodic fires are nothing more than regular disturbances; it is us who have made them into disasters.”

Mark, Jason “Mission Impossible” Earth Island Journal, winter 2009
Response: Similar benefits of fire are discussed in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section. We recognize that fire plays an important role in keeping forest ecosystems healthy.

Wildfire benefits Opposing View #18 - “Fire releases nutrients and uncovers bare soil. The blackened, bare soil warms quickly, which stimulates soil microbial activity, nutrient cycling, and plant growth. In forests, fire opens up part of the canopy to sunlight, which allows sun-loving plant species to recolonize the site.”

“Following fires, plant communities go through successional changes. Many native wildlife species and popular game species, such as bobwhite quail, white-tailed deer, and wild turkey, are dependent on periodic fire to create and maintain suitable habitat. Surface fires can stimulate the growth of herbaceous foods for deer, elk, moose, and hares, and can enhance berry production for black bears and other wildlife. Small mammal populations generally increase in response to new vegetation growth, providing a food source for carnivores. Fire can also reduce internal and external parasites on wildlife.” (pg. 2)

“natural disturbance such as fires, floods, and herbivory are critical in maintaining valuable ecosystem functions and creating and restoring wildlife habitat.” (pg. 7)

Marks, Raissa
Fish and Wildlife Habitat Management Leaflet number 37
Published by the Natural Resources Conservation Service, USDA, April 2006
Response: Similar benefits of fire are discussed in the EA, Chapter 1, Problems to be Addressed section, and Evidence Used by the District Ranger in Deciding to Address These Problems section. We recognize that fire plays an important role in keeping forest ecosystems healthy.

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Wildfire benefits Opposing View #19 - "During recent decades, ecologists have learned that forest fires were a pervasive phenomenon in practically all forests of the world, even the rainforests. Humans have severely disrupted the natural pattern of fire across the landscape, especially during the last 100 years. Therefore, if forests are to be returned to their more 'natural' state, fire will have to be reintroduced."

Martinez, Lori "Applications of Tree-Ring Dating"
Laboratory of Tree-Ring Research at the University of Arizona
February, 2000
http://www.ltrr.arizona.edu/lorim/apps.html

Response: Comment noted.

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**Wildfire benefits Opposing View #20** - "Contrary to what you may think, a forest fire does not reduce everything to a lifeless ash. Instead, it leaves behind a landscape of blackened trees interspersed with remnants of green, intact forest. Post-fire specialists such as wood-boring insects quickly colonize the dead trees (snags), attracting an array of woodpeckers."

"Identifying the ecological value of a post-fire structure and the characteristics that make it attractive to wildlife is important."

Nappi, Antoine Ph.D., Pierre Drapeau Ph.D., Jean-François Giroux Ph.D. and Jean-Pierre Savard Ph.D. “**Snag use by foraging black-backed woodpeckers (Picoides articus) in a recently burned eastern boreal forest.**” *The Auk* 120(2): 505-511. 2003. [http://www.borealcanada.ca/research_arc_hot_e.cfm](http://www.borealcanada.ca/research_arc_hot_e.cfm)

**Response:**
We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The project does not propose any salvage of dead trees or down wood. A purpose and need of the Project is to improve wildlife habitat by creating and developing high quality deadwood habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees in thinned stands, and 520 nesting cavities/snags would be created from trees in mature stands. Created snags would eventually become down wood on the forest floor over time. Dead wood also is created naturally in the project area. The effects of the project on dead trees (dead wood) is analyzed in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions section; and in the Wildlife Report and BE (Appendix E).
Wildfire benefits Opposing View #21 - “Trees that survive the fire for even a short period of time are critical as seed sources and as habitat that will sustain many elements of biodiversity both above and below ground. The dead wood, including large snags and logs, is second only to live trees in overall ecological importance.”


Response:
We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. A purpose and need of the Project is to improve wildlife habitat by creating and developing high quality deadwood habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees in thinned stands, and 520 nesting cavities/snags would be created from trees in mature stands. Created snags would eventually become down wood on the forest floor over time. Dead wood also is created naturally in the project area. This project does not propose to remove or salvage dead wood. The effects of the project on dead trees (dead wood) is analyzed in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions section; and in the Wildlife Report and BE (Appendix E).

Wildfire benefits Opposing View #22 - “Disturbances, from windthrown trees to fires, are natural in forests and are essential for forest ecosystem well being. For example, fire is a disturbance in forests, but it is also beneficial. While
disturbances kill some individuals, they also open up ecological living space for recolonization by many previously excluded species.”

“Without fire, natural succession is upset. In a forest where fire has been unnaturally suppressed for many years (50 or more), fire intolerant trees grow unchecked, suppressing and outcompeting the normally dominant fire resistant trees. Overall biodiversity is reduced. As the tree diversity declines, the habitat becomes unsuitable for a large portion of the forest species. Animal species are lost, since the animals use the fire tolerant variety of tree species for food, shelter and nest sites.”

Reice, Seth, Ph.D.
from a press conference with Senator Robert Torricelli, April 28, 1998,

Response: We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The Project EA acknowledges that natural disturbance processes create and maintain habitat (Chapter 1). The project proposes actions to improve terrestrial and aquatic habitats.

Wildfire benefits Opposing View #23 - “As a rule of thumb, timber experts say that any particular chunk of ground in the forest should be touched by intense fire every 50 to 100 years.

But the power of the fire is just the first step in forest regrowth. Weather patterns in the affected area over the next year will play a big role in how the new forests develop. A summer of drought could kill the newly released seeds and short-circuit any new growth. That could give new species of trees a chance to grow in the area. Normal rains mixed with the
nutrients left on the ground from the fire could be a great booster shot to getting the seeds off to a flying start.

Other natural benefits can be seen from fires. For instance, the once-rare black-backed woodpecker is now a regular site in the BWCA with the abundance of dead trees from recent smaller fires and the 1999 wind blow down of trees. New shrubs and ground vegetation is appealing to different kinds of wildlife to snack on.”

“Rising from the ashes: Forest fires give way to new growth”
*Science Buzz*, May 2007 (supported by the [National Science Foundation](http://www.sciencebuzz.org/blog/rising_from_the_ashes_forest_fires_give_way_to_new_growth))

Response:
Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. A purpose and need of the Project is to improve wildlife habitat by creating and developing deadwood habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees in thinned stands, and 520 nesting cavities/snags would be created from trees in mature stands. Created snags would eventually become down wood on the forest floor with time. Deadwood also is created naturally in the project area. This project does not propose to remove or salvage dead trees or down wood. The effects of the project on dead trees (dead wood) is analyzed in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions section; and in the Wildlife Report and BE (Appendix E).

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**Wildfire benefits Opposing View #24** - “Rotting logs are a very common feature of wild ecosystems. Rotting logs recycles nutrients back into the soil and provides a healthy habitat for a wide range of insects, plants, and animals. Rotting log provides homes for small mammals, insects, worms,
and spiders. The rich, organic soil provides a unique habitat for fungi, tree seedlings, wildflowers, mosses, and ferns.”

“Rotting Wood and how it affects the Environment”
MamasHealth.com
http://www.mamashealth.com/saveearth

Response:
A purpose and need of the Project is to improve wildlife habitat by creating and developing high quality deadwood habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees in thinned stands, and 520 nesting cavities/snags would be created from trees in mature stands. Created snags would eventually become down wood on the forest floor with time. Dead trees are also created naturally in the project area. This project does not propose to remove or salvage dead trees or down wood. The effects of the project on dead trees (dead wood) is analyzed in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions section; and in the Wildlife Report and BE (Appendix E).

Wildfire benefits Opposing View #25 - “More and more woodlot owners are taking a broader view of their forests. They look for values other than the immediate return on wood harvested. These values include other forest products such as ground hemlock and mushrooms; carbon storage; water purification; leaving a legacy for their children; and healthy wildlife populations.

Wildlife trees (dead or dying trees used for nesting, feeding, denning and roosting) go through several stages that can start with ants tunneling into the rotting centre to flycatchers perching on the bare branches. For cavity-nesting birds they are critical habitat. Some species excavate cavities for their nests, while others take over and enlarge existing holes.
Many of these birds in turn help the forest, eating insects which can damage trees.”


Response:
A purpose and need of the Project is to improve wildlife habitat by creating and developing snag habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees in thinned stands, and 520 nesting cavities/snags would be created from trees in mature stands. The effects of the project on dead trees (dead wood) is analyzed in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions section; and in the Wildlife Report and BE (Appendix E). Dead trees are also created naturally in the project area. This project does not propose to remove or salvage dead trees.

Wildfire benefits Opposing View #26 - "Species that breed exclusively in the first 30 years after fire may be difficult to maintain in the ecosystem without fire. Fire exclusion and post-fire salvage of dead trees after fire may reduce populations of these species over large geographic areas."


Response:
Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The project does not propose any post-fire salvage. The purpose and need for this project includes speeding the development of late-
successional and old-growth characteristics by improving habitat diversity in young stands.

Fuel treatments proposed for this project would be limited to residual logging slash adjacent to open system roads, and at some landing sites. Residual fuels in about 6 acres of one plantation may be treated by fire to reduce fire risk to one residence (EA, Chapter 3, Fire and Fuels section; Appendix A).

Wildfire benefits Opposing View #27 - “Ecological benefits of fire:

- Promotes flowering of herbaceous species and fruit production of woody species.
- Improves nutritional quality of plants for both wild and domestic animals.
- Enhances nutrient cycling of some elements and elevates soil pH.
- Maintains required habitat conditions for fire-adapted plant and animal species.
- Results in a more heterogenous and diverse habitat--if natural fires are patchy--leaving pockets of unburned areas.
- Prohibits wildfire conditions from developing (i.e., vast accumulation of highly-flammable, dead vegetation.)"

Response:
We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The terrestrial purpose and need of this project is to speed the development of late-successional and old-growth forest habitats by improving habitat diversity in young stands, maintaining native plant species, reducing the impacts of invasive plant species, improving nesting or resting habitat in mature forest, and maintaining meadow and other open habitats.

Wildfire benefits Opposing View #28 - "In retrospect, it is amazing that forest managers did not realize that dead wood was a critical habitat component for vertebrate and invertebrate wildlife and for the forest itself."


Response:
A purpose and need of the Project is to improve wildlife habitat by creating and developing snag habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees in thinned stands, and 520 nesting cavities/snags would be created from trees in mature stands. The effects of the project on deadwood is analyzed in the EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions section; and in the Wildlife Report and BE (Appendix E).
Wildfire benefits Opposing View #29 - “Wildfires have been a natural part of our environment since time began. Under the right circumstances these wildfires can be beneficial to an ecosystem.”

“Wildfires consume vegetation that would otherwise become overgrown, creating ideal conditions for a catastrophic wildfire. Wildfires allow more open spaces for new and different kinds of vegetation to grow and receive sunlight. This, in turn, provides fresh nutrients and shelter for forest plants and animals. Wildfires also keep our forests healthy by consuming harmful insects and diseases.”

**Vernetti, Toni “Are You Wildfire Aware?”**
June 07, 2005
[http://www.googobits.com/articles/p0-547-are-you-wildfire-aware.html](http://www.googobits.com/articles/p0-547-are-you-wildfire-aware.html)

**Response:**
We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. However, one component of the purpose and need for this project includes maintaining meadows and other open habitats to benefit a variety of wildlife species.
Wildfire benefits Opposing View #30 - "Fire is an essential, natural and necessary part of Western forest ecology. Many species of trees can only reproduce after fires occur. Wildland fires burn underbrush and return important nutrients to the soil."

Voss, René, Ph.D.
“Getting Burned by Logging,” July 2002
The Baltimore Chronicle
http://www.baltimorechronicle.com/firelies_jul02.shtml

Response: We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. A purpose and need for this project includes speeding the development of late-successional and old-growth characteristics by improving habitat diversity in young stands.

Wildfire benefits Opposing View #31 - “Scientists believe a scattering of dead trees goes far beyond looks. Dead trees support birds that actually decrease populations of harmful insects. Studies by Cooperative Extension Service have demonstrated that a large population of forest birds appreciably reduces problems for tree owners caused by insects and small mammals. An example is the woodpecker. It can hold down bark beetles and can control as much as 65% of emerging pine beetles. All ash trees dying from emerald ash borer show aggressive signs of feeding woodpeckers.

Dead branches serve as necessary perches for hawks, owls and similar birds of prey. Birds that play and important role in the control of mice,
gophers and rabbits that wreak havoc with our landscapes, lawns and gardens.

To that end, as the City goes through its parks and natural areas, removing dead trees, we will leave some standing. Additionally, in unobtrusive areas, we intended to leave piles of branches and the occasional log. All this in the hope that the diversity of wildlife in Troy's urban forest will flourish and, in so doing improve the quality of our lives as well.”

“Why Does the City Leave Dead Trees”
June, 2007
http://troymi.gov/ParksRec/Trees/DeadTrees.asp

Response:
A purpose and need of the Project is to improve wildlife habitat by creating and developing snag habitat though thinning and snag creation. In the EA, Chapter 2, Table 1, about 20,420 nesting cavities and snags would created from trees within stands proposed for commercial thinning, and 520 snags/nesting cavities would be created from trees in mature stands. The effects of the project on deadwood is analyzed in EA, Chapter 3, Wildlife Habitat and Species, and Forest Conditions; and in the Wildlife Report and BE (Appendix E).

Wildfire benefits Opposing View #32 - “Wildfire is a natural part of most ecosystems across British Columbia. It helps to renew the forest, maintain the diversity of plant and animal life, and keep insects and disease in check. It opens up dense forest to allow the growth of shrubs and grasses, creating browse for deer, moose, elk and other animals. It releases nutrients locked in slowly decaying logs.”

“Wildfire in British Columbia”
Response:
Comment noted. We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. However, one component of the purpose and need for this project includes maintaining meadows and other open habitats to benefit a variety of wildlife species (EA, Chapter 1, Problems (Issues) to be Addressed and Evidence Used by the District Ranger in Deciding to Address These Issues sections).

Wildfire benefits Opposing View #33 - “People are bombarded with the negative aspects of fire,” Paragi said. "You hear terms like 'destroyed thousands of acres of forest,' and the thought of destruction gets embedded in the public mind. But fire is a natural part of the ecosystem and it is actually very important." “

“Fire opens up the forest canopy and allows sunlight to reach the ground, stimulating the organisms that decompose organic matter and make nutrients available to plants. Fire burns off the insulating layer of moss and duff, allowing sunlight to further warm the soil. The ash can release nutrients back into the soil and change soil chemistry, promoting plants growth.”

Response:
Comment noted. We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. A purpose and need for this project includes speeding the development of late-successional and old-growth characteristics by improving habitat diversity in young stands.

Wildfire benefits Opposing View #34 - “Healthy ecosystems burn, and often burn by the tens of millions of acres. The spate of large wildfires we are experiencing now are not “abnormal” or an indication of “unhealthy” forest. Rather, we are seeing the natural response of a healthy forest ecosystem.

Given that wildfire was so common for thousands of years, it is not surprising that recent research shows that wildfires, particularly severe wildfires, increase biodiversity.

If anything, we probably need more wildfire, not less. With global warming we will probably get it, as vegetative communities adapt to new climatic realities.”

Wuerthner, George. “Logging, thinning would not curtail wildfires”  
The Register - Guard (Eugene Ore.), December 26, 2008  
http://wuerthner.blogspot.com/2008/12/logging-thinning-would-not-curtail.html

Response:
We recognize the important role that wildfire plays in maintaining healthy forest ecosystems. Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The fuel treatments proposed for this project are limited to residual logging slash adjacent to open system roads, and at some
landing sites. Residual fuels in about 6 acres of one plantation may be treated by fire to reduce fire risk to one residence (EA, Chapter 3, Fire and Fuels section; Appendix A).

Opposing Views
Attachment #9

Herbicides Containing Glyphosate should Never be Applied to Areas where Mammals (including humans), Fish, or Birds Might be Present

Background Information

Chemical Formula for Glyphosate: N-(phosphonomethyl) glyicine

**Trade Names for herbicides containing glyphosate:** Monsanto discovered and held the patent for glyphosate, and was for many years, the only company that manufactured and sold this herbicide. The patent expired in 2000, however, and already several other companies are making and selling glyphosate formulations.

Some of the current trade names for glyphosate-containing herbicides include:

- Roundup Ultra®, Roundup Pro®, Accord®, Honcho®, Pondmaster®, Protocol®, Rascal®, Expedite®, Ranger®, Bronco®, Campain®, Landmaster®, and Fallow Master® manufactured by Monsanto;

- Glyphomax® and Glypro® manufactured by Dow AgroSciences;

- Glyphosate herbicide manufactured by Du Pont;
Silhouette® manufactured by Cenex/Land O’Lakes;

Rattler® manufactured by Helena;

MirageR® manufactured by Platte;

JuryR® manufactured by Riverside/Terra; and

Touchdown® manufactured by Zeneca.

As of November 2001, Rodeo® (previously manufactured by Monsanto) is now being manufactured by Dow AgroSciences and Monsanto is now producing Aquamaster®.
Information about Glyphosate-Containing Herbicides

Glyphosate safety opposing view #1 - “Chronic Effects of Glyphosate versus Formulations: Throughout this study glyphosate itself showed no chronic effects on developing tadpoles. The tadpoles reared in the formulations Roundup Original® and Transorb® did show significant physical abnormalities. Abnormalities were also found upon exposure to the surfactant POEA. For all endpoints POEA showed practically identical results to the Roundup Original® formulation whereas the same cannot be said for the Transorb® formulation. The surfactant used in the Transorb formulation is not known (being protected as “Trade Secret”), but has been described as a “surfactant blend”. This “surfactant blend” may be responsible for inhibition of metamorphosis, as well as the skewed sex ratio towards female seen in the present study.

Developmental abnormalities induced by Roundup are likely a result of endocrine disruption. The thyroid axis can be greatly affected by corticoids and sex steroids which influence hypothalamic and pituitary control (See Dodd and Dodd, 1976, and Hayes, 1997 for review). Corticoids, sex steroids and prolactin have caused delayed metamorphosis and decreased size by both antagonizing and inhibiting thyroid action (Hayes, 1997). Sex steroid can induced sex reversal and intersex in amphibians and mammals, while low thyroid levels interfere with vitellogenesis. A concentration at which the animals were not effected (NOEC) by The Roundup formulations was not determined by this study.

Howe, Christina Ph.D., Michael Berrill Ph.D., and Bruce D. Pauli 2001 “The Acute and Chronic Toxicity of Glyphosate-Based Pesticides in Northern Leopard Frogs”
http://www.trentu.ca/biology/berrill/Research/Roundup_Poster.htm
Response: The study provided looked at the effects of glyphosate formulations containing the surfactant POEA. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #2 - “After spraying, glyphosate herbicides can remain in soils for long periods. The herbicide can drift onto neighbouring fields, streams or hedges. Roundup kills beneficial insects. It wipes out habitat for birds and animals. Glyphosate causes genetic damage to fish. It is "extremely lethal to amphibians", according to assistant professor of biology Rick Relyea at the University of Pittsburgh. It is hazardous to earthworms. Glyphosate reduces nitrogen fixation. Roundup reduces the growth of mycorrhizal fungi. Roundup can increase the spread and severity of plant diseases (see WRM Bulletin no. 18).”

“Glyphosate herbicides can have a range of impacts on human health, including genetic damage, skin tumours, thyroid damage, anaemia, headaches, nose bleeds, dizziness, tiredness, nausea, eye and skin irritation, asthma and breathing difficulties. Several studies have indicated a link between glyphosate herbicides and non-Hodgkin's lymphoma, a type of cancer.”

Lang, Chris “Glyphosate herbicide, the poison from the skies”
WRM's bulletin Nº 97, August 2005
http://www.wrm.org.uy/bulletin/97/Glyphosate.html

Response: The link cites studies that look at possible mutagenicity of glyphosate. These focus on Roundup and other glyphosate formulations that contain surfactants and other adjuvants. The project does not propose the use of
glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #3** - “In California, where there is a mandatory system of reporting pesticide poisoning, Glyphosate is the third most common cause of pesticide illness in farm workers. It is the most common form of reported pesticide poisoning in landscape gardeners.”

“Two separate studies in Sweden have linked exposure to Glyphosate to Hairy Cell Leukemia and Non Hodgkins Lymphoma. These types of cancers were extremely rare, however non-Hodgkins lymphoma is the most rapidly increasing cancer in the Western world. It has risen by 73% in the USA since 1973. Another study has found a higher incidence of Parkinson disease amongst farmers who used herbicides, including glyphosate.”

“Other studies show that Glyphosate and commercial herbicides containing Glyphosate cause a range of cell mutations and damage to cell DNA. These types of changes are usually regarded as precursors to cancer and birth defects.”

“Studies show that exposure to Glyphosate is associated with a range of reproductive effects in humans and other species. Research from Ontario, Canada found that a father's exposure to Glyphosate was linked to an increase in miscarriages and premature births in farm families.”

“Glyphosate caused a decrease in the sperm count of rats and an increase in abnormal and dead sperms in rabbits. Pregnant rabbits exposed to Glyphosate had a decrease in the weight of their babies.”
Leu, Andre “Monsanto's Toxic Herbicide Glyphosate: A Review of its Health and Environmental Effects”
Organic Producers Association of Queensland, May 15, 2007
http://www.organicconsumers.org/articles/article_5229.cfm

Response: The link cites studies that look at possible mutagenicity of glyphosate. These focus on Roundup and other glyphosate formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #4** - “Symptoms of exposure to glyphosate include eye irritation, blurred vision, skin rashes, burning or itchy skin, nausea, sore throat and difficulty breathing, headache, lethargy, nose bleeds and dizziness.

In lab tests, glyphosate and herbicides containing glyphosate caused genetic damage to human and animal cells.

Studies of farmers and other people exposed to glyphosate herbicides link this exposure to increased risks of cancer, miscarriages and attention deficit disorder. Additional laboratory tests have confirmed the results of these studies.

Laboratory evidence indicates that glyphosate herbicides can reduce production of sex hormones.
Studies of glyphosate contamination of water are limited, but new results indicate that it can easily contaminate streams in both agricultural and urban areas.

Glyphosate herbicides cause more off-target damage incidents than all but one other herbicide — 2, 4-D.

Glyphosate herbicides cause genetic damage and harm to the immune system in fish. In frogs, glyphosate herbicides cause genetic damage and abnormal development.”

Long, Cheryl. “Hazards of the World’s Most Common Herbicide”
Mother Earth News, October/November 2005

**Response:** The link cites studies that look at possible mutagenicity of glyphosate. These focus on Roundup and other glyphosate formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #5** - “Very low doses of some types of the herbicide Roundup can endocrine disruptor the formulations’ toxicity may be tied to their "inactive" ingredients rather than the active weed-killing ingredient glyphosate.

French scientists report that a number of Roundup formulations tested at very dilute concentrations can alter hormone actions and cause human liver cells to die within 24 hours of treatment.
The toxicity of some of the formulations was independent of how much glyphosate - the active herbicide in Roundup - they contained, suggesting it is other "inert" ingredients that may alone - or in combination with each other and/or the weed killer - assault the cells. This study's results are similar to prior studies - as reported in a recent Environmental Health News article - that find human embryo cells are affected more by the Roundup formulations and an inert ingredient than by the active ingredient.

The levels of Roundup used in this study are similar to what is typically found in food crops or animal feed treated with Roundup. Because of this, it is possible that people, livestock and wildlife may be exposed to levels of the herbicide mix that can damage cells.”


Response: The link comments on a study that looked at human toxicity and Roundup, a glyphosate formulation that contains surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #6** - “A recent study by eminent oncologists Dr. Lennart Hardell and Dr. Mikael Eriksson of Sweden [1], has revealed clear links between one of the world’s biggest selling herbicide, glyphosate, to non-Hodgkin's lymphoma, a form of cancer [2].
In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies.'

“New Study Links Monsanto's Roundup to Cancer”
Organic Consumers Association PRESS RELEASE, June 22, 2009
http://www.organicconsumers.org/Monsanto/glyphocancer.cfm

Response: The link cites studies that look at possible mutagenicity of glyphosate. These focus on Roundup and other glyphosate formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #7 - “Safe, effective management and control of established exotic-weeds requires input from and the joint effort of scientists from several distinct disciplines, including biological control specialists, chemical control specialists, wildlife ecologists, animal science specialists, economists, and the public. The basic premise of IPM centers on employing first biological and other non-chemical pest controls, with the use of chemical pesticides only as a last resort. Since pesticide effects on public health and the environment cost the United States a conservatively estimated $9 billion per year, this should be a much welcome change.”

Pimentel, David Ph.D., “True Integrated Weed Management: Pesticides as a last resort”
from a Beyond Pesticides publication, 2004
http://www.beyondpesticides.org/infoservices/pesticidesandyou/Fall%2004/Montanas%20War%20On%20Weeds.pdf
**Glyphosate safety opposing view #8** - “Glyphosate was ranked third worst among all pesticides causing severe health problems among those working in agriculture in the State of California.”

“The application of glyphosate causes the production of phyto-oestrogens in legumes. These phyto-oestrogens mimic the role of hormones in the bodies of mammals who ingest them. Hence, they may cause severe reproductive system disruptions. The data on estrogen-content of the plants submitted by Monsanto does not reflect the real scope of this problem, because the tested plants were grown in a glyphosate-free environment.”

“Possible human health impacts of Monsanto’s transgenic glyphosate-resistant soybeans”
Third World Network

**Response:** The link summarizes studies looking at the use of Roundup Ready Soy grown for human consumption. The project does not propose to treat any crop plants with herbicide.
Glyphosate safety opposing view #9 - “Glyphosate (N-(phosphonomethyl) glycine, C3H8NO5P), a herbicide, used to control unwanted annual and perennial plants all over the world. Nevertheless, occupational and environmental exposure to pesticides can pose a threat to nontarget species including human beings. Therefore, in the present study, genotoxic effects of the herbicide glyphosate were analyzed by measuring chromosomal aberrations (CAs) and micronuclei (MN) in bone marrow cells of Swiss albino mice. A single dose of glyphosate was given intraperitoneally (i.p) to the animals at a concentration of 25 and 50 mg/kg b.wt. Animals of positive control group were injected i.p. benzo(a)pyrene (100 mg/kg b.wt., once only), whereas, animals of control (vehicle) group were injected i.p. dimethyl sulfoxide (0.2 mL). Animals from all the groups were sacrificed at sampling times of 24, 48, and 72 hours and their bone marrow was analyzed for cytogenetic and chromosomal damage. Glyphosate treatment significantly increases CAs and MN induction at both treatments and time compared with the vehicle control (P<.05). The cytotoxic effects of glyphosate were also evident, as observed by significant decrease in mitotic index (MI). The present results indicate that glyphosate is clastogenic and cytotoxic to mouse bone marrow.”

Prasad, Sahdeo, Ph.D., Smita Srivastava Ph.D., Madhulika Singh Ph.D., and Yogeshwer Shukla Ph.D.

“Clastogenic Effects of Glyphosate in Bone Marrow Cells of Swiss Albino Mice”
Journal of Toxicology Volume 2009 (2009), Article ID 308985, 6 pages
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2809416/

Response: The study looked at the mutagenicity of the glyphosate formulation Roundup in mice. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #10 - “PITTSBURGH--The herbicide Roundup® is widely used to eradicate weeds. But a study published today by a University of Pittsburgh researcher finds that the chemical may be eradicating much more than that.

Pitt assistant professor of biology Rick Relyea found that Roundup®, the second most commonly applied herbicide in the United States, is "extremely lethal" to amphibians. This field experiment is one of the most extensive studies on the effects of pesticides on nontarget organisms in a natural setting, and the results may provide a key link to global amphibian declines.

In a paper titled "The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities," published in the journal Ecological Applications, Relyea examined how a pond's entire community--25 species, including crustaceans, insects, snails, and tadpoles--responded to the addition of the manufacturers' recommended doses of two insecticides--Sevin® (carbaryl) and malathion--and two herbicides--Roundup® (glyphosate) and 2,4-D.

Relyea found that Roundup® caused a 70 percent decline in amphibian biodiversity and an 86 percent decline in the total mass of tadpoles. Leopard frog tadpoles and gray tree frog tadpoles were completely eliminated and wood frog tadpoles and toad tadpoles were nearly eliminated. One species of frog, spring peepers, was unaffected.”

Reeves, Walter. “Roundup® highly lethal to amphibians, finds University of Pittsburgh researcher” The Georgia Gardener, 2009
Response: The link cites studies that look at the effects of the glyphosate formulation Roundup on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #11 - “For all nine species of larval anurans, the Kruskal-Wallis analyses detected significant effects of pesticide concentration on mortality (p # 0.002; Fig. 1). The subsequent mean comparisons, using Dunnett’s tests, indicated the lowest concentrations that caused significantly greater mortality than the control (p , 0.05). For two species (bullfrogs and spring peepers), 1 mg a.e./L of glyphosate caused significantly greater mortality than the control. For the remaining seven species (green frogs, leopard frogs, wood frogs, Cascades frogs, American toads, western toads, and gray tree frogs), 2 mg a.e./L of glyphosate was the lowest concentration to cause significantly greater mortality than the control. Based on the probit analyses, the estimated LC5096-h values for the nine species of larval anurans ranged from 0.8 to 2.0 mg a.e./L (Table 2).”


Response: The study provided looked at the effects of the glyphosate formulation Roundup on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #12 - “A recent study of Roundup presents new evidence that the glyphosate-based herbicide is far more toxic than the active ingredient alone. The study, published in the June 2005 issue of *Environmental Health Perspectives*, reports glyphosate toxicity to human placental cells within hours of exposure, at levels ten times lower than those found in agricultural use. The researchers also tested glyphosate and Roundup at lower concentrations for effects on sexual hormones, reporting effects at very low levels. This suggests that dilution with other ingredients in Roundup may, in fact, facilitate glyphosate's hormonal impacts.”

“The evidence presented in the recent study is supported by earlier laboratory studies connecting glyphosate with reproductive harm, including damaged DNA in mice and abnormal chromosomes in human blood. Evidence from epidemiological studies has also linked exposure to the herbicide with increased risk of non-Hodgkin's lymphoma, and laboratory studies have now begun to hone in on the mechanism by which the chemical acts on cell division to cause cancer. A Canadian study has linked glyphosate exposure in the three months before conception with increased risk for miscarriage and a 2002 study in Minnesota connected glyphosate exposure in farm families with increased incidence of attention deficit disorder.”

“Rethinking Roundup”
Pesticide Action Network North America (PANNA) Update, August 5, 2005
http://www.panna.org/node/466

Response: The link provided is broken and we were not able to review information at this site. The summary indicates that it is similar to other studies that found greater toxicity to human cells with glyphosate formulations.
containing surfactants than technical grade glyphosate alone. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #13** - “Our studies show that glyphosate acts as a disruptor of mammalian cytochrome P450 aromatase activity from concentrations 100 times lower than the recommended use in agriculture, and this is noticeable on human placental cells after only 18 hr, and it can also affect aromatase gene expression. It also partially disrupts the ubiquitous reductase activity but at higher concentrations. Its effects are allowed and amplified by at least 0.02% of the adjuvants present in Roundup, known to facilitate cell penetration, and this should be carefully taken into account in pesticide evaluation. The dilution of glyphosate in Roundup formulation may multiply its endocrine effect. Roundup may be thus considered as a potential endocrine disruptor. Moreover, at higher doses still below the classical agricultural dilutions, its toxicity on placental cells could favor some reproduction problems.”

Richard, Sophie Ph.D., Safa Moslemi Ph.D., Herbert Sipahutar, Nora Benachour and Gilles-Eric Seralini Ph.D., 2005 “**Differential effects of glyphosate and Roundup on human placental cells and aromatase**”

Mindfully.org


**Response:** The study provided looked at the effects of technical grade glyphosate and the glyphosate formulation Roundup on human placental cells. Roundup, which contains surfactants and other adjuvants, was found to be more toxic to cells than glyphosate alone. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project.
surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #14** - “There are serious health implications from the use of this pesticide. There is a long list of reported toxic effects from glyphosate exposure and this Swedish study provides compelling evidence of the links between glyphosate and cancer.”

“Swedish study shows links between glyphosate and cancer”
The European NGO Network on Genetic Engineering, 1999

Response: The referenced link cites a number of studies that looking into the possible mutagenicity of glyphosate. These have focused on Roundup and other product formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #15** - “This review suggests that the silvicultural use of glyphosate needs to be re-evaluated with respect to non-target impacts on amphibians in B.C. In addition, knowledge gaps hinder
effective and realistic assessment of these impacts. Glyphosate impacts can be species-specific in amphibians, but acute toxicity values are known for only two native B.C. amphibians (the Wood Frog, *Rana sylvatica*, and the Leopard Frog, *R. pipiens*). The impact of glyphosate herbicides on salamander species and on terrestrial stages of amphibians is not well understood. There is insufficient information on the levels of glyphosate contamination in small ephemeral wetlands, which are favoured habitats of amphibians, and which may be exposed to direct overspraying with herbicide under current use guidelines. Although the surfactant in glyphosate herbicides, POEA, has been identified as potentially the primary ingredient causing toxicity to amphibians, the option of using surfactants of lower toxicity has not been assessed. These knowledge gaps need to be addressed so that best management practices can be developed to minimize non-target impacts on amphibians from the use of glyphosate herbicides in forestry.” (Pg. iii)


Response: The report cites studies that look at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #16** - “E. Wider ecological concerns of the genetically engineered soya beans
1. Glyphosate is a broad-spectrum herbicide which will have major impacts on biodiversity (see Greenpeace Report, 1998, and references therein). It kills all plants indiscriminately. This will destroy wild plants as well as insects, birds, mammals and other animals that depend on the plants for food and shelter. In addition, Roundup (Monsanto's formulation of glyphosate) can be highly toxic to fish. Glyphosate also harms earthworms and many beneficial mycorrhizal fungi and other microorganisms that are involved in nutrient recycling in the soil. It is so generally toxic that researchers are even investigating its potential as an antimicrobial (Roberts et al, 1998).”

Affidavit submitted by Mae-Wan Ho Ph.D., August 12, 1998
http://www.i-sis.org.uk/greenpeace.php?printing=yes

Response: The report focuses on the use of genetically engineered crops and associated health concerns including the use of glyphosate. The project does not propose to treat any crop plants with herbicide.

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**Glyphosate safety opposing view #17** - “Glyphosate was formerly considered relatively non-toxic however there is now a considerable body of evidence for deleterious effects of Roundup, glyphosate and its adjuvants on a wide range of non-target species, including humans.

In 2003 the Danish Government announced unprecedented restrictions on glyphosate following analyses which demonstrated that it had been percolating through the soil and polluting the ground water at a rate 5-times that allowable for drinking water. Subsequently, another study confirmed that both glyphosate and its degradation product amino-methylphosphonic acid (AMPA) can leach through structured soils thereby posing a potential
risk to the aquatic environment (5). More recently, an analytical method for glyphosate and AMPA based on liquid chromatography coupled to electrospray tandem mass spectrometry has been applied to water samples previously found to contain glyphosate (6). The glyphosate concentrations in the re-analyzed samples were found to be 2 – 14 –fold higher than previously (6) suggesting that contamination of groundwater and other aquatic systems by glyphosate may be even greater than previously thought.”

Brennan-Rieder, Denise Ph.D. June, 2008 “PROPOSED COSMETIC PESTICIDE BAN IN PROVINCE OF ONTARIO SCIENTIFIC BASIS FOR BANNING BOTH SALE AND USE OF SYNTHETIC PESTICIDES”
http://www.pesticidereform.ca/RoundupDrBrennan-Rieder.PDF

Response: The link does not provide the information summarized by the commenter. It appears to have focused on the effects of glyphosate formulations that contain a surfactant such as Roundup. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #18** - “1. Glyphosate was ranked third worst among all pesticides causing severe health problems among those working in agriculture in the State of California.

2. The application of glyphosate causes the production of phyto-oestrogens in legumes. These phyto-oestrogens mimic the role of hormones in the bodies of mammals who ingest them. Hence, they may cause severe reproductive system disruptions. The data on estrogen-content of the plants submitted by Monsanto does not reflect the real scope of this
problem, because the tested plants were grown in a glyphosate-free environment (see above).”

Tappeser, Beatrix Ph.D. and Christine von Weizsacker “Possible human health impacts of Monsanto’s transgenic glyphosate-resistant soybeans” Third World Network

Response: The link reports on the use of genetically engineered crops and associated health concerns including the use of glyphosate. The project does not propose to treat any crop plants with herbicide.

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**Glyphosate safety opposing view #19** - “A recently published study by Italian researchers [3] examined the toxicity of four popular glyphosate based herbicide formulations on human placental cells, kidney cells, embryonic cells and neonate umbilical cord cells and surprisingly found total cell death of each of these cells within 24 hours. The researchers reported several mechanisms by which the herbicides caused the cells to die including: cell membrane rupture and damage, mitochondrial damage and cell asphyxia. Following these findings, the researchers tested G, AMPA and POEA by themselves and concluded that, ‘It is very clear that if G, POEA, or AMPA has a small toxic effect on embryonic cells alone at low levels, the combination of two of them at the same final concentration is significantly ’deleterious’.

Although previous researchers have proposed that the supposed ‘inert ingredients’ alter the role of cell membrane disruptors in fish, amphibians, microorganisms [4] and plants [5], independent of G, this study is the first of its kind to report similar findings in human cells. The researchers concluded that, “the proprietary mixtures available on the market could cause cell damage and even death around residual levels to be expected,
especially in food and feed derived from R [Roundup] formulation-treated crops” which are pervasive in GM-soya.”

“Toxicity of Glyphosate”
*Natural Communities* magazine, July 16th, 2009

Response: The link reports on the use of glyphosate formulations which contain surfactants on genetically engineered crops the associated effects to human cell types. The project does not propose to treat any crop plants with herbicide or use glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #20** - “A study released by an Argentine scientist earlier this year reports that glyphosate, patented by Monsanto under the name "Round Up," causes birth defects when applied in doses much lower than what is commonly used in soy fields.

The study was directed by a leading embryologist, Dr. Andres Carrasco, a professor and researcher at the University of Buenos Aires. In his office in the nation's top medical school, Dr. Carrasco shows me the results of the study, pulling out photos of birth defects in the embryos of frog amphibians exposed to glyphosate. The frog embryos grown in petri dishes in the photos looked like something from a futuristic horror film, creatures with visible defects—one eye the size of the head, spinal cord deformations, and kidneys that are not fully developed.”

Trigona, Marie “Study Released in Argentina Puts Glyphosate Under Fire”
Znet, July 28, 2009
Response: The link cites studies focused on the use of glyphosate applied to Roundup Ready Soy grown for human consumption. The project does not propose to treat any crop plants.

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**Glyphosate safety opposing view #21** - “Controversy exists around the use of herbicides more commonly used by home gardeners, such as, 2, 4-D and Roundup. A manufacturer supported review of studies found Roundup safe for use around humans while anti-herbicide groups cite studies that find it affecting human embryonic, placental, and umbilical cells *in vitro* as well as testosterone development in mice.”

Vinje, Eric, *Chemical Quandary: The Problem with Pesticides, Herbicides and Chemical Fertilizer*

Planet Natural
[http://www.planetnatural.com/site/garden-chemicals.html](http://www.planetnatural.com/site/garden-chemicals.html)

Response: The link reports on studies looking at the effects of Roundup and 2, 4-D. The project does not propose the use of 2, 4-D or glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #22 - “According to Mr. Carrasco’s research, even tiny quantities of glyphosate could cause embryonic malformations in frogs and thus, by extrapolation, may have implications for humans.

“I suspect the toxicity classification of glyphosate is too low ... in some cases this can be a powerful poison,” Mr Carrasco told the Financial Times in an interview. He says residents near soya-producing areas began reporting problems from 2002, a couple of years after the first big harvests using genetically modified seeds, which were approved for use in Argentina in 1996.

Research by other Argentine scientists and evidence from local campaigners has indicated a high incidence of birth defects and cancers in people living near crop-spraying areas. One study conducted by a doctor, Rodolfo Páramo, in the northern farming province of Santa Fé reported 12 malformations per 250 births, well above the normal rate.”


Response: The link reports on the use of genetically engineered crops and associated health concerns including the use of glyphosate. The project does not propose to treat any crop plants with herbicide.
Glyphosate safety opposing view #23 - “Fish and aquatic invertebrates are more sensitive to Roundup than terrestrial organisms.” Glyphosate is generally less persistent in water than in soil, with 12 to 60 day persistence observed in Canadian pond water, yet persistence of over a year have been observed in the sediments of ponds in Michigan and Oregon. “The EU classifies Roundup as R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.”

“Although Roundup is not registered for aquatic uses and studies of its effects on amphibians indicate it is toxic to them, scientists have found that it may wind up in small wetlands where tadpoles live, due to inadvertent spraying during its application. A recent study found that even at concentrations one-third of the maximum concentrations expected in nature, Roundup still killed up to 71 percent of tadpoles raised in outdoor tanks.”

“In 1996, Monsanto was accused of false and misleading advertising of glyphosate products, prompting a law suit by the New York State attorney general. Monsanto had made claims that its spray-on glyphosate based herbicides, including Roundup, were safer than table salt and "practically non-toxic" to mammals, birds, and fish.”

“Environmental and consumer rights campaigners brought a case in France in 2001 for presenting Roundup as biodegradable and claiming that it left the soil clean after use; glyphosate, Roundup's main ingredient, is classed by the European Union as "dangerous for the environment" and "toxic for aquatic organisms". In January 2007, Monsanto was convicted of false advertising. The result was confirmed in 2009.”
“On two occasions, the United States Environmental Protection Agency has caught scientists deliberately falsifying test results at research laboratories hired by Monsanto to study glyphosate. In the first incident involving Industrial Biotest Laboratories, an EPA reviewer stated after finding "routine falsification of data" that it was "hard to believe the scientific integrity of the studies when they said they took specimens of the uterus from male rabbits". In the second incident of falsifying test results in 1991, the owner of the lab (Craven Labs), and three employees were indicted on 20 felony counts, the owner was sentenced to 5 years in prison and fined 50,000 dollars, the lab was fined 15.5 million dollars and ordered to pay 3.7 million dollars in restitution. Craven laboratories performed studies for 262 pesticide companies including Monsanto.”

“Monsanto has stated that the studies have been repeated, and that Roundup’s EPA certification does not now use any studies from Craven Labs or IBT. Monsanto also said that the Craven Labs investigation was started by the EPA after a pesticide industry task force discovered irregularities.”

Wikipedia, the free encyclopedia, April 10, 2010
http://en.wikipedia.org/wiki/Roundup#Toxicity_2

Response: The link provides references for the Roundup herbicide formulation. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #24 - “In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate ‘yielded increased risks for NHL.’ They stress that with the rapidly increasing use of glyphosate
since the time the study was carried out, ‘glyphosate deserves further epidemiologic studies.’ “

DaSilva, Guy MD, “New Study Links Monsanto’s Roundup to Cancer”
daSilva Institute - Antiaging & Functional Medicine
http://www.dasilvainstitute.com/article.asp?artid=18&areacode=ITN

Response: The link provided is broken and we were not able to review information at this site. The summary indicates that it is similar to other studies that found possible human health effects resulting from exposure to Roundup and other glyphosate formulations that contain surfactants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #25 - “These latest studies confirm a wealth of evidence on the toxicities of glyphosate and Roundup formulations [2] (Glyphosate Toxic & Roundup Worse, SiS 26), and pinpoint the different sites of action, all of which result in cell death. Epidemiological studies have previously linked glyphosate to spontaneous abortions, non-Hodgkin lymphoma, and multiple myeloma. Laboratory studies showed that glyphosate inhibits transcription in sea urchin eggs and delays development. Brief exposures to glyphosate in rats caused liver damage, and adding the surfactant in Roundup had a synergistic effect, causing greater liver damage. Roundup was also found to be much more lethal to frogs than to weeds, and could have contributed to the global demise of amphibians within the past decades,” [3]

Ho Mae-Win Ph.D. and Brett Cherry “Death by Multiple Poisoning, Glyphosate and Roundup”
an Institute of Science in Society news release submitted to the USDA
Response: The link reports on the use of genetically engineered crops and associated health concerns including the use of glyphosate. The project does not propose to treat any crop plants with herbicide.

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**Glyphosate safety opposing view #26 - “Terrestrial toxicity:**
A number of species of birds, mammals and beneficial insects suffer population losses through habitat and/or food supply destruction resulting from the use of glyphosate. There are also direct lethal and sublethal effects.

- Birds LD50 (mg/kg body weight) >3851
- Beneficial Insects oral LD50 >100ug/bee. *(Cox 1995b; IPCS 1994)*

Exposure to freshly applied Roundup killed more than half of three species - a parasitoid wasp, a lacewing, and a ladybug - and more than 80 percent of a predatory beetle. Carabid beetle populations have shown significant decline and slow recovery after glyphosate application *(Asterarki et al., 1992; Brust, 1990; Hassan 1988)*

Glyphosate adversely affects a number of soil and plant fauna, such as the beneficial predatory mites. However, it prolonged larval survival of the foliar-feeding nematode Nothanguinea by 50% thus increasing the damage done by this pest. *(Carlisle & Trevore, 1987; Eijsackers 1985)*

Glyphosate may inhibit a number of fungi that decompose dead plant material. Roundup applied to the soil in repeated doses had a substantial adverse effect on the growth rate of earthworms. The reproductive capacity and the total population in the soil could be expected to fall
following repeated low doses of biocides. IPCS, however, classifies glyphosate as having low toxicity to earthworms with a No Observed Effects Concentration of 158mg/kg. *(Grossbard 1985; IPCS, 1994; Springett and Gray, 1992)*

Laboratory studies show significant effects on nitrogen fixation, denitrification and nitrification. *(IPCS 1994)*

Watts, Meriel and Ronald Macfarlane, “Glyphosate”
A Pesticide Action Network - Asia and the Pacific publication, 1999
http://www.poptel.org.uk/panap/pest/pe-gly.htm

Response: The link provided is broken and we were not able to review information at this site. Project design criteria that limit herbicide application to hand methods applied when wind speeds are 10 mph or less should reduce the risk of impacting insects to low levels.

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**Glyphosate safety opposing view #27** - Regarding your article, *Mystery of Disappearing Honeybees* (SiS 34), I am a Dutch beekeeper in the east of the Netherlands near Germany, and we see the same problem with bees, as in Belgium, Germany, France and the whole of Europe. In the Netherlands the government is set to give permission for growing GMOs, even in such a very small country. It will cause a lot of damage: bad for biodiversity, the earth, water, air, drinking water and food.

I just lost 68 percent of my bees, and I blame the city workers who sprayed glyphosate twice at the end of October last year. My beehives were 4 metres from the spray, whereas the legal distance is 200 metres. By the beginning of January 2008, the bees started to die. The municipal authorities in villages and small cities spray glyphosate on weeds in public
places, gardens and footpaths. In big cities, they would use steam instead of weed killers.

I did a ‘test’ in September 2007 with a bit of glyphosate, and within three or five minutes, the bees were dead. It is very important for the city workers to give people warning when they spray, but they never do.

We must study the toxic effects of GMOs and glyphosate, for the sake of the next generation, our children, as well as the sick and old people.

Broek, Hans van den, “Glyphosate kills bees”
The Institute of Science in Society
Science in Society #38, summer 2008
http://www.i-sis.org.uk/SIS38lettersToTheEditor.php

Response: The project does not propose to apply herbicides in the vicinity of agricultural lands, fruit orchards, or any other location where there is a likelihood that bees would come into contact with treatment areas.

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Glyphosate safety opposing view #28 - “Glyphosate herbicides can have a range of impacts on human health, including genetic damage, skin tumours, thyroid damage, anaemia, headaches, nose bleeds, dizziness, tiredness, nausea, eye and skin irritation, asthma and breathing difficulties. Several studies have indicated a link between glyphosate herbicides and non-Hodgkin's lymphoma, a type of cancer.

Not surprisingly, considering the amount of money that Monsanto makes from sales of glyphosate products, the company plays down the health risks of glyphosate. Monsanto claims that glyphosate herbicides pose only a "low risk to human health" as long as glyphosate is used "according to label directions". “

Lang, Chris, “Glyphosate herbicide, the poison from the skies”
WRM's bulletin Nº 97, August 2005
http://www.wrm.org.uy/bulletin/97/Glyphosate.html

Response: The link cites studies that look at possible mutagenicity of glyphosate. These focus on Roundup and other glyphosate formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #29 - “A 1999 study, A Case-Control Study of Non-Hodgkin Lymphoma and Exposure to Pesticides, (American Cancer Society, 1999), found that people exposed to glyphosate are 2.7 times more likely to contract non-Hodgkin Lymphoma.

A Finnish study shows that glyphosate decreases the defenses of enzymes of the liver and intestines. RoundUp, as a mixture of all its ingredients, has been shown to shut down a powerful antioxidant in the liver that detoxifies harmful compounds so they can be excreted through bile. A paper published in August 2000 shows that RoundUp alters gene expression and inhibits necessary steroid production by disrupting a particular protein expression. In 2002, a paper shows that RoundUp can also affect early cell division processes in embryos.

“chemicalWATCH Factsheet”
Published by Beyond Pesticides, August 2009

Response: The report summarizes a number of studies looking at human health effects of the glyphosate formulation Roundup. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup.
Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #30** - “The USDA first deregulated Roundup Ready alfalfa in 2005. Internal emails recently obtained by Truthout show that Monsanto worked closely with regulators to edit its original petition to deregulate the alfalfa. One regulator accepted Monsanto’s help in conducting the USDA’s original environmental assessment of the alfalfa.

Farmers and biotech opponents soon filed a lawsuit against the USDA to challenge the initial deregulation. In 2007, a federal court ruled that the USDA did not consider the full environmental impacts of Roundup Ready alfalfa and vacated the agency’s decision to deregulate the alfalfa.

Monsanto and its allies appealed the decision, and last year, the Supreme Court reversed the lower court’s ruling, but ordered the USDA to produce an Environmental Impact Statement (EIS) on the alfalfa before allowing it back into America’s fields.

The USDA released a final EIS on Roundup Ready alfalfa in late 2010, and the GE alfalfa was fully deregulated on January 27. The USDA went on to approve two more GE seeds within weeks of the alfalfa decision.

Roundup Ready alfalfa was deregulated just weeks after USDA Secretary Tom Vilsack was pressed by Republican Congressmen, some of whom recently received campaign contributions from Monsanto and the biotech industry, to dump a proposal to geographically isolate Roundup Ready alfalfa from organic and conventional alfalfa and, instead, legalize the GE seed without any government oversight.
The latest lawsuit filed by CFS and its allies argues that the final EIS ignores or downplays the threats Roundup Ready alfalfa poses to conventional alfalfa farms and the environment.”

Ludwig, Mike “Farmers Sue USDA Over Monsanto Alfalfa – Again”
Truthout, March 25, 2011
http://www.truth-out.org/farmers-sue-usda-over-monsanto-alfalfa-again68656

Response: Comment noted.

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Glyphosate safety opposing view #31 - “JH: You said you had found that very low doses of glyphosate had caused these effects on aromatase. Are they the kind of doses that would be used in practical agriculture in the European Union?”

“GE-S: They are about ten to 100 times less than the doses used by agricultural workers. One has to be cautious because these are in vitro results but we do not want to wait for death when the precautionary principle suggests a need for measures to avoid any harmful effects on foetuses and children.”

“Glyphosate disrupts of human hormones”

An interview with Professor Gilles-Eric Seralini Ph.D.
Published by ecochem
http://www.ecochem.com/ENN_glyphosate(2).html

Response: The link is an interview with one author of a study of the effects of technical grade glyphosate and the glyphosate formulation Roundup on human placental cells. Roundup, which contains surfactants and other adjuvants, was found to be more toxic to cells than glyphosate alone. The project does not
propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #32 - “The December/January 2010 issue of The Organic & Non-GMO Report featured an interview with Robert Kremer, an adjunct professor in the Division of Plant Sciences at the University of Missouri, whose research showed negative environmental impacts caused by glyphosate, the main ingredient in Monsanto's Roundup herbicide, which is used extensively with Roundup Ready genetically modified crops.”

“The widespread use of glyphosate is causing negative impacts on soil and plants as well as possibly animal and human health. These are key findings of Don Huber, emeritus professor of plant pathology, Purdue University.”


Response: The link provides an interview with a researcher working on the effects of glyphosate on plant disease and nutrient uptake in agricultural settings. The project does not propose to treat agricultural crops.
Glyphosate safety opposing view #33 - “There is, indeed, direct evidence that glyphosate inhibits RNA transcription in animals at a concentration well below the level that is recommended for commercial spray application. Transcription was inhibited and embryonic development delayed in sea urchins following exposure to low levels of the herbicide and/or the surfactant polyoxyethyleneamine. The pesticide should be considered a health concern by inhalation during spraying [4].”

“New research shows that a brief exposure to commercial glyphosate caused liver damage in rats, as indicated by the leakage of intracellular liver enzymes. In this study, glyphosate and its surfactant in Roundup were also found to act in synergy to increase damage to the liver [5].”

Ho, Mae-Wan Ph.D. and Prof. Joe Cummins Ph.D. “Glyphosate Toxic & Roundup Worse”

An Institute of Science in Society publication, 07/03/05
http://www.i-sis.org.uk/GTARW.php

Response: The link provides a summary of research that looks at potential human health effects from genetically modified crops and glyphosate. The project does not propose to treat crops with herbicide.
Glyphosate safety opposing view #34 - “In contrast to malathion, Roundup had strong direct effects on the tadpoles. Roundup caused a 40% reduction in total tadpole survival and biomass. The impact of Roundup (with POEA [polyethoxylated tallow-amine] surfactant) is consistent with previous laboratory studies in a variety of species. Mann and Bidwell (1999) estimated LC50_{48h} at 3.9 to 15.5 mg active ingredient (AI)/L in four species of Australian tadpoles while Perkins et al. (2000) estimated LC50_{96h} values of 12.4 mg AI/L in the African clawed frog (Xenopus laevis). In both studies, it was clear that the high toxicity of Roundup was caused by the POEA surfactant and not from the active ingredient (glyphosate). Lajmanovich et al. (2003) examined the impact of Kleeraway (another formulation of glyphosate that contains the POEA surfactant) on a South American tadpole (Scinax nasicus) and found an LC50_{48h} of 1.74 mg AI/L. In North American tadpoles (Bufo americanus, Rana pipiens, and R. clamitans), Edginton et al. (2004) found LC50_{96h} of 1.5–4.7 mg AI/L using Vision (a formulation that also includes the POEA surfactant). For the three species used in our mesocosm experiment, Relyea (2005b) found LC50_{16d} values of 1.4 mg AI/L for gray tree frogs, 2.5 mg AI/L for American toads, and 2.5 mg AI/L for leopard frogs. All of this suggests that Roundup with the POEA surfactant can cause substantial mortality in larval amphibians.”

Response: The study looks at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
**Glyphosate safety opposing view #34** - “The decline in amphibians across the globe has sparked a search for the causes, and recent evidence suggests a connection with pesticides. However, for most pesticides, tests on amphibians are rare and conducted only for short durations (1 to 4 days) and without natural stressors. Recent studies have discovered that the stress of predator cues in the water can make insecticides much more lethal to larval amphibians, but it is unknown whether this phenomenon can be generalized to other types of pesticides. Using six species of North American amphibian larvae (*Rana sylvatica, R. pipiens, R. clamitans, R. catesbeiana, Bufo americanus, and Hyla versicolor*), I examined the impact of a globally common herbicide (Roundup) on the survival of tadpoles for 16 days with and without the chemical cues emitted by predatory newts (*Notophthalmus viridescens*). LC50_{16-d} estimates varied from 0.55 to 2.52 mg of active ingredient (AI)/L, which was considerably lower than the few previous studies using Roundup (1.5 to 15.5 mg AI/L). Moreover, in one of the six species tested (*R. sylvatica*), the addition of predatory stress made Roundup twice as lethal. This discovery suggests that synergistic interactions between predatory stress and pesticides may indeed be a generalizable phenomenon in amphibians that occurs with a wide variety of pesticides.”


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**Response:** The study looks at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #35 - “Species richness was reduced by 15% with Sevin, 30% with malathion, and 22% with Roundup, whereas 2,4-D had no effect. Both insecticides reduced zooplankton diversity by eliminating cladocerans but not copepods (the latter increased in abundance). The insecticides also reduced the diversity and biomass of predatory insects and had an apparent indirect positive effect on several species of tadpoles, but had no effect on snails. The two herbicides had no effects on zooplankton, insect predators, or snails. Moreover, the herbicide 2,4-D had no effect on tadpoles. However, Roundup completely eliminated two species of tadpoles and nearly exterminated a third species, resulting in a 70% decline in the species richness of tadpoles. This study represents one of the most extensive experimental investigations of pesticide effects on aquatic communities and offers a comprehensive perspective on the impacts of pesticides when nontarget organisms are examined under ecologically relevant conditions.”

Relyea, R.A. Ph.D. “The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities”
Ecological Applications v 15, n. 2, April 1, 2005
http://www.mindfully.org/Pesticide/2005/Roundup-Aquatic-Communities1apr05.htm

Response: The study looks at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #36 - “He is joined in his conclusions by Robert Bellé, from the National Center for Scientific Research (CNRS) biological station in Roscoff (Finistere), whose team has been studying the impact of glyphosate formulations on sea-urchin cells for several years.
This recognized model for the study of early stages of cancer genesis earned Tim Hunt the 2001 Nobel Prize in medicine. In 2002, the Finisterian team had shown that Roundup acted on one of the key stages of cellular division.

The Breton team has recently demonstrated (*Toxicological Science*, December 2004) that a "control point" for DNA damage was affected by Roundup, while glyphosate alone had no effect. "We have shown that it's a definite risk factor, but we have not evaluated the number of cancers potentially induced, nor the time frame within which they would declare themselves," the researcher acknowledges. A sprayed droplet could affect thousands of cells. On the other hand, "the concentration in water and fruits is lower, which is rather reassuring."

Morin, Herve “Roundup Doesn’t Poison Only Weeds”
*Le Monde* (France) March 12, 2005
http://www.mindfully.org/GE/2005/Roundup-Poison12mar05.htm

**Response:** The report cites studies that looked at the effects of Roundup on human health and mutagenicity. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #37** - “We have evaluated the toxicity of four glyphosate (G)-based herbicides in Roundup (R) formulations, from $10^5$ times dilutions, on three different human cell types. This dilution level is far below agricultural recommendations and corresponds to low levels of residues in food or feed. The formulations have been compared to G alone and with its main metabolite AMPA or with one known adjuvant of R
formulations, POEA. HUVEC primary neonate umbilical cord vein cells have been tested with 293 embryonic kidney and JEG3 placental cell lines. All R formulations cause total cell death within 24 h, through an inhibition of the mitochondrial succinate dehydrogenase activity, and necrosis, by release of cytosolic adenylate kinase measuring membrane damage. They also induce apoptosis via activation of enzymatic caspases 3/7 activity. This is confirmed by characteristic DNA fragmentation, nuclear shrinkage (pyknosis), and nuclear fragmentation (karyorrhexis), which is demonstrated by DAPI in apoptotic round cells. G provokes only apoptosis, and HUVEC are 100 times more sensitive overall at this level. The deleterious effects are not proportional to G concentrations but rather depend on the nature of the adjuvants. AMPA and POEA separately and synergistically damage cell membranes like R but at different concentrations. Their mixtures are generally even more harmful with G. In conclusion, the R adjuvants like POEA change human cell permeability and amplify toxicity induced already by G, through apoptosis and necrosis. The real threshold of G toxicity must take into account the presence of adjuvants but also G metabolism and time-amplified effects or bioaccumulation. This should be discussed when analyzing the in vivo toxic actions of R. This work clearly confirms that the adjuvants in Roundup formulations are not inert. Moreover, the proprietary mixtures available on the market could cause cell damage and even death around residual levels to be expected, especially in food and feed derived from R formulation-treated crops.”

Publication Date (Web): December 23, 2008
http://pubs.acs.org/doi/abs/10.1021/tx800218n

Response: The study looked at the effect four formulations of glyphosate that contain surfactants and adjuvants have on three types of human cells. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #38 - “We exposed human liver HepG2 cells, a well-known model to study xenobiotic toxicity, to four different formulations and to glyphosate, which is usually tested alone in chronic in vivo regulatory studies. We measured cytotoxicity with three assays (Alamar Blue®, MTT, ToxiLight®), plus genotoxicity (comet assay), anti-estrogenic (on ERα, ERβ) and anti-androgenic effects (on AR) using gene reporter tests. We also checked androgen to estrogen conversion by aromatase activity and mRNA. All parameters were disrupted at sub-agricultural doses with all formulations within 24 h. These effects were more dependent on the formulation than on the glyphosate concentration. First, we observed a human cell endocrine disruption from 0.5 ppm on the androgen receptor in MDA-MB453-kb2 cells for the most active formulation (R400), then from 2 ppm the transcriptional activities on both estrogen receptors were also inhibited on HepG2. Aromatase transcription and activity were disrupted from 10 ppm. Cytotoxic effects started at 10 ppm with Alamar Blue assay (the most sensitive), and DNA damages at 5 ppm. A real cell impact of glyphosate-based herbicides residues in food, feed or in the environment has thus to be considered, and their classifications as carcinogens/mutagens/reprotoxics is discussed.”

Gasnier, Céline Ph.D., Coralie Dumont Ph.D., Nora Benachour Ph.D., Emilie Clair Ph.D., Marie-Christine Chagnon Ph.D. and Gilles-Eric Séralini Ph.D. “Glyphosate-based herbicides are toxic and endocrine disruptors in human cell lines” Available online 17 June 2009
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TCN-4WJBC0R-1&_user=10&_coverDate=08%2F21%2F2009&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_searchStrId=1591140451&_rerunOrigin=scholar.google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=2adf
do1803a911a1ff1eda15564d337e&searchtype=a
Response: The study looked at the effects of Roundup formulations of glyphosate on human liver cells. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Glyphosate safety opposing view #39 - “In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate ‘yielded increased risks for NHL.’ They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, ‘glyphosate deserves further epidemiologic studies.’ “

"New Study Links World's Biggest Selling Pesticides to Cancer Swedish Study Finds Exposure to Glyphosate and MCPA Increases Risk for Non-Hodgkin's Lymphoma"
Press Release PAN AP, June 21, 1999
http://www.mindfully.org/Pesticide/Monsanto-Roundup-Glyphosate.htm

Response: The link lists studies and reports concerning Monsanto herbicide formulations. Many of these are citations are addressed on other comments.
Glyphosate safety opposing view #40 - “There is, indeed, direct evidence that glyphosate inhibits RNA transcription in animals at a concentration well below the level that is recommended for commercial spray application. Transcription was inhibited and embryonic development delayed in sea urchins following exposure to low levels of the herbicide and/or the surfactant polyoxyethyleneamine. The pesticide should be considered a health concern by inhalation during spraying [4].”

New research shows that a brief exposure to commercial glyphosate caused liver damage in rats, as indicated by the leakage of intracellular liver enzymes. In this study, glyphosate and its surfactant in Roundup were also found to act in synergy to increase damage to the liver [5].

Three recent case-control studies suggested an association between glyphosate use and the risk of non-Hodgkin lymphoma [6-8]; while a prospective cohort study in Iowa and North Carolina that includes more than 54,315 private and commercial licensed pesticide applicators suggested a link between glyphosate use and multiple myeloma [9]. Myeloma has been associated with agents that cause either DNA damage or immune suppression.”

Ho, Mae-Wan Ph.D. and Prof. Joe Cummins “Glyphosate Toxic & Roundup Worse” Institute of Science in Society report 07/03/05 http://www.i-sis.org.uk/GTARW.php

Response: The report cites studies that looked at the effects of Roundup formulations of glyphosate on human cells. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #41 - “New scientific studies link Roundup (glyphosate), the most widely used herbicide in the world, to a
host of health risks, such as cancer, miscarriages and disruption of human sex hormones.”

Long, Cheryl “Hazards of the World’s Most Common Herbicide” *Mother Earth News*, October/November 2005  

Response: The report cites studies that looked at the effects of Roundup formulations of glyphosate on human cells and amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #42** - “A series of studies has found that farmers develop non-Hodgkin’s lymphoma more often than other people do, but until now it has been difficult for scientists to explain why this increase occurs. New research, however, shows that exposure to the herbicide glyphosate, commonly sold as Roundup, is one explanation. The study was published in 2003 by researchers at the National Cancer Institute, the University of Nebraska Medical Center, Kansas University Medical Center, and the University of Iowa College of Medicine.”

Study Links Herbicide use and Cancer  
A Northwest Coalition for Alternatives to Pesticides publication, 2010  

Response: The report cites a study that looked at the incidence of Non-Hodgkin’s Lymphoma among farmers. One potential carcinogen was Roundup formulations of glyphosate. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #43 - “5. SUMMARY OF GLYPHOSATE IMPACTS ON AMPHIBIANS
This summary is derived almost entirely from toxicological studies on tadpoles and late-stage anuran embryos. The impact of glyphosate herbicides on other amphibians and other life stages is virtually unknown.

• Recent studies have shown that tadpoles are one of the vertebrate groups most sensitive to the toxicity effects of most commercial formulations of glyphosate herbicides, including Vision.

• The estimated LC50 values for some species of amphibians are at or below the expected environmental concentration (EEC) of 1.43 mg a.e./L of Vision (Table 1). Most LC50 values are calculated from experimental durations of 24 to 96 hours, but at low concentrations death may not occur until after 96 hours. This suggests that amphibians may be even more sensitive than the published LC50 values suggest.

• Although LC50 values have traditionally been used to set hazard quotients, recent risk analysis methodology suggests that LC10 values are better for judging population-level impacts of environmental contaminants (Solomon and Thompson 2003). In at least one published study, all North American amphibian larvae tested to date had LC10 values estimated at or below the EEC for Vision, especially at pH higher than 7.0.

• In addition to direct mortality effects, glyphosate herbicides also cause sublethal effects, including reduced growth and development rates, behavioural impairment, and genomic effects. The population-level consequences of these sublethal effects have not been tested...
under field conditions. For example, reduced growth and development rates, which have been documented under laboratory conditions, could translate into increased mortality if amphibian larvae are unable to metamorphose before the end of the season. Similarly, impaired behavioural response to prodding under laboratory conditions could translate to increased susceptibility to predators under field conditions.

• Impacts have been shown to be synergistically enhanced by interaction with some environmental factors. Of particular concern is that the effects of glyphosate herbicide may be greater when pond pH is 7 or higher (Edginton et al. 2004a). Amphibians in general avoid acidic conditions, preferring to breed in ponds with higher pH, which could increase their vulnerability to glyphosate herbicide impacts.

• More detailed toxicological studies indicate that the toxicity of glyphosate herbicides arises not from the active ingredient, glyphosate, but from the surfactant, POEA.

• POEA is thought to interfere with the synthesis of collagen and to reduce the branchial cartilage in the gills of tadpoles and to cause lysis of gill epithelial cells in fish. This could result in loss of osmotic stability and asphyxiation. The toxic mode of action in terrestrial, postmetamorphic amphibians is not known at formulations without POEA surfactants, such as Rodeo, and formulations with other surfactants, such as Roundup Biactive, have reduced toxicity to amphibians. (pg. 31)

Govindarajulu, Purnima P. Ph.D., “Literature review of impacts of glyphosate herbicide on amphibians: What risks can the silvicultural use of this herbicide pose for amphibians in B.C.?”

Response: The literature review cites studies that look at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #44 - “Chronic Effects of Glyphosate versus Formulations: Throughout this study glyphosate itself showed no chronic effects on developing tadpoles. The tadpoles reared in the formulations Roundup Original® and Transorb® did show significant physical abnormalities. Abnormalities were also found upon exposure to the surfactant POEA. For all endpoints POEA showed practically identical results to the Roundup Original® formulation whereas the same cannot be said for the Transorb® formulation. The surfactant used in the Transorb formulation is not known (being protected as “Trade Secret”), but has been described as a “surfactant blend”. This “surfactant blend” may be responsible for inhibition of metamorphosis, as well as the skewed sex ratio towards female seen in the present study. Developmental abnormalities induced by Roundup are likely a result of endocrine disruption. The thyroid axis can be greatly affected by corticoids and sex steroids which influence hypothalamic and pituitary control (See Dodd and Dodd, 1976, and Hayes, 1997 for review). Corticoids, sex steroids and prolactin have caused delayed metamorphosis and decreased size by both antagonizing and inhibiting thyroid action (Hayes, 1997). Sex steroid can induced sex reversal and intersex in amphibians and mammals, while low thyroid levels interfere with vitellogenesis. A concentration at which the animals were not effected (NOEC) by The Roundup formulations was not determined by this study.”


Response: The study provided looked at the effects of glyphosate formulations containing the surfactant POEA. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the
project. A surfactant of equal or less toxicity than glyphosate would be added at
the time of application.

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Glyphosate safety opposing view #45 - “Concern #1: Roundup is only intended for terrestrial use, not aquatic use
While it may be intended for terrestrial use, there is overwhelming evidence that Roundup gets into aquatic habitats, typically through inadvertent (or unavoidable) aerial overspray (Newton et al. 1984, Goldsborough and Brown 1989, Feng et al. 1990, Thompson et al. 2004). To determine the effect on amphibians, Relyea (2005a) simulated a direct overspray of a small wetland using pond mesocosms (1000-liter tanks). The result was widespread death for many species and the death rate was much higher than expected based on previous studies of Roundup. It is relatively common knowledge that Roundup should not be applied to large ponds and lakes, but it seems to be much less commonly appreciated that many amphibians are not produced in large ponds and lakes due to predation by fish. Instead, small temporary wetlands that may appear to be unimportant and only have 6" of water can, in fact, produce thousands of tadpoles. These small, temporary pools are either not avoided or not avoidable by aerial pesticide applications.

Moreover, Roundup is not only lethal to amphibian larvae. New studies have found that Roundup can be highly lethal to terrestrial amphibians as well (Relyea 2005c).”

“Concern #2: The application rate of Roundup was 7 times too high
The application rate of 6 ounces per 300 square feet came directly from the label of Monsanto's "Roundup Weed and Grass Killer". What Monsanto is claiming is that the application rate for this Roundup is higher than their listed application rate for other forms of Roundup. However, both application rates come from Monsanto. Moreover, it is well accepted by
Monsanto and the applicators of Roundup that some types of weeds require up to four times the recommended application rate to be effective.”

“Concern #4: A past risk assessment has shown that Roundup poses minimal risk to amphibians
The risk assessment was conducted by Giesy et al. (2000), in cooperation with Monsanto, and the assessment was based on the available data at that time. For amphibians, data only existed for four species of Australian tadpoles and one species of African frog. From these studies, the LC50 estimates (the amount of pesticide needed to kill 50% of the animals) were 4 to 16 mg a.i./L (Mann and Bidwell 1999, Perkins et al. 2000).

More recent LC50 laboratory data for North American amphibians demonstrate that North American amphibians are much more sensitive; LC50 values range from 0.5 to 4.7 mg a.i./L (Edginton et al. 2004, Relyea 2005b). According to U.S. Fish and Wildlife classifications, this means that Roundup can no longer be considered slightly to moderately toxic, but rather moderately to highly toxic to North American amphibians.”

Relya, Rick Ph.D. “Roundup is Highly Lethal”
Dr. Relya Responds to Monsanto’s Concerns Regarding Recent Published Study Mindfully.org, April 1, 2005
http://www.mindfully.org/GE/2005/Relyea-Monsanto-Roundup1apr05.htm

Response: The link provides a response to Monsanto regarding his research on the effects of glyphosate formulations containing surfactants, including Roundup, on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #46 - “Based on the best available information, the Agency makes a Likely to Adversely Affect determination for the CRLF from the use of glyphosate. Additionally, the Agency has determined that there is the potential for modification of CRLF designated critical habitat from the use of the chemical.

This assessment indicates that direct effects to the terrestrial-phase CRLF eating broadleaf plants, small insects and small herbivorous mammals on a dietary-basis may be at risk following chronic exposure to glyphosate at application rates of 7.5 lb a.e./A and above (forestry, areas with impervious surfaces and rights of way). In addition, for one particular formulation (Registration No. 524-424), medium and large-sized CRLF’s eating small herbivorous mammals on a dose-basis may be at risk following acute exposure at an application rate of 5.5 lb formulation/A (industrial outdoor uses). At the lowest application rate of 1.1 lb formulation/A, there is potential risk to medium-sized CRLF’s eating small herbivorous mammals on a dose-basis (ornamental lawns and turf).” (Pg. 173)


Response: Based on site locations of invasive plants within the project area and type of habitats affected, the use of surfactants that are of equal or less toxicity than glyphosate, and application of project design criteria (Appendix G), the project would have lesser impacts to amphibians than those documented in the attached link. Also, there are no federally listed amphibian species documented from the project area.
**Glyphosate safety opposing view #47** - “Glyphosate is the poster child for the global pesticide controversy due to its place in the ongoing debate over mega-farming and genetically engineered crops. Industry scientists say it’s one of the safest herbicides in the world, while independent scientists have discovered potential links among the widespread use of glyphosate-based herbicides and non-Hodgkin’s lymphoma, birth defects and even attention deficit disorder. Research also shows that additives like surfactants in glyphosate in herbicides like Roundup are more toxic than glyphosate itself and can increase the toxicity of glyphosate.”

“The war on invasive species is a war on a fact of life. Humans have caused or exacerbated these species "invasions" by changing habitats and introducing species to new areas, and now we are trying to turn back the clock in an attempt to prevent nature from taking its new course. As long as people attempt to dominate the land, extract its resources and shape it to their liking, there will be money to be made and dramatic consequences for other livings things. The search for a balance between supporting our collective desire to prosper and a healthy natural world is sure to spark more heated debates for years to come.”

Ludwig, Mike “Special Investigation: The Pesticides and Politics of America's Eco-War”
Published by Truthout, June 9, 2011

Response: Comment noted.

**Glyphosate safety opposing view #48** - “We also observed a gradual loss of the r3 and r5domains in embryos treated with GBH (compare Figure 5E,Fwith D), which resembles the results observed in frog embryos in the krox-20 domains (Figures 1B and 2E). Hybridization with the c-shh probe showed that, as in Xenopus, the prechordalmesoderm domain is
preferentially lost in GBH-treated chickembryos (compare Figure 5G with H,I). As the GBH concentra-tion increases, the expression along the embryonic dorsal midlinealso gradually disappears (Figure 5H,I). Therefore, our experiments with chick embryos further extendconclusions from studies about the teratogenic effects of GBHin amphibians to other vertebrate species.DiscussionThe results presented above argue that both GBH andglyphosate itself interfere with key molecular mechanismsregulating early development in both Xenopus and chickenembryos, leading to congenital malformations. Sublethal dosesof the herbicide (430 µM of glyphosate in 1/5000 dilutions ofGBH) and injections leading to a final concentration of 8 to 12µM of glyphosate in the injected side of the embryo were sufficient to induce serious disturbances in the expression of slug, otx2, and shh. These molecular phenotypes were correlated with a disruption of developmental mechanisms involving the neural crest, embryonic dorsalmidline formation, and cephalic patterning. Because glyphosate penetration through the cell membrane requires facilitation by adjuvants present in commercial formulations (5, 6), we tested the effects of glyphosate alone by directly microinjecting it into Xenopus embryos. Thesimilarity of the phenotypes obtained in both situations suggeststhat they are attributable to the active principle of GBH and not to the adjuvants. We will discuss our results in the following context: (1) the correlation of our phenotypes with those observed in animalmodels with an impairment of RA signaling or deficits in the expression of critical genes that control embryonic development; (2) the probable mechanisms underlying the phenotypesinduced by GBH and glyphosate; (3) possible correlations with clinical cases of human offspring exhibiting malformations in zones exposed to GBH. Misregulation of RA, shh, and otx2 Are Involved in Cephalic Malformations and Neural Crest-Derived Pheno-types Reminiscent of the Effects of GBH and Glyphosate. The phenotypes obtained after GBH treatments or injections of glyphosate alone are strikingly reminiscent of those observed as a consequence of an excess of RA signaling in vertebrates and humans. Acute or chronic increase of RA levels leads toteratogenic effects during human pregnancy and in experimental Figure 4. Phenotype induced by GBH is mediated by an increase of RA signaling (A). Analysis of RA activity with the reporter plasmid RAREZ. All embryos were injected with the reporter plasmid RAREZ, except for uninjected controls, and left untreated or were treated as indicated in the figure until stage 14-15, when they were processed. Results are expressed as arbitrary luminiscence units per µg of protein. A two-tailed t test was employed to
analyze the significance in the difference of the means. ** p < 0.01; *** p < 0.0001. (B-G) WMISH for shh and otx2 at tailbud stages. (B) Control embryo. Notochord (n); floor plate (fp); brain (space between bars), eye (arrowhead). (C) Embryo treated with 1/5000 GBH manifesting microcephaly (space between bars), reduced eyes (arrowhead), diminished Shh signaling from the prechordal mesoderm (arrow), and shortened A-P axis (78%, n)9.” (Pg. 6)

Alejandra Paganelli, Victoria Gnazzo, Helena Acosta, Silvia L. López, and Andrés E. Carrasco “Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling”
Publicado por NOGAL DE VIDA, May 20, 2010

Response: This literature search cites many of the same studies that are included in previous comments.

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**Glyphosate safety opposing view #49** - “Although there is only a handful of studies on the safety of GM soybeans, there is considerable evidence that glyphosate—especially in conjunction with the other ingredients in Roundup—wreaks havoc with the endocrine and reproductive systems. ‘I think the concentration of glyphosate in the soybeans is the likely cause of the problem,’ says Ewen.

Glyphosate throws off the delicate hormonal balance that governs the whole reproductive cycle. ‘It’s an endocrine buster,’ says Ewen, ‘that interferes with aromatase, which produces estrogen.’ Aromatase is required by luteal cells to produce hormones for the normal menstrual cycle, but it’s those luteal cells that have shown considerable alterations in the rats fed GM soybeans.
Glyphosate is also toxic to the placenta, the organ which connects the mother to the fetus, providing nutrients and oxygen, and emptying waste products. In a 2009 French study at the University of Caen, scientists discovered that glyphosate can kill the cells in the outer layer of the human placenta (the trophoblast membrane), which in turn can kill the placenta. The placenta cells are, in Ewen’s words, ‘exquisitely sensitive to glyphosate.’ Only 1/500th the amount needed to kill weeds was able to kill the cells. The amount is so small, according to the study authors the ‘residual levels to be expected, especially in food and feed derived from R[oundup] formulation-treated crops’ could be enough to ‘cause cell damage and even [cell] death.’ Furthermore, the effect of the toxin may bioaccumulate, growing worse with repeated consumption from Roundup laden foods.

Smith, Jeffery “Genetically Modified Soy Diets Lead and Uterus Changes in Rats” foodconsumer.org, September 22, 2010
http://www.foodconsumer.org/newsite/Safety/gmo/genetically_modified_soy_diets_0910100128.html

Response: The report focuses on the use of genetically engineered crops and associated health concerns including the use of glyphosate containing surfactants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #50 - “Such reports gained further traction after an Argentine government scientist, Andres Carrasco conducted a study, "Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling" in 2009.

The study, published in the journal Chemical Research in Toxicology in 2010, found that glyphosate causes malformations in frog and chicken
embryos at doses far lower than those used in agricultural spraying. It also found that malformations caused in frog and chicken embryos by Roundup and its active ingredient glyphosate were similar to human birth defects found in genetically modified soy-producing regions.

"The findings in the lab are compatible with malformations observed in humans exposed to glyphosate during pregnancy," wrote Carrasco, director of the Laboratory of Molecular Embryology at the University of Buenos Aires. "I suspect the toxicity classification of glyphosate is too low."

"Fagan told HuffPost that among developmental biologists who are not beholden to the chemical industry or the biotechnology industry, there is strong recognition that Carrasco’s research is credible."

"For me as a scientist, one of the reasons I made the effort to do this research into the literature was to really satisfy the question myself as to where the reality of the situation lies," he added. “Having thoroughly reviewed the literature on this, I feel very comfortable in standing behind the conclusions Professor Carrasco came to and the broader conclusions that we come to in our paper.”

“We can’t figure out how regulators could have come to the conclusions that they did if they were taking a balanced took at the science, even the science that was done by the chemical industry itself.”

Graves, Lucia. “Roundup: Birth Defects Caused By World's Top-Selling Weedkiller, Scientists Say”
by Lucia Graves
Published on Friday, June 24, 2011 by Huffington Post
http://www.commondreams.org/headline/2011/06/24-4

Response: The study looks at mutagenic effects of exposure to the glyphosate formulation Roundup. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #51 - "This study was just routine," said Russian biologist Alexey V. Surov, in what could end up as the understatement of this century. Surov and his colleagues set out to discover if Monsanto's genetically modified (GM) soy, grown on 91% of US soybean fields, leads to problems in growth or reproduction. What he discovered may uproot a multi-billion dollar industry.

After feeding hamsters for two years over three generations, those on the GM diet, and especially the group on the maximum GM soy diet, showed devastating results. By the third generation, most GM soy-fed hamsters lost the ability to have babies. They also suffered slower growth, and a high mortality rate among the pups.

And if this isn't shocking enough, some in the third generation even had hair growing inside their mouths—a phenomenon rarely seen, but apparently more prevalent among hamsters eating GM soy.”

“In addition to the GMOs, it could be contaminants, he said, or higher herbicide residues, such as Roundup. There is in fact much higher levels of Roundup on these beans; they're called "Roundup Ready." Bacterial genes are forced into their DNA so that the plants can tolerate Monsanto's Roundup herbicide. Therefore, GM soy always carries the double threat of higher herbicide content, couple with any side effects of genetic engineering.

Without detailed tests, no one can pinpoint exactly what is causing the reproductive travesties in Russian hamsters and rats, Italian and Austrian mice, and livestock in India and America. And we can only speculate about the relationship between the introduction of genetically modified foods in 1996, and the corresponding upsurge in low birth
weight babies, infertility, and other problems among the US population. But many scientists, physicians, and concerned citizens don't think that the public should remain the lab animals for the biotech industry's massive uncontrolled experiment.

Alexey Surov says, "We have no right to use GMOs until we understand the possible adverse effects, not only to ourselves but to future generations as well. We definitely need fully detailed studies to clarify this. Any type of contamination has to be tested before we consume it, and GMO is just one of them."

Smith, Jeffery “Genetically Modified Soy Linked to Sterility, Infant Mortality” foodconsumer.org, September 22, 2010

Response: The report focuses on the use of genetically engineered crops and associated health concerns including the use of glyphosate. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #52 - “A study released by an Argentine scientist earlier this year reports that glyphosate, patented by Monsanto under the name "Round Up," causes birth defects when applied in doses much lower than what is commonly used in soy fields.

The study was directed by a leading embryologist, Dr. Andres Carrasco, a professor and researcher at the University of Buenos Aires. In his office in the nation's top medical school, Dr. Carrasco shows me the results of the
study, pulling out photos of birth defects in the embryos of frog amphibians exposed to glyphosate. The frog embryos grown in petri dishes in the photos looked like something from a futuristic horror film, creatures with visible defects—one eye the size of the head, spinal cord deformations, and kidneys that are not fully developed.

"We injected the amphibian embryo cells with glyphosate diluted to a concentration 1,500 times than what is used commercially and we allowed the amphibians to grow in strictly controlled conditions." Dr. Carrasco reports that the embryos survived from a fertilized egg state until the tadpole stage, but developed obvious defects which would compromise their ability to live in their normal habitats.

Trigona, Marie “GMO – Monsanto Soy Herbicide could Pose Health Risks”
Americas Program, Center for International Policy (CIP), July 13, 2009
http://www.internationalnews.fr/article-36061426.html

Response: The report focuses on the use of genetically engineered crops and associated health concerns including the use of glyphosate. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Glyphosate safety opposing view #53 - “A study released by an Argentine scientist earlier this year reports that glyphosate, patented by Monsanto under the name “Round Up,” causes birth defects when applied in doses much lower than what is commonly used in soy fields.

The study was directed by a leading embryologist, Dr. Andres Carrasco, a professor and researcher at the University of Buenos Aires. In his office in
the nation’s top medical school, Dr. Carrasco shows me the results of the study, pulling out photos of birth defects in the embryos of frog amphibians exposed to glyphosate. The frog embryos grown in petri dishes in the photos looked like something from a futuristic horror film, creatures with visible defects—one eye the size of the head, spinal cord deformations, and kidneys that are not fully developed.”

Trigona, Marie “Study released in Argentina puts glyphosate under fire” SOURCE Americas Program, Center for International Policy, USA, July 13, 2009 Published by Prism Webcast News http://prismwebcastnews.com/2009/08/06/study-released-in-argentina-puts-glyphosate-under-fire/

Response: The report focuses on the use of glyphosate on agricultural crops. The project does not propose to treat any crop plants with herbicide.

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Glyphosate safety opposing view #54 - “Relyea found that Roundup caused a 70 percent decline in amphibian biodiversity and an 86 percent decline in the total mass of tadpoles. Leopard Frog tadpoles and Gray Treefrog tadpoles were completely eliminated and Wood Frog tadpoles and toad (Bufo) tadpoles were nearly eliminated. One species of frog, Spring Peepers, was unaffected. "The most shocking insight coming out of this was that Roundup, something designed to kill plants, was extremely lethal to amphibians," said Relyea, who conducted the research at Pitt’s Pymatuning Laboratory of Ecology. "We added Roundup, and the next day we looked in the tanks and there were dead tadpoles all over the bottom." “

Response: The provided link is broken and we could not review the contents. The summary from the commenter cites a study that looked at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #55 - “False Research**

The EPA has twice caught scientists deliberately falsifying results at research laboratories hired by Monsanto to study glyphosate.

In 1983, the EPA revealed that Industrial Biotest Laboratories (IBL) routinely falsified results of their 1971 research performed on glyphosate. Tests performed at IBL included eleven out of nineteen total chronic toxicology studies on glyphosate; studies instrumental in its retaining registration in 1974.

In 1991, the EPA alleged that Craven Laboratories, another lab hired by Monsanto to study the effects of glyphosate, had falsified test results. Several methods were used, including manipulation of equipment and notebook entries.”

“Alaska has an economic and cultural dependence on the welfare of salmon and other fish species, so it is particularly vital for Alaskans to know that glyphosate, and even more so glyphosate herbicides, are acutely toxic to fish.

The toxicity of glyphosate, which is most potently dangerous to younger fish, increases as water temperature rises. Ironically, the use of glyphosate causes water temperatures to increase for several years following
treatment, as the herbicide kills shading vegetation. This is significant in more than one way for salmon, as juvenile salmon require cold water to thrive under even normal environmental circumstances.

The effects of glyphosate on fish have been documented using rainbow trout, which exhibited erratic swimming and labored breathing, effects which can increase the risk that fish will be eaten, as well as affecting ability to feed, migrate, and reproduce.”

James, Carrie “Aerial Herbicide Spraying” SitNews (Ketchikan, Alaska) June 19, 2004 http://www.sitnews.us/0604Viewpoints/061904_carrie_james.html

Response: Comment noted.

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Glyphosate safety opposing view #56 - “Worldwide, amphibian populations are reported to be in a state of decline. Causative factors are incompletely understood. In ecosystems of northeastern North America, multiple stressors of pesticide contamination and acidification may be involved. As an initial component of a multi-tier investigation, the effects of forest-use herbicides Vision® (glyphosate) and Release® (triclopyr) are being studied using *Xenopus laevis*, *Rana pipiens* and *Rana clamitans*. Two different life stages of amphibians, embryos (blastula stage) and larvae (Gosner stage 25), are being used. Interactive effects of various herbicide concentrations and pH (5.5 and 7.5) are being studied using the organisms exposed in 96hr static renewal tests. The Frog Embryo Teratogenesis Assay - Xenopus (FETAX) protocol is used for the embryo stage for the determination of mortality, malformation and growth data. The larval exposures are being developed and refined to compare sensitivities to the FETAX assay. The larval 96hr static renewal exposure is followed by
a 10-day water-only recovery period. Sensitivities are being compared to determine the appropriateness of the exotic amphibian *Xenopus laevis* for toxicity testing. Results on toxicity to date indicate that Vision® is more toxic to all species at pH 7.5 than at pH 5.5. The reverse has been shown for Release®. In addition, the larval stage has consistently been shown to be more sensitive than the blastula stage. Understanding species sensitivities and herbicide/pH interactions will aid in altering forestry herbicide use patterns to minimize effects on amphibians and other non-target organisms.”

Edginton, Andrea N.Ph.D. “Multiple stressor effects in amphibians: herbicide/pH interaction”
A presentation at the 5th Annual of the Canadian Amphibian and Reptile Conservation Network, September 22-25, 2000

Response: This presentation looked at the possible effects of glyphosate formulations that contain surfactants, as well as triclopyr, on amphibian populations. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Glyphosate safety opposing view #57** - “We have evaluated the toxicity of four glyphosate (G)-based herbicides in Roundup (R) formulations, from $10^5$ times dilutions, on three different human cell types. This dilution level is far below agricultural recommendations and corresponds to low levels of residues in food or feed. The formulations have been compared to G alone and with its main metabolite AMPA or with one known adjuvant of R formulations, POEA. HUVEC primary neonate umbilical cord vein cells have been tested with 293 embryonic kidney and JEG3 placental cell lines.
All R formulations cause total cell death within 24 h, through an inhibition of the mitochondrial succinate dehydrogenase activity, and necrosis, by release of cytosolic adenylate kinase measuring membrane damage. They also induce apoptosis via activation of enzymatic caspases 3/7 activity. This is confirmed by characteristic DNA fragmentation, nuclear shrinkage (pyknosis), and nuclear fragmentation (karyorrhexis), which is demonstrated by DAPI in apoptotic round cells. G provokes only apoptosis, and HUVEC are 100 times more sensitive overall at this level. The deleterious effects are not proportional to G concentrations but rather depend on the nature of the adjuvants. AMPA and POEA separately and synergistically damage cell membranes like R but at different concentrations.


Response: The study looked at the effect four formulations of glyphosate that contain surfactants and adjuvants have on three types of human cells. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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The Okanogan NF Integrated Weed Management EA for 1997 received many comments from the public asking for documentation and analysis of the risks of herbicides to human health and safety, yet all of these concerns for safety were lumped into a single issue on p. 15-16:

Noxious weed populations can degrade recreational experiences by decreasing the desirability of campsites, replacing native plant populations in developed and dispersed areas and changing the scenery. Herbicide contact could pose risks to human health through skin exposure, inhalation, or ingestion. Some noxious weeds also pose risks to human health.

The marginalization of human health as mere “issues” rather than actual hazards suggests that there was never any intention of questioning the safety or use of herbicides, except in a very limited fashion, and this is borne out in the analysis section.

Two years later the Okanogan NF prepared a second EA (1999) and through another public comment process, the issues identified through public comments were exactly the same.

Why are the issues of public health ignored? According to the rationalization given in the EA (Okanogan NF, 1997, p. 17), public comments were addressed in a “higher level document”. In other words, concerns about human health and safety were not considered in the EA. By its limited scope, the agency effectively avoids having to consider issues that it doesn't want to.

The purpose of an EA is to assess a problem, propose and evaluate alternatives and select the most effective remedy, which should be the least harmful to the environment. In this case, the alternative to use herbicides had been selected prior to doing an analysis. The EA was only used to justify a predetermined decision rather than truly explore alternatives.”

From Chapter 3. Adverse impacts in the report: “Risky Business: Invasive species management on National Forests - A review and summary of needed changes in current plans, policies and programs”
A publication of the Kettle Range Conservation Group, February, 2001
http://kettlerange.org/weeds/Chapter-3.html
Glyphosate safety opposing view #59 - “In one study, for instance, we exposed neural stage embryos and newly hatched tadpoles of green frogs to low levels of the herbicide glyphosate. Following 96 hours of exposure to the herbicide, surviving animals were moved to fresh water. Nominal glyphosate concentrations of 1.2 to 4.0 ppm initially caused tadpoles paralysis from which they eventually recovered. During the first 24 hours of exposure to 8.0 ppm, all tadpoles either died or were completely paralysed. Furthermore, almost all of the survivors from the first 24 hours of exposure died before the completion of the 96-hour exposure period. Follow-up tests indicated that much of the toxicity could be attributed to the surfactant used in the RoundUp® formulation of glyphosate.”

Pauli, Bruce and M. Berrill Ph.D. “Pesticides and Behaviour in Tadpoles” In Environmental Contaminants and Amphibians in Canada http://www.open.ac.uk/daptf/froglog/FROGLOG-16-5.html

Response: The link provided is broken and we could not review the contents. From the summary provided by the commenter it appears this study is similar to another by the author which looked at the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #60 - “BUENOS AIRES – The herbicide used on genetically modified soy – Argentina’s main crop – could cause brain, intestinal and heart defects in fetuses, according to the results of a scientific investigation released Monday.

Although the study “used amphibian embryos,” the results “are completely comparable to what would happen in the development of a human embryo,” embryology professor Andres Carrasco, one of the study’s authors, told Efe.”

“Carrasco said that the research found that “pure glyphosate, in doses lower than those used in fumigation, causes defects ... (and) could be interfering in some normal embryonic development mechanism having to do with the way in which cells divide and die.”

“ “The companies say that drinking a glass of glyphosate is healthier than drinking a glass of milk, but the fact is that they’ve used us as guinea pigs,” he said.”

“Herbicide Used in Argentina Could Cause Birth Defects”
*Latin American Herald Tribune*, April 30, 2009

Response: The link reports on the use of genetically engineered crops and associated health concerns including the use of glyphosate formulations containing surfactants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #61 - “DENVER, Colo.— Recognizing the threat posed by expanding use of dangerous pesticides across 18 western states, competition from invading bullfrogs, nonnative diseases, and loss of wetlands, the U.S. Fish and Wildlife Service will announce tomorrow their conclusion that western populations of the northern leopard frog may warrant protection under the Endangered Species Act.”

“The use of Roundup (a proprietary herbicide containing glyphosate), which is lethal to amphibians even at recommended levels according to recent studies, also threatens the western leopard frog. Roundup Ready crops (resistant to Roundup so the herbicide can be broadly applied to kill weeds) comprise a significant portion of crop acreage in the midwestern United States. In 2004, Roundup Ready soybean crops comprised 89 percent of all soybean crops in Iowa, 82 percent in Minnesota, 92 percent in Nebraska, 82 percent in North Dakota, and 95 percent in South Dakota.”

Western Leopard Frogs Move a Step Closer to Protection -- U.S. Fish and Wildlife Service: Pesticides, Disease, Invasive Species, and Habitat Loss May Threaten Native Frogs with Extinction
Center for Biological Diversity news release, June 30, 2009

Response: Based on site locations of invasive plants within the project area and type of habitats affected, the use of surfactants that are of equal or lesser toxicity than glyphosate, and application of project design criteria (Appendix G), the project would have lesser impacts to amphibians than those documented in the attached link. Also, no federally listed amphibian species are documented from the project area.
Glyphosate safety opposing view #62 - “Eduardo Neaves, a 12-year-old, went swimming in a canal in Coral Gables, Florida that was contaminated with four times the recommended amount of RoundUp herbicide. The child became completely paralyzed, and five years after the incident suffers residual nervous system damage.

The EPA, according to this article, in 1985 reported on the case of a 59-year-old woman in Tennessee who has suffered central nervous system damage after exposure to RoundUp.

Monsanto's original neurotoxicity studies on RoundUp were ruled invalid by the EPA due to "extensive gaps in the raw data supporting study findings and conclusions. There has been no requirement for a new study on the neurotoxicity of RoundUp."

“Anecdotal Evidence of RoundUp's Toxicity”
Natures Country Store
From July 1987 edition of The Progressive, and article entitled 'Weed Killer'
http://www.naturescountrystore.com/roundup/page7.html

Response: The link provides a compilation of studies which focus on the human health effects of glyphosate formulations, primarily those that contain POEA surfactant. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Glyphosate safety opposing view #63 - “A group of international scientists has released a report detailing health and environmental hazards from the cultivation of genetically modified (GM) Roundup Ready soy and the use of glyphosate (Roundup®) herbicide.

The report, GM Soy: Sustainable? Responsible?,[1] highlights new research by Argentine government scientist, Professor Andrés Carrasco,[2] which found that glyphosate causes malformations in frog and chicken embryos at doses far lower than those used in agricultural spraying.

“The findings in the lab are compatible with malformations observed in humans exposed to glyphosate during pregnancy,” said Carrasco.”

GM Watch, 13 September 2010
http://www.globalresearch.ca/index.php?context=viewArticle&code=ANA20101010&articleId=21382

Response: Comment noted.

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Glyphosate safety opposing view #64 - “Three recent studies show that Roundup, which is used by farmers and home gardeners, is not the safe product we have been led to trust.

A group of scientists led by biochemist Professor Gilles-Eric Seralini from the University of Caen in France found that human
placental cells are very sensitive to Roundup at concentrations lower than those currently used in agricultural application.

An epidemiological study of Ontario farming populations showed that exposure to glyphosate, the key ingredient in Roundup, nearly doubled the risk of late miscarriages. Seralini and his team decided to research the effects of the herbicide on human placenta cells. Their study confirmed the toxicity of glyphosate, as after eighteen hours of exposure at low concentrations, large proportions of human placenta began to die. Seralini suggests that this may explain the high levels of premature births and miscarriages observed among female farmers using glyphosate."

Heong, Chee Yoke  “New Evidence Establishes Dangers of Roundup”
Third World Resurgence, No. 176, April 2005
Re-published by Project Censored

Response: The link cites studies focused on the effect of glyphosate formulations, primarily Roundup, on human health. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

**Glyphosate safety opposing view #65 - “Colombia** - A Colombian court on Friday ordered the government to suspend immediately aerial spraying of drug crops with the herbicide glyphosate, a potential blow to President Andres Pastrana's anti-cocaine offensive.

Bogota Judge Gilberto Reyes Delgado, ruling in favor of indigenous groups that had protested the spraying program, said he had asked the government to provide studies on glyphosate’s effects on the environment and human health.”

“Ecuador recently asked Colombia to stop aerial crop spraying near the border the two nations share over fears glyphosate could harm
Ecuadoreans' health and damage subsistence crops in the region's jungle towns.

“Columbian Court Suspends Aerial Spraying of Roundup on Drug Crops”
*Reuters*, July 27, 2001
Republished by Mindfully.org
[http://www.mindfully.org/Pesticide/Roundup-Drug-Spray-Colombia.htm](http://www.mindfully.org/Pesticide/Roundup-Drug-Spray-Colombia.htm)

Response: The report focuses on the aerial application of herbicide. Only hand application methods are proposed for the project.

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**Glyphosate safety opposing view #66** - “In short, Monsanto's Roundup Ready technology is emerging as an environmental disaster. The question isn't why a judge demanded an environmental impact study of Roundup Ready sugar beets in 2010; it's that no one did so in 1996 before the technology was rolled out. After all, the Union of Concerned Scientists was already quite, well, concerned back then.”

“As I wrote in June, rather than spark a reassessment of the wisdom of relying on toxic chemicals, the failure of Roundup Ready has the U.S. agricultural establishment scrambling to intensify chemical use. Companies like Dow Agriscience are dusting off old, highly toxic poisons like 2, 4-D and promoting them as the "answer" to Roundup's problems.”

Philpott, Tom. “*Why Monsanto is paying farmers to spray its rivals' herbicides*”
Grist, October 20, 2010

Response: Comment noted.
Glyphosate safety opposing view #67 - “Glyphosate is no more than slightly toxic to fish, and practically non-toxic to amphibians (McComb 1990) and aquatic invertebrate animals.” (page 4)

“For glyphosate and its formulations, findings are from studies conducted by the manufacturer. These studies have been presented to EPA to support product registration, but may not be available to the public. (page 5)

“Since the 1988 rating, EPA has concluded that glyphosate should be classified as having evidence of noncarcinogenicity for humans. There was no convincing evidence of carcinogenicity in new studies in two animal species (Dykstra and Ghali 1991). (page 7)

“Glyphosate Herbicide Information Profile”
Forest Service Pacific Northwest Region, February, 1997

Response: Comment noted.
Glyphosate safety opposing view #68 - “Two new studies indicate that Monsanto's herbicide, Roundup, is a hormone-disruptor and is associated with birth defects in humans.

Farm families that applied pesticides to their crops in Minnesota were studied to see if their elevated exposure to pesticides caused birth defects in their children. The study found that two kinds of pesticides -- fungicides and the herbicide Roundup -- were linked to statistically significant increases in birth defects. Roundup was linked to a 3-fold increase in neurodevelopmental (attention deficit) disorders. [EHP Supplement 3, Vol. 110 (June 2002), pgs. 441-449.]

“A recent test tube study reveals that Roundup can severely reduce the ability of mouse cells to produce hormones. Roundup interferes with a fundamental protein called StAR (steroidogenic acute regulatory protein). The StAR protein is key to the production of testosterone in men (thus controlling male characteristics, including sperm production) but also the production of adrenal hormone (essential for brain development), carbohydrate metabolism (leading to loss or gain of weight), and immune system function. The authors point out that "a disruption of the StAR protein may underlie many of the toxic effects of environmental pollutants." [EHP Vol. 108, No. 8 (August 2000), pgs. 769-776.]"

“Monsanto’s Roundup Herbicide Threatens Public Health”
Reprinted by Organic Consumers Association
http://www.organicconsumers.org/Monsanto/roundup92502.cfm

Response: The link reports on studies linking the application of Roundup on agricultural crops and associated human health effects. The project does not propose to use herbicide treatment on crops. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Following the Label Directions on “Approved” Herbicide Containers does not Assure Safety

Herbicide Safety Testing Opposing View #69 - “Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices.

Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT). Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data."

IBT was one of the largest laboratories performing tests in support of pesticide registrations. About 30 tests on glyphosate and glyphosate-containing products were performed by IBT, including 11 of the 19 chronic toxicology studies. A compelling example of the poor quality of IBT data
comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination." (Emphasis added.)

In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results. "Tricks" employed by Craven Labs included "falsifying laboratory notebook entries" and "manually manipulating scientific equipment to produce false reports." Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question.

The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges. The owner was sentenced to five years in prison and fined $50,000; Craven Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution.

Although the tests of glyphosate identified as fraudulent have been replaced, these practices cast shadows on the entire pesticide registration process.”


Response: Comment noted.
Herbicide Safety Testing Opposing View #70 - “In 2004 the “Counterpart Regulations,” strongly supported by industry, were proposed to streamline EPA’s pesticide review process at the expense of the most vulnerable life forms in our country, Endangered and Threatened Species aka Listed Species (1,265 species are “Listed”). The critical change these regulations bring about is elimination of the requirement for consultations with wildlife experts at the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) by EPA reviewers evaluating adverse impacts of pesticides on Listed Species and their habitats. RCC opposed the Counterpart Regulations with comments, but, sadly, the Regulations were issued in final form on July 29, 2004, despite our objections. Over 125,000 public comments were received by the Fish and Wildlife Service, and they ran 2 to 1 against the Counterpart Regulations.

RCC Insight:
Apparently, the public’s concerns did not make a difference to the people at FWS and NMFS, or did they? We wonder whether the scientists involved with protecting wildlife at both “Services” would want to be bringing their experience and knowledge to bear on decisions made by EPA with respect to pesticides, if it were up to them. Perhaps they would prefer to be part of the evaluation process and they do not concur with finalizing the Counterpart Regulations. However, the fact is that decision-makers, by finalizing these changes, support an action that will weaken Endangered Species’ protection from poisoning and habitat degradation due to pesticides. This latest environmental rollback can mean increasingly hazardous conditions in rivers, lakes and wetlands. A further risk is weakening of the Endangered Species Act itself. (Text of our “Comments” is available through our website -- rachelcarsoncouncil.com)”

“Species from Pesticides – Weakened”

Rachel Carson Council Inc., Issues & Insights October, 2004


Response: Comment noted.
Herbicide Safety Testing Opposing View #71 - “Used in yards, farms and parks throughout the world, Roundup has long been a top-selling weed killer. But now researchers have found that one of Roundup’s inert ingredients can kill human cells, particularly embryonic, placental and umbilical cord cells.

Until now, most health studies have focused on the safety of glyphosate, rather than the mixture of ingredients found in Roundup. But in the new study, scientists found that Roundup’s inert ingredients amplified the toxic effect on human cells—even at concentrations much more diluted than those used on farms and lawns.

One specific inert ingredient, polyethoxylated tallowamine, or POEA, was more deadly to human embryonic, placental and umbilical cord cells than the herbicide itself – a finding the researchers call “astonishing.”

“The research team suspects that Roundup might cause pregnancy problems by interfering with hormone production, possibly leading to abnormal fetal development, low birth weights or miscarriages.

Monsanto, Roundup’s manufacturer, contends that the methods used in the study don’t reflect realistic conditions and that their product, which has been sold since the 1970s, is safe when used as directed. Hundreds of studies over the past 35 years have addressed the safety of glyphosate.

“Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that’s out there,” said Monsanto spokesman John Combest. “It’s used in public parks, it’s used to protect schools. There’s been a great deal of study on Roundup, and we’re very proud of its performance.”
The EPA considers glyphosate to have low toxicity when used at the recommended doses.

“Risk estimates for glyphosate were well below the level of concern,” said EPA spokesman Dale Kemery. The EPA classifies glyphosate as a Group E chemical, which means there is strong evidence that it does not cause cancer in humans.”

Weed-Whacking Herbicide Proves Deadly to Human Cells
By Crystal Gammon and Environmental Health News June 23, 2009
http://www.scientificamerican.com/article.cfm?id=weed-whacking-herbicide-p

Response: The link reports on studies focused on the effect of glyphosate formulations, primarily Roundup, on human health. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Safety Testing Opposing View #72 - “However, the U.S. government regulatory agencies seem to have given Monsanto a long rope. The clout Monsanto enjoys in the U.S. government is by no means incidental. According to the Organic Consumers Association, Clarence Thomas, before being the Supreme Court Judge who put George W. Bush in office (in his first term), was a Monsanto lawyer; Anne Veneman, the U.S. Secretary of Agriculture, was on the board of directors of Monsanto's Calgene Corporation; Donald Rumsfeld, the Secretary of Defence, was on the board of directors of Monsanto's Searle Pharmaceuticals; Secretary of Health Tommy Thompson received $50,000 in donations from Monsanto during his winning campaign for Wisconsin's governorship; and the two Congressmen who received the most donations from Monsanto during the
last election were Larry Combest (Chairman of the House Agricultural Committee) and John Ashcroft (the Attorney-General).”

“A multinational Exposed”
*Frontline*, Volume 22 - Issue 05, Feb. 26 - Mar. 11, 2005
http://www.hinduonnet.com/fline/fl2205/stories/20050311003312500.htm

Response: Comment noted.

Herbicide Safety Testing Opposing View #73 - “A recent study which shows clear links between exposure to the herbicide glyphosate and non-Hodgkin's lymphoma (NHL), a form of cancer that afflicts the lymphatic system, has caused worldwide concern over the safety of the herbicide on humans.

The study was conducted by eminent oncologists Dr Lennart Hardell and Dr Mikael Eriksson of Sweden and published in the journal Cancer by the American Cancer Society on March 15.”

“Monsanto's Argument:
Previous evaluations conducted by the US Environmental Protection Agency (EPA) and the World Health Organization (WHO) suggest that glyphosate is not a mutagenic or carcinogenic.

WHO and the Food and Agriculture Organization (FAO) have approved the safety of glyphosate residues in genetically-engineered Roundup Ready soyabean.

PAN’s Counter Argument:
The EPA and WHO evaluations were done more than five years ago and based mainly on data submitted to them by Monsanto.
These evaluations did conclude that "there is no evidence of mutagenicity or carcinogenicity" based on the available data, but they do not support definitive assertions that glyphosate "is not mutagenic or carcinogenic".

Previous EPA and WHO evaluations which made similar claims for other chemicals had to be revised as new evidence came to light.

The establishment of the WHO's Acceptable Daily Intake (ADI) is based on limited studies using limited parameters which do not account for vulnerable groups such as children, the elderly, the sick and other groups that might have increased susceptibility to glyphosate exposure.”

“Concerns Over Glyphosate Use"
*The Sun* (Malaysia), Friday August 20, 1999
http://www.poptel.org.uk/panap/archives/glywb.htm

Response: The link provided is broken and we were not able to review the site. The summary provided reports on studies that looked at possible mutagenicity of glyphosate, specifically Roundup and other glyphosate formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Safety Testing Opposing View #74 - “To protect our health, the U.S. Environmental Protection Agency (EPA) sets maximum legal residue levels for every pesticide, for dozens of crops. But a new study in the respected journal *Toxicology* has shown that, at low levels that are currently legal on our food, Roundup could cause DNA damage, endocrine disruption and cell death. The study, conducted by French researchers, shows glyphosate-based herbicides are toxic to human reproductive cells.”
“Solvents and surfactants, legally considered ‘inert ingredients,’ are mixed with glyphosate in products such as Roundup weed killer to create chemical formulations that increase mobility and more direct access to the cells. ‘Those same factors that aid penetration into a plant, also aid penetration into the skin,’ says Vincent Garry, professor emeritus of pathology at the University of Minnesota. ‘These chemicals are designed to kill cells.’ ”

“Herbicide manufacturers are subject to fewer rules in the testing of inert ingredients than they are for active ingredients, explains Caroline Cox, research director at the Center for Environmental Health in Oakland, Calif. ‘The tests the EPA requires for inert ingredients cover only a small range of potential health problems,’ Cox says. ‘Testing for birth defects, cancer and genetic damage are required only on the active ingredients. But we’re exposed to both.’ ”

“ ‘Our bodies are gigantic spider webs of chemical communications that work in the parts-per-trillion range,’ says Warren Porter, professor of zoology and environmental toxicology at the University of Wisconsin. ‘When you put so-called ‘insignificant’ amounts of toxic chemicals into the mix, you have a molecular bull in a china shop. The possibilities for impact are endless.’ ”

Kimble-Evans, Amanda

“Roundup Kills more than Weeds”
*Mother Earth News*, December 2009/January 2010


Response: The link reports on studies linking the application of Roundup on agricultural crops with human health effects. The project does not propose to use herbicide treatment on crops. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Herbicide Safety Testing Opposing View #75 - “Glyphosate is of relatively low oral and dermal acute toxicity. It has been placed in Toxicity Category III for these effects (Toxicity Category I indicates the highest degree of acute toxicity, and Category IV the lowest). The acute inhalation toxicity study was waived because glyphosate is nonvolatile and because adequate inhalation studies with end-use products exist showing low toxicity.” (Pg. 2)

“Glyphosate does not cause mutations.” (Pg. 2)

“EPA conducted a dietary risk assessment for glyphosate based on a worst-case risk scenario, that is, assuming that 100 percent of all possible commodities/acreage were treated, and assuming that tolerance-level residues remained in/on all treated commodities. The Agency concluded that the chronic dietary risk posed by glyphosate food uses is minimal.” (Pg. 3)

“Occupational and residential exposure to glyphosate can be expected based on its currently registered uses. However, due to glyphosate’s low acute toxicity and the absence of other toxicological concerns (especially carcinogenicity), occupational and residential exposure data are not required for reregistration.” (Pg. 3)

“Glyphosate is no more than slightly toxic to birds and is practically nontoxic to fish, aquatic invertebrates and honeybees. Due to the presence of a toxic inert ingredient, some glyphosate end-use products must be labeled, ‘Toxic to fish,’ if they may be applied directly to aquatic environments. Product labeling does not preclude off-target movement of glyphosate by drift. EPA therefore is requiring three additional terrestrial plant studies to assess potential risks to nontarget plants.
EPA does not expect that most endangered terrestrial or aquatic organisms will be affected by the registered uses of glyphosate.” (Pg. 4)

“Based on current data, EPA has determined that the effects of glyphosate on birds, mammals, fish and invertebrates are minimal.” (Pg. 5)

“Regulatory Conclusion
The use of currently registered pesticide products containing the isopropylamine and sodium salts of glyphosate in accordance with the labeling specified in this RED will not pose unreasonable risks or adverse effects to humans or the environment. Therefore, all uses of these products are eligible for reregistration.” (Pg. 6)

“R.E.D. FACTS Glyphosate”
EPA publication - EPA-738-F-93-011, September 1993
http://www.epa.gov/oppsrrd1/REDs/factsheets/0178fact.pdf

Response: Comment noted.

Herbicide Safety Testing Opposing View #76 - “The findings of Richard et al. (2005) are an important addition to our understanding that the health and environmental effects of formulated pesticide products are not fully reflected in tests conducted on the active ingredient(s) alone. It has been long known that the adjuvants (commonly and misleadingly called "inert" ingredients) may be toxic and may enhance or supplement the toxic effects of the active pesticidal ingredient.

In the case of glyphosate-containing products, this phenomenon was well demonstrated in the data submitted to the (EPA) by the registrant (Monsanto), and summarized by the U.S. EPA in the Reregistration Eligibility Document (RED) for glyphosate (U.S. EPA 1993). For example,
based on the registrant's own tests of acute toxicity to freshwater fish, the U.S. EPA classified technical grade glyphosate as "slightly toxic" to "practically non-toxic" and formulated products ranged from "moderately toxic" to "practically non-toxic." Tested alone, the surfactant adjuvant (identified as "inert") was "highly toxic" to "slightly toxic." Similar differences were reported in tests of acute toxicity to freshwater invertebrates.

Based in part on the data in the glyphosate RED (U.S. EPA 1993), the New York State Attorney General's office successfully pursued an action against Monsanto in 1996 (Attorney General of the State of New York 1996). At that time, Monsanto was making advertising claims about the toxicity of the Roundup products based on data from tests on the active ingredient alone. Such claims are scientifically unfounded and inherently deceptive. The Attorney General's action was facilitated by the availability of at least some limited information about the inert ingredients and their toxicity. That same sort of information enabled Richard et al. (2005) to conduct their study.

Unfortunately, that is not always the case, and for many pesticide products, little or no information about the identity of inert ingredients is publicly available. Registrants are generally required to conduct acute toxicity tests on formulated products, but they traditionally conduct chronic toxicity tests on the active ingredient alone. Even when formulated products are tested, the identity of inert ingredients is rarely revealed in the open literature, publicly available regulatory documents, or product labels. Therefore, independent research is stymied, and the public is ill-informed in the marketplace.

Séralini, Gilles-Eric “Issue: Cumulative Impacts to Amphibians Species” A Laboratoire de Biochimie et Biologie Moleculaire publication, Université de Caen, February 2006 http://www.signaloflove.org/clearcutting/reportSeralis/cumulativeimpactstoamphibian

Response: The link provided is broken and we could not review the contents. From the summary provided by the commenter it appears the issue discussed concerns the effects of glyphosate formulations containing the surfactant POEA on amphibians. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Herbicide Safety Testing Opposing View #77 - “FACT: The EPA (Environmental Protection Agency) does not test pesticides for safety. It relies on the manufacturers’ test data to make judgments. Recent probes have found that the experiments on which these data have been based, have been designed to show only what the manufacturer would like them to show. This criticism of self-serving misrepresentation can be aimed equally validly at irresponsible experimenters bent on demonstrating toxicity of a given pesticide.

It seems that however this problem is approached, the EPA needs to take more affirmative action and responsibility. This is not likely to happen, as the EPA’s research program increasingly relies on corporate joint venture, according to agency documents obtained by Public Employees for Environmental Responsibility (PEER). Indeed, a study by the Government Accountability Office (the investigative arm of Congress – the same people who first told us of the $640 toilet seats and $1,000 hammers purchased with Department of Defense money), in April 2005, concluded that the EPA lacks safeguards to “evaluate or manage potential conflicts of interest” in corporate research agreements, as they are taking money from corporations that they are supposed to be regulating.”

“MYTH: The Government tests pesticides for safety before they are sold”
Wild Ones Journal, Nov 17, 2006
http://www.for-wild.org/download/roundupmyth/roundupmyth.html

Response: Comment noted.
Herbicide Safety Testing Opposing View #78 - “FACT: The primary focus of the Federal Insecticide, Fungicide, and Rodenticide Act, originally enacted in 1947, was to provide federal control of pesticide distribution, sale, and use. The act has been amended many times over the years. One of these amendments permitted manufacturers protection of trade secrets. It is under these provisions that manufacturers circumvent a law that originally intended all information to be known – at least by the EPA. The fact that today, with mass spectrometers, chemistry can determine the makeup of the inert ingredients, leaves only the end consumer in the dark.

In 1990 the Office of the Attorney General of New York filed a request that all inert ingredients in pesticides be made public. The request was repeated a number of times through the decade, to no avail. Sixteen years later, in August of 2006, the attorneys general of 14 states have filed a similar petition to the EPA. This time the EPA is obliged to respond within a given time period.”

“MYTH: There are laws...”
Wild Ones Journal, Nov 17, 2006
http://www.for-wild.org/download/roundupmyth/roundupmyth.html

Response: Comment noted.
Herbicide Safety Testing Opposing View #79 - "A recent study by eminent oncologists Dr. Lennart Hardell and Dr. Mikael Eriksson of Sweden [1], has revealed clear links between one of the world's biggest selling herbicide, glyphosate, to non-Hodgkin's lymphoma, a form of cancer [2]."

“In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies.' “

“O Neill concluded: 'The EPA when authorising Monsanto's field trials for Roundup-ready sugar beet did not consider the issue of glyphosate. They considered this to be the remit of the Pesticides Control Service of the Department of Agriculture. Thus nobody has included the effects of increasing the use of glyphosate in the risk/benefit analysis carried out. It is yet another example of how regulatory authorities supposedly protecting public health have failed to implement the 'precautionary principle' with respect to GMOs.' “

O Neill, Sadhbh “RoundUp—Lymphoma Connection”
Genetic Concern, June 22, 1999
http://www.hancock.forests.org.au/docs/herbicidesUpdate0602.htm

Response: The link provided is broken and we could not review the contents. Studies cited by the commenter look at possible mutagenicity of glyphosate, focusing on Roundup and other glyphosate formulations that contain surfactants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Herbicide Safety Testing Opposing View #80 - “Glyphosate-containing products are acutely toxic to animals, including humans. Symptoms include eye and skin irritation, cardiac depression, gastrointestinal pain, vomiting, and accumulation of excess fluid in the lungs. The surfactant used in a common glyphosate product (Roundup) is more acutely toxic than glyphosate itself; the combination of the two is yet more toxic.”

“Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices.”

“Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT). Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data." “

“IBT was one of the largest laboratories performing tests in support of pesticide registrations. About 30 tests on glyphosate and glyphosate-containing products were performed by IBT, including 11 of the 19 chronic toxicology studies. A compelling example of the poor quality of IBT data comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination." (Emphasis added.)

“In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results. "Tricks" employed by Craven Labs included "falsifying laboratory notebook entries" and "manually manipulating scientific equipment to produce false reports." Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question.”

“The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges. The owner was sentenced to five years in prison and fined $50,000; Craven...
Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution.”

Cox, Caroline. “Glyphosate, Part 1: Toxicology”
Journal of Pesticide Reform, Volume 15, Number 3, Fall 1995
http://terrazul.org/Archivo/Glyphosate_Fact_Sheets.pdf

Response: The link summarizes toxicology results for glyphosate, largely focused on formulations that contain surfactants. These formulations have been shown to effect organism at a lower concentration than glyphosate alone. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Safety Testing Opposing View #81 - “EPA Investigates Monsanto

An internal memorandum by an official of the U.S. Environmental Protection Agency [EPA], has accused EPA of conducting a "fraudulent" criminal investigation of Monsanto, the St. Louis chemical corporation. [1] The 30-page memo, from William Sanjour to his supervisor, David Bussard, dated July 20, 1994, describes a two-year-long criminal investigation of Monsanto by EPA's Office of Criminal Investigation (OCI).

The Sanjour memo says EPA opened its investigation on August 20, 1990 and formally closed it on August 7, 1992. "However, the investigation itself and the basis for closing the investigation were fraudulent," the Sanjour memo says.

According to the Sanjour memo:
EPA's investigation of Monsanto was precipitated by a memo dated February 23, 1990, from EPA's Dr. Cate Jenkins to Raymond Loehr, head of EPA's Science Advisory Board.

The Jenkins memo said that EPA had set dioxin standards relying on flawed Monsanto-sponsored studies of Monsanto workers exposed to dioxin, studies that had showed no cancer increases among heavily exposed workers.

Attached to the Jenkins memo was a portion of a legal brief filed by the plaintiffs as part of a trial known as Kemner v. Monsanto, in which a group of citizens in Sturgeon, Missouri had sued Monsanto for alleged injuries they had suffered during a chemical spill caused by a train derailment in 1979.

The Jenkins memo had not requested a criminal investigation; instead Jenkins had suggested the need for a scientific investigation of Monsanto's dioxin studies. But in August 1990, EPA's Office of Criminal Investigation (OCI) wrote a 7-page memo recommending that a "full field criminal investigation be initiated by OCI."

Plaintiffs in the Kemner suit made the following kinds of allegations (which we quote verbatim from the Sanjour memo):

"Monsanto failed to notify and lied to its workers about the presence and danger of dioxin in its chlorophenol plant, so that it would not have to bear the expense of changing its manufacturing process or lose customers;...

"Monsanto knowingly dumped 30 to 40 pounds of dioxin a day into the Mississippi River between 1970 and 1977 which could enter the St. Louis food chain;

"Monsanto lied to EPA that it had no knowledge that its plant effluent contained dioxin;

"Monsanto secretly tested the corpses of people killed by accident in St. Louis for the presence of dioxin and found it in every case;..."
"Lysol, a product made from Monsanto's Santophen, was contaminated with dioxin with Monsanto's knowledge." [The Sanjour memo says that, at the time of the contamination, "Lysol (was) recommended for cleaning babies' toys and for other cleaning activities involving human contact."]

"The manufacturer of Lysol was not told about the dioxin by Monsanto for fear of losing his business;

"Other companies using Santophen, who specifically asked about the presence of dioxin, were lied to by Monsanto;

"Shortly after a spill in the Monsanto chlorophenol plant, OSHA measured dioxin on the plant walls. Monsanto conducted its own measurements, which were higher than OSHA's, but they issued a press release to the public and they lied to OSHA and their workers saying they had failed to confirm OSHA's findings;

"Exposed Monsanto workers were not told of the presence of dioxin and were not given protective clothing even though the company was aware of the dangers of dioxin;

"Even though the Toxic Substances Control Act requires chemical companies to report the presence of hazardous substances in their products to EPA, Monsanto never gave notice and lied to EPA in reports;

"At one time Monsanto lied to EPA saying that it could not test its products for dioxin because dioxin was too toxic to handle in its labs."...

“EPA Investigates Monsanto”
RACHEL’S HAZARDOUS WASTE NEWS #400, July 28, 1994
http://www.ejnet.org/rachel/rhwn400.htm

Response: Comment noted.
Herbicide Safety Testing Opposing View #82 - “A study by French researchers at the University of Caen of glyphosate residue discovered that the inert ingredients in the herbicide (solvents, preservatives, surfactants) increased the toxic effect on human cells. According to the researchers, glyphosate residue can cause birth defects.

“This clearly confirms that the [inert ingredients] in Roundup formulations are not inert,” wrote the study authors. “Moreover, the proprietary mixtures available on the market could cause cell damage and even death [at the] residual levels” found on Roundup-treated crops.”

“Another study by Argentine scientists also found that glyphosate can cause birth defects at doses considerably lower than what is commonly used on crops, in this case, soybeans. The researchers injected amphibian embryo cells with glyphosate diluted to a concentration 1,500 times less than what is used commercially. The embryos grew into tadpoles with obvious birth defects.”

“A 2001 study by Swedish oncologists discovered links between non-Hodgkin’s lymphoma and glyphosate. The Swedish researchers found that Swedish people with non-Hodgkin’s lymphoma were 2.3 times more likely to be exposed to glyphosate.

Monsanto spokesperson John Combest defended the safety of Roundup. “Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that’s out there. It’s used in public parks, it’s used to protect schools. There’s been a great deal of study on Roundup, and we’re very proud of its performance.” “

Cheeseman, Gina-Marie, “Can A Company That
Makes Roundup Be Sustainable?”

*TriplePundit*, November 20th, 2009


Response: The link reports on studies linking the application of Roundup with human health effects. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Safety Testing Opposing View #83 - “Over twenty years ago, the dangers of Monsanto's glyphosate as well as its associated GMOs were known scientifically to cause human health difficulties and Swedish researchers years ago in the Journal 'Cancer' noted glyphosate was connected to human cancer. Anyway, many scientists and public health workers researching it were fired. It's a mad empire's rush--the U.S empire and its corporate proxies--to desire (hell, the reality of) to own the world's food and dominate the whole world. It is destroying thousands of years of biodiversity security in the process. And Monsanto's empire of glyphosate is in virtually everything in the USA and worldwide. One foolish company, one corrupt federal government of the USA. Everyone should learn more about Monsanto in the film "The World According to Monsanto." (90 minutes). Monsanto's corporate contract should be revoked for endangering world health and killing off global crop biodiversity of thousands of years of work destroyed in one generation--in the mad rush to dominate the whole world's biodiversity.

Monsanto and the USA will go down in history as the organizations that caused most biological devastation and human suffering in human history.”
“MONSANTO RoundUp (glyphosate) Empire causes BIRTH DEFECTS...in amphibian embryos, humans?”

Portland independent media center, May 3, 2009

Response: The link reports on studies which looked at the application of Roundup on genetically-modified crops and their potential human health effects. The project would not treat crop plants with herbicide. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Safety Testing Opposing View #84 - “BUENOS AIRES, Apr 15, 2009 (IPS) - Glyphosate, the herbicide used on soybeans in Argentina, causes malformations in amphibian embryos, say scientists here who revealed the findings of a study that has not yet been published.”

“The observed deformations are consistent and systematic,” Professor Andrés Carrasco, director of the Laboratory of Molecular Embryology at the University of Buenos Aires medical school and lead researcher on the National Council of Scientific and Technical Research (CONICET), told the Inter Press Service news agency IPS.

Reduced head size, genetic alterations in the central nervous system, an increase in the death of cells that help form the skull, and deformed cartilage were effects that were repeatedly found in the laboratory experiments, said the biologist.

The news was reported Monday by the Argentine newspaper Página 12.

Monsanto’s head of communications in Argentina, Fernanda Pérez Cometto, told IPS that the company has “several studies that show that the herbicide is harmless to humans, animals and the environment.”

Response: The link reports on studies which looked at the application of Roundup on genetically-modified crops and their potential human health effects. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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Herbicide Safety Testing Opposing View #85 - “It’s amazing how many organics people still think it’s OK to just use a bit of Roundup on those weeds in the bush or the driveway, or …. of course, not on the food, but the bush, that’s OK isn’t it?

Well, no, actually it isn’t, and here’s why: Roundup and various other formulations of the active ingredient glyphosate, have the potential to cause serious health and environmental effects, and have caused some severe poisoning problems.

Thorough PR by the developer of Roundup, Monsanto, has resulted in the widespread belief that glyphosate is ‘safe’. Registration processes have generally supported this attitude, and there are no national or international bans. However, independent scientific studies and widespread poisonings in Latin America resulting from aerial application are beginning to reveal the true effects of the world’s most widely used herbicide.”

Watts, Meriel Ph.D. “Roundup’s Not OK”
ORGANIC NZ, November/December 2009
http://www.livingorganics.co.nz/roundups-not-ok.php

Response: The link provided is broken and we could not review the contents. From the summary provided by the commenter it appears to report on studies which looked at the application of Roundup on genetically-modified crops and their potential human health effects. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only
glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Safety Testing Opposing View #86 - Research on genetically modified seeds is still published, of course. But only studies that the seed companies have approved ever see the light of a peer-reviewed journal. In a number of cases, experiments that had the implicit go-ahead from the seed company were later blocked from publication because the results were not flattering. "It is important to understand that it is not always simply a matter of blanket denial of all research requests, which is bad enough," wrote Elson J. Shields, an entomologist at Cornell University, in a letter to an official at the Environmental Protection Agency (the body tasked with regulating the environmental consequences of genetically modified crops), "but selective denials and permissions based on industry perceptions of how 'friendly' or 'hostile' a particular scientist may be toward [seed-enhancement] technology."

Shields is the spokesperson for a group of 24 corn insect scientists that opposes these practices. Because the scientists rely on the cooperation of the companies for their research - they must, after all, gain access to the seeds for studies - most have chosen to remain anonymous for fear of reprisals. The group has submitted a statement to the EPA protesting that "as a result of restricted access, no truly independent research can be legally conducted on many critical questions regarding the technology."

It would be chilling enough if any other type of company were able to prevent independent researchers from testing its wares and reporting what they find - imagine car companies trying to quash head-to-head model comparisons done by Consumer Reports, for example. But when scientists are prevented from examining the raw ingredients in our nation’s food supply or from testing the plant material that covers a large portion of the
country’s agricultural land, the restrictions on free inquiry become dangerous.

“Do Seed Companies Control GM Crop Research?”
Reprinted by Combat-Monsanto.org
http://www.combat-monsanto.co.uk/spip.php?article399

Response: Comment noted.

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Herbicide Safety Testing Opposing View #87 - “France’s highest court has ruled that U.S. agrochemical giant Monsanto had not told the truth about the safety of its best-selling weed-killer, Roundup. The court confirmed an earlier judgment that Monsanto had falsely advertised its herbicide as “biodegradable” and claimed it “left the soil clean.” Roundup is the world’s best-selling herbicide.

French environmental groups had brought the case in 2001 on the basis that glyphosate, Roundup’s main ingredient, is classed as “dangerous for the environment” by the European Union.

In the latest ruling, France’s Supreme Court upheld two earlier convictions against Monsanto by the Lyon criminal court in 2007, and the Lyon court of appeal in 2008, the AFP news agency reports.

Monsanto already dominates America’s food chain with its genetically modified seeds. Now it has targeted milk production. Just as frightening as the corporation’s tactics, including ruthless legal battles against small farmers, is its decades-long history of toxic contamination.”

France Finds Monsanto Guilty of Lying
Infowars Ireland, November 23, 2009

Response: Comment noted.

Herbicide Safety Testing Opposing View #88 - “Monsanto created Roundup in the 1970’s to kill weeds and has since catapulted this product to be the world’s number one selling herbicide. Before the patent on Roundup was set to expire in 2000, Monsanto needed a surefire way to keep the profits of Roundup from bottoming out. Monsanto quickly began purchasing the majority of the world's seed companies while simultaneously creating GMOs that farmers needed to sign contractual agreements to only use Roundup. Subsequently, revenue from Roundup never dropped and in fact topped more than $4 billion in 2008, up 59% from 2007 [2].

GM-soy is estimated to be present in up to 70% of all food products found in US supermarkets, including cereals, breads, soymilk, pasta and most meat (as animals are fed GM-soy feed). Although Monsanto has consistently relied on industry-funded data to declare the safety of GM-soy and glyphosate, objective research published in peer-reviewed journals tells another story.

Toxicity of Glyphosate
A recently published study by Italian researchers [3] examined the toxicity of four popular glyphosate based herbicide formulations on human placental cells, kidney cells, embryonic cells and neonate umbilical cord cells and surprisingly found total cell death of each of these cells within 24 hours. The researchers reported several mechanisms by which the herbicides caused the cells to die including: cell membrane rupture and damage, mitochondrial damage and cell asphyxia. Following these findings, the researchers tested G, AMPA and POEA by themselves and
concluded that, "It is very clear that if G, POEA, or AMPA has a small toxic effect on embryonic cells alone at low levels, the combination of two of them at the same final concentration is significantly deleterious."

Damato, Gregory Ph.D., “**GM-Soy: Destroy the Earth and Humans for Profit**”
Fourwinds10.com, May 27, 2009

Response: The link reports on the use of glyphosate formulations containing surfactants on genetically engineered crops the associated effects to human cell types. The project does not propose to treat any crop plants with herbicide. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

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**Herbicide Safety Testing Opposing View #89** - "If you're still not convinced that Roundup is a highly toxic and persistent pesticide, read on, while at the same time remembering the other contributions that Monsanto has made to society such as:

Saccharin, Astroturf, agent orange, dioxin, sulphuric acid, polychlorinated biphenyls (PCBs), plastics and synthetic fabrics, research on uranium for the Manhattan Project that led to the construction of nuclear bombs, styrene monomer, an endless line of pesticides and herbicides (Roundup), rBGH (recombinant bovine growth hormone that makes cows ill), genetically engineered crops (corn, potatoes, tomatoes, soy beans, cotton), and it's most significant product to date; **Lies, Factual Distortions and Omissions.** Here's one of the distortions that Monsanto had on its website a while back. ‘Sustainability - the idea that the resources and people of this world are finite. That for any business decision we make, we must consider the effect it will have on us and our children. That the products we
make must not use up all of a natural resource, or even worse, contaminate what is left behind.’ "

“Everything you Never Wanted to Know about Monsanto’s Modus Operandi (M.O.)”
Mindfully.org
http://www.mindfully.org/Pesticide/Monsanto-Roundup-Glyphosate.htm

Response: Comment noted.

Herbicide Safety Testing Opposing View #90 - “ "The U.S. response (to questions about biotech crop safety) has been an extremely patronizing one. They say 'We know best, trust us,'" added Gurian-Sherman, now a senior scientist at the Union of Concerned Scientists, a nonprofit environmental group.”

“So far, that confidence has been lacking. Courts have cited regulators for failing to do their jobs properly and advisers and auditors have sought sweeping changes.”

“The developers of these crop technologies, including Monsanto and its chief rival DuPont, tightly curtail independent scientists from conducting their own studies. Because the companies patent their genetic alterations, outsiders are barred from testing the biotech seeds without company approvals.”

“The agreements disallow any research that is not first approved by the companies. "No truly independent research can be legally conducted on many critical questions regarding the technology," the scientists said in their statement.”
“Outside researchers have also raised concerns over the years that glyphosate use may be linked to cancer, miscarriages and other health problems in people.”

Gillam, Carey “Patents Trump Public Interest in Monsanto's Ag Empire - Special Report: Are Regulators Dropping the Ball on Biocrops?”

Reuters, April 13, 2010
http://www.commondreams.org/headline/2010/04/13-0

Response: Comment noted.

Herbicide Safety Testing Opposing View #91 - “Defining Toxic Asbestos is an extreme example, which I use here and in my book *Pick Your Poison: How Our Mad Dash to Chemical Utopia is Making Lab Rats of Us All* to make a point, but many other “nontoxic” products could be full of toxic chemicals. I’m hoping this essay leaves you with a general distrust of the nontoxic label, both in the past and currently. When you see “nontoxic” on a product, keep the following facts in mind:

- “Nontoxic” can still legally mean that there are no immediate, acute hazards as determined by the LD50 and LC50 tests.

- “Nontoxic” may mean there are little or no chronic data available on the substance. If the substance is not acutely toxic, and one can’t prove it is toxic in the long term, many manufacturers feel that they have the right to call it nontoxic. Even if there are studies showing that the substance is toxic, manufacturers in the United States have traditionally waited for absolute, unequivocal proof, which in most cases is never available because we don’t study our chemicals.
• An art material is “nontoxic” if a toxicologist paid by the manufacturer
decides it is safe. The dramatic failure in this labeling procedure was
illustrated with the lead ceramic glazes and asbestos-containing
materials such as talc. Asbestos-containing talcs are still found in
some art and craft materials today.

Some art materials that have never been evaluated by a toxicologist
may be labeled “nontoxic” illegally due to weak enforcement of the art
materials labeling law. For example, in 1995, a cameraman and a
reporter from Channel 9 in New York went with me to a major art
materials outlet. That night on the evening news, we showed viewers
about a dozen imported products that did not conform to the law, some
labeled “nontoxic,” which were being sold illegally. This is still true
today, and a little research will lead you to many sources of
noncompliant “nontoxic” products.

• Labeling of ordinary consumer products is pretty much up to the
manufacturer and its paid advisers. Because there is no enforcement
mechanism in the regulations for the chronic hazard labeling of
ordinary consumer products, there is not much incentive to provide
warnings.

• There is no regulatory requirement to warn consumers about damage
to most of the body’s organs, such as the lungs, the liver, and the
kidneys. Only four types of chronic hazards are covered by the
Federal Hazardous Substances Act regulations. These are cancer,
and developmental, reproductive, and neurological damage.”

Rossol, Monona “Say What? A Chemical Can Damage Your Lungs, Liver and Kidneys
and Still Be Labeled "Non-Toxic"?
Ms. Rossol is a research chemist, author and member of the American Industrial
Hygiene Association
May 9, 2011
http://www.alternet.org/story/150888/say_what_a_chemical_can_damage_your_lungs%2C_liver_and_kidneys_and_still_be_labeled_%22non-toxic%22?page=entire

Response: Comment noted.
## Herbicide Safety Testing Opposing View #92 -

<table>
<thead>
<tr>
<th>Monsanto's Claims</th>
<th>Independent Research Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup has a low irritational potential for eye and skin and otherwise is not a risk to human health.</td>
<td>Roundup is amongst the top most reported pesticides causing poisoning incidents (mainly skin irritation) in several countries. It also causes a range of acute symptoms including, recurrent eczema, respiratory problems, elevated blood pressure, allergic reactions.</td>
</tr>
<tr>
<td>Roundup does not cause any adverse reproductive effects</td>
<td>In laboratory tests on rabbits glyphosate caused long lasting, harmful effects on semen quality and sperm counts.</td>
</tr>
<tr>
<td>Roundup is not mutagenic in mammals.</td>
<td>DNA damage has been observed in laboratory experiments in mice organs and tissue.</td>
</tr>
</tbody>
</table>
| Roundup is environmentally safe.                       | • In the agricultural environment, glyphosate is toxic to some beneficial soil organisms, beneficial arthropod predators, and increases crops’ susceptibility to diseases.  
  • Sub-lethal doses of glyphosate from spray drift damages wildflower communities and can affect some species up to 20 metres away from the sprayer.  
  • The use of glyphosate in arable areas may cause dieback in hedgerow trees. |
| Roundup is rapidly inactivated in soil and water.      | • Glyphosate is very persistent in soils and sediments.                                          
  • Glyphosate inhibited the formation of nitrogen fixing nodules on clover for 120 days after treatment.  
  • Glyphosate residues were found in lettuce, carrot, and barley when planted a year after glyphosate was applied. |
| Roundup is immobile and does not leach from soils.     | • Glyphosate can readily desorb from soil particles in a range of soil types. It can be extensively mobile and leach to lower soil layers.  
  • Glyphosate can be carried by soil particles suspended in run off. |
| Roundup does not                                       | In the UK, levels of glyphosate above the EU                                                    |
contaminate drinking water when used by local authorities on hard surfaces. Limit have been detected by the Welsh Water Company every year since 1993. The Drinking Water Inspectorate recommends that glyphosate be monitored, particularly, in areas where it is used by local authorities on hard surfaces.

It is nearly impossible for glyphosate resistance to evolve in weeds. In 1996, glyphosate resistant ryegrass was discovered in Australia.

Outcrossing in oilseed rape crops (and the transfer of genes from transgenic crops) occurs over a short distance and can be easily managed. The densities of oil seed rape pollen are much higher and their dispersal patterns differ from around large fields compared to those found in experimental plots. Wind dispersal of pollen occurs over much greater distances and at higher concentrations than predicted by experimental plots. Significant levels of gene flow from transgenic oil seed crops is inevitable.

Roundup Ready crops will reduce levels of herbicide use. Herbicide resistant crops will intensify and increase dependency on herbicide use in agriculture rather than lead to any significant reductions. A variety of herbicides will have to be reintroduced to control glyphosate resistant volunteers, feral populations of crops and resistant weeds.

Source: References cited in Health and Environmental Impacts of Glyphosate, (Details available from the Pesticides Trust [now PAN UK]).

PAN UK “Resistance to glyphosate”

This data was first published in Pesticides News No. 41, September 1998, page 5 http://www.pan-uk.org/pestnews/Issue/pn41/PN41p5.htm

Response: Comment noted.
Conclusion

The results of independent, unbiased research on glyphosate-containing herbicides indicate this chemical is causing: birth defects, non-Hodgkin’s lymphoma, mitochondrial damage, cell asphyxia, miscarriages, attention deficit disorder, endocrine disruption, DNA damage, skin tumors, thyroid damage, hairy cell leukemia, Parkinson disease, premature births, decrease in the sperm count, harm to the immune system in fish, death of liver cells, severe reproductive system disruptions and chromosomal damage.

Non-native plants are causing havoc to the native forest ecosystems. However, this does not justify inflicting mammals & birds (including human visitors to the forest) with one of the many physical problems listed above. Fish? Just a minor amount of spray that contact water will kill aquatic life.

It’s unethical and unprofessional to apply this tragic poison to land owned by other people just because the forest service’s dated approval documents say it’s OK.

There are more costly (yet equally effective) alternatives to deadly herbicides when eradicating non-native plants. Please use them. This is a government expenditure that the public would support.

Last, please read Dan Rather’s very recent September 22, 2011 investigative report about the EPA’s corrupt approval process of man-made chemicals:

http://www.panna.org/blog/dan-rather-pesticides-bees
Response: Comment noted. Almost all of the citations provided that concern human health effects of glyphosate focus on formulations, such as Roundup which contain adjuvants, including POEA surfactant. We are aware of these studies and the project proposes to use glyphosate formulations that do not already contain surfactants. A surfactant that has a toxicity level for mammals that is equivalent to glyphosate and is less toxic to aquatic organisms than glyphosate would be added at the time of application.

Opposing Views
Attachment #11

ANY Project NEPA Document where One Purpose of the Proposed Project is to Reduce the Risk of Fire Damage to Homes in the Wildland Urban Interface (WUI) must Analyze a Dr. Jack Cohen Alternative in Detail. The Responsible Official is Liable for Civil Penalties if he/she is Aware of Dr. Cohen’s Work and Rejects it without Analysis.

Dr. Cohen’s background
Dr. Jack Cohen is a research fire physicist who does his research in the Forest Service’s Missoula Fire Sciences Laboratory at the Rocky Mountain Research Station. Dr. Cohen is a Forest Service employee. His research findings clearly show that commercial logging to reduce fuels will not protect homes from wildfire damage in the Wildland Urban Interface (WUI).
Dr. Cohen’s Research Findings Represent Best Science

Dr. Cohen is likely the only Ph.D. fire physicist in America who specializes in determining the best actions to reduce the risk of wildfire damage to homes. Dr. Cohen is a well published scientist-author. He has published 12 peer-reviewed scientific papers summarizing his research findings. Below are the names and links to the 12 scientific papers authored by Dr. Cohen.

Dr. Cohen’s opposing view #1 - “Research results indicate that the home and its immediate surroundings within 100-200 feet (30-60 meters) principally determines the home ignition potential during severe wildland-urban fires. Research has also established that fire is an intrinsic ecological process of nearly all North American ecosystems. Together, this understanding forms the basis for a compelling argument for a different approach to addressing the wildland-urban fire problem.” (Pg. 1 – abstract)

Source: Wildland-Urban Fire—A different approach
http://www.nps.gov/fire/download/pub_pub_wildlandurbanfire.pdf

Response: CCRD-The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk. The Forest has a responsibility to reduce fire risks as well, especially in conjunction with harvest activities. The Proposed WUI fuels treatment (6 acres) is within 300 feet of a private residence, which is in accordance with Cohen’s methods.
Dr. Cohen’s opposing view #2 - “A senior physicist at the Stanford Research Institute, C.P. Butler (1974), coined the term "urban-wildland interface" and described this fire problem as follows:

"In its simplest terms, the fire interface is any point where the fuel feeding a wildfire changes from natural (wildland) fuel to man-made (urban) fuel." (Pg. 1)

Response: Comment noted.

Dr. Cohen’s opposing view #3 - “The results of the diverse analytical methods are congruent and consistently indicate that ignitions from flames occur over relatively short distances--tens of meters not hundreds of meters. The severe-case estimate of SIAM indicates distances of 40 meters or less. Experimental wood walls did not ignite at 10 meters when exposed to experimental crown fires. And, case studies found that vegetation clearance of at least 10 meters was associated with a high occurrence of home survival.” (Pg. 4)

Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #4 - “Analyses of southern California home losses done by the Stanford Research Institute for the 1961 Belair-Brentwood Fire (Howard and others 1973) and by the University of
California, Berkeley, for the 1990 Painted Cave Fire (Foote and Gilless 1996) are consistent with SIAM estimates and the experimental crown fire data. Given nonflammable roofs, Stanford Research Institute (Howard and others 1973) found a 95 percent survival with a clearance of 10 to 18 meters and Foote and Gilless (1996) at Berkeley, found 86 percent home survival with a clearance of 10 meters or more.” (Pgs. 3 and 4)

Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #5 - “Extensive wildland vegetation management does not effectively change home ignitability.” (Pg. 5)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.

Dr. Cohen’s opposing view #6 - “Home ignitability also dictates that effective mitigating actions focus on the home and its immediate surroundings rather than on extensive wildland fuel management. Because homeowners typically assert their authority for the home and its immediate surroundings, the responsibility for effectively reducing home ignitability can only reside with the property owner rather than wildland agencies.” (Pg. 5)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres. The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.
Dr. Cohen’s opposing view #7 - “As stated, the evidence indicates that home ignitions depend on the home materials and design and only those flammables within a few tens of meters of the home (home ignitability). The wildland fuel characteristics beyond the home site have little if any significance to WUI home fire losses.” (Pg. 5)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.

Dr. Cohen’s opposing view #8 - “Home ignitability implies that homeowners have the ultimate responsibility for WUI home fire loss potential. As shown, the ignition and flammability characteristics of a structure and its immediate surroundings determine the home fire loss potential. Thus, the home should not be considered a victim of wildland fire, but rather a potential participant in the continuation of the wildland fire. Home ignitability, i.e., the potential for WUI home fire loss, is the homeowner's choice and responsibility.” (Pg. 5)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres. The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #9 - “However, public and management perceptions may impede homeowners from taking principal responsibility. For example, the Federal Wildland Fire Management, Policy and Program Review (1995) observes, ‘There is a widespread misconception by elected officials, agency managers, and the public that wildland/urban interface protection is solely a fire service concern.’ In a Journal of Forestry article,
Beebe and Omi (1993) concur, stating that, ‘Public reaction to wildfire suggests that many Americans want competent professionals to manage fire flawlessly, reducing the risks to life, property, and public lands to nil.’ These statements agree with Bradshaw's (1988) description of the societal roles in the WUI problem. He observes that homeowners expect that fire protection will be provided by others. Contrary to these expectations for fire protection, the fire services have neither the resources for effectively protecting highly ignitable homes during severe WUI fires, nor the authority to reduce home ignitability.” (Pg. 6)


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**Response:** The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres. The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

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**Dr. Cohen’s opposing view #10** - “Vegetation management beyond the structure's immediate vicinity has little effect on structure ignitions. That is, vegetation management adjacent to the structure would prevent ignitions from flame exposure; but vegetation management away from the structure would not affect ignition from flame exposure and would not significantly reduce ignitions from firebrands.” (Pg. 4)

**Response:** The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI...
would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.

Dr. Cohen’s opposing view #11 - “Past reports and recommendations as well as experimental research and modeling suggest that W-UI fire-loss mitigation should concentrate on the residence and its immediate surroundings. Any strategy for effectively reducing the W-UI fire problem must initially focus on residential fire resistance.” (Pg. 5 – Conclusion)

Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #12 - “Instead of all fire protection responsibilities residing with fire agencies, homeowners take responsibility for assuring firewise conditions and the initial fire defense of their residences during wildland fires. The fire agencies become a community partner that provides information, coordinates and assists in meeting firewise requirements, and provides fire suppression assistance.” (Pg. 5)

Source: Structure Ignition Assessment can Help Reduce Fire Damages in the WUI Published in Fire Management Notes, Volume 57 No. 4, 1997 http://www.fs.fed.us/rm/pubs_other/rmrs_1997_cohen_j001.pdf

Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk. The Forest has a responsibility to reduce fire risks as well, especially in conjunction with harvest activities. The Proposed WUI fuels treatment is within 300 feet of a private residence, which is in accordance with Cohen’s methods.
Dr. Cohen’s opposing view #13 - “My examination suggests that the abundance and ubiquity of pine needles, dead leaves, cured vegetation, flammable shrubs, wood piles, etc. adjacent to, touching and or covering the homes principally contributed to the residential losses.” (Pg. 4)

Source: Examination of the Home Destruction in Los Alamos Associated with the Cerro Grande Fire July 10, 2000

Response: Comment noted.

Dr. Cohen’s opposing view #14 - "The wildland fire management approach for preventing WUI fire disasters largely addresses the wildfire outside the home ignition zone rather than a home's ignition potential as determined by the conditions within the home ignition zone. Since 2000, agency fire management policy initiatives have emphasized fire suppression." (Pg. 24)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.
Dr. Cohen’s opposing view #15 - "Preventing WUI fire disasters requires that the problem be framed in terms of home ignition potential. Because this principally involves the home ignition zone, and the home ignition zone primarily falls within private ownership, the responsibility for preventing home ignitions largely falls within the authority of the property owner. Preventing wildfire disasters thus means fire agencies helping property owners mitigate the vulnerability of their structures. The continued fire management focus on fire suppression suggests the WUI fire problem persists largely as a consequence of framing the WUI fire problem primarily in terms of the fire exclusion paradigm." (Pg. 25)

Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #16 - "The continued focus on fire suppression largely to the exclusion of alternatives that address home ignition potential suggests a persistent inappropriate framing of the WUI fire problem in terms of the fire exclusion paradigm." (Pg. 25)

Published in Forest History Today, Fall 2008

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.
Dr. Cohen’s opposing view #17 - “For the same reason, mitigating home ignition potential during extreme wildland fires must focus activities within and immediate to the residential area, i.e. the home ignition zone. But the home ignition zone largely corresponds to private property. Thus, with minor exception, the authority for effectively reducing the home ignition potential belongs to homeowners. Public land management agencies can facilitate homeowner mitigations and these agencies may be able to reduce fire intensities and the extent of burning around communities. But these agencies cannot accomplish the necessary and sufficient actions necessary to prevent residential fire disasters during extreme fire conditions by treating beyond the home ignition zone.” (Pg. 2)

Source: Thoughts on the Wildland-Urban Interface Fire Problem, June 2003
http://www.nps.gov/fire/download/pub_pub_wildurbaninterface.pdf

Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #18 - “A home with its immediate surroundings (about 100-150 feet from the structure) is called the Home Ignition Zone. Many factors about the HIZ determine the potential for
ignition during a wildland fire, such as flammable wood roofs and materials like trees, grass, decks, or adjacent structures leading up to a home.” (Pg. 1)

Source: Saving Homes from Wildfires: Regulating the Home Ignition Zone Published in Zoning News, May 2001 http://www.battle-creek.net/docs/fire/Zoning.pdf

Response: Comment noted.

Dr. Cohen’s opposing view #19 - “SIAM calculations indicate that large wildland flame fronts (e.g., forest crown fires) will not result in piloted wood ignitions (e.g., the typical variety of exterior wood walls) at distances greater than 40 meters (Cohen and Butler [In press]).” (Pg. 4)

Response: Comment noted.

Dr. Cohen’s opposing view #20 - “Field studies conducted during the International Crown Fire Modeling Experiment (Alexander et al. 1998) provided measured data for comparisons with SIAM model estimates. Total heat transfer (radiation and convection) and ignition data were obtained from heat flux sensors placed in wooden wall sections. The instrumented walls were located on flat, cleared terrain at 10, 20, and 30 meters downwind from the edge of the forested plots. The forest was variably composed of an overstory of jack pine (Pinus banksiana) about 13 meters high with an understory of black spruce (Picea mariana). The spreading crown fire produced flames approximately 20 meters high.” (Pg. 5)
**Response:** Comment noted.

**Dr. Cohen’s opposing view #21** - “Five burns were conducted where wall sections were exposed to a spreading crown fire. As the crown fires reached the downwind edge of the plot, turbulent flames extended into the clearing beyond the forest edge. In two of the five burns, flames extended beyond 10 meters to make contact with the wall section placed at 10 meters from the forest edge. When flame contact occurred, the walls ignited; however, without flame contact, only scorch occurred. The wooden panels at 20 and 30 meters never ignited and the panel at 30 meters never scorched.” (Pg. 6)

**Response:** Comment noted.

**Dr. Cohen’s opposing view #22** - “Case studies of actual W-UI fires provide an independent comparison with SIAM and the crown fire experiments. The actual fires incorporate a wide range of fire exposures. The case studies chosen examine significant factors related to home survival for two fires that destroyed hundreds of homes. The Bel Air fire resulted in 484 homes destroyed (Howard et al. 1973) and the Painted Cave fire destroyed 479 homes (Foote 1994). Analyses of both fires indicate that home ignitions depend on the characteristics of a home and its immediate surroundings. Howard et al. (1973) observed 95 percent survival for homes with nonflammable roofs and a vegetation clearance of 10 to 18 meters. Foote (1994) observed 86 percent survival for homes with nonflammable roofs and a clearance of 10 meters or more.” (Pg. 7)

**Response:** The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.
Dr. Cohen’s opposing view #23 - “The high survival rate for homes with nonflammable roofs and 10-20 meter vegetation clearances included firebrands as an ignition factor, thus indicating that firebrand ignitions also depend on the ignition characteristics of the home and the adjacent flammable materials.” (Pg. 8)

Response: Comment noted.

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Dr. Cohen’s opposing view #24 - “Wildland fuel reduction beyond the home ignition zone does not necessarily change home ignitability; therefore, wildland fuel reduction does not necessarily mitigate the W-UI fire loss problem.” (Pg. 9)

Response: Comment noted. The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.

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Dr. Cohen’s opposing view #25 - “Effective landscape fuel reduction does not necessarily prevent W-UI home fire destruction.” (Pg. 10)

Response: Comment noted.

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Dr. Cohen’s opposing view #26 - “Fire losses depend on home ignitions and home ignitions depend on home ignitability. Thus, home ignitability, being limited to a home and its immediate surroundings, offers us the opportunity to separate the W-UI structure fire loss problem from other landscape-scale fire management issues. This conclusion has significant implications for the actions and responsibilities of homeowners and fire agencies, such as identifying and mapping the potential for W-UI residential fire destruction, identifying appropriate and effective mitigating actions, and determining who should take responsibility for home ignitability.” (Pg. 10)
Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #27 - “Thus, wildland fuel reduction that is effective for reducing the wildland fire intensity might be insufficient for reducing the destruction of highly ignitable homes. In contrast, a low home ignition potential reduces the chances of fire destruction without extensive wildland fuel reduction. These findings indicate that the W-UI home fire loss problem is a home ignitability issue largely independent of landscape fuel reduction issues.” (Pg. 10)

Response: Comment noted.

Dr. Cohen’s opposing view #28 - “The extent of the home ignition zone corresponds more to specific home and community ownership than to the landscapes of federal, state and local land management agencies. This suggests a corresponding responsibility for W-UI home fire loss potential residing with homeowners and communities. Thus, the home should not be considered a victim of wildland fire, but rather a potential participant in the continuation of the wildland fire. Home ignitability, i.e., the potential for W-UI home fire loss, is a homeowner and community choice and responsibility.” (Pg. 11)


Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.
Dr. Cohen’s opposing view #29 - “Model results indicate that ignitions from flame radiation are unlikely to occur from burning vegetation beyond 40 meters of a structure. Thinning vegetation within 40 meters has a significant ignition mitigation effect.” (Pg. 81)

Response: Comment noted.

Dr. Cohen’s opposing view #30 - “Vegetation management to prevent ignitions from radiation does not require extensive vegetation removal hundreds of meters from a structure. Our analysis indicated that 40 meters was sufficient for a 20 meter flame height.” (Pg. 86 – Conclusions)


Response: Comment noted.
Dr. Cohen’s opposing view #31 - “Miracles aside, the characteristics of the surviving home and its immediate surroundings greatly influenced its survival.” (Pg. 15)

Response: Comment noted.

Dr. Cohen’s opposing view #32 - “Based on severe-case assumptions of flame radiation and exposure time, SIAM calculations indicate that wildland flame fronts comparable to crowning and torching trees (flames 20 meters high and 50 meters wide) will not ignite wood surfaces at distances greater than 40 meters (Cohen and Butler, in press). Figure 2 shows the radiant heat a wall would receive from flames depending on its distance from the fire. The incident radiant heat flux, defined as the rate of radiant energy per unit area received at an exposed surface, decreases as the distance increases.” (Pg. 17)

Response: Comment noted.

Dr. Cohen’s opposing view #33 - “Analyses of both fires indicate that home ignitions depend on the characteristics of a structure and its immediate surroundings. Howard et al. (1973) observed 86 percent survival for homes with nonflammable roofs and a clearance of 10 meters or more.” (Pg. 19)

Response: Comment noted.

Dr. Cohen’s opposing view #34 - “Using the model results as guidance with the concurrence of experiments and case studies, we can conclude that home ignitions are not likely unless flames and firebrand ignitions occur within 40 meters of the structure. This finding indicates that the spatial scale determining home ignitions corresponds more to specific home and community sites than to the landscape scales of wildland fire
management. Thus, the W-UI fire loss problem primarily depends on the home and its immediate site.” (Pg.20)

Response: The Forest Service has the responsibility of reducing the fire hazard when fuels (slash) associated with activities are created.

Dr. Cohen’s opposing view #35 - “Thus, the W-UI fire loss problem can be defined as a home ignitability issue largely independent of wildland fuel management issues. This conclusion has significant implications for the actions and responsibilities of homeowners and fire agencies, such as defining and locating potential W-UI fire problems (for example, hazard assessment and mapping), identifying appropriate mitigating actions, and determining who must take responsibility for home ignitability.” (Pg.20)

Response: The Forest Service has the responsibility of reducing the fire hazard when fuels (slash) associated with activities are created. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #36 - “The W-UI fire case studies indicated approximately 90 percent survival with a vegetation clearance on the order of 10 to 20 meters for homes with nonflammable roofs. Thus, the case studies support the general flame-to-structure distance range of 10 to 40 meters as found through modeling and experiments.” (Pg.20)

Response: Comment noted.

Dr. Cohen’s opposing view #37 - “A change needs to take place in the relationship between homeowners and the fire services. Instead of home-related presuppression and fire protection responsibilities residing solely with fire agencies, homeowners must take the principal responsibility for ensuring adequately low home ignitability.” (Pg.21)
Response: The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #38 - “Many scientists and natural resource agencies suggest extensive fuel treatments to reduce the possibility of severe and intense wildfires that could damage ecosystems, destroy property, and take human life (USDA Forest Service, 2000; GAO, 2003a,b). However, there are a number of misconceptions and misunderstandings about fuel treatments and their use as a panacea for fire hazard reduction across the United States (Finney and Cohen, 2003; Franklin and Agee, 2003).” (Pg.1998)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.

Dr. Cohen’s opposing view #39 - “Given the right conditions, wildlands will inevitably burn. It is a misconception to think that treating fuels can “fire-proof” important areas. It would be virtually impossible to exclude fire from most temperate terrestrial ecosystems because ignition sources are prevalent and fuels cannot be eliminated. Ignition is rarely affected by fuel treatment.” (Pg.1998)
Response: Comment noted.

Dr. Cohen’s opposing view #40 - “Treating fuels to facilitate suppression is an example in circular logic. If fuel treatment makes suppression more successful in general, then less area will be burned in the short run and more acreage will tend to burn under extreme conditions, when suppression is ineffective. The inevitable result is that more area is burned in fewer, more unmanageable events with greater consequences. In addition, fire suppression leads to continued fuel accumulation and, in turn, more difficult conditions for suppression. This phenomenon has been described as “the wildland fire paradox” (Brown and Arno, 1991). Rather than creating conditions where fire is easier to suppress, fuel treatments should strive to create conditions where fire can occur without the need for suppression.” (Pg.1998)

Response: The Forest does not harvest trees to reduce fire hazard. Reducing fire hazard is not a primary objective of this project. Fuels treatments within the WUI would be done to mitigate increased fire risk created by harvest-generated fuels (slash), and would involve about 6 acres.

Dr. Cohen’s opposing view #41 - “Bessie and Johnson (1995) show weather (fuel moisture and wind) is far more important than fuels in determining fire behavior; reducing fuels may have a limited impact on fire occurrence.” (Pg.1999)

Response: Comment noted. We agree that weather is the primary factor for determining fire behavior.

Dr. Cohen’s opposing view #42 - “Treating fuels to reduce fire occurrence, fire size, or amount of burned area is ultimately both futile and counter-productive.” (Pg.1999)

Response: Comment noted.
Dr. Cohen’s opposing view #43 - “Since the home ignition zone largely occurs on private lands, most land management agencies do not have the authority to mitigate the WUI ignition potential directly (Cohen, 2000b). However, the opportunity exists to explicitly define responsibilities for the WUI fire potential (i.e. the home ignition zone) consistent with areas of jurisdiction and separately from ecological wildfire issues.” (Pg.1999)

**Response:** The Forest cooperates with state and county governments to educate the public on how they can reduce fire risk around their properties. Lane County has a Community Wildfire Protection Plan (CWPP), which is a resource for private landowners to assess and reduce their fire risk.

Dr. Cohen’s opposing view #44 - “It may not be necessary or effective to treat fuels in adjacent areas in order to suppress fires before they reach homes; rather, it is the treatment of the fuels immediately proximate to the residences, and the degree to which the residential structures themselves can ignite that determine if the residences are vulnerable.” (Pg.1999)

**Response:** The Forest does not harvest trees to reduce fire hazard. Proposed fuel treatments in the WUI (about 6 acres) target harvest generated fuels (slash) within 300 feet of structures on private land.

Dr. Cohen’s opposing view #45 - “WUI fuel treatments can be designed such that an extreme wildfire can occur in the WUI without having a residential fire disaster. Although general wildfire control efforts may not benefit from fuel treatments during extreme fire behavior, fuel modifications can significantly change outcome of a wildfire within a treatment area. Research has shown that a home’s characteristics and its immediate surroundings principally determine the WUI ignition potential during extreme wildfire behavior (Cohen, 2000a,c, 2003, 2004). The area that primarily determines WUI ignition potential is called the home ignition zone (Cohen, 2001). WUI fuel treatments can address the home ignition zone by removing flammable materials immediately adjacent to residences.” (Pg. 1999)
Response: The Forest does not harvest trees to reduce fire hazard. Proposed fuel treatments in the WUI (about 6 acres) target harvest generated fuels (slash) within 300 feet of structures on private land.

**Dr. Cohen’s opposing view #46** - “Treating fuels may not reduce suppression expenditures. It is a natural mistake to assume that a successful fuel treatment program will result in reduced suppression expenditures. Suppression expenditures rarely depend directly on fuel conditions, but rather on fire location and on what resources are allocated to suppression. The only certain way to reduce suppression expenditures is to make a decision to spend less money suppressing fires.” (Pg. 2000)

Response: The Forest does not harvest trees to reduce fire hazard. Proposed fuel treatments in the WUI (about 6 acres) target harvest generated fuels (slash) within 300 feet of structures on private land. Reducing fire suppression expenditures is not a purpose and need of the project.

**Dr. Cohen’s opposing view #47** - “Thinning to reduce crown fire potential requires careful evaluation of the tradeoffs in treatment effects on potential surface fire behavior and crown fire behavior (Scott and Reinhardt, 2001). Thinning will often result in increased potential surface fire behavior, for several reasons. First, thinning reduces the moderating effects of the canopy on windspeed, so surface windspeed will increase (Graham et al., 2004). It also results in increased solar radiation on the forest floor, causing drier surface fuels. It may also cause an increase in flammable grassy and shrub fuels over time, due to the reduced tree competition.” (Pg.2000)

Response: The Forest does not harvest trees to reduce fire hazard, nor does the Forest thin stands to reduce crown fire potential. Proposed fuel treatments in the WUI (6 acres) target harvest generated fuels (slash) within 300 feet of structures on private land.

**Dr. Cohen’s opposing view #48** - “Some viable fuel treatments may actually result in an increased rate of spread under many conditions
(Lertzman et al., 1998; Agee et al., 2000). For example, thinning to reduce crown fire potential can result in surface litter becoming drier and more exposed to wind. It can also result in increased growth of grasses and understory shrubs which can foster a rapidly moving surface fire.” (Pg.2000)

**Response:** The Forest does not harvest trees to reduce fire hazard, nor does the Forest thin stands to reduce crown fire potential. Proposed fuel treatments in the WUI (6 acres) target harvest generated fuels (slash) within 300 feet of structures on private land.

**Dr. Cohen’s opposing view #49** - “Treating fuels may not improve ecosystem health. Ecosystem restoration treatment and fuel treatment are not synonymous. Some ecosystem restoration treatments reduce fuel hazard, but not all fuel treatments restore ecosystems. Ecosystem restoration treatments are often designed to recreate presettlement fire regimes, stand structures and species compositions while fuel treatment objectives are primarily to reduce fuels to lessen fire behavior or severity—that is known as “hazard Reduction.” Achieving fuel hazard reduction goals in the absence of ecosystem restoration is insufficient (Dombeck et al., 2004; Kauffman, 2004).” (Pg.2000)

**Response:** The fuel treatments proposed for this project are limited to residual logging slash adjacent to open system roads, and at some landing sites. This is in addition to the 6 acres in the WUI, where proposed fuel treatments would target harvest-generated fuels (slash) within 300 feet of structures on private land (Appendix A). Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The purpose and need for this project includes restoring terrestrial and aquatic conditions and processes, of which one element is speeding the development of late-successional and old-growth characteristics by improving habitat diversity in young stands (EA, Chapter 1).

**Dr. Cohen’s opposing view #50** - “Conversely, some fuel treatments can reduce fuels but create stands that are quite dissimilar from their historical analogs. Examples include mastication treatments that break, chip, or grind canopy and surface woody material into a compressed fuelbed and
thinning treatments that remove the fire adapted species and leave shade-tolerant, late successional species.” (Pg.2000)


Response: Timber harvesting to reduce fire risk is not a purpose and need for this project, nor is it an issue on this Forest. The fuel treatments proposed for this project are limited to residual logging slash adjacent to open system roads, and at some landing sites. This is in addition to the 6 acres in the WUI, where proposed fuel treatments would target harvest-generated fuels (slash) within 300 feet of structures on private land (EA, Chapter 3, Fire and Fuels section; Appendix A, Wildland-Urban Interface, page 21).

Opposing Views Attachment #15

Forest Service Leaders Stress that Independent, Unbiased Science Conclusions should Always form the Basis for Proposed Public Land Treatments

This project does not reflect best science. The agency leader’s statements below emphasizing best science are therefore opposing views.
Since the NEPA document References ONLY include literature that supports the project (with the vast majority of authors employed by the USDA) it clearly is not best science. The majority of references should be authored by unbiased, independent scientists.

The Responsible Official’s volume output goals might be compromised if some of the source literature for the opposing views were included in the References.

It’s illegal to tell the public half of the story and withhold information that might jeopardize the project.

Best Science Opposing View #1 - "The agency has been able to face changing and challenging times and incorporate new information based on science."

"I am very much involved in trying to integrate the science and the management sides of the Forest Service. It’s very, very important that we conduct that integration, because our management decisions are scientifically based, and there is an ever increasing need for more scientific information."

Excerpts from an interview with Hilda Diaz-Soltero
Associate Chief for Natural Resources, USDA Forest Service
Women in Natural Resources, Vol. 21, No. 3
August 2000
http://www.fs.fed.us/publications/2000/00nov02-Hilda-Diaz-Soltero-Interview.pdf

Response: We used the most site-specific and relevant scientific information in developing the Proposed Action and analyzing its effects in the Project EA.
Best Science Opposing View #2 - "Forest Service managers strive to use the best science available in their decision making."

Dr. Ann Bartuska, Deputy Chief for Research and Development, USDA Forest Service
Excerpt from testimony before the House Resources Forest and Forest Health Subcommittee
July 15, 2004
http://www.fs.fed.us/congress/108/house/oversight/bartuska/071504.html

Response: We have used the most site-specific and relevant science in developing the Proposed Action and analyzing its effects in the Project EA.

Best Science Opposing View #3 - "We are committed to accomplishing the aggressive treatments planned in the President’s Budget for FY 2005 using new authorities in the Healthy Forests Restoration Act that improve the condition class of the nation’s watersheds and thus protect communities and resources for future generations, and our Research Station directors are committed to providing the Forest Service with the best science available."

Dale Bosworth Chief, USDA Forest Service
Excerpt from a statement before the Committee on Energy and Natural Resources United States Senate
March 3, 2004

Response: The Proposed Action is designed to improve the condition of forests and watersheds, based on the best science available.
Best Science Opposing View #4 - “Our direction will address these emerging issues to ensure it is based on the available best science.”

Sally Collins Associate Chief USDA Forest Service
Excerpt from testimony before the Committee on Energy and Natural Resources, United States Senate
July 11, 2006
http://www.fs.fed.us/congress/109/senate/oversight/collins/071106.html

Response: Wind energy is not a proposed action in the Project EA. Other emerging issues were analyzed in the Project EA, using the best available science.

Best Science Opposing View #5 - "The American people have come to expect us to use the best science, and we ought to use the best science." (pg.4)

Dale N. Bosworth Chief USDA Forest Service
Excerpt from a speech on Sustainable Management of the National Forests, at the Andrus Center for Public Policy, Boise State University
December 12, 2001
Response: We have used the most site-specific and relevant science in developing the Proposed Action and analyzing its effects in the Project EA. We have incorporated new, relevant information, as it becomes available in the scientific literature or from other sources such as public comments.

Best Science Opposing View #6 - "Always use the best science. Science can’t decide for us, but it can help us understand the consequences of our decisions. Forest Service Research and others in academia can deliver some of the best science and technical resources to help inform how these special areas should be managed for the long term."

Sally Collins  Associate Chief USDA Forest Service
Excerpt from a speech to the Land Trust Alliance Rally “Protecting Open Spaces: Partners in a Common Cause”
October 31, 2004

Response: We have incorporated that approach in developing our Proposed Action. The analyses of the effects of proposed activities are based on the project design criteria in Appendix A.

Best Science Opposing View #7 - "The new rule directs forest managers to use the best science available to protect species at a landscape level. The emphasis is to preserve ecosystems as a whole."
Statement by Heidi Valetkevitch  
National Media Officer USDA Forest Service  
to Joe Bauman, reporter for the Deseret Morning News  
December 24, 2004  

Response: The Proposed Action is designed to restore terrestrial and aquatic habitat conditions and processes that create and maintain habitats for multiple species at a landscape level.

Best Science Opposing View #8 - On June 29, 2007, Chief of the Forest Service, Gail Kimbell expressed her support of employees participating in professional societies. The following is an excerpt from her support letter:

“As stewards of forests and rangelands, we must respond to the many challenges of managing a wide variety of resources and values. To meet these various challenges, a diverse and highly qualified cadre of natural resource and other professionals is critical to assure that management approaches are based on the best science. More than ever, it is important for each of us to continue to learn, enhance our resource knowledge, and develop innovative approaches to cooperatively conserve this Nation’s natural resources.” (pg. 5)

Brown, Joel “Power to the People!”  
SRM Rangeland News, November 2007  
http://www.rangelands.org/RN/Nov.RN07.pdf

Response: Several interdisciplinary team members for the Project EA regularly attend professional society meetings and other related trainings, read relevant scientific literature and communicate with scientists to ensure that they are using the most recent and best available science. The best available science was used to develop the Proposed Action and its project design criteria (Appendix A); effects are analyzed, based on the project design criteria.
Best Science Opposing View #9 - “The Forest Service must be a leader in using the best science and the best managers to accomplish what I think is one of the noblest, most important callings of our generation bringing people together and helping them find ways to live within the limits of the land.” (Pg. 30)

Statement by Chief Dr. Mike Dombeck
“Forest Chief Shifts focus to clean water”
April 1998 TRANSITIONS
http://www.waterplanet.ws/transitions/tr9804/

Response: The Proposed Action was developed to restore terrestrial and aquatic habitat conditions and processes, based on the best available science.

Best Science Opposing View #10 - “We have made great progress under New Perspectives to get land managers and scientists working together as a team in doing the best job possible. Let’s keep it up and make sure our decisions reflect the best science and close the gap between the level of scientific knowledge and its application in our day-to-day management.”

Chief F. Dale Robertson
From a June 4, 1992 direction letter to Regional Foresters and Station Directors, Appendix B
http://www.fs.fed.us/r1/wmpz/documents/existing-forest-plans/lolo_5_yr_review.pdf
Response: Several interdisciplinary team members for the Project EA regularly attend professional society meetings and other related trainings, read relevant scientific literature and communicate with scientists to ensure that they are using the most recent and best available science.

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Best Science Opposing View #11 - “In 1994 Chief Jack Ward Thomas of the U.S. Forest Service invited private foundations to join the USFS and other federal resource management agencies in co-funding a national workshop designed to bring the best science, broadly defined, to an 11-day workshop of agency natural resource managers. Having a science background himself, Thomas wanted to capture the scientific underpinnings of ecosystem dynamics in order to establish a more solid basis for sustainable resource management. Private foundations, invited for the first time to join the Forest Service in this way, would, Thomas felt, add legitimacy and assist in bringing in scientific talent from outside the government.”


Response: Interdisciplinary team members for the Project regularly communicate and collaborate with many different people including professionals from government and non-government organizations, state agencies, scientists, watershed councils, and a variety of interest groups. These interactions are fundamental to landscape level management on and off the Siuslaw National Forest.
Best Science Opposing View #12 - "Our challenge is to protect all the different uses of our forests which well-kept roads undoubtedly serve while protecting these remaining untouched places. This is a long and delicate process. It will not happen overnight. We must rely on the best science and broad-based public participation. But in the interim, I am prepared to authorize an 18-month moratorium on the construction of new roads in the last pristine areas of our national forests.”

Agriculture Secretary Dan Glickman
From an Announcement of Interim Ban on Forest Road Construction
Washington, D.C., February 11, 1999
http://www.usda.gov/news/releases/1999/02/0056

Response: We are not proposing any new, permanent road construction. About 1.5 miles of temporary road would be constructed for thinning and would be closed after use. The Project would decommission 13.5 miles of road. None of the actions are proposed in designated roadless areas.

Best Science Opposing View #13 - “We have some of the best science, and we need to make sure we’re applying that, using that and sharing that as we move forward. I think we have a key leadership role, not only in the application of science but to help inform and educate our community and the folks we work with.”

Statement by USFS Chief Tom Tidwell
From an interview with Rob Chaney of the Missoulian, June 19, 2009
Response: The Proposed Actions in the Project EA are based on the best available science. Implementation of the activities in the Project EA would require regular communication and education with a wide variety of individuals and interest groups.

Best Science Opposing View #14 - “Since that time, they have consulted with a wide array of scientists in the Forest Service, other agencies, universities, and consultants, with the aim of arriving at a consensus on the best science available to address this issue.”

Potyondy, John P. 2007 “The Evolution of Channel Maintenance Science in the Forest Service”
Mr. Potyondy is the WO Watershed, Fish, Wildlife, Air, and Rare Plants Staff
http://www.stream.fs.fed.us/afsc/pdfs/Potyondy.pdf

Response: The Proposed Action would not alter stream flows, except temporarily for some culvert replacements that require dewatering. These activities would not affect channel maintenance flows.

Best Science Opposing View #15 - “The FS manages the National Forest System's natural resources with a commitment to long term ecosystem sustainability, multiple use, local community involvement and economic stability, interaction of
social and cultural values with forest resource management, and the use of management practices based on the best science available.”

Melle, Ann R. “The U.S. Forest Service Approach to Forest Law Enforcement”
A presentation to the East Asia Ministerial Conference, September 12, 2001
Ms. Melle is the Asst. Director of Law Enforcement and Investigations, USFS Forest Service

Response: The Project is consistent with the objectives and guidelines in the Northwest Forest Plan, which is based on best available science, and promotes ecosystem sustainability and local community involvement. In addition, the Project EA documents and addresses new scientific information and opposing viewpoints associated with the Project.

Best Science Opposing View #16 - “The responsible policy maker ought to seek out the best science, because ultimately that will yield the best result.”

“To put things in perspective, Dombeck says, ”Science should not be the only driver of policy; there are economic, social and political concerns, but scientists can provide information that informs policymaking; 'If we adopt this policy, this will be the outcome,' and that certainly does not appear to be happening.”

Statements by retired Chief Dr. Mike Dombeck
“Politics vs. Science,” October 19, 2006
Published by the University of Wisconsin, Board of Regents.

Response: The Project EA reflects current policy. Proposed actions, project design criteria, and analyses of effects are based on the best available science.
Best Science Opposing View #17 - “Carefully done science can provide common ground for agreement among different stakeholders, enabling communities to unify.”

“The best science available tells us that at some point we must reinstall this missing ecosystem process so the natural machinery functions properly again.” (pg. 9)

Kaufmann, Merrill R. 2005 “Good Fire, Bad Fire”
Mr. Kaufmann is the Rocky Mountain Research Station's team leader for ecosystem management Fort Collins, CO, USDA Forest Service
http://csfs.colostate.edu/pdfs/Good_Fire_Bad_Fire.pdf

Response: Comment noted. The Project would only treat harvest-generated fuels along open roads, some landings, and on about 6 acres of one stand in a wildland-urban fire interface.

Best Science Opposing View #18 - “The general objective of this Symposium was to build on the best science and technology available to assure that the data and information produced in future inventory and monitoring programs are comparable, quality assured, available, and adequate for their intended purposes, thereby providing a reliable framework for characterization, assessment, and management of forest ecosystems in North America.”

Framework for Inventorying and Monitoring Forest Ecosystem Resources.
Department of Agriculture, Forest Service, Rocky Mountain Research Station

Response: The Project was not specifically designed to mitigate or respond to climate change. The Proposed Action would benefit forest health and resiliency, allowing the project area to better respond and adapt to climate change.

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Best Science Opposing View #19 - “The experience of the Zaca Fire demonstrates a window of opportunity to improve the link between science and management. A major concern often expressed in both fire research and fire management circles is that there is a lot of science being produced, but very little that can or is being incorporated (depending on your perspective) into fire management. There may be a current opening to change that state of affairs.”

McDaniel, Josh 2007 “The Zaca Fire: Bridging Fire Science and Management”
Widland Fire Lessons Learned,
http://www.wildfirelessons.net/Additional.aspx

Response: Comment noted. The Project would only treat harvest-generated fuels along open roads, some landings, and on about 6 acres of one stand in a wildland-urban fire interface.
Best Science Opposing View #20 - “Accordingly, we find that the Final EIS fails to disclose and discuss responsible opposing scientific viewpoints in the final statement itself in violation of NEPA and the implementing regulations. We therefore reverse the district court's grant of summary judgment and remand to the district court with directions that it remand the final statement to the Forest Service for further proceedings consistent with this opinion. See Vitarelli v. Seaton, 359 U.S. 535, 545, 79 S.Ct. 968, 3 L.Ed.2d 1012 (1959) (standing for the well-established principle that an agency is generally required to follow its regulations); see also Cal. v. Block, 690 F.2d at 769 (“Agencies are . obliged to adhere to the procedures mandated by NEPA.”) (citing Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc., 435 U.S. 519, 549 n. 21, 98 S.Ct. 1197, 55 L.Ed.2d 460 (1978)).
REVERSED AND REMANDED.”

CENTER FOR BIOLOGICAL DIVERSITY v. UNITED STATES FOREST SERVICE
Before: KLEINFELD, WARDLAW, Circuit Judges, and POGUE, Judge.
In the United States Court of Appeals,Ninth Circuit

Response: The Project is consistent with the objectives and guidelines in the Northwest Forest Plan, which is based on best available science, and promotes ecosystem sustainability and local community involvement. In addition, the Project EA documents and addresses new scientific information and opposing viewpoints associated with the Project.
Opposing Views
Attachment #18

Following Label Directions on “Approved” Herbicides Containers does not Assure Safety

Herbicide Label Directions Opposing View #1 - “Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices.

Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT). Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data." IBT was one of the largest laboratories performing tests in support of pesticide registrations. About 30 tests on glyphosate and glyphosate-containing products were performed by IBT, including 11 of the 19 chronic toxicology studies. A compelling example of the poor quality of IBT data comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination." (Emphasis added.)

In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results. "Tricks" employed by Craven Labs included "falsifying laboratory notebook..."
entries” and “manually manipulating scientific equipment to produce false reports.”48 Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question.49

The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges.50 The owner was sentenced to five years in prison and fined $50,000; Craven Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution.48

Although the tests of glyphosate identified as fraudulent have been replaced, these practices cast shadows on the entire pesticide registration process.”

Cox, Caroline, “Quality of Toxicology Testing”
http://www.inspiringlandscapes.com/hope/glyphos8.htm

Response: Comment noted.

Herbicide Label Directions Opposing View #2 - “In 2004 the “Counterpart Regulations,” strongly supported by industry, were proposed to streamline EPA’s pesticide review process at the expense of the most vulnerable life forms in our country, Endangered and Threatened Species aka Listed Species (1,265 species are “Listed”). The critical change these regulations bring about is elimination of the requirement for consultations with wildlife experts at the U.S. Fish and Wildlife Service (FWS) and the
National Marine Fisheries Service (NMFS) by EPA reviewers evaluating adverse impacts of pesticides on Listed Species and their habitats. RCC opposed the Counterpart Regulations with comments, but, sadly, the Regulations were issued in final form on July 29, 2004, despite our objections. Over 125,000 public comments were received by the Fish and Wildlife Service, and they ran 2 to 1 against the Counterpart Regulations.

RCC Insight:
Apparently, the public’s concerns did not make a difference to the people at FWS and NMFS, or did they? We wonder whether the scientists involved with protecting wildlife at both “Services” would want to be bringing their experience and knowledge to bear on decisions made by EPA with respect to pesticides, if it were up to them. Perhaps they would prefer to be part of the evaluation process and they do not concur with finalizing the Counterpart Regulations. However, the fact is that decision-makers, by finalizing these changes, support an action that will weaken Endangered Species’ protection from poisoning and habitat degradation due to pesticides. This latest environmental rollback can mean increasingly hazardous conditions in rivers, lakes and wetlands. A further risk is weakening of the Endangered Species Act itself. (Text of our “Comments” is available through our website -- rachelcarsoncouncil.com)”

“Species from Pesticides – Weakened”

Rachel Carson Council Inc., Issues & Insights October, 2004


Response: Comment noted.
Herbicide Label Directions Opposing View #3 - “Used in yards, farms and parks throughout the world, Roundup has long been a top-selling weed killer. But now researchers have found that one of Roundup’s inert ingredients can kill human cells, particularly embryonic, placental and umbilical cord cells.

Until now, most health studies have focused on the safety of glyphosate, rather than the mixture of ingredients found in Roundup. But in the new study, scientists found that Roundup’s inert ingredients amplified the toxic effect on human cells—even at concentrations much more diluted than those used on farms and lawns.

One specific inert ingredient, polyethoxylated tallowamine, or POEA, was more deadly to human embryonic, placental and umbilical cord cells than the herbicide itself – a finding the researchers call “astonishing.”

“The research team suspects that Roundup might cause pregnancy problems by interfering with hormone production, possibly leading to abnormal fetal development, low birth weights or miscarriages.

Monsanto, Roundup’s manufacturer, contends that the methods used in the study don’t reflect realistic conditions and that their product, which has been sold since the 1970s, is safe when used as directed. Hundreds of studies over the past 35 years have addressed the safety of glyphosate.

“Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that's out there,” said Monsanto spokesman John Combest. “It’s used in public parks, it’s used to protect schools. There's been a great deal of study on Roundup, and we're very proud of its performance.”

The EPA considers glyphosate to have low toxicity when used at the recommended doses.

“Risk estimates for glyphosate were well below the level of concern,” said EPA spokesman Dale Kemery. The EPA classifies glyphosate as a Group E chemical, which means there is strong evidence that it does not cause cancer in humans.”
Weed-Whacking Herbicide Proves Deadly to Human Cells
By Crystal Gammon and Environmental Health News  June 23, 2009
http://www.scientificamerican.com/article.cfm?id=weed-whacking-herbicide-p

Response: The link reports on studies that have found human health effects from glyphosate formulations that contain surfactants, including POEA. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #4 - “However, the U.S. government regulatory agencies seem to have given Monsanto a long rope. The clout Monsanto enjoys in the U.S. government is by no means incidental. According to the Organic Consumers Association, Clarence Thomas, before being the Supreme Court Judge who put George W. Bush in office (in his first term), was a Monsanto lawyer; Anne Veneman, the U.S. Secretary of Agriculture, was on the board of directors of Monsanto's Calgene Corporation; Donald Rumsfeld, the Secretary of Defence, was on the board of directors of Monsanto's Searle Pharmaceuticals; Secretary of Health Tommy Thompson received $50,000 in donations from Monsanto during his winning campaign for Wisconsin's governorship; and the two Congressmen who received the most donations from Monsanto during the last election were Larry Combest (Chairman of the House Agricultural Committee) and John Ashcroft (the Attorney-General).”

“A multinational Exposed”
Frontline, Volume 22 - Issue 05, Feb. 26 - Mar. 11, 2005
http://www.hinduonnet.com/fline/fl2205/stories/20050311003312500.htm

Response: Comment noted.
Herbicide Label Directions Opposing View #5 - “A recent study which shows clear links between exposure to the herbicide glyphosate and non-Hodgkin’s lymphoma (NHL), a form of cancer that afflicts the lymphatic system, has caused worldwide concern over the safety of the herbicide on humans.

The study was conducted by eminent oncologists Dr Lennart Hardell and Dr Mikael Eriksson of Sweden and published in the journal Cancer by the American Cancer Society on March 15.”

“Monsanto's Argument:
Previous evaluations conducted by the US Environmental Protection Agency (EPA) and the World Health Organization (WHO) suggest that glyphosate is not a mutagenic or carcinogenic.

WHO and the Food and Agriculture Organization (FAO) have approved the safety of glyphosate residues in genetically-engineered Roundup Ready soyabeans.

PAN's Counter Argument:
The EPA and WHO evaluations were done more than five years ago and based mainly on data submitted to them by Monsanto.

These evaluations did conclude that "there is no evidence of mutagenicity or carcinogenicity" based on the available data, but they do not support definitive assertions that glyphosate "is not mutagenic or carcinogenic".

Previous EPA and WHO evaluations which made similar claims for other chemicals had to be revised as new evidence came to light.
The establishment of the WHO's Acceptable Daily Intake (ADI) is based on limited studies using limited parameters which do not account for vulnerable groups such as children, the elderly, the sick and other groups that might have increased susceptibility to glyphosate exposure.”

“Concerns Over Glyphosate Use”
*The Sun* (Malaysia), Friday August 20, 1999

Response: The referenced link is broken, so we could not review the specific citation. Studies looking into the possible mutagenicity of glyphosate have focused on Roundup and other product formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #6 - “To protect our health, the U.S. Environmental Protection Agency (EPA) sets maximum legal residue levels for every pesticide, for dozens of crops. But a new study in the respected journal *Toxicology* has shown that, at low levels that are currently legal on our food, Roundup could cause DNA damage, endocrine disruption and cell death. The study, conducted by French researchers, shows glyphosate-based herbicides are toxic to human reproductive cells.”

“Solvents and surfactants, legally considered ‘inert ingredients,’ are mixed with glyphosate in products such as Roundup weed killer to create chemical formulations that increase mobility and more direct access to the cells. ‘Those same factors that aid penetration into a plant, also aid
penetration into the skin,’ says Vincent Garry, professor emeritus of pathology at the University of Minnesota. ‘These chemicals are designed to kill cells.’ ”

“Herbicide manufacturers are subject to fewer rules in the testing of inert ingredients than they are for active ingredients, explains Caroline Cox, research director at the Center for Environmental Health in Oakland, Calif. ‘The tests the EPA requires for inert ingredients cover only a small range of potential health problems,’ Cox says. ‘Testing for birth defects, cancer and genetic damage are required only on the active ingredients. But we’re exposed to both.’ ”

“ ‘Our bodies are gigantic spider webs of chemical communications that work in the parts-per-trillion range,’ says Warren Porter, professor of zoology and environmental toxicology at the University of Wisconsin. ‘When you put so-called ‘insignificant’ amounts of toxic chemicals into the mix, you have a molecular bull in a china shop. The possibilities for impact are endless.’ ”

Kimble-Evans, Amanda
“Roundup Kills more than Weeds”
*Mother Earth News*, December 2009/January 2010

**Response:** The link reports on the use of glyphosate formulations that contain surfactants on agricultural crops and possible human health effects. The project has not proposed to treat any crop plants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Herbicide Label Directions Opposing View #7 - “Glyphosate is of relatively low oral and dermal acute toxicity. It has been placed in Toxicity Category III for these effects (Toxicity Category I indicates the highest degree of acute toxicity, and Category IV the lowest). The acute inhalation toxicity study was waived because glyphosate is nonvolatile and because adequate inhalation studies with end-use products exist showing low toxicity.” (Pg. 2)

“Glyphosate does not cause mutations.” (Pg. 2)

“EPA conducted a dietary risk assessment for glyphosate based on a worst-case risk scenario, that is, assuming that 100 percent of all possible commodities/acreage were treated, and assuming that tolerance-level residues remained in/on all treated commodities. The Agency concluded that the chronic dietary risk posed by glyphosate food uses is minimal.” (Pg. 3)

“Occupational and residential exposure to glyphosate can be expected based on its currently registered uses. However, due to glyphosate’s low acute toxicity and the absence of other toxicological concerns (especially carcinogenicity), occupational and residential exposure data are not required for reregistration.” (Pg. 3)

“Glyphosate is no more than slightly toxic to birds and is practically nontoxic to fish, aquatic invertebrates and honeybees. Due to the presence of a toxic inert ingredient, some glyphosate end-use products must be labeled, ‘Toxic to fish,’ if they may be applied directly to aquatic environments. Product labeling does not preclude off-target movement of glyphosate by drift. EPA therefore is requiring three additional terrestrial plant studies to assess potential risks to nontarget plants.
EPA does not expect that most endangered terrestrial or aquatic organisms will be affected by the registered uses of glyphosate.” (Pg. 4)

“Based on current data, EPA has determined that the effects of glyphosate on birds, mammals, fish and invertebrates are minimal.” (Pg. 5)

“Regulatory Conclusion
The use of currently registered pesticide products containing the isopropylamine and sodium salts of glyphosate in accordance with the labeling specified in this RED will not pose unreasonable risks or adverse effects to humans or the environment. Therefore, all uses of these products are eligible for reregistration.” (Pg. 6)

“R.E.D. FACTS Glyphosate”
EPA publication - EPA-738-F-93-011, September 1993
http://www.epa.gov/oppsrrd1/REDs/factsheets/0178fact.pdf

Response: Comment noted.

Herbicide Label Directions Opposing View #8 - “The findings of Richard et al. (2005) are an important addition to our understanding that the health and environmental effects of formulated pesticide products are not fully reflected in tests conducted on the active ingredient(s) alone. It has been long known that the adjuvants (commonly and misleadingly called "inert" ingredients) may be toxic and may enhance or supplement the toxic effects of the active pesticidal ingredient.
In the case of glyphosate-containing products, this phenomenon was well demonstrated in the data submitted to the (EPA) by the registrant (Monsanto), and summarized by the U.S. EPA in the Reregistration Eligibility Document (RED) for glyphosate (U.S. EPA 1993). For example, based on the registrant’s own tests of acute toxicity to freshwater fish, the U.S. EPA classified technical grade glyphosate as "slightly toxic" to "practically non-toxic" and formulated products ranged from "moderately toxic" to "practically non-toxic." Tested alone, the surfactant adjuvant (identified as "inert") was "highly toxic" to "slightly toxic." Similar differences were reported in tests of acute toxicity to freshwater invertebrates.

Based in part on the data in the glyphosate RED (U.S. EPA 1993), the New York State Attorney General’s office successfully pursued an action against Monsanto in 1996 (Attorney General of the State of New York 1996). At that time, Monsanto was making advertising claims about the toxicity of the Roundup products based on data from tests on the active ingredient alone. Such claims are scientifically unfounded and inherently deceptive. The Attorney General’s action was facilitated by the availability of at least some limited information about the inert ingredients and their toxicity. That same sort of information enabled Richard et al. (2005) to conduct their study.

Unfortunately, that is not always the case, and for many pesticide products, little or no information about the identity of inert ingredients is publicly available. Registrants are generally required to conduct acute toxicity tests on formulated products, but they traditionally conduct chronic toxicity tests on the active ingredient alone. Even when formulated products are tested, the identity of inert ingredients is rarely revealed in the open literature, publicly available regulatory documents, or product labels. Therefore, independent research is stymied, and the public is ill-informed in the marketplace.”

Séralini, Gilles-Eric “Issue: Cumulative Impacts to Amphibians Species”
A Laboratoire de Biochimie et Biologie Moléculaire publication, Université de Caen, February 2006
http://www.signaloflove.org/clearcutting/reports/cumulativeimpactstoamphibian

Response: The link reports on the effects of glyphosate containing surfactants to amphibians. The project does not propose the use of glyphosate formulations
which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #9 - “FACT: The EPA (Environmental Protection Agency) does not test pesticides for safety. It relies on the manufacturers’ test data to make judgments. Recent probes have found that the experiments on which these data have been based, have been designed to show only what the manufacturer would like them to show. This criticism of self-serving misrepresentation can be aimed equally validly at irresponsible experimenters bent on demonstrating toxicity of a given pesticide.

It seems that however this problem is approached, the EPA needs to take more affirmative action and responsibility. This is not likely to happen, as the EPA’s research program increasingly relies on corporate joint venture, according to agency documents obtained by Public Employees for Environmental Responsibility (PEER). Indeed, a study by the Government Accountability Office (the investigative arm of Congress – the same people who first told us of the $640 toilet seats and $1,000 hammers purchased with Department of Defense money), in April 2005, concluded that the EPA lacks safeguards to “evaluate or manage potential conflicts of interest” in corporate research agreements, as they are taking money from corporations that they are supposed to be regulating.”

“MYTH: The Government tests pesticides for safety before they are sold”
Wild Ones Journal, Nov 17, 2006
http://www.for-wild.org/download/roundupmyth/roundupmyth.html

Response: Comment noted.
Herbicide Label Directions Opposing View #10 - “FACT: The primary focus of the Federal Insecticide, Fungicide, and Rodenticide Act, originally enacted in 1947, was to provide federal control of pesticide distribution, sale, and use. The act has been amended many times over the years. One of these amendments permitted manufacturers protection of trade secrets. It is under these provisions that manufacturers circumvent a law that originally intended all information to be known – at least by the EPA. The fact that today, with mass spectrometers, chemistry can determine the makeup of the inert ingredients, leaves only the end consumer in the dark.

In 1990 the Office of the Attorney General of New York filed a request that all inert ingredients in pesticides be made public. The request was repeated a number of times through the decade, to no avail. Sixteen years later, in August of 2006, the attorneys general of 14 states have filed a similar petition to the EPA. This time the EPA is obliged to respond within a given time period.”

“MYTH: There are laws...”
Wild Ones Journal, Nov 17, 2006
http://www.for-wild.org/download/roundupmyth/roundupmyth.html

Response: Comment noted.
Herbicide Label Directions Opposing View #11 - “A recent study by eminent oncologists Dr. Lennart Hardell and Dr. Mikael Eriksson of Sweden [1], has revealed clear links between one of the world's biggest selling herbicide, glyphosate, to non-Hodgkin's lymphoma, a form of cancer [2].”

“In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies.' “

“O' Neill concluded: 'The EPA when authorising Monsanto's field trials for Roundup-ready sugar beet did not consider the issue of glyphosate. They considered this to be the remit of the Pesticides Control Service of the Department of Agriculture. Thus nobody has included the effects of increasing the use of glyphosate in the risk/benefit analysis carried out. It is yet another example of how regulatory authorities supposedly protecting public health have failed to implement the 'precautionary principle' with respect to GMOs.' “

O' Neill, Sadhbh “RoundUp—Lymphoma Connection”
Genetic Concern, June 22, 1999
http://www.hancock.forests.org.au/docs/herbicidesUpdate0602.htm

Response: The referenced link is broken, so we could not review the specific citation. Studies looking into the possible mutagenicity of glyphosate have focused on Roundup and other product formulations that contain surfactants and other adjuvants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
**Herbicide Label Directions Opposing View #12** - “Glyphosate-containing products are acutely toxic to animals, including humans. Symptoms include eye and skin irritation, cardiac depression, gastrointestinal pain, vomiting, and accumulation of excess fluid in the lungs. The surfactant used in a common glyphosate product (Roundup) is more acutely toxic than glyphosate itself; the combination of the two is yet more toxic.”

“Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices.”

“Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT). Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data." “

“IBT was one of the largest laboratories performing tests in support of pesticide registrations.” About 30 tests on glyphosate and glyphosate-containing products were performed by IBT, including 11 of the 19 chronic toxicology studies. A compelling example of the poor quality of IBT data comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination." (Emphasis added.)

“In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results.”
"Tricks" employed by Craven Labs included "falsifying laboratory notebook entries" and "manually manipulating scientific equipment to produce false reports."48 Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question."49

“The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges.50 The owner was sentenced to five years in prison and fined $50,000; Craven Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution.”48


Response: Toxicity data cited in the paper are the same as that used for the project analysis from Glyphosate - Human Health and Ecological Risk Assessment Final Report (SERA TR 02-43-09-04a) www.sera-inc.com, a report prepared by the Syracuse Environmental Research Associates.

The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #13 - “EPA Investigates Monsanto
An internal memorandum by an official of the U.S. Environmental Protection Agency [EPA], has accused EPA of conducting a "fraudulent" criminal investigation of Monsanto, the St. Louis chemical corporation. [1] The 30-page memo, from William Sanjour to his supervisor, David Bussard, dated July 20, 1994, describes a two-year-long criminal investigation of Monsanto by EPA's Office of Criminal Investigation (OCI).

The Sanjour memo says EPA opened its investigation on August 20, 1990 and formally closed it on August 7, 1992. "However, the investigation itself and the basis for closing the investigation were fraudulent," the Sanjour memo says.

According to the Sanjour memo:

- EPA's investigation of Monsanto was precipitated by a memo dated February 23, 1990, from EPA's Dr. Cate Jenkins to Raymond Loehr, head of EPA's Science Advisory Board.

- The Jenkins memo said that EPA had set dioxin standards relying on flawed Monsanto-sponsored studies of Monsanto workers exposed to dioxin, studies that had showed no cancer increases among heavily exposed workers.

- Attached to the Jenkins memo was a portion of a legal brief filed by the plaintiffs as part of a trial known as Kemner v. Monsanto, in which a group of citizens in Sturgeon, Missouri had sued Monsanto for alleged injuries they had suffered during a chemical spill caused by a train derailment in 1979.

- The Jenkins memo had not requested a criminal investigation; instead Jenkins had suggested the need for a scientific investigation of Monsanto's dioxin studies. But in August 1990, EPA's Office of Criminal Investigation (OCI) wrote a 7-page memo recommending that a "full field criminal investigation be initiated by OCI."

- Plaintiffs in the Kemner suit made the following kinds of allegations (which we quote verbatim from the Sanjour memo):
“Monsanto failed to notify and lied to its workers about the presence and danger of dioxin in its chlorophenol plant, so that it would not have to bear the expense of changing its manufacturing process or lose customers;..."

"Monsanto knowingly dumped 30 to 40 pounds of dioxin a day into the Mississippi River between 1970 and 1977 which could enter the St. Louis food chain;"

"Monsanto lied to EPA that it had no knowledge that its plant effluent contained dioxin;"

"Monsanto secretly tested the corpses of people killed by accident in St. Louis for the presence of dioxin and found it in every case;..."

"Lysol, a product made from Monsanto's Santophen, was contaminated with dioxin with Monsanto's knowledge." [The Sanjour memo says that, at the time of the contamination, "Lysol (was) recommended for cleaning babies' toys and for other cleaning activities involving human contact."]

"The manufacturer of Lysol was not told about the dioxin by Monsanto for fear of losing his business;"

"Other companies using Santophen, who specifically asked about the presence of dioxin, were lied to by Monsanto;..."

"Shortly after a spill in the Monsanto chlorophenol plant, OSHA measured dioxin on the plant walls. Monsanto conducted its own measurements, which were higher than OSHA's, but they issued a press release to the public and they lied to OSHA and their workers saying they had failed to confirm OSHA's findings;"

"Exposed Monsanto workers were not told of the presence of dioxin and were not given protective clothing even though the company was aware of the dangers of dioxin;"
"Even though the Toxic Substances Control Act requires chemical companies to report the presence of hazardous substances in their products to EPA, Monsanto never gave notice and lied to EPA in reports;

"At one time Monsanto lied to EPA saying that it could not test its products for dioxin because dioxin was too toxic to handle in its labs."...

“EPA Investigates Monsanto”
*RACHEL’S HAZARDOUS WASTE NEWS #400, July 28, 1994
http://www.ejnet.org/rachel/rhwn400.htm

Response: Comment noted.

Herbicide Label Directions Opposing View #14 - “A study by French researchers at the University of Caen of glyphosate residue discovered that the inert ingredients in the herbicide (solvents, preservatives, surfactants) increased the toxic effect on human cells. According to the researchers, glyphosate residue can cause birth defects.

“This clearly confirms that the [inert ingredients] in Roundup formulations are not inert,” wrote the study authors. “Moreover, the proprietary mixtures available on the market could cause cell damage and even death [at the] residual levels” found on Roundup-treated crops.”

“Another study by Argentine scientists also found that glyphosate can cause birth defects at doses considerably lower than what is commonly used on crops, in this case, soybeans. The researchers injected amphibian
embryo cells with glyphosate diluted to a concentration 1,500 times less than what is used commercially. The embryos grew into tadpoles with obvious birth defects."

“A 2001 study by Swedish oncologists discovered links between non-Hodgkin’s lymphoma and glyphosate. The Swedish researchers found that Swedish people with non-Hodgkin’s lymphoma were 2.3 times more likely to be exposed to glyphosate.

Monsanto spokesperson John Combest defended the safety of Roundup. “Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that’s out there. It’s used in public parks, it’s used to protect schools. There’s been a great deal of study on Roundup, and we’re very proud of its performance.” “

Cheeseman, Gina-Marie, “Can A Company That Makes Roundup Be Sustainable?”

TriplePundit, November 20th, 2009

Response: The link reports on studies looking into the possible mutagenicity of glyphosate, focusing on Roundup and other product formulations that contain surfactants. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
**Herbicide Label Directions Opposing View #15** - “Over twenty years ago, the dangers of Monsanto's glyphosate as well as its associated GMOs were known scientifically to cause human health difficulties and Swedish researchers years ago in the Journal 'Cancer' noted glyphosate was connected to human cancer. Anyway, many scientists and public health workers researching it were fired. It's a mad empire's rush--the U.S empire and its corporate proxies--to desire (hell, the reality of) to own the world's food and dominate the whole world. It is destroying thousands of years of biodiversity security in the process. And Monsanto's empire of glyphosate is in virtually everything in the USA and worldwide. One foolish company, one corrupt federal government of the USA. Everyone should learn more about Monsanto in the film "The World According to Monsanto." (90 minutes). Monsanto's corporate contract should be revoked for endangering world health and killing off global crop biodiversity of thousands of years of work destroyed in one generation--in the mad rush to dominate the whole world's biodiversity.

Monsanto and the USA will go down in history as the organizations that caused most biological devastation and human suffering in human history.”

“MONSANTO RoundUp (glyphosate) Empire causes

BIRTH DEFECTS...in amphibian embryos, humans?”

*Portland independent media center, May 3, 2009*


Response: The link reports on studies looking at the use of glyphosate application to Roundup Ready Soy grown for human consumption. The project does not propose to treat any crop plants with herbicide. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.
Herbicide Label Directions Opposing View #16 - “BUENOS AIRES, Apr 15, 2009 (IPS) - Glyphosate, the herbicide used on soybeans in Argentina, causes malformations in amphibian embryos, say scientists here who revealed the findings of a study that has not yet been published.”

"The observed deformations are consistent and systematic," Professor Andrés Carrasco, director of the Laboratory of Molecular Embryology at the University of Buenos Aires medical school and lead researcher on the National Council of Scientific and Technical Research (CONICET), told the Inter Press Service news agency IPS.

Reduced head size, genetic alterations in the central nervous system, an increase in the death of cells that help form the skull, and deformed cartilage were effects that were repeatedly found in the laboratory experiments, said the biologist.

The news was reported Monday by the Argentine newspaper Página 12.

Monsanto’s head of communications in Argentina, Fernanda Pérez Cometto, told IPS that the company has "several studies that show that the herbicide is harmless to humans, animals and the environment."

Valente, Marcela “Scientists Reveal Effects of Glyphosate”
HEALTH-ARGENTINA, April 15, 2009
http://www.ipsnews.net/news.asp?idnews=46516

Response: The link reports on studies looking at the use of glyphosate application to Roundup Ready Soy grown for human consumption. The project does not propose to treat any crop plants with herbicide. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are
considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #17 - “It’s amazing how many organics people still think it’s OK to just use a bit of Roundup on those weeds in the bush or the driveway, or …. of course, not on the food, but the bush, that’s OK isn’t it?

Well, no, actually it isn’t, and here’s why: Roundup and various other formulations of the active ingredient glyphosate, have the potential to cause serious health and environmental effects, and have caused some severe poisoning problems.

Thorough PR by the developer of Roundup, Monsanto, has resulted in the widespread belief that glyphosate is ‘safe’. Registration processes have generally supported this attitude, and there are no national or international bans. However, independent scientific studies and widespread poisonings in Latin America resulting from aerial application are beginning to reveal the true effects of the world’s most widely used herbicide.”


Response: The link provided is broken and we could not review the contents. From the summary provided by the commenter it appears to report on studies which looked at the application of Roundup on genetically-modified crops and their potential human health effects. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the
project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #18 - Research on genetically modified seeds is still published, of course. But only studies that the seed companies have approved ever see the light of a peer-reviewed journal. In a number of cases, experiments that had the implicit go-ahead from the seed company were later blocked from publication because the results were not flattering. "It is important to understand that it is not always simply a matter of blanket denial of all research requests, which is bad enough," wrote Elson J. Shields, an entomologist at Cornell University, in a letter to an official at the Environmental Protection Agency (the body tasked with regulating the environmental consequences of genetically modified crops), "but selective denials and permissions based on industry perceptions of how 'friendly' or 'hostile' a particular scientist may be toward [seed-enhancement] technology."

Shields is the spokesperson for a group of 24 corn insect scientists that opposes these practices. Because the scientists rely on the cooperation of the companies for their research - they must, after all, gain access to the seeds for studies - most have chosen to remain anonymous for fear of reprisals. The group has submitted a statement to the EPA protesting that "as a result of restricted access, no truly independent research can be legally conducted on many critical questions regarding the technology."

It would be chilling enough if any other type of company were able to prevent independent researchers from testing its wares and reporting what they find - imagine car companies trying to quash head-to-head model comparisons done by Consumer Reports, for example. But when scientists are prevented from examining the raw ingredients in our nation’s food
supply or from testing the plant material that covers a large portion of the country’s agricultural land, the restrictions on free inquiry become dangerous.

“Do Seed Companies Control GM Crop Research?”
Reprinted by Combat-Monsanto.org
http://www.combat-monsanto.co.uk/spip.php?article399

Response: Comment noted.

Herbicide Label Directions Opposing View #19 - “France’s highest court has ruled that U.S. agrochemical giant Monsanto had not told the truth about the safety of its best-selling weed-killer, Roundup. The court confirmed an earlier judgment that Monsanto had falsely advertised its herbicide as “biodegradable” and claimed it “left the soil clean.” Roundup is the world’s best-selling herbicide.

French environmental groups had brought the case in 2001 on the basis that glyphosate, Roundup’s main ingredient, is classed as “dangerous for the environment” by the European Union.

In the latest ruling, France’s Supreme Court upheld two earlier convictions against Monsanto by the Lyon criminal court in 2007, and the Lyon court of appeal in 2008, the AFP news agency reports.

Monsanto already dominates America’s food chain with its genetically modified seeds. Now it has targeted milk production. Just as frightening
as the corporation’s tactics, including ruthless legal battles against small farmers, is its decades-long history of toxic contamination.”

**France Finds Monsanto Guilty of Lying**
*Infowars Ireland*, November 23, 2009

Response: Comment noted.

**Herbicide Label Directions Opposing View #20** - “Monsanto created Roundup in the 1970's to kill weeds and has since catapulted this product to be the world's number one selling herbicide. Before the patent on Roundup was set to expire in 2000, Monsanto needed a surefire way to keep the profits of Roundup from bottoming out. Monsanto quickly began purchasing the majority of the world's seed companies while simultaneously creating GMOs that farmers needed to sign contractual agreements to only use Roundup. Subsequently, revenue from Roundup never dropped and in fact topped more than $4 billion in 2008, up 59% from 2007 [2].

GM-soy is estimated to be present in up to 70% of all food products found in US supermarkets, including cereals, breads, soymilk, pasta and most meat (as animals are fed GM-soy feed). Although Monsanto has consistently relied on industry-funded data to declare the safety of GM-soy and glyphosate, objective research published in peer-reviewed journals tells another story.

Toxicity of Glyphosate
A recently published study by Italian researchers [3] examined the toxicity of four popular glyphosate based herbicide formulations on human placental cells, kidney cells, embryonic cells and neonate umbilical cord cells and surprisingly found total cell death of each of these cells within 24 hours. The researchers reported several mechanisms by which the herbicides caused the cells to die including: cell membrane rupture and damage, mitochondrial damage and cell asphyxia. Following these findings, the researchers tested G, AMPA and POEA by themselves and concluded that, "It is very clear that if G, POEA, or AMPA has a small toxic effect on embryonic cells alone at low levels, the combination of two of them at the same final concentration is significantly deleterious.”

Damato, Gregory Ph.D., “GM-Soy: Destroy the Earth and Humans for Profit” Fourwinds10.com, May 27, 2009

Response: The link reports on the use of glyphosate formulations containing surfactants on genetically engineered crops the associated effects to human cell types. The project does not propose to treat any crop plants with herbicide. The project does not propose the use of glyphosate formulations which contain surfactants, including Roundup. Only glyphosate formulations which do not contain surfactants are considered for the project. A surfactant of equal or less toxicity than glyphosate would be added at the time of application.

Herbicide Label Directions Opposing View #21 - “If you're still not convinced that Roundup is a highly toxic and persistent pesticide, read on, while at the same time remembering the other contributions that Monsanto has made to society such as:

Saccharin, Astroturf, agent orange, dioxin, sulphuric acid, polychlorinated biphenyls (PCBs), plastics and synthetic fabrics, research on uranium for
the Manhattan Project that led to the construction of nuclear bombs, styrene monomer, an endless line of pesticides and herbicides (Roundup), rBGH (recombinant bovine growth hormone that makes cows ill), genetically engineered crops (corn, potatoes, tomatoes, soy beans, cotton), and it's most significant product to date; Lies, Factual Distortions and Omissions. Here's one of the distortions that Monsanto had on its website a while back. ‘Sustainability - the idea that the resources and people of this world are finite. That for any business decision we make, we must consider the effect it will have on us and our children. That the products we make must not use up all of a natural resource, or even worse, contaminate what is left behind.’ "

“Everything you Never Wanted to Know about Monsanto’s Modus Operandi (M.O.)”
Mindfully.org
http://www.mindfully.org/Pesticide/Monsanto-Roundup-Glyphosate.htm

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Response: Comment noted.

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Herbicide Label Directions Opposing View #22 - “The U.S. response (to questions about biotech crop safety) has been an extremely patronizing one. They say 'We know best, trust us,'" added Gurian-Sherman, now a senior scientist at the Union of Concerned Scientists, a nonprofit environmental group.”

“So far, that confidence has been lacking. Courts have cited regulators for failing to do their jobs properly and advisers and auditors have sought sweeping changes.”

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“The developers of these crop technologies, including Monsanto and its chief rival DuPont, tightly curtail independent scientists from conducting their own studies. Because the companies patent their genetic alterations, outsiders are barred from testing the biotech seeds without company approvals.”

“The agreements disallow any research that is not first approved by the companies. "No truly independent research can be legally conducted on many critical questions regarding the technology," the scientists said in their statement.”

“Outside researchers have also raised concerns over the years that glyphosate use may be linked to cancer, miscarriages and other health problems in people.”

Gillam, Carey “Patents Trump Public Interest in Monsanto's Ag Empire - Special Report: Are Regulators Dropping the Ball on Biocrops?”

Reuters, April 13, 2010
http://www.commondreams.org/headline/2010/04/13-0

Response: Comment noted.

Herbicide Label Directions Opposing View #23 - “Defining Toxic
Asbestos is an extreme example, which I use here and in my book Pick Your Poison: How Our Mad Dash to Chemical Utopia is Making Lab Rats of Us All to make a point, but many other “nontoxic” products could be full of toxic chemicals. I’m hoping this essay leaves you with a general distrust of
the nontoxic label, both in the past and currently. When you see “nontoxic” on a product, keep the following facts in mind:

- “Nontoxic” can still legally mean that there are no immediate, acute hazards as determined by the LD50 and LC50 tests.

- “Nontoxic” may mean there are little or no chronic data available on the substance. If the substance is not acutely toxic, and one can’t prove it is toxic in the long term, many manufacturers feel that they have the right to call it nontoxic. Even if there are studies showing that the substance is toxic, manufacturers in the United States have traditionally waited for absolute, unequivocal proof, which in most cases is never available because we don’t study our chemicals.

- An art material is “nontoxic” if a toxicologist paid by the manufacturer decides it is safe. The dramatic failure in this labeling procedure was illustrated with the lead ceramic glazes and asbestos-containing materials such as talc. Asbestos-containing talcs are still found in some art and craft materials today.

Some art materials that have never been evaluated by a toxicologist may be labeled “nontoxic” illegally due to weak enforcement of the art materials labeling law. For example, in 1995, a cameraman and a reporter from Channel 9 in New York went with me to a major art materials outlet. That night on the evening news, we showed viewers about a dozen imported products that did not conform to the law, some labeled “nontoxic,” which were being sold illegally. This is still true today, and a little research will lead you to many sources of noncompliant “nontoxic” products.

- Labeling of ordinary consumer products is pretty much up to the manufacturer and its paid advisers. Because there is no enforcement mechanism in the regulations for the chronic hazard labeling of ordinary consumer products, there is not much incentive to provide warnings.

- There is no regulatory requirement to warn consumers about damage to most of the body’s organs, such as the lungs, the liver, and the kidneys. Only four types of chronic hazards are covered by the
Federal Hazardous Substances Act regulations. These are cancer, and developmental, reproductive, and neurological damage.”

Rossol, Monona “Say What? A Chemical Can Damage Your Lungs, Liver and Kidneys and Still Be Labeled "Non-Toxic"?”
Ms. Rossol is a research chemist, author and member of the American Industrial Hygiene Association
May 9, 2011
http://www.alternet.org/story/150888/say_what_a_chemical_can_damage_your_lungs%2C_liver_and_kidneys_and_still_be_labeled_%22non-toxic%22?page=entire

Response: Comment noted.

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Herbicide Label Directions Opposing View #24 -

<table>
<thead>
<tr>
<th>Monsanto's Claims</th>
<th>Independent Research Findings</th>
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<tbody>
<tr>
<td>Roundup has a low irritational potential for eye and skin and otherwise is not a risk to human health.</td>
<td>Roundup is amongst the top most reported pesticides causing poisoning incidents (mainly skin irritation) in several countries. It also causes a range of acute symptoms including, recurrent eczema, respiratory problems, elevated blood pressure, allergic reactions.</td>
</tr>
<tr>
<td>Roundup does not cause any adverse reproductive effects</td>
<td>In laboratory tests on rabbits glyphosate caused long lasting, harmful effects on semen quality and sperm counts.</td>
</tr>
<tr>
<td>Roundup is not mutagenic in mammals.</td>
<td>DNA damage has been observed in laboratory experiments in mice organs and tissue.</td>
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</tbody>
</table>
| Roundup is environmentally safe.                | • In the agricultural environment, glyphosate is toxic to some beneficial soil organisms, beneficial arthropod predators, and increases crops’ susceptibility to diseases.  
• Sub-lethal doses of glyphosate from |
<table>
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<tr>
<th><strong>spray drift damages wildflower communities and can affect some species up to 20 metres away from the sprayer.</strong>&lt;br&gt;• The use of glyphosate in arable areas may cause dieback in hedgerow trees.</th>
<th><strong>Roundup is rapidly inactivated in soil and water.</strong>&lt;br&gt;• Glyphosate is very persistent in soils and sediments.&lt;br&gt;• Glyphosate inhibited the formation of nitrogen fixing nodules on clover for 120 days after treatment.&lt;br&gt;• Glyphosate residues were found in lettuce, carrot, and barley when planted a year after glyphosate was applied.</th>
</tr>
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<tr>
<td><strong>Roundup is immobile and does not leach from soils.</strong>&lt;br&gt;• Glyphosate can readily desorb from soil particles in a range of soil types. It can be extensively mobile and leach to lower soil layers.&lt;br&gt;• Glyphosate can be carried by soil particles suspended in run off.</td>
<td><strong>Roundup does not contaminate drinking water when used by local authorities on hard surfaces.</strong>&lt;br&gt;In the UK, levels of glyphosate above the EU limit have been detected by the Welsh Water Company every year since 1993. The Drinking Water Inspectorate recommends that glyphosate be monitored, particularly, in areas where it is used by local authorities on hard surfaces.</td>
</tr>
<tr>
<td><strong>It is nearly impossible for glyphosate resistance to evolve in weeds.</strong>&lt;br&gt;In 1996, glyphosate resistant ryegrass was discovered in Australia.</td>
<td><strong>Outcrossing in oilseed rape crops (and the transfer of genes from transgenic crops) occurs over a short distance and can be easily managed.</strong>&lt;br&gt;The densities of oil seed rape pollen are much higher and their dispersal patterns differ from around large fields compared to those found in experimental plots. Wind dispersal of pollen occurs over much greater distances and at higher concentrations than predicted by experimental plots. Significant levels of gene flow from transgenic oil seed crops is inevitable.</td>
</tr>
<tr>
<td><strong>Roundup Ready crops will reduce levels of herbicide use.</strong></td>
<td><strong>Herbicide resistant crops will intensify and increase dependency on herbicide use in agriculture rather than lead to any significant</strong></td>
</tr>
</tbody>
</table>
reductions. A variety of herbicides will have to be reintroduced to control glyphosate resistant volunteers, feral populations of crops and resistant weeds.

Source: References cited in Health and Environmental Impacts of Glyphosate, (Details available from the Pesticides Trust [now PAN UK]).

PAN UK “Resistance to glyphosate”

This data was first published in Pesticides News No. 41, September 1998, page 5 http://www.pan-uk.org/pestnews/Issue/pn41/PN41p5.htm

Response: Comment noted.

Herbicide Label Directions Opposing View #25 - “FACT: The EPA (Environmental Protection Agency) does not test pesticides for safety. It relies on the manufacturers’ test data to make judgments. Recent probes have found that the experiments on which these data have been based, have been designed to show only what the manufacturer would like them to show. This criticism of self-serving misrepresentation can be aimed equally validly at irresponsible experimenters bent on demonstrating toxicity of a given pesticide.”

Herbicide Myths Vs. the Facts
Published by Wild Ones, November 2006 http://www.for-wild.org/download/roundupmyth/mythvfact.html

Response: Comment noted.
Herbicide Label Directions Opposing View #26 - “The extraordinary influence of the biotechnology industry has made U.S. regulation of GM crops largely a rubber-stamp process designed to increase public confidence in, rather than ensure the safety of, genetically modified foods. Weaknesses shared by all three agencies include uncritical reliance on the data and conclusions of the financially interested GM crop developer in regulatory decisionmaking; dogmatic adherence to politically-motivated doctrines such as “substantial equivalence” designed to ease companies’ regulatory path to approval; and blindness to the substantial economic harm suffered by U.S. farmers thanks to governmental and industry negligence. As continuing contamination episodes provoke more scientifically-oriented regulators in Europe and Japan to reject shipments of U.S. foodstuffs with untested GM content, one can only hope that the often severe economic fallout for U.S. farmers (if nothing else) will convince U.S. regulators to leave politics behind, and finally adopt a more objective, stringent, and science-based regulatory system.”

Is Government Up to Task
Published in the January/February 2007 issue of Biotechnology

Response: Comment noted.
Herbicide Label Directions Opposing View #27 - “GAO’s review found that EPA and FTC make limited use of their authority over unacceptable safety advertising claims. GAO found the same situation nearly 4 years ago and recommended that EPA take steps to strengthen and improve its program for regulating such claims. Neither EPA nor FTC is taking formal enforcement action against safety claims by manufacturers and distributors. Since 1986 EPA has taken only one formal enforcement action involving a lawn care pesticide safety claim made by a manufacturer, while FTC has taken no enforcement action in this area. EPA officials told GAO that safety advertising claims are still a low enforcement priority because of limited resources and because other violations such as pesticide misuse continue to be its primary concern. Fm believes EPA is better able to handle pesticide safety claims because of its technical expertise and legislative authority.

FTC has not acted against claims by professional pesticide applicators, over which EPA has no authority, because it believes EPA has been successfully handling applicator claims informally through its regional offices. Although EPA and Fm officials have discussed GAO’s 1986 recommendation, no formal arrangement has been made to ensure that questionable applicator claims would be given appropriate attention.

The lawn care pesticides industry is making claims that its products are safe or nontoxic. GAO’s review found nine instances of safety claims, such as "completely safe for humans," made by manufacturers, distributors, and professional applicators. EPA, using its standards for pesticide labels, considers that these claims, when made by manufacturers and distributors, are false and misleading. Such claims are prohibited by because they differ substantially from claims allowed to be made as part of the approved registration. GAO believes that without an effective federal enforcement
program, the lawn care pesticides industry will continue to make such claims that could, among other things, persuade consumers to purchase a service they otherwise might not use or discourage the use of reasonable precautions to minimize exposure, such avoiding recently treated areas.”

“LAWN CARE PESTICIDES - Risks Remain Uncertain While Prohibited Safety Claims Continue”
United States General Accounting Office
Report to the Chairman, Subcommittee on Toxic Substances, Environmental Oversight, Research and Development, Committee on Environment and Public Works, U.S. Senate, March 1990
GAO/RCED-90-134

Response: Comment noted.

Herbicide Label Directions Opposing View #28 - “2,4-D has been evaluated by the European Union and included on its list of approved herbicides, stating inter alia that "the review [of 2,4-D] has established that the residues arising from the proposed uses, consequent on application consistent with good plant protection practice, have no harmful effects on human or animal health."[30] Concern over 2,4-D is such that it is currently not approved for use on lawns and gardens in Sweden,[31] Denmark, Norway, Kuwait and the Canadian provinces of Québec[32] and Ontario.[33] 2,4-D use is severely restricted in the country of Belize. In 2005, the United States Environmental Protection Agency approved the continued use of 2,4-D.[34] In Canada, the Pest Management Regulatory Agency (PMRA) has placed a condition of registration on 2,4-D such that the 2,4-D registrant(s) must provide the PMRA with a required developmental
neurotoxicity study by September 20, 2009. According to the PMRA, the due date of the study has since been extended to early 2010.”

2,4-Dichlorophenoxyacetic acid
Published by Wikipedia
http://en.wikipedia.org/wiki/2,4-Dichlorophenoxyacetic_acid

Response: The link cites information about 2, 4-D. The use of this herbicide is not being proposed for the project.

Herbicide Label Directions Opposing View #29 - “According to the lawsuit, Parker became the subject of hostile treatment by his supervisors after complaining about what he called a "systemic problem" when it came to proper pesticide use across several forests in New Mexico and Arizona.”

Former Forest Service Official Files Lawsuit over Firing by Susan Montoya Bryan Associated Press August 10, 2007
http://earthhopenetwork.net/former_forest_service_official_files_lawsuit_firing.htm

Response: Comment noted.
Conclusion
When dealing with health issues like this that involve the unaware public it’s better to be safe than sorry.

The Responsible Official staff will prepare denial or ‘it doesn't apply to this project” statements. Regardless, reading this document constitutes knowledge of the facts by the Responsible Official.