

Redwood National Park

Santa Monica Mountains National Recreation Area

California

National Park Service
U.S. Department of the Interior



PUBLIC SCOPING COMMENT SUMMARY REPORT

Invasive Plant Management Plan and Environmental Assessment Redwood National Park and Santa Monica Mountains National Recreation Area

January 2014



Appendix B

Correspondence Received from Organizations



Keeping Northwest California wild since 1977

Monday, November 11, 2013

Redwood National Park
P.O. Box 7
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Cc: Stassia Samuels
Redwood National and State Parks Plant
Ecologist
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RE: Redwood National Park (RNP) Invasive Plant Management Plan

Dear National Park Service,

I am writing on behalf of the Environmental Protection Information Center (“EPIC”), a nonprofit organization that works to protect and restore ancient forests, watersheds, coastal estuaries, and native species in northwestern California. EPIC is very concerned that Redwood National Park’s Invasive Plant Management Plan proposes the use of herbicides, which are toxic to plants, animals and people. Toxic chemicals absorb into the soil and often seep into water sources. They carry poison through the delicate web of life and do not belong in the food chain.

Because the website and scoping newsletter lack key information, including scale of project, target plant species and types of chemicals proposed, our comments are limited in scope. Redwood National Park also manages three other State Parks included within its legislated boundary. Are these parks also included in the proposed action?

We urge you to consider all non-toxic alternatives such as hand pulling, mowing, burning, goats, biological control agents and mulching.

Use of toxic herbicides is a matter of significant public interest, concern and controversy. Therefore, an EIS must be prepared.

- ◆ The public is increasingly concerned about the long-term human and wildlife health impacts of exposure to toxic chemicals especially when applied on protected National Park lands;
- ◆ There is significant scientific and public controversy about these long-term impacts, and
- ◆ Chemicals that may be used in combination and between “active” chemicals and so-called “inert” ingredients/chemicals (including surfactants) can have other, more

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powerful and largely unstudied and unknown impacts as compared to a single chemical used alone. These impacts are known as “synergistic effects” and they are not addressed on the chemical labels. The particular combinations of chemicals and other ingredients proposed for use and the potential for synergistic effects among these ingredients should be analyzed and disclosed.

The potential for toxic chemicals and surfactants to enter stream courses and other water bodies must be assessed and addressed.

- ◆ The environmental documentation must list all water bodies that are located within the proposed project area as well as the aquatic and riparian dependent species present in those waters and riparian areas. Assessment of impacts on aquatic and riparian wildlife and ecosystems should include but not be limited to endangered, threatened, candidate and *at risk* species.
- ◆ With respect to birds, the applicable regional direction is to use the Partners in Flight Plans available from the Pt. Reyes Bird Observatory to assess potential impacts to neotropical migrant songbirds in general and riparian dependent birds in particular. Where ESA listed species are present, evidence of appropriate consultation must be referenced.
- ◆ The environmental documentation should detail what procedures will be in place to assure that toxic substances do not drift or otherwise enter streams. In this regard all mechanisms by which the chemicals could enter a stream, including but not limited to, leaching, drift and accidents should be considered.
- ◆ The environmental documentation should disclose applicable requirements of Regional Water Quality Boards.

A range of feasible alternatives must be considered.

It is increasingly clear that non-toxic alternatives are feasible and effective. Please see the current methods being used by the Salmon River Restoration Council (SRRC.org), an organization within the region that has been identified as a national model for its successful non-toxic weed abatement program. Shasta-Trinity National Forest can demonstrate the same thing with respect to non-toxic transmission line vegetation management. We encourage RNP to do that! **An alternative for non-toxic control of the vegetation should be fully developed and fully analyzed.**

The potential for human exposure to toxic chemicals must be assessed and disclosed.

Redwood National Park is regularly used by humans including elderly, children and sometimes, sick people. For this reason the environmental documentation should:

- ◆ Assess actual use of the National Park by the public including hiking, camping, hunting use, etc. The actual locations where these uses occur should be identified and disclosed.
- ◆ Assess the potential for human exposure to toxic chemicals associated with actual use.

- ◆ Specify signage, closures and other means that will be utilized to eliminate the potential for human exposure to toxic chemicals. The strategies employed to eliminate potential exposure must be tied to the actual sites where there is potential for exposure as required by NEPA.

Significant issues require an Environmental Impact Statement (EIS).

There are multiple significant triggers requiring an EIS: 1.) The action would affect public health and safety, 2.) Unique characteristics of the geographical location, 3.) Using toxic chemical in a national park is highly controversial, 4.) The degree of possible effects on the human environment is uncertain and involves unique risks, 5.) The action may cause loss or destruction of significant scientific, cultural and historic resources and 6.) The action may adversely affect endangered or threatened species and habitat.

Ineffectiveness of herbicides must be addressed.

Non-native weeds have been introduced and spread as a result of cattle grazing, recreation, firefighting, logging, mining, road construction, reconstruction and maintenance and other uses/activities. Given the high mobility of our population and the uses of the public lands, is it possible to control and eradicate the target species? The future NEPA document should articulate how uses on public, private and tribal lands, introduce these non-native plants to sites in the forest.

County and state efforts have been spraying herbicides for many years, which most often has not controlled or eradicated any invasive species. For instance, Siskiyou County has been spraying several plants year after year but has never controlled or eradicated even one non-native plant. Please disclose the rate of success/failure of eradication/control efforts.

The mobility of our population is so high and the uses of national parks and public and private land are so diverse that programs of plant eradication and control are unlikely to be successful unless they have the support and involvement of knowledgeable forest users. Experience and logic indicate that the greatest chance of success is possible through educating resource users and the public in order to ***prevent*** introduction and spread of non-native plants. Therefore, please adopt a project that relies primarily on ***education and prevention***.

Inclusions.

Please analyze and disclose: the effectiveness of alternatives, present populations, locations and names of non-native invasive species, potential and cumulative impacts to water, soil, non-target plant and animal species including amphibians and other wildlife. Please be descriptive in describing effects to ESA listed species, including candidate species, and State species “at risk.” Please analyze and disclose how park managers are treating the cause of the spread of invasive species. Please include details of consultation with all applicable agencies including Native Tribes.

Please include a thorough discussion of economic issues related to the proposal and alternatives. With respect to indirect costs, costs associated with cleaning up toxic spills are relevant and need to be disclosed. Are you are proposing to transport toxic chemicals on un-surfaced roads or near/across stream and rivers? The risk of spills must be considered significant and the costs of clean up must be disclosed.

Conclusion

Again, we urge park managers to consider a completely non-toxic alternative, which would create jobs and in the long-term would better and safer for wildlife, soils, water, native plants and humans. **EPIC, its supporters and members treasure Redwood National Park and would be willing to collaborate and organize volunteer workdays to manually remove non-native invasive plant species.**

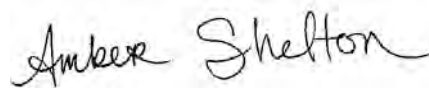
The land is to be managed for inspiration, enjoyment and education and the use of toxic herbicides is contrary to that. Given the level of controversy and the multiple significant effects, an EIS is clearly in order for this project proposal. Consultation with NMFS and Native Tribes must be initiated and documented. Please be community and forest user sensitive; adopt a non-toxic approach to control/eradication of non-native plants.

I would appreciate receiving a hard copy of future NEPA documents to our Arcata office. What is the current target date for release of a draft? What is the current target date for a decision? Thank you for your consideration.

Sincerely,



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Amber Shelton
EPIC Online Organizer
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September 27, 2013

Comments regarding proposed National Park Service Invasive Plant Management Plan/Environmental Assessment for the Santa Monica Mountains National Recreation Area and Redwood National Park

We support and applaud the NPS' desire to improve the management of vegetation in our parklands, and the solicitation of public comments on the developing proposal. We believe that a thorough, patient, cautious, and open-minded consideration of this complex issue has the potential to yield extremely valuable results.

From our perspective, the three alternatives offered by the NPS are not substantially different, in that all employ herbicide as the primary tool for vegetation management. The only difference between the third option and the second is the explicit inclusion of adaptive management, which we would hope would be employed regardless of the chosen tools and methods. We strongly applaud the inclusion of non-chemical methods and tools in alternative number two.

Our comments are, in essence, a call for a "fourth" alternative, which from our point of view would actually be alternative number two out of two.

As residents of the Santa Monica Mountains with a strong interest in how the public lands around our communities are managed, we ask the NPS to develop protocols for land management that focus on the reduction of anthropogenic environmental impacts (something we have some control over) rather than on the impossible task of attempting to control the migration of species, or changes in species population, both of which are fundamentally important evolutionary processes that have always existed, all over the earth, and rather than using dangerous, unnatural chemicals as tools for promoting environmental health .

Specifically we propose (1) a thorough re-evaluation of the concepts, facts, and assumptions underlying invasive plant biology, and the abandonment of practices that cannot be impartially demonstrated to be scientifically and operationally valid; and also that any new land management programs, projects, or protocols follow these guidelines:

- 5) When addressing issues of ecosystem health, recognize that changes in plant populations arise from pre-existing conditions, such as the state of the soil, water, and air. Use precious resources to identify and address these conditions rather than symptomatic changes in plant populations.
- 6) Pursue vegetation control projects ONLY where ALL of the following conditions are met:
 - a) the targeted environment is protected from the re-introduction of the same or different undesired plant species;
 - b) project size is small (less than 1 acre);

- c) targeted plant species have been conclusively determined to have no ecological value;
 - d) non-target species can be effectively protected from harm and risk;
 - e) a detailed revegetation plan, with full-term funding, is firmly in place;
 - AND
 - f) vegetation removal and revegetation can be accomplished without the use of herbicides.
- 7) Prioritize methods that rely upon local labor.
 - 8) Act in concert with the prevailing ethos of nearby communities.

The reasoning and support for these guidelines is:

- 1) **Re-evaluate the concepts, facts, and assumptions that underlie invasive plant biology.**
 - a) Species migration, the waxing and waning of species populations, and the evolution of ecosystems are not problems that need to be fixed by humans, they are natural global processes as old as life, and intrinsic to it. (Clark 1988; Menard 1974: 309-310; Fort 1974: 544)
 - b) There are species that some people don't like, for one reason or another, but there is no such thing as a "bad" or "evil" plant.
 - (i) "Good" and "evil", "useful" and "useless", are unscientific, subjective concepts, pervasively subject to disagreement and revision. Therefore they are not a legitimate basis upon which to base scientific or policy decisions.
 - (ii) Plants that have been labeled "evil", "harmful," or "useless" have, with the passage of time and more careful consideration, been discovered to play ecological roles that could be described as "positive" or at least benign. Therefore should be no "death sentence" judgments against any plant species. Ecosystems need to be understood in macro- as well as micro-evolutionary terms. (Stromberg 1998; Anderson 1998; O'Malley 1991; Mastro 1990; Marriott 1997)
 - c) Accelerated climate change means accelerated species migration and the acceleration of changes within ecosystems. (Lawton 1998) This global process cannot possibly be forestalled or even significantly impacted by humans, least of all by dispersing poison. We must adapt, and continue to develop non-toxic tools for the holistic stewardship of wildlands.
 - d) The definition of what (and who) is a native, non-native, and invasive is problematic. The Cal-IPC definition commonly cited contains a number of fallacies. Unless these terms have scientifically and logically legitimate meaning, it is not possible to take responsible action in their name. The Cal-IPC definition: *"When plants that evolved in one region of the globe are moved by humans to another region, a few of them flourish, crowding out native vegetation and the wildlife that feeds on it."*

- (i) Plants move all over the globe by various means (air currents, ocean currents, on the bodies of mobile creatures) and have done so for as long as there have been plants. (Darlington 1957; Elias 1994; Thornton 1971: 215-216)
- (ii) Humans are not separate from the rest of the terrestrial environment, they are part of it. And they are not only part of it, they are one of the most significant elements in it. There is no rational basis for separating human influence from other influences. Species movement connected to human activity is no way separable from species movement connected to the activity of other creatures.
- (iii) “Native ecosystems” are always in flux. The populations of both established and newer species rise and fall unpredictably, even without any human influence. The concept of stable, coevolved plant communities is false. (Kellman, 1980; Cody 1995; Rootes 1988; Turner 1990)
- (iv) Sometimes newer plants accused of threatening to permanently crowd out established species have proven over time to be innocent of this behavior. (Sher, et al, 2000, 2002; also see attached photo of younger *Baccharis* surrounding older *Eucalyptus*.)
- (v) Species accused of providing no benefit to native wildlife have, over time, been shown to provide food, shelter, and/or other benefits to other local life forms. (Holland et al. 1995; Anderson 1998; See attached photos and http://blackfoot.net/~larkwick/swfl_1.html, Endangered Willow flycatcher nesting in *Arundo donax*.)
- (vi) Monocultures are not only present where there have been “alien invasions” – they are also present in habitats undisturbed by recent “invaders.” (Poulson and McClung 1999; (also see attached photo of a *Pteridium* “invasion”).)

2. When addressing issues of ecosystem health, recognize that changes in plant populations arise from pre-existing conditions, such as soil conditions and water quality. (Vermeij 1991; Wakeman 1989; Labus et al. 1999; Turner et al. 1999)

- a) If any intervention is to take place, in order to be efficient and effective it needs to be based upon a solid scientific understanding of these pre-existing conditions and their effect upon plant populations, and it should focus upon causal conditions rather than the symptomatic changes in flora. Resources should be used to identify and remediate these conditions. Useful studies would include comparisons of air, soil, and water quality and conditions in areas deemed to be “invaded: vs. those deemed to be “native.”

3a) Only pursue vegetation control projects where the targeted environment is protected from the re-introduction of the same or different undesired plant species. Upstream and upslope should take precedence over downstream and downslope areas.

Isolated areas should take precedence over highly trafficked ones. This will minimize the chance that the target area is re-populated by undesired plant species.

3b) Only pursue projects where the project size is small (less than 1 acre).

Vegetation management projects sometimes have little effect, or negative unintended consequences. (Tshinkel 1993; Craig 1993; Goldstein 1991) By working on a small scale, potential negative impacts can be minimized, and success can be built upon methodically and with minimized risk.

3c) Only pursue vegetation control projects where the targeted plant species have been conclusively determined to have no ecological value. (Malakoff 1999; Bowcutt 1990) All functions of targeted plant species (seasonally and over a much longer span of years) must be understood and considered without bias before any species is targeted for removal.

3d) Only pursue vegetation control projects where non-target species can be effectively protected from harm and risk. (Walters 1995; Moyle 1986; Henderson 1990)

3e) Only pursue projects where a detailed revegetation plan, with full-term funding, is firmly in place. Revegetation is the most reliable way to ensure that desired species take the place of removed species.

3f) Only pursue vegetation control projects where plant removal and revegetation can be accomplished without the use of herbicides.

(i) Commonly used herbicides have well documented negative impacts upon non-target species, when used according to the instructions on their labels.

Glyphosate / Round-up

Parkinson's Disease and Other Neurodegenerative Conditions

- Ya-xing Guia et al. "Glyphosate induced cell death through apoptotic and autophagic mechanisms." 2012.¹
- Benachour, N. et al. "Glyphosate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells." 2009.²
- Le Couteur, D.G. et al. "Pesticides and Parkinson's disease." 1999.

¹ Ya-xing Guia, Xiao-ning Fana, Hong-mei Wang, Gang Wang, Sheng-di Chena. "Glyphosate induced cell death through apoptotic and autophagic mechanisms." *Neurotoxicology and Teratology*, Volume 34: Issue 3, May-June 2012, pps. 334-349.

<http://www.sciencedirect.com/science/article/pii/S0892036212000438>

² Benachour, N. and Séralini, G-E. "Glyphosate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells." *Chemical Research in Toxicology*, 2009, 22 (1), pps. 97-105.

D.G. Le Couteur, A.J. McLean, M.C. Taylor, B.L. Woodham, and P.G. Board "Pesticides and Parkinson's disease" *Biomedicine & Pharmacotherapy*, Volume 53, Issue 3, Pages 122-130

Cancer and Systemic Human Health Effects

- Samsel A. et al. "Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases." 2013.³
- Thongprakaisang S. et al. "Glyphosate induces human breast cancer cells growth via estrogen receptors." 2013.⁴
- Jasper R. et al. "Evaluation of biochemical, hematological and oxidative parameters in mice exposed to the herbicide glyphosate-Roundup(®)." 2012.⁵
- De Roos, A. J. et al. "Cancer Incidence among Glyphosate-Exposed Pesticide Applicators in the Agricultural Health Study." 2005.⁶
- De Roos, A.J. et al. "Integrative assessment of multiple pesticides as risk factors for non-Hodgkin's lymphoma among men." 2003.⁷
- Hardell, L. et al. "Exposure to pesticides as risk factor for non-Hodgkin's lymphoma and hairy cell leukemia: pooled analysis of two Swedish case-control studies." 2002.⁸

Fertility and Fetal Impacts

- Romano RM et al. "Prepubertal exposure to commercial formulation of the herbicide glyphosate alters testosterone levels and testicular morphology." 2010.⁹
- Benachour, N. et al. "Glyphosate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells." 2008.¹⁰
- Dallegrave E et al. "Pre- and postnatal toxicity of the commercial glyphosate formulation in Wistar rats." 2007.¹¹

³ Samsel A, Seneff S. "Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases." *Entropy*. April 2013; 15(4):1416-1463.

⁴ Thongprakaisang S, Thiantanawat A, et al. "Glyphosate induces human breast cancer cells growth via estrogen receptors." *Food Chem Toxicol*. 2013. pii: S0278-6915(13)00363-3. doi: 10.1016/j.fct.2013.05.057.

⁵ Jasper R, et al. "Evaluation of biochemical, hematological and oxidative parameters in mice exposed to the herbicide glyphosate-Roundup(®)." *Interdiscip Toxicol*. 2012. 5(3):133-40

⁶ De Roos, A. J., D., Blair, A., Rusiecki, J. A., Hoppin, J. A., Svec, M., Dosemeci, M., Sandler, D. P., & Alavanja, MC. "Cancer Incidence among Glyphosate-Exposed Pesticide Applicators in the Agricultural Health Study." *Environmental Health Perspectives*. 2005. 113(1), 49-54.

⁷ De Roos, A.J., Zahm, S.H., Cantor, K.P. et al. "Integrative assessment of multiple pesticides as risk factors for non-Hodgkin's lymphoma among men." *Occup Environ Med*, 2003. 60(9).

⁸ Hardell L, Eriksson M, & Nordstrom M. "Exposure to pesticides as risk factor for non-Hodgkin's lymphoma and hairy cell leukemia: pooled analysis of two Swedish case-control studies." *Leuk Lymphoma*, 2002. 43(5), 1043-1049

⁹ Romano RM, Romano MA, Bernardi MM, Furtado PV, Oliveira CA. "Prepubertal exposure to commercial formulation of the herbicide glyphosate alters testosterone levels and testicular morphology." *Arch Toxicol*. 2010 Apr;84(4):309-17.

¹⁰ Benachour, N. and Seralini, G.-E. "Glyphosate Formulations Induce Apoptosis and Necrosis in Human Umbilical, Embryonic, and Placental Cells." *Chemical Research in Toxicology*, 2008.22(1), 97-10.

¹¹ Dallegrave E, Mantese FD, Oliveira RT, Andrade AJ, Dalsenter PR, Langeloh A. "Pre- and postnatal toxicity of the commercial glyphosate formulation in Wistar rats." *Arch Toxicol*. 2007 Sep;81(9):665-73.

- Richard S. et al. "Differential effects of glyphosate and roundup on human placental cells and aromatase." 2005.¹²

Ground and Surface Water Contamination:

- Scribner, E. A. et al. "Concentrations of Glyphosate, its Degradation Product, Aminomethylphosphonic Acid, and Glufosinate in Ground- and Surface-Water, Rainfall, and Soil Samples Collected in the United States, 2001-06." 2007.¹³
- Scribner, E.A. et al. "Reconnaissance data for glyphosate, other selected herbicides, their degradation products, and antibiotics in 51 streams in nine Mid-western states." 2003.¹⁴
- Frans, L.M. "Pesticides detected in urban streams in King County, Washington, 1999-2003." 2004.¹⁵

¹² Richard S, Moslemi S, Sipahutar H, Benachour N, & Seralini GE. "Differential effects of glyphosate and roundup on human placental cells and aromatase." *Environmental Health Perspectives*. 2005. 113(6), 716-720.

¹³ Scribner, E. A., Battaglin, W. A., Gilliom, R. J., & Meyer, M. T. 2007. "Concentrations of Glyphosate, its Degradation Product, Aminomethylphosphonic Acid, and Glufosinate in Ground- and Surface-Water, Rainfall, and Soil Samples Collected in the United States, 2001-06." US Geological Survey, Scientific Investigations Report, 2007-5122 (111p).

¹⁴ Scribner, E.A. Battaglin, W.A., Dietze, J.E., and Thurman, E.M. "Reconnaissance data for glyphosate, other selected herbicides, their degradation products, and antibiotics in 51 streams in nine Mid-western states," 2003. US Geological Survey Toxic Substances Hydrology Program. Open-File Report 03-217. <http://ks.water.usgs.gov/Kansas/pubs/reports/ofr.03-217.html>

¹⁵ Frans, L.M. "Pesticides detected in urban streams in King County, Washington, 1999-2003." U.S. Geological Survey Scientific Investigations Report 2004-5194. 2004. <http://pubs.water.usgs.gov/sir2004-5194/>.

Toxicity to Frogs and Aquatic Organisms

- Frontera J.L. et al. "Effects of Glyphosate and Polyoxyethylenamine on Growth and Energetic Reserves in the Freshwater Crayfish *Cherax quadricarinatus* (Decapoda, Parastacidae)." 2011.¹⁶
- Glusczak L, et al. "Acute Exposure to Glyphosate Herbicide Affects Oxidative Parameters in *Piava* (*Leporinus obtusidens*). 2011.¹⁷
- Kreutz L.C. et al. "Exposure to sublethal concentration of glyphosate or atrazine-based herbicides alters the phagocytic function and increases the susceptibility of silver catfish fingerlings (*Rhamdia quelen*) to *Aeromonas hydrophila* challenge." 2010.¹⁸
- Brausch, J. M. et al. "Toxicity of Three Polyethoxylated Tallowamine Surfactant Formulations to Laboratory and Field Collected Fairy Shrimp, *Thamnocephalus platyurus*." 2007.¹⁹
- Relyea, R. "The lethal impact of Roundup on aquatic and terrestrial amphibians." 2005.²⁰
- Howe, C.M. et al. "Toxicity of glyphosate-based pesticides to four North American frog species." 2004.²¹

Weed Resistance

- Powles, S. B. "Evolved glyphosate-resistant weeds around the world: lessons to be learnt." 2008.²²
- Culpepper, A.S. "Glyphosate-Induced Weed Shifts." *Weed Technology*. 2006. 20(2), 277–281.²³

¹⁶ Frontera JL, Vatric I, Chaulet A, Rodríguez EM. "Effects of Glyphosate and Polyoxyethylenamine on Growth and Energetic Reserves in the Freshwater Crayfish *Cherax quadricarinatus* (Decapoda, Parastacidae)." *Arch Environ Contam Toxicol*. 2011. 61(4):590-8.

¹⁷ Glusczak L, et al. "Acute Exposure to Glyphosate Herbicide Affects Oxidative Parameters in *Piava* (*Leporinus obtusidens*)." *Arch Environ Contam Toxicol*. 2011. 61(4):624-30.

¹⁸ Kreutz L.C., Barcellos, L.J., Marteninghe, A. et al. "Exposure to sublethal concentration of glyphosate or atrazine-based herbicides alters the phagocytic function and increases the susceptibility of silver catfish fingerlings (*Rhamdia quelen*) to *Aeromonas hydrophila* challenge." *Fish Shellfish Immunol*. October 2010. 29(4), pps. 694-7.

¹⁹ Brausch, J. M., & Smith, P.N. "Toxicity of Three Polyethoxylated Tallowamine Surfactant Formulations to Laboratory and Field Collected Fairy Shrimp, *Thamnocephalus platyurus*." *Arch Environ Contam Toxicol*. 2007 52(2), 217-221.

²⁰ Relyea, R. "The lethal impact of Roundup on aquatic and terrestrial amphibians." *Ecological Applications*. 2005. 15(4), 1118–1124.

<http://www.esajournals.org/doi/abs/10.1890/04-1291>

²¹ Howe, C.M, Berrill, M., Pauli, B.D., Helbing, C.C, Werry, K., and Veldhoen, N. "Toxicity of glyphosate-based pesticides to four North American frog species." 2004. *Environmental Toxicology and Chemistry*. 23:1928-1938.

²² Powles, S. B. "Evolved glyphosate-resistant weeds around the world: lessons to be learnt." *Pest Management Science*. 2008. 64(4), 360-365.

<http://www.ncbi.nlm.nih.gov/pubmed/18273881>

²³ Culpepper, A.S. "Glyphosate-Induced Weed Shifts." *Weed Technology*. 2006. 20(2), 277–281.

Imazapyr:

Regulatory Actions

- In 2011, imazapyr was identified by the California Department of Pesticide Registration (DPR) as having “potential adverse health effects [related to birth defects/teratology] in studies of sufficient quality to permit risk characterization...”²⁴
- In 2005, the EPA stated: “The Agency has determined that specific drift language amendments proposed in this RED will significantly reduce, though may not eliminate, the risks to non-target plants.”²⁵
- In 2003, the European Union (EU) officially withdrew imazapyr from the European market due to significant concerns over human health impacts.²⁶

Harmful Endocrine and other Toxicological Effects

- “...As indicated, **the mechanism of action for imazapyr is not well understood**... there is suggestive evidence that it may affect endocrine function.”²⁷
- Grisolia, C.K. et al. “A comparative toxicologic and genotoxic study of the herbicide arsenal, its active ingredient imazapyr, and the surfactant nonylphenol ethoxylate.” September 2004.²⁸

Deleterious Impacts on Butterflies and Other Non-Target Organisms

- Stark, J.D. et al. “Effects of Herbicides (imazapyr and triclopyr) on Behr’s Metalmark Butterfly, a Surrogate Species for the Endangered Butterfly, Lange’s Metalmark.” 2012.²⁹
- The Environmental Incident Information System (EIIS) has records related to the use of imazapyr (April 2005)...Incidents reported include impacts to terrestrial and aquatic plants and possibly birds and fish.” 2005.³⁰
- There are several reports of spray drift affecting plants on adjacent property and one report of runoff to a pond resulting in a possible fish kill from imazapyr.³¹
- Mortality in birds and fish seemed to occur more frequently when imazapyr was applied as part of a pesticide “cocktail”, which suggests potential synergistic effects from combinations of multiple pesticides (such as ad hoc

²⁴ California DPR: <http://www.cdpr.ca.gov/docs/risk/priot.pdf>

²⁵ US EPA Reregistration eligibility decision (RED): Imazapyr. 2005, p. 24. Washington, DC.

²⁶ Pesticide Action Network (PAN) and the EU Directorate General (DG) for Health and Consumer Protection, Pesticide Safety Directorate. <http://www.pan-europe.info/Archive/Banned%20and%20authorised.htm>

²⁷ Imazapyr Risk Assessment. Washington State Department of Agriculture. 2009, p. 44.

²⁸ Grisolia, C.K., Bilich, M.R., Formigli, L.M. “A comparative toxicologic and genotoxic study of the herbicide arsenal, its active ingredient imazapyr, and the surfactant nonylphenol ethoxylate.” *Ecotoxicology and Environmental Safety*. Volume 59, Issue 1, September 2004, pps. 123-126.

²⁹ Stark, J.D., Chen X.D., Johnson, C. “Effects of Herbicides (imazapyr and triclopyr) on Behr’s Metalmark Butterfly, a Surrogate Species for the Endangered Butterfly, Lange’s Metalmark.” *Environmental Pollution*. 2012. 164: 24-27.

³⁰ US EPA Reregistration eligibility decision (RED): Imazapyr. 2005. p. 23. Washington, DC.

³¹ Ibid.

applications can occur quite frequently). One incident resulted in a bird, fish, terrestrial, and aquatic plant kill.³²

- Another EIIS documented incident involved a goldfish kill from suspected runoff following aerial application of imazapyr.³³

Acute Effects from Accidental or Intentional Ingestion of Imazapyr

- Lee, H-L. et al. "Acute Poisoning with a Herbicide Containing Imazapyr (Arsenal): A Report of Six Cases." 1999.³⁴

Neurotoxic Effects of Imazapyr and its Metabolites

- "...At high doses that produce a broad spectrum of toxic effects, clinical signs of poisoning include neurotoxicity, manifested as impaired consciousness and respiratory distress in humans (Lee et al., 1999), decreased activity in rats (Fischer, 1986b), and loss of equilibrium and inactivity in fish (Cohle and McAllister, 1984b, 1984c)..."³⁵
- "General pharmacology studies with imazapyr isopropylamine revealed central nervous system (CNS) effects following oral exposure".³⁶
- Imazapyr isopropylamine was administered orally to male mice and male rabbits to define effects on gross behavior and the central nervous system. The chemical produced a stimulant effect on gross behavior and increased the sleeping time induced by hexobarbital (an anesthetic and sedative) at high doses in mice, increased muscle contractility in rats, depressed gross behavior in rabbits, changed respiratory rate, blood pressure, and heart rate in rabbits, and increased the volume of urine in both mice and rabbits.³⁷

Extreme Environmental Persistence and Mobility

- "...In relatively arid areas where microbial metabolism may be the predominant degradation mechanism of imazapyr in soil, residual toxicity could last **for several months to several years, especially for sensitive plant species**..."³⁸
- "Imazapyr is highly mobile and quite persistent in the environment, two factors that contribute to the ability of this herbicide to cause long-term impacts on non-target plants near treated sites." Source: From the expert declaration of Dr. Susan Kegley on behalf of Californians for Alternatives to Toxics for the Humboldt County Superior Court, February 2008.³⁹

³² Ibid.

³³ Ibid.

³⁴ Hsin-Ling Lee, Kuan-Wen Chen and Ming-Ho Wu. "Acute Poisoning with a Herbicide Containing Imazapyr (Arsenal): A Report of Six Cases." *Clinical Toxicology*. 1999, Vol. 37, No. 1, pps. 83-89.

³⁵ Source: Imazapyr Risk Assessment, Washington State Department of Agriculture, 2009, p. 17 (submitted by AMEC Geomatrix Inc).

<http://agr.wa.gov/plantsinsects/weeds/npdespermits/docs/2009AMECHumanHealthEcologicalEffectsRiskAssessmentImazapyr.pdf>

³⁶ Ibid.

³⁷ Ibid. and Syracuse Environmental Research Associates (SERA), 2004.

³⁸ Imazapyr Risk Assessment, Washington State Department of Agriculture, 2009, p. ES-ii.

³⁹ http://www.alternatives2toxics.org/pdfs/kegley_summary_declaration.pdf

“Imazapyr is very persistent in the environment, highly water soluble, and does not adsorb well to most soils. Thus, any imazapyr released into the environment will readily be transported off site by precipitation, flooding or irrigation runoff”.⁴⁰

- “Imazapyr’s mobility and persistence, combined with an annual treatment regime that is intended to last for several years will likely result in widespread collateral damage to other plants that are downgradient from the treated area”.⁴¹
- “Reestablishment of native species will be difficult in areas with residual imazapyr in the soil”.⁴²

Triclopyr

Note: There are very few studies of triclopyr available in the open literature,⁴³ which significantly hinders any thorough discussion of the toxin’s full spate of human, environmental, and ecological impacts. Lack of publicly available data should by no means lead to a presumption of safety.

Regulatory Actions and Rankings

- In 2011, triclopyr was identified by the California Department of Pesticide Registration (DPR) as having “potential adverse health effects [related to genotoxicity and low NOEL] in studies of sufficient quality to permit risk characterization...”
- San Francisco’s Department of the Environment classifies Garlon 4 and Garlon 4 Ultra (Dow AgroSciences triclopyr formulations) as a “highest hazard” (Tier 1) pesticide in the “limited use “special concern” category. It is flagged in all caps as: “HIGH PRIORITY TO FIND ALTERNATIVE”.⁴⁴

Deleterious Impacts on Butterflies and Other Non-Target Organisms

- Stark, J.D. et al. “Effects of Herbicides (triclopyr and imazapyr) on Behr’s Metalmark Butterfly, a Surrogate Species for the Endangered Butterfly, Lange’s Metalmark.” 2012.⁴⁵
- Chen, C.Y. et al. “Multiple Stressor effects of herbicide, pH, and food on wetland zooplankton and a larval amphibian.” 2008.⁴⁶

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

⁴³ Marin Municipal Water District (MMWD) Vegetation Management Plan, August 2008.

⁴⁴ San Francisco Reduced Risk Pesticide List, February 17, 2010. p. 7.

⁴⁵ Stark, J.D., Chen X.D., Johnson, C. “Effects of Herbicides (triclopyr and imazapyr) on Behr’s Metalmark Butterfly, a Surrogate Species for the Endangered Butterfly, Lange’s Metalmark.” *Environmental Pollution*. 2012. 164: 24-27.

⁴⁶ Chen, C.Y., Hathaway, K.M., Thompson, D.G., Folt C.L. “Multiple Stressor effects of herbicide, pH, and food on wetland zooplankton and a larval amphibian.” *Ecotoxicol Environ Saf*. 2008 Sep;71(1):209-18.
<http://www.ncbi.nlm.nih.gov/pubmed/17904219>

Cancer Causing Associations

- Triclopyr's carcinogenicity has been studied in both rats and mice. In both species, feeding of triclopyr significantly increased the frequency of breast cancer. And yet, the EPA refused to classify this chemical as a carcinogen even though its own guidelines call for classifying pesticides as carcinogens if they cause cancer in more than one species.⁴⁷
- In male rats, triclopyr caused an increase in the frequency of adrenal tumors.⁴⁸

Negative Reproductive Effects, Fetal Developmental Toxicity

- There are no reproductive studies of triclopyr in the **open literature** and only one of TCP, the major metabolite of triclopyr. The conclusions below rely on unpublished reports described in the USDA Forest Service review and EPA RED.⁴⁹
 - Several studies found adverse maternal and development outcomes, including fetal malformations.
 - Triclopyr causes severe birth defects in rats at relatively low levels of exposure (NOEL = 5 mg/kg day)."

Marked Environmental Persistence and Mobility

- According to the EPA, triclopyr is "very mobile" in soil. Triclopyr molecules are not strongly held by soil or sediment particles.⁵⁰
- Triclopyr is a rather persistent chemical, especially in forestry sites. Field studies showed considerable variation in half lives under different conditions, with the general range extending from 10-100 days or longer.⁵¹

Aminopyralid

Regulatory Actions and Rankings

- In 2011, aminopyralid was identified by the California Department of Pesticide Registration (DPR) as having "potential adverse health effects [related to chromosome aberrations] in studies of sufficient quality to permit risk characterization..."
- San Francisco's Department of the Environment classifies Milestone (Dow AgroSciences aminopyralid formulation) as a "highest hazard" (Tier 1) pesticide in the "limited use "special concern" category for its extreme persistence in the environment.⁵²
- In 2007, Dow AgroSciences withdrew its application to sell Milestone in the state of New York after receiving a letter from Maureen Serafini, Director of the New York State Bureau of Pesticide Management, indicating that

⁴⁷ Cox, C., Journal of Pesticide Reform, Winter 2000, Volume 20, No. 4, p. 14.

⁴⁸ Ibid.

⁴⁹ Marin Municipal Water District (MMWD) Vegetation Management Plan, August 2008, pps 4-9 and 4-17.

⁵⁰ US EPA "Prevention, Pesticides, and Toxic Substances." 1998. Reregistration eligibility decision (RED): Triclopyr, pps. 2-5. Washington, DC.

⁵¹ Ibid, pps. 58-61.

⁵² San Francisco Reduced Risk Pesticide List, February 2010.

aminopyralid's clear potential to contaminate groundwater was not acceptable. This chemical is now effectively banned from use in the state.⁵³

- In 2005, the EPA granted aminopyralid (a new pyridine carboxylic acid) "conditional registration" status.⁵⁴ A "conditional registration" is a free pass to sell an untested product for an unspecified (and often protracted) period of time, because conditional registrations lack most of the safety studies and data required of a full-fledged pesticide registration. As such, aminopyralid's alleged safety rests entirely on empty and incomplete data.

Significant Environmental Persistence and Mobility

- Aminopyralid persists in soils with a half-life ranging from 32 to 533 days.⁵⁵
- In aerobic sediment-water systems, degradation proceeded slowly, with observed total system half-lives of 462 to 990 days (i.e. 3 years).⁵⁶
- Aminopyralid does not bind strongly to soils, increasing its potential mobility in the environment.⁵⁷
- This chemical gives new meaning to the concept of "persistence". It is extremely resistant to breaking down and has proven impervious to decomposition in animals' digestive tracts and even the composting process.⁵⁸

Effect on Non-Target Species

- A series of issues related to aminopyralid contamination of compost occurred globally between 2008 and 2009, leading to the death of many plants exposed to the tainted compost, including thousands of acres of cash crops intended for market. The unanticipated ability of this chemical to cause such far-reaching ecological and economic consequences should give pause to any individual proposing to use it in any natural areas program. (Davis, J., 2010).⁵⁹
- Tomatoes are highly sensitive to contamination. In a former North Carolina hay field treated with Milestone in June 2006, residue levels were high enough to damage tomatoes *three years later*. Symptoms include curled, cupped leaves and wilting new growth — problems often misdiagnosed as disease. The herbicide residues also affect carrots, potatoes, spinach, beans, peas, eggplant, peppers, lettuce, raspberries, strawberries and more.⁶⁰

⁵³ http://pmep.cce.cornell.edu/profiles/herb-growthreg/24-d-butylate/aminopyralid/aminopyr_wth_0207.pdf

⁵⁴ US EPA Office of Prevention, Pesticides, Environmental Protection and Toxic Substances, Pesticide Fact Sheet - Conditional Registration: Aminopyralid, August 10, 2005.

http://www.epa.gov/opp00001/chem_search/reg_actions/registration/fs_PC-005100_10-Aug-05.pdf

⁵⁵ US EPA Office of Prevention, Pesticides, Environmental Protection and Toxic Substances, Pesticide Fact Sheet - Conditional Registration: Aminopyralid, August 10, 2005, p. 6.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid. and "The Composting Process and its Impact on Water Quality", *Agricultural Composting and Water Quality*. Chpt 5, p. 17.

⁵⁹ Davis, J., PhD, NC State University, Department of Horticultural Science, "Herbicide Carryover in Hay, Manure, Compost, and Grass Clippings." April 2010.

⁶⁰ Ibid.

- The damage from aminopyralid contamination was so extensive in the UK that it led to a temporary withdrawal/de facto ban on the product in that country.⁶¹

Other Human and Toxicological Effects

- As aminopyralid remains “conditionally registered”, we do not really know. Based on preliminary data submitted by Dow, the chemical is “perfectly safe” with little to no expected harm to fish, birds, humans, etc.⁶²
 - The EPA is not scheduled to review aminopyralid until approximately 2020, but that is always subject to be extended...⁶³
-

- (ii) The EPA testing and approval process for pesticides is fatally flawed.
- a. Laboratory conditions are substantially different than those in the environment. Once applied, herbicides become part of a complex, changing, unpredictable stew of naturally occurring and human-introduced chemicals. Adding more foreign elements to the mix creates a greater risk of unknown and potentially disastrous consequences.
 - b. EPA rarely conducts its own safety studies. Rather, it reviews tests that were sponsored by those with a financial interest in the outcome, and is therefore not the guarantee of safety that it is held up to be.
 - c. In many cases EPA analysis of industry-funding testing has proven to be inaccurate, with disastrous consequences. This is another reason that EPA approval does not provide sufficient assurance to the public as to product safety.
 - d. Most of the studies that the EPA relies on to draw its conclusions are unpublished and not available to the public or to independent scientists for peer review. This lack of transparency is exacerbated by the fact that pesticide studies are typically designed by the manufacturer and conducted by “third party” labs (paid by the manufacturer) whose studies are not monitored.
 - e. The FDA “conditionally registers” many chemicals, even though this permits basically under-tested toxic chemicals to be used like any other commercial product. “Conditional registrations” have huge data gaps and typically rely on only a handful of rudimentary safety studies. This conditional approval status can be extended for years-even permanently, as no adequate tracking mechanism exists to convert “conditional” registrations to “full” registrations in a timely fashion. The National Resources Defense Council (NRDC) recently exposed the bracing extent and abuse of “conditional”

⁶¹ Dow AgroSciences Public Relations Website for Aminopyralid incident in the UK:
<http://www.manurematters.co.uk/>

⁶² Ibid.

⁶³ Beyond Pesticides, ChemicalWatch Factsheet: Aminopyralid, Volume 31, No. 3, Fall 2011, p. 22.

registrations in a scathing report, one whose findings were confirmed by the Government Accountability Office (GAO).⁶⁴

- (iii) Although we cannot predict precisely where, when, or what kind of accidents will happen, we can say with assurance, based upon a long history, that accidents connected to the use of herbicides will happen. Accidents are not anomalies, they are an unavoidable part of the process. Non-chemical methods do not have the potential for similarly injurious and/or expensive accidents.
- (iv) The herbicide-based approach to vegetation control is not truly cost effective.
 - a. To be accurate, cost comparisons should, but generally do not, include the cost of transporting and storing materials, safety training, accident clean-up, and the cost of healthcare associated with illness and injury connected to herbicides.
 - b. Because herbicides do not address the causes of changes in ecosystems, treated areas are frequently subject to repeated “invasions” and re-treatments. What is put forth as a quick and relatively cheap solution turns out to be an expensive lifetime subscription to toxic “medicine”.

4) Prioritize methods that rely upon local labor rather than chemicals.

- a) Money spent on projects should create jobs in local communities, rather than add to the profits of distant corporations.
- b) Money spent on people creates a healthier human ecology; money spent on chemicals creates a sick / mutant ecology.
- c) Local labor leads to local project buy-in, and greater connection between the public and the wildlands.
- d) The Bradley Method (see attachment), a non-chemical, labor-focused methodology of species removal, is a proven, effective method that should be employed.

5) Respect the prevailing ethos of nearby communities.

- a) Since 1996 the Topanga Creek Watershed Committee, a project of the 501c3 group The Watershed Project, has been working to educate and encourage all stakeholders in our watershed and the surrounding area regarding the minimization of human-caused negative impacts upon the environment. One big part of this program has been providing information regarding the harmful effects of all classes of pesticide upon the local wildlife and environment, and the promotion of non-toxic alternatives for pest management. We have repeatedly hosted well-attended programs and distributed written material regarding non-toxic landscaping and non-toxic rodent control. Our “No More Poison” campaign,

⁶⁴ NRDC: March 26, 2013: <http://www.nrdc.org/health/pesticides/flawed-epa-approval-process.asp> ;
GAO: June 2013: <http://www.gao.gov/assets/660/656825.pdf>

which is designed to incrementally make ours an entirely non-toxic watershed, has been recognized with awards from State Senator Fran Pavley, County Supervisor Zev Yaroslavsky, and the Topanga Chamber of Commerce. A petition supporting this campaign, only briefly circulated, collected over 3,000 signatures from Topangans as well as individuals from all over the region, country, and world. (Single page attached, hard copies of all pages available upon request.) While our No More Poison campaign is focused upon the Topanga Creek Watershed, it is part of a much larger movement across the Santa Monica Mountains, the state, the country, and the world to de-toxify human practices and the environment.

- b) In 2012 work crews from the California Department of Transportation (Caltrans) deviated from longstanding practices and applied herbicide to vegetation along the shoulders of SR 27. The Topanga Creek Watershed Committee, along with the Topanga Chamber of Commerce and the Topanga Association for a Scenic Community, spearheaded the communication of the community's objection to this practice. Subsequently the Topanga Canyon Blvd Roadside Committee was formed, consisting of representatives of the aforementioned groups, as well as representatives from the Topanga Town Council, the Topanga Coalition for Emergency Preparedness, the North Topanga Firesafe Council, Topanga Arson Watch, the Resource Conservation District of the Santa Monica Mountains, the Los Angeles County Fire Department, the offices of County Supervisor Zev Yaroslavsky, Senator Fran Pavley, and Assemblymember Julia Brownley, (succeeded by Assemblymember Richard Bloom), along with a host of Caltrans personnel. The committee members collectively created and signed off on a **program of herbicide-free vegetation management** for SR 27, a significant accomplishment for which all of the participants deserve credit. The Implementation Plan is attached herewith. The support and cooperation of government officials and public servants for the community ethos, as expressed by these local groups, should be emulated by the NPS. This intention to build upon our accomplishments and further detoxify our environment, has been directly stated by both Supervisor Yaroslavsky and Senator Pavley.
- c) Respecting the above-referenced community ethos, both the Los Angeles County Department of Agriculture and the Mountains Restoration Trust have given up the use of herbicide as a tool in their management of public lands in the Topanga Creek Watershed.
- d) The Malibu Agricultural Society has successfully lobbied the City Councils of Malibu and Calabasas, in the heart of the SMMNRA, to pass resolutions discouraging the use of anti-coagulant rodenticide, in recognition of the terrible impact this practice has had upon non-target species. Malibu Ag and the TCWC have both worked closely with SMMNRA ecologist Seth Riley to promote the use of non-toxic tools for pest management in order to protect area wildlife. The TCWC actively supports the work of Malibu Ag in regard to rodenticide, and Malibu Ag actively supports the work of the TCWC in regard to herbicide. There

is a shared commitment across the communities of the Santa Monica Mountains to remove hazardous chemicals from our environment and adopt non-toxic tools in their stead.

The Topanga Creek Watershed Committee has, for a number of years, envisioned a **public** forum where all sides of these issues can be freely and fairly debated in an atmosphere of civil discourse and objective scientific inquiry. The current NPS planning process could provide an outstanding opportunity for this to take place. We invite the NPS, as well as critics or opponents of the arguments contained herein, to partner with us in this project, with the shared goal of creating greater common ground, highlighting facts and wisdom, and shedding misconceptions.

Thank you for your consideration of these comments.

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ATTACHMENTS

1. five photos of native insects interacting with "invasive" *Centaurea*
2. photo of "invasive" Eucalyptus surrounded by younger "native" *Baccharis*
3. photo of an invading monoculture stand of native *Pteridium*
4. Living Lightly in the Watershed
5. Nontoxic Alternatives to Pesticides
6. Read Your Weeds
7. Topanga Canyon Blvd Vegetation Management Implementation Plan 2013-2017
8. Commendations for the Topanga Creek Watershed Committee for the promotion of chemical-free vegetation management tools and methods
9. No More Poison petition, signed by State Senator Fran Pavley

LINKS

1. Endangered Willow flycatcher nesting in *Arundo donax*
http://blackfoot.net/~larkwick/swfl_1.html
Topanga Messenger newspaper articles documenting "Community Ethos"
2. TCB Roadside Committee Moves Forward on Alternatives to Use of Herbicides
http://www.topangamessenger.com/story_detail.php?SectionID=&ArticleID=5409
3. Topanga Forges Landmark Agreement with Caltrans Against Herbicide Use
http://www.topangamessenger.com/story_detail.php?SectionID=&ArticleID=6054









LIVING LIGHTLY IN THE WATERSHED

.....
A GUIDE FOR RESIDENTS, BUSINESSES, AND VISITORS
.....



provided by
The Topanga Creek Watershed Committee



with support from
The Resource Conservation District
of the Santa Monica Mountains

For more information, or to participate in the TCWC,
call (310) 455-4156 or visit online at
www.topangacreekwatershedcommittee.com

*All contacts listed are provided for information purposes only.
No endorsement of products or services is implied*

ABOUT LIVING LIGHTLY

A **WATERSHED** is a geographic area where rainfall collects into a network of drainages and waterways that eventually reach the ocean. Extending from ridgeline to ridgeline, the slopes, valleys, and flatlands of a watershed can be understood as a single organism sharing a circulatory system; water moves from high ground to low, as well as underground, sustaining and connecting all the disparate parts.

The **TOPANGA CREEK WATERSHED** is the third largest watershed draining into the Santa Monica Bay. In addition to over 12,000 human residents, the Topanga Creek Watershed is home to a wide variety of plants and animals, some of which are rare, threatened, or endangered. The Topanga Creek Watershed is located in the interface between undeveloped open spaces of the Santa Monica Mountains and heavily urbanized areas of Los Angeles. Keeping this borderland ecosystem clean, healthy, despite the stresses and pressures of the megalopolis, and despite our own presence, and is an ongoing and absolutely essential endeavor.

The **TOPANGA CREEK WATERSHED COMMITTEE** is an all-volunteer group of local residents and other stakeholders who work to protect and promote the health and well-being of the natural environment of the Topanga Creek Watershed. The goal of the TCWC is to encourage residents and others to recognize, take responsibility for, and minimize human impacts on the watershed. We work to protect and care for this place and the life in it so that it will remain healthy, diverse, beautiful, and wild forever.

This guide, ***LIVING LIGHTLY IN THE CANYON***, is a collection of information, suggestions, and resources that we hope residents, businesses, and others will use to better understand and minimize our impacts on the environment.

GETTING INVOLVED

One of the great things about being a Topangan is that there are so many opportunities to connect with your neighbors while making a positive difference in our collective quality of life. Because Topanga is an unincorporated area of Los Angeles County, and we have no city government, we have a greater opportunity and responsibility to take a hands-on approach to the care and management of our community and our environment. Folks interested in environmental issues are strongly encouraged to connect with the following groups and get involved!

Topanga Creek Watershed Committee (310) 455-4156
Educational programs, native garden, activism and interface with government agencies.
We do whatever folks want to do or needs to be done to protect and enhance the local ecology, Open to all regardless of background or experience.
www.topangacreekwatershedcommittee.org

Resource Conservation District of the Santa Monica Mountains (818) 597-8627
Fall/Spring Creek Clean Up.
Topanga Stream Team: water quality monitoring, frogs, turtles, fish studies, etc).
Report wildlife sightings. Invasive plant removal and revegetation projects.
www.rcdsmm.org

Topanga Earth Day Organizing Committee (310) 702-5683
Great multi-faceted educational and musical event, raises money for non-profits.
www.topangaeearthday.org

Topanga Canyon Docents 310-455-1696
Learn about and lead tours of Topanga State Park
<http://www.topangacanyondocents.org>

FOR MORE INFORMATION:

South Coast Air Quality Management District www.aqmd.gov

Coalition for Clean Air www.coalitionforcleanair.org

COMPREHENSIVE RESOURCES

Beyond what you will find in this guide, great information regarding harmonious coexistence with wild animals, conscious management of pets, and much more is available for free download at www.topangacreekwatershedcommittee.com.

Also, the Resource Conservation District of the Santa Monica Mountains offers businesses and homeowners the "Keep Your Green" service, a fee-based Sustainable Landscaping Consultation providing site-specific recommendations to help you manage your land in a way that protects the environment, and saves water and money as well. For more information on Keep your Green call the RCDSMM at (818)597-8627 or go to <http://www.rcdsmm.org/keep-your-green-sustainable-landscape-consultation>.

ECOLOGIZE LA is a local company that performs detailed, comprehensive audits and analyses of residential and commercial properties, providing custom recommendations for improving the energy efficiency and sustainability of structures, systems, and landscapes. Call (310) 908-5505 or go to www.ecologizeLA.com.

COMPOSTING, RECYCLING, AND HAZARDOUS WASTE

Los Angeles County provides safe ways to dispose of batteries, electronics, chemicals (paint, oil, etc), pharmaceuticals, fluorescent light bulbs, and other toxic substances. Never put these things in the trash or down the drain or leave them outside or anyplace where they might leach into the environment,. They can and do cause serious harm.

Reducing our contributions to the waste stream saves scarce landfill space and reduces the air pollution caused by waste hauling. Look for the recycle symbol on paper, plastic, glass, and metal products, and recycle everything that has the symbol! Compost food and plant waste and use it in your garden. Re-use cardboard boxes, shipping envelopes, scrap paper, jars, etc. and don't buy items with excessive packaging.

FOR MORE INFORMATION:

Hazardous and e-Waste Disposal http://www.lacsd.org/info/hhw_e_waste/default.asp

LA County Composting classes and discounted bin sales http://san.lacity.org/solid_resources/recycling/composting/index.htm

Master Composter Program www.mastercomposter.com

Curtis Thomsen, composting consultant (888) 772-1616

BioContractors (to purchase discount compost bins) (562) 402-2521

Californians Against Waste (916) 443-5422
www.cawrecycles.org

Recycling Information (800) 732-9253
<http://ladpw.org/epd/recycling>

rePLANET recycle centers (877) 737-5263
www.replanetusa.com

GARDENING, LANDSCAPING, WATER CONSERVATION

Chemicals that are commonly used in gardens, such as fertilizers, pesticides, and herbicides, almost inevitably find their way into the creek and ocean where they degrade water quality and do real harm to micro- and macro-organisms. Even when used according to instructions many commercial garden products can also be dangerous to pets and humans; organic gardening is the way to go for people and for the watershed.

Grass lawns are an American tradition, but they usually require huge amounts of increasingly scarce, expensive, imported water, they make no environmental sense in our Mediterranean climate, they produce a constant stream of green waste, and they demand a lot of maintenance from two-stroke engines, which are terrible polluters. For these and other reasons we strongly encourage homeowners to get rid of their lawns or shrink them. *Instead, landscape with native plants, which require little if any irrigation and provide food and habitat to native insect and animal species!!!*

If you do choose non-native plants for your landscape, save water by opting for drought-tolerant species, and be careful to avoid any plant classified as invasive (i.e.: pampas grass) as they can propagate beyond your property and displace native species.

Consider irrigating from a greywater system (see GREYWATER SYSTEMS below) and use drip irrigation as money- and water-saving alternatives to outmoded, inefficient spray heads. Use the first contact below to get extensive free help re: water conservation.

FOR MORE INFORMATION:

Water conservation tips (888 828-8602)
www.lacwaterworks.com

Water conservation tips www.bewaterwise.com/tips01.html
Keep your Green www.rcdsmm.org/keep-your-green-sustainable-landscape-consultation
Green Gardens Group, aka G3LA (310) 694-8351
www.greengardensgroup.com

Los Angeles County Smart Gardening Program (888) 253-2652
www.smartgardening.com

California Native Plant Society (Los Angeles Chapter) 818-881-3706
www.lacnps.org

Theodore Payne Foundation (818) 768-1802
www.theodorepayne.org

Nature Conservancy (wildland invasive species team) www.invasive.org/gist/esadocs.html
National Wildlife Federation Backyard Habitat Program www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife/Create-a-Habitat.aspx

Los Angeles Audubon Society www.laaudubon.org
Wildlife Habitat Council www.wildlifehc.org

Westside Permaculture gatherings www.wiserearth.org/group/wpg
Caitlin Bergman, Certified Permaculturist. Garden design, classes (626) 278-8299

Santa Monica Mountains Coalition for Alternative to Toxics (310) 455-1060
Californians for Alternatives to Toxics www.alternatives2toxics.org

Alternative Cleaning and Garden Products ladpw.org/epd/hhw/alternative.cfm
Free mulch www.bewaterwise.com/Mulching_Posters.pdf

Free compost www.lvmwd.com/Modules/ShowDocument.aspx?documentid=828

TREES

Trees are the anchors of our ecosystem. The selection, planting, and maintenance of the trees on your property has a significant long-term impact on the health of the watershed.

Some things to consider when adding trees to your landscape:

- Native v. non-native – especially avoid pepper and eucalyptus trees
- Attracting favorable animals, birds, and insects
- Fire safety
- Benefits of shade and windbreak
- Water needs
- Maintenance requirements
- Mature size, above and below ground
- Distance from structures, roadways, and power lines

Some things to consider when pruning branches:

- Leaves provide food for the tree, removing them is a stress.
- Cutting Live Oak branches over 2" in diameter requires a county permit.
- Pruning of major limbs should be done in the rainy season.
- Plan at least one year in advance to prune for fire safety.

FOR MORE INFORMATION:

Los Angeles County Foresters Fire Warden Dept. (Permits)	(818) 890-5719 www.lacofd.org/forestry/forestry.asp
California Oak Foundation	(510) 763-0282 www.californiaoaks.org
Rosi Dagit, Arborist	(310) 455-7528
Agricultural Commissioner's Office	(626) 575-5471 www.acwm.co.la.ca.us

SEPTIC SYSTEMS

Topanga is not served by a municipal sewer system; every home in the Canyon has its own septic system. Septic systems come in a variety of configurations and sizes, but they all need ongoing supervision in order to avoid expensive (financially and environmentally) failures. Malfunctioning septic systems can be a major source of water pollution, especially, but not only, when they are located near creeks and drainages. Use water conserving fixtures and greywater systems to minimize water flow to disposal areas. Less volume in your leach field or seepage pit will lead to a longer life for your system.

- Fix leaky toilets and faucets immediately!
- Be careful not to overuse your septic system when hosting large parties.
- Use sieves in the kitchen sink to prevent excess food waste from entering septic system.
- Don't use a garbage disposal. Compost food waste instead.
- A low maintenance filter can be installed in septic tank to extend life of disposal area.
- Install access risers and lids so that problems can be identified and fixed.
- No bleaches, anti-bacterial soaps, harsh or toxic chemicals, hair or grease should go into the septic system. They can defeat the natural decomposition processes and/or find their way into the creek or aquifers. Use non-toxic beauty and cleaning products.
- Don't do multiple loads of clothes washing in succession. Spread them out over several hours or days.
- Surface liquids and bad smells around leach fields and seepage pits indicate a problem that should be addressed right away.
- Have your system inspected every two years, but don't pump it if it doesn't really need it.

FOR MORE INFORMATION:

Septic System Owners Manual	available at Topanga Lumber
Los Angeles County Dept. of Environmental Health	(818) 880-4121
BioSolutions	(818) 991-9997 www.biosolutions.org
Topanga Underground	(310) 455-2189
EcoHome	(323) 662-5207 www.ecohome.org
Bill Wilson Environmental Planning and Design	(310) 441-3861
W.A.S.T.E.C. pumping	(800) 799-2783
Real Goods	(877) 989-6321 www.realgoods.com
Clivus Multrum Composting Toilets	(800) 425-488 www.clivusmultrum.com

GREYWATER SYSTEMS

Greywater systems send water from selected drains in your house directly into your landscape, instead of to your septic system. This reduces the load on your septic system and also reduces the need to irrigate your landscape with expensive, imported, treated water. Small systems that take water from the laundry and/or one bathroom sink are currently allowed without a permit, if done in accordance with mandated specifications. The Department of Environmental Health requires a permit for larger, more complex systems. Toilets and dishwashers should never be hooked up to a greywater system. Greywater should be released into your landscape underground, and should be inaccessible to children, pets, and anyone else who might be tempted to drink it. Since the graywater is going directly into your landscape, stick to cleaning products and laundry detergents that are low in salts, boron, and other chemicals. Also be sure that the frequency and volume of greywater flow is appropriate for the plants and soil receiving the water, and vice versa.

FOR MORE INFORMATION:

Oasis Design – “Create an Oasis with Graywater”	(877)- 399-1199 www.oasisdesign.net
Grey Water Guerrillas	www.greywaterguerrillas.com
Resource Conservation District of the Santa Monica Mountains for detergent analysis	(818) 597-8627
Alternative Cleaning and Garden Products	ladpw/epd/hhw/alternative.cfm

FIRE SAFETY and BRUSH CLEARANCE

The danger of wildfire in our area cannot be overstated. The potential for a major catastrophe is pronounced and very nearly constant. We clear brush on our properties in order to increase the distance between structures and highly flammable plant material, and to comply with County requirements, but these measures need to be balanced with the need to keep plants rooted into hillsides to minimize erosion. Pine and eucalyptus trees can literally explode in a wildfire and spread fire long distances – if you have these kinds of trees on your property seriously consider removing them. Dead and dying trees should be removed immediately. Create space between plants to make it harder for fire to spread. Make sure your propane tank can be easily located and turned off if there is a threat of fire.

- Remove dead branches, trees and plants.
- Reduce or remove tall grasses, weeds and shrubs under trees
- Replace flammable grasses with less flammable within 30 feet of your house
- Mow before weeds set seed

FOR MORE INFORMATION:

Santa Monica Mountains Community Wildfire Protection Plan	www.forevergreenforestry.com/SantaMonicaMountainsCWPP.html
“Evacuating Topanga: Risks, Choices and Responsibilities” by Fred Freer	www.topangamessenger.com/Evacuating/EvacuatingFrames.html
“A Homeowners Guide to Fire and Watershed Management at the Chaparral/Urban Interface”	www.naturetrust.net/pdf/firewatershed.pdf
Topanga Coalition for Emergency Preparedness	(310) 455-3000 www.t-cep.org
Topanga Survival Guide <i>Resource Conservation District of the Santa Monica Mountains for a list of fire safe plants and videos on brush clearance</i>	topangasurvival.wordpress.com/survival-guide/ 818) 597-8627 www.rcdsmm.org
California Chapparral Institute	760-822-0029 www.californiachapparral.com
LA County Fire Dept. Malibu Forestry Unit	(818) 222-1108
Brush Clearance	(626) 969-2375 www.lacofd.org/forestry/forestry.asp
Topanga Tree Service	(310) 565-7957
LA County Ag Dept Weed Abatement	(626) 575-4393
California FAIR Plan (fire insurance)	(800) 339-4099 www.cfpnet.com
Arson Watch	www.arsonwatch.com

LIVING IN HARMONY WITH LOCAL WILDLIFE

If we humans are to coexist in harmony with the wild creatures of the Topanga Watershed we must educate ourselves as to their habits and needs and exercise considerable care as we go about our business. Above all, **do not use poison to deal with pests** – the creatures you target, when weakened or dead, are easy prey for other creatures, including bobcats, coyotes, owls, and hawks, which in turn become poisoned, and die. This is a serious, ongoing tragedy. While it is generally not the intention of homeowners struggling with ants, rats, or pigeons to kill other creatures, these deaths an entirely predictable result of bringing toxic chemicals into or around your home. There are many effective ways of dealing with pests that do not disperse poison into the watershed. Learn about them and use them.

ALSO: Non-native pet turtles, frogs and crayfish, if released into the wild, can do tremendous harm. Keep them at home. Exclude bats and bees and other nuisances from your house instead of killing them. Keep all pet food indoors to avoid attracting raccoons, coyotes, and other guests. Ravens on the roof hate being hosed down.

FOR MORE INFORMATION:

Californians for Alternatives to Toxics	www.alternatives2toxics.org
Santa Monica Mountains Coalition for Alternative to Toxics	(310) 455-1060
Alternative Cleaning and Garden Products	http://ladpw/epd/hhw/alternative.cfm
Nature of Wildworks	(310) 455-0550 natureofwildworks.org
Agoura Animal Shelter	(818) 991-0071
Bat Conservation International	www.batcon.org
California Wildlife Center	(310) 458-WILD (9453) www.californiawildlifecenter.org
Companion Animals in the Canyon (Guide)	(310) 455-1303
Snake Relocation	(310) 455-2013 (310) 455-1549 (310) 570-5339
Non-toxic rodent removal	(310) 663-8903
Park Rangers at Topanga State Park	(310) 455-2465
CA Department of Fish & Game	(858)-467-4201
CDFG Emergency Code Enforcement	(909) 484-0167

DRAINAGE, EROSION, and RUNOFF MANAGEMENT

Well-designed and maintained drainage systems protect structures and landscapes and minimize erosion and siltation. Also, water runoff from your property may contain substances alien to the natural environment, which can harm flora and. Try to keep the water that falls on your property on site, so that it filters directly into the earth. Conduct a survey of your property to determine the location of any drainage or erosion issues. Roofs perimeters, drainage downspouts, and areas adjacent to paved areas are the first places to look. Once problem areas are identified, appropriate remedies can be applied, such as the creation of swales and basins and replacing solid pavement with permeable materials.

FOR MORE INFORMATION:

State Water Resource Control Board	www.swrcb.ca.gov
Invisible Structures, Inc.	(800) 233-1510 www.invisiblestructures.com
Topanga Underground	(310) 455-2189
Pathworks Railroad Tie Installation	(310) 455-4336
To Report sewage spills or illegal dumping	(888) 253-2652
International Erosion Control Association	(970) 879-3010 www.ieca.org
Natural Resources Conservation Service	(805) 386-4489 www.nrcs.usda.gov

SLOPE AND STREAMBANK STABILIZATION

Steep slopes require special attention in order to keep them from failing. Slope failure can cause catastrophic damage on wildlife habitat, block roads and undermine foundations. Properties adjacent to streams are particularly vulnerable to damage from high volume storm events. Well-designed stabilization systems can mitigate this danger while improving the health of the watershed. Poorly designed systems can be counter-productive. Do not undercut your slopes. Natural banks with trees and plants are ideal. Plant a variety of plants with different root depths to hold hillsides.

FOR MORE INFORMATION:

International Erosion Control Association	(970) 879-3010 www.ieca.org
Maccaferri Gabions Inc	(916) 371-5805 www.maccaferri-usa.com
Native Plant List for Slope Stabilization	(818) 597-8627 www.rcdsmm.org

HORSES & STABLES

Equestrians face unique challenges in minimizing the impacts that horses have on the watershed. Large areas of bare earth and large quantities of manure are two of the biggest contributors to compromised water quality in the Santa Monica Mountains. Manure is really bad for aquatic life and it can also spread invasive, non-native, flammable weeds if not composted. Keep manure out of the creek at all times. When riding stay on existing trails and don't let your horse pee or poop near a creek or drainage. Compost your horse manure or keep it in a secure bin away from creeks and drainages.

FOR MORE INFORMATION:

Equestrian Trails, Inc	(818) 362-6819 www.etinational.org
Guide to Composting Horse Manure	http://whatcom.wsu.edu/ag/compost/horsecompost.htm
Horse Keeping: A Guide to Land Management for Cleaner Water	(818) 597-8627 http://mcstoppp.org/acrobat/Horse%20Keeping%20Guide.pdf
Pierce College Agriculture Dept. (Ron Wechsler)	(818) 710-2980

SUSTAINABLE BUILDINGS

Sustainability means taking care of present needs without despoiling the environment or diminishing the ability of others, now and in the future, to take care of their own needs as well. Sustainable building means designing and building or retrofitting structures in a way that minimizes environmental impacts on site and beyond, maximizes energy and water efficiency, and uses environmentally friendly materials, systems, and processes.

FOR MORE INFORMATION:

Ecologize LA <i>Energy efficiency and sustainability consulting for comprehensive "greening" of residential and commercial property</i>	(310) 908-5505 www.ecologizeLA.com
New West Land Company, Inc <i>Place-appropriate Inhabitation</i>	(310) 614-6636 www.newwestland.com
California Green Building Design and Construction	(916) 341-6476 www.ciwmb.ca.gov/GreenBuilding
Center for Regenerative Studies	(909) 869-5155 www.csupomona.edu/~crs/
EcoHome Network <i>Guide to Green Design and Building Professionals</i>	(323) 662-5207 www.ecohome.org/pages/index.html
Real Goods	(877) 989-6321 www.realgoods.com
Artificial Night Lighting (Dark sky friendly light fixtures)	www.darksky.org



Topanga Creek Watershed Committee

Nontoxic Alternatives to Herbicides and Pesticides

www.topangacreekwatershedcommittee.org

Did You Know That...?

- Human health effects, including low birth weights, breast cancer, and low sperm counts are linked to herbicide-contaminated water;
- Frogs exhibit hermaphroditism when exposed to legally allowable levels of the herbicide atrazine in waterways;
- Dozens of pesticides and their degradation products contaminate waterways and escape regulatory oversight;
- Runoff from urban lawn pesticides contaminates local watersheds and stresses municipal water treatment; and,
- Many people, especially children and the immune-compromised, are not adequately protected by federal limits of pesticides in water.

Weeds	Insects	Rodents
<p><u>Best General Control Methods:</u></p> <p>(1) Manually uproot weeds (if only a few). (2) Hoe (shallow roots) or power till (deeper roots) large areas of weed growth or cut/trim weeds close to the soil. (3) Use solarization - apply a non-biodegradable polyethylene tarp over the top of the soil (hold down with cinder blocks or other weights) to deprive existing weeds of light and air and to bake/kill seedlings. (4) Lay a weed mat/fabric layer to prevent weed sprouts around intentional plantings. (5) Add a mulch layer of 2-4". (6) Use native plants/grasses/flowers to crowd out and prevent unwanted weeds. (7) Apply (judiciously) a natural OMRI (or other organic certifying body)- approved herbicide as needed for sporadic weeds, such as those in sidewalk cracks.</p>	<p><u>Best General Control Methods:</u></p> <p>(1) Remove attractants (e.g. food scraps, cardboard, open containers) that lure many insects (e.g. cockroaches, ants, silver fish). (2) Vacuum, dust, and clean surfaces with a soapy solution regularly. (3) Seal (e.g. with nontoxic caulk) or physically block points of entry/cracks in and around your home, including around the foundation, windows, doors, ceilings, etc. (4) Sprinkle boric acid in cracks and crevices around your kitchen cabinets/pantry. Apply in areas where cats won't be exposed, as it can be toxic to felines. Tip: cockroaches like high places, so an application of boric acid above the cabinets would be ideal. (5) Some essential oils like cinnamon, clove, and peppermint can repel and/or kill insects. These oils can be toxic to cats, however, so be mindful where applied. (6) Apply diatomaceous earth around insect havens in your home. It will take ~2 weeks for this approach to kill the pests, but it is extremely effective and nontoxic to pets. (7) Purchase nontoxic insect baits/traps. (8) Dry ice for ticks-acts as attractant; soapy water can then be used to eliminate.</p>	<p><u>Best General Control Methods:</u></p> <p>(1) Remove attractants – mice especially love food scraps, open food/trash containers, overflowing garbage. (2) De-clutter in and around your home. (3) Move or eliminate wood piles, vegetation and stacks of cardboard boxes near your home (convert to large plastic boxes for rodent and insect-proof storage). (4) Seal any openings into your home with a nontoxic silicone caulk. For a temporary fix, stuff any holes/openings with steel wool (mice/rats cannot chew through this). (5) Place screens over heating/cooling/filtration vents, especially those proximal to your foundation or roof. Repair holes in existing screens-a mouse can squeeze through a hole as small as a dime. (6) Set humane traps – these traps allow you to catch and release the animal back into the wild (away from your home). (7) Use nontoxic baits for tracking - nonvolatile, nontoxic baits are useful for detecting rodent paths so that mechanical blockades can be set up. (8) Disperse nontoxic rodent repellent in rodent-prone areas.</p>
<p><u>Products:</u></p> <p>(1) Mulch - Aguinaga or other organic mulch (fire-resistant and all-natural mulch recommended by the LA Fire Dept.) (2) Essential oils - St. Gabriel Organics' "Burnout", a natural, OMRI-approved clove-oil based herbicide composed of citric acid, vinegar, and nontoxic inerts. (3) Herbicidal Soaps – Weed Aide's herbicidal soap is composed of nontoxic fatty acids that work by dehydrating a plant's tissues.</p>	<p><u>Products:</u></p> <p>(1) "Only Natural" Pet Herbal Defense spray (2) "CedarCide" 'Best Yet' pest repellent spray (works on bed bugs) (3) "EcoSmart" pest control products (4) Diatomaceous earth – any garden store (5) Boric acid – any drugstore/home store</p>	<p><u>Products:</u></p> <p>(1) "Have a Heart"/"Havahart" or Seabright Laboratories humane traps (2) "Mouseaway" nontoxic rodent repellent-contains essential oils, so be sure to not use in areas where cats are likely to spend significant time. (3) Detex Blox nontoxic rodent bait – meant for monitoring and tracking entry/activity, not lethal.</p>
<p><u>Web resources:</u></p> <p>www.beyondpesticides.org/lawn/factsheets/ www.safelawns.org www.organicgardening.com www.gardensalive.com</p>	<p><u>Web resources:</u></p> <p>eartheasy.com/live_natpest_control.htm beyondpesticides.org/alternatives/factsheets/ Mother Earth News: http://ow.ly/k9Q5r Scientific American: http://ow.ly/k9PI5</p>	<p><u>Web resources:</u></p> <p>eartheasy.com/non-toxic-pest-control ecologycenter.org/factsheets/ Beyond Pesticides: http://ow.ly/kaMDV PetMD.com: http://ow.ly/kaMQP</p>



Topanga Creek Watershed Committee

READ YOUR “WEEDS” – A SIMPLE GUIDE TO CREATING A HEALTHY LANDSCAPE

reprinted with permission from www.beyondpesticides.org

Weeds can tell you a lot about the condition of your lawn/landscape and indicate what you need to do to grow healthy grass that is naturally resistant to weeds and pest problems.

Learn to read your “weeds” for what they indicate about your lawn care practices and soil conditions, and you’ll be on your way to creating a healthy lawn or landscape that will be less work in the long run.








Reading weeds is actually very simple. First, know that weeds thrive in soil that is compacted, poorly fertilized, and not pH balanced; and in lawns that are improperly watered, seeded, and mowed. Synthetic fertilizers and chemical pesticides also lead to undesirable conditions, which restricts water and air movement in the soil. High nitrogen fertilizers can disrupt the nutrient balance, accelerate turf growth, increase the need for mowing and contribute to thatch buildup. Pesticides harm the microorganisms, beneficial insects and earthworms that are essential to maintaining healthy soil, and therefore, healthy turf.

Use the following chart to identify the weeds in your lawn and correct the conditions that are promoting them with the information below. For instance, blue violets often indicate compaction and excessive watering. Aeration and proper irrigation would correct the conditions that are promoting blue violet growth.

While we cannot provide specific information for every region of the country, and every weed, this general overview will highlight the association of weeds with poor soil and management conditions. And, while we don’t focus on pests, following the recommendations outlined here will help alleviate many pest problems.

Remember, many plants that are considered weeds, have beneficial qualities. Try to develop a tolerance for some weeds. For instance, clover - considered a typical turf weed - thrives in soil with low nitrogen levels, compaction issues, and drought stress. However, clover takes free nitrogen from the atmosphere and distributes it to the grass, which helps it grow. Clover roots are extensive and extremely drought resistant, providing significant resources to soil organisms, and clover will stay green long after turf goes naturally dormant. Crabgrass provides erosion control, dandelions’ deep roots return nutrients to the surface, and plantains are edible!

Common Lawn Weeds and What Contributes to Them

Weed	Common Name	Soil Compaction	Mowing Height	pH	Fertility	Watering	Poor Drainage
	Annual Bluegrass	X	L		E	E	
	Clover	X		L	L (N)	D/E	
	Crabgrass		L		L	D/E	
	Dandelion	X		L	L (Ca) E (K)		
	Ivy (ground)						X
	Knotweed	X		L	L (Ca) E (K, Mg)		X
	Plantains	X		L	L	L	X

X- Condition associated with the weed, D- Drought, E- Excessive, H- High, L- Low, K- Potassium, Mg- Magnesium, N- Nitrogen

ELIMINATE THE CONDITIONS THAT PROMOTE WEEDS

1. **Compaction** – Compaction is an invitation for weeds. If your lawn is hard, compacted, and full of weeds, aerate to help air, water and fertilizer to enter. If you can't stick a screwdriver easily into your soil, it is too compacted. Get together with your neighbors and rent an aerator. Once you have an established, healthy lawn, worms and birds pecking at your soil will aerate it for free!
2. **Mowing Height** – Bad mowing practices cause many lawn problems. Mowing lower than 1 ½ to 1 ¾ inches can kill the root system by preventing photosynthesis, and mowing with a dull blade makes the turf susceptible to disease. A low mowing height also invites sunlight in for weeds to sprout.

While grass species vary across the country, most lawns are a mix of kentucky bluegrass and fine fescue. Generally, you should keep a lawn at 3- 3 ½ inches. Mowing high allows the grass to develop deeper, drought-resistant roots systems. For the first and last cut of the season, mow to 2 inches. Do not mow more than 1/3 of the grass blade at a time. Keep your mower blades sharp to prevent the development and spread of fungal disease, or ask your service provider to sharpen their blades frequently.

3. **Soil pH and Soil Testing** – Low pH means acidic conditions and high pH indicates alkaline conditions. If the pH is too high, your grass cannot properly absorb nutrients. Ideal pH should be between 6.5-7.0, slightly acidic.

Generally, lime is added to raise the pH and sulfur is added to lower the pH, and adding compost can naturally correct your pH. A soil test is highly recommended to determine the soil pH and specific nutrient needs. Contact your extension service to find out how to take a soil sample. In addition to nutrients and pH analysis, ask for organic content analysis, and request organic care recommendations. Organic content should be 5% or higher.

4. **Fertility** - Soil testing is the best way to determine your soil's specific nutrient needs. Fertilizing in early fall ensures good growth and root development for your grass. Nitrogen, the most abundant nutrient in lawn fertilizers promotes color and growth. Adding too much nitrogen, or quick-release synthetic fertilizers, can weaken the grass, alter the pH, promote disease, insect, and thatch build-up.

Your grass clippings contain 58% of the nitrogen added from fertilizers, improve soil conditions, suppress disease, and reduce thatch and crabgrass. So, leave the clippings on your lawn. You can use a mulching mower and leave the leaves too.

Compost is an ideal soil conditioner, adding the much-needed organic content to your soil, and suppressing many turf pathogens. In the fall and spring, preferably after aerating, spread

¼ inch layer of organic or naturally-based compost over your lawn. Compost tea and worm castings are also great additions.

Look for compost or organic slow release fertilizers at your local nursery or order online. Some fertilizers, such as Ringer® Lawn Restore®, are certified by the Organic Materials Review Institute, www.saferbrand.com. Other makers include North Country Organics, www.norganics.com; Harmony Farm www.harmonyfarm.com; Peaceful Valley Farm Supply, www.groworganic.com; and Down To Earth's Bio-Turf www.downtoearthdistributors.com.

Thatch is a dense layer of grass stems and roots on the surface of the soil. Thatch is a symptom of shallow watering and chemical fertilizer usage. When thatch layers become ½" or more, the roots will grow up within the thatch instead of in the soil, making grass susceptible to insects, disease, and weather stress. If your lawn feels spongy, you may have thatch buildup.

Thatch is reduced by aeration, topdressing with organic matter, or power raking. In healthy lawns, earthworms and soil microorganisms break down the thatch.

- 5. Watering and Poor Drainage** – Drought conditions, excessive watering or poor drainage due to soil type are all invitations for weeds. Watering needs are very site specific, but generally speaking, a deep watering of about one-inch once a week in the early morning is best.

Your type of soil affects your drainage and is also site specific. Once you establish a deep root system from mowing high, you will need less water. Check with your local nursery for more specific recommendations and your soil type. According to

- 6. Grass Seed and Seeding** – Grass varieties differ enormously in their quality, resistance to certain pests, tolerance to climatic conditions, growth habit and appearance. Some weeds are the result of using poor quality grass seed.

Overseed with the proper grass seed for your region to promote a dense turf that out competes weeds. Consult your extension service website to learn the best grass variety for your region and site conditions (sun or shade).

Your work to create a healthy lawn will help to protect public health and the environment.

TOPANGA CREEK WATERSHED MANAGEMENT PLAN:

**TOPANGA CANYON BOULEVARD
VEGETATION MANAGEMENT IMPLEMENTATION PLAN
2013-2017**

APRIL 2013

(Version 9/12/13)



DEPARTMENT OF TRANSPORTATION

DISTRICT 7
100 S. MAIN ST.
LOS ANGELES, CA 90012
PHONE (213) 897-0362
FAX (213) 897-0360
TTY 711
www.dot.ca.gov



*Flex your power!
Be energy efficient!*

April 24, 2013

Attention:

Topanga Canyon Boulevard (State Route-27) Roadside Vegetation Committee ("Committee")
Susan Nissman, Senior Field Deputy for County Supervisor Zev Yaroslavsky
Kara Seward, Committee Co-Chair, District Director for State Senator Fran Pavley

Dear Committee:

The California Department of Transportation (Caltrans) is committed to working with the community of Topanga to implement vegetation control methods for State Route-27 (Topanga Canyon Boulevard) so that synthetic herbicides will be unnecessary and so that all fire and public safety legal requirements are met in a timely manner.

Toward that end, Caltrans has collaborated with the Topanga community and other public agencies from June 2012 until the present to develop Best Management Practices (BMPs) and a feasible joint Work Plan. This collaboration has involved cooperation, coordination, and communication among all involved parties. The BMPs and Work Plan will be incorporated into Caltrans' Vegetation Control Plan for Topanga and archived at Caltrans District 7 (Biology Library & Maintenance Library) and the local field offices of the Los Angeles County Supervisor District 3 and State Senate District 27.

Caltrans anticipates continued coordination with the Committee for monitoring, reevaluation, and adaptive management of BMPs and Work Plan for the foreseeable future. If it becomes necessary for Caltrans to consider introducing a new BMP or substantially altering the Vegetation Control Plan, Caltrans will reengage with Topanga's elected representatives' offices and the community. We look forward to continuing to provide high quality public safety and service as well as sound environmental stewardship for the state.

Sincerely,

DANIEL J. FREEMAN
Deputy District Director
California Department of Transportation - District 7

Received:

SUSAN NISSMAN, Committee Co-Chair

KARA SEWARD, Committee Co-Chair

We, the undersigned, as representatives of the stakeholders on the Topanga Canyon Boulevard Roadside Committee (July 2012 to May 2013), approve and agree to the attached document, *Topanga Canyon Watershed Management Plan: Topanga Canyon Boulevard Vegetation Management Implementation Plan, 2013-2017*.

Office of LA County 3 rd Supervisorial District (Zev Yaroslavsky)	Name/Title/Date
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Office of Senate District 27 (Fran Pavley)	Name/Title/Date
--	-----------------

Office of Assembly District 50 (Richard Bloom)	Name/Title/Date
--	-----------------

California Department of Transportation, Maintenance, District 7	Name/Title/Date
--	-----------------

Los Angeles County Fire Department	Name/Title/Date
------------------------------------	-----------------

North Topanga Canyon Fire Safe Council (NTCFSC)	Name/Title/Date
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Resource Conservation District of the Santa Monica Mountains (RCDSMM)	Name/Title/Date
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Santa Monica Mountains National Recreation Area (NPS)	Name/Title/Date
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Topanga Arson Watch	Name/Title/Date
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Topanga Association for a Scenic Community (TASC)	Name/Title/Date
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Topanga Chamber of Commerce (TCOC)	Name/Title/Date
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Topanga Coalition for Emergency Preparedness (T-CEP)	Name/Title/Date
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Topanga Creek Watershed Committee (TCWC)	Name/Title/Date
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Topanga Town Council (TTC)	Name/Title/Date
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Attachment: Supplemental Document: Topanga Creek Watershed Management Plan:
Topanga Canyon Boulevard Vegetation Management Implementation Plan 2013-2017:
Maps (July 2013)

Summary

Purpose

The purpose of this document and all associated supplemental documents is to identify long-term strategies to manage the road shoulder vegetation without the use of herbicides along State Route 27 (SR-27, aka Topanga Canyon Boulevard or TCB) from the Pacific Coast Highway to the Los Angeles City limit just south of Mulholland Drive.

The primary strategy for fulfilling the Topanga Canyon Boulevard Roadside Committee (TCBRC) mission is for Caltrans District 7, state and local elected officials, the Topanga community, the County of Los Angeles, and other public agencies to cooperate and coordinate efforts in order to responsibly manage roadside vegetation along TCB. The goals are to be in full compliance with county and state fire ordinance requirements prior to fire season, to maintain or help improve watershed health, and to maintain or add to the scenic value of the canyon. Cooperation and coordination include a variety of best management practices and delivery mechanisms, adaptive management, and regularly scheduled communication among all the stakeholders in five-year cycles for the foreseeable future.

The TCBRC collectively support the outcomes anticipated from this document and supplemental documents, is committed to positive results, and is responsible for responding with corrective actions, if needed, for proper and best implementation.

Context: The Topanga Creek Watershed Management Plan

Between 1996 and 2002, over 100 stakeholders, including representatives of local and regional agencies, community groups, and elected officials, worked collaboratively to develop the Topanga Creek Watershed Management Plan (TCWMP 2002). This consensus based document reflected the input of all stakeholders, outlined a variety of goals and objectives, and highlighted the hazardous nature of Topanga (fire and flood) as well as biologically sensitive species and habitats (<http://www.rcdsmm.org/topanga-creek-watershed-research-reports>).

Specific goals from the watershed management plan (pgs. xiii-xiv) are relevant to roadside vegetation management and public safety. These goals include but are not limited to:

Education and Outreach:

- Promote greater awareness and understanding of the complex relationships between humans and the watershed necessary to preserve native biodiversity and natural processes.
- Coordinate Federal, State and County regulations to provide a comprehensive integrated management plan.
- Encourage agencies and utilities to adhere to the same guidelines and regulations as non-governmental agencies and citizens.
- Develop an outreach program to inform residents of flood and fire hazards and ways to protect themselves.
- Provide a community forum for education regarding Best Management Practices which can reduce the flood and fire hazard.

- Provide a cooperative forum encouraging coordinated voluntary efforts to minimize the flood and fire hazard.
- Evaluate existing risks to public safety and develop programs to address them.

Flood and Fire Hazard Protection:

- Develop an integrated, environmentally sustainable strategy for reducing flood and fire hazards.
- Encourage all property owners in the watershed to contribute to flood and fire hazard mitigation.

Transportation:

- Preserve integrity and safety of transportation corridors through a sustainable maintenance program that minimizes impacts to native biodiversity and natural processes.

Water Quality:

- Improve water quality.
- Preserve or improve water quality for maximum use and enjoyment by reducing erosion, sedimentation, point and non-point source pollution.

In addition to the goals noted above, the TCWMP 2002 also recommended specific actions. Those related to the management of road shoulder vegetation include but are not limited to:

Recommendation Number:

- 3.14 Continue training workshops for road maintenance crews on tree pruning and Best Management Practices.
- 4.38 Continue management of road shoulder brush clearance for fire safety and line of sight without the use of herbicides.
- 4.39 Brush clearance methods should be done so as to minimize soil disturbances by leaving a 4-6 inch stubble, leaving roots in place, and encouraging replacement of flash fuels like grasses with perennial natives which would require less clearance.
- 5.35 Establish Best Management Practices for any work that impacts stream courses and adjoining habitats. Make available to all residents.
- 6.7 Develop a program to eradicate giant cane (*Arundo donax*), castor bean (*Ricinus communis*), periwinkle (*Vinca minor*), tree tobacco (*Nicotiana glauca*), German ivy (*Senecio sp.*) and Algerian ivy (*Hedera sp.*) without the use of herbicides.

As one of the consistent participants in this process, Caltrans took steps to build upon the issues identified within the TCWMP 2002 by initiating the *Topanga Environmental Corridor Study on SR-27 in the County of Los Angeles: From State Route 1 (Pacific Coast Highway) to the Top of Topanga* (07-LA-27, PM 0,0/9.0, EA 930185). Although this document has not been finalized, it identified and addressed the need for a comprehensive and cohesive management strategy that would protect and preserve the ecological resources along SR-27. This document did not specifically address any impacts from annual road shoulder vegetation management other than those directly associated with erosion and slope impacts. Discussion of pollution inputs and deposition focused on those associated with vehicle emissions. However, it did state, "In Topanga Canyon, the amount of

chemicals in the watershed does not seem to be a cause for concern. Nevertheless, precautions should be made to limit the amount absorbed by the environment. For example, in Topanga Canyon, Caltrans maintenance crews have already eliminated the use of herbicides to control for weeds.” (pg 73)

Additionally, the document suggested that “DEP and Maintenance need to also develop a working handbook illustrating the important sensitive areas in the canyon and where activities should and should not be performed. The handbook should contain maps of the area, timeframe for activities, and BMPs that can be employed while performing routine maintenance.” (pg 90)

The practices outlined in the Topanga Environmental Corridor Study supported the understanding (verbal agreement) with the community that road shoulder fuel modification would be conducted in such a way as to: a) minimize slope erosion and de-stabilization, b) delay clearance in specific sensitive seep areas that are known breeding sites for amphibians until after breeding season, and c) without the use of herbicides. This understanding worked effectively between the mid-1990s and 2012.

In April 2012, changes in Caltrans personnel and finances resulted in herbicide being applied along TCB. This application was done in order to comply with fire regulations for the year and the herbicides were on Caltrans’ approved list for use along state routes. Members of the community subsequently contacted LA County Supervisor Yaroslavsky’s office. Susan Nissman, Senior Field Deputy, contacted Dan Freeman, Deputy District Director of Maintenance at Caltrans, and negotiated a temporary halt to herbicide use along TCB in the Topanga Creek watershed.

The Topanga Canyon Boulevard Roadside Committee

“The mission of the Topanga Canyon Boulevard Roadside Committee, an ad hoc advisory group working collaboratively with related public agencies and community organizations, is to plan and execute sustainable solutions by April 2013 to manage roadside brush clearance along Topanga Canyon Boulevard/State Route 27 that promote public safety and best management practices for fire safety, invasive plant management, and protection of the natural environment of the Topanga Creek Watershed by using methods, other than herbicides, consistent with the goals and policies of the Topanga Creek Watershed Management Plan of 2002.”

In order to address the future maintenance of the mandated 10’ of managed roadside required by fire safety, regulations for sightline and invasive plant management, and at the request of community organizations, the ad hoc Topanga Canyon Boulevard Traffic Committee was reactivated as the Topanga Canyon Boulevard Roadside Committee (TCBRC).¹ The founding members included representatives of LA County Supervisor Zev Yaroslavsky’s office, Senator Fran Pavley’s office, Assembly member Brownley’s office, Caltrans, LA County Fire Forestry, the Resource Conservation District of the Santa Monica Mountains (RCDMM), the National Park Service (NPS), the Topanga Creek Watershed Committee (TCWC), Topanga Association for a Scenic Community (TASC), the North Topanga Canyon Fire Safe Council (NTCFSC), Topanga Coalition for Emergency Preparedness (T-CEP), Arson Watch, Topanga Chamber of Commerce, and Topanga Town Council (TTC). A full list of participants is in Appendix H.

¹ The TCB Traffic Committee was active from 2000 to 2005.

The first meeting was held at the Topanga Library on July 11 2012.² The draft Mission Statement was formulated during this initial meeting in which Caltrans agreed with the intent to clear the roadside of TCB without the use of herbicides.³ At the August 29 meeting, it was agreed to develop an 'all-inclusive seasonal map' using information and maps from public agencies and community organizations that would chart a variety of elements such as drains, weeds, invasive plants, culverts, seepage areas, sensitive areas, sight-lines, fire hazards, and slope stability. The Mapping and Best Management Practices subcommittees were formed with the purpose of building a database of conditions along TCB by parcel number, post mile, and recommended best management practices. The deadline for completing an integrated Work Plan was set for April 2013. An evaluation framework and monitoring plan for a five year target were also developed.

From December 2012 to April 2013, the Mapping Subcommittee members worked with James Fowler and Henry Harris of Caltrans Roadside Maintenance to survey TCB from the Pacific Coast Highway to the Top O' Topanga mobile home park (PM 0.0-10.8) and to create a comprehensive database of features, plants, parcels, and other relevant data in the Caltrans right of way (Appendix A). The Best Management Practices (BMP) Subcommittee identified and recommended BMPs that can provide alternatives to the use of synthetic herbicides now or in the future. These practices were integrated into the mapping data by parcel number and post mile. A Communication Subcommittee was formed in April 2013 to provide community outreach, press releases, and strategies for volunteer community participation in the herbicide-free maintenance of TCB.

By the end of April 2013, the TCBRC produced a Draft Implementation Plan and a Draft Work Plan, with general agreement from all contributing members of the committee. These documents include a five year compliance timeline, monitoring plan, a full map of TCB that incorporates data collected in the mapping process, BMP practices and suitable sites, designated Caltrans areas of responsibility, and potential sites for community participation. The plans are expected to be carried out through 2017, at which time a second five-year plan will be created.

Best Management Practices

Sixteen potential least toxic, non-synthetic vegetation management methods were identified and assessed by the Best Management Practices (BMP) Subcommittee. Information sources for the BMPs included TCBRC and

² 40 Attendees: Susan Nissman, Timothy Pershing, Lauren Gay (Yaroslavsky); Kara Seward (Pavley); Louise Rishoff (Brownley); Dan Freeman, Lauren Wonder, Paul Lofthouse, Ed Siribohdi, Ed Aguilar, Patrick Chandler, Marvin Pruitt, Eric Hanson, Peter Champion, Skylar Feltman, Jim Fowler (Caltrans); Kevin Johnson (Fire Department/Forestry Division); Stacy Sledge (Topanga Town Council/TTC); James Grasso (Topanga Coalition for Emergency Preparedness/T-CEP); Roger Pugliese, Ken Mazur (Topanga Association for a Scenic Community/TASC); Ben Allanoff (Topanga Creek Watershed Committee/TCWC); Beth Burnam (North Topanga Canyon Fire Safe Council/NTCFSC); Joseph Rosendo, Kimberlie Nitti (Topanga Chamber of Commerce/TCC); Judy Cherpin, Ben Squire (Topanga Arson Watch); Rosi Dagit, Clark Stevens (RCDSMM); Michael Adler, William Bowling, Bill Buerge, Bill Carrier, Carrie Lovelace Carrier, Ellen Geer, Gail McDonald-Tune, Dorothy Reik, Jill Rothstein (community observers); Flavia Potenza, Anne-Marie Dokin (The Topanga Messenger).

³ The Mission Statement was adopted by all members at the August 29 TCBRC meeting.

BMP subcommittee members, formal and informal scientific studies related to nontoxic roadside vegetation management,⁴ and consultations with landscape maintenance and vegetation control specialists. Each alternative was evaluated against 20 criteria developed through an iterative collaborative process (Appendix B), and then ranked into the following four tiers:

- Tier 1 – Methods to Use in Current Year (2013)
 - Caltrans slope mower
 - Composite mulch (Aguinaga or others that meet Fire Dept. specifications)*
 - Native Plants (Table 1)*
 - Weed-whacker
- Tier 2 – Continue to Research for Possible Future Use
 - Hot foam treatment from Weeding Technologies Limited (“Weedingtech”)*
 - Hot water/steam*
 - Minor Concrete*
 - Plant-based spray treatments (e.g. clove oil, citrus, vinegar)*
 - Weed mats*
- Tier 3 – Potential But Less Likely to Succeed
 - Herbicidal soaps*
 - High-pressure water*
- Tier 4 – No Longer under Consideration
 - Glass mulch
 - Grader
 - Grill blade
 - Power pruner
 - Rock mulch

*If used, BMP to be tested in a pilot plot (new method for TCB).

In collaboration with the Mapping subcommittee, Tier 1 BMPs for 2013 were matched with the appropriate conditions and terrain along TCB, taking into consideration human and environmental health and safety. Tier 2 and Tier 3 BMPs, as well as new tools and methods, will continue to be researched and evaluated by the BMP subcommittee for future use.

⁴ Special attention was given to a recent report commissioned by Caltrans from the University of California-Davis to evaluate alternative roadside vegetation management methods. (Report #CA10-1104, “Vegetation and Debris Control Methods for Maintenance-Friendly Roadside Design”, 6/30/10. University of California-Davis: Advanced Highway Maintenance and Construction Technology Research Center (AHMCT), Department of Mechanical and Aerospace Engineering.)

Table 1. Approved Native Plants for Planting along TCB (approved by LA County Fire and RCDSMM), 2013.⁵

Scientific Name	Common Name	Description	Slope	Exposure	Soil type	Height/ Width	Propagation	Blooms
GRASSES								
Leymus triticoides	Creeping wild rye	Small yellow flower clusters	all	Sun, part-shade	all	8"-3'/4"	Seeds, plugs, Mow 2x/year	Spring; year round if watered
Sisyrinchium bellum	Blue-eyed grass	Small blue-purple flowers	all	sun	all	1'/1'	Seeds, plugs, Mow 2x/year	Jan-Jun, dormant in summer
Sisyrinchium californicum	Golden eyed grass	Small golden flowers	all	sun	all	8"/1'	Seeds, plugs, Mow 2x/year	Late spring
PERENNIALS								
Achillea millefolium californica	Dwarf yarrow	White cluster blooms	all	sun	all	1'/6"	Seed or plugs, Mow every 6-8 weeks	Spring; Blooms year round if watered
Diplacus aurantiacus; Diplacus rutilus	Sticky Monkey flower	Small orange-yellow flowers; Hummingbird plant	All	Sun, Part-shade	All	3'/3'	Seed or plugs, Mow 1x/yr in early summer	Rainy season
Eschscholzia californica	CA poppy	Orange yellow flowers, state flower	all	sun	all	8"/1'	Seed, Mow 1x/year after bloom	Mar-May
Fragaria californica	CA strawberry	Small white flowers; red fruit	gentle	shade	Heavy, sandy	4"/ flat	Plugs, Mow 2x/year	May-Aug
Mahonia repens	Creeping barberry	Small yellow flowers; blue-purple fruit	riparian	Part-sun, shade	Creek banks	1'/3'	Plugs, spreads by rhizomes, Mow 2x/year	Spring-summer
Zauschneria californica mexicana	CA Fuschia	Red trumpet flowers; Hummingbird plant	all	part shade	Under oaks	1'/1'	Plugs, Mow 1x/year	Late summer

To establish native plants, the best time of year to plant is in late fall after the first rain event. All will benefit from weekly or monthly watering the first year, especially if rain is scarce.

Numerous locations along the road shoulder are currently vegetated by annual flashy fuels such as invasive grasses. Replanting these areas with perennial natives that meet Fire Department criteria should reduce annual road shoulder maintenance. Expansion of a native "garden" along the road shoulder will improve both the aesthetics of the road and its ecological function.

⁵ All plants meet the following criteria: 1) Native to the watershed; 2) Low flammability; 3) Low-growing and/or easily mowed; 4) Easily obtained from a local nursery; 5) Aesthetically pleasing with bloom/dormancy times matched to fire management times.

Strategies for Implementation

Several avenues for strategic implementation of the Work Plan were developed by the BMP subcommittee, TCBRC, and internally within Caltrans, to be used in tandem. These avenues include Caltrans' written institutional memory, community-related delivery mechanisms, agreed-upon feasible timelines, and adaptive management. Regular communication via quarterly meetings of the TCBRC is also expected. In the spirit of cooperation and coordination, it was recognized that all stakeholders represented on the TCBRC (including Caltrans, the Topanga community, other public agencies, and locally elected officials) will be jointly responsible for ensuring implementation is carried out with best faith efforts.

Caltrans' Institutional Memory

Institutional memory within Caltrans was identified as critical for ensuring the work plan is implemented. The strategy to solidify institutional memory is three-fold:

- 1) This Work Plan and Implementation Plan approved and signed by Maintenance Director Dan Freeman. This was done on April 24, 2013.
- 2) Special notations included in the annual Vegetation Control Plan for Topanga. The language was approved by Director Freeman and included in the Vegetation Control Plan by the Landscape Specialist in charge of Maintenance Support (Appendix C).
- 3) BMPs and delivery mechanisms detailed on the Work Plan spreadsheet and maps. These were completed during the creation of the Work Plan and maps.

Sensitive Areas:

The TCBRC recognizes that biologically sensitive areas may need to be managed differently than the rest of the TCB. Accordingly, sensitive areas will be flagged by the community prior to the work of Caltrans' maintenance crews. In Lower Topanga, where work must be done by Caltrans for safety reasons, TCWC will act as the Community Liaison to Caltrans (with TASC as the alternate liaison) when work is being done around sensitive areas, and the RCDSMM will train Caltrans crews in appropriate management techniques for these areas. For Central and Upper Topanga, community groups may take responsibility for managing sensitive areas, to be determined at the spring meeting each year. The list of sensitive areas and management recommendations are in Appendix C and Appendix F.

Community-related Delivery Mechanisms for BMPs

A delivery mechanism is a tool or method for providing a BMP. Eight delivery mechanisms were identified and assessed by the BMP subcommittee; six emerged as viable or potentially viable for use in Topanga. These include:

- 1) Caltrans employees – The regular maintenance crews of Caltrans who work in Topanga Canyon. The crews are overseen by the Maintenance Supervisor for SR-27. The TCBRC will be notified in advance of work via by the Caltrans Office of Public Affairs, with member groups forwarding information to their constituencies.

2) Community volunteers – Residents of Topanga who choose to assist with maintaining the roadside. Volunteering can be done as a group or communal effort (for example, manual clearing in conjunction with the Topanga Days Parade was discussed as a possibility), or by individual owners who take responsibility for managing the frontage along their property. Volunteer efforts will be coordinated by the TCBRC at the spring meeting so that they happen in cooperation with Caltrans and with recognition of the predicted needs of the upcoming fire season.

3) Contractors – Private companies that can clear in Topanga and arrange for lane/shoulder closures as necessary. These will be hired by private owners who choose to do so and are the responsibility of those owners. A list of contractors who have worked in Topanga is in Appendix D.

4) California Conservation Corps - The California Conservation Corps (CCC) is a state agency that hires men and women ages 18 to 25 for a year of natural resource work and emergency response. The TCBRC' community and/or elected officials members will explore annually grants or other funding for the purpose of hiring the CCC (or the Los Angeles Conservation Corps) to help clear vegetation along SR-27, in particular on the steep portions of the roadside. When and if such funding becomes available, the TCBRC will ensure that Caltrans and the Corps coordinate the workload.

5) Caltrans Maintenance Consent Letter – This would be required for use by community volunteers (see #2 above), such as for when they manage TCB's sensitive areas. It is obtained from Caltrans Maintenance, takes a few days to gain approval, and includes a waiver for Caltrans liability. It is expected and recommended that volunteers will carry their own health insurance. A lane or shoulder closure can be coordinated with Caltrans Maintenance if needed. Sample Letter is in Appendix D.

6) No-fee Encroachment Permit – This would be required for use by contractors (see #3 above). It must be submitted by a government entity or community umbrella organization, and takes several weeks to be approved. Contractors must carry \$1,000,000 liability, \$1,000,000 damage, and \$2,000,000 in death benefits. Sample Permit is in Appendix D.

The BMP subcommittee also considered and discarded court referrals and correctional workers as not viable.

Timelines

All work is expected to be completed by June 1st annually as required by and in cooperation with the LA County Fire Department, and as determined by fire conditions and budget constraints. Ideally it follows the phasing schedule for the percentage of work completed as noted below (also see Table 2):

Yr 1: 40% by June 1; 60% by July 1; 80% by Aug 1; 100% by Sept 1

Yr 2: 60% by June 1; 80% by July 1; 100% by Aug 1

Yr 3: 80% by June 1; 100% by July 1

Yr 4: 100% by June 1

Yr 5: 100% by June 1, reassess plan for next 5 years

In Year 1:

Timeline

Central Topanga is targeted to be done by June 1st, Upper Topanga by July 1st, and Lower Topanga by August 1st, with leeway until September 1st, as determined by seasonal and roadside conditions.

BMPs

Four BMPs will be used: weed whacking, slope mowing, mulch, and native plants. Slope mowing, weed whacking, and mulching are expected to be used primarily by Caltrans or contractors. Weed whacking, mulch, and native plants are BMPs recommend for private owners or community volunteers. Pilot plots of mulch and native plants are proposed for certain sections of SR-27. The recommended native plants were showcased by the Topanga Chamber of Commerce in April 2013 and written educational materials will be created by the Communications Subcommittee.

Adaptive Management

Adaptive management uses monitoring, reevaluation, and modification of resource management decisions to respond to changing environmental or social conditions. For Topanga, an evaluation framework was created to guide the assessment and modification of BMPs, delivery mechanisms, and timelines over a five year period. The framework includes seven categories: fire safety, implementation timeframe, total cost, delivery sustainability, environmental toxicity, erosion control, and worker safety (Appendix E). The framework is expected to: 1) Establish standards for decision-making on alternative methods and mechanisms; 2) Allow TCBRC members to explain and defend final decisions to constituents or superiors; and 3) Act as a guide for other communities and Caltrans Districts that wish to replicate the process undertaken in Topanga. Annual results from the evaluation framework report will help inform future methods and research.

The protocol for adaptive management in Topanga is outlined in Table 2 and includes the following:

1) **Monitoring**: Trimesterly on-the-ground assessments of the status and effectiveness of BMPs and vegetation conditions.

When: Ideally assessments are conducted in January, June, and September. The January assessment looks at current and projected roadside conditions as well as predicted weather for the year. The June and September assessments can be done in conjunction with fire inspections and assess current conditions and the BMPs.

Who: The assessments should be conducted jointly by appropriate representatives from Caltrans, the LA County Fire Department, local elected officials, and the TCBRC. The LA County Fire Department has agreed to supply copies of their inspection reports upon request.

How: Assessments should utilize Caltrans' standard assessment tools, such as for erosion, as well as the attached checklists specific to Topanga (Appendix E).

2) **Reevaluation:** TCBRC quarterly meetings to review and evaluate the assessments, new or upcoming BMPs, changes in environmental or social conditions, and any other relevant information.

Held in conjunction with the assessments and fire season needs: January, March, June, and September.

Evaluations are conducted against the Evaluation Framework (Appendix E).

3) **Modifications:** Changes in the BMPs, delivery mechanisms, and timelines are identified in the TCBRC meetings and subsequently implemented by the responsible parties.

4) **Five-Year Cycle:** At the beginning of Year 5, the full work plan, implementation plan, and trimesterly assessments are reviewed by the TCBRC. The successes, lessons learned, changes needed, and satisfactory status quo are identified. A new five-year plan is created by the end of the year that builds on the previous five-year plan.

Table 2. 5-Year Timeline.

<u>YEAR</u>	<u>MONTH</u>	<u>WORK</u>	<u>MONITORING</u>	<u>PLAN</u>	<u>MEETINGS</u>
2013	MAY	Work starts on Central Topanga			TCBRC
CYCLE 1	JUN	Upper Topanga	Monitoring (w/ fire inspection input)	Plan evaluation	
(YR 1)	JUL	Lower Topanga			TCBRC
	AUG	Work finishes			
	SEP		Monitoring (w/ fire inspection input)	Plan evaluation	
	OCT				TCBRC
	NOV				
	DEC				
2014	JAN		Monitoring for current and projected conditions	Plan evaluation	TCBRC
(YR 2)	FEB				
	MAR			Plan evaluation	
	APR				TCBRC
	MAY	Central/Upper Topanga			
	JUN	Upper/Lower Topanga	Monitoring (w/ fire inspection input)	Plan evaluation	
	JUL	Work finishes			TCBRC
	AUG				
	SEP		Monitoring (w/ fire inspection input)	Plan evaluation	
	OCT				TCBRC
	NOV				
	DEC				
2015	JAN		Monitoring for current and projected conditions	Mid-cycle Plan Review	TCBRC
(YR 3)	FEB				
	MAR			Plan evaluation	
	APR				TCBRC
	MAY	Central/Upper/Lower Topanga			
	JUN	Work finishes	Monitoring (w/ fire inspection input)	Plan evaluation	
	JUL				TCBRC

	AUG				
	SEP		Monitoring (w/ fire inspection input)	Plan evaluation	
	OCT				TCBRC
	NOV				
	DEC				
2016	JAN		Monitoring for current and projected conditions	Plan evaluation	TCBRC
(YR 4)	FEB				
	MAR			Plan evaluation	
	APR	Central/Upper/Lower Topanga			TCBRC
	MAY	Work finishes			
	JUN		Monitoring (w/ fire inspection input)	Plan evaluation	
	JUL				TCBRC
	AUG				
	SEP		Monitoring (w/ fire inspection input)	Plan evaluation	
	OCT				TCBRC
	NOV				
	DEC				
2017	JAN		Monitoring for current and projected conditions	5-yr Plan Review	TCBRC
(YR 5)	FEB			(continues throughout year)	
	MAR				TCBRC
	APR	Central/Upper/Lower Topanga			
	MAY	Work finishes			TCBRC
	JUN		Monitoring (w/ fire inspection input)		
	JUL				TCBRC
	AUG				
	SEP		Monitoring (w/ fire inspection input)		TCBRC
	OCT				
	NOV				TCBRC
	DEC				
2018	JAN		Monitoring for current and projected conditions		TCBRC
CYCLE 2	FEB				
(YR 1)	MAR				TCBRC
	APR			NEW 5-YR PLAN IN PLACE	
	MAY				TCBRC
	JUN		Monitoring (w/ fire inspection input)		
	JUL				TCBRC
	AUG				
	SEP		Monitoring (w/ fire inspection input)		
	OCT				TCBRC
	NOV				
	DEC				

2013-2017 Recommended Work Plan

The following recommended work plan was created for 2013-2017, incorporates all the information gathered by the TCBRC and subcommittees, and recommends specific BMPs by post mile. The full plan can be found at www.dot.ca.gov/dist07/travel/projects/projects.php%20 and www.rcdsmm.org. This work plan is a living document and may be updated as conditions and needs change along TCB or as more information is obtained.

YELLOW = important Sensitive area					Sensitive Species Locations			BMP 1 SUMMARY (preferred BMP) PM SUMMARY	BMP 2 (alternate BMP) SUMMARY	RESPONSIBLE PARTY
Parcel number	public	private	ID n/s	PM	Latitude	Longitude	Condition			
LOWER TOPANGA										
								NORTHBOUND: 0.0-3.4		
	X		N	0.0-0.1	34.03963	-118.58228	seep	0.0-0.3 Weed wacker		CALTRANS
4443003010	X		N	0.1						CALTRANS
4443003006	X		N	0.1						CALTRANS
4443003005	X		N	0.1						CALTRANS
4443003003	X		N	0.1						CALTRANS
4443004900	X		N	0.2-0.3						CALTRANS
4448002903	X		N	0.3-0.4				0.3-0.7 Weed wacker	slope mower	CALTRANS
4448002903	X		N	0.4-0.5	34.04581	-118.57809	seep			CALTRANS
	X		N	0.5-0.6	34.04615	-118.57737	creek inlet			CALTRANS
4448002903	X		N	0.5-0.6			drainage	0.7-1.6 slope mower	mulch/natives	CALTRANS
4448002903	X		N	0.6-0.7						CALTRANS
4448002903	X		N	0.7-0.8						CALTRANS
4448002903	X		N	0.8-0.9						CALTRANS
4448002903	X		N	0.9-1.0						CALTRANS
4448002903	X		N	1.0-1.1						CALTRANS
4448002903	X		N	1.1-1.2						CALTRANS
4448002903	X		N	1.2-1.3			drainage			CALTRANS
4448002903	X		N	1.3-1.4						CALTRANS
4448002903	X		N	1.4-1.5						CALTRANS
4448002903	X		N	1.5-1.6			drainage		natives	CALTRANS
4448002903	X		N	1.6-1.7				1.6-1.7 mulch	natives	CALTRANS
4448002903	X		N	1.7-1.8				1.7-1.8 weed wacker	mulch	CALTRANS
4448002903	X		N	1.8-1.9				1.8-2.0 slope mower	mulch	CALTRANS
4448002903	X		N	1.9-2.0						CALTRANS
	X		N	2.0-2.1	34.06762	-118.58706	sycamore tree	2.0-3.4 Weed wacker	mulch/natives	CALTRANS
4448002903	X		N	2.0-2.1			creek access			CALTRANS
4448002903	X		N	2.1-2.4			creek slope			CALTRANS
	X		N	2.4-2.5	34.07011	-118.58739	falls overlook			CALTRANS
4448002903	X		N	2.4-2.5			creek access			CALTRANS
4448002903	X		N	2.5-2.8			creek access		POTENTIAL MULCH PILOT	CALTRANS
4448002903	X		N	2.8-2.9					POTENTIAL MULCH PILOT	CALTRANS
4448002903	X		N	2.9-3.3						CALTRANS
4448002903	X		N	3.3-3.4						CALTRANS
								SOUTHBOUND: 0.0-3.4		
4448002903	X		S	0.0-0.3				0.0-0.30 mulch	natives	CALTRANS
4448002903	X		S	0.3-0.4				0.3-2.0 Weed wacker	mulch	CALTRANS
4448002903	X		S	0.4-0.6						CALTRANS
4448002903	X		S	0.6-0.8						CALTRANS
4448002903	X		S	0.8-2.0			creek bank			CALTRANS
	X		S	1.0-2.0			creek bank			CALTRANS
4448002903	X		S	2.0-2.3			drainages	2.0-2.3 Weed wacker		CALTRANS
4448002903	X		S	2.3-2.4	34.06419	-118.60016	seep	2.3-3.3 Weed wacker	Natives	CALTRANS
	X		S	2.4-3.75			rock outcrop			CALTRANS
4448002903	X		S	2.4-2.5						CALTRANS
4448002903	X		S	2.5-2.9						CALTRANS
4448002903	X		S	2.9-3.0						CALTRANS
4448002903	X		S	3.0-3.3						CALTRANS
4448002903	X		S	3.3-3.4				3.3-3.4 Weed wacker	mulch	CALTRANS

YELLOW = important Sensitive area					Detailed BMPs					
Parcel number	public	private	ID n/s	PM	BMP 1	BMP 2	BMP 3	short term	long term	Comments
LOWER TOPANGA										
	x		N	0.0-0.1	Weed Wacker			after June	x	seep at edge of pavement extends -30' to pipe 34.04195, -118.57864
4443003010	X		N	0.1						gas station
4443003006	X		N	0.1						native slope
4443003005	X		N	0.1						native slope
4443003003	X		N	0.1						native slope
4443004900	X		N	0.2-0.3						native slope
4448002903	X		N	0.3-0.4	Weed Wacker	Slope Mower		X	X	native slope
4448002903	X		N	0.4-0.5	Weed Wacker			after June	x	permanent seep critical habitat for amphibians, clearance needs to occur after frog breeding season (Feb - Jun); seep critical breeding area for amphibians, tadpoles present, starts at SCE pole#798195E, extends northbound approximately 50-100', <3" from white line, cattails, willow, mulefat qualifies as wetland
4448002903	X		N	0.5-0.6	Weed Wacker			after June	X	lots of cape ivy, euphorbia and fennel to remove, little shoulder
4448002903	X		N	0.5-0.6	Weed Wacker	slope mower		X	X	drainage culvert, small paved area, SCE pole
4448002903	X		N	0.6-0.7	Weed Wacker	Mulch	(CCC)	X	X	mixed conditions, lots weeds, good access for hand crew
4448002903	X		N	0.7-0.8	Slope Mower	Mulch		X	X	tight curve with little shoulder steep slope
4448002903	X		N	0.8-0.9	Slope Mower	Native Plants		X	X	mow for short term, long term plants, steep slope
4448002903	X		N	0.9-1.0	Slope Mower			X	X	very steep slope, narrow shoulder
4448002903	X		N	1.0-1.1	Slope Mower			X	X	very steep slope, narrow shoulder
4448002903	X		N	1.1-1.2	Slope Mower	Native Plants		X	X	
4448002903	X		N	1.2-1.3	Slope Mower	Native Plants		x	x	culvert near 1.3 drains to creek, intermittent seep
4448002903	X		N	1.3-1.4	Slope Mower			X	X	very steep slope, narrow shoulder
4448002903	X		N	1.4-1.5	Slope Mower			X	X	very steep slope, narrow shoulder
4448002903	X		N	1.5-1.6	Slope Mower	Native Plants		X	X	
4448002903	X		N	1.6-1.7	Mulch	Native Plants		x	X	mulch possible
4448002903	X		N	1.7-1.8	Weed Wacker	Mulch	(CCC)	x	X	hand clear then mulch
4448002903	X		N	1.8-1.9	slope mower	Mulch		x	X	mow then mulch
4448002903	X		N	1.9-2.0	slope mower			x	X	no options!
	X		N	2.0-2.1	Weed Wacker	Native Plants		x	X	important sycamore tree, slight pull out between white line and guardrail
4448002903	X		N	2.0-2.1	Weed Wacker	Native Plants	(CCC)	x	X	bridge access to creek, BIG castor bean problem to control, take out edge, long term take out to creek
4448002903	X		N	2.1-2.4	Weed Wacker	Mulch		x	X	long term planting
	X		N	2.4-2.5	Weed Wacker	Native Plants		x	X	large pullout by falls, immediate downslope to critical fish habitat
4448002903	X		N	2.4-2.5	Weed Wacker	Mulch	(CCC)	x	X	cut, mulch, long term plant
4448002903	X		N	2.5-2.8	Weed Wacker	Mulch		x	X	up to helipad, eventual type conversion from valerian. mustard to natives
4448002903	X		N	2.8-2.9	Weed Wacker	Mulch		x	X	helipad, steep upslope, Twin Poles area, plant long term
4448002903	X		N	2.9-3.3	Weed Wacker	Mulch		x	X	steep upslope, lots of fountain grass to remove
4448002903	X		N	3.3-3.4	Weed Wacker	Mulch		x	X	end of state park
4448002903	X		S	0.0-0.3	Mulch	Native Plants		x	x	feed bin - end of rodeo grounds, very wide road shoulder, may not need anything
4448002903	X		S	0.3-0.4	Weed Wacker	Mulch	(CCC)	X	X	wide shoulder, remove fennel, tree tobacco, big dirt berm
4448002903	X		S	0.4-0.6	Weed Wacker	Mulch		X	X	mulch and then plant
4448002903	X		S	0.6-0.8	Weed Wacker	Mulch		X	X	plant long term, creek downslope but some distance, arundo patches
4448002903	X		S	0.8-2.0	Weed Wacker	Mulch		x	x	along creek bank, grouted rip rap, arundo patches, weed heaven, utility poles
	X		S	1.0-2.0	Weed Wacker	Native Plants		x	X	road shoulder/guardrail = top of creek bank
4448002903	X		S	2.0-2.3	Weed Wacker			x	x	steep slope, utility poles
4448002903	X		S	2.3-2.4	Weed Wacker	Native plants		after June	x	IMPORTANT SEEP, cape ivy problem, very sensitive: major year round seep, lots of cape ivy, extends south to 34.06815, -118.58700
	X		S	2.4-3.75	Weed Wacker	Native Plants		X	X	entire slope hosts sensitive rock outcrop species
4448002903	X		S	2.4-2.5	Weed Wacker			X	X	native plants on slope, valerian on lower elevation
4448002903	X		S	2.5-2.9	Weed Wacker			X	X	sensitive plants upslope
4448002903	X		S	2.9-3.0	Weed Wacker			X	X	steep slope
4448002903	X		S	3.0-3.3	Weed Wacker			X	X	steep slope, some creek access
4448002903	X		S	3.3-3.4	Weed Wacker	Mulch		X	X	long term planting

YELLOW = important Sensitive area				Sensitive Species Locations			BMP 1 SUMMARY (preferred BMP) PM	BMP 2 (alternate BMP) SUMMARY	RESPONSIBLE PARTY
Parcel number	public	private	ID n/s	PM	Latitude	Longitude	Condition		
SOUTH CENTRAL TOPANGA									
4432003906		X	N	3.4-3.5					
4445030005		X	N	3.4-3.5					
4445024023		X	N	3.4-3.5					
4445024007		X	N	3.6-3.7					
4446031005		X	N	3.6-3.7					
4445024007		X	N	3.7-3.8					
4445024007		X	N	3.8-3.9					
4445026009		X	N	3.8-3.9					
4445026008		X	N	3.8-3.9					
4445026007		X	N	3.9-4.0					
4445026006		X	N	3.9-4.0					
4445026010		X	N	3.9-4.0					
4445026011		X	N	3.9-4.0					
4445026001		X	N	4.0-4.1					
4445027009		X	N	4.0-4.1					
4445027008		X	N	4.0-4.1					
4445027007		X	N	4.0-4.1					
4445027006		X	N	4.0-4.1					
4445027005		X	N	4.1-4.2					
4445027004		X	N	4.1-4.2					
4445027011		X	N	4.1-4.2					
4445027002		X	N	4.1-4.2					
4445008015		X	N	4.2-4.3					
4445008016		X	N	4.2-4.4					
4445008900	x		N	4.4-4.5					
4445008903			N	4.4-4.5					
4445008914			N	4.4-4.5					
4445008902			N	4.4-4.5					
4445009004			N	4.4-4.5					
4445009003			N	4.4-4.5					
4445009001			N	4.5-4.6					
4445010013			N	4.5-4.6					
4445010001			N	4.5-4.6					
4445010014			N	4.5-4.6					
4445011009			N	4.6-4.7					
4445011010			N	4.6-4.7					
4445011011			N	4.6-4.7					
4445012001			N	4.7-4.8					
4445012018			N	4.7-4.8					
4445012019			N	4.7-4.8					x
4445003902	x		N	4.8-4.9					x
4444018910	x		N	4.8-5.0					x
4444018900	x		N	4.8-4.9					x
4444018913	x		N	5.0-5.1					X
4444018912	?		N	5.0-5.1					X
4444018909	?		N	5.0-5.1					X
4444018911	?		N	5.0-5.1					X
4444018906	?		N	5.0-5.1					X
4444018901	?		N	5.0-5.1					X
4444020003		?	N	5.1-5.2					X
4444020004			N	5.1-5.2					X
4444020005			N	5.1-5.2					X
4444020006			N	5.1-5.2					X
4444020007			N	5.1-5.2					X
4444020008	x		N	5.1-5.2					X
4444020010	x		N	5.1-5.2					X
4444020011	x		N	5.1-5.2					X
4444020015	x		N	5.1-5.2					X
4444021014	x		N	5.2-5.3					X
4444013019	x		N	5.2-5.3					X
4444013019	x		N	5.2-5.3					X
4444008021	x		N	5.3-5.4					X
4444008022	x		N	5.4-5.5					X
4444008011	x		N	5.4-5.5					X
4444008012	x		N	5.4-5.5					X
4444009010	x		N	5.4-5.6	34.10103	-118.59701	humbolt lilies		
4444009009	x		N	5.5-5.6					X
4444009006	x		N	5.5-5.6					X
4444009004	x		N	5.5-5.6					X
4444009002	x		N	5.6-5.7					X
4444006030	x		N	5.6-5.7					X
4444006021	x		N	5.6-5.7					X
4444006020	x		N	5.6-5.7					X
4444006021	x		N	5.7-5.8					X
4444006004	x		N	5.7-5.8					X
4444006003	x		N	5.7-5.8					
4441020028	x		N	5.8					
4441019900	X		N	5.8-5.9					
4441019009	X		N	5.8-5.9					
4441019008	X		N	5.8-5.9					
4441019007	X		N	5.8-5.9					
4441019006	X		N	5.9					
4441019005	X		N	5.9-6.0					
4441019004	X		N	5.9-6.0					
4441019003	X		N	5.9-6.0					
4441019011	X		N	5.9-6.0					

TCB: VEGETATION MANAGEMENT IMPLEMENTATION PLAN, 2013-2017 (v. 9/12/13)

YELLOW = important Sensitive area					Sensitive Species Locations			BMP 1 SUMMARY (preferred BMP) PM	BMP 2 (alternate BMP) SUMMARY	RESPONSIBLE PARTY
Parcel number	public	private	ID n/s	PM	Latitude	Longitude	Condition			
<u>SOUTH CENTRAL TOPANGA</u>										
4447001010		X	S	3.4-3.5				3.4-3.5 weed wacker	slope mower	CALTRANS
4447001009		X	S	3.4-3.5				3.4-3.5 weed wacker		CALTRANS
# COVERED		X	S	3.4-3.5						CALTRANS
# COVERED		X	S	3.4-3.5						CALTRANS
4445024008		X	S	3.6-3.7				3.6-3.7 n/a		CALTRANS
4447002011		X	S	3.6-3.7						CALTRANS
4446029010		X	S	3.6-3.7			X	3.6-3.7 weed wacker	slope mower	CALTRANS
4446029009		X	S	3.6-3.7			X			CALTRANS
4446024008		X	S	3.6-3.7			X			PRIVATE OWNER
4446029007		X	S	3.6-3.7			X			(Jalan Jalan)
4446029006		X	S	3.6-3.7			X			
4446029024		X	S	3.6-3.7			X			
4446029004		X	S	3.6-3.7			X			
4446029003		X	S	3.6-3.7			X			
4446029002		X	S	3.6-3.7			X			
4446029001		X	S	3.7-3.8			X	3.7-3.8 slope mower		
4446029025		X	S	3.7-3.8			X			
4446003005		X	S	3.7-3.8				3.7-3.8 n/a		
4446003900	X		S	3.7-3.8				3.7-3.8 weed wacker		
	X		S	3.8-3.9	34.08535	-118.60007	seep	3.8-3.9 weed wacker	natives	
4446003001		X	S	3.8-3.9				3.8-4.4 n/a		
4446001009		X	S	3.8-3.9						
4446001010		X	S	3.8-3.9						
4446001011		X	S	3.8-3.9						
4446001012		X	S	3.8-3.9						
4446001013		X	S	3.8-3.9						
4446001014		X	S	3.8-3.9						
4446001015		X	S	3.8-3.9						
4445028012		X	S	3.9-4.0						
4445028012		X	S	4.0-4.2						
4445028012		X	S	4.0-4.2						
4445028015		X	S	4.2-4.3						
4445028013		X	S	4.2-4.3						
4445028014		X	S	4.2-4.3						
4445006028		X	S	4.3-4.4						
4445006029		X	S	4.3-4.4						
4445006030			S	4.4-4.5			X	4.4-4.6 weed wacker		
4445006032			S	4.4-4.5			X			
4445006332			S	4.5-4.6			x			
4445006027			S	4.5-4.6			X			
4445005005			S	4.5-4.6			X			
4445005002			S	4.5-4.6			X			
4445004903	x		S	4.6-4.8			X	4.6-4.8 tbd	mat	
4445004902		?	S	4.8-4.9			X	4.8-4.9 weed wacker		
4444026901		?	S	4.8-4.9			X	4.9-5.0 n/a		
4444024901	?		S	5.0-5.1			X	5.0-5.4 weedwacker		
4444024011	?		S	5.0-5.1			X			
4444024902	?		S	5.1-5.2			X			
4444023015		?	S	5.1-5.2						
4444023900		?	S	5.1-5.2						
4444023901	?		S	5.1-5.2			X			
4444008900	?		S	5.2-5.4						
4444008003		?	S	5.4-5.5			X	5.4-5.6 n/a		
4444008013		?	S	5.4-5.5			X			
4444008001		X	S	5.4-5.5			X			
		X	S	5.4-5.6	34.10009	-118.59825	Lake Topanga	5.4-5.6 weed wacker	natives	
4444009027		X	S	5.5-5.6			X	5.5-5.6 n/a		
4444009026		X	S	5.5-5.6			X			
4444006032		X	S	5.6-5.7			X	5.6-5.8 weed wacker		
4444006031		X	S	5.6-5.7			X			
4444006013		X	S	5.7-5.8						
4444006001		X	S	5.7-5.8			X	5.7-5.9 mulch	mat	
4440028006		X	S	5.8-5.9			X			
4440028007		X	S	5.8-5.9						

YELLOW = important Sensitive area					Detailed BMPs					
Parcel number	public	private	ID n/s	PM	BMP 1	BMP 2	BMP 3	short term	long term	Comments
SOUTH CENTRAL TOPANGA										
4447001010		X	S	3.4-3.5	Weed Wacker	Slope Mower		X		East Hillside
4447001009		X	S	3.4-3.5	Weed Wacker			X		
# COVERED		X	S	3.4-3.5	Weed Wacker			X		
# COVERED		X	S	3.4-3.5	Weed Wacker			X		
4445024008		X	S	3.6-3.7						
4447002011		X	S	3.6-3.7						
4446029010		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029009		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446024008		X	S	3.6-3.7						wood chips in place
4446029007		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029006		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029024		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029004		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029003		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029002		X	S	3.6-3.7	Weed Wacker	Slope Mower		X		
4446029001		X	S	3.7-3.8	Slope Mower			X		
4446029025		X	S	3.7-3.8	Slope Mower			X		
4446003005		X	S	3.7-3.8						
4446003900	X		S	3.7-3.8	Weed Wacker			X		
	X		S	3.8-3.9	Weed Wacker	Native Plants		after June	x	seep southbound from 327 TC Blvd driveway - 25' ends 34.08553,-118.60016, cattails, native snails and tadpoles present
4446003001		X	S	3.8-3.9						
4446001009		X	S	3.8-3.9						
4446001010		X	S	3.8-3.9						
4446001011		X	S	3.8-3.9						
4446001012		X	S	3.8-3.9						
4446001013		X	S	3.8-3.9						
4446001014		X	S	3.8-3.9						
4446001015		X	S	3.8-3.9						
4445028012		X	S	3.9-4.0						
4445028012		X	S	4.0-4.2						
4445028012		X	S	4.0-4.2						
4445028015		X	S	4.2-4.3						
4445028013		X	S	4.2-4.3						
4445028014		X	S	4.2-4.3						
4445006028		X	S	4.3-4.4						
4445006029		X	S	4.3-4.4						
4445006030			S	4.4-4.5	Weed Wacker					Lightly Vegetated Creekside
4445006032			S	4.4-4.5	Weed Wacker					Lightly Vegetated Creekside
4445006332			S	4.5-4.6						Looks like parcel # typo? Creekside
4445006027			S	4.5-4.6						School Rd. Creekside
4445005005			S	4.5-4.6	Weed Wacker					Lightly Vegetated Creekside
4445005002			S	4.5-4.6						Creekside
4445004903	x		S	4.6-4.8	TBD	Mat				Creek Oaks
4445004902		?	S	4.8-4.9	Weed Wacker					TBD for Arundo
4444026901		?	S	4.8-4.9						
4444024901	?		S	5.0-5.1	Weed Wacker					Flood Control ? Oaks
4444024011	?		S	5.0-5.1	Weed Wacker					Flood Control ? Oaks
4444024902	?		S	5.1-5.2	Weed Wacker					Flood Control ? Oaks
4444023015		?	S	5.1-5.2	Weed Wacker					Flood Control ? Oaks
4444023900		?	S	5.1-5.2	Weed Wacker					Flood Control ? Oaks
4444023901	?		S	5.1-5.2	Weed Wacker					Flood Control ? Oaks
4444008900	?		S	5.2-5.4	Weed Wacker					Flood Control ?
4444008003		?	S	5.4-5.5						Sm Parcels; Berm, Creek
4444008013		?	S	5.4-5.5						Sm Parcels; Berm, Creek
4444008001		X	S	5.4-5.5						Berm, Creek
		X	S	5.4-5.6	Weed Wacker	Native Plants		x	x	area commonly floods due to rip rap constriction of creek channel, need CDFW permit to clear channel
4444009027		X	S	5.5-5.6						Creek
4444009026		X	S	5.5-5.6						Creek
4444006032		X	S	5.6-5.7	Weed Wacker					Oaks
4444006031		X	S	5.6-5.7	Weed Wacker					Berm, Oaks, sightline issue?
4444006013		X	S	5.7-5.8	Weed Wacker					Sm Parcel, sightline Issue?
4444006001		X	S	5.7-5.8	Mulch	Mat				Creek
4440028006		X	S	5.8-5.9	Mulch	Mat				Froggy's, Creek
4440028007		X	S	5.8-5.9						Froggy's

YELLOW = important Sensitive area					Sensitive Species Locations			BMP 1 SUMMARY (preferred BMP) PM	BMP 2 (alternate BMP) SUMMARY	RESPONSIBLE PARTY
Parcel number	public	private	ID n/s	PM	Latitude	Longitude	Condition			
NORTH CENTRAL TOPANGA										
4441024021		X	N	5.9-6.0				NORTHBOUND: 5.9-7.4 5.9-6.2 Weed wacker	natives	
4441024023		X	N	6-6.1			oaks			
4441037019		X	N	6-6.1			oaks			
4441024014		X	N	6-6.1			oaks			
4441024005		X	N	6-6.1			oaks			
4441024004		X	N	6-6.1			oaks			
4441024003		X	N	6.1-6.2			oaks			
4441024002		X	N	6.1-6.2			oaks			
4441024001		X	N	6.1-6.2						
4441025008		X	N	6.1-6.2						
4441025009		X	N	6.1-6.2			oaks	6.1-6.6 weed wacker	mulch/natives	
4441025005		X	N	6.1-6.2						
4441025011		X	N	6.2-6.3			oaks			
4441025010		X	N	6.2-6.3			oaks			
4441026015		X	N	6.2-6.3			oaks			
4441026007		X	N	6.2-6.3			oaks			
4441026008		X	N	6.3-6.4			oaks			
44410260901		X	N	6.3-6.4			oaks			
444??????		X	N	6.3-6.4			oaks			
4441037013		X	N	6.3-6.4			oaks			
4441026013		X	N	6.3-6.4			oaks	6.5-6.9 slope mower	mulch/weed wacker	
4441027001		X	N	6.3-6.5			oaks			
444??????		X	N	6.5-6.6			oaks			
4441028024		X	N	6.5-6.6			oaks			
4441029033		X	N	6.5-6.6			oaks			
4441029019		X	N	6.5-6.6						
4441029027		X	N	6.5-6.6						
4441029026		X	N	6.5-6.6						
4441030004		X	N	6.5-6.7						
4441030007		X	N	6.6-6.7			oaks			
4441030008		X	N	6.6-6.7			oaks	6.8-7.4 Weed wacker	mulch/natives	PRIVATE OWNER
4441030009		X	N	6.6-6.8			oaks			
4441038007		X	N	6.7-6.8						
4441038006		X	N	6.7-6.8						
4441038010		X	N	6.8-6.9			oaks			
4441038003		X	N	6.8-6.9						
4441038002		X	N	6.8-6.9						
4441039902		X	N	6.8-6.9						
4441039009		X	N	6.8-6.9						
4441039008		X	N	6.8-6.9						
4441039010		X	N	6.8-6.9						MRCA
4434010025		X	N	6.9-7.0			oaks			
4434010020		X	N	6.9-7.1						
4434010019		X	N	7.0-7.1			oaks			
4434010010	X		N	7.0-7.2						
4434010009		X	N	7.1-7.2						
4434010005		X	N	7.1-7.2						
4434010006		X	N	7.1-7.2						
4434010007?		X	N	7.2-7.3			oaks			
4434010008		X	N	7.2-7.4						
4434011007		X	N	7.3-7.4						
4434015006		X	N	7.3-7.4						
4434012029		X	N	7.3-7.4			oaks			

YELLOW = important Sensitive area					Detailed BMPs					
Parcel number	public	private	ID n/s	PM	BMP 1	BMP 2	BMP 3	short term	long term	Comments
<u>NORTH CENTRAL TOPANGA</u>										
4441024021		X	N	5.9-6.0	Weed Wacker	Native Plants			X	
4441024023		X	N	6-6.1	Weed Wacker	Native Plants			X	steep slope
4441037019		X	N	6-6.1	Weed Wacker	Native Plants			X	steep slope
4441024014		X	N	6-6.1	Weed Wacker	Native Plants			X	steep slope
4441024005		X	N	6-6.1	Weed Wacker	Native Plants			X	steep slope
4441024004		X	N	6-6.1	Weed Wacker	Native Plants			X	steep slope
4441024003		X	N	6.1-6.2	Weed Wacker	Native Plants			X	steep slope
4441024002		X	N	6.1-6.2	Weed Wacker	Native Plants			X	steep slope
4441024001		X	N	6.1-6.2	Weed Wacker	Native Plants			X	wide parking area
4441025008		X	N	6.1-6.2						wide parking area
4441025009		X	N	6.1-6.2	Weed Wacker	Mulch	Native Plants		X	
4441025005		X	N	6.1-6.2						driveway
4441025011		X	N	6.2-6.3	Weed Wacker	Mulch	Native Plants		X	
4441025010		X	N	6.2-6.3	Weed Wacker	Mulch	Native Plants		X	
4441026015		X	N	6.2-6.3	Weed Wacker	Mulch	Native Plants		X	
4441026007		X	N	6.2-6.3	Weed Wacker	Mulch	Native Plants		X	variable treatments steep slope
4441026008		X	N	6.3-6.4	Weed Wacker	Mulch	Native Plants		X	variable treatments steep slope
44410260901		X	N	6.3-6.4	Weed Wacker	Mulch	Native Plants		X	variable treatments steep slope
44410260901		X	N	6.3-6.4	Weed Wacker	Mulch	Native Plants		X	variable treatments steep slope
4441026013		X	N	6.3-6.4	Weed Wacker	Mulch	Native Plants		X	variable treatments steep slope
4441027001		X	N	6.3-6.5	Weed Wacker	Mulch	Native Plants		X	Community club
4441027001		X	N	6.5-6.6	Weed Wacker	Mulch	Native Plants		X	house on cheyney
4441028024		X	N	6.5-6.6	Weed Wacker	Mulch	Native Plants		X	fenced in parking area
4441029033		X	N	6.5-6.6	Weed Wacker				X	bridge over garapito creek
4441029019		X	N	6.5-6.6	Weed Wacker					Ozark Walk - hardscape area
4441029027		X	N	6.5-6.6	Weed Wacker					Ozark Walk - hardscape area
4441029026		X	N	6.5-6.6	Weed Wacker					Ozark Walk - hardscape area
4441030004		X	N	6.5-6.7	Slope Mower	Mulch			X	grassland, oaks, just before Artique Rd.
4441030007		X	N	6.6-6.7	Slope Mower	Mulch			X	narrow shoulder in bend, slope mower
4441030008		X	N	6.6-6.7	Slope Mower	Mulch			X	slope mower, hard turnout
4441030009		X	N	6.6-6.8	Slope Mower	Mulch			X	slope mower steep
4441038007		X	N	6.7-6.8	Slope Mower	Weed Wacker	Mulch		X	topanga fresh
4441038006		X	N	6.7-6.8	Slope Mower	Weed Wacker	Mulch		X	topanga fresh
4441038010		X	N	6.8-6.9	Slope Mower	Weed Wacker	Mulch		X	
4441038003		X	N	6.8-6.9	Slope Mower	Weed Wacker	Mulch		X	grass
4441038002		X	N	6.8-6.9	Slope Mower	Weed Wacker	Mulch		X	grass
4441039902		X	N	6.8-6.9	Slope Mower	Weed Wacker	Mulch		X	grass
4441039009		X	N	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	steep slope
4441039008		X	N	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	steep slope
4441039010		X	N	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	steep slope
4434010025		X	N	6.9-7.0	Weed Wacker	Mulch	Native Plants		X	Dan mcNeill, mulch at base
4434010020		X	N	6.9-7.1	Weed Wacker	Mulch	Native Plants		X	very steep, mulch at base
4434010019		X	N	7.0-7.1	Weed Wacker	Mulch	Native Plants		X	sharp turn steep slope
4434010010	X		N	7.0-7.2	Weed Wacker	Mulch	Native Plants		X	partially untended, shoulder parking, steep slope
4434010009		X	N	7.1-7.2	Weed Wacker	Mulch	Native Plants		X	old topanga turnout parking
4434010005		X	N	7.1-7.2	Weed Wacker	Mulch	Native Plants		X	old topanga turnout parking
4434010006		X	N	7.1-7.2	n/a					flying pig-hardscape/hardpack
4434010007?		X	N	7.2-7.3	Weed Wacker	Mulch	Native Plants		X	
4434010008		X	N	7.2-7.4	Weed Wacker	Mulch	Native Plants		X	steep slope before Santa Maria Road
4434011007		X	N	7.3-7.4	Weed Wacker	Mulch	Native Plants		X	Old corral site past Santa maria Rd
4434015006		X	N	7.3-7.4	Weed Wacker	Mulch	Native Plants		X	steep slope
4434012029		X	N	7.3-7.4	Weed Wacker	Mulch	Native Plants		X	drainage and upslope

<u>NORTH CENTRAL TOPANGA</u>									
								SOUTHBOUND: 6.0-7.5	
4440027022		X	S	6-6.1				6.0-7.0 Weed wacker	natives/mulch
4440014004		X	S	6-6.1					
4440014900		X	S	6.1-6.2					
4440014005		X	S	6.1-6.2					
4440014006		X	S	6.1-6.2					
4440014009		X	S	6.1-6.2					
4440014008		X	S	6.1-6.2			oaks		
4440014007		X	S	6.1-6.2			oaks		
4440013013		X	S	6.2-6.3			oaks		
4440013904		X	S	6.2-6.3			oaks		
4440012006		X	S	6.3-6.4			oaks		
4440006005		X	S	6.3-6.4			oaks		
4440006004		X	S	6.4-6.5			oaks		
4440006019		X	S	6.4-6.5			oaks		
4440006017		X	S	6.4-6.5			oaks		
4440006002		X	S	6.5-6.6			oaks	7.0-7.2 natives 7.1-7.2 Weed wacker	mulch mulch/natives
4440005012		X	S	6.6-6.7			oaks		
4440005015		X	S	6.6-6.7			oaks		
4440005016		X	S	6.6-6.7			oaks		
4440005005		X	S	6.6-6.8			oaks		
4440005004		X	S	6.6-6.8			oaks		
4440005003		X	S	6.7-6.8			oaks		
4440005017		X	S	6.7-6.8					
4440004022		X	S	6.7-6.8			oaks		
4440004024		X	S	6.7-6.8			oaks		
4440004023		X	S	6.8-6.9			oaks		
4440004017		X	S	6.8-6.9			oaks		
4440004016		X	S	6.8-6.9			oaks		
4440004015		X	S	6.8-6.9			oaks		
4440004014		X	S	6.8-6.9			oaks		
4440004013		X	S	6.8-6.9			oaks		
4440004004		X	S	6.8-6.9			oaks		
4440004003		X	S	6.8-6.9			oaks		
4440002013		X	S	6.8-6.9			oaks		
4440002010		X	S	6.8-6.9			oaks		
4440001014		X	S	6.8-6.9					
4440001008		X	S	6.8-6.9					
4440001007		X	S	6.8-7.0					
4434016015		X	S	6.9-7.0			oaks		
4434016019		X	S	7.0-7.1					
4434016028		X	S	7.0-7.2			oaks		
4434015009		X	S	7.1-7.2			oaks		
4434014001		X	S	7.2-7.5			oaks		
4434014002		X	S	7.2-7.5			oaks		
4434014008		X	S	7.2-7.5			oaks		
4434014005		X	S	7.2-7.5			oaks		
4434014007		X	S	7.2-7.5			oaks		
4434014006		X	S	7.2-7.5			oaks		
4434015010		X	S	7.2-7.5					

YELLOW = important Sensitive area					Detailed BMPs					
Parcel number	public	private	ID n/s	PM	BMP 1	BMP 2	BMP 3	short term	long term	Comments
<u>NORTH CENTRAL TOPANGA</u>										
4440027022		X	S	6-6.1	Weed Wacker	Native Plants			X	mulch recommended
4440014004		X	S	6-6.1	Weed Wacker	Native Plants			X	
4440014900		X	S	6.1-6.2	Weed Wacker	Native Plants			X	
4440014005		X	S	6.1-6.2	Weed Wacker	Native Plants			X	pine tree
4440014006		X	S	6.1-6.2	Weed Wacker	Native Plants			X	guardrail? Wood fence
4440014009		X	S	6.1-6.2	Weed Wacker	Native Plants			X	wood fence
4440014008		X	S	6.1-6.2	Weed Wacker	Native Plants			X	Theatricum
4440014007		X	S	6.1-6.2	Weed Wacker	Native Plants			X	Theatricum
4440013013		X	S	6.2-6.3	Weed Wacker	Native Plants			X	Theatricum
4440013904		X	S	6.2-6.3	Weed Wacker	Native Plants			X	Theatricum
4440012006		X	S	6.3-6.4	Weed Wacker	Mulch	Native Plants		X	Theatricum
4440006005		X	S	6.3-6.4	Weed Wacker	Mulch	Native Plants		X	Theatricum
4440006004		X	S	6.4-6.5	Weed Wacker	Mulch	Native Plants		X	Theatricum
4440006019		X	S	6.4-6.5	Weed Wacker	Mulch	Native Plants		X	end of theatricum
4440006017		X	S	6.4-6.5	Weed Wacker	Native Plants			X	garapito creek bank, mixed condition
4440006002		X	S	6.5-6.6	Weed Wacker	Native Plants			X	partially paved, hardpack, creek bank, mulch?
4440005012		X	S	6.6-6.7	Weed Wacker	Native Plants			X	John's landscape
4440005015		X	S	6.6-6.7	Weed Wacker	Native Plants			X	Angela slater/ Johns
4440005016		X	S	6.6-6.7	Weed Wacker	Native Plants			X	Angela slater/ Johns
4440005005		X	S	6.6-6.8	Weed Wacker	Mulch	Native Plants		X	Raybn
4440005004		X	S	6.6-6.8	Weed Wacker	Mulch	Native Plants		X	Raybn
4440005003		X	S	6.7-6.8	Weed Wacker	Mulch	Native Plants		X	Happy Trail
4440005017		X	S	6.7-6.8	Weed Wacker	Mulch	Native Plants		X	CA trail x from Topanga fresh, mulch?
4440004022		X	S	6.7-6.8	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004024		X	S	6.7-6.8	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004023		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004017		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004016		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004015		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004014		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004013		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004004		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440004003		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440002013		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440002010		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	Mulch
4440001014		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	pull out big shoulder, guardrail starts
4440001008		X	S	6.8-6.9	Weed Wacker	Mulch	Native Plants		X	mulch
4440001007		X	S	6.8-7.0	Weed Wacker	Mulch	Native Plants		X	mulch
4434016015		X	S	6.9-7.0	Weed Wacker	Mulch	Native Plants		X	kelly gulch, mulch
4434016019		X	S	7.0-7.1	n/a					pat's grill-all hardscape/paved
4434016028		X	S	7.0-7.2	Native Plants	Mulch			X	theater
4434015009		X	S	7.1-7.2	Weed Wacker	Mulch	Native Plants		X	fence along shoulder
4434014001		X	S	7.2-7.5	landscaped					all one property-already landscaped Volunteer Tended/ Annual Review
4434014002		X	S	7.2-7.5	landscaped					all one property Volunteer Tended/ Annual Review
4434014008		X	S	7.2-7.5	landscaped					all one property Volunteer Tended/ Annual Review
4434014005		X	S	7.2-7.5	landscaped					all one property Volunteer Tended/ Annual Review
4434014007		X	S	7.2-7.5	landscaped					all one property Volunteer Tended/ Annual Review
4434014006		X	S	7.2-7.5	landscaped					all one property Volunteer Tended/ Annual Review
4434015010		X	S	7.2-7.5	landscaped					

YELLOW = important Sensitive area					Sensitive Species Locations			BMP 1 SUMMARY (preferred BMP) PM	BMP 2 (alternate BMP) SUMMARY	RESPONSIBLE PARTY
Parcel number	public	private	ID n/s	PM	Latitude	Longitude	Condition			
UPPER TOPANGA										
		?	N	7.8-7.9	34.12332	-118.59659	oak drainage	NORTHBOUND 7.8-10.8 weed wacker	natives	
4434018009		X	N	8.0			oak woodland			PRIVATE OWNER
4434051001		X	N	8.9 - 9.0						PRIVATE OWNER
4434054153		X	N	9.0 - 9.1						PRIVATE OWNER
	?		N	9.9-10.0			oak/walnut woods			
	?		N	10.0-10.0			drainage			
		?	N	10.5-10.68			oak woodland			
4434015006		x	N					slope mower	mulch	
4434012029		X	N							
4434012028		X	N							
4434012032		X	N							
4434012014		X	N							
4434012024		X	N							
4434012025		X	N							
4434012023		X	N							
4434012037		X	N							
4434012038		X	N							
4434012020		X	N							
4434013002		X	N							
4434013027		X	N							
4434013028		X	N							
4434018005		X	N							
4434018004		X	N							
4434018003		X	N							
SOUTHBOUND										
	x		S	8.0-?			walnut/oak woodla	8.0-10.8 Weed wacker	natives	
	x		S	?			walnut/oak woodland			
	?		S	?-9.9			walnut/oak woodland			
		?	S	? - 9.9			walnut/oak woodland			
		?	S	10.6-?			walnut/oak woodland			
		?	S	10.6-10.8			walnut/oak woodland			
4434015005		X	S					slope mower		
4434016029		X	S							
4434016016		X	S				oaks			
4434016025		X	S							
4434016024		X	S							
4434016023		X	S							
4434016027		X	S							
4434012011		X	S							
4434016026		X	S							
4434013006		X	S							
4434019002		X	S							
4434018008		X	S							
4434018011		X	S							
4434018010		X	S							
4434023016		X	S							
4434023013		X	S							
4434004906	X		N					slope mower Weed wacker	POTENTIAL MULCH PILOT POTENTIAL MULCH PILOT POTENTIAL MULCH PILOT POTENTIAL MULCH PILOT	
4434004905	X		N							
4434004904	X		N							
4434004902	X		S							
4434004903	X		S							
4434003902	X		S							
4434003901	X		S							

YELLOW = important Sensitive area					Detailed BMPs					
Parcel number	public	private	ID n/s	PM	BMP 1	BMP 2	BMP 3	short term	long term	Comments
UPPER TOPANGA										
		?	N	7.8-7.9	Weed Wacker	Native Plants		X	X	drainage just north of McNeil's, connects to creek
4434018009		X	N	8.0	Weed Wacker	Native Plants				
	?		N	8.5-8.6	Weed Wacker	Native Plants		X	X	native oak woodland understory near road
4434051001		X	N	8.9 - 9.0						VIEWRIDGE DEVELOPMENT
4434054153		X	N	9.0 - 9.1						TOP OF TOPANGA DEVELOPMENT
	?		N	9.9-10.0	Weed Wacker	Native Plants		X	X	wide dirt pullout with native oak/walnut understory adjacent to edge
	?		N	10.0-10.0	Weed Wacker	Native Plants		X	X	drainage often cleared of veg with volunteer oak/walnuts present
		?	N	10.5-10.68	Weed Wacker	Native Plants		X	X	oaks with trail and drainage
4434015006		x	N							
4434012029		X	N		Slope Mower	Mulch				
4434012028		X	N		Slope Mower	Mulch				
4434012032		X	N							
4434012014		X	N							
4434012024		X	N		Slope Mower	Mulch				
4434012025		X	N		Slope Mower	Mulch				
4434012023		X	N		Slope Mower	Mulch				
4434012037		X	N		Slope Mower	Mulch				
4434012038		X	N		Slope Mower					
4434012020		X	N		Slope Mower					
4434013002		X	N		Slope Mower					
4434013027		X	N		Slope Mower					
4434013028		X	N		Slope Mower					
4434018005		X	N		Slope Mower					
4434018004		X	N		Slope Mower					
4434018003		X	N							
	x		S	8.0-?	Weed Wacker	Native Plants		X	X	Edelman Parking lot south to just before Entrado Rd, steep slope off shoulder covered with walnuts
	x		S	?	Weed Wacker	Native Plants		X	X	Top O Topanga south to Edleman Park parking lot, great opportunity for native planting
	?		S	?-9.9	Weed Wacker	Native Plants		X	X	9.9-Top O topanga fire road, includes some northern mixed chaparral
		?	S	? - 9.9	Weed Wacker	Native Plants		X	X	4201 TCB south to 9.9
		?	S	10.6-?	Weed Wacker	Native Plants		X	X	Betw. Cezanne Dr and 4201 TCB, Woodland Park driveway
		?	S	10.6-10.8	Weed Wacker	Native Plants		X	X	healthy walnut/oak woodland behind road shoulder berm, Mulholland to Cezanne Dr.
4434015005		X	S							
4434016029		X	S							
4434016016		X	S		Weed Wacker					
4434016025		X	S		Slope Mower					
4434016024		X	S							
4434016023		X	S							
4434016027		X	S							
4434012011		X	S							
4434016026		X	S							
4434013006		X	S							
4434019002		X	S							
4434018008		X	S		Slope Mower					
4434018011		X	S		Weed Wacker					
4434018010		X	S							
4434023016		X	S							
4434023013		X	S							
4434004906	X		N							Edleman Park
4434004905	X		N							Edleman Park
4434004904	X		N							Edleman Park
4434004902	X		S							Edleman Park
4434004903	X		S							Edleman Park
4434003902	X		S							Edleman Park
4434003901	X		S							Edleman Park

Appendix A. Maps

The TCBRC's Mapping Subcommittee was a joint data-gathering effort by members of Caltrans, Los Angeles County Supervisors Office District 3, RCDSMM, NTCFSC, T-CEP, NPS, and TASC. GIS data layers were sourced and/or created from Caltrans, NPS, NTCFSC, RCDSMM, and on-the-ground reconnaissance. Maps were created by Caltrans environmental planners.

The area mapped is SR-27 from Pacific Coast Highway to the Top O' Topanga mobile home park (PM 0.0-10.8). From Top O' Topanga to the county line north of Mulholland will be mapped in a continuation of TCBRC's work.

Consistent with LA County Fire Department requirements, maps focus on vegetation clearance 10 feet from edge of roadway. Multiple layers were used to identify existing features, such as: guardrails, bridges, paved areas, native and invasive plant species, environmentally sensitive areas, high pedestrian traffic areas, wildlife corridors, culverts, roadside slope and gradient, natural seeps or springs, and others. Post miles and GPS coordinates were used to reference data along with property parcel numbers. These maps are living documents and may be updated as conditions and needs change along TCB or as more information is obtained.

The complete set of maps can be found in "Topanga Creek Watershed Management Plan: Topanga Canyon Boulevard Vegetation Management Implementation Plan 2013-2017: Maps" and at www.dot.ca.gov/dist07/travel/projects/projects.php%20 and www.rcdsmm.org.

Appendix B. Best Management Practices Matrix

The TCBRC's Best Management Practices (BMP) Subcommittee undertook a joint fact-finding and analysis effort with members of Caltrans, the Los Angeles County Fire Department, Los Angeles County Supervisors Office District 3, and the TCWC. Each alternative was evaluated using a BMP Evaluation Matrix, developed through an iterative collaborative process. The BMP Matrix contained 20 criteria for determining the viability of each method (Table 3).

References for Table 3:

- 1) Aguinaga Green: <http://aguinagagreen.com/Mulch, Compost, Top Soil, and more/Home.html>
- 2) E. Smith, "The Combustibility of Landscape Mulches," University of Nevada Cooperative Extension. April 2011. <http://www.unce.unr.edu/publications/files/nr/2011/sp1104.pdf>
- 3) D. Crohn, V. N. Chaganti & N. Reddy, "Composts as Post-Fire Erosion Control Treatments," American Soc. of Agric. and Biol. Engineers, 2013, 56(2): 423-35.
- 4) Weedingtech: <http://weedingtech.com/>
- 5) S. Donohoe, B. Schauer, W. White & S. Velinsky (UC Davis), "Vegetation and Debris Control Methods for Maintenance-friendly Roadside Design," June 30, 2010.
- 6) A. M. Rask, S. U. Larsen, "Determining treatment frequency for controlling weeds on traffic islands using chemical and non-chemical weed control," April 2013. <http://onlinelibrary.wiley.com/doi/10.1111/wre.12019/abstract>
- 7) Cornell University, Dept of Horticulture, "Allowable Herbicides for Schools and Daycare Centers," 2011, revised 2013 per NYS Law Chapter 85, Laws of 2010 (Child Safe Playing Fields Law)- only "demonstrably safe" pesticides with EPA exempt status allowed. http://www.hort.cornell.edu/turf/pdfs/allowable_herbicides_schools.pdf
- 8) K. Gilbert of Dow Agrosciences, "Pelargonic acid and related C6-C12 fatty acids", March 2007. <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5056495>.

Table 3. Best Management Practices Matrix.

	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii			xiii	xiv	xv	xvi	xvii	xviii	xix
	Description	Track Record for Similar	Effective on target species?	Seasonal Conditions	Locations	Labor	Tools/ Equipment	Maintenance	Cost	Worker safety	Fire safety	Impact upon water quality			Impact on Non-Target Species and Habitat	Other safety issues	Coordination and Management	Aesthetic Impacts	Other Advantages	Other Disadvantages	Notes
												TMDLs	Erosion	Other							
TIER 1 (2013 USE)																					
Caltrans slope mower	Caltrans machine used to trim steep slopes	very good	yes	cannot be used in "sensitive areas" until July 1	slopes in non-sensitive areas until July. After July 1: everywhere	Caltrans in-house	mower not always available	does not cut roots – may have to return	modest	safe with training	possible sparking issues	none expected	potential erosion issues	none	none expected if sensitive areas avoided until July 1	training needed	Caltrans in-house	none	historical use: efficacious	none	n/a
Composted Mulch	"Forest Floor" by Aguinaga Green is a composted organic mulch product ¹	very good	yes	Anytime (best applied after weeds are cut & removed)	don't apply near culvert. good under guardrails. 2:1 slope ok	Caltrans in-house, vendor, or volunteers	blower or spreader truck	low	modest	very safe	good ²	none expected	none	none	none expected	none expected	Vendor must provide spreader trucks. No maint. for 2-3 yrs once applied	attractive	keeps soil cool; builds soil; enhances soil health; erosion control ³	n/a	ensure we are not bringing seeds in – must be certified organic, composted at heat high.
Native plants	plant approved native flora (to be drawn from a select list of natives that are more fire-resistant and/or low growing) where weeds would otherwise grow	good	mostly	plant Nov-Feb	in riparian areas only	TCWC, volunteers	requires irrigation	semi-intensive initially	unknown	very safe	non-issue	n/a	none	n/a	good	proximity to road & regular maintenance is accident risk	TCWC, volunteers	positive	community involvement	irrigation requirements initially	
Weed-whacker	most common vegetation cutting tool where larger mowers cannot go	very good	yes (above ground)	ideally, right before weeds go to seed	best suited for places not accessible to larger machines	Caltrans in-house or volunteers	weed-whacker readily available	annual	modest	safe with training	possible sparking issues	n/a	n/a	n/a	none if sensitive areas avoided until July	n/a	some equipment coord. required	good – does not leave dead stalks	allows for operator to cut around desired plants	how to equip & train volunteers	consider as both Caltrans and volunteer option
TIER 2 (FUTURE RESEARCH)																					
Hot foam	Proprietary technology from UK company called "Weedingtech". The foam is composed of plant oils and sugars, including rapeseed oil, potatoes, wheat, and corn; hot water kills plants, foam keeps heat in place and helps penetrate. Can kill roots if necessary. ⁴	very good	yes	Anytime (Hot, sunny weather is ideal but not required)	may replace weed-whackers in hard to reach locations	Caltrans in-house	Caltrans in-house	annual	unknown	safe with training	non-issue	n/a	none expected	n/a	none expected outside of amphibian mating period (late march-July 1)	none expected	Caltrans in-house	n/a	not weather dependent; reduces reliance on manual labor	UK-based	If Caltrans already owned the machinery and had a license to use this technology, this would possibly be a Tier 1 solution.
Hot water/ steam⁵	Similar technologies that essentially cook the plant	fair to good ⁶	sometimes	Anytime (Hot, sunny weather is ideal but not required)	not good on slopes	Caltrans in-house or vendor	special equipment must be rented by Caltrans	annual/ semi-annual	unknown	safe with training	non-issue	n/a	erosion risk	n/a	none expected	could cause steam burns if not careful	Caltrans in-house; vendor selection	n/a	nothing more nontoxic than pure water	uses a lot of water and energy	Need to verify if this can be applied near the creek
Minor Concrete	Concrete, pour-in-place under guardrails	Good	yes	Anytime (Hot, sunny weather is ideal but not required)	Flat areas	Contractor	Uses standard equipment on hand by contractors	almost none	\$100 per sq.yd	very safe	non-issue	none expected	none	none	none expected	none expected	Caltrans' contract	Can be colored to match soil or surroundings	long-lasting	Needs flat area to construct	

	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii			xiii	xiv	xv	xvi	xvii	xviii	xix
	Description	Track Record for Similar	Effective on target species?	Seasonal Conditions	Locations	Labor	Tools/ Equipment	Maintenance	Cost	Worker safety	Fire safety	Impact upon water quality			Impact on Non-Target Species and Habitat	Other safety issues	Coordination and Management	Aesthetic Impacts	Other Advantages	Other Disadvantages	Notes
												TMDLs	Erosion	Other							
Plant-based Spray Treatments⁷	Broad spectrum, foliar, post-emergent. Typically composed of vinegar, citrus, clove oil, cinnamon, other	good	yes, except hazardous to sensitive faunal species.	dry, sunny	TBD by case by a biologist. Creek and run-off must be avoided.	Caltrans in-house	Uses standard equipment on hand at Caltrans	requires 2+ passes, one to apply, one to collect	higher	safe with standard protective gear	non-issue	none expected	none	n/a	rapidly biodegrades; can be toxic to a few species if direct & immediate contact	none expected	Caltrans in-house, volunteers	Vegetation will appear burned, as it does with more toxic synthetic herbicides.	allows good coverage/access. Closest facsimile of what Caltrans already does.	requires removal of dead plant matter	Can be toxic to cats IF there's direct ingestion or inhalation in the hours that it takes to biodegrade.
Weed mats	pre-cut mats made of recycled plastic materials ("Weed Ender", NC company)	very good	yes	Anytime	hard to access areas reap the most long-term benefit (e.g. guard rails)	Caltrans in-house or vendor	n/a	almost none	expensive up front, but Caltrans has access to SHOPP funds	very safe	good	none expected	none expected	none	none expected (but biodegradability of toxic materials must be fully vetted)	none expected	Caltrans' selected vendor for materials, Caltrans' in-house application	semi-attractive	once put down, doesn't need to be touched for 15+ years in most cases.	natural color or mulch overlay for aesthetics	for poles, guardrails, signs or in areas that will be labor intensive areas for trimming
TIER 3 (UNLIKELY TO SUCCEED)																					
Herbicidal soaps	These are primarily potassium salts of fatty acids (pelargonic-fatty acids). ⁸	good	sometimes	dry, sunny	Need to be a certain distance from creek?	Caltrans in-house	Uses standard equipment on hand at Caltrans	requires 2+ passes, one to apply, one to collect	higher	safe with standard protective gear	non-issue	need to double check potassium salts levels	none	n/a	rapidly biodegrades	none expected	Caltrans in-house, volunteers	Vegetation will appear burned, as it does with more toxic synthetic herbicides.	even Dow Agrosiences touts this as efficacious	requires removal of dead plant matter	NYS "Safe School and Daycare Centers 2010" law serves as a useful guide for least toxic pesticides
High pressure water	Uses extremely high pressure water to fell and/or uproot plants	good	mostly	Anytime (depends on plant growth cycle)		Caltrans in-house or vendor	special equipment needed	annual	unknown	some danger	non-issue	erosion risk	n/a		could harm organisms directly in its path	extreme steam and pressure could cause injury	challenging to coordinate; rent equipment	n/a	used by NPS	potential damage to structures	May be appropriate option for SCE utility poles
TIER 4 (DISCARDED)																					
Glass mulch	An inorganic (in the sense of "not living") mulch used primarily for decoration and/or drainage.	poor	sometimes	Anytime (best applied after weeds are cut & removed)	n/a	Caltrans in-house, vendor, or volunteers	n/a	n/a	n/a	very safe	non-issue	none	none	none	none expected	none expected	n/a	attractive	n/a	n/a	no longer under consideration since it is not an effective weed suppressor
Grader	Used to create (or maintain) flat dirt or gravel roads. Not a standard veg. mgmt tool.	n/a	n/a	n/a	n/a	Caltrans in-house	n/a	n/a	n/a	safe with training	non-issue	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gorilla blade	An especially sharp blade used to reduce cutting time and/or penetrate very tough plants, like Tree-of-Heaven	very good	yes (above ground)	n/a	Tree-of-Heaven; hard-to-cut veg.	Caltrans in-house	Caltrans in-house	annual	n/a	safe with training*	possible sparking issues	n/a	n/a	n/a	none if sensitive areas avoided until July	none expected	Caltrans in-house	n/a	n/a	could be dangerous; not volunteer-friendly	n/a
Power pruner	Used to cut trees, arundo and other difficult vegetation	very good	yes	cannot be used in sensitive areas until July 1	rip rap	Caltrans in-house	mower not always available	does not cut roots – may have to return	modest	safe with training	possible sparking issues	none expected	none expected	none	none expected if sensitive areas avoided until July	training needed	Caltrans in-house	none	historical use: efficacious		may be ideal for arundo mgmt
Rock mulch	An inorganic mulch used primarily for drainage and/or decoration.	poor	sometimes	Anytime (best applied after weeds are cut & removed)	n/a	Caltrans in-house, vendor, or volunteers	n/a	n/a	n/a	very safe	non-issue	none	none	none	none expected	none expected		attractive	n/a	n/a	no longer under consideration since it is not an effective weed suppressor

**The sharper the blade, the more potential for danger. A gorilla blade should be used very judiciously and only by highly trained and skilled workers.*

Appendix C. Language for Caltrans' SR-27 Vegetation Control Plan

The following language has been approved by Deputy District Director Dan Freeman for insertion into the SR-27 Vegetation Control Plan:

It is the goal of Caltrans to coordinate and cooperate with the Topanga community to develop strategies and methods that make the use of herbicides unnecessary along State Route 27 in Topanga Canyon for full compliance with the Los Angeles County Fire Code. An approved strategy for vegetation control has been compiled and approved by the Caltrans Divisions of Maintenance and Environmental Planning in coordination with the Los Angeles County Fire Department and Topanga Canyon Boulevard Roadside Committee, as per the intention of the Topanga Canyon Watershed Management Plan of 2002. The detailed strategy and methods are found in the Topanga Canyon Boulevard Vegetation Control Implementation Plan, archived in the Caltrans Maintenance library, Environmental Planning library, and District 7 intranet. The offices of the Los Angeles County Supervisor District 3 and California Senate District 50 can also be contacted for questions and further information.

It shall be the responsibility of the Maintenance Supervisor for SR-27 to ensure that only approved vegetation control methods are used by the maintenance crew when working on SR-27, and to alert the crew of any special timing related to sensitive species areas (see list below). Furthermore, it shall be the responsibility of the Maintenance Supervisor, the Senior Landscape Architect in charge of Maintenance Support, and the Senior Environmental Planner for Maintenance to meet at least annually with the Topanga Canyon Boulevard Roadside Committee to evaluate conditions and management needs along SR-27 for that year. Finally, it shall be the responsibility of the Landscape Specialist in charge of District 7 Roadside Vegetation Management to update Caltrans' Vegetation Control Plan annually with the vegetation control methods approved by Caltrans and the TCBRC.

The following areas identified as environmentally sensitive are to be given special care and consideration. All areas must be managed by Caltrans due to road conditions, with the exception of two locations that could be managed by private owners if appropriate (noted in bold).

<u>NORTHBOUND:</u>		
0.0-0.1	Seep	MANAGED AFTER JUNE 30 (Along shoulder approx. 50' to pipe)
0.4-0.5	Seep	MANAGED AFTER JUNE 30 (Along shoulder approx. 50' starting at utility pole)
0.5-0.6	Creek Drainage	MANAGED AFTER JUNE 30 (At bend by guardrail)
2.0-2.1	Bridge over Topanga Creek	
2.1	Sycamore Tree	PRUNING IN FALL/WINTER ONLY
2.4-2.5	Turnout and creek access at waterfall	
5.4-5.6	Humboldt lilies under oaks	MANAGED AFTER JUNE 30 (Driveway to 770 N. TCB) Weed whacking or mulch only (no slope mower) Potential for private owner management
<u>SOUTHBOUND:</u>		
1.0-2.0	Top of creek bank	(Behind guardrail)
2.3-2.4	Seep	MANAGED AFTER JUNE 30 (100' along shoulder)
2.4-3.8	Native slopes	
3.8-3.9	Seep	MANAGED AFTER JUNE 30 (30' south of driveway at 327 TCB) Potential for private owner management

Appendix D. Forms and Contractors

The following includes: a list of contractors who have worked previously with Caltrans, the Caltrans Standard Encroachment Permit (for use by contractors or umbrella groups), and Caltrans Maintenance's Consent Letter (for use by individuals or small groups). Detailed information and forms for the Encroachment Permit can be found at <http://www.dot.ca.gov/hq/traffops/developserv/permits/>; consent letter forms can be obtained from Caltrans Maintenance.

Landscape Contractor's

1. Rivera Irrigation Inc.
Louie Rivera/Steve Rivera – 714.639.0400
 2. America West Landscape, Inc.
Duane Geon – 562.803.6800 office
- 562.803.6890 fax
 3. Mariposa Horticultural Enterprises, Inc.
Ren Flugel – 626.960.0196
 4. Marina Landscape, Inc.
Joe Whitney – 714.939.6600
 5. Nature Tech Landscaping, Inc.
Jeff Signor – 909.684.8808
 6. Valley Crest Landscape
Everardo Gonzalez – 818.834.1000
 7. Plowboy Landscape, Inc.
Manuel Vega – 805.643.4966
(Ventura)
 8. Silver Oak Landscaping, Inc.
Keith Bray – 951.681.9839
951.232.5325 cell
 9. Environmental Construction, Inc.
Fred Sorandi – 818.704.1093
 11. CLS Landscape Management, Inc.
Kevin Davis, president – 909.628.3005 office
909.464.1021 fax (maintenance)
 12. Tropical Creations
Mac Duran – 818.885.5000 ext. 208
818.885.5554 fax
 13. Lawnsapes
Alfonso Lopez -805.486.8844
805.486.8834 fax
805.207.8733 cell
(Ventura area only)
 14. Landscape Development, Inc.
Eric B. Wright -661.295.1970 office
661.296.1969 fax
661.510.4039 cell
 15. Oakridge Landscape, Inc.
Juan Del Villar-818.891.0468 ext. 117
818.974.0423 cell
818.892.9273
 16. KCI Environmental, Inc.
Steve Barnhart – 805.383.9099
805.383.9003 fax
805.432.2387 cell
 17. Kato Landscape, Inc.
Mike Kato – 714.963.4615
-

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Permission is requested to encroach on the State Highway right-of-way as follows:
 (Complete all BOXES [write N/A if not applicable])
 This application is not complete until all requirements have been approved.

1. COUNTY		2. ROUTE		3. POSTMILE	
4. ADDRESS OR STREET NAME				5. CITY	
6. CROSS STREET (Distance and direction from site)				7. PORTION OF RIGHT-OF-WAY	
8. WORK TO BE PERFORMED BY <input type="checkbox"/> OWN FORCES <input type="checkbox"/> CONTRACTOR				9. EST. START DATE	
10. EST. COMPLETION DATE					
11. EXCAVATION	MAX. DEPTH	AVG. DEPTH	AVG. WIDTH	LENGTH	SURFACE TYPE
12. EST. COST IN STATE HIGHWAY RIGHT-OF-WAY				FUNDING SOURCE(S) <input type="checkbox"/> FEDERAL <input type="checkbox"/> STATE <input type="checkbox"/> LOCAL <input type="checkbox"/> PRIVATE	
13. PIPES	PRODUCT TYPE	DIAMETER	VOLTAGE / PSIG	14. CALTRANS PROJECT E.A. NUMBER	

15. ☐ Double Permit Parent Permit Number _____
 Applicant's Reference Number / Utility Work Order Number _____

16. Have your plans been reviewed by another Caltrans branch? ☐ NO ☐ YES (If "YES" Who? _____)

17. Completely describe work to be done within STATE highway right-of-way:
 Attach 6 complete sets of FOLDED plans (folded 8.5" x 11"), and any applicable specifications, calculations, maps, etc.
 All dimensions shall be in U.S. Customary (English) Units.

18. Is a city, county, or other agency involved in the approval of this project?

☐ YES (If "YES", check type of project and attach environmental documentation and conditions of approval.)

☐ COMMERCIAL DEVELOPMENT ☐ BUILDING ☐ GRADING ☐ OTHER _____

☐ CATEGORICALLY EXEMPT ☐ NEGATIVE DECLARATION ☐ ENVIRONMENTAL IMPACT REPORT ☐ OTHER _____

☐ NO (If "NO", please check the category below which best describes the project, and complete page 4 of this application.)

☐ DRIVEWAY OR ROAD APPROACH, RECONSTRUCTION, MAINTENANCE, OR RESURFACING ☐ FENCE

☐ PUBLIC UTILITY MODIFICATIONS, EXTENSIONS, HOOKUPS ☐ MAILBOX

☐ FLAGS, SIGNS, BANNERS, DECORATIONS, PARADES AND CELEBRATIONS ☐ EROSION CONTROL

☐ OTHER _____ ☐ LANDSCAPING

19. Will this project cause a substantial change in the significance of a historical resource (45 years or older), or cultural resource? ☐ YES ☐ NO
 (If "YES", provide a description)

20. Is this project on an existing highway or street where the activity involves removal of a scenic resource including a significant tree or stand of trees, a rock outcropping or a historic building? ☐ YES ☐ NO (If "YES", provide a description)

21. Is work being done on applicant's property? ☐ YES ☐ NO (If "YES", attach site and grading plans.)

ADA NOTICE: For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write to Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814

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22. Will this proposed project require the disturbance of soil? ☐ YES ☐ NO
 If "YES", estimate the area within State Highway right-of-way in square feet AND acres: _____ (ft²) AND _____ (acres)
 estimate the area outside of State Highway right-of-way in square feet AND acres: _____ (ft²) AND _____ (acres)

23. Will this proposed project require dewatering? ☐ YES ☐ NO
 If "YES", estimate total gallons AND gallons/month: _____ (gallons) AND _____ (gallons/month)
 SOURCE: ☐ STORMWATER ☐ NON-STORMWATER
 (*See Caltrans SWMP for definitions of non-storm water discharge: <http://www.dot.ca.gov/hq/lenv/stormwater/index.htm>)

24. How will any storm water or ground water be disposed of from within or near the limits of this proposed project?
☐ Storm Drain System ☐ Combined Sewer / Storm System ☐ Storm Water Retention Basin
☐ Other(explain): _____

PLEASE READ THE FOLLOWING CLAUSES PRIOR TO SIGNING THIS ENCROACHMENT PERMIT APPLICATION.

The applicant, understands and herein agrees to that an encroachment permit can be denied, and/or a bond required for non-payment of prior or present encroachment permit fees. Encroachment Permit fees may still be due when an application is withdrawn or denied, and that a denial may be appealed, in accordance with the California Streets and Highways Code, Section 671.5. All work shall be done in accordance with Caltrans rules and regulations subject to inspection and approval.

The applicant, understands and herein agrees to the general provisions, special provisions and conditions of the encroachment permit, and to indemnify and hold harmless the State, its officers, directors, agents, employees and each of them (Indemnitees) from and against any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, judgments, losses and liabilities of every kind and nature whatsoever (Claims) arising out of or in connection with the issuance and/or use of this encroachment permit and the placement and subsequent operation and maintenance of said encroachment for: 1) bodily injury and/or death to persons including but not limited to the Applicant, the State and its officers, directors, agents and employees, the Indemnitees, and the public; and 2) damage to property of anyone. Except as provided by law, the indemnification provisions stated above shall apply regardless of the existence or degree of fault of Indemnitees. The Applicant, however, shall not be obligated to indemnify Indemnitees for Claims arising from the sole negligence and willful misconduct of State, its officers, directors, agents or employees.

DISCHARGES OF STORM WATER AND NON-STORM WATER: Work within State Highway right-of-way shall be conducted in compliance with all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued to the Department of Transportation (Department), to govern the discharge of storm water and non-storm water from its properties. Work shall also be in compliance with all other applicable Federal, State and Local laws and regulations, and with the Department's Encroachment Permits Manual and encroachment permit. Compliance with the Department's NPDES permit requires amongst other things, the preparation and submission of a Storm Water Pollution Protection Plan (SWPPP), or a Water Pollution Control Program (WPCP), and the approval of same by the appropriate reviewing authority prior to the start of any work. Information on the requirements may also be reviewed on the Department's Construction Website at: -
<http://www.dot.ca.gov/hq/construc/stormwater1.htm>

25. NAME of APPLICANT or ORGANIZATION (Print or Type) _____ E-MAIL ADDRESS _____
 ADDRESS of APPLICANT or ORGANIZATION WHERE PERMIT IS TO BE MAILED (Include City and Zip Code) _____
 PHONE NUMBER _____ FAX NUMBER _____

26. NAME of AUTHORIZED AGENT / ENGINEER (Print or Type) _____ IS LETTER OF AUTHORIZATION ATTACHED? ☐ YES ☐ NO E-MAIL ADDRESS _____
 ADDRESS of AUTHORIZED AGENT / ENGINEER (Include City and Zip Code) _____
 PHONE NUMBER _____ FAX NUMBER _____

27. SIGNATURE of APPLICANT or AUTHORIZED AGENT _____ 28. PRINT OR TYPE NAME _____ 29. TITLE _____ 30. DATE _____

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WORK ORDER/REFERENCE NUMBER _____

FEE CALCULATION -- FOR CALTRANS USE					
<input type="checkbox"/> CASH <input type="checkbox"/> CREDIT CARD NAME ON CARD _____ PHONE NUMBER _____					
<input type="checkbox"/> CHECK NUMBER _____ NAME ON CHECK _____ PHONE NUMBER _____					
<input type="checkbox"/> EXEMPT <input type="checkbox"/> PROJECT EA _____ <input type="checkbox"/> DEFERRED BILLING (Utility)					
CALCULATED BY _____	(1)		(2)		
REVIEW	1. FEE / DEPOSIT	DATE	2. FEE / DEPOSIT	DATE	TOTAL FEE / DEPOSIT
1. _____ HOURS @ \$ _____ *	\$ _____		\$ _____		\$ _____
2. _____ HOURS @ \$ _____ *			\$ _____		\$ _____
INSPECTION	1. FEE / DEPOSIT	DATE	2. FEE / DEPOSIT	DATE	TOTAL FEE / DEPOSIT
1. _____ HOURS @ \$ _____ *	\$ _____		\$ _____		\$ _____
2. _____ HOURS @ \$ _____ *			\$ _____		\$ _____
FIELDWORK					
_____ HOURS @ \$ _____ *	\$ _____		\$ _____		\$ _____
EQUIPMENT & MATERIALS	DEPOSIT	DATE	DEPOSIT	DATE	DEPOSIT
	\$ _____		\$ _____		\$ _____
CASH DEPOSIT IN LIEU OF BOND	\$ _____		\$ _____		\$ _____
TOTAL COLLECTED	\$ _____		\$ _____		
CASHIER'S INITIALS	_____		_____		\$ _____
* The current hourly rate is set annually by Headquarters Accounting. District Office staff do not have authority to modify this rate.					
PERFORMANCE BOND	<input type="checkbox"/>	DATE			AMOUNT \$
PAYMENT BOND	<input type="checkbox"/>	DATE			AMOUNT \$
LIABILITY INSURANCE REQUIRED?	<input type="checkbox"/> YES <input type="checkbox"/> NO				AMOUNT \$

INSTRUCTIONS
for completing page 4

This page needs to be completed when the proposed project DOES NOT involve a City, County or other public agency.

Your answers to these questions will assist departmental staff in identifying any physical, biological, social or economic resources that may be affected by your proposed project within the State highway right-of-way. And, to determine which type of environmental studies may be required to approve your application for an encroachment permit.

It is the applicant's responsibility for the production of all required environmental documentation and supporting studies, in some cases this may be costly and time-consuming. If possible, attach photographs of the location of the proposed project.

Please answer these questions to the best of your ability. Provide a description of any "YES" answers (type, name, number, etc.)

1. Will any existing vegetation and/or landscaping within the highway right-of-way be disturbed?
2. Are there waterways (e.g. river, creek, pond, natural pool or dry streambed) adjacent to or within the limits of the project or highway right-of-way?
3. Is the proposed project located within five miles of the coast line?
4. Will the proposed project generate construction noise levels greater than 86 dBA (e.g. Jack-hammering, pile driving)?
5. Will the proposed project incorporate land from a public park, recreation area or wildlife refuge open to the public?
6. Are there any recreational trails or paths within the limits of the proposed project or highway right-of-way?
7. Will the proposed project impact any structures, buildings, rail lines, or bridges within highway right-of-way?
8. Will the proposed project impact access to any businesses or residences?
9. Will the proposed project impact any existing public utilities or public services?
10. Will the proposed project impact existing pedestrian facilities, such as sidewalks, crosswalks, or overcrossings?
11. Will new lighting be constructed within or adjacent to highway right-of-way?

ACCEPTANCE: Indicate acceptance of conditions on page 2 of 2 by signing both copies and returning one to the Department's Representative.

APPLICANT'S SIGNATURE		PRINT NAME
TITLE	BUSINESS TELEPHONE NUMBER	DATE SIGNED
NAME OF ORGANIZATION		
BUSINESS ADDRESS		
CITY/STATE/ZIP		

TYPE OF WORK: ☐ VEGETATION CONTROL (WEED CONTROL, MOWING GRASS, OR BRUSH/SEEDLINGS)
☐ LITTER REMOVAL ☐ SALVAGE SPILLED MATERIAL
☐ DONATED LANDSCAPE MATERIALS ☐ OTHER (Describe)

DESCRIPTION OF WORK

LOCATION OF WORK (COUNTY/RTE/PM, CROSS STREETS)

SAFETY REQUIREMENTS FOR PARTICIPANTS

While on the roadside, remember: **SAFETY FIRST!**
To protect yourself and others:

- Stay off the roadway and shoulders. (This includes unpaved shoulders.)
- Do not cross freeway traffic lanes on foot. Use caution when crossing conventional highways. Use crosswalks and signals where available.
- Face oncoming traffic as you work and keep an eye on traffic. Be prepared to move quickly, if necessary.
- Do not work on the roadway or shoulders, on bridges, or in tunnels.
- Discontinue work before dusk.
- Do not work when fog or other conditions reduce visibility for drivers.
- Do not work when roadway is icy.
- Do not touch or remove materials which you suspect may be toxic or hazardous. Items to avoid include powders, chemicals, smelly substances, suspicious packages, chemical drums or containers, weapons, syringes or hypodermic needles, dead animals and broken glass. Notify Caltrans or the police of the location of weapons or suspected toxic substances immediately.
- Do not compact trash bags. Injuries from broken or jagged objects may occur.
- Wear orange vests and other personal safety equipments as advisable.
- Wear long pants and substantial leather shoes or boots with ankle support. Watch your footing and stay off steep slopes, drainage facilities or places from which you might fall.
- Do not run, throw objects or engage in horseplay or any other activity which may distract drivers.
- Do not consume alcoholic beverages or drugs before entering or while on the roadside.
- Be alert where snakes may be located. Also be alert for stinging insects and poisoning plants (e.g. poison oak).

FOR CALTRANS USE ONLY

Consent Letter For: _____

Permission is hereby granted to enter onto State Highway _____
to Conduct a **one day** _____ on _____, 20____, Subject to the
terms and conditions shown on page 2 of this letter.

MAINTENANCE SUPERINTENDENT SIGNATURE (FOR DISTRICT DIRECTOR)

DISTRICT DIRECTOR'S NAME

CONSENT LETTER

TR-0131 (REV. 08/2005)

Page 2 of 2

1. It is expressly understood that the work to be performed is to be undertaken by yourself, your organization or by volunteers acting for and on behalf of themselves, yourself and your organization, and that yourself, your organization and said volunteers *are not and shall not be considered employees of the State of California, or of the Department of Transportation.*
2. The State of California and its officers and employees shall not be liable for any death, injury or property damage claims which arise from any activities which are the subject of this one-day letter of consent that may have been reasonably prevented by you, your organization or those persons employed by or acting in your behalf. If any claims arise out of the foregoing, *you shall defend, indemnify and save harmless the State of California and its officers and employees from same.*
3. This letter of consent or a copy thereof shall be kept at the site of the work and must be shown to any representative of the Department of Transportation or law enforcement officer on demand. Work shall be suspended if a complete copy of this letter is not available at the job site.
4. All work shall be conducted in conformance with the attached "Safety Requirements For Participants" shown on page 1.
5. All work shall be conducted during daylight hours.
6. All work shall be performed on the date indicated above.
7. If weather or other adverse circumstances cause a public hazard, work shall be immediately discontinued.
8. Work shall not be performed within 6 feet of traffic lanes, within center dividing strips, upon bridges, culverts, or structures of any kind unless specifically approved by the Department Representative.
9. Workers shall not cross any traffic lanes of freeways and expressways.
10. Traffic control is prohibited.

ADA Notice

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

Appendix E. Evaluation Framework for Implementation

An evaluation framework is used to make and document defensible decisions on alternative solutions. It helps establish the feasibility of alternatives, offers criteria for measuring the potential effectiveness and values of alternatives, and sets time-dictated benchmarks to measure success. For TCBRC, the framework is expected to: 1) Establish standards for decision-making on alternatives; 2) Allow TCBRC members to explain and defend final decisions to constituents or superiors; and 3) Act as a guide for other communities and Caltrans Districts that wish to replicate the process undertaken in Topanga. Annual results from the evaluation framework report will help inform future methods and research.

The framework has seven criteria: fire safety, environmental toxicity, erosion control, worker safety, total cost, sustainability, and timeframe. These criteria and any supporting assessment tools are living documents and may be updated as conditions and needs change along TCB or as more information is obtained.

Criterion 1: Fire Safety (Vegetation Height and Mass)

After the vegetation is cleared or managed, it meets the LA County Fire Department's safety requirements, as determined during fire inspections from June 1st to September 1st. The requirements are:

- Vegetation height: Less than or equal to 2" tall
- Vegetation mass: Zero or minimal dead material mass accumulation.

Zero is expected during the dry summer season; 10% is acceptable during wet winter season. Acceptable mass accumulation also depends on type of material. Large or loose dead material must be cleared to 0%. Small or compacted dead material can be cleared to 10%.

Discussion: For the height criterion, a graded scale is used to account for the fact that the height requirement is not always achievable in absolute terms due to varying conditions. The mass criterion is made of four parts and thus will be weighted on an absolute scale so that it is equivalent to the weights of the other criteria.

Performance Measure:

Qualitative scale for height:

1 = Acceptable at 5"

3 = Superior at 3.5"

5 = Optimal at 2"

Absolute scales for mass (note: The cumulative three mass scores, when added monthly, will fall on a gradient of 1-5, where 1=Unacceptable and 5=Optimal.)

0% accumulation in dry season (Jun, Sept):

0.25 = No

1.25 = Yes

≤ 10% accumulation in wet season (Jan):

0.25 = No

1.25 = Yes

100% large/loose cleared (Jan, Jun, Sept):

0.25 = No

1.25 = Yes

≥90% small/compacted cleared (Jan, Jun, Sept):

0.25 = No

1.25 = Yes

Assessment Checklist: Ratings assigned for BMPs applications along TCB sections, 3x/yr, with ratings added together per BMP for total score. See sample assessment forms below.

SAMPLE FIRE SAFETY ASSESSMENT FORM

Vegetation Height Ratings: 1 = Acceptable at 5" ; 3 = Superior at 3.5" ; 5 = Optimal at 2"

BMP	SECTION	JAN		JUNE		SEPT	
WEED WHACKER		RATING	NOTES	RATING	NOTES	RATING	NOTES
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Subtotal							
SLOPE MOWER							
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Subtotal							
MULCH							
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Subtotal							
NATIVES							
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Subtotal							

Veg Mass Accumulation Ratings: Jan, < 10% accumulation: 0.25 = No, 1.25 = Yes
 June/Sept, 0% accumulation: 0.25 = No, 1.25 = Yes
 Large or loose veg cleared 100% (Jan, Jun, Sept): 0.25 = No, 1.25 = Yes
 Small or compacted veg cleared > 90% (Jan, Jun, Sept): 0.25 = No, 1.25 = Yes
 Combine 3 scores each month for total. Gradient: 0.75 (unacceptable) to 3.75 (optimal).

BMP	SECTION	JAN		JUNE		SEPT	
WEED WHACKER		RATINGS	NOTES	RATINGS	NOTES	RATINGS	NOTES
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
3 Scores Subtotal							
SLOPE MOWER							
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
3 Scores Subtotal							
MULCH							
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
3 Scores Subtotal							
NATIVES							
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
3 Scores Subtotal							

Criterion 2: Environmental Toxicity

Impact to riparian zone from toxic methods such as some organic herbicides (e.g., vinegar, clove oil) and/or synthetic chemicals (e.g., those found in Roundup Pro Concentrate, Milestone VM), with the goal of No Impact.

Areas to be avoided for the use of any toxic methods include (post miles are approximate):

North Bound –	Lower Topanga	PM 0.0-4.0
	Bridge @ Cheney Drive	PM 6.5
	Bridge @ Santa Maria Road	PM 7.35
	Drainage across from Edelman parking lot	PM 8.3
South Bound -	Lower Topanga to above Rubicon Road	PM 0.0-7.1
	(Pat's Topanga Grill)	
	Edelman Park to Entrado Drive	PM 8.0-8.5

Discussion:

Caltrans' goal is 80% reduction in the use of herbicides by 2012 along state routes. TCB achieved 100% with manual clearing 2002-2011, but did not achieve 100% compliance with county fire requirements. Topanga's goal is to achieve 100% reduction in the use of herbicides and 100% fire compliance.

Percentage of toxin reduction will be measured in linear feet and will not include spot treatments. For example: "In 2014, Southern California Edison expects to use Roundup around 80 poles, at 100 linear feet per pole. This equals 8000 linear feet, or 7% of the roadway." (22 miles = 116,160 feet of road)

This criterion will be phased in to account for Topanga's sensitive environment and the numerous stakeholders implementing vegetation management measures. The phasing schedule for the percentage of toxic methods used is as follows:

- Yr 1: 20% used
- Yr 2: 15% used
- Yr 3: 10% used
- Yr 4: 5% used
- Yr 5: 0% used

Performance Measure:

Qualitative scale:

- 1 = Does not meet the above schedule as set
- 3 = Partially meets the above schedule as set
- 5 = Meets the above schedule as set

Assessment Checklist: Per year, % of linear feet treated with toxic herbicides in the 4 sections of Topanga Canyon Blvd (Lower, South Central, North Central, and Upper). Combine amounts used by Caltrans, Southern California Edison, private owners as much as possible. See sample assessment form below.

SAMPLE TOXICITY ASSESSMENT FORM

DIRECTION	SECTION	JAN	NOTES	JUNE	NOTES	SEPT	NOTES
		# LINEAR FEET		# LINEAR FEET		# LINEAR FEET	
Northbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Subtotal							
Southbound	Lower Topanga						
	South central						
	North central						
	Upper Topanga						
Subtotal							
MONTHLY TOTAL							
					Full Subtotal: Jan + Jun + Sept monthly totals		
					% of TCB for year (Full subtotal/116160 ft)		

Criterion 3: Erosion Control

Alternative maintains stability of slopes and does not contribute to erosion.

Discussion:

Slope stability is retained by maintaining root systems. In slopes ≥ 20 degrees, attention needs to paid to vegetation changes and any effects; < 20 degrees, implementation must be done so as not to accelerate possible erosion events. (Orme, T. , A. J. Orme, and K. Saunders. 2002 Topanga Creek Watershed Erosion and Sediment Delivery Study 2000-2001. Final Report to RCDSMM.)

This criterion is measured with a qualitative scale regarding observed signs of instability (rills, gullies, slumping, etc) due to vegetation management methods and/or implementation procedures that negatively impact the root system or contribute to erosion. Conditions will also be documented with photographs and/or video.

Performance Measure:

Qualitative scale:

- 1 = Slope stability significantly affected
- 3 = Slope stability moderately affected
- 5 = Slope stability unaffected

Assessment Checklist: Note slopes of ≥ 20 degrees, measure against Caltrans Maintenance erosion control assessment form. Observations documented during visual slope inspections by Caltrans maintenance workers.

Criterion 4: Worker Safety

Vegetation management activities can be performed safely by all workers. In particular, participating community members operate 6' or more from the edge of the road (white line) or, when they must be closer, lane or shoulder closures are performed as appropriate.

Performance Measure:

Qualitative scale:

- 1 = Significant safety concerns
- 3 = Moderate safety concerns
- 5 = No safety concerns

Assessment Checklist: Measure on portions where manual clearing is being undertaken by private owners. Method TBD for information gathering.

Criterion 5: Total Cost

Accumulated final cost at end of 4 years, to equal an average annual maximum of \$40,000. Final accounting includes the cost of each segment, added together (Caltrans, state parks, private). Assessment limited to the aggregate of labor, materials, and equipment.

Discussion: The Year 4 benchmark allows for adjustments, if needed, to the next five-year plan. Need to determine how data is gathered, private might be most difficult to obtain.

Performance Measure:

Qualitative scale:

- 1 = High cost, > \$36.5k
- 3 = Moderate cost, \$30k - \$36.5k
- 5 = Low cost, < \$30k

Assessment Checklist: Annual accounting statements gathered from Caltrans and state parks. Method TBD for information gathering from private owners.

Criterion 6: Sustainability

Delivery methods can be maintained for as long as they are needed. "Maintained" takes into account the impact of methods on the workers and volunteers, environment, and community, and total budget.

Discussion:

Need to consider short-term solutions and long-term solutions both separately and in tandem. For example, it would be 4-5 yrs to achieve the long-term weed mat solution, so a short-term solution would be needed in the interim for under guardrails.

Need to consider cost, labor, and time needed for implementation. Will all stakeholders be able to deliver annually in terms of cost and labor? What factors will need to be in place to achieve this? Private will need the most attention in this regard.

Performance Measure:

Qualitative scale:

1 = Sustainable for only 1-3 years

3 = Sustainable for only 3-6 years

5 = Sustainable for the foreseeable future beyond 6 years

Assessment Checklist: Measured against responsible parties and BMPs noted in the work plan. Assessment is conducted against results of the annual work plan review.

Criterion 7: Timeframe

All work is expected to be completed by June 1st, annually, as required by the LA County Fire Department. Spot locations and habitats identified as sensitive, such as seeps, are exempted from the June 1st deadline and will be managed according to the timeline established for those areas. It also recognized that weather conditions may affect work completion.

The majority of the work follows the phasing schedule for the percentage of work completed as noted below:

Yr 1: 40% by June 1; 60% by July 1; 80% by Aug 1; 100% by Sept 1

Yr 2: 60% by June 1; 80% by July 1; 100% by Aug 1

Yr 3: 80% by June 1; 100% by July 1

Yr 4: 100% by June 1

Yr 5: 100% by June 1, reassess plan for next 5 years

Discussion:

In Year 1 (2013), Central Topanga is targeted to be done by June 1st, North by July 1st, South by August 1st.

Performance Measure:

Qualitative scale:

1 = Does not meet the above schedule as set

3 = Partially meets the above schedule as set

5 = Meets the above schedule as set

Assessment Checklist: Measured as laid out in above schedule. Assessment is conducted against results of the annual work plan review.

Appendix F. Sensitive Areas and Species

The TCBRC determined that sensitive species and areas in the right of way needed to be identified so that vegetation management could be undertaken as appropriate to avoid negative environmental impacts. Two sections are included:

Sensitive Areas Locations – Includes management recommendations

Water Resources in Lower Topanga Canyon (Table 4) – Areas where polluted runoff from seeps and springs along TCB into Topanga Creek could be especially harmful.

Sensitive Area Locations

NORTHBOUND:

0.0-0.1 NB Seep 34.03963, -118.58228 MANAGED AFTER JUNE 30

Located along the road shoulder extending approx. 50' to pipe (34.04195,-118.57864)

Native wetlands plants (cattails, stream orchids, etc.)

Breeding site for amphibians

*Needs pampas grass removal and control

0.4-0.5 NB Seep 34.04581, -118.57809 MANAGED AFTER JUNE 30

Located along the road shoulder extending approx. 50' starting at utility pole #798195E

Native wetlands plants (cattails, willow, mulefat, etc.)

Breeding site for amphibians

0.5-0.6 NB Creek Drainage under road 34.04615, -118.57737 MANAGED AFTER JUNE 30

Located at bend in the road, guardrail present

Native wetland plants and breeding amphibians

*Needs cape ivy and other invasive plant control and removal

2.0-2.1 NB Bridge over Topanga Creek

Main access route to creek channel

*Needs castor bean and other invasive plant control and removal

2.1-2.1 NB Sycamore Tree 34.06762, -118.58706 Careful Pruning in Fall/winter only

Important bank stabilization, need to check for breeding birds before pruning

Guardrail and small paved pullout

2.4-2.5 NB Turnout and creek access at waterfall 34.07011, -118.58739

Dumping site with access down steep slope to creek

Paved pullout and guardrail

5.4-5.6 NB Humbolt lilies under oaks 34.10103, -118.59701 MANAGED AFTER JUNE 30

Driveway to 800 North Topanga Canyon Blvd.

Rare plant that needs to be protected until it sets seed

7.8-7.9 NB Drainage with oaks 34.12332, -118.59659

Avoid impacts to oak roots

9.9-10.1 NB Walnut/Oak woodlands

Extends from Top of Topanga down to Woodland Crest Drive

Avoid impacts to roots and trunks beyond guardrail

Potential area for native plant restoration

10.0 NB Drainage with Walnut/Oak woodlands

*Need management strategy for clearing stand pipe that avoids tree damage

Potential area for native plant restoration

SOUTHBOUND:

- 1.0-2.0 SB** Road shoulder is top of creek bank just beyond guardrail
Heavy ivy infestation in trees
Dirt berm collects weeds – potential native plant restoration area
- 2.3-2.4 SB** Seep 34.06688, -118.58685 MANAGED AFTER JUNE 30
Important year round seep with native wetland vegetation
Extends approx 100' southbound along the road shoulder, ends 34.06815, -118.58700
*Needs cape ivy and other native plant control and removal
- 2.4-3.8 SB** Native slopes
Slope mowing should avoid impacts to roots of native shrubs that stabilize slope
- 3.8-3.9 SB** Seep 34.08535, -118.60007 MANAGED AFTER JUNE 30
Extends approximately 30' south from driveway at 327 TC Blvd.
Native wetland plants (cattails, mulefat, etc.)
Breeding site for amphibians
- 5.4-5.6 SB** "Lake Topanga" 34.1009, -118.59825
This reach of creek constrained by heavy willow growth and riprap bank.
Floods over the road repeatedly.
- 8.0-9.9 SB** Walnut/Oak woodlands
Extends from parking lot at Edelman Park to the Top of Topanga fireroad
Avoid impacts to roots and trunks beyond guardrail
Potential area for native plant restoration
- 10.3- 12.0 SB** Woodland Crest Drive to Mulholland Highway Walnut/Oak woodland
Potential area for native plant restoration

Table 4. Water Resources in Lower Topanga Canyon.

Site No.	Site Name	Northing	Easting	Elevation (ft, MSL)	Geology		Water Source	Lab Sample	Comments
					Formation	Structure			
RESOURCES OBSERVED IN THE FIELD									
1	MM 0.05 TC Blvd	1839733	6386829	175	Kss/Tsu	Fault	Regional	X	Perennial spring associated with large vegetation (willows and exotic trees). Dibblee mapped springs associated with same fault on west side of drainage divide.
3		1841251	6385553	200	Tsug	---	Regional?	X	Perennial fish pool location ("Transient Pool"), which is possibly fed by a perennial spring.
4		1842921	6385468	190	Kss	---	Runoff		Surface flow associated with Sites 103 and 104. Flows along drainage under road.
5		1843251	6385015	225	Qls/Kss?	---	Local?		Possible spring site within landslide toe. White fungus growing from side of slope under slide.
6		1843330	6384933	250	Qls/Kss	---	Local?	X	Site is wet perennially. Typically only a seep.
8		1844883	6384717	250	Kss/Kcg	---	Runoff	X	Runoff possibly associated with fault controlled springs upstream (ie. Site 109). Typically dry.
10		1845590	6384526	275	Kss	---	Runoff?		Possibly runoff associated with fault controlled springs upstream (ie. Site 14). Typically dry.
11		1845738	6384446	275	Kss	Fault	Regional?		Ephemeral seep may be associated with mapped fault (Dibblee), similar to Sites 12 and 14.
12		1845712	6384068	275	Kss	Fault	Regional?		Site contains cape ivy and alder trees. Only area of creek where alders are present (alders like constant root saturation). Knutes and trout present in stream. May be related to the same mapped fault (Dibblee) as Sites 11 & 14. Dibblee mapped this spring. No visible surface flow associated with feature; however feature associated with shallow water vegetation.
13		1845693	6383940	280	Kss	---	Runoff		Surface flow at mouth of drainage associated with Site 110.
14		1845910	6385160	600	Kss	Fault?	Regional?/Runoff?		Spring? may be related to the same mapped fault (Dibblee) as Sites 11 and 12. Viewed as a waterfall within drainage above Site 10.
15		1847080	6383867	350	Qls/Kss	---	Local?		Landslide related spring. Does not flow year-round.
16		1846915	6384157	400	Kss/Tsug	Fault	Regional?		Spring? may be associated with Tuna Canyon Fault. Large vegetation (bay tree) in area. Not observed previously.
17		1847144	6384053	400	Kss/Tsug	Fault	Regional?	X	Spring? May be associated with Tuna Canyon Fault. Not observed previously.
18		1847510	6383974	400	Tsug	Fault?	Regional?		Perennial spring/seep. Possibly fault related.
19		1847728	6383807	425	Tsug	Fault	Regional	X	Perennial spring shown on USGS and Dibblee maps. Possibly fault related.
20		1848238	6383888	450?	Tsug	---	Regional		Possible spring in creek. Flow and temperature change is noticable in creek. Fish are attracted to flow and temp change.
21		1848622	6383980	500	Tsug	---	Runoff?		Runoff?/spring? associated with large trees at base of canyon. Feature previously observed.
22		1848610	6383587	475	Tsug/Tsus	---	Runoff?		Possibly runoff related to possible upstream springs (Sites 112, 113, and 114)
23		1848487	6384260	600	Tsug	---	Runoff?		Runoff?/spring? typically flows during rainy times and forms a waterfall.
24		1848846	6383781			Shale Beds	Local?		Seeps associated with shale beds.
25		1848899	6383931			Shale Beds	Local?		Seeps associated with shale beds.
26		1848831	6383903	500	Tsug/Tsus	---	Regional		Perennial seep associated with dense vegetation.
27		1849113	6383975		Tsug	---	Runoff?	X	Runoff? typically flows during rainy times and forms two waterfalls up drainage. Within same drainage as Site 31. May be associated with springs up drainage (Site 115).
28		1849531	6383954	500	Tsus/Tsu	---	Runoff?		Runoff? typically flows during rainy times and forms a waterfall.
29		1850143	6384204	500	Tsu/Tsp	Fault?	Regional?		Spring? associated with thick vegetation. Possibly fault related
30		1849752	6383444	600	Tsu	---	Runoff?		Runoff?/spring? related to flow along tributary drainage.
31		1849247	6383884			---	Runoff		Surface flow at mouth of drainage and within same drainage as Site 27. May be associated with springs up drainage (Site 115).
32		1850689	6383771	600	Tsp	---	Runoff/regional?		Runoff?/spring? associated with thick vegetation and forms a waterfall.
33		1850839	6383536	650	Tsp	---	Runoff/regional?		Runoff?/spring? associated with thick vegetation and forms a waterfall.

Site No.	Site Name	Northing	Easting	Elevation (ft, MSL)	Geology		Water Source	Lab Sample	Comments
					Formation	Structure			
RESOURCES OBSERVED IN THE FIELD									
35		1850395	6382956	600	Tsu/Tsp/db	---	Runoff	X	Runoff related to flow along major tributary drainage. Flows under road. Thick vegetation up drainage. Runoff possibly associated from same drainage as Site 54.
36		1850626	6382969	700	Tsp	---	Local?		Spring not observed previously. Vegetation not as thick.
37		1850792	6382413	700	db	---	Local?		Seeps on road cut over a distance of approximately 200 to 300 feet. Not observed previously.
38		1851250	6381984	700	db	---	Local?		Seeps on road cut adjacent to Feb. 2005 road failure.
39		1851428	6381513	725	Ttlsc	---	Runoff		Concrete-lined drainage that flows under road ("Time Tunnel"). Thick vegetation up drainage. Possible runoff from Site 121.
40		1851590	6381395	725	Ttlsc	---	Local?		Seeps on road cut. Not observed previously.
48		1848629	6383770			Shale Beds	Local?		Seeps associated with shale beds.
49		1848847	6383633	450	Tsus	---	Runoff?		Runoff related to flow along tributary drainage.
50		1849324	6383757			Shale Beds	Local?		Seeps associated with shale beds.
51		1849842	6383843				Local?		Approximately 50-foot wide seep at creek level. Located across from path up to PM 2.75
52		1849909	6383890			---	Runoff		
53		1850142	6383575				Fault	X	
54		1850343	6383053				Runoff?		Runoff possibly associated from same drainage as Site 35.
55		1850745	6382633				Local?		Seep below an old road repair on west side of creek below overhanging rock face
56		1851510	6382016				Runoff?	X	
RESOURCES OBSERVED ON AERIAL PHOTOGRAPHS									
101		1839754	6387305		Kss/Tsu	Fault	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
102		1840942	6383853		Tsug	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
103		1843380	6386571		Kss	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
104		1843648	6386354		Kss	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
105		1843716	6385259		Kcg	---	Regional?		Spring? Air photo dense vegetation.
106		1843095	6384231		Kss/Qls	---	Local?		Spring? Dense vegetation along headscarp of landslide.
107		1843604	6383853		Kss	---	Regional?		Spring? Air photo dense vegetation.
108		1843884	6383848		Kss	---	Regional?		Spring? Air photo dense vegetation.
109		1845277	6386008		Kss	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
110		1844904	6382929		Kss	---	Regional?		Spring? Air photo dense vegetation.
111		1846457	6384288		Kss	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
112		1847642	6382686		Tsug	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
113		1847570	6382200		Tsug	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
114		1847398	6381296		Tsu/Qls	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault or landslide controlled.
115		1848382	6386272		Tsp/db	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
116		1849367	6386179		db	---	Regional?		Spring? Air photo dense vegetation.
117		1849155	6382128		db/Qls	---	Local?/Regional?		Spring? Air photo dense vegetation. Possibly landslide controlled.
118		1850095	6382278		db/Qls	---	Local?/Regional?		Spring? Air photo dense vegetation. Possibly landslide controlled.
119		1850079	6384990		Tsp/db	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
120		1850367	6384959		Tsp/db	Fault?	Regional?		Spring? Air photo dense vegetation. Possibly fault controlled.
121		1850976	6381348		Ttlsc/Qls	---	Local?/Regional?		Spring? Air photo dense vegetation. Possibly landslide controlled.
STREAM GAGING STATION									
201		1846213	6383829						USGS stream gaging station.
PROPOSED INSTREAM SAMPLING LOCATIONS									
301		1836913	6385022						
302		1847428	6383981						
303		1850030	6383505						
304		1852229	6381555						

Appendix G. Existing Vegetation in the Caltrans Right of Way (April 2013)

Roadside baseline conditions at the start of the project are listed in the tables below in order to help evaluate the success of the implementation plan. Plants in the right-of-way are expected to shift during the life of the plan. Detailed criteria for listing the plants can be found at <http://www.cal-ipc.org/ip/inventory/pdf/Criteria.pdf>. It should be noted that many of these plants, regardless of their invasive level noted in the tables below, have beneficial uses.

Table 5. TCB Roadside Non-native Vegetation Species, 2012-2013.

Scientific Name	Common Name	Invasive Level *	Height	Flammability**
<u>TREES AND SHRUBS</u>				
<i>Acacia melanoxylon</i>	Blackwood acacia	Minor	25' - 60'	High
<i>Ailanthus altissima</i>	Chinese tree of heaven	Moderate	23' - 89'	High
<i>Cupressus macrocarpa</i>	Monterey cypress	Unknown	50' - 150'	High
<i>Cupressus sempervirens</i>	Italiana cypress	Unknown	30' - 125'	High
<i>Eucalyptus spp: camaldulensis, globulus</i>	eucalyptus	Minor	33' - 200'	High
<i>Fraxinus uhdei</i>	Shamel ash	Unknown	30' - 100'	High
<i>Juniperus chinensis</i>	Chinese juniper	Unknown	3' - 65'	High
<i>Phoenix canariensis</i>	Canary Island date palms	Minor	33' - 130'	High
<i>Pinus spp.</i>	Pines - all species	Unknown	45' - 150'	High
<i>Schinus molle</i>	Peruvian peppertree	Minor	50'	High
<i>Schinus terebinthifolius</i>	Brazilian peppertree	Minor	23'	High
<i>Tamarisk aphylla</i>	Tamarisk	Minor	60'	High
<i>Ulmus parvifolia</i>	Chinese elm	Unknown	30' - 60'	Low
<i>Washingtonia robusta</i>	Mexican fan palms	Moderate	82' - 98'	High
<u>GRASSES</u>				
<i>Arundo donax</i>	giant reed (Arundo)	Severe	20' - 33'	High
<i>Bromus tectorum</i>	cheatgrass	Severe	2" - 6"	High
<i>Cortaderia selloana</i>	pampus grass	Severe	5' - 10'	High
<i>Pennisetum clandestinum</i>	kikuyu grass	Minor	3" - 1'	High
<i>Pennisetum setaceum</i>	crimson fountaingrass	Moderate	2' - 3'	High
<i>Phalaris aquatica</i>	Harding grass	Moderate	2' - 3'	High
<i>Stipa miliacea</i>	smilo grass	Minor	6" - 1'	High
<u>PERENNIALS AND ANNUALS</u>				
<i>Asphodelus fistulosus</i>	onion weed	Moderate	6" - 1'	Low
<i>Brassica nigra</i>	black mustard	Severe	2' - 8'	High
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	8" - 7'	High
<i>Carpobrotus edulis</i>	ice plant	Severe	4"	High
<i>Centaurea melitensis</i>	totalote	Moderate	1' - 2'	High
<i>Centaurea solstitialis</i>	yellow starthistle	Severe	1' - 2'	High
<i>Cirsium vulgare</i>	bull thistle	Moderate	2' - 5'	High

<i>Conium maculatum</i>	poison hemlock	Moderate	5'-8'	Medium
<i>Cyperus involucratus</i>	Umbrella plant	Unknown	1' 6" - 2'	High
<i>Cytisus scoparius</i> var. <i>scoparius</i>	Scotch broom	Severe	3'-7'	High
<i>Delairea odorata</i>	cape ivy (German ivy)	Severe	6"-1'	High
<i>Euphorbia terracina</i>	carnation spurge	Moderate	2'-3'	Low
<i>Foeniculum vulgare</i>	fennel	Severe	2'-8'	Medium
<i>Hedera helix</i>	English, Algerian Ivy	Severe	6"-2'	High
<i>Hirschfeldia incana</i>	short-pod mustard	Moderate	2'-6'	High
<i>Jasminum multiflorum</i>	Italian jasmine	Unknown	5'-8'	High
<i>Nicotiana glauca</i>	tree tobacco	Moderate	6'-23'	High
<i>Persicaria maculosa</i>	Redshank	Unknown	3'3"	High
<i>Plumbago auriculata</i>	cape plumbago	Unknown	6'	High
<i>Ricinus communis</i>	castorbean	Minor	3'-13'	High
<i>Rosmarinus officinalis</i>	rosemary	Unknown	2'-5'	High
<i>Salvia aethiopis</i>	Mediterranean sage	Minor	3'	High
<i>Silybum marianum</i>	milk thistle	Minor	1' - 6'	High
<i>Spartium junceum</i>	Spanish broom	Severe	6' - 16'	High
<i>Tecoma capensis</i>	cape honeysuckle	Unknown	6' - 10'	High
<i>Tropaeolum sp.</i>	Nasturtium	Unknown	6" - 2'	Low
<i>Vinca major</i>	periwinkle	Moderate	7" - 1' 6"	Low

*Cal-ipc invasive level rating is based on three categories: Ecological impact, Invasive potential, and Ecological amplitude and distribution.

** All plants burn based on: sufficient exposure to heat, high moisture stress, and/or insufficient pruning. The flammability risk attached to any one plant can be greatly diminished with maintenance activities such as mowing and pruning.

Table 6. TCB Roadside Dominant Native Vegetation Species, 2012-2013.

Scientific Name	Common Name	Height	Flammability***
TREES AND SHRUBS			
<i>Alnus rhombifolia</i>	White Alder	15'-40'	Low
<i>Heteromeles arbutifolia</i>	Toyon	10'-25'	Low
<i>Juglans californica</i>	walnuts	15'-30'	Low
<i>Juniperus californica</i>	juniper	9' – 26'	High
<i>Malosma laurina</i>	Laurel sumac	5'-15'	High
<i>Platanus racemosa</i>	CA sycamore	20'-80'	Low
<i>Quercus agrifolia</i>	Coast live oak	25'-60'	Low
<i>Rhus integrifolia</i>	Lemonade berry	6'-15'	High
PERENNIALS			
<i>Adenostoma fasciculatum</i>	chamise	13' 1"	High
<i>Artemisia californica</i>	California sagebrush	5'-8'	High
<i>Eriogonum cinereum</i>	Ashleaf buckwheat	1'-4'	High
<i>Eriogonum fasciculatum</i>	California buckwheat	6' 7"	High
<i>Rubis ursinus</i>	Blackberry	1'-3'	Medium
<i>Salvia apiana</i>	White sage	4' - 5'	High
<i>Salvia leucophylla</i>	Purple sage	3'-4'	High
<i>Salvia mellifera</i>	Black sage	3'-6'	High

***All plants burn based on: sufficient exposure to heat, high moisture stress, and/or insufficient pruning. The flammability risk attached to any one plant can be greatly diminished with maintenance activities such as mowing and pruning.

References:

<http://www.cal-ipc.org/ip/inventory/weedlist.php>
<http://www.calflora.org/>
<http://fire.countyofventura.org/Prevention/WildfirePreparedness/FlammablePlantGuide/tabid/170/Default.aspx>
<http://www.state.sc.us/forest/scplants.pdf>
<http://www.ci.redding.ca.us/fire/ReddingFireDepartment-FireSafeLandscaping.htm>
<http://fire.lacounty.gov/forestry/PDF/UndesirablePlantList>
<http://www.kensingtoncalifornia.org/>
http://www.nps.gov/samo/planyourvisit/upload/RecPub_InvasiveWeedGuide.pdf
<http://www.oaklandnet.com/wildfireprevention/docs/PlantListForCreeks.pdf>
<http://www.rsf-fire.org/assets/documents/ordinances/resources/desirable%20tree%20list.pdf>
http://tahoeinvasiveweeds.org/resources/pdf/brochure_flammableWeeds.pdf

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SUPPLEMENTAL DOCUMENT:
TOPANGA CREEK WATERSHED MANAGEMENT PLAN:

**TOPANGA CANYON BOULEVARD
VEGETATION MANAGEMENT IMPLEMENTATION PLAN
2013-2017**

MAPS

JULY 2013





**TOPANCA CREEK WATERSHED
COMMITTEE EST. 2004**

**Topanga Chamber Of Commerce
64th Annual Awards**

2012 Non-Profit of the Year

In proud recognition of your outstanding civic contributions
as a valued member of the Topanga community.

April 6, 2013



CERTIFICATE OF RECOGNITION

PRESENTED TO:

Topanga Watershed Committee

IN HONOR OF:

You being named the Non-Profit of the Year by the Topanga Chamber of Commerce. This award honors your outstanding dedication to protecting the Topanga Creek Watershed by working to prevent use of herbicides and pesticides along Topanga Canyon Boulevard. Your commitment to protecting this fragile ecosystem helps to ensure that it is preserved for the health and enjoyment of future generations of Topanga residents. Thank you for your enduring commitment to the environment. The State of California commends you for being an inspiration to the people of the 27th State Senate District.

April 6, 2013

Fran Pavley

Fran Pavley, Senator
27th District



*Certificate of Special
Congressional Recognition*

Presented to

Topanga Creek Watershed Committee
2012 Non-Profit Business of the Year

*in recognition of outstanding and invaluable
service to the community.*

April 6, 2013

DATE

Henry A. Waxman

MEMBER OF CONGRESS

Assembly

CERTIFICATE OF RECOGNITION

Topanga Creek Watershed Committee

Non-Profit Business of the Year



**In recognition of your dedication to protecting and preserving the health
and welfare of our canyon, its citizens and its wildlife.**

**On behalf of the 50th Assembly District of the State of California,
acknowledgement is merited and hereby rendered
with sincere congratulations.**

A handwritten signature in black ink, appearing to read "Richard Bloom", written over a horizontal line.

**RICHARD BLOOM
ASSEMBLYMEMBER, 50TH DISTRICT**



April 6, 2013

4/13

NO MORE POISON: CREATING A TOXIC-FREE TOPANGA

The undersigned agree that:

- 1) The use of toxic chemicals to control unwanted plants, insects, and animals in the Topanga Creek watershed presents a risk of undesirable, unknown, and unintended consequences that is unacceptable to us.
- 2) We demand that any entity operating in the Topanga Creek watershed, including all governmental, quasi-governmental, non-profit, not-for-profit, and for-profit entities, immediately and permanently stop using toxic chemicals to kill plants, insects, or animals in this watershed.
- 3) We call on all Topanga residents and businesses, and those who work for them, to immediately and permanently stop using toxic chemicals to kill plants, insects, or animals on their property, and to employ non-toxic alternatives instead.

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