Appendix 1: Planting Trees for Forest Restoration

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GIVEN TIME AND PATIENCE ON THE PART OF PEOPLE, the bishop pine and most other native plants will regenerate. There are situations, however, where property owners may chose to plant trees. Some areas of the fire burned so hot that seed was consumed. Construction damage to the post-burn soils will mean the destruction of more seed and root, and there will be privacy issues that cannot wait 10 to 30 years for the forest to recover. This essay is intended to give some guidelines for choosing the right tree and planting it in the right place. Considerations will include eventual height, distance from structures, fire safety, and drought tolerance. Trees are listed here in order of choice.

NATIVES

LIVE OAK: Probably the best choice is the coast live oak tree *(Quercus agrifolia).* Its name is derived from the Celtic and means "fine tree," and one can hardly find a more beautiful native tree. It grew abundantly in the pre-fire forest and is fairly fast growing if plan red as a 15-gallon size young tree. It will tolerate wind and is very adaptable to either streamside water or drought. Perhaps most importantly, it is very fire resistant. It can be "windowed" to create views and to allow light to pass through the foliage. Live oaks hybridize easily; whenever possible, therefore, it is best to use trees that have come from seed grown close to where they are being planted.

REDWOOD: *(Sequoia sempervirens)* Although not native to the Point Reyes peninsula, redwoods are native to Marin - and fast-growing but less pyrophytic than other conifers. Native to slopes and canyons near the sea, they are fog lovers and will adapt well to growing on Inverness Ridge, as long as they are not exposed to direct sea blasts. Plant them on hillsides where springs have surfaced after the fire. They will also be valuable for stabilizing drainages and, in the long term, reducing the likelihood of landsliding. Redwoods' thick bark and non-resinous wood make them quite fire-resistant. Three months after the fire, many trees that were severely burned are resprouting along the entire trunk.

DOUGLAS FIR: A native tree, the Douglas fir does not burn as easily as pines because it holds more moisture in its leaves. The structure of the fir also collect more moisture, and this fact makes it very competitive over pines and oaks. At the southern end of Inverness Ridge, firs have crowded out most other trees. Douglas firs are also shallow-rooted, so they are not the best choice for stabilizing landslide-prone areas.

BUCKEYE *(Aesculus):* Buckeyes are deciduous and are renowned for their beautiful flowers and twisted gray bark. They are native to streamsides and may require some water on Inverness Ridge. They do reach considerable size. Although there were probably few on the ridge before the fire, they are native to Point Reyes and would probably adapt to growing on the ridge. Since the buckeye is a deciduous tree, it is not the best choice for visual screening.

BIG LEAF MAPLE *(Acer macrophyllum):* This deciduous tree, native to scream banks, turns yellow in fall.

PYROPHYTES

CONIFERS (spruce, pine): All conifers ignite easily and burn very hot. Old specimens create many embers and flying brands, which makes them a very poor choice for growing near a structure. The Marin County Fire Department recommends that they be planted outside the defensible space zone. It's very important that you consider your neighbors' defensible space zone as well, even if it encroaches on your land. Choose an evergreen tree from the list above if you are planting within the defensible space zone. All conifers should be planted away from structures and roads. In cases where they must be planted or maintained (for example, where a bishop pine survived the fire), keep them trimmed of all dead wood, and eliminate all ladder fuels.

BISHOP PINE *(Pinus muricata):* It is expected that there will be many small sprouts of bishop pine in the Vision burn zone within a few years. If you are encouraging an area to return to bishop pine forest, select out the best specimens as they grow up. Each tree should have space around it so it does not have to compete for light and nutrients. Firs grow faster and are able to absorb more water than pines, so if a pine forest is your aim, be sure to keep the firs somewhat in check. Bishop pines have two leaves in their needle cluster. Since there were Monterey pine on the pre-fire ridge, an effort should be made to distinguish the bishop from the Monterey, and the Montereys removed.

MONTEREY PINE *(Pinus radiata):* Not recommended. These pines are much faster growing than the native bishop and are very poorly suited to growing in our area. They do not handle wind well. This translates into an expensive yearly maintenance effort to keep these trees from becoming a hazard. They do, unfortunately, very much resemble bishop pines, and since there were some growing before the fire, there will be seedlings. Montereys have three leaves in their needle clusters. We recommend that they be removed from all areas as soon as they can be identified.

SPRUCE *(Picea):* Although spruces are not native to this area, there were some fully mature specimens at the top of Drakes View Drive. They adapt well to soil and drought conditions. They are pyrophytic and
should be treated in the same way as the bishop pine.

ACACIA: **Not recommended**. Very pyrophytic as well as invasive.

ABIES: **Not recommended**. The deer eat this variety of fir.

TAN OAK *(Lithocarpus densiflora):* Tan oaks were also in abundance in the pre-fire ecology of the ridge.
The species produces a tannin in its leaves that makes it difficult for other plants to grow underneath it. Tan oaks are more pyrophytic than live oaks.

OTHER TREES

Chinquapin and madrone are valuable natives but hard to find as nursery stock.

GIANT CHINQUAPIN (*Castanopsis chrysophylla):* Identified by it's "chestnut" covered with sharp quills.
Grows well with coast redwood.

IRONWOOD *(Lyonothamnus):* Has peeling red bark and bright green, fernlike foliage. Native to Catalina Islands, well adapted to growing on the ridge.

MADRONE *(Arbutus):* Grows well in dry areas with oaks and firs. Twisted red wood, with peeling bark,
white flowers, and crimson berries.

BAY: Bay trees for the most part seem to be recovering well from the fire. They are available in nurseries.

LARGE NATIVE SHRUBS

MYRICA *(Myrica californica):* This large native shrub is often confused with bay since its leaf structure is so similar. It can be obtained in shrub shape only and is of slow to moderate growth. Good screening at hedge plant, usually deer tolerant.

CEONOTHUS *(Ceonothus thyrsiflorus):* A native-growing wild lilac. Since its life span is about 20 years, it is a good choice for growing between trees that will take many years to reach widths that are adequate for screening. As large trees grow to maturity, Ceonothus naturally goes into decline and dies out.

SILK TASSEL *(Garrya elliptica):* Anative shrub with an interesting flower that reaches about 15 feet. Rather slow growing; may need deer protection

RED ELDERBERRY *(Sambucus callicarpa):* A deciduous shrub, common before the fire, whose red berries appear in May and June. Shallow rooted; easily transplanted.

CONCLUSION

FIRES OF THE MAGNITUDE OF THE 1995 VISION FIRE have a powerful effect on the direction of the forest's character. Seed and cone are destroyed, and the sudden change of forest cover creates severe loss of habitat and soil. Placing our homes in the forest ecosystem increases both the likelihood of fire and its intensity. Besides bettering our own chance of survival, there is the opportunity of lessening the impact we have on the land and its creatures by choosing plants for the area immediately around the house that are not flammable and maintaining them in a way that does nor transmit fire rapidly.

Where possible, native plants and trees are the best choice for preserving the forest.

However, in a situation where land has been developed, there can be no question that the planting of a "non-native" plant will have much less impact on the forest than many other aspects of humans' presence, particularly with our present lifestyle. Roads create serious and long-lasting effects on all flora and fauna, our cars create pollution, our septic systems deposit unknown pathogens and fertilizers that have long-lasting and far-reaching effects - all of which far outweighs the choice of a few trees on private property. Land where humans live, especially in numbers, is by its definition, disturbed.

Situations where humans and forest interact call for individual solutions based on a careful and considered view of all that exists there, including the human beings. Many of the native plants that are better fire-resistant choices do not exist as nursery stock, particularly in large sizes that will provide screening. Native environments will not suffer from the introduction of a few exotics if they do not have requirements for water that are extremely different than natives. Plants should not be used that are invasive and nor native to the ridge. At the same time, it should be said that natural succession in forests does include some plants, such as the Douglas fir, that do invade and crowd out other trees.

One hundred years ago, the Inverness mesa was a grassland. Since being developed by humans, it has been converted into a healthy and beautiful forest of coast live oak, bay, and redwood along with an occasional specimen exotic. No effort was made to control or discourage what was planted there, and the outcome seems to be mostly native and quite pleasing. Inverness provides US with an example of succession from grassland to forest in which humans have created a diverse forest that both preserves natural processes and protects structures from fire.