

I, Teresa Sholars, declare as follows:

1. I am emeritus professor of Biology, College of the Redwoods, Fort Bragg, Mendocino, California, where I was full time faculty for 36 years. I am an expert in the botany and ecology of Mendocino County in general, and specifically an expert on rare redwood forest plants and forest management effects.

2. Floodplain (riparian) redwood forests are plant communities that are sensitive to logging disturbances such as large tree felling and yarding, heavy equipment use, and skid road re-use or construction. Significant impacts of logging disturbances on rare plants include but are not limited to direct harm by physical removal, crushing, or breakage. They also include long-term indirect significant impacts such as topsoil and organic matter (duff) removal, excessive burial by slash (woody debris), soil compaction, burial or erosion of long-lived soil seed banks, harsh physical conditions (such as exposure to heat, dryness of excessive sunlight, and conditions favoring invasion of weedy, invasive competitors that persist for decades. Artificial disturbances may result in permanent extirpation of local rare plant populations in redwood forests. Sensitivity of rare riparian redwood plant populations is increased after extreme drought conditions like the last four years.

3. Old skid roads in floodplain redwood forests over many decades can become locations of seasonal wetlands with rare plants. Re-use of old skid roads in riparian redwood forests like those of the Dogwood Timber Harvest Plan is likely to concentrate logging disturbances and their harmful effects in seasonal wetlands and rare plant habitats. Artificial disturbances of heavy logging equipment and vehicle operation in riparian redwood forests is dissimilar to the natural pattern and processes of redwood floodplain disturbances, which are primarily deposition of sediment and debris.

4. The riparian redwood forest floor supports rare redwood plants including those that depend on, and are diagnostic of, seasonal wetlands. Small populations of rare riparian redwood plants are difficult to detect in surveys even by experts, except when mature

plants are in flower during a brief seasonal window specific to each species. Immature or partially damaged plants that do not exhibit flowers require intensive surveys by skilled, experienced botanists applying specific protocols, and are likely to be undetected by generalist foresters or botanists. The botanical survey submitted 20160707\_1-15-042SON\_AM3M.pdf is not adequate. It does not follow the survey protocol created by the California Department of Fish and Wildlife (CDFW). Rare plant surveys were not provided in the Dogwood Timber Harvest Plan; they were deferred until after the THP was approved, and did not follow standard methods and protocol. In my professional experience, it is not possible to avoid or minimize impacts to rare riparian redwood forest plants on over 400 acres and five miles of floodplain redwood forest, based on the information about rare plants presented in the timber harvest plan and post-approval surveys that were not done at the appropriate times, and did not follow the CDFW protocol.

4. Rare riparian redwood wetland plants that are confirmed present in the lower coastal reaches of the Gualala River floodplain include California harebell (*Campanula californica*) and the uncommon fringed corn-lily (*Veratrum fimbriatum*). These and other rare plant ranked species of the riparian redwood forest require protocol surveys by highly skilled botanists to accurately detect and map sensitive populations that require protection from logging disturbances. Logging the Dogwood Timber Harvest Plan area is likely to cause substantial irreversible harm to undetected juvenile and adult rare plant populations, and the soil seed and bud banks on which many depend for regeneration.

Dated: August 17, 2016

Teresa Sholars

Teresa Sholars,

Expert for Plaintiff's Attorney