Appendix E

Spatial Summary for Simazine Uses

I. Labeled Uses and Associated Land Cover Types for Simazine

The following use list is derived from label use information. It is used as a basis for the spatial analysis of simazine. **Table 1** shows which land cover types are used to represent the spatial area of the use (*e.g.*, the use footprint). The land cover classes were not designed to represent each use specifically but were chosen as the best spatial representation of a use area available.

Table 1 Use list from labels

Category	Use
Cultivated Crops	Avocado, blackberry, blueberry, boysenberry, corn, cranberry, loganberry, raspberry
Orchards/Vineyards	Almond, apple, cherry, filbert, grapefruit, grapes, hazelnut, lemon, macadamia nut, nectarine, olives, orange, peach, pear, walnut
Turf	Golf courses, sod farms
Forest	Christmas trees, tree plantations, shelterbelts
Non-agricultural (mapped)	Rights-of-way, highways
Non-agricultural (not mapped)	Commercial, industrial, institutional premises, equipment

II. Initial Area of Concern

After determining uses from label information and obtaining the representative NLCD landcover classes, a potential use 'footprint' map is made. This includes all areas within the state of California where the pesticide could be applied and is shown in **Figure 1** for simazine. The footprint of potential use represents the chemical's initial area of concern, and is based on available NLCD land cover data and derived map layers.

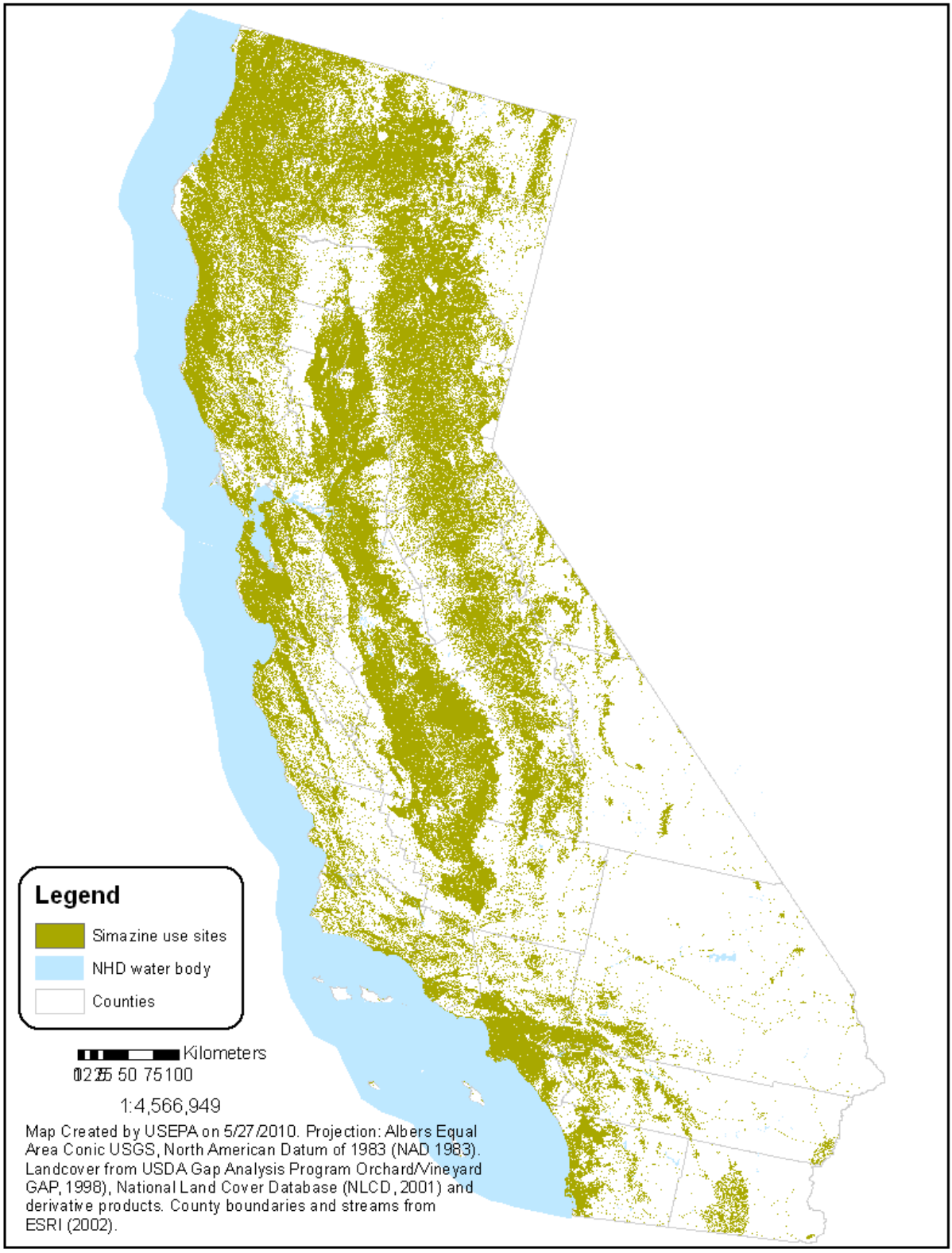

Figure 1 Potential use sites for simazine showing cultivated, pasture, orchard/vineyard and developed (all) land cover classes.

A. Land Cover

Base mapping land cover layers for the initial area of concern analysis were obtained from the National Land Cover Dataset (NLCD 2001) for the majority of land use types. The NLCD was released as a nationally consistent, regionally indexed dataset in January 2007. California Gap Analysis Project (GAP) data from the Biogeography Lab from UCLA-Santa Barbara (1998) were obtained for the orchard and vineyard uses. These raster files were converted to vectors using simplification and majority filter routines and merged into NLCD. The turf layer is derived from the NLCD developed areas with the impervious surface layer removed. The rights-of-way land cover layer was derived by combining road and rail information from TeleAtlas (2007) with U.S. Department of Transportation's National Pipeline Mapping System (1999). **Table 2** lists the NLCD and derived layers used for initial area of concern representation.

Table 2 NLCD Layers and its description.

Layer name	Base source	Description
Cultivated Crops	NLCD	Grid code 82: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and orchards/vineyards, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.
Developed, High Intensity	NLCD	Grid code 24: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.
Developed, Low Intensity	NLCD	Grid code 22: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.
Developed, Medium Intensity	NLCD	Grid code 23: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.
Developed, Open Space	NLCD	Grid code 21: Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
Forest	NLCD	Grid codes 41,42,43: Deciduous, evergreen and mixed. Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover.
Open Water	NLCD	Grid code 11: All areas of open water, generally with less than 25% cover of vegetation or soil.
Orchards and vineyards	CA GAP	Grid codes 11210, 11211 and 11212. This is the only CA GAP reference.
Pasture/Hay	NLCD	Grid code 81: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.
Wetlands	NLCD	Grid codes 90, 95: Woody wetlands and emergent herbaceous.
Turf	NLCD	A derived NLCD class based on developed classes and the impervious surface layer with corrections applied.
Rights-of-way	US DOT; TeleAtlas	A derived class using road, rail, and pipeline coverages.

All the map layers depicted in **Table 2** are used to create the footprint maps. Actual analysis for the downstream dilution (discussed below) uses a subset of these layers.

B. Initial Stream Reaches

In addition to the land cover classes described above, the initial area of concern includes the stream segments found within those land cover areas. The stream segments are obtained from the NHDPlus dataset. For each stream reach in the hydrography network, the data provide a tally of the total area in each NLCD land cover class for the upstream cumulative area contributing to the given stream reach. Using the cumulative land cover data provided by the NHDPlus (http://www.horizon-systems.com/nhdplus/), a cumulative percent cropped area (PCA) is calculated for each stream reach based on the area representing all uses for simazine and is divided by the total upstream contribution area. Pesticide exposures in the streams within the initial area of concern are conservatively assumed to be represented by the estimated environmental concentrations used in RQ calculation.

III. Overlap

In this assessment, the entire State of California was the Action Area. The Potential Area of Likely to Adversely Affect, LAA, Effects based on survival, growth, and reproduction for the DS from simazine spray drift extend from the site of application to 3891 feet from the site of application. For exposure to runoff and spray drift, the area of potential LAA effects extends up to a total of 10,885 km downstream from the site of application. When these distances are added to the footprint of the Initial Area of Concern (which represents potential simazine use sites) and compared to DS habitat, there are several areas of overlap (**Figure 2**). The overlap between the areas of LAA effect and DS habitat, including designated critical habitat, indicates that simazine use in California has the potential to affect the DS.

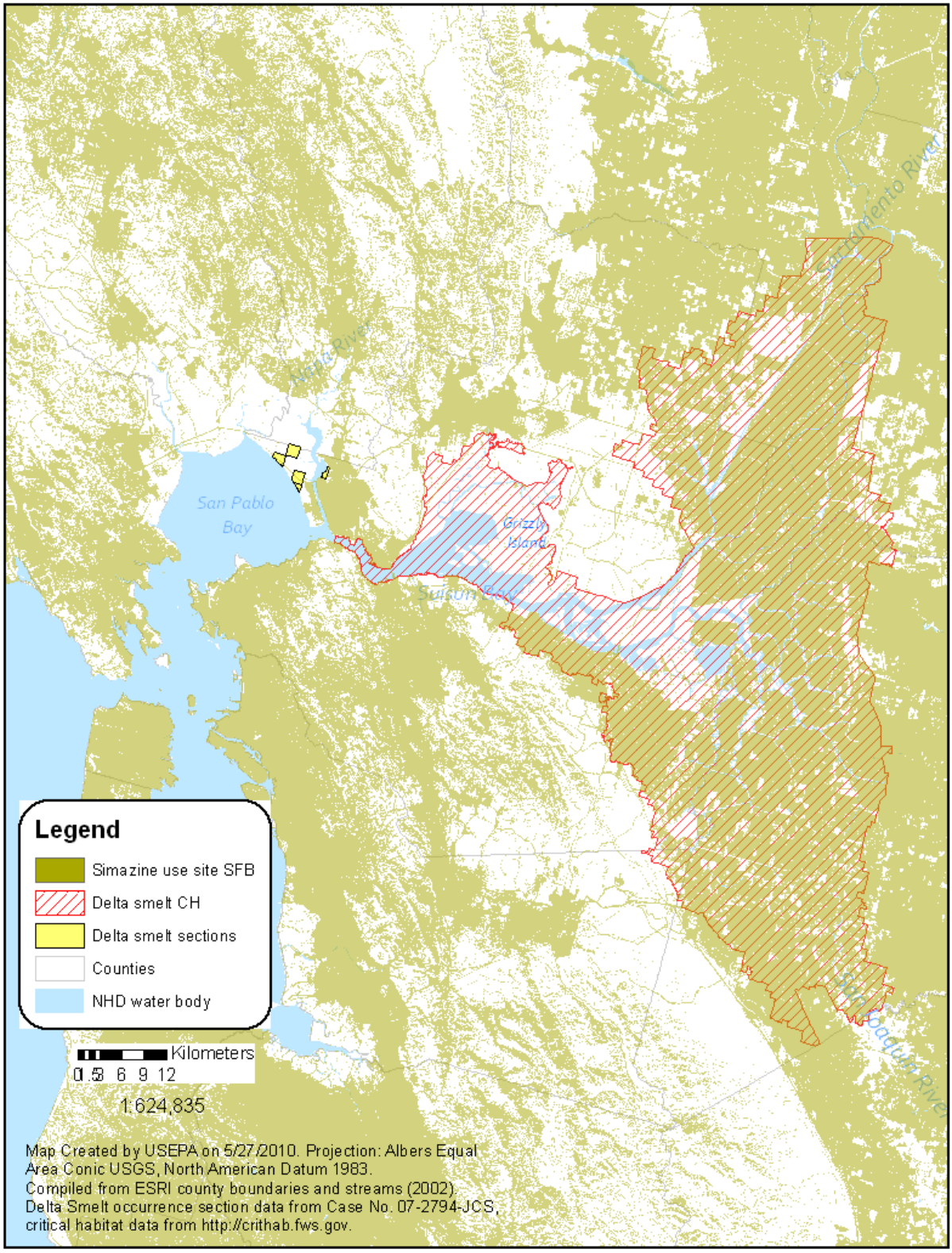

Figure 2. Map Showing the Overlap of the Delta smelt habitat with cultivated, pasture, orchards and developed (all) land cover classes representing potential use sites.

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