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POTENTIAL ECOLOGICAL IMPACTS ANALYSIS OF CALIFORNIA HIGH SPEED RAIL

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Abstract

The Nature Conservancy and the Conservation Biology Institute conducted an analysis of the potential environmental impacts of the proposed California High Speed Rail project as detailed in the 2004 Draft Programmatic Environmental Impact Report. The analysis intended to match the scale of the programmatic EIR in order to inform comments and to create a synoptic view of the project with select focal examples of potential impact areas for non-governmental organization partners and funders. An initial, more thorough, analysis covered areas outside of the Bay Area alignments. The question of choosing the high speed rail modal alternative versus the increased highways and airports or no action alternatives was not addressed.

The analysis utilized GIS and was based on high speed rail alignment data, including information on structure (bridge, tunnel, trench) and spatial alignment relative to right of ways (in, adjacent, new). For each geographical region and subset, proposed options were analyzed in terms of their ecological impacts. Data layers used were: public land and private conservation land (2003), wetlands and vernal pools, The Nature Conservancy portfolio conservation areas, the California Natural Diversity Database, potential wilderness, and potential wildlife linkages. Impacts from construction as well as operations and maintenance were included. Direct impacts include removal of vegetation, wildlife mortality, water pollution, noise, light, and vibration. Indirect impacts include changes in surface and groundwater flow, wildlife behavior and movement, potential changes to disturbance, invasion of exotics, growth inducement, and potential benefits associated with restoration opportunities.

An example of the analysis results is displayed, detailing the scope and specificity of the report output. The results indicate that special areas for concern are: habitat fragmentation for wide-ranging species in the southern Sierra Nevada and Transverse Ranges; Orange and San Diego counties in terms of threatened and endangered species, lagoons, interior stream habitats, and wildlife linkages; wetlands and vernal pools in the Central Valley; and the Western Mojave Desert in terms of growth inducement and impacts to groundwater.

The EIR did not provide sufficient information to make a decision on preferred routes. Although a system-wide assessment is the time to consider range-wide effects on ecosystems and species, the programmatic EIR deferred many analyses to project-level review, which is constrained to a specific geography to such a degree that many issues would be ignored.

In order to take advantage of the opportunity to restore connectivity with the high speed rail project, it is recommended that wildlife crossing structures should be: located along natural travel routes, with suitable habitat and topography for target species; designed to accommodate different taxonomic groups; located every 1.5 to 2 kilometers; aligned with crossing structures on Interstates and highways; integrated with sound walls to reduce the adverse affects of noise, vibration, and light on wildlife movement; and integrated with fencing where beneficial to guide animals toward crossing structures.

The overall analysis suggests that there are several thematic areas in need of further consideration at broad scales. Opportunities exist to restore movement barriers, and these options should be further explored. Overall, the EIR/S inadequately analyzed major environmental impacts including noise, light, invasive species management, and wildlife linkages and potential to restore connectivity. The authors conclude that interagency collaboration between the High Speed Rail Authority, transportation agencies, and land management agencies (USFS, BLM, State Parks), and the development of a long-term coordinated plan will improve the project ecologically.