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Mosquito Landscapes  
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The emerging vision of ecological health for the San Francisco Bay Area includes restoration and enhancement of more than 100,000 acres of wetlands. The planned approach to restoration emphasizes natural habitat controls. Realizing the vision will present new challenges to mosquito abatement. The patch size of mosquito sources tends to be much smaller than the proposed wetland projects, and the growing size of projects may preclude comprehensive mosquito surveys of project sites. Local source control may therefore require prediction of habitat distribution, in terms of patch size and location, based on understanding mosquito natural history and habitat controls across spatial and temporal scales. Of special concern are the boundaries between habitat controls, such as terrestrial runoff and the tides, or inorganic and organic sedimentation, where dynamic and rapid changes in micro-topography can interfere with surface drainage, and thus create mosquito habitat. The envisioned restoration of natural moisture and salinity gradients as a broad ecotone between wetlands and uplands is another special concern. At the landscape scale, these gradients can form extensive zones of different mosquito habitats. Climatic variability in the region will cause irregular changes in the local distribution and abundance of these habitats, such that the need for mosquito control will vary unpredictably over time. The cost of mosquito control for these habitats may preclude their restoration in urban and suburban settings. The greatest challenge will be to balance the expected benefits of wetlands restoration against the expected costs, for the region as a whole.