# Upland Transition Zone Assessment and Mapping Project
# Mapping Methodology Task Force

## Background

Ecological transitions are challenging to map because of the dynamic nature of the processes that result in variability over place and time. The Baylands Ecosystem Habitat Goals Project Science Update, released in 2015, describes seven different types of upland transition zones (t-zone or UTZ) based on differences in environmental factors and processes that govern the formation of the UTZ (http://baylandsgoals.org/science-update-2015/). Furthermore, each type of UTZ can be subdivided into "sub-zones" based on different extents of key ecosystem services. The types of ecosystem services provided by different sub-zones can vary based on a number of factors, including level of disturbance.

### Types of Sub-zones and Ecosystem Services Provided

| Ecosystem Service | | T-zone Sub-zones and T-zone Types | | | |
|---|---|---|---|---|---|
| | | Sub-zone 1 (SZ1) Endemism | Sub-zone 2 (SZ2) Refuge | Sub-zone 3 (SZ3) Flood Control | Sub-zone 4 (SZ4) Sea Level Rise Accommodation |
| | | All Types | All Types | Riverine[A] | Hillslope-Fan<br>Valley-Plain<br>Riverine<br>Levee[B] |
| Buffering | Pollution Control | H | M | M | L |
| | Non-native Invasion Control | M | M | L | M |
| | Erosion Control | H | H | L | L |
| Flood Control | | L | L | H | L |
| Sea Level Rise Accommodation | | L | L | H | H |
| Nutrient Processing | | H | L | M | L |
| Groundwater Recharge | | L | L | H | H |
| Biological Diversity Support | Wildlife Refuge and Predation | H | H | M | M |
| | Wildlife and Plant Movement | M | H | M | M |
| | Evolutionary Adaptation | H | M | L | L |
| | Landscape Complexity | M | M | M | H |
| Cultural Support | | L | H | L | H |
| Carbon Sequestration | | H | L | L | M |

[A] Includes diked baylands used to store floodwaters.

[B] Sea Level Rise Accommodation can be enhanced for the Levee Type of T-zone by greatly reducing the slope of the side of the levee facing the Bay to create uplands for the Bay to migrate onto. This concept has been termed the "horizontal levee" (The Bay Institute 2013).

*From Science Update, 2015, Chapter 4. Expected kinds and levels of ecosystem service for T-zone types (as described in the Science Update) and their Sub-zones (dark green = high level of service; light green = medium level; white = low level). http://baylandsgoals.org/science-update-2015/.*

The 2016 Comprehensive Conservation and Management Plan (CCMP), a set of 32 Actions to be completed by 2021, furthers the work of the Science Update by recommending transition zone identification, protection and creation around the San Francisco Estuary. This includes tasks focused on: developing mapping methodologies; mapping existing and projected future transition zones; protecting 10 identified sites; and including transition zones in five tidal restoration projects. The San Francisco Estuary Partnership (SFEP) received funding to collaborate with other entities to advance this important task for the region. The work will occur in two phases:

Phase 1: Complete Regional UTZ Mapping Methodology: Convene a technical task force to develop a regional methodology for conducting mapping and assessment of selected UTZ subzones. This will allow scientists, planners and engineers to identify opportunities to protect and restore transition zones as part of the process of planning more resilient shorelines. This effort will coordinate as feasible with a related, but distinct effort led by the Science Steering Committee of the San Francisco Bay Joint Venture (SFBJV) to create a baseline map of the current extent of marsh-upland transition zone habitat.

Phase 2: North Richmond UTZ Mapping and Community Visioning: Implement the mapping methodology, identify opportunities in the UTZ, and create a vision for sea level rise resiliency focusing on natural features--specifically marshes and transition zones. The community vision plan process will incorporate environmental justice principles in addressing shoreline vulnerability. The mapping and community engagement work will be done in collaboration with the San Francisco Estuary Institute (SFEI), Urban Tilth, and the Watershed Project.

## Phase 1 Process and Formation of the Task Force

To complete the mapping methodology, SFEP will convene a task force that will meet four times from October 2016 to January 2017. There will be one joint meeting of the Task Force and the SFBJV UTZ Work Group of the Science Steering Committee focused on coordination of shared objectives. The organizers of the workshop are: Heidi Nutters & Josh Bradt (SFEP), Jeremy Lowe (SFEI), and Sandra Scoggin (SFBJV).

## Task Force Objectives

- Expand on the process laid out in the Science Update to identify information needs to address key management questions for the seven UTZ types..
- Identify which questions require mapping and identify the most appropriate subzone (SZ), as described in the Science Update to be mapped for each question.
- Determine the key steps and decision points in mapping each of the identified SZ.
- Develop a detailed mapping methodology for mapping the SZ identified above.

## Outputs

The primary output of the Task Force will be a completed UTZ mapping methodology for the San Francisco Bay region.

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