

## Fostering Food Security, Biocultural Diversity, and Health Mapping Agro-biodiversity Hotspots and Cultural Foods in the Urban Food Desert

The purpose of this project is two-fold: 1) to increase the visibility and opportunity for scaling up the production and exchange of culturally important food plants to help foster healthful food traditions and combat food insecurity in urban food deserts, and 2) to test the hypothesis that urban areas with high cultural diversity may also have high concentrations of agro-biodiversity in their gardens. The researchers surveyed the diversity of cultural food plants that are being grown in East Bay community gardens and created an interactive, participatory visual tool (GIS map) for communities to promote seed and plant sharing.

### Objectives

1. Gather ethnographic and botanical information about East Bay urban agro-biodiversity and cultivated cultural food plants.
2. Develop an interactive GIS map of East Bay community gardens and urban production farms in collaboration with community-based non-profits, documenting agro-biodiversity with socio-economic, demographic, and food desert overlays.
3. Create an East Bay Cultural Food Exchange to increase visibility of and promote the exchange and cultivation of cultural foods.

### Methods

**1. Planning:** UC Berkeley students (13 undergraduate and 2 graduate) were trained in ethnobotanical research and plant collection methods. A total of 106 gardens (school, community, for-profit, and non-profit farms) in the East Bay were identified and added to a GIS database/map.

**2. Participatory Research:** The team took photos and



A Kenyan gardener grows cultural plants high in protein and medicinal qualities. Photo by Jennifer Sowerwine.

conducted ethnobotanical interviews with 46 gardeners from 18 different ethnic backgrounds at 12 community gardens. Information was gathered on over 800 plants and plant samples were collected to determine biodiversity patterns and hotspots.

**3. Extension:** The team hosted four seed and plant exchanges to engage the East Bay community, and informed refugees and immigrants about gardening opportunities.

### Findings

#### High Agro-biodiversity in the East Bay

The team identified 310 species (not including varieties) of plants representing 71 plant families in just 10.5 acres. Eight plant families make up more than half of all plant species identified, yet more than 60 families contribute 48% of all species, indicating very high botanical diversity. In contrast, the world's food supply depends on about 150 plant species. Of those 150, just 12 provide three-quarters of the world's food.

## Community Gardens are Vital for Food Security and Cultural and Mental Health

Access to food was the primary reason people gardened (33%), followed by enjoyment (22%), mental health (15%), physical health, spending time with friends, and lastly, being outside (4%). 18% said “other,” which included spiritual reasons, ability to share food, learn new things, access organic food, and make art. Immigrant gardeners maintain strong cultural ties to their food plant heritage: “These are important ingredients in my cuisine, they remind me of my home and mother.” Many shared their cultural foods with family and friends outside of the Bay Area. All indicated a desire for more land, and four indicated that loss of the garden would pose great hardship.

## Relationship between Agro-biodiversity and Cultural Diversity

Immigrants cultivate many unique varieties, species, and plant families for food, medicinal, and spiritual reasons in the East Bay. Inter-cultural exchange is a vibrant part of diverse community gardens in which gardeners share seeds, starts, recipes, and knowledge. Though many common plant families such as cucumber, pepper, leafy greens, and mints are considered “global” species, immigrant groups often cultivate unique varieties.



Photo by Jennifer Sowerwine.



“Global” species. Photo by Jennifer Sowerwine.

## Conclusion: Risks and Opportunities for Urban Agro-biodiversity

East Bay urban gardens are important repositories of agro-biodiversity, and represent sites of rich cultural knowledge sharing of culturally important food plants for food security as well as mental, physical, social, and cultural health. Like other vulnerable ecosystems, urban gardens must be considered as part of the larger agro-ecosystem and measures must be taken to conserve and protect them. Tenuous land rights, development pressures, and shifting priorities threaten the viability of urban agro-ecosystems. Future research will include expanding the number of gardens and further developing and promoting the interactive garden map.

## Research Team

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