Adaptation:
Climate Change & Biodiversity
Draft Strategy for California

Cal-IPC Symposium
Visalia 2009
Rick Rayburn
California State Parks
Managing Ecological Change

Changing Climate

Altered Ecological Processes

New Priorities?
California Adaptation Plan: Biodiversity Strategies

1. Landscape Reserves
2. Habitat Management
3. Research/Guidelines
4. Regulatory Needs
5. Education/Interp.
Conceptual Landscape Reserve System

Conceptual Reserves

- Federal Lands
- Other Public & Private Lands
Sustainable Size

Elevation Gradient Latitudinal Gradient

Connectivity

Endemic Movement & Evolutionary Hot Spots

Soil Gradient & Configuration
Perfecting Reserve: Linking Existing Protected Areas – Mt. Hamilton 300,000 Acres
Big Sur Reserve Lands

OWNERSHIP

- Big Sur Land Trust
- California Department of Fish and Game
- California Department of Parks and Recreation
- California State Lands Commission
- Carmel-by-the-Sea
- Del Monte Forest Foundation
- Monterey
- Monterey Peninsula Regional Park District
- Santa Lucia Conservancy
- Save the Redwoods League
- United States Bureau of Land Management
- United States Forest Service

0 1 2 4 Miles
Santa Monica Mountains Reserve
Perfecting 125,000 Acre Big River Reserve

1 - Increase Size
2 - Northern Expansion
3 - Increase Gradients
4 - Configuration
5 - Endemics & Evol. Hot Spots
6 - Linkage

additions illustrative only
Reserve: Management & Restoration
Reduce Environmental Stressors

Priority Actions:
• invasive weeds
• fire-reduce & prescribed
• roads, culverts & sediment
• feral animals
• aquatic management

Priority Areas:
• wildlife movement
• plant movement

Big Tujunga Canyon
<table>
<thead>
<tr>
<th>Exotic Plants - Real Losers</th>
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<tbody>
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<td>State Parks Long-term Monitoring</td>
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- Tree of Heaven
- European Beach Grass
- Artichoke Thistle
- Arundo
- Black Mustard
- Brooms
- Cape Ivy
- Castor Bean
- Diffuse Knapweed
- English Ivy
- Gorse
- Harding Grass
- Helichrysum
- Himalayan Blackberry
- Hoary Cress
- Iceplant
- Italian Thistle
- Pampas Grass
- Milk Thistle
- Pepperweed
- Periwinkle
- Tamarisk
- Tocalote
- Veldt Grass
- Wild Fennel
- Yellow Starthistle
Broom Removal

Series of treatments

Prescribed fire

Mt. Tamalpais SP

When finished - a mosaic of native species

Cutting before burning
Exotic Species Control

Wilder Ranch SP

Pig damage - exposing soil to invasive plants and erosion

Baited pig trap
Managing Fire

- Drought: reduces plant water
- Crown fire: habitat replacement
- Losses: biodiversity, recreation, facilities

Catastrophic Crown Fire

Natural Open Forest Condition
Crown Fire:
- lack of forest regeneration
- site conversion to brush
Habitat Conversion:

Woodlands to Shrubs

Shrublands to Grass

Fire

Chino Hills SP

Orange County
Preventing Catastrophic Wildfire

Calaveras Big Trees State Park

width of thinned buffer
Overstocked
200-300 trees / acre

Thinned / prescribe burned
60-70 trees / acre
Fire Management Actions

Natural forest thinning
Roadside treatment
Prescribe burning
Limited revegetation

Partners:
CalFire
USFS
NPS
USGS
Aquatic Management

- Reduce Sedimentation
- Genetic diversity
- Habitat complexity
- Cold water resources
- Connect river and floodplain
- Alpine meadows & riparian
- Wild & hatchery fish
Road Removal - Reduce Sediments

Mt. Livermore
Angel Island SP

Old road/trail

Filling and reshaping slope

Road removed - trail rerouted
Research Strategy

• Adaptation Research Council
• Quick Release of Research & Evaluations
• Reserve System & Sustainability
• Priorities: Connectivity & Range Modification
• Evolutionary Development
• Statewide Monitoring Effort
Research: Connectivity & Range Modification
Prairie Creek Redwoods State Park, 2076

(Death Valley NP)
The End
Public Education

Interpretation

10 Pt. Plan

Public talking points
Panels
Campfire program
Historic carbon calculator
CC curriculum
Podcast
Jr. Ranger program
PORTs
Links for teachers
Online resources
Protecting Biological Diversity
End
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Latitudinal Gradient

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Big Tujunga Canyon
Tolowa Dunes
Seriously degraded, monotypic

Asilomar
Restored, Diverse and Native
Mt. Diablo State Park

Highly flammable urban interface

Significant annual effort to protect from fire
‘ey man, I’m set, how about you?
Experience Global Warming
VISIT
BORREGO SPRINGS, CALIFORNIA
Eucalyptus Removal

Conditions:
- lost habitats
- serious fire danger

Treatments:
- cutting
- burning

Angel Island State Park
Landform Restoration

Angel Island SP

Old pavement and terraces

Reshaping

Mt. Livermore - Ridgetop Profile
“Mother Nature is just chemistry, biology and physics. That’s all she is. And because of that you cannot spin Mother Nature. You cannot bribe Mother Nature. You cannot sweet talk her, and you cannot ignore her. She’s going to do with the climate whatever chemistry, biology and physics dictate. And Mother Nature always bats last, and she always bats a thousand.”

Rob Watson, Father of LEED, EcoTech Int.
• Do slide here that intros deal
• Brief review of impacts of cc
• Reserves system and management
• New slide with 4 ecol. Process of slide 3 but change out with my 4 photos for each ie temp, hydrology etc
• Add research one re see last slide
The State Park Superintendent V works under the direction of the Division Chief of Park Operations for the Northern Division. Additional management direction for this position is provided in personal performance standards and the statement of delegation for the State Park Superintendent position. This position is responsible for the management of the North Bay District and is responsible for all components of the district’s Administrative, Resource Management, Real Property, Visitor and Technical Services programs. He/she will ensure continuous external leadership as the primary facilitator in the collaborative expansion and management of the Mt. Saint Helena Reserve and sustaining the nature resource values in light of climate change.

35%  **MANAGEMENT AND SUPERVISION**
Participates in strategic planning, program coordination, employee development planning and implementation, and project facilitation.

10%  **RESOURCE MANAGEMENT**
Ensures the natural resources of district are properly managed…