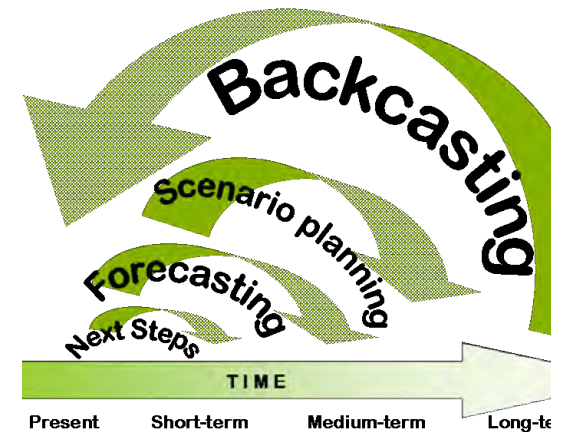
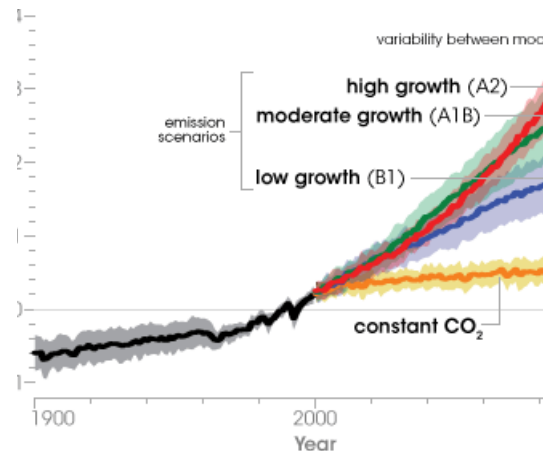


What to do when you don't know what to expect: Scenario planning for land management

Nathaniel Seavy, Sara Moore, and Sam Veloz
Cal IPC, October 2013





“Long range planning does not deal with future decisions, but with the future of present decisions.”

Peter F. Drucker

Outline

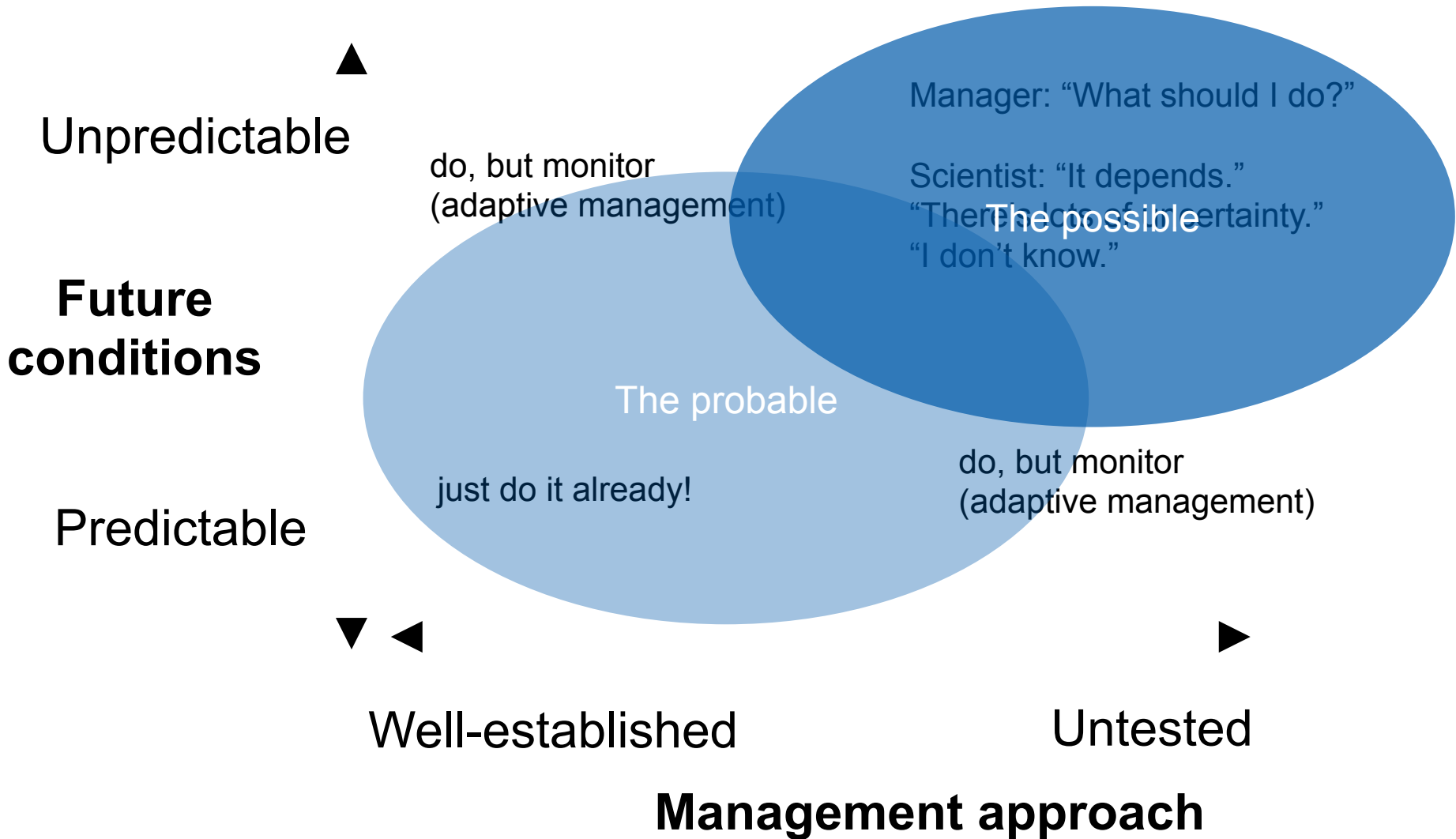
- A little bit about Point Blue and our work
- Why is planning for the future difficult?
- What is a scenario?
- Putting scenarios to work:
 - IPCC emissions scenarios
 - San Francisco Bay tidal marsh scenarios
 - Waterbird habitat in California's Central Valley

Advancing conservation through science, partnerships, and outreach

- Founded in 1965 as Point Reyes Bird Observatory
- 140 seasonal and full time staff
- Working to reduce impacts of environmental change and promote nature-based solutions for wildlife and people



How do we plan for the future?



The general scenario planning work flow

1. Identify a focal issue
2. Assess the system
3. Identify alternatives
4. Build scenarios
5. Test scenarios
6. Screen policy alternatives

Scenario Planning: a Tool for Conservation in an Uncertain World

GARRY D. PETERSON,*‡ GRAEME S. CUMMING,† AND STEPHEN R. CARPENTER*

*Center for Limnology, 680 N. Park Street, University of Wisconsin, Madison, WI 53706-1492, U.S.A.

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Scenario planning for climate change adaptation

A guidance for resource managers

Sara S. Moore, Nathaniel E. Seavy, and Matt Gerhart

esa

ECOSPHERE

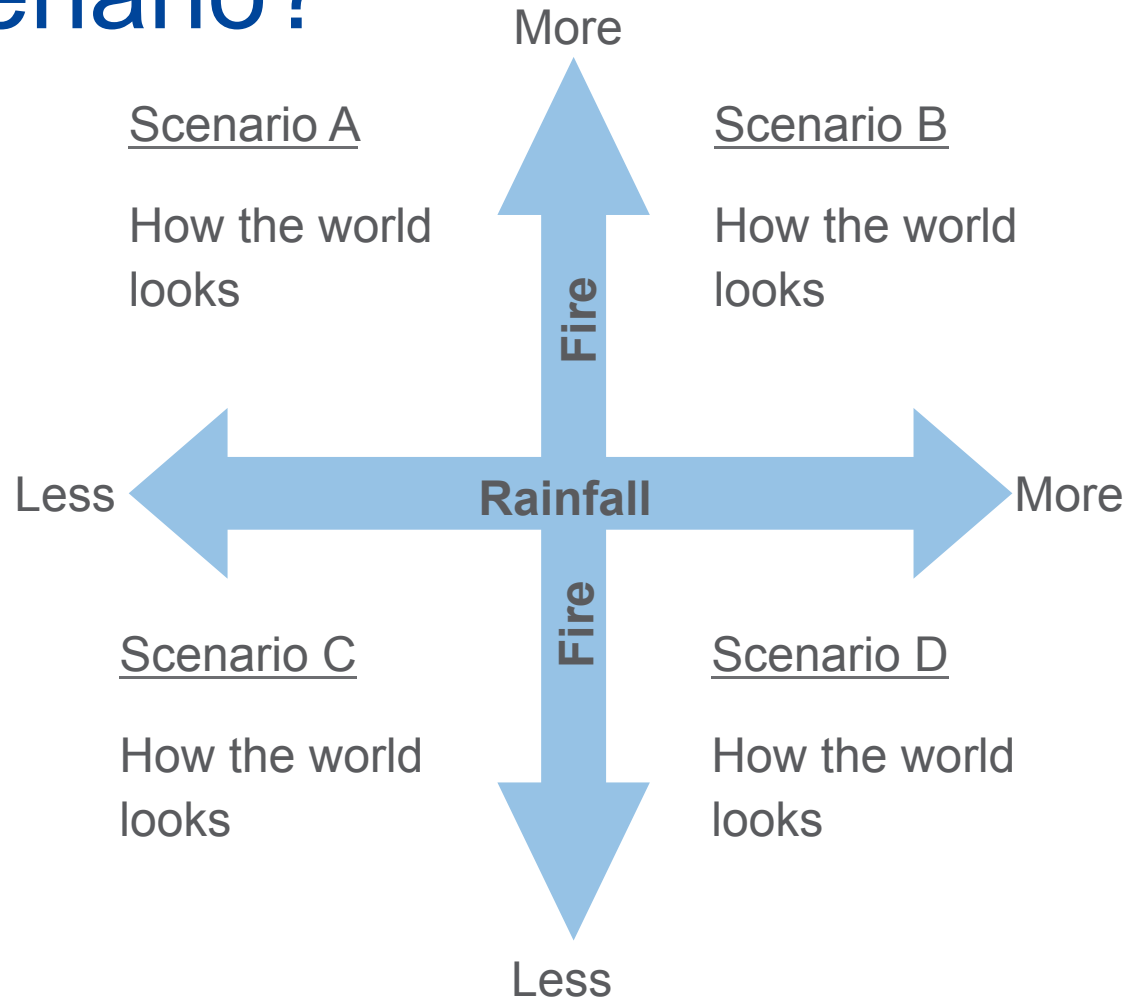
Modeling climate change impacts on tidal marsh birds:
Restoration and conservation planning
in the face of uncertainty

SAMUEL D. VELOZ,† NADAV NUR, LEONARDO SALAS, DENNIS JONGSOMJIT, JULIAN WOOD,
DIANA STRALBERG,¹ AND GRANT BALLARD

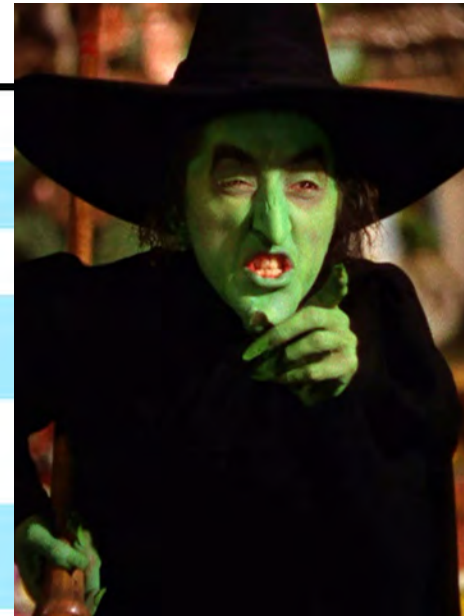
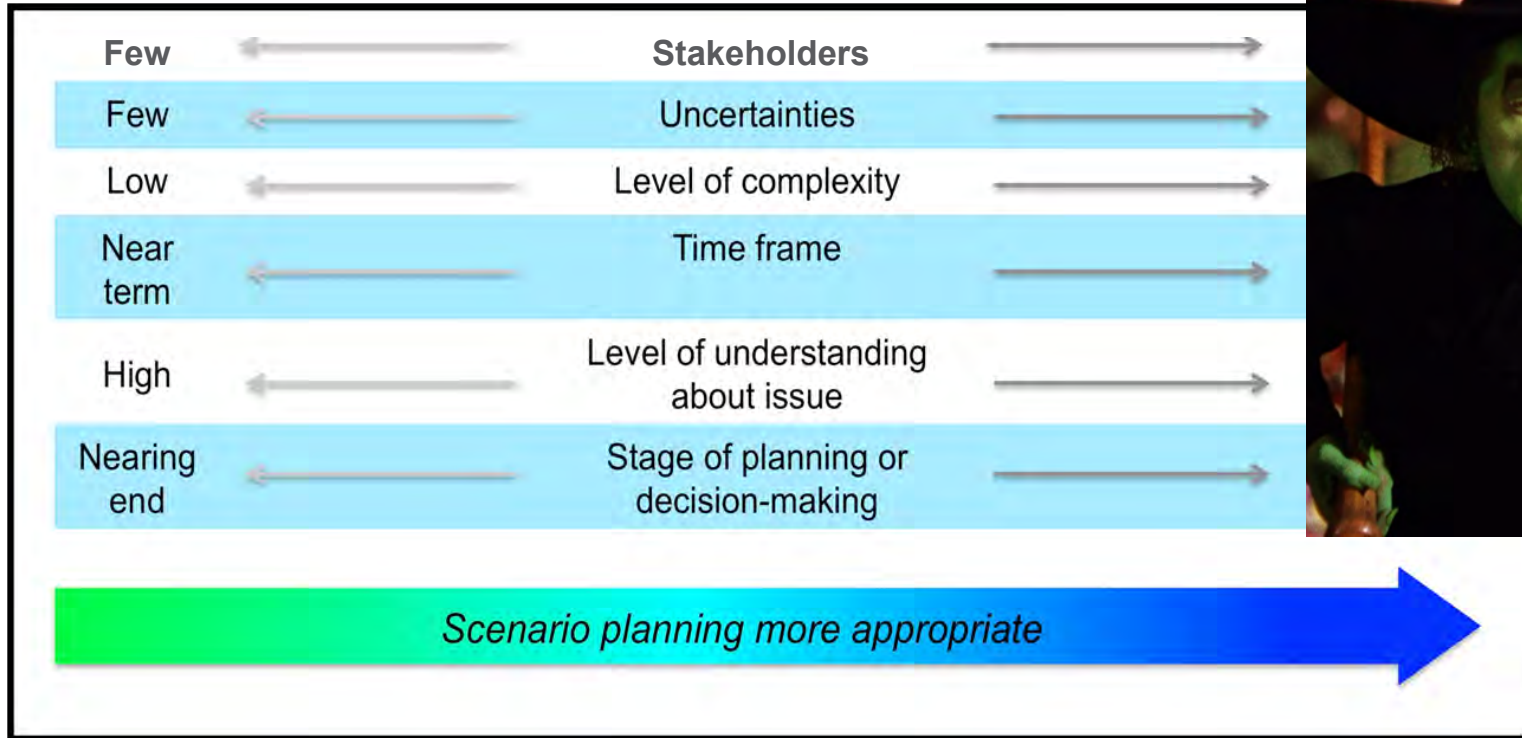
PRBO Conservation Science, 3820 Cypress Drive #11, Petaluma, California 94954 USA

What is a scenario?

quantitative or qualitative descriptions of plausible futures that allow you to envision and evaluate the outcomes of potential decisions in the context of different conditions.



When is scenario planning most useful?



Scenario planning can emphasize different processes/products



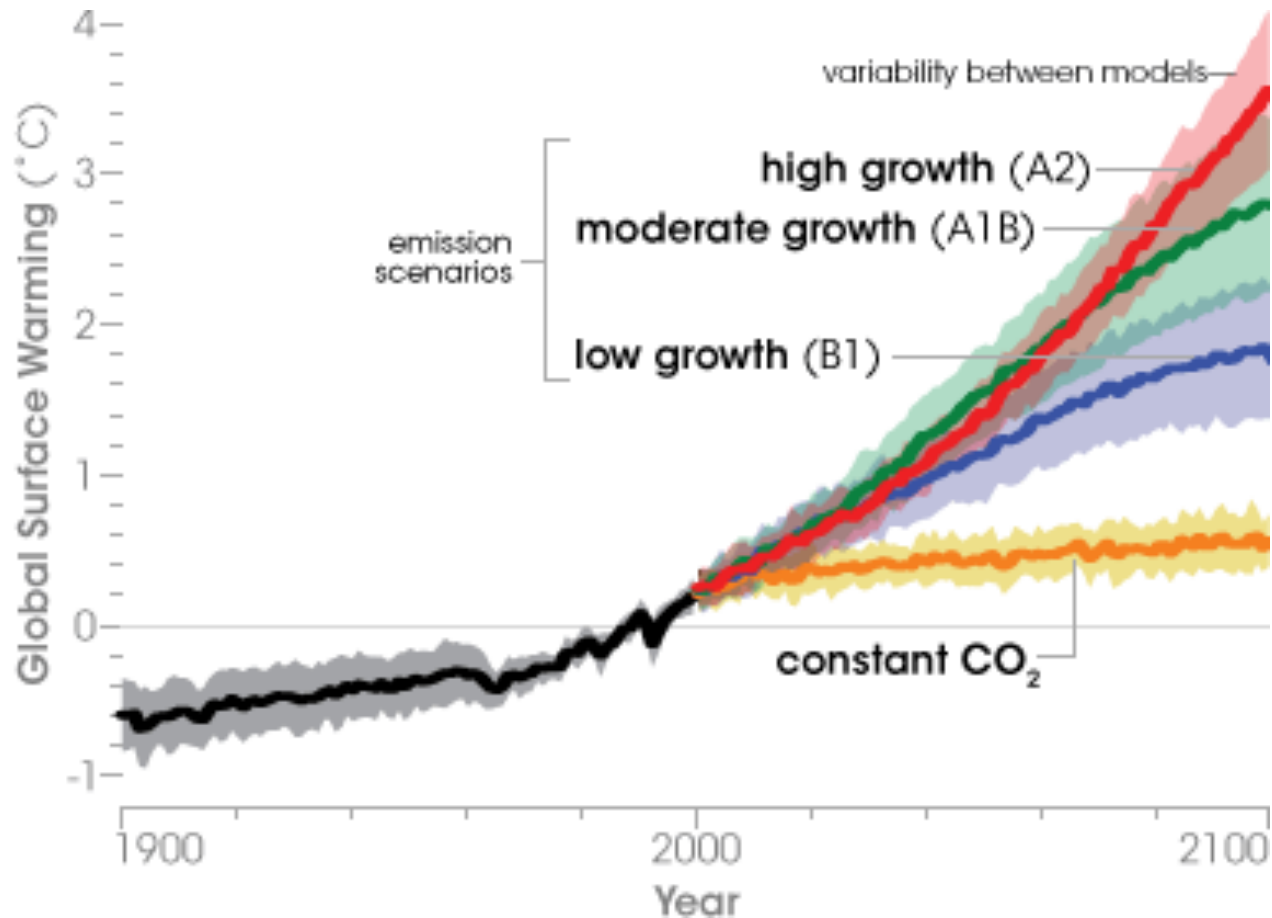
Generate a technical answer (left brain)



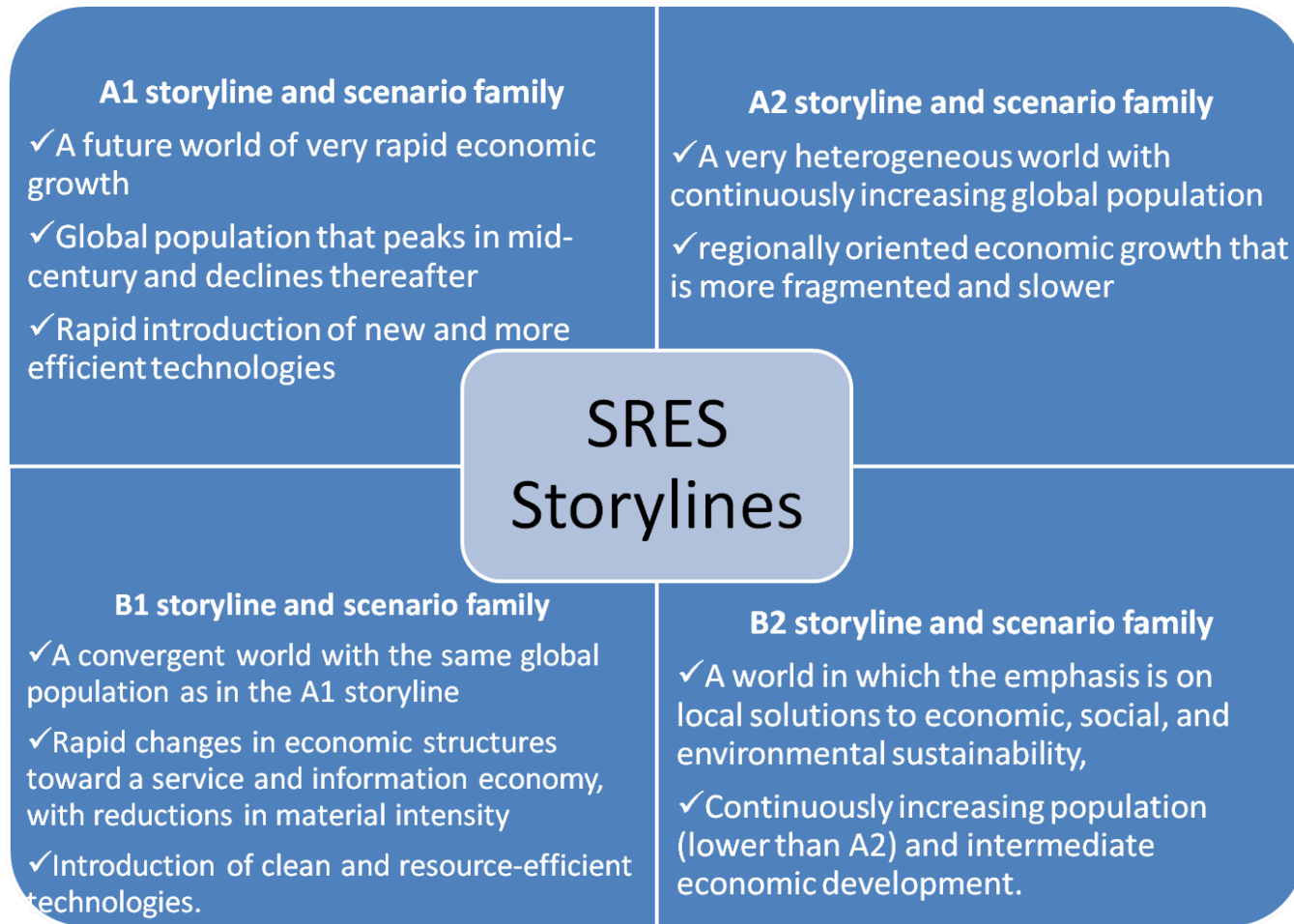
Generate shared understanding (right brain)

Three examples to illustrate these ideas... there are lots of others out there – e.g. National Parks!

Example 1: IPCC emission scenarios and climate change projections

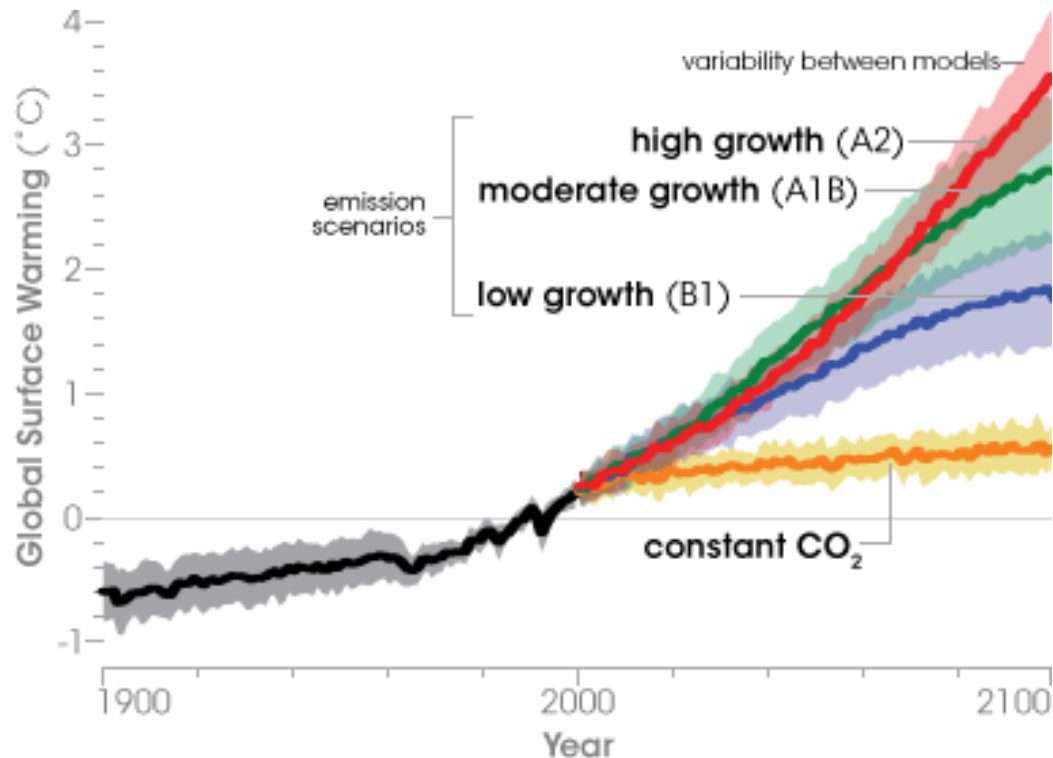


Example 1: IPCC emission scenarios and climate change projections

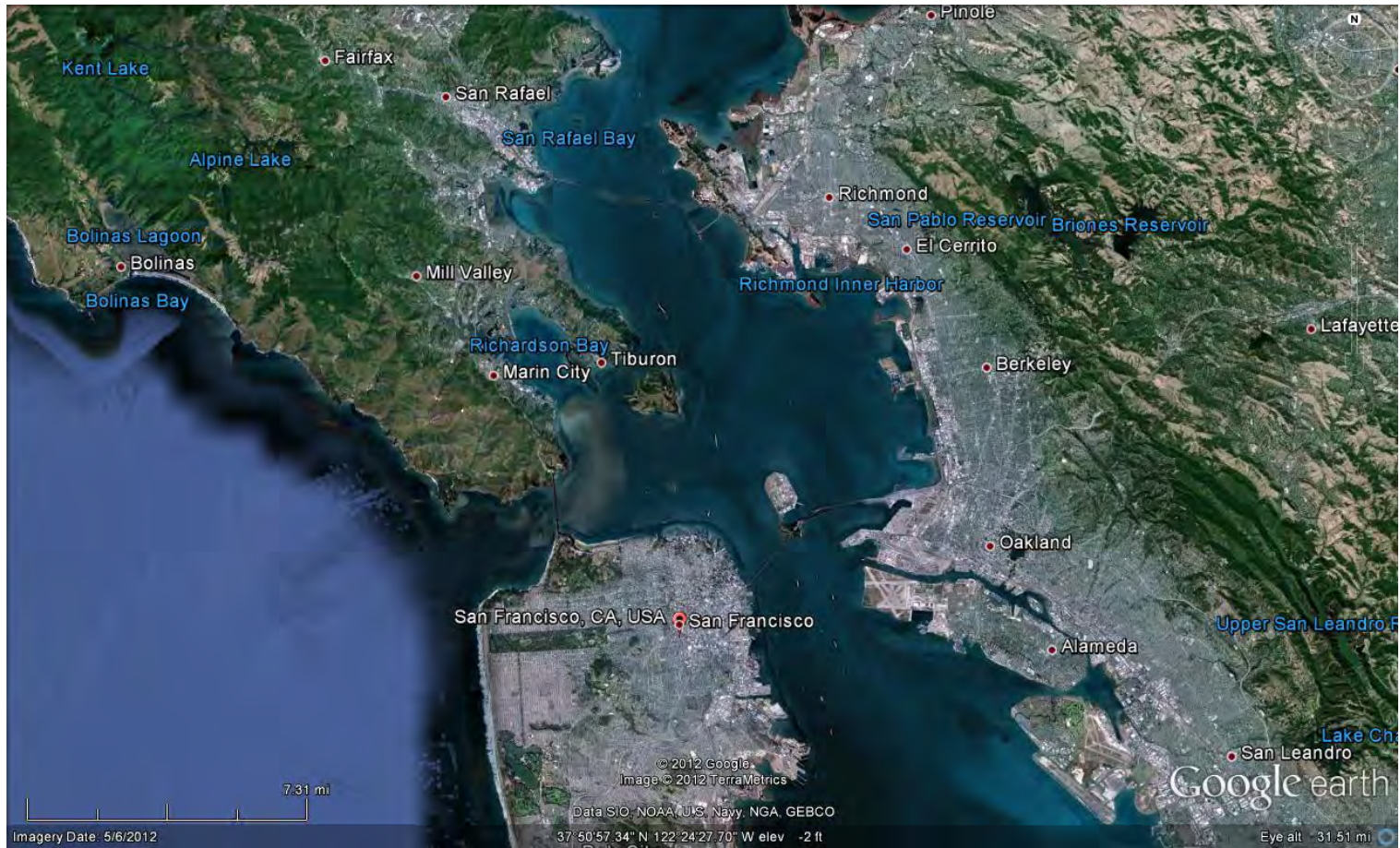


Example 1: IPCC emission scenarios and climate change projections

Emissions scenarios + Climate model = Climate projection



Example 2: San Francisco Bay tidal marsh restoration



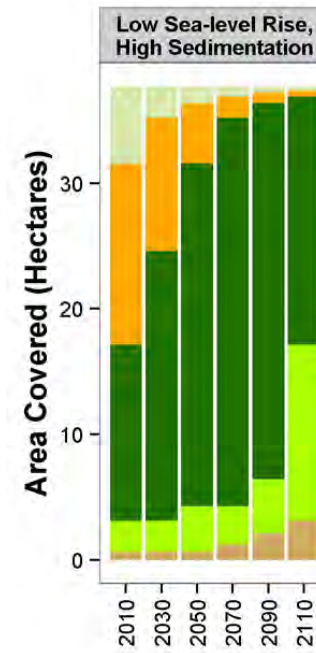
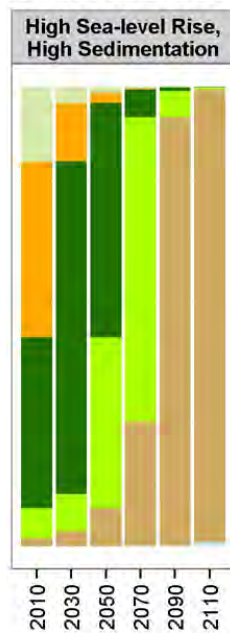
Example 2: San Francisco Bay tidal marsh restoration

High sea
level rise

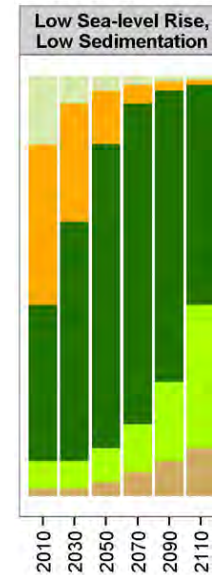
Policy screen: If you could
restore 1000 acres, which
would generate the most
bird habitat?



High sedimentation



Low sea
level rise



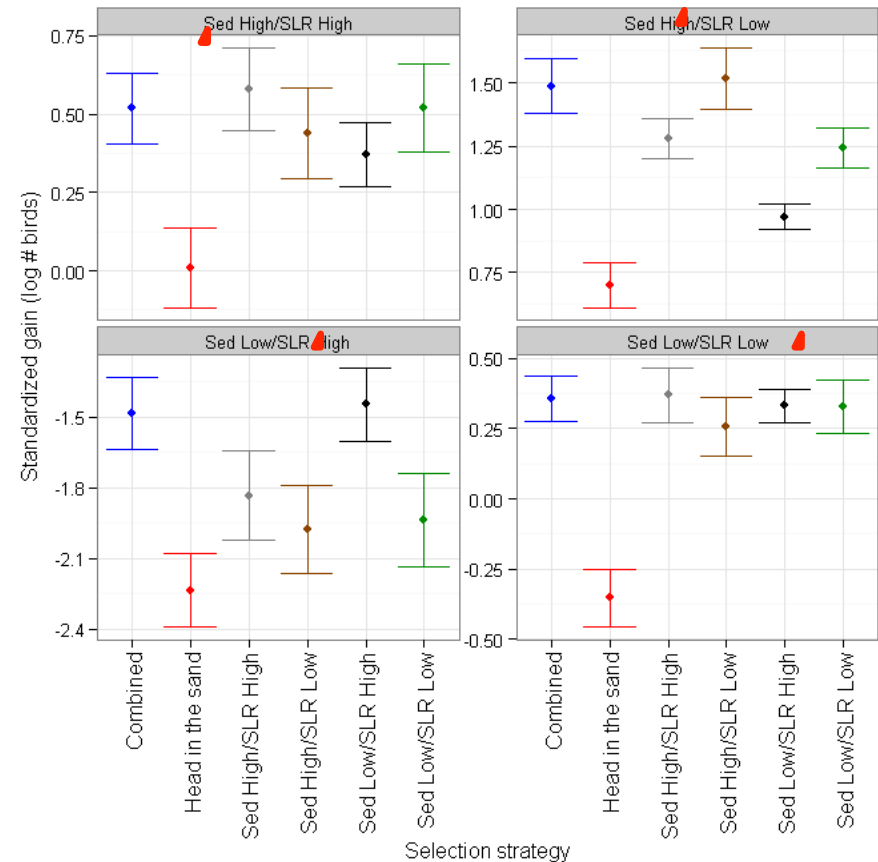
Low sedimentation

Example 2: San Francisco Bay tidal marsh restoration

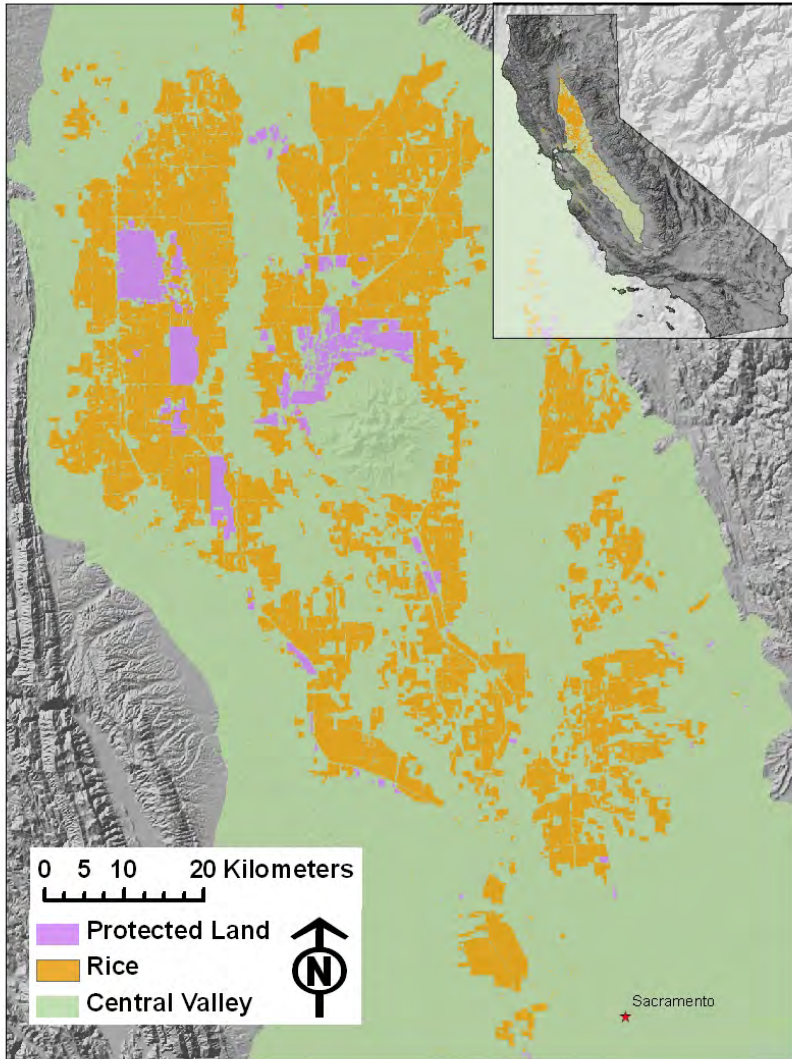
What restoration strategies generate the most bird habitat?

The best strategy is to consider them all.

None of the scenarios are right but together they can frame robust decisions.




Example 3: The future of waterbird habitat in California's Central Valley




The Migratory Bird Conservation Partnership

The Nature Conservancy  Protecting nature. Preserving life.

 Point Blue Conservation Science

 Audubon CALIFORNIA



Used scenario planning to build a shared understanding of how we can incorporate climate change into our work

Example 3: The future of waterbird habitat in California's Central Valley



As described in Moore et al. 2013

Wetter conditions

The Soggy Ostrich

- Levees – we just can't get enough!
- Tulare Lake returns
- Birds suffer from cholera & botulism
- Floods displace people
- Floodwaters recharge groundwater
- Farmers still suffer—water yes, but not at right time for farming

Is this Heaven?

- Groundwater surges to historic levels
- Counties limit sprawl with smart growth
- Adaptation bonds fund set-back levees
- Salmon beat the odds
- Ag and enviros team up to protect open space
- Wastewater wetlands polish water for birds and ag

Business as usual

Aggressive adaptation

Rise of the Water Barons

- Firestorms engulf Southern California
- Voters overturn ESA in favor of farmers – Delta Smelt are gone
- California pioneers in dry farming and desalinization
- Flooding for dust control provide shorebird habitat

Doing More with Less

- Cows gone as alfalfa and irrigated pasture disappear
- LA moves to Sacramento: urban migration
- Californians tapping their toilets – water efficiency increases
- Reservoirs empty – no snow
- Floodplain farming of fish, food, and fowl through levee setbacks and multi-benefit projects
- Green lawns no longer socially acceptable
- Birds crowd into remaining Pacific Flyway wetlands – will bird populations crash or reroute?

All scenarios assume:

Climate change

- Higher temps, runoff shifted to winter
- Sea level rise and increased flooding

Growing human population

- > 15 million residents in 50 years
- Most growth in Central Valley

Drier conditions

Business as usual

Wetter conditions

Aggressive adaptation

The Soggy Ostrich

Align with flood management

- Partner with flood mitigation programs
- Groundwater recharge

Is this Heaven?

Change public opinion

- Use case studies and catastrophic events to influence opinion

Immediate no-regret actions

- Leverage existing multiple benefits projects on floodplains and in Delta
- Engage with water bond and farm bill discussions

Guide policy

- Become a thought leader for new programs

Work with private \$

- Partner with developers
- Identify major donors

Doing More with Less

Rise of the Water Barons

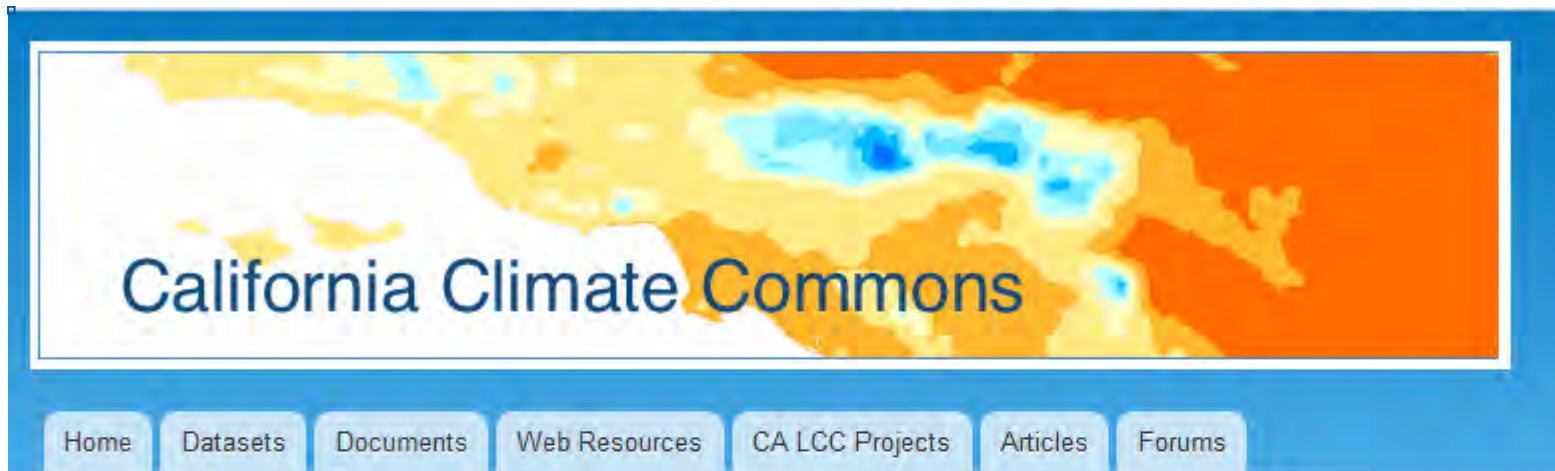
Deliver water and habitat with surgical precision

- Track bird movements to optimize water
- Address refuge vulnerabilities
- Track water distribution

Drier conditions

Learn more

<http://climate.calcommons.org/articlenx/scenario-planning>



Home

Search the Commons



Article

Scenario Planning

“...when people place themselves in somewhat of a fictional context, they are more able step outside of what they know or believe, be more imaginative and, importantly, listen to the ideas of others. Science benefits from this kind of letting go.”

Camie Bontaites
Osblog (oslabwest.blogspot.com/)

Thank you!

Funding: North Bay Watershed Association, Coastal Conservancy, CA LCC, Bay Fund of the San Francisco Foundation

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Scientific & Technical Input: USGS, California Department of Water Resources

Questions: nseavy@prbo.org