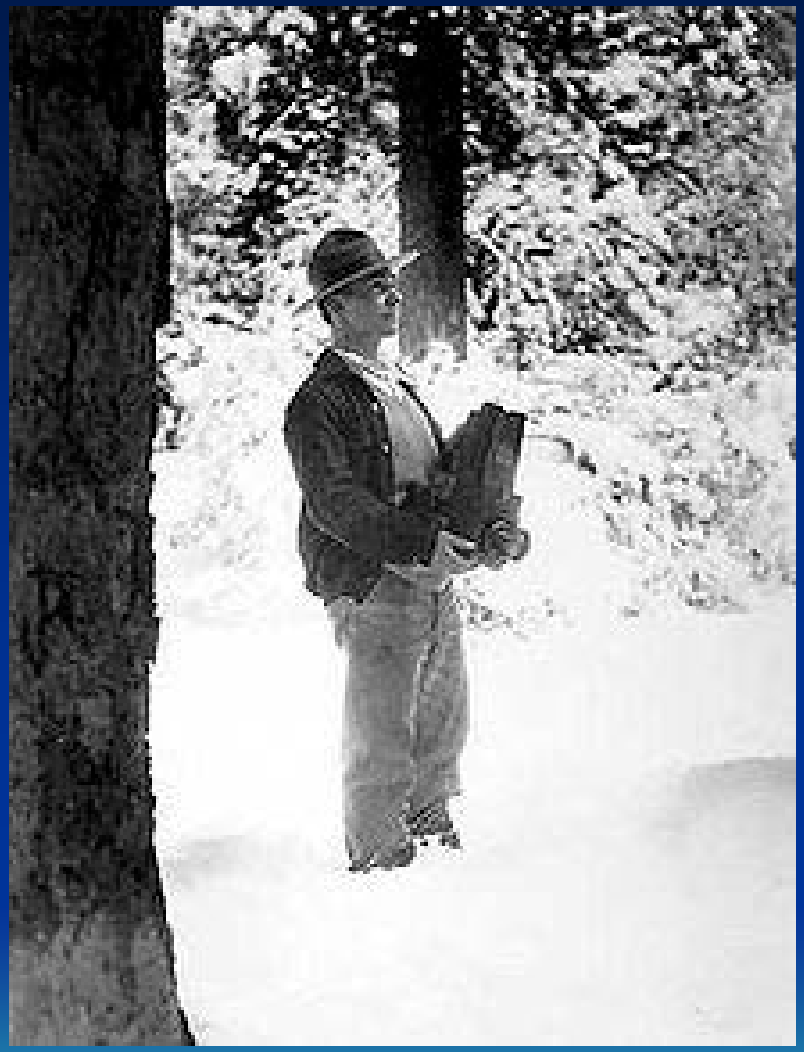
Science, policy, and management interactions:

The past is not a template for the future of the national parks

David Graber

“…which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”



FAUNA

OF THE NATIONAL PARKS

OF THE

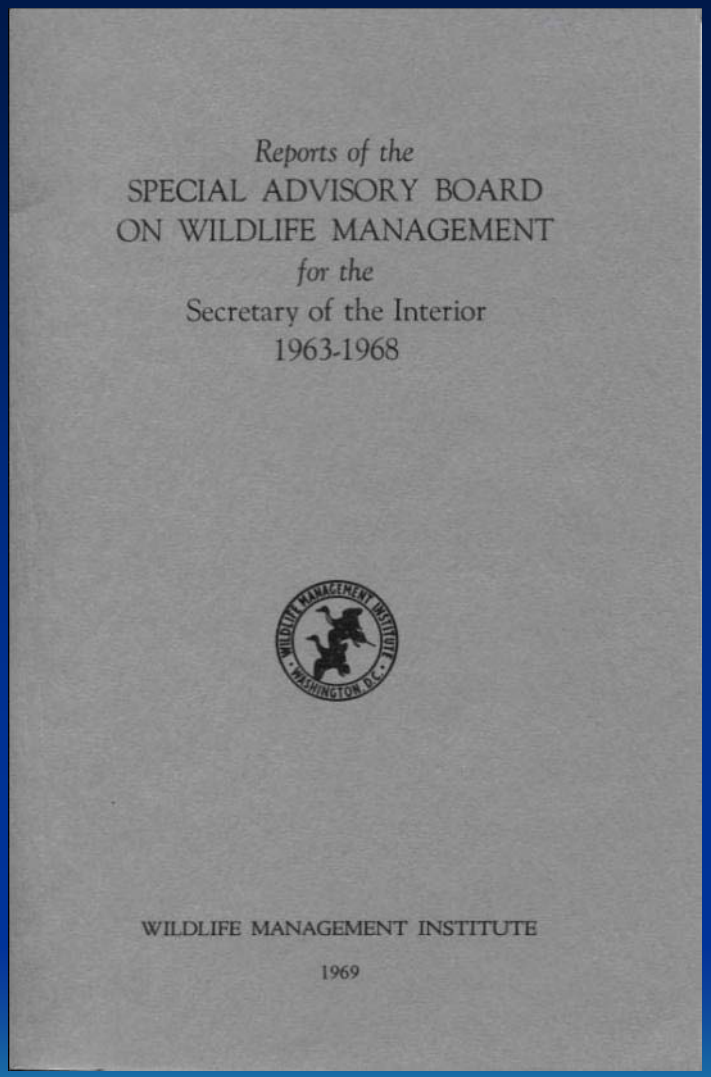
UNITED STATES

A. Starker Leopold

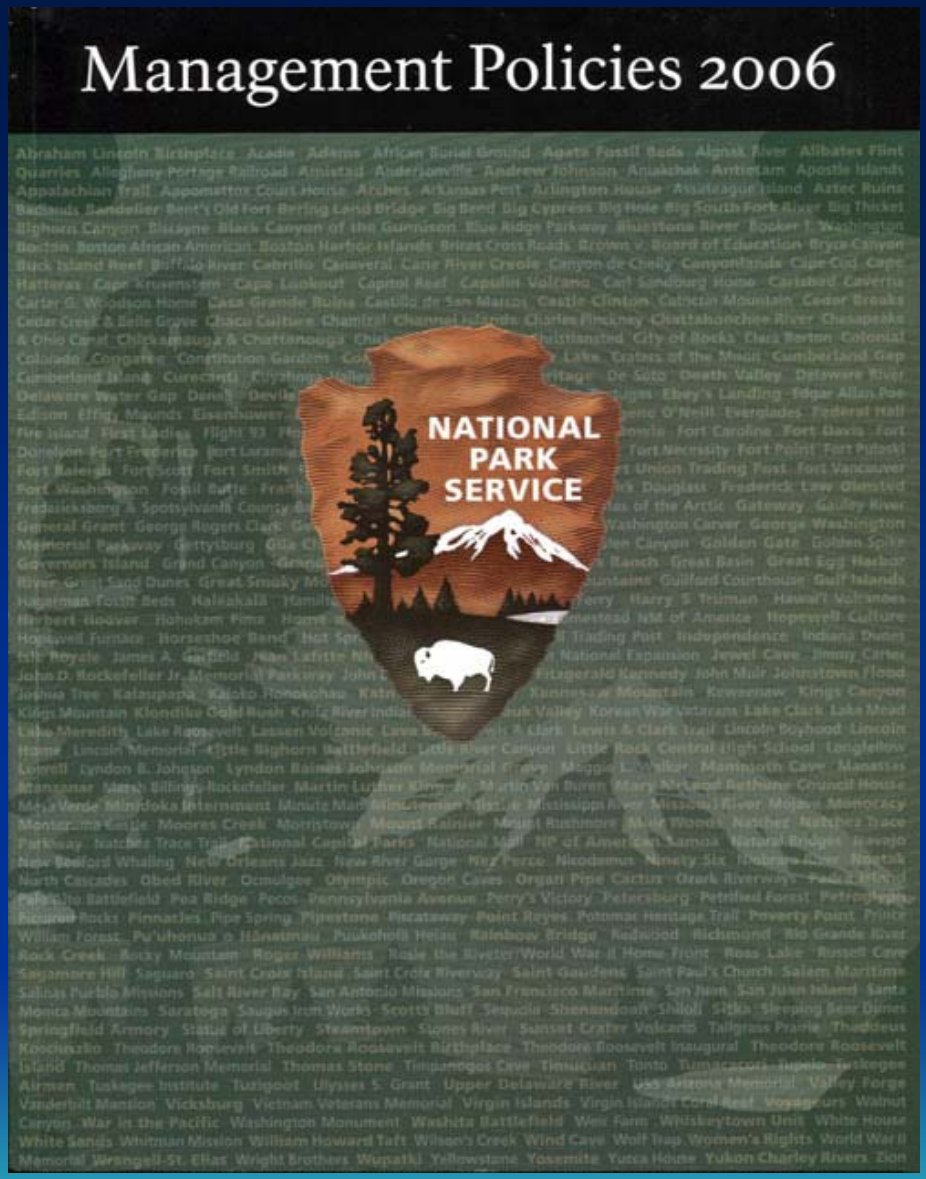
Wildlife Management in the National Parks

March 4,1963

A.S. Leopold (Chairman),
S.A. Cain,
C.M. Cottam,
I.N. Gabrielson,
T.L. Kimball

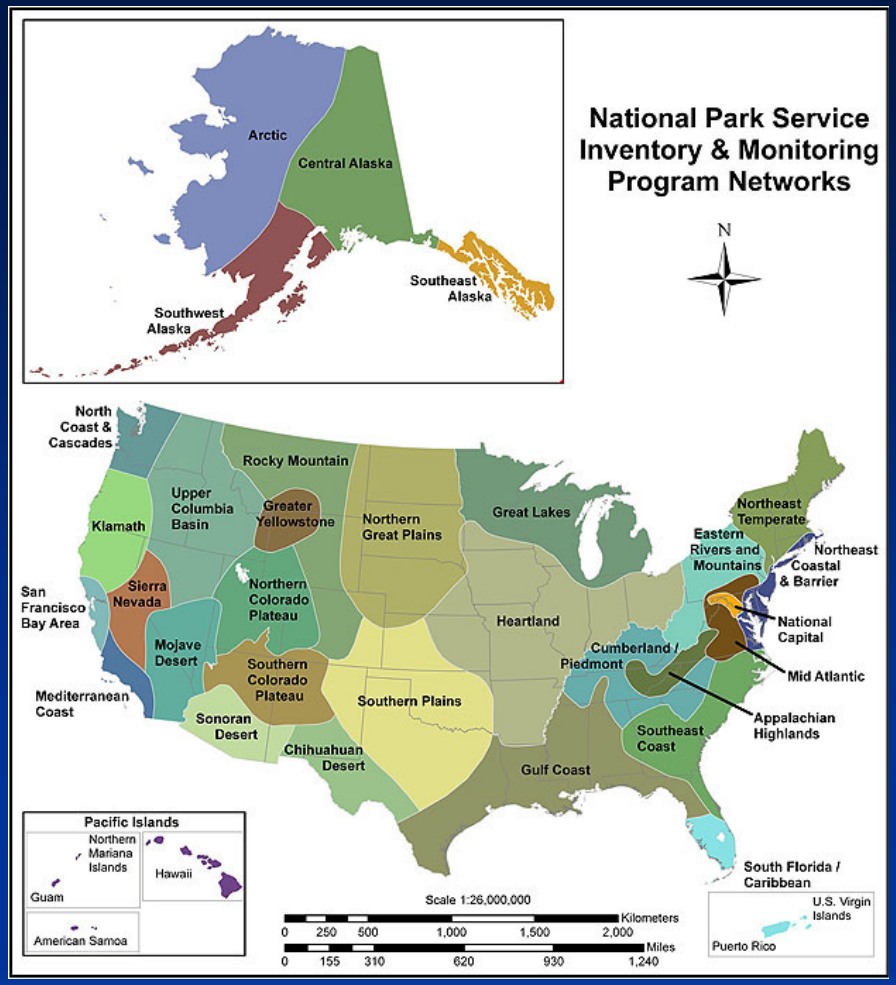


Guiding document for management of the National Park System



4.4 BIOLOGICAL RESOURCE MANAGEMENT
4.4.1 General Principles for Managing Biological Resources
4.4.1.1 Plant and Animal Population Management Principles
4.4.1.2 Genetic Resource Management Principles
4.4.1.3 Definition of Native and Exotic Species
4.4.2 Management of Native Plants and Animals
4.4.2.1 NPS Actions that Remove Native Plants and Animals
4.4.2.2 Restoration of Native Plant and Animal Species
4.4.2.3 Management of Threatened or Endangered Plants and Animals
4.4.2.4 Management of Natural Landscapes
4.4.2.5 Maintenance of Altered Plant Communities
4.4.3 Harvest of Plants and Animals by the Public
4.4.4 Management of Exotic Species
4.4.4.1 Introduction or Maintenance of Exotic Species
4.4.4.2 Removal of Exotic Species Already Present
4.4.5 Pest Management
4.4.5.1 Pests
4.4.5.2 Integrated Pest Management Program
4.4.5.3 Pesticide Use
4.4.5.4 Biological Control Agents and Bioengineered Products
4.4.5.5 Pesticide Purchase and Storage

Natural Resource Challenge



California
Exotic Plant Management Team

Partner Parks: *Cabrillo NM, Channel Islands NP, Devils Postpile NM, Golden Gate NRA, John Muir NHS, Lassen Volcanic NP, Pinnacles NM, Point Reyes NS, Redwood NP, Santa Monica Mountains NRA, Sequoia and Kings Canyon NP, Whiskeytown NRA, Yosemite NP*

The California Exotic Plant Management Program (CA-EPMT) serves 14 parks that reside within the California Floristic Province. This region is one of 25 world biodiversity hotspots, and is known for its unusually high concentration of endemic plants. Of the 3,500 vascular plants found in California's floristic hotspot, 2,124 species are found nowhere else in the world.

2008 Accomplishments	
Inventoried Acres	1,894
Gross Infested Acres	3,452
Infested Acres	199
Treated Acres	175
Monitored Acres	2,229
Maintained	0

In 2008, the CA-EPMT treated over 100 species that threaten the integrity of this international biological treasure. Project sites were extremely varied, ranging from the remote Channel Islands to the high Sierran forest in Yosemite National Park. After seven years of service to parks, and continued focus on increasing our field presence, the CA-EPMT 2008 season rendered some exciting results. In summary, we found a 76% increase in acres treated, a 156% increase in staffing available to parks and an increase in timing flexibility that bolstered overall effectiveness. Partnerships that stand out this season and helped make this possible include infested area, of 41 targeted control sites, initial treatment in 2005 recorded 503,050 Italian thistle. This year we found only 3,676 individuals in a fraction of the time and expect to achieve maintenance status by the end of 2009. Many of the sites were so successfully treated that they had no Italian thistle at all. The gradual reduction of Hospital Rock commitments, combined with expanded CA-EPMT presence in Sequoia NP provided the resources needed to treat additional sites. Two particularly valuable projects that were possible included treatment of two critical vector sites - eight acres of campgrounds (a variety of invasives), and 7.4 acres of cheat grass (*Bromus tectorum*) at Cedar Grove Pack Station. By treating these primary vector populations, the team prevented the inadvertent transport of invasive plant seed into the heart of the park.

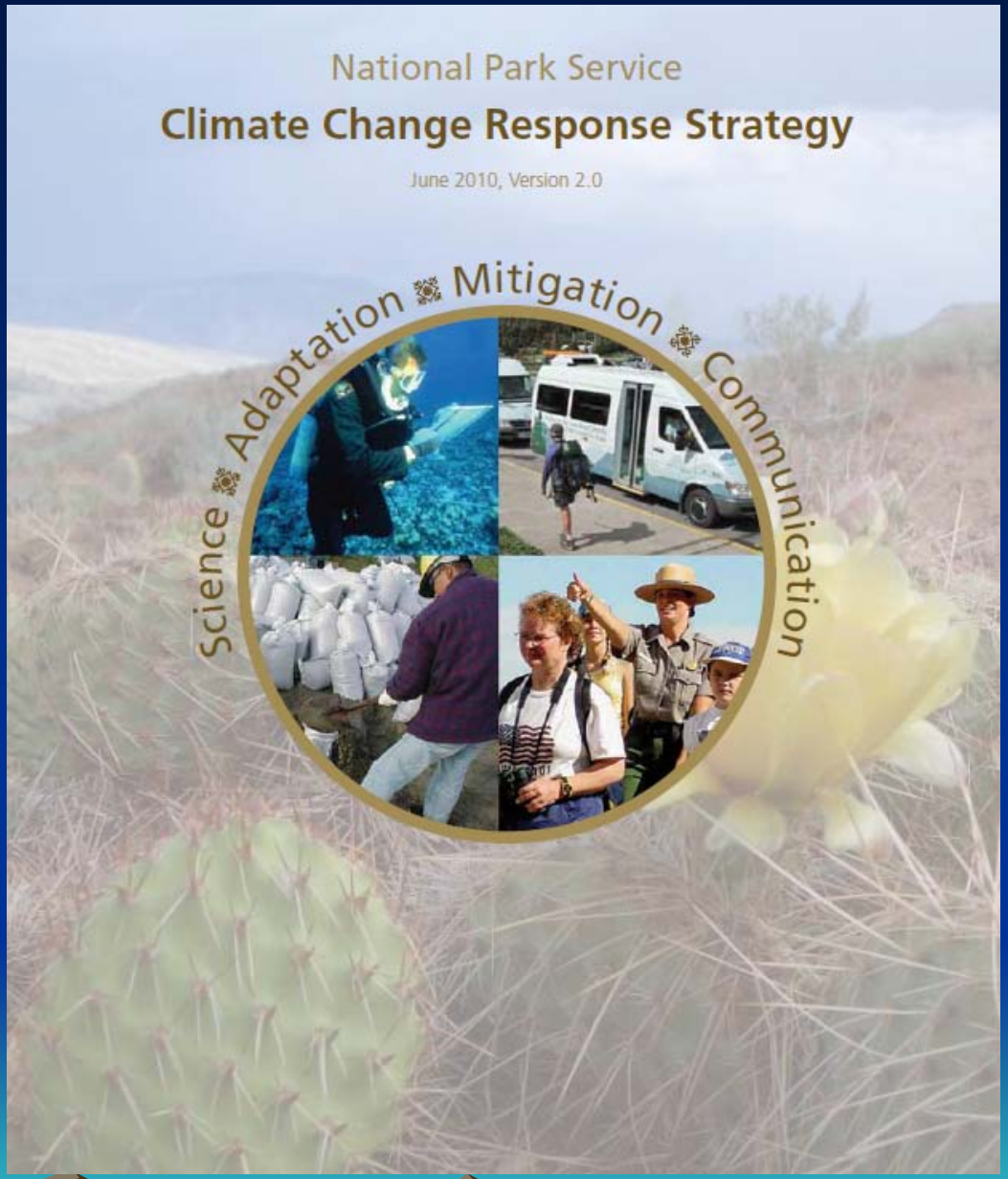
Figure 18. Sierra Team joins Yosemite Staff.

Adaptation

Mitigation

Communication

Science

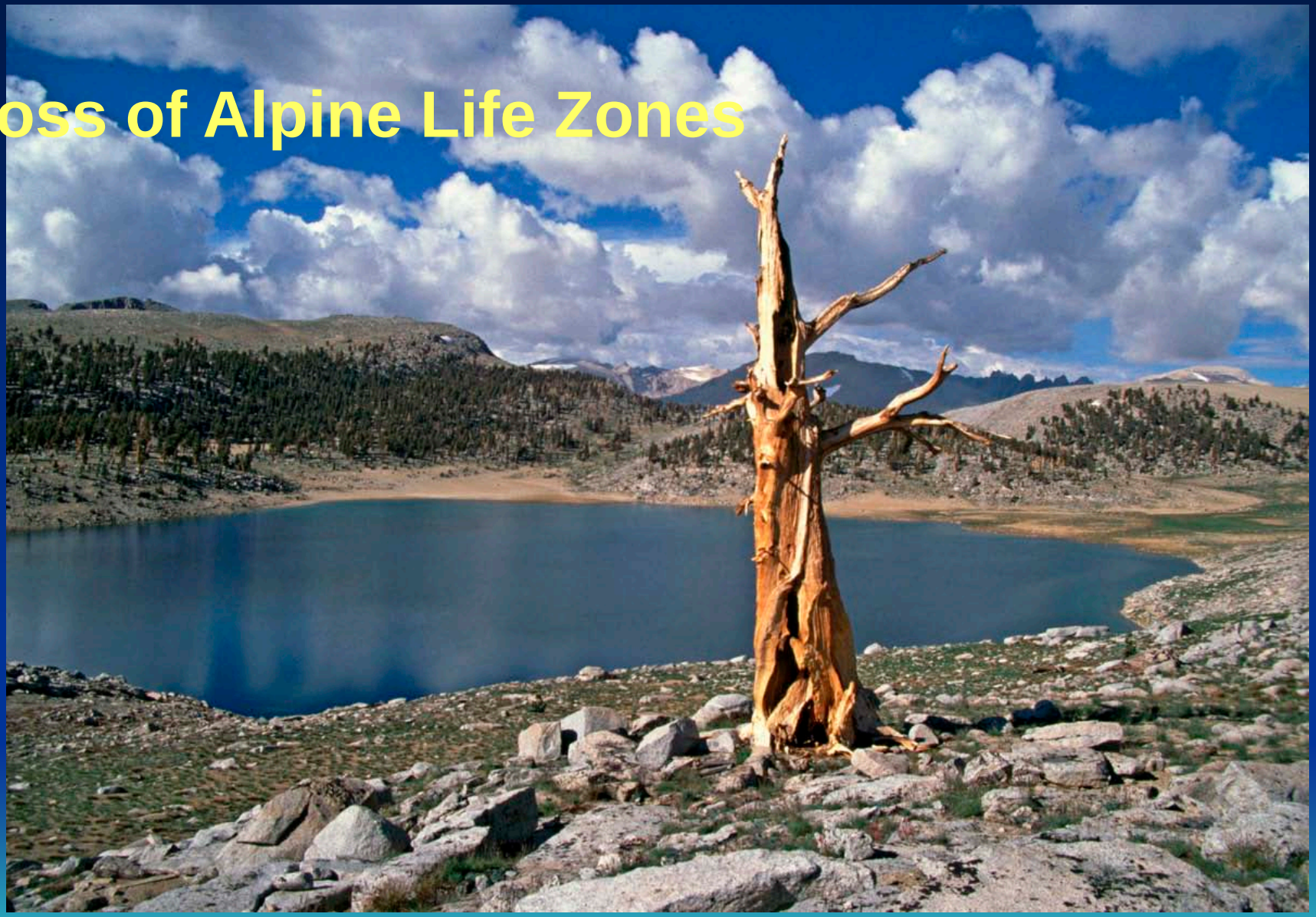


Systemic Invasion

Ecosystem Transformation

New Invaders

Loss of Alpine Life Zones



Glaciers Die

Habitats Shrink

Some Ecosystems Drown

Adaptation

Remove Stressors

Build Resilience

Re-engineer Ecosystems

Reinvent Nature

Ewel, John JK., and Francis E Putz. 2004. *A place for alien species in ecosystem restoration*. Frontiers in Ecology and the Environment. 2.

Chew, Matthew. 2009 *The monstering of tamarisk: How scientists made a plant into a problem. J. Hist. Biology 42.*

Davis, Mark. 2009. *Invasion Biology* Oxford University Press, Oxford.