



Concern

Invasive species

Increasing likelihood of fire

Abrupt changes (forest mortality, e.g.)

Water supply, water rights

Conflicts with public, particular stakeholders

Interactions between human disturbances and climate change (including off-road vehicles)

Drought and lack of precipitation

Lack of watershed or landscape-level perspective on management

Research Need

Regionally specific predictions and scale dependencies (How will individual ecosystems and species be affected?)

Impacts on wildlife, predictions of wildlife and insect migration, habitat changes, biome movement

Attribution of changes -- local disturbance, invasives, global atmospheric circulation, growth, trends, multidecadal; interactions between weather and climate

Improved integration of monitoring and prediction (Given projected changes, What do we need to monitor?)

Climate-fire-invasives-insects (including thresholds for mortality events)

Improved understanding of interaction between management and current conditions -- What works? What does not work?

Usability Need

Regional specificity in GCM predictions

Reduce uncertainties

Improved monitoring, including consistent monitoring protocols across land management agencies

Scenario planning

Public education, engagement

Information translation and transfer

Information sharing across agencies

Link research with economic outcomes, cost/benefit, ecosystem services

Obstacle

Politics (including political and public will power)

Lack of clear connection between climate projections and appropriate management responses

Agency culture - resistance to adaptive management; denial; regulatory constraints

Lack of spatial resolution, process resolution for management areas, site-specific information

Lack of connection between management needs and research

Lack of effective communication (cause and effect, meaningful to the public, not Doomsday)

Opportunity

Public education (including legislators and policy makers)

Use crises (drought, fire) and increased media attention to motivate public support -- "teachable moments"

Improved information flows -- communication between scientific and management communities, management and public; enhance existing avenues of communication

Partnerships: management (cross-agency; "safety in numbers"), scientists, public