

**2015 Forest and Rangeland Assessment proposed indicators (by chapter topic) v 20150617**

Assessment chapter topics, in order of appearance, with total proposed number of indicators (#):

- 1. Sustainable Forestry (8)
- 2. Sustainable Rangelands (7)
- 3. Urban Forestry (4)
- 4. Wildfire (6)
- 5. Forest Pests and Disease (6)
- 6. Population Growth and Development (7)
- 7. Climate Change (4)
- 8. Rural Economies (5)
- 9. Water (7)
- 10. Wildlife (6)
- 11. Community Planning (for Wildfire) (4)
- 12. New Markets (4)
- 13. Green Infrastructure (6)

*Total proposed indicators: (74)*

(MPC column contains Montreal Process Criteria number(s); \* in tables below indicates tentative, given data availability, and/or several metrics are to be included per indicator)

<b>1. Proposed Sustainable Forestry Indicators</b>		<b>MPC</b>
1.1	Total forest ecosystem carbon pools and changes	5
1.2	Total forest product carbon pools and changes	5
1.3	Acreage of timberland in need of restoration treatment to reduce or increase stocking	3
1.4	Net growth of growing stock on timberland, and net growth to removals to removals ratio	2
1.5	Area and percent of timberland by management regime	2
1.6	Hauling distance from timberland to nearest operating mill	2
1.7	Amount of timberland managed under forest certification, or other sustainable forestry standards	6
1.8	Dollars and acres of timberland served by landowner assistance programs, by program type and funded activities	7

<b>2. Proposed Sustainable Rangelands Indicators</b>		<b>MPC</b>
2.1	Rangeland conversion (vegetation types and land use)	2
2.2	Rangeland ownership and uses	2
2.3	Federal grazing allotments	7
2.4	Number and distribution of livestock on rangeland	2, 6
2.5	Area of rangeland under conservation ownership or co-management by conservation organizations	7
2.6	Amount of rangeland covered by Williamson Act contracts	7
2.7	Technical and financial assistance programs available to ranchers (\$, # projects, total acres)	7

<b>3. Proposed Urban Forestry Indicators</b>		<b>MPC</b>
3.1	Tree canopy cover	6
3.2	Impervious surfaces (percent of urban area)	4
3.3	Air Pollution (PM 2.5 and ozone standards)	6
3.4	Days over 90 degrees Fahrenheit (F)	5, 6

<b>4. Proposed Wildfire Threat Indicators</b>		<b>MPC</b>
4.1	Amount of wildfire by fuel type/bioregion	3
4.2	Vegetation burn severity	3
4.3	Fire Regime Interval Departure (FRID)	3
4.4	Amount of fuel treatment acres by treatment type and fuel type.	3
4.5	Frequency of severe fire weather days	3
4.6	Length of fire season*	3

<b>5. Proposed Forest Pests and Disease Indicators</b>		<b>MPC</b>
5.1	Area and volume of forestland at risk of > 1% mortality in the next 15 years.	3
5.2	Area of tree mortality from insects, diseases, and other damaging agents on forest lands in California	3
5.3	Number of native and exotic pests that occur on forest lands in California*	3
5.4	Forest pest risk to forest land (area and volume)*	2
5.5	Ozone-damaged trees (area and volume)*	2
5.6	Trends of air pollution levels (expressed in non-attainment days) (to UrbanForests?)	3

<b>6. Proposed Population Growth and Development Impacts Indicators</b>		<b>MPC</b>
6.1	Percent of private forest and rangeland currently under conservation easements	6
6.2	Percent of private forest and rangeland currently under Williamson Act contracts or Timber Production Zone restrictions	6
6.3	Area of conversions from forest and rangeland to development	1
6.4	Forest and rangelands available to new development	1
6.5	Recent and projected population trends	1, 2
6.6	Land Coverage and Population (historic trends in population, forested land, land cover, and impervious cover in the watershed)*	3
6.7	Land tenure, land use, and ownership patterns by land size classes*	1

<b>7. Proposed Climate Change Indicators</b>		<b>MPC</b>
7.1	Annual average temperature departure from long term average by ecosystem units.	5
7.2	Annual average precipitation departure from long term average by ecosystem units	5
7.3	Summer average temperature departure from long term average by ecosystem units.	5
7.4	Winter average low temperature departure from long term average by ecosystem units.	5

<b>8. Proposed Rural Economies Indicators*</b>		<b>MPC</b>
8.1	Population characteristics	6
8.2	Livelihoods	6
8.3	Economic diversity	6
8.4	Income distribution	6
8.5	Well-being and social change	6

<b>9. Proposed Water Indicators</b>		<b>MPC</b>
9.1	Snow pack – April 1st (percent of normal)	4, 5
9.2	Spring runoff from major watersheds	4, 5
9.3	Cumulative water deficit	4
9.4	Biologic Integrity Index for forest streams- CA Stream Condition Index	1, 4
9.5	Extent of forest in riparian zones	4
9.6	Extent of upland meadows - encroachment from forests*	4
9.7	Erosional potential*	4

<b>10. Proposed Wildlife Indicators</b>		<b>MPC</b>
10.1	Habitat Structure (for wildlife): Extent of forest and rangeland vegetation types by size class over time.	1
10.2	Habitat Pattern (for wildlife): Total forest area	1
10.3	Habitat Pattern (for wildlife): Fragmentation by development and road density	1
10.4	Habitat Composition (for wildlife): Forest and rangeland vegetation types that are vulnerable to type conversion, based on management status and ownership.	1
10.5	Habitat Change (for wildlife): Shift in extent of natural vegetation types and/or specific forest tree species	1
10.6	Habitat Occupancy (for wildlife): The number of species of greatest conservation need (SGCN) (includes California state listed threatened & endangered (T&E), rare, endemic, vulnerable, species of special concern and USFS and BLM managed indicator species) by taxa.	1

<b>11. Proposed Community Planning Indicators</b>		<b>MPC</b>
11.1	Number of structures and population in the WUI (Interface and Intermix)	6
11.2	Population and structures potentially at risk from wildland fire	6
11.3	Number of structures lost to wildfire per year	6
11.4	Number and percent of Communities at Risk (CAR) that are also Firewise Communities or are covered by a Community Wildfire Protection Plan (CWPP)	6

<b>12. Proposed Markets Indicators</b>		<b>MPC</b>
12.1	Contribution of forest biomass to California electricity generation	5, 6
12.2	Number of biomass facilities in California that primarily utilize forest biomass source materials	3, 6
12.3	Acres of California forestland being managed as carbon offset projects	5, 6
12.4	Contribution of renewable energy sources to California electricity generation	5, 6

<b>13. Proposed Green Infrastructure Indicators</b>		<b>MPC</b>
13.1	Revenue generated by recreation, outdoor education, and tourism industries	6
13.2	Outdoor recreation on forests and rangelands by provider and location	6
13.3	Recreation Visitor Days vs. Visits	6
13.4	Percent and area of private land under conservation and available for public use	6
13.5	Percent and area of private land under conservation status versus Percent and area of private land under conservation and available for public use	6
13.6	Funding for Parks, recreation, open space acquisition	7