

CROSSWALK OF ROUNDTABLES: 2002 INDICATORS
15-Apr-02

Forest Roundtable	Minerals Roundtable	Rangeland Roundtable
Criterion 1: Conservation of biological diversity		
Extent of area by forest type relative to total forest area		
Extent of area by forest type and by age class or successional stage		Extent of rangeland area by community type
Extent of area by forest type in protected area categories as defined by IUCN or other classification systems		
Extent of areas by forest type in protected areas defined by age class or successional stage		
Fragmentation of forest types		Fragmentation of rangeland based on size of parcels
The number of forest-dependent species		
The status (rare, threatened, endangered, or extinct) of forest-dependent species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment		Parcel cover of invasive and other non-native plant species of concern
		Presence and status of species of concern or threatened and endangered species
Number of forest-dependent species that occupy a small portion of their former range		Rangeland plant and animal species that occupy a small portion of their former geographic range
Population levels of representative species from diverse habitats monitored across their range		Population levels and current geographic range of representative species monitored across their known geographic range

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Criterion 2: Maintenance of productive capacity of forest ecosystems		
Area of forest land and net area of forest land available for timber production	Access to Federal lands	Extent of land area in rangeland
	Status of non-Federal land for exploration and development	Total acres of rangeland within the context of physiographic regions
	Known mineralized areas closed to exploration	Percent of available rangeland that is grazed by livestock
		Number of domestic livestock on rangeland by physiographic region
		Number of wildlife harvested by physiographic region
Total growing stock of both merchantable and nonmerchantable tree species on forest land available for timber production	Identified resources	
	Reserves (known)	
	Resources left behind / bypassed	
	Stocks in use	
	National supply mix of mineral commodities and energy	
	Percent of natural gas (flared) and coal bed methane (emitted) compared to total production of gas fuels	
	Virgin materials	
The area and growing stock of plantations of native and exotic species	(Stocks) Value of the tangible reproducible capital used in exploration, production, and processing (smelting, refining, pipelines, transportation, etc)	Acres of invasive and noxious plants by physiographic region

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Annual removal of wood products compared to the volume determined to be sustainable	Trends in consumption of mineral materials versus forest materials	
Annual removal of nontimber forest products (e.g., fur bearers, berries, mushrooms, game) compared to the level determined to be sustainable		
		Annual removal of non-forage products by physiographic region
		Annual above ground biomass production by physiographic region

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Criterion 3: Maintenance of forest ecosystem health and vitality		
Area & percent of forest affected by processes or agents beyond the range of historic variation (e.g., by		Natural lake levels
Area and percent of forest land subjected to levels of specific air pollutants (e.g., sulfates, nitrate, ozone) or ultraviolet B that may cause negative impacts on the forest ecosystem		Riparian conditions
Area and percent of forest land with diminished biological components indicative of changes in fundamental ecological processes (e.g., soil, nutrient cycling, seed dispersion, pollination) and/or ecological continuity (monitoring of functionally important species such as nematodes, arboreal epiphytes, beetles, fungi, wasps, etc)		Percent cover by vegetation classes (such as grass, forbs, shrubs)
		Extent of rangeland area under different management practices
		Productivity, such as net primary productivity

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Criterion 4: Conservation and maintenance of soil and water resources		
Area and percent of forest land with significant soil erosion		Area and percent of rangeland with significant current soil erosion
Area and percent of forest land managed primarily for protective functions (e.g., watersheds, flood protection, avalanche protection, riparian zones)		Area and extent of rangelands occupied by wetlands
	Area reclaimed/remediated/restored, reclamation/remediation/restoration scheduled	
	Compliance status of mines and oil and gas with respect to water quality by 5th code hydrological unit watersheds; number of 5th code hydrological unit watersheds with mines and oil and gas	
	Number of permitted extraction or processing sites where water withdrawal causes environmental problems, relative to total number of permitted sites	
Percent of stream kilometers in for tested catchments in which stream flow and timing has significantly deviated from the historic range of variation		Percent stream miles in rangeland catchments in which stream channel geometry (W/D ratio, flood plain access, substrate composition, sinuosity, etc.) Significantly deviates from the natural channel geometry
	Ambient environmental quality - number of permitted mine sites where groundwater is contaminated/ total number of permitted mines	Drinking water quality
	Quantity of release into the environment / quantity of output	
	Pace of abandoned mine creation and reclamation	

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	Produced water	
Area and percent of forest land with significantly diminished soil organic matter and/or changes in other soil chemical properties		Area and percent of rangeland soils with significantly diminished nutrient content (C,N,P)
		Area and extent of rangelands with changes in soil aggregate stability
Area and percent of forest land with significant compaction or change in soil physical properties resulting from human activities		Area and percent of rangeland affected by changes in fire regimes that are affected by processes or agents beyond the range of historic variation
		Area and percent of rangeland with significant soil compaction
		Area and percent of rangeland with significant variance in diversity of soil organisms
		Change in extent of bare ground
Percent of water bodies in forest areas (e.g., stream kms, lake ha.) with significant variance of biological diversity from the historic range of variability		Percent of water bodies in rangeland areas (e.g. stream kilometers, lake hectares) with significant variance of biological diversity from the natural range of variability
Percent of water bodies in forest areas (e.g., stream kilometers, lake hectares) with significant variation from the historic range of variability in pH, dissolved oxygen, levels of chemicals (electrical conductivity), sedimentation, or temperature change		Percent of water bodies in rangeland areas (e.g. stream kilometers, lake hectares) with significant variation from the historic range of variability in pH, dissolved oxygen, levels of chemicals (electrical conductivity), sedimentation or temperature change
		Change in number and duration of dry periods in rangeland intermittent streams
Area and percent of forest land experiencing an accumulation of persistent toxic substances	Area of permitted extraction or processing sites where concentration of chemicals in the soil exceeds preceding ambient levels, as a share of total mining area; not superfund	Area and percent of rangeland treated by herbicides or insecticides by type of pesticide
	Disposed material relative to total waste in extraction or processing	
		Quantifying aquifer change
		Rangeland management strategies

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Criterion 5: Maintenance of forest contribution to global carbon cycles		
Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages		Carbon to nitrogen ratio in the soil
Contribution of forest ecosystems to the total global carbon budget, including absorption and release of carbon (standing biomass, coarse woody debris, peat and soil carbon)		
Contribution of forest products to the global carbon budget		

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Criterion 6: Maintenance and enhancement of long-term multiple socioeconomic benefits to meet the needs of societies		
Value and volume of wood and wood products production, including value added through downstream processing	Value of energy and mineral resource production	The amount and value of forage harvested from rangeland by livestock
	Net trade balance in dollars in energy, minerals	Value and quantities of production of non-livestock products produced from rangeland
	Total net income (operator profits and land owner rents)	
	Drilling (feet drilled) or number of active drillings	
	Idle production capacity as it relates to total	
	Transportation: oil and gas pipelines	
	Electricity transmission lines	
	Rail	
	Barges	
	Fresh water shipping	
	Ocean-going vessels	
	Trucks	
Value and quantities of production of nonfood forest products	Substitution and life span indicators	
Supply and consumption of wood and wood products, including consumption per capita	Consumption mineral commodities and energy over time	Supply and consumption/use of non-livestock products produced from rangeland
	Energy choices (consumption)	
	Energy and mineral intensity, use of energy and mineral resources per capita and per dollar	
	Energy intensity in extraction by sector	
Value of wood and nonfood products production as percentage of GDP	Water use, recycling and discharge	
Degree of recycling of forest products	Co-product and by-product inter-dependence (percentage of nonfuel mineral production produced as a co-producer or by-product in value terms)	
	Recycling materials	
Supply and consumption/use of nonfood products		
Area and percent of forest land managed for general recreation and tourism, in relation to the total area of forest land	Old mine sites and towns and conversion of mine sites to recreation areas (local effects)	Area and percent of rangeland managed for hunting recreation, dispersed recreation, tourism, and wilderness, in relation to the total area managed
	Outdoor recreation activities-level of participation in resource dependent communities (local effects)	
Number and type of facilities available for general recreation and tourism, in relation to population and forest area		Number and type of facilities available for general recreation and tourism, in relation to population and rangeland area

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Number of visitor days attributed to recreation and tourism, in relation to population and forest area		Number of visitor days and fees collected (in total, per capita, and per unit of rangeland area) for rangeland related recreation and tourism activities
Value of investment, including investment in forest growing, forest health and management, planted forests, wood processing, recreation, and tourism	(Flows) Dollars spent on buildings, infrastructure, pollution, control equipment etc. (typically called capital expenditures)	Value of investment, including investment in rangeland, rangeland improvements, and recreation and tourism
	Investment in ecosystem enhancement, reclamation, and restoration	
	Investment: Dollars spent annually on exploration	
Level of expenditure on research and development, and education	Dollars invested on research and development	Level of expenditure on rangeland research, development, and education
	Investment in education and training	
	Diversity of resource development products usage - Percent of resource development products in use per sector	
	Diversity of resource development products usage: Percent of resource development-derived energy used per sector	
Extension and use of new and improved technology		Extension and use of new and improved technologies related to rangeland improvement and protection
		Extension and use of new and improved technologies related to rangeland improvement (including "best management practices") and livestock production
Rates of return on investment	Discovery rate per dollar of exploration activity. Exploration capacity	Rates of return on investment for range livestock enterprises
	The degree to which a county is dependent on a resource affected by the resource development/minerals/energy activity	
Area and percent of forest land managed in relation to the total area of forest land to protect the range of cultural, social, and spiritual needs and values	Sacred sites for indigenous people	Contributions to restoration activities
	Environmental justice: The percentage of households below the poverty line in resource development dependent counties (In Alaska, borough or census district) versus the percentage of households below the poverty line for non-resource development dependent counties (local effects)	Area and percent (relative to total area) of rangeland managed to protect cultural and spiritual values
	Environmental justice: The percentage of population by minority group, in resource development dependent counties (In Alaska, borough or census district) versus the percentage of population by minority group for non-resource development dependent counties	

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Nonconsumptive-use forest values	Archaeology (pre-historic) - Number of archaeological sites (pre-historic) that are eligible for the National Historic Register or other applicable regulatory requirements (e.g. ANCSA §14(h)(1) that are within the proposed project boundaries	Area and percent (relative to total area) of rangeland managed for non-consumptive uses or values (e.g., scenery, open space, buffers against LULU's)
	Historic sites - Number of archaeological sites (historic) that are eligible for the National Historic Register that are within the proposed project boundaries	Land tenure and ownership patterns
		Number of conservation easements purchased
		Acres of rural land purchased by non-governmental organizations
Direct and indirect employment in the forest sector and the forest sector employment as a proportion of total employment	Employment and income to households in energy and mineral sectors	Employment/unemployment/under-employment
	Per capita income in nonrenewable resource-dependent counties	Expatriate labor
	Output/labor expenditure for the nonrenewable resource industries	Off ranch employment (percent working off ranch)
	National employment and income in energy and mineral sectors (direct employment, total employment [direct plus indirect and induced], direct income, total income)	Direct and indirect employment in the ranching sector, and ranching employment as a proportion of total employment
Average wage rates and injury rates in major employment categories within the forest sector	Mitigation of hazardous mine features (e.g., admits, shafts, structures, open pits) - number of hazardous mine features mitigated at abandoned and inactive mine sites and the cumulative number mitigated as a percentage of the total hazardous mine features that were inventories (physical count)	
	Injury rates and occupational disease rates attributable to resource development (local effects)	
Viability and adaptability to changing economic conditions, of forest-dependent communities, including indigenous communities	Dependency of a nonrenewable resource dependent county on the minerals/energy activity	
	Nonrenewable resource dependent counties as a percentage of all counties	
	Social effects within a community reliant on resource development (local effects, these must be compared against a baseline, e.g., other rural communities, or the nation as a whole). Includes domestic violence rates, suicide rates, violent crime rates, substance abuse rates	
	Annual contribution to the community by minerals and energy sector	
	Other income to nonrenewable resource dependent counties from resource sector (royalties, contribution in dollars)	

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	Disease rates (decreases or increases) due to resource development activity in resource-dependent communities	
Area and percent of forest land used for subsistence purposes	Subsistence activities of indigenous peoples: level of participation and level of harvest (local effects)	Area and percent (relative to total area) of rangeland used for subsistence purposes
		Population change and rate of change
		Migration (net in/out-migration, age/education, differentials)
		Age and gender structure (median, % over 55yrs, dependency ration, etc.)
		Morbidity/mortality (rates of child mortality, preventable illnesses, causes of death)
		Ethnicity
		Family structure (dual parent, single parent, elderly with child, etc.)
		Educational attainment (yrs completed)
		Length of residence (native, immigrant more than 5 yrs, less than 5 yrs)
		Commuting distance
		Poverty (general poverty numbers/rate, children in poverty numbers/rate, elderly numbers/rates)
		Public health (expenditures, etc.)
		Availability of medical services (M.D.s, proximity to emergency care, etc.), immunization (% children less than 5 yrs, incidence of diseases)
		Quality of social networks
		Quality of educational institutions
		Social inequality (gini coefficients)
		Attitude/behavioral measures toward stewardship (conservation easements, NORC and social science index)
		SIC categories
		Agriculture (ranch/farm) structure
		Value produced by SIC
		Firm number and scale
		Tax base data (mil-levics, property tax rates, etc.)
		Social service expenditures per capita (welfare, health, schools, school lunch program, public child care, etc.)
		Federal transfers by categories (individual, infrastructure, agriculture, etc.)
		Type of local government
		Public safety expenditures (professional/volunteer)
		NACO county government survey
		Federal agency presence (ratio with population, producers, recreationlist, etc.)
		Municipal dis/incorporation

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		General social survey
		NORC data on attitudes and beliefs
		Evidence of social organizational function; e.g. conservation easements, local community actions
		Presence and tenure of natural resource NGOs at the local level
		Percentage of private parcels in different tract size classes
		Change in public ownership status (e.g., state trust lands shifting to private ownership; acquisitions of private lands for NWRs, etc.)
		Total ecologically available AUMs on rangeland, AUMs actually used or harvested and/or number of rangeland AUMs used and number of AUMs represented in total livestock
		Trade flows (regional economic modeling information)