

Table 4-7. Monitoring Needs for Plan Implementation

Attribute to Be Monitored	Purpose of Monitoring	Indicator to Be Measured	Frequency and Duration of Measurement	Results Indicating Need for Reevaluation of Management Actions
Species Management				
Corvid abundance	Determine corvid abundance trends	Number of corvids present on summer mornings, in point-count stations located at Salmon Pass, Alicia Pass, Elk River Corridor, Little South Fork Elk River trail area, and Elkhead Springs area	Semimonthly in summer for three years	Upward trend in corvid counts in action areas versus control areas attributable to reserve management
Marbled murrelet nesting activity	Determine murrelet use	Detections at established stations using established protocols, radar, or other methods	Every five years	Downward trend in sightings
Spotted owl nesting activity	Determine owl use	Number and success of established territories using established protocols at known sites	Every five years	Downward trend in number of territories or nesting attributable to reserve management
Watershed and Forest Restoration				
Potential sediment yield	Determine if precipitation and runoff conditions pose threat of imminent mass failures	Conditions throughout abandoned road system during wet season	Annually during early period of substantial rainfall, until restoration program is complete	Any threat of imminent mass failure
Actual sediment yield	Determine if stream sediment loads decrease as a result of forest and watershed restoration	Summer pool depth and volume at selected pools	Annually until restoration program is complete; final measurement 10 years later	No change or Statistically significant decreasing trend in depths and volumes
		Turbidity at stations on each of the three headwater streams during rising hydrographs (Elkhead Springs, Lower Little South Fork, Salmon Creek)	First rainstorm and monthly during wet season, annually following completion of restoration program for five years; final measurement 10 years later	No change or Statistically significant increasing trend in turbidity

Table 4-7. Continued

Attribute to Be Monitored	Purpose of Monitoring	Indicator to Be Measured	Frequency and Duration of Measurement	Results Indicating Need for Reevaluation of Management Actions
Forest stand conditions	Determine if density management is accelerating restoration of old-growth forest characteristics	Tree heights, diameters, tree form, and forest litter in sampling plots at sites established for a continuous forest inventory (Strata or locations selected to focus on old-growth buffers and fragmentation, and to compare results of different thinning treatments)	Every five years until restoration program is complete; final measurement 10, 20, and 30 years later	No statistically significant difference in growth rates or stand attributes between treated and untreated stands
Nonnative invasive plants	Determine if invasive nonnative plants are decreasing or increasing	Extent of nonnative plants in the Reserve, focused on invasive species	Every five years in perpetuity	Any increase
Aquatic habitat access	Determine if changes in range of anadromy occur in Salmon Creek	Species present in various reaches	Every five years until restoration program is complete; final measurement 10 years later	Any decreases in ranges of anadromy
Aquatic habitat conditions (optional)	Determine if changes in aquatic habitat conditions occur as a result of watershed and forest restoration	Fish spawning gravel grain sizes at selected locations in the three streams or their tributaries	Every five years until restoration program is complete; final measurement 10 years later	No change or Statistically significant departure of grain size distributions from spawning gravel size requirements
		Volume and frequency of large woody debris (LWD) in selected reaches of the three streams	Every five years until restoration program is complete; final measurement 10 years later	No change or Statistically significant decreases in volume or frequency of LWD
		Pool volume and frequency in selected reaches of the three streams	Every five years until restoration program is complete; final measurement 10 years later	No change or Statistically significant decrease in pool volume or frequency

Attribute to Be Monitored	Purpose of Monitoring	Indicator to Be Measured	Frequency and Duration of Measurement	Results Indicating Need for Reevaluation of Management Actions
Research management				
Applicability of research	Determine if research is contributing to improved Reserve management	Conclusions of all research projects, with requirement that all researchers address applicability of research proposals and findings to Reserve management	Continuously	Frequent irrelevance
Impacts of research	Determine if research is adversely affecting ecosystem integrity	See <i>Species Management</i> above	--	--
Fire Management				
Fuel conditions	Determine if forest susceptibility to fire is decreasing with forest restoration	See <i>Forest Stand Conditions</i> above	--	--
Impacts of fire suppression	Determine if fire suppression is adversely affecting ecosystem integrity	Soil and watercourse disturbance following fire suppression activities	Immediately following a fire suppression incident	Any disturbance that can be countered by site restoration action
Recreation				
Visitation	Determine levels of visitation and extent of trail use	Number of persons entering the Reserve and destinations, seasonally, as registered in trailhead logbooks	Continuous compilation and annual summary	Visitation use level trend statistically higher than regional or statewide population growth; excessive concentration of use
Visitor compliance with restrictions	Determine visitor compliance with regulations	Number of warnings and citations issued by rangers, by type of violation (e.g., off-trail hiking, use of unauthorized means of transportation, littering food and other wastes, using fire, damaging vegetation)	Continuous compilation and annual summary	Statistically significant upward trend in any type of violation that exceeds trend in total visitation
Visitor safety and user conflicts	Determine if accident rates are changing	Number of reported accidents, by type (e.g., user collisions, falling, exhaustion, assault, dogbite)	Continuous compilation and annual summary	Any accident

Table 4-7. Continued

Attribute to Be Monitored	Purpose of Monitoring	Indicator to Be Measured	Frequency and Duration of Measurement	Results Indicating Need for Reevaluation of Management Actions
User conflicts	Determine if rates of user frustration are changing	Subject and content of visitor complaints about other visitors or their pets, as registered in trailhead logbooks, addressed to field rangers, or reported to Bureau of Land Management offices	Continuous compilation and annual summary	Statistically significant upward trend
Trail conditions	Determine if allowed means of travel are damaging trail systems and adjacent resources	Trail conditions in selected segments of sensitive trails, in terms of width, depth, apparent stability, erosion features and adjacent sediment deposition	Annually in perpetuity	More-than-minor trail damage to any segment, discounting natural effects of extreme precipitation events
Special-Areas Suitabilities				
Condition of special areas and resources	Determine if resource values that lead to designation are being preserved	Condition of resources listed on the National Register of Historic Places	Annual inspection and summary	Any damage or loss of value
		Condition of wilderness values in designated Wilderness Study Area(s)	Monthly inspection and summary	Any apparent loss of wilderness value
		Stream uses and conditions of designated Wild and Scenic Rivers	Annual inspection and summary	Any apparent loss of river value upon which designation was based
		Compliance with State of California Ecological Reserve regulations; see <i>Visitor compliance with restrictions</i> , above	Annual inspection and summary	More-than-minor level of violations of Ecological Reserve regulations
<p>Note: Pacific Lumber Company (PALCO) is continuously monitoring various physical and biological attributes to meet requirements of its habitat conservation plan, and some of this monitoring is conducted in the Reserve (to establish reference conditions). Some of the monitoring needs identified in this table may be met through acquisition of PALCO's monitoring data.</p>				