

# 1 APPENDIX E GRAND CANYON NATIONAL PARK SPECIAL STATUS SPECIES

Common Name	Scientific Name	Status			
		Federal	State	Navajo **	Other
Wildlife					
Invertebrates					
Grand Canyon cave pseudoscorpion	<i>Archeolarca cavicola</i>	-	-	-	SC
Kanab ambersnail	<i>Oxyloma haydeni kanabensis</i>	E	-	-	EN2
Niobrara ambersnail	<i>Oxyloma haydeni</i> , closely related to <i>Oxyloma haydeni kanabensis</i>	-	WSC	-	SC
Fish					
Flannelmouth sucker	<i>Catostomus latipinnis</i>	-	-	-	SC
Humpback chub	<i>Gila cypha</i>	E	WSC	G2	
Razorback sucker	<i>Xyrauchen texanus</i>	E	WSC	G2	
Amphibians					
Lowland leopard frog	<i>Rana yavapaiensis</i>	-	WSC	-	-
Northern leopard frog	<i>Rana pipiens</i>	-	WSC	G2	
Relict leopard frog	<i>Rana onca</i>	C	WSC	-	-
Reptiles					
Desert tortoise (Mojave population)	<i>Gopherus agassizii</i>	T	WS C	-	-
Desert tortoise (Sonoran population)	<i>Gopherus agassizii</i>	-	WSC	-	SC
Birds					
American peregrine falcon	<i>Falco peregrinus anatum</i>	-	WSC	-	SC
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	WSC	-	
California brown pelican	<i>Pelecanus occidentalis californicus</i>	E	-	-	
California condor	<i>Gymnogyps californianus</i>	E,XN	WSC	-	
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	WSC	G3	
Northern goshawk	<i>Accipiter gentilis</i>	-	WS C	-	-
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	WSC	G2	
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C	WSC	G3	
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	E	WSC	-	
Mammals					
Allen's lappet-browed bat	<i>Idionycteris phyllotis</i>	-	-	-	SC
Desert bighorn sheep	<i>Ovis canadensis mexicana</i>	-	-	G3	
Greater western mastiff bat	<i>Eumops perotis californicus</i>	-	-	-	SC
Long-legged myotis bat	<i>Myotis volans</i>	-	-	-	SC
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	-	WSC	-	SC
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	-	-	-	SC
Pocketed free-tailed bat	<i>Nyctinomops femorosacca</i>	-	-	-	SC
Southwest river otter	<i>Lontra canadensis sonora</i>	-	WSC	G1	SC
Southwestern myotis bat	<i>Myotis auriculus</i>	-	-	-	SC
Spotted bat	<i>Euderma maculatum</i>	-	WSC	-	SC
Western red bat	<i>Lasiurus blossevillii</i>	-	WSC	-	
Plants					
Arizona rubberweed	<i>Hymenoxys subintegra</i>	-	-	-	SC,EN2
Brittlebush	<i>Encelia resinifera</i> ssp. <i>tenuifolia</i>	-	-	-	SC,EN1
Bunchflower evening primrose	<i>Camissonia confertiflora</i>	-	-	-	SC,EN1
California bearpoppy	<i>Arctomecon californica</i>	-	SR	-	SC,EN2
Deer goldenbush	<i>Ericameria arizonica</i>	-	-	-	SC,EN1
Deer goldenbush	<i>Ericameria cervina</i>	-	-	-	SC,EN2
Flagstaff rockcress	<i>Arabis gracilipes</i> (genus name is changing to <i>Boechera</i> , not in ITIS yet)	-	-	-	SC,EN2
Grand Canyon agave	<i>Agave phillipsiana</i>	-	SR	-	SC,EN2
Grand Canyon beavertail cactus	<i>Opuntia basilaris</i> var. <i>longiareolata</i>	-	SR	-	EN2
Grand Canyon cave-dwelling primrose	<i>Primula specuicola</i>	-	SR	-	SC,EN2
Grand Canyon glowweed	<i>Hesperodoria scopulina</i> var. <i>scopulina</i>	-	-	-	EN2
Grand Canyon rose	<i>Rosa stellata</i> ssp. <i>abyssa</i>	-	-	-	SC,EN2
Kaibab agave	<i>Agave utahensis</i> ssp. <i>kaibabensis</i>	-	SR	-	EN2
Kaibab paintbrush	<i>Castilleja kaibabensis</i>	-	-	-	SC,EN2

Common Name	Scientific Name	Status			
		Federal	State	Navajo**	Other
Kaibab Plateau beardtongue	<i>Penstemon pseudoputis</i>	-	-	-	SC,EN2
Kaibab suncup	<i>Camissonia specuicola</i> ssp. <i>specuicola</i>	-	-	-	SC,EN2
Kaibab suncup (Grand Canyon evening-primrose)	<i>Camissonia specuicola</i> ssp. <i>hesperia</i>	-	-	-	SC,EN2
Kaibab whitlowgrass	<i>Draba asprella</i> var. <i>kaibabensis</i>	-	-	-	SC,EN2
Kearney's mustard	<i>Thelypodopsis purpusii</i>	-	-	-	SC
Macdougall Indian parsley	<i>Aletes macdougallii</i> ssp. <i>macdougallii</i>	-	-	-	EN2
McDougall's yellowtops	<i>Flaveria mcdougallii</i>	-	SR	-	SC,EN1
Mt. Dellenbaugh sandwort	<i>Arenaria aberrans</i>	-	-	-	EN2
Narrow scorpionweed	<i>Phacelia filiformis</i>	-	-	-	SC,EN2
Newberry's yucca	<i>Hesperoyucca newberryi</i>	-	SR	-	EN2
Pillar false gumweed	<i>Vanclevea stylosa</i>	-	-	-	EN2
Roaring Springs prickly poppy	<i>Argemone arizonica</i>	-	-	-	SC,EN1
Rough whitlowgrass	<i>Draba asprella</i> var. <i>stelligera</i>	-	-	-	SC,EN2
Sentry milk-vetch	<i>Astragalus cremonophylax</i> var. <i>cremonophylax</i>	E	-	-	EN1
North Rim milk-vetch	<i>Astragalus septentriorema</i>	-	-	-	SC,EN1
Spiked ipomopsis	<i>Ipomopsis spicata</i> ssp. <i>tridactyla</i>	-	-	-	SC,EN1
Straightbranched catchfly	<i>Silene rectiramea</i>	-	-	-	SC,EN1
Tusayan flameflower	<i>Phemeranthus validulus</i> (syn. <i>Talinum validulum</i> )	-	-	-	SC,EN2
Willow glowweed	<i>Hesperodoria salicina</i>	-	-	-	SC,EN2
Marble Canyon spurge	<i>Euphorbia aaron-rossii</i>	-	-	-	SC,EN2

## Sources

66 Federal Register 54808

50 CFR 17.11–17.12

Fish and Wildlife Service. Endangered Species Program. Available at: [www.fws.gov/endangered](http://www.fws.gov/endangered)

Arizona Game and Fish Department. Heritage Data Management System. Available at:

[www.azgfd.gov/w\\_c/edits/species\\_concern.shtml](http://www.azgfd.gov/w_c/edits/species_concern.shtml)

Brian, Nancy J. 2000. A Field Guide to the Special Status Plants of Grand Canyon National Park. Science Center, Grand Canyon National Park. Grand Canyon, Arizona.

Species names conform to the Integrated Taxonomic Information System (ITIS). Available at: [www.itis.gov](http://www.itis.gov)

## Federal Status

E Endangered, in danger of extinction

T Threatened, severely depleted

C Candidate for listing as threatened or endangered

XN Experimental, non-essential population; in Grand Canyon condors are managed as federally endangered

## State Status

WSC Wildlife of Special Concern in Arizona

E Endangered, state listing

SR Listed as salvage restricted by the Arizona Department of Agriculture; the plant is subject to damage by theft or vandalism; a state permit and salvage fees required for removal

## Navajo Endangered Species List

Group 1 (G1) No longer occurs on Navajo Nation lands. Arizona Game and Fish Department, 1996

Group 2 (G2) Prospect of survival or recruitment is in jeopardy

Group 3 (G3) Prospect of survival or recruitment is likely to be in jeopardy in the foreseeable future

\*\* Navajo status determination is not used by any other affiliated Grand Canyon tribes

## Other

H Known to occur on Hualapai Reservation; not currently documented within GRCA boundary

SC Species of Concern. Some information showing vulnerability or threat, but not enough to support listing under the Endangered Species Act. Some of these species are former USFWS Category 1, 2, and 3 species (Note: the Southwest Region of the USFWS no longer maintains a list of Category 1, 2, or 3 species)

EN1 Endemic to GRCA. These species are only known to occur in GRCA, populations and trends should be monitored

EN2 Endemic to the GRCA region, including known populations outside of park boundaries, but very limited in overall distribution

U Habitat not likely to be found in GRCA, but occurs outside park in northern Arizona

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## **APPENDIX F        SPATIAL ANALYSIS RESULTS OF NOISE LEVELS BY WILDLIFE HABITAT AND SPECIAL STATUS SPECIES USE AREAS**

The following tables present contours analysis for Percent Time Audible and Average Sound Levels in the park and SFRA. Spatial analysis using noise contour data (described in Chapter 4, Soundscape) was conducted to determine amount of Wildlife habitat and Special Status Species habitat use areas, represented in acres, that fell within a range of sound energy metrics ( $L_{Aeq12}$  and Time Above decibel levels). Data presented for the Percent Time Audible (TAUD) represents habitat found in the SFRA boundary, as this noise metric was only measured in the boundary. Where zeros appear in tables, they signify that a particular habitat type was not found in that particular region of the park or SFRA.

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**Table 1. Summary of Mexican spotted-owl habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the base year and ten-year forecast under Alternative A.**

<b>Alternative A – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
Base Year	96%	4%	0%	0%
Ten-Year Forecast	15%	77%	8%	0%
<b>East End</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
Base Year	44%	23%	18%	15%
Ten-Year Forecast	3%	37%	38%	22%
<b>Central</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
Base Year	100%	0%	0%	0%
Ten-Year Forecast	91%	9%	0%	0%

**Table 2. Summary of Mexican spotted-owl habitat exposed to various percent time audible in the base year and ten-year forecast under Alternative A.**

<b>Alternative A – TAUD</b>				
<b>Marble Canyon</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	68%	15%	14%	4%
Ten-Year Forecast	68%	15%	14%	4%
<b>East End</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	14%	3%	8%	76%
Ten-Year Forecast	14%	3%	8%	76%
<b>Central</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	89 %	4%	4%	2%
Ten-Year Forecast	89%	4%	4%	2%

**Table 3. Summary of Mexican spotted-owl habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under Alternative E. Results of the spatial analysis of Mexican spotted owl critical habitat within the Special Flight Rules Area and noise contour results.**

<b>Alt E – Peak – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	82%	6%	6%	6%
Ten-Year Forecast	85%	5%	9%	1%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Alternative E – Off-Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	86%	5%	6%	3%
Ten-Year Forecast	89%	4%	6%	1%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%

**Table 4. Summary of Mexican spotted-owl habitat exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under Alternative E.**

<b>Alternative E – Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	99%	1%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	60%	4%	7%	29%
Ten-Year Forecast	73%	4%	8%	16%
<b>Central</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	99%	1%	0%	0%
Ten-Year Forecast	99%	0%	1%	0%
<b>Alternative E – Off-Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	65%	4%	9%	21%
Ten-Year Forecast	80%	3%	7%	9%
<b>Central</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	97%	1%	1%	1%
Ten-Year Forecast	99%	0%	1%	0%

**Table 5. Summary of Mexican spotted-owl habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under Alternative F. Results of the spatial analysis of Mexican spotted owl critical habitat within the Special Flight Rules Area and noise contour results.**

<b>Alternative F – Peak – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	<= 15 dBA	> 15 <= 25 dBA	> 25 <= 35 dBA	> 35 dBA
Base Year	96%	4%	0%	0%
Ten-Year Forecast	96%	4%	0%	0%
<b>East End</b>				
	<= 15 dBA	> 15 <= 25 dBA	> 25 <= 35 dBA	> 35 dBA
Base Year	44%	23%	18%	15%
Ten-Year Forecast	59%	17%	15%	9%
<b>Central</b>				
	<= 15 dBA	> 15 <= 25 dBA	> 25 <= 35 dBA	> 35 dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Alternative F – Off-Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	<= 15 dBA	> 15 <= 25 dBA	> 25 <= 35 dBA	> 35 dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	<= 15 dBA	> 15 <= 25 dBA	> 25 <= 35 dBA	> 35 dBA
Base Year	55%	21%	18%	6%
Ten-Year Forecast	66%	16%	16%	2%
<b>Central</b>				
	<= 15 dBA	> 15 <= 25 dBA	> 25 <= 35 dBA	> 35 dBA
Base Year	98%	2%	0%	0%
Ten-Year Forecast	99%	1%	0%	0%



**Table 6. Summary of Mexican spotted-owl habitat exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under Alternative F.**

<b>Alternative F – Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$5 < \leq 10$	$10 < \leq 25$	$> 25$
Base Year	67%	15%	14%	4%
Ten-Year Forecast	85%	14%	1%	0%
<b>East End</b>				
	$\leq 5$	$5 < \leq 10$	$10 < \leq 25$	$> 25$
Base Year	14%	2%	8%	76%
Ten-Year Forecast	37%	7%	15%	41%
<b>Central</b>				
	$\leq 5$	$5 < \leq 10$	$10 < \leq 25$	$> 25$
Base Year	95%	1%	1%	3%
Ten-Year Forecast	97%	1%	1%	0%
<b>Alternative F – Off-Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$5 < \leq 10$	$10 < \leq 25$	$> 25$
Base Year	99%	1%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 5$	$5 < \leq 10$	$10 < \leq 25$	$> 25$
Base Year	20%	8%	26%	45%
Ten-Year Forecast	52%	13%	21%	13%
<b>Central</b>				
	$\leq 5$	$5 < \leq 10$	$10 < \leq 25$	$> 25$
Base Year	86%	2%	4%	8%
Ten-Year Forecast	95%	2%	2%	1%

**Table 7. Summary of Mexican spotted-owl habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under the NPS Preferred Alternative.**

<b>NPS Preferred Alternative – Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	99%	1%	0%	0%
Ten-Year Forecast	99%	1%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	44%	24%	19%	14%
Ten-Year Forecast	54%	20%	18%	8%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>NPS Preferred Alternative – Off-Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	0	5	10	15
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	0	5	10	15
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	54%	22%	17%	7%
Ten-Year Forecast	60%	19%	17%	5%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%

**Table 8. Summary of Mexican spotted-owl habitat exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under the NPS Preferred Alternative.**

<b>NPS Preferred Alternative – Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	95%	3%	2%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	12%	3%	8%	78%
Ten-Year Forecast	34%	7%	14%	46%
<b>Central</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	87%	5%	4%	5%
Ten-Year Forecast	92%	4%	4%	0%
<b>NPS Preferred Alternative – Off-Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	98%	1%	1%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	20%	7%	25%	47%
Ten-Year Forecast	44%	10%	24%	22%
<b>Central</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	95%	3%	2%	0%
Ten-Year Forecast	94%	4%	2%	0%

**Table 9. Summary of California condor use areas exposed to various average sound levels ( $L_{Aeq12}$ ) in the base year and ten-year forecast under Alternative A.**

<b>Alternative A – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	83%	16%	0%	0%
Ten-Year Forecast	57%	42%	1%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	42%	26%	17%	14%
Ten-Year Forecast	8%	35%	36%	20%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	85%	15%	1%	0%

**Table 10. Summary of California condor use areas exposed to various percent time audible in the base year and ten-year forecast under Alternative A.**

<b>Alternative A – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$> 5 \leq 10$	$> 10 \leq 25$	$> 25$
Base Year	86%	5%	6%	3%
Ten-Year Forecast	85%	5%	6%	3%
<b>East End</b>				
	$\leq 5$	$> 5 \leq 10$	$> 10 \leq 25$	$> 25$
Base Year	13%	2%	8%	77%
Ten-Year Forecast	12%	2%	7%	78%
<b>Central</b>				
	$\leq 5$	$> 5 \leq 10$	$> 10 \leq 25$	$> 25$
Base Year	93%	1%	2%	4%
Ten-Year Forecast	93%	1%	2%	4%

**Table 11. Summary of California condor use areas exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under Alternative E.**

<b>Alternative E – Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	76%	14%	5%	5%
Ten-Year Forecast	78%	13%	8%	1%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Alternative E – Off-Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	77%	10%	8%	6%
Ten-Year Forecast	80%	9%	8%	3%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	96%	2%	1%	0%
Ten-Year Forecast	97%	2%	1%	0%

**Table 12. Summary of California condor use areas exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under Alternative E.**

<b>Alternative E – Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	99%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	55%	4%	10%	31%
Ten-Year Forecast	68%	5%	10%	18%
<b>Central</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	99%	1%	1%	0%
Ten-Year Forecast	98%	1%	1%	0%
<b>Alternative E – Off-Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	60%	4%	9%	26%
Ten-Year Forecast	74%	4%	10%	12%
<b>Central</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
Base Year	95%	1%	2%	2%
Ten-Year Forecast	98%	1%	1%	0%

**Table 13. Summary of California condor use areas exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under Alternative F.**

<b>Alternative F – Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	83%	16%	0%	0%
Ten-Year Forecast	82%	18%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	40%	28%	18%	14%
Ten-Year Forecast	54%	22%	14%	9%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Alternative F – Off-Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	49%	26%	17%	8%
Ten-Year Forecast	61%	21%	14%	4%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	98%	2%	0%	0%
Ten-Year Forecast	99%	1%	0%	0%

**Table 14. Summary of California condor use areas exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under Alternative F.**

<b>Alternative F – Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	86%	5%	6%	3%
Ten-Year Forecast	93%	6%	1%	0%
<b>East End</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	13%	2%	8%	77%
Ten-Year Forecast	37%	7%	16%	39%
<b>Central</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	93%	1%	2%	4%
Ten-Year Forecast	99%	1%	0%	0%
<b>Alternative F – Off-Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	99%	1%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	19%	8%	25%	48%
Ten-Year Forecast	51%	13%	20%	17%
<b>Central</b>				
	$\leq 5$	$5 < 10$	$10 < 25$	$> 25$
Base Year	80%	3%	6%	12%
Ten-Year Forecast	95%	1%	2%	2%



**Table 15. Summary of California condor use areas exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under the NPS Preferred Alternative.**

<b>NPS Preferred Alternative – Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	96%	4%	0%	0%
Ten-Year Forecast	95%	5%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	39%	27%	18%	15%
Ten-Year Forecast	51%	22%	17%	11%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>NPS Preferred Alternative – Off-Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	52%	24%	17%	8%
Ten-Year Forecast	59%	20%	15%	5%
<b>Central</b>				
	$\leq 15$ dBA	$> 15 \leq 25$ dBA	$> 25 \leq 35$ dBA	$> 35$ dBA
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%

**Table 16. Summary of California condor use areas exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under the NPS Preferred Alternative.**

<b>NPS Preferred Alternative – Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	<= 5	> 5 <= 10	> 10 <= 25	> 25
Base Year	96%	1%	2%	1%
Ten-Year Forecast	99%	1%	0%	0%
<b>East End</b>				
	<= 5	> 5 <= 10	> 10 <= 25	> 25
Base Year	11%	3%	8%	78%
Ten-Year Forecast	35%	7%	13%	45%
<b>Central</b>				
	<= 5	> 5 <= 10	> 10 <= 25	> 25
Base Year	88%	2%	3%	7%
Ten-Year Forecast	98%	1%	1%	0%
<b>NPS Preferred Alternative – Off-Peak Season – TAUD</b>				
<b>Marble Canyon</b>				
	<= 5	> 5 <= 10	> 10 <= 25	> 25
Base Year	97%	1%	1%	1%
Ten-Year Forecast	100%	0%	0%	0%
<b>East End</b>				
	<= 5	> 5 <= 10	> 10 <= 25	> 25
Base Year	20%	7%	23%	50%
Ten-Year Forecast	45%	10%	23%	22%
<b>Central</b>				
	<= 5	> 5 <= 10	> 10 <= 25	> 25
Base Year	97%	2%	2%	0%
Ten-Year Forecast	99%	0%	0%	0%

**Table 17. Summary of wildlife habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the base year and ten-year forecast under Alternative A.**

<b>Alternative A – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	<b><math>\leq 15</math> dBA</b>	<b><math>&gt; 15 \leq 25</math> dBA</b>	<b><math>&gt; 25 \leq 35</math> dBA</b>	<b><math>&gt; 35</math> dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	83%	16%	1%	0%
Ten-Year Forecast	25%	70%	5%	0%
<b>Old Conifer Forest (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>				
Base Year	79%	21%	0%	0%
Ten-Year Forecast	66%	32%	1%	0%
<b>Pinyon Juniper</b>				
Base Year	98%	2%	0%	0%
Ten-Year Forecast	0%	94%	6%	0%
<b>Ponderosa Pine (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	77%	22%	1%	0%
Ten-Year Forecast	23%	74%	3%	0%
<b>Warm Desert Scrub (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>East End</b>				
	<b><math>\leq 15</math> dBA</b>	<b><math>&gt; 15 \leq 25</math> dBA</b>	<b><math>&gt; 25 \leq 35</math> dBA</b>	<b><math>&gt; 35</math> dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	38%	21%	21%	20%
Ten-Year Forecast	0%	38%	34%	28%
<b>Old Conifer Forest</b>				
Base Year	44%	12%	20%	24%
Ten-Year Forecast	20%	26%	27%	27%
<b>Old Desert Scrub</b>				
Base Year	46%	34%	13%	7%
Ten-Year Forecast	61%	32%	7%	0%
<b>Pinyon Juniper</b>				
Base Year	44%	23%	16%	16%
Ten-Year Forecast	0%	40%	35%	24%
<b>Ponderosa Pine</b>				
Base Year	26%	47%	19%	8%
Ten-Year Forecast	4%	32%	50%	15%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	33%	19%	32%	16%
Ten-Year Forecast	2%	30%	48%	20%
<b>Warm Desert Scrub</b>				
Base Year	57%	10%	9%	24%
Ten-Year Forecast	0%	54%	16%	29%

<b>Central</b>		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	94%	6%	0%	0%
<b>Old Conifer Forest</b>					
	Base	98%	0%	2%	0%
	Ten-Year Forecast	98%	2%	0%	0%
<b>Old Desert Shrub</b>					
	Base Year	57%	18%	16%	8%
	Ten-Year Forecast	63%	35%	1%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	86%	14%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	93%	7%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	99%	1%	0%	0%
	Ten-Year Forecast	81%	18%	1%	0%
<b>Warm Desert Scrub</b>					
	Base Year	98%	1%	0%	0%
	Ten-Year Forecast	68%	30%	2%	0%
<b>West</b>		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	27%	25%	35%	14%
	Ten-Year Forecast	8%	30%	40%	22%
<b>Old Conifer Forest</b>					
	Base Year	32%	45%	21%	3%
	Ten-Year Forecast	42%	48%	8%	2%
<b>Old Desert Scrub</b>					
	Base Year	57%	18%	19%	6%
	Ten-Year Forecast	49%	26%	19%	5%
<b>Pinyon Juniper</b>					
	Base Year	53%	30%	14%	3%
	Ten-Year Forecast	32%	40%	23%	5%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	56%	12%	12%	20%
	Ten-Year Forecast	47%	17%	15%	22%
<b>Warm Desert Scrub</b>					
	Base Year	51%	18%	15%	16%
	Ten-Year Forecast	32%	25%	19%	24%

**Table 18. Summary of wildlife habitat exposed to various percent time audible in the base year and ten-year forecast under Alternative A.**

<b>Alternative A – TAUD</b>				
<b>Marble Canyon</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>				
Base Year	78%	7%	9%	6%
Ten-Year Forecast	76%	7%	10%	7%
<b>Old Conifer Forest (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>				
Base Year	87%	3%	7%	2%
Ten-Year Forecast	86%	3%	8%	3%
<b>Pinyon Juniper</b>				
Base Year	16%	68%	15%	0%
Ten-Year Forecast	6%	66%	28%	0%
<b>Ponderosa Pine (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	94%	2%	3%	1%
Ten-Year Forecast	93%	2%	3%	1%
<b>Warm Desert Scrub (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>				
Base Year	13%	2%	6%	78%
Ten-Year Forecast	12%	2%	6%	79%
<b>Old Conifer Forest</b>				
Base Year	1%	0%	1%	98%
Ten-Year Forecast	1%	0%	1%	99%
<b>Old Desert Scrub</b>				
Base Year	0%	0%	5%	95%
Ten-Year Forecast	0%	0%	3%	96%
<b>Pinyon Juniper</b>				
Base Year	9%	2%	6%	83%
Ten-Year Forecast	9%	2%	5%	84%
<b>Ponderosa Pine</b>				
Base Year	8%	2%	9%	80%
Ten-Year Forecast	8%	2%	8%	82%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	24%	4%	14%	58%
Ten-Year Forecast	24%	4%	13%	60%
<b>Warm Desert Scrub</b>				
Base Year	38%	3%	7%	52%
Ten-Year Forecast	37%	4%	7%	52%

<b>Central</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	86%	7%	5%	1%
	Ten-Year Forecast	85%	7%	7%	1%
<b>Old Conifer Forest</b>					
	Base	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	88%	3%	7%	2%
	Ten-Year Forecast	88%	3%	8%	2%
<b>Pinyon Juniper</b>					
	Base Year	77%	8%	9%	6%
	Ten-Year Forecast	75%	8%	10%	7%
<b>Ponderosa Pine</b>					
	Base Year	89%	2%	4%	5%
	Ten-Year Forecast	88%	3%	4%	5%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	96%	2%	1%	1%
	Ten-Year Forecast	96%	2%	2%	1%
<b>Warm Desert Scrub</b>					
	Base Year	49%	11%	18%	22%
	Ten-Year Forecast	47%	10%	19%	24%
<b>West</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	18%	4%	10%	68%
	Ten-Year Forecast	17%	4%	9%	71%
<b>Old Conifer Forest (TAUD data not available for areas outside the SFRA)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	13%	7%	29%	51%
	Ten-Year Forecast	12%	5%	25%	58%
<b>Pinyon Juniper</b>					
	Base Year	36%	7%	21%	36%
	Ten-Year Forecast	34%	7%	18%	41%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	59%	3%	10%	28%
	Ten-Year Forecast	59%	2%	10%	29%
<b>Warm Desert Scrub</b>					
	Base Year	45%	3%	7%	44%
	Ten-Year Forecast	44%	3%	7%	46%

**Table 19. Summary of wildlife habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under Alternative E.**

**Alternative E – Peak Season –  $L_{Aeq12}$**

**Marble Canyon**

		<b><math>\leq 15</math> dBA</b>	<b><math>&gt; 15 \leq 25</math> dBA</b>	<b><math>&gt; 25 \leq 35</math> dBA</b>	<b><math>&gt; 35</math> dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	96%	4%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%

**East End**

		<b><math>\leq 15</math> dBA</b>	<b><math>&gt; 15 \leq 25</math> dBA</b>	<b><math>&gt; 25 \leq 35</math> dBA</b>	<b><math>&gt; 35</math> dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	65%	9%	11%	15%
	Ten-Year Forecast	70%	8%	19%	3%
<b>Old Conifer Forest</b>					
	Base Year	40%	9%	18%	33%
	Ten-Year Forecast	41%	14%	18%	26%
<b>Old Desert Scrub</b>					
	Base Year	64%	31%	4%	1%
	Ten-Year Forecast	65%	31%	3%	1%
<b>Pinyon Juniper</b>					
	Base Year	79%	13%	5%	3%
	Ten-Year Forecast	83%	11%	4%	2%
<b>Ponderosa Pine</b>					
	Base Year	82%	17%	1%	0%
	Ten-Year Forecast	91%	8%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	64%	7%	16%	13%
	Ten-Year Forecast	69%	7%	23%	1%
<b>Warm Desert Scrub</b>					
	Base Year	86%	0%	3%	11%
	Ten-Year Forecast	86%	0%	12%	1%

<b>Central</b>					
		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	97%	0%	3%	0%
	Ten-Year Forecast	97%	0%	3%	0%
<b>Old Desert Scrub</b>					
	Base Year	77%	18%	5%	1%
	Ten-Year Forecast	75%	19%	5%	1%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	98%	2%	0%	0%
	Ten-Year Forecast	98%	2%	0%	0%
<b>Warm Desert Scrub</b>					
	Base Year	96%	3%	0%	0%
	Ten-Year Forecast	96%	4%	0%	0%
<b>West</b>					
		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	36%	32%	20%	12%
	Ten-Year Forecast	46%	34%	16%	4%
<b>Old Conifer Forest</b>					
	Base Year	56%	6%	25%	13%
	Ten-Year Forecast	50%	12%	26%	12%
<b>Old Desert Scrub</b>					
	Base Year	53%	19%	23%	6%
	Ten-Year Forecast	52%	22%	22%	4%
<b>Pinyon Juniper</b>					
	Base Year	83%	14%	3%	0%
	Ten-Year Forecast	83%	15%	2%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	61%	8%	13%	17%
	Ten-Year Forecast	61%	10%	14%	14%
<b>Warm Desert Scrub</b>					
	Base Year	56%	13%	17%	14%
	Ten-Year Forecast	57%	18%	19%	6%



**Alternative E – Off-Peak Season – L<sub>Aeq12</sub>****Marble Canyon**

		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%

**East End**

		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	88%	5%	5%	2%
	Ten-Year Forecast	90%	4%	6%	0%
<b>Old Conifer Forest</b>					
	Base Year	97%	0%	3%	1%
	Ten-Year Forecast	96%	1%	3%	0%
<b>Old Desert Scrub</b>					
	Base Year	62%	32%	6%	0%
	Ten-Year Forecast	63%	32%	4%	0%
<b>Pinyon Juniper</b>					
	Base Year	76%	9%	8%	6%
	Ten-Year Forecast	79%	9%	8%	4%
<b>Ponderosa Pine</b>					
	Base Year	90%	9%	1%	0%
	Ten-Year Forecast	92%	7%	1%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	78%	10%	11%	0%
	Ten-Year Forecast	83%	8%	9%	0%
<b>Warm Desert Scrub</b>					
	Base Year	74%	5%	19%	2%
	Ten-Year Forecast	75%	4%	21%	0%

<b>Central</b>					
		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	97%	0%	3%	0%
	Ten-Year Forecast	97%	0%	3%	0%
<b>Old Desert Scrub</b>					
	Base Year	68%	23%	8%	1%
	Ten-Year Forecast	68%	24%	7%	1%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	89%	4%	6%	0%
	Ten-Year Forecast	89%	6%	5%	0%
<b>Warm Desert Scrub</b>					
	Base Year	96%	4%	0%	0%
	Ten-Year Forecast	95%	4%	0%	0%
<b>West</b>					
		<b>&lt;= 15 dBA</b>	<b>&gt; 15 &lt;= 25 dBA</b>	<b>&gt; 25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	33%	31%	22%	14%
	Ten-Year Forecast	42%	37%	17%	5%
<b>Old Conifer Forest</b>					
	Base Year	52%	7%	23%	18%
	Ten-Year Forecast	45%	15%	25%	15%
<b>Old Desert Scrub</b>					
	Base Year	51%	19%	20%	9%
	Ten-Year Forecast	54%	19%	22%	5%
<b>Pinyon Juniper</b>					
	Base Year	80%	16%	3%	1%
	Ten-Year Forecast	81%	17%	2%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	62%	7%	11%	19%
	Ten-Year Forecast	61%	9%	14%	15%
<b>Warm Desert Scrub</b>					
	Base Year	55%	12%	14%	19%
	Ten-Year Forecast	56%	17%	19%	8%

**Table 20. Summary of wildlife habitat exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under Alternative E.**

<b>Alternative E – Peak Season – TAUD</b>					
<b>Marble Canyon</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	98%	1%	1%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>East</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	45%	3%	8%	44%
	Ten-Year Forecast	58%	3%	6%	32%
<b>Old Conifer Forest</b>					
	Base Year	1%	0%	4%	95%
	Ten-Year Forecast	11%	6%	35%	49%
<b>Old Desert Scrub</b>					
	Base Year	23%	2%	3%	72%
	Ten-Year Forecast	28%	0%	1%	71%
<b>Pinyon Juniper</b>					
	Base Year	40%	5%	14%	41%
	Ten-Year Forecast	55%	6%	16%	22%
<b>Ponderosa Pine</b>					
	Base Year	72%	3%	7%	17%
	Ten-Year Forecast	88%	6%	5%	1%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	59%	2%	7%	31%
	Ten-Year Forecast	68%	3%	9%	20%
<b>Warm Desert Scrub</b>					
	Base Year	87%	1%	1%	11%
	Ten-Year Forecast	89%	0%	0%	11%

<b>Central</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	98%	1%	1%	0%
	Ten-Year Forecast	99%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	97%	0%	1%	2%
	Ten-Year Forecast	97%	0%	1%	2%
<b>Pinyon Juniper</b>					
	Base Year	93%	3%	3%	1%
	Ten-Year Forecast	94%	2%	3%	1%
<b>Ponderosa Pine</b>					
	Base Year	99%	1%	0%	0%
	Ten-Year Forecast	98%	1%	1%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	98%	1%	1%	0%
	Ten-Year Forecast	98%	0%	1%	0%
<b>Warm Desert Scrub</b>					
	Base Year	67%	3%	10%	20%
	Ten-Year Forecast	70%	2%	8%	21%
<b>West</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	29%	3%	6%	62%
	Ten-Year Forecast	35%	7%	20%	39%
<b>Old Conifer Forest (TAUD data not available for areas outside the SFRA)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	10%	3%	28%	59%
	Ten-Year Forecast	15%	2%	19%	64%
<b>Pinyon Juniper</b>					
	Base Year	70%	6%	7%	17%
	Ten-Year Forecast	82%	5%	9%	4%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	64%	3%	7%	27%
	Ten-Year Forecast	66%	2%	11%	21%
<b>Warm Desert Scrub</b>					
	Base Year	52%	3%	5%	40%
	Ten-Year Forecast	56%	3%	9%	33%

**Alternative E – Off-Peak Season – TAUD****Marble Canyon**

		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%

**East**

		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	69%	3%	7%	20%
	Ten-Year Forecast	82%	3%	5%	10%
<b>Old Conifer Forest</b>					
	Base Year	72%	2%	8%	18%
	Ten-Year Forecast	70%	9%	11%	10%
<b>Old Desert Scrub</b>					
	Base Year	34%	0%	0%	66%
	Ten-Year Forecast	34%	0%	0%	66%
<b>Pinyon Juniper</b>					
	Base Year	52%	4%	7%	37%
	Ten-Year Forecast	62%	3%	14%	20%
<b>Ponderosa Pine</b>					
	Base Year	67%	6%	12%	15%
	Ten-Year Forecast	85%	6%	8%	1%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	72%	4%	10%	14%
	Ten-Year Forecast	84%	3%	7%	5%
<b>Warm Desert Scrub</b>					
	Base Year	60%	3%	7%	30%
	Ten-Year Forecast	73%	2%	3%	22%

<b>Central</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	96%	1%	2%	1%
	Ten-Year Forecast	99%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	89%	11%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	97%	0%	0%	3%
	Ten-Year Forecast	97%	0%	0%	2%
<b>Pinyon Juniper</b>					
	Base Year	88%	2%	5%	5%
	Ten-Year Forecast	94%	2%	3%	1%
<b>Ponderosa Pine</b>					
	Base Year	93%	3%	3%	1%
	Ten-Year Forecast	98%	1%	1%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	97%	1%	2%	1%
	Ten-Year Forecast	98%	0%	1%	1%
<b>Warm Desert Scrub</b>					
	Base Year	61%	4%	9%	25%
	Ten-Year Forecast	69%	2%	6%	23%
<b>West</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	25%	4%	6%	65%
	Ten-Year Forecast	33%	6%	17%	44%
<b>Old Conifer Forest (TAUD data not available for areas outside the SFRA)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	8%	2%	15%	75%
	Ten-Year Forecast	14%	2%	12%	72%
<b>Pinyon Juniper</b>					
	Base Year	63%	6%	10%	21%
	Ten-Year Forecast	80%	4%	9%	6%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	62%	2%	7%	29%
	Ten-Year Forecast	65%	2%	8%	25%
<b>Warm Desert Scrub</b>					
	Base Year	48%	4%	6%	42%
	Ten-Year Forecast	54%	3%	8%	35%

**Table 21. Summary of wildlife habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under Alternative F.**

<b>Alternative F – Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	83%	16%	1%	0%
Ten-Year Forecast	82%	17%	0%	0%
<b>Old Conifer Forest (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>				
Base Year	79%	21%	0%	0%
Ten-Year Forecast	81%	19%	0%	0%
<b>Pinyon Juniper</b>				
Base Year	97%	3%	0%	0%
Ten-Year Forecast	97%	3%	0%	0%
<b>Ponderosa Pine (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	77%	22%	1%	0%
Ten-Year Forecast	75%	24%	1%	0%
<b>Warm Desert Scrub (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	38%	0%	0%	0%
Ten-Year Forecast	49%	0%	0%	0%
<b>Old Conifer Forest</b>				
Base Year	44%	12%	20%	24%
Ten-Year Forecast	48%	19%	16%	16%
<b>Old Desert Scrub</b>				
Base Year	43%	38%	13%	6%
Ten-Year Forecast	59%	23%	10%	8%
<b>Pinyon Juniper</b>				
Base Year	42%	24%	16%	17%
Ten-Year Forecast	57%	17%	13%	13%
<b>Ponderosa Pine</b>				
Base Year	26%	47%	19%	8%
Ten-Year Forecast	54%	31%	9%	5%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	33%	19%	32%	15%
Ten-Year Forecast	45%	25%	24%	6%
<b>Warm Desert Scrub</b>				
Base Year	57%	10%	9%	24%
Ten-Year Forecast	66%	4%	14%	17%

<b>Central</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	98%	0%	2%	0%
	Ten-Year Forecast	98%	0%	2%	0%
<b>Old Desert Scrub</b>					
	Base Year	65%	15%	12%	7%
	Ten-Year Forecast	61%	17%	15%	8%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	99%	1%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	98%	1%	0%	0%
	Ten-Year Forecast	97%	2%	1%	0%
<b>Warm Desert Scrub</b>					
	Base Year	90%	9%	0%	0%
	Ten-Year Forecast	79%	19%	2%	0%
<b>West</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	16%	19%	43%	23%
	Ten-Year Forecast	15%	23%	40%	22%
<b>Old Conifer Forest</b>					
	Base Year	53%	4%	32%	12%
	Ten-Year Forecast	54%	6%	41%	0%
<b>Old Desert Scrub</b>					
	Base Year	53%	22%	18%	7%
	Ten-Year Forecast	51%	23%	16%	9%
<b>Pinyon Juniper</b>					
	Base Year	33%	34%	28%	4%
	Ten-Year Forecast	33%	34%	27%	6%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	52%	9%	21%	16%
	Ten-Year Forecast	52%	10%	21%	16%
<b>Warm Desert Scrub</b>					
	Base Year	41%	21%	24%	14%
	Ten-Year Forecast	42%	22%	24%	12%



**Alternative F – Off-Peak Season – L<sub>Aeq12</sub>****Marble Canyon**

		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%

**East End**

		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	46%	22%	26%	6%
	Ten-Year Forecast	56%	19%	23%	2%
<b>Old Conifer Forest</b>					
	Base Year	50%	16%	19%	16%
	Ten-Year Forecast	54%	18%	16%	12%
<b>Old Desert Scrub</b>					
	Base Year	63%	20%	10%	6%
	Ten-Year Forecast	65%	17%	10%	8%
<b>Pinyon Juniper</b>					
	Base Year	46%	27%	16%	11%
	Ten-Year Forecast	60%	20%	15%	6%
<b>Ponderosa Pine</b>					
	Base Year	60%	29%	8%	2%
	Ten-Year Forecast	78%	16%	4%	1%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	38%	27%	31%	4%
	Ten-Year Forecast	53%	23%	24%	0%
<b>Warm Desert Scrub</b>					
	Base Year	58%	8%	28%	7%
	Ten-Year Forecast	62%	9%	28%	0%

<b>Central</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	99%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	98%	0%	2%	0%
	Ten-Year Forecast	98%	0%	2%	0%
<b>Old Desert Scrub</b>					
	Base Year	67%	15%	10%	8%
	Ten-Year Forecast	63%	17%	14%	6%
<b>Pinyon Juniper</b>					
	Base Year	96%	3%	0%	0%
	Ten-Year Forecast	97%	2%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	92%	8%	0%	0%
	Ten-Year Forecast	97%	3%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	97%	3%	0%	0%
	Ten-Year Forecast	97%	2%	1%	0%
<b>Warm Desert Scrub</b>					
	Base Year	92%	8%	0%	0%
	Ten-Year Forecast	83%	17%	0%	0%
<b>West</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	16%	17%	42%	26%
	Ten-Year Forecast	15%	24%	40%	20%
<b>Old Conifer Forest</b>					
	Base Year	53%	4%	26%	18%
	Ten-Year Forecast	54%	6%	40%	0%
<b>Old Desert Scrub</b>					
	Base Year	53%	22%	18%	6%
	Ten-Year Forecast	52%	24%	15%	8%
<b>Pinyon Juniper</b>					
	Base Year	33%	32%	29%	6%
	Ten-Year Forecast	34%	34%	26%	5%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	52%	10%	21%	16%
	Ten-Year Forecast	52%	10%	21%	16%
<b>Warm Desert Scrub</b>					
	Base Year	41%	20%	23%	16%
	Ten-Year Forecast	42%	22%	24%	11%

Table 22. Summary of wildlife habitat exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under Alternative F.

Alternative F – Peak Season – TAUD					
Marble Canyon					
		<= 5	> 5 <= 10	> 10 <= 25	> 25
<b>Cold Desert Scrub</b>					
	Base Year	78%	7%	9%	6%
	Ten-Year Forecast	87%	10%	3%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	87%	4%	7%	2%
	Ten-Year Forecast	91%	9%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	16%	69%	15%	0%
	Ten-Year Forecast	83%	17%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	94%	2%	3%	1%
	Ten-Year Forecast	98%	1%	1%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
East End					
		<= 5	> 5 <= 10	> 10 <= 25	> 25
<b>Cold Desert Scrub</b>					
	Base Year	13%	2%	6%	79%
	Ten-Year Forecast	35%	3%	9%	53%
<b>Old Conifer Forest</b>					
	Base Year	1%	0%	1%	98%
	Ten-Year Forecast	14%	5%	60%	21%
<b>Old Desert Scrub</b>					
	Base Year	0%	0%	5%	95%
	Ten-Year Forecast	1%	5%	25%	69%
<b>Pinyon Juniper</b>					
	Base Year	9%	2%	6%	83%
	Ten-Year Forecast	33%	6%	16%	45%
<b>Ponderosa Pine</b>					
	Base Year	8%	2%	9%	81%
	Ten-Year Forecast	40%	14%	23%	23%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	24%	4%	14%	58%
	Ten-Year Forecast	47%	5%	18%	30%
<b>Warm Desert Scrub</b>					
	Base Year	39%	3%	6%	52%
	Ten-Year Forecast	58%	2%	5%	35%

<b>Central</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	97%	1%	1%	1%
	Ten-Year Forecast	94%	2%	4%	0%
<b>Old Conifer Forest</b>					
	Base Year	84%	16%	0%	0%
	Ten-Year Forecast	84%	0%	16%	0%
<b>Old Desert Scrub</b>					
	Base Year	97%	0%	2%	1%
	Ten-Year Forecast	97%	0%	1%	2%
<b>Pinyon Juniper</b>					
	Base Year	86%	5%	5%	5%
	Ten-Year Forecast	86%	4%	8%	1%
<b>Ponderosa Pine</b>					
	Base Year	89%	2%	4%	5%
	Ten-Year Forecast	97%	2%	1%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	97%	1%	1%	1%
	Ten-Year Forecast	97%	1%	2%	0%
<b>Warm Desert Scrub</b>					
	Base Year	61%	11%	22%	6%
	Ten-Year Forecast	49%	6%	26%	19%
<b>West</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	8%	2%	6%	84%
	Ten-Year Forecast	9%	1%	6%	84%
<b>Old Conifer Forest (TAUD data not available for areas outside the SFRA)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	34%	10%	36%	20%
	Ten-Year Forecast	26%	7%	25%	42%
<b>Pinyon Juniper</b>					
	Base Year	20%	3%	16%	61%
	Ten-Year Forecast	23%	4%	15%	58%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	57%	5%	11%	27%
	Ten-Year Forecast	54%	5%	14%	27%
<b>Warm Desert Scrub</b>					
	Base Year	31%	4%	12%	53%
	Ten-Year Forecast	33%	4%	10%	52%

<b>Alternative F – Off-Peak Season – TAUD</b>					
<b>Marble Canyon</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
Base Year		97%	2%	1%	0%
Ten-Year Forecast		100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
Base Year		0%	0%	0%	0%
Ten-Year Forecast		0%	0%	0%	0%
<b>Old Desert Scrub</b>					
Base Year		100%	0%	0%	0%
Ten-Year Forecast		100%	0%	0%	0%
<b>Pinyon Juniper</b>					
Base Year		100%	0%	0%	0%
Ten-Year Forecast		100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
Base Year		0%	0%	0%	0%
Ten-Year Forecast		0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
Base Year		100%	0%	0%	0%
Ten-Year Forecast		100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
Base Year		0%	0%	0%	0%
Ten-Year Forecast		0%	0%	0%	0%
<b>East End</b>					
		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
Base Year		19%	5%	19%	57%
Ten-Year Forecast		41%	8%	31%	20%
<b>Old Conifer Forest</b>					
Base Year		2%	4%	70%	25%
Ten-Year Forecast		37%	49%	9%	6%
<b>Old Desert Scrub</b>					
Base Year		26%	1%	5%	68%
Ten-Year Forecast		28%	4%	2%	66%
<b>Pinyon Juniper</b>					
Base Year		10%	4%	22%	64%
Ten-Year Forecast		37%	15%	24%	24%
<b>Ponderosa Pine</b>					
Base Year		23%	17%	38%	23%
Ten-Year Forecast		81%	13%	5%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
Base Year		32%	9%	26%	32%
Ten-Year Forecast		54%	12%	21%	13%
<b>Warm Desert Scrub</b>					
Base Year		36%	3%	9%	52%
Ten-Year Forecast		47%	7%	17%	29%

<b>Central</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	94%	1%	2%	2%
	Ten-Year Forecast	94%	3%	3%	1%
<b>Old Conifer Forest</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	85%	0%	15%	0%
<b>Old Desert Scrub</b>					
	Base Year	98%	1%	2%	0%
	Ten-Year Forecast	97%	0%	2%	1%
<b>Pinyon Juniper</b>					
	Base Year	80%	2%	4%	13%
	Ten-Year Forecast	83%	5%	9%	3%
<b>Ponderosa Pine</b>					
	Base Year	27%	9%	29%	35%
	Ten-Year Forecast	88%	5%	6%	1%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	94%	2%	3%	2%
	Ten-Year Forecast	97%	1%	2%	0%
<b>Warm Desert Scrub</b>					
	Base Year	68%	12%	15%	6%
	Ten-Year Forecast	50%	8%	33%	9%
<b>West</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	8%	2%	6%	84%
	Ten-Year Forecast	9%	2%	8%	82%
<b>Old Conifer Forest (TAUD data not available for areas outside the SFRA)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	36%	9%	35%	20%
	Ten-Year Forecast	28%	9%	34%	30%
<b>Pinyon Juniper</b>					
	Base Year	19%	3%	16%	61%
	Ten-Year Forecast	23%	4%	18%	55%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	57%	5%	10%	27%
	Ten-Year Forecast	55%	6%	14%	25%
<b>Warm Desert Scrub</b>					
	Base Year	30%	5%	12%	53%
	Ten-Year Forecast	34%	4%	12%	50%

**Table 23. Summary of wildlife habitat exposed to various average sound levels ( $L_{Aeq12}$ ) in the peak and off-peak seasons of the base year and ten-year forecast under the NPS Preferred Alternative.**

<b>NPS Preferred Alternative – Peak Season – <math>L_{Aeq12}</math></b>				
<b>Marble Canyon</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	96%	4%	0%	0%
Ten-Year Forecast	98%	2%	0%	0%
<b>Old Conifer Forest (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>				
Base Year	93%	7%	0%	0%
Ten-Year Forecast	93%	7%	0%	0%
<b>Pinyon Juniper</b>				
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	99%	1%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>East End</b>				
	<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	43%	23%	20%	14%
Ten-Year Forecast	50%	21%	20%	9%
<b>Old Conifer Forest</b>				
Base Year	47%	9%	20%	24%
Ten-Year Forecast	49%	13%	19%	19%
<b>Old Desert Scrub</b>				
Base Year	59%	23%	11%	7%
Ten-Year Forecast	58%	24%	11%	7%
<b>Pinyon Juniper</b>				
Base Year	42%	24%	18%	16%
Ten-Year Forecast	53%	20%	17%	10%
<b>Ponderosa Pine</b>				
Base Year	24%	48%	19%	10%
Ten-Year Forecast	51%	31%	11%	7%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	36%	26%	27%	11%
Ten-Year Forecast	43%	24%	28%	5%
<b>Warm Desert Scrub</b>				
Base Year	57%	10%	10%	24%
Ten-Year Forecast	60%	5%	30%	6%

<b>Central</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	98%	0%	2%	0%
	Ten-Year Forecast	97%	0%	3%	0%
<b>Old Desert Scrub</b>					
	Base Year	58%	18%	16%	8%
	Ten-Year Forecast	55%	21%	17%	8%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	99%	1%	0%	0%
	Ten-Year Forecast	99%	1%	0%	0%
<b>Warm Desert Scrub</b>					
	Base Year	99%	1%	0%	0%
	Ten-Year Forecast	98%	1%	0%	0%
<b>West</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	26%	24%	41%	9%
	Ten-Year Forecast	23%	29%	14%	15%
<b>Old Conifer Forest</b>					
	Base Year	32%	46%	20%	2%
	Ten-Year Forecast	32%	45%	21%	2%
<b>Old Desert Scrub</b>					
	Base Year	57%	19%	19%	4%
	Ten-Year Forecast	57%	21%	19%	3%
<b>Pinyon Juniper</b>					
	Base Year	52%	30%	14%	4%
	Ten-Year Forecast	47%	36%	15%	3%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	57%	13%	10%	20%
	Ten-Year Forecast	57%	14%	14%	15%
<b>Warm Desert Scrub</b>					
	Base Year	51%	18%	13%	18%
	Ten-Year Forecast	50%	21%	16%	13%



**NPS Preferred Alternative – Off-Peak Season –  $L_{Aeq12}$** **Marble Canyon**

	<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>				
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>				
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	100%	0%	0%	0%
Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>				
Base Year	0%	0%	0%	0%
Ten-Year Forecast	0%	0%	0%	0%

**East End**

	<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>				
Base Year	50%	22%	19%	9%
Ten-Year Forecast	55%	19%	20%	7%
<b>Old Conifer Forest</b>				
Base Year	46%	11%	16%	26%
Ten-Year Forecast	44%	15%	17%	24%
<b>Old Desert Scrub</b>				
Base Year	66%	16%	10%	8%
Ten-Year Forecast	65%	18%	11%	6%
<b>Pinyon Juniper</b>				
Base Year	54%	21%	17%	8%
Ten-Year Forecast	60%	19%	15%	5%
<b>Ponderosa Pine</b>				
Base Year	44%	37%	12%	7%
Ten-Year Forecast	64%	22%	8%	5%
<b>Rivers/Rapids (Riparian Habitat)</b>				
Base Year	45%	26%	23%	6%
Ten-Year Forecast	49%	25%	24%	2%
<b>Warm Desert Scrub</b>				
Base Year	62%	6%	26%	5%
Ten-Year Forecast	62%	13%	23%	2%

<b>Central</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest</b>					
	Base Year	97%	0%	3%	0%
	Ten-Year Forecast	97%	0%	3%	0%
<b>Old Desert Scrub</b>					
	Base Year	61%	16%	15%	9%
	Ten-Year Forecast	58%	19%	16%	7%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>West</b>		<b>&lt;= 15 dBA</b>	<b>&gt;15 &lt;= 25 dBA</b>	<b>&gt;25 &lt;= 35 dBA</b>	<b>&gt; 35 dBA</b>
<b>Cold Desert Scrub</b>					
	Base Year	25%	22%	38%	15%
	Ten-Year Forecast	23%	30%	41%	6%
<b>Old Conifer Forest</b>					
	Base Year	32%	43%	22%	3%
	Ten-Year Forecast	32%	47%	19%	2%
<b>Old Desert Scrub</b>					
	Base Year	59%	17%	19%	5%
	Ten-Year Forecast	59%	20%	18%	3%
<b>Pinyon Juniper</b>					
	Base Year	52%	29%	14%	6%
	Ten-Year Forecast	47%	36%	15%	2%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	58%	12%	11%	18%
	Ten-Year Forecast	59%	14%	14%	13%
<b>Warm Desert Scrub</b>					
	Base Year	50%	17%	13%	19%
	Ten-Year Forecast	50%	22%	17%	11%

Table 24. Summary of wildlife habitat exposed to various percent time audible in the peak and off-peak seasons of the base year and ten-year forecast under the NPS Preferred Alternative.

NPS Preferred Alternative – Peak Season – TAUD						
Marble Canyon						
			<= 5	> 5 <= 10	> 10 <= 25	> 25
Cold Desert Scrub						
	Base Year	92%	2%	4%	2%	
	Ten-Year Forecast	98%	2%	0%	0%	
Old Conifer Forest (no habitat)						
	Base Year	0%	0%	0%	0%	
	Ten-Year Forecast	0%	0%	0%	0%	
Old Desert Scrub						
	Base Year	99%	1%	0%	0%	
	Ten-Year Forecast	100%	0%	0%	0%	
Pinyon Juniper						
	Base Year	100%	0%	0%	0%	
	Ten-Year Forecast	100%	0%	0%	0%	
Ponderosa Pine (no habitat)						
	Base Year	0%	0%	0%	0%	
	Ten-Year Forecast	0%	0%	0%	0%	
Rivers/Rapids (Riparian Habitat)						
	Base Year	98%	1%	1%	0%	
	Ten-Year Forecast	100%	0%	0%	0%	
Warm Desert Scrub (no habitat)						
	Base Year	0%	0%	0%	0%	
	Ten-Year Forecast	0%	0%	0%	0%	
East End						
			<= 5	> 5 <= 10	> 10 <= 25	> 25
Cold Desert Scrub						
	Base Year	12%	2%	7%	79%	
	Ten-Year Forecast	27%	6%	12%	55%	
Old Conifer Forest						
	Base	2%	0%	1%	97%	
	Ten-Year Forecast	14%	6%	16%	64%	
Old Desert Scrub						
	Base Year	8%	12%	9%	72%	
	Ten-Year Forecast	27%	2%	4%	67%	
Pinyon Juniper						
	Base Year	9%	2%	6%	83%	
	Ten-Year Forecast	28%	6%	12%	54%	
Ponderosa Pine						
	Base Year	6%	2%	8%	85%	
	Ten-Year Forecast	42%	10%	21%	27%	
Rivers/Rapids (Riparian Habitat)						
	Base Year	23%	5%	16%	56%	
	Ten-Year Forecast	44%	7%	16%	34%	
Warm Desert Scrub						
	Base Year	41%	4%	6%	49%	
	Ten-Year Forecast	52%	2%	7%	39%	

<b>Central</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	86%	8%	5%	2%
	Ten-Year Forecast	87%	6%	6%	1%
<b>Old Conifer Forest</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	89%	4%	6%	2%
	Ten-Year Forecast	88%	3%	7%	2%
<b>Pinyon Juniper</b>					
	Base Year	73%	8%	9%	10%
	Ten-Year Forecast	82%	7%	9%	2%
<b>Ponderosa Pine</b>					
	Base Year	73%	5%	9%	13%
	Ten-Year Forecast	99%	1%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	96%	1%	1%	1%
	Ten-Year Forecast	97%	1%	1%	0%
<b>Warm Desert Scrub</b>					
	Base Year	50%	11%	18%	21%
	Ten-Year Forecast	53%	10%	16%	20%
<b>West</b>		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	17%	3%	10%	69%
	Ten-Year Forecast	19%	4%	9%	68%
<b>Old Conifer Forest (TAUD data not available for areas outside the SFRA)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	13%	7%	34%	46%
	Ten-Year Forecast	15%	6%	25%	54%
<b>Pinyon Juniper</b>					
	Base Year	35%	7%	22%	37%
	Ten-Year Forecast	38%	5%	18%	38%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	59%	3%	10%	28%
	Ten-Year Forecast	60%	2%	11%	26%
<b>Warm Desert Scrub</b>					
	Base Year	45%	3%	8%	45%
	Ten-Year Forecast	47%	3%	8%	43%

**NPS Preferred Alternative – Off-Peak Season – TAUD****Marble Canyon**

		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	94%	1%	3%	1%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Old Conifer Forest (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Old Desert Scrub</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Pinyon Juniper</b>					
	Base Year	100%	0%	0%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Ponderosa Pine (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	99%	0%	1%	0%
	Ten-Year Forecast	100%	0%	0%	0%
<b>Warm Desert Scrub (no habitat)</b>					
	Base Year	0%	0%	0%	0%
	Ten-Year Forecast	0%	0%	0%	0%

**East End**

		<b>&lt;= 5</b>	<b>&gt; 5 &lt;= 10</b>	<b>&gt; 10 &lt;= 25</b>	<b>&gt; 25</b>
<b>Cold Desert Scrub</b>					
	Base Year	17%	5%	21%	57%
	Ten-Year Forecast	34%	9%	21%	36%
<b>Old Conifer Forest</b>					
	Base Year	1%	0%	1%	98%
	Ten-Year Forecast	10%	9%	11%	71%
<b>Old Desert Scrub</b>					
	Base Year	23%	2%	5%	70%
	Ten-Year Forecast	28%	4%	4%	64%
<b>Pinyon Juniper</b>					
	Base Year	16%	4%	18%	61%
	Ten-Year Forecast	39%	10%	25%	26%
<b>Ponderosa Pine</b>					
	Base Year	14%	7%	31%	47%
	Ten-Year Forecast	55%	14%	27%	5%
<b>Rivers/Rapids (Riparian Habitat)</b>					
	Base Year	36%	12%	22%	31%
	Ten-Year Forecast	55%	10%	15%	20%
<b>Warm Desert Scrub</b>					
	Base Year	51%	6%	22%	20%
	Ten-Year Forecast	64%	1%	25%	10%

Central						
			<= 5	> 5 <= 10	> 10 <= 25	> 25
Cold Desert Scrub						
	Base Year	93%		5%	2%	0%
	Ten-Year Forecast	89%		6%	5%	0%
Old Conifer Forest						
	Base Year	100%		0%	0%	0%
	Ten-Year Forecast	100%		0%	0%	0%
Old Desert Scrub						
	Base Year	90%		5%	4%	1%
	Ten-Year Forecast	89%		3%	6%	1%
Pinyon Juniper						
	Base Year	87%		6%	6%	1%
	Ten-Year Forecast	85%		8%	6%	1%
Ponderosa Pine						
	Base Year	94%		4%	3%	0%
	Ten-Year Forecast	100%		0%	0%	0%
Rivers/Rapids (Riparian Habitat)						
	Base Year	98%		1%	1%	0%
	Ten-Year Forecast	98%		1%	1%	0%
Warm Desert Scrub						
	Base Year	57%		9%	15%	19%
	Ten-Year Forecast	56%		12%	14%	18%
West						
			<= 5	> 5 <= 10	> 10 <= 25	> 25
Cold Desert Scrub						
	Base Year	16%		4%	10%	70%
	Ten-Year Forecast	21%		4%	11%	64%
Old Conifer Forest (TAUD data not available for areas outside the SFRA)						
	Base Year	0%		0%	0%	0%
	Ten-Year Forecast	0%		0%	0%	0%
Old Desert Scrub						
	Base Year	12%		6%	32%	50%
	Ten-Year Forecast	17%		6%	28%	49%
Pinyon Juniper						
	Base Year	33%		6%	21%	40%
	Ten-Year Forecast	44%		5%	20%	32%
Ponderosa Pine (no habitat)						
	Base Year	0%		0%	0%	0%
	Ten-Year Forecast	0%		0%	0%	0%
Rivers/Rapids (Riparian Habitat)						
	Base Year	59%		3%	10%	28%
	Ten-Year Forecast	61%		2%	11%	26%
Warm Desert Scrub						
	Base Year	44%		3%	8%	46%
	Ten-Year Forecast	48%		2%	9%	40%

## APPENDIX G PROJECTS CONSIDERED IN CUMULATIVE ANALYSIS

Overall, cumulative impact analysis identifies to what extent each Alternative would contribute to the combined effect of Alternative and other past, present, or reasonably foreseeable future actions. To the extent appropriate, impact criteria, including NPS impact intensity thresholds used in assessing direct and indirect impacts were also used in assessing cumulative effects.

**Historic Railroad Depot Rehabilitation** A 2008 historic structures report (NPS 2008f) provided specific treatment recommendations for structure rehabilitation. Major interior and exterior building improvements are anticipated in 2013 and 2014, including repairs to nonfunctioning restrooms and accessibility upgrades. Due to drainage problems on the building's north side, the paved lane adjacent to the building may be removed to regrade and facilitate drainage away from the building.

**South Rim Visitor Transportation Plan** The plan's purpose is to provide a transportation system addressing the park's most pressing transportation issues through 2020. The plan accommodates current and anticipated South Rim visitation levels, facilitates enhanced visitor experiences, and protects park resources. The plan includes constructing new parking areas near the visitor center, expanding shuttle bus service from Tusayan, expanding shuttle bus transit in the Village and to Hermits Rest, and South Entrance Station improvements such as additional vehicle lanes and tour bus management (NPS 2008e).

**Bright Angel Trailhead Area Design Plan** Actions include developing a plaza near the primary trailhead, enhancing trail connections and wayfinding, constructing a new restroom near the proposed plaza and existing mule corral, and improving parking area vehicle circulation. Future phases could include hardening the parking surface and delineating parking spaces, additional revegetating and landscaping, and enhancing wayfinding and interpretive signs.

**Concessions Environmental Assessment** The contract to provide most hospitality services (including lodging, retail sales, food services, mule rides, and some tours) expires in 2011. While most primary services will continue as they currently exist, the new prospectus may call for some employee dormitories to be converted to visitor lodging, associated development of replacement employee housing, construction of new employee dining and lounge facilities, construction of new maintenance and/or warehouse facilities, and construction of a composting and greenhouse facility/facilities.

**Science and Resource Management Building** Grand Canyon is proposing to construct a new building for the park's science and resource management staff adjacent to the magistrate's office, across from ranger operations building, during the years 2010 to 2012.

**Supai Camp Improvements** This camp is a small housing area for Havasupai Tribe members, who used Grand Canyon for millennia before Euro-American settlement. Currently in poor condition without most basic utilities, Grand Canyon is proposing to upgrade existing facilities and construct additional new lodging units, during 2010-2011.

**Greenway Trail Phase III (Greenway III)** When complete, this approximately seven-mile segment of Greenway Trail will provide a pedestrian/bicycle/equestrian trail from the community of Tusayan to Grand Canyon Visitor Center. This trail will provide an alternate option for non-motorized access into the park (NPS 2008e). The trail will be designated as the Arizona Trail into the park for hikers, cyclists, and equestrians. Once incorporated into the park's overall trail system, it will be routinely patrolled by park rangers. Construction began on a small trail section near the Grand Canyon Visitor Center but has stalled due to a lack of funds. Construction will resume with South Rim Visitor Transportation Plan implementation. New ground disturbance is estimated at approximately four acres.

**Greenway Trail Phase V (Greenway V)** The National Park Service proposes to construct an approximately one-mile paved trail from Pipe Creek Vista, an overlook along Desert View Drive, to South Kaibab Trailhead. Completion of this trail segment would connect the paved Rim Trail from Mather Point to South Kaibab Trailhead. The majority of the trail alignment would use existing disturbed corridors to minimize new ground disturbance. Pipe Creek Vista and South Kaibab Trailhead are both accessible by shuttle bus, and Pipe Creek Vista also provides some vehicular parking. Project scope includes reconfiguring overlook parking for enhanced safety and adequate room for the trail to cross the overlook area; creation of an accessible path from South Kaibab Trailhead parking area to the trailhead itself with improved site amenities; and identification of a connector trail between South Entrance Road and the project area for Arizona Trail users, bicyclists, and equestrians.

**Hermit Road Rehabilitation** This seven-mile, narrow, historic roadway connecting Grand Canyon Village to Hermits Rest will be widened and rehabilitated to accommodate current levels of shuttle bus and tour bus traffic. This project also includes repair and upgrades to multiple overlook parking areas and construction of an approximately three-mile multi-modal greenway trail between the Abyss (a popular overlook) and Hermits Rest.

**Relocation of Stock Camp to Mather Campground** A project is underway to relocate the South Rim stock camp for private stock users from the NPS housing and maintenance area near Juniper Hill to Mather Campground. The Juniper Hill private stock camp is difficult for visitors to locate, has no permanent restroom facility or water source, no delineated boundaries, and is not easily accessible to other visitor facilities. New paneling, stalls, water troughs, feed bins, and manure dumpster will be located in the campsites being developed at Mather Campground. The project is expected to be completed in 2011.

**Backcountry Management Plan** The National Park Service is planning to initiate the process to revise the 1988 Backcountry Management Plan to comply with the 1995 General Management Plan and NPS Management Policies 2006. The plan's scope is under consideration, but is expected to include visitor use and backcountry access, natural and cultural resource stewardship, and proposed Wilderness. The plan will complement other recently completed plans such as the Colorado River Management Plan and Fire Management Plan. It is expected that corridor trails (Bright Angel, South Kaibab, and North Kaibab) will be included in the plan.

**Fire Management Plan** The National Park Service completed a Record of Decision for the final Environmental Impact Statement for the Fire Management Plan in 2010. The updated plan was completed to comply with NPS Management Policies, the 1995 General Management Plan, and NPS wildland fire policy directives. The plan defined new fire management units and includes suppression, wildland fire use, prescribed fire, and non-fire treatments, with additional options of manual hazard fuel techniques and mechanical thinning in the wildland-urban interface areas. This plan will ensure the park can better manage forest resources and enhance protection of unique natural and cultural resources.

**Mule Operations and Stock Use Plan** An EA released March 2010 establishes appropriate park stock use levels to address maintenance and operations to reduce conflicts between trail users while continuing to provide opportunities for stock use to as large a cross section of visitors as practicable. The EA proposes reducing the annual number of commercial mule rides into the canyon from both North and South Rim, and proposes increasing the number of mule rides available above the rim. Minor changes are also proposed for private stock users, including a limit of six head of stock and six persons at inner canyon campsites. Monitoring, increased education, continued trail maintenance, and use of an adaptive management strategy are also proposed. A decision document for this project is anticipated in 2010.

In addition to these plans, the following ongoing management activities within the park may contribute to the cumulative effects on resources

**Exotic Plant Management Activities** Exotic plant management is an ongoing activity throughout the park and includes integrated pest management to treat high-priority invasive, nonnative plant species. Treatments include cultural, manual, mechanical, and chemical controls.

**Routine Trails Maintenance** Maintenance of all park trails is ongoing.

**Borrow Pit Use** Trail materials, dirt, and rock required to maintain Grand Canyon trails are taken from borrow pits in the Inner Canyon and active drainages near trails.





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U.S. Department of the Interior



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