

# Grand Canyon National Park

Special Flight Rules Area in the Vicinity of Grand Canyon National Park

National Park Service  
U.S. Department of the Interior



## Impact Topics Evaluated in the Draft EIS



### Soundscape

- Applies to NPS-managed lands within the Special Flights Rules Area (SFRA) boundary, including other NPS units
- Impacts either detract from or contribute to substantial restoration of natural quiet and/or change aircraft noise intensity or duration of aircraft noise event
- Analysis presented by
  - Zone - Developed, Non-Wilderness, Wilderness
  - Area - Marble Canyon, East End, Central, West End
- Aircraft noise intensity and duration — Percent Time Audible and Average Sound Level



### Wilderness Character

- Applies only to Wilderness lands in the SFRA
  - Proposed Wilderness in the park and other NPS lands, and designated Wilderness outside the park
- Analysis relies on noise modeling results at Location Points in the park and on other Federal Lands within the SFRA
- Opportunities for solitude or a primitive and unconfined type of recreation
- Effects to natural conditions
- Distance between wilderness visitor locations and aircraft routes
  - Includes visibility and presence of aircraft to people on the ground and of people on the ground to people in aircraft
    - Issues related to privacy and solitude
- Aircraft noise intensity and duration — Percent Time Audible and Average Sound Level



### Ethnographic Resources

- Applies to effects on Traditional Cultural Properties, tribal concerns, and other resources valued by American Indian people affiliated with Grand Canyon National Park or land in the SFRA
- Analysis relies on noise modeling results at Location Points in the park and other Federal lands within the SFRA
- Distance between points of ethnographic interest and aircraft routes
  - Includes visibility and presence of aircraft to people on the ground and of people on the ground to people in the aircraft
    - Issues related to privacy and traditional observance
    - Proximity of routes to cultural practitioners or sites
- Aircraft noise intensity and duration — Percent Time Audible and Average Sound Level



### Visitor Use and Experience

- Applies to ground-based and air-tour visitors
  - Effects to Visitor Use and Experience, not number of visitors affected
  - Ground-based visitor analysis considers desired conditions in different management zones and that more noise is accepted in the developed zone than in Wilderness and Non-Wilderness Zones
  - Air-tour visitor analysis depends primarily on access to opportunities for, and perceptions of, aerial viewing experiences
- Distance between ground-based visitor locations and aircraft routes
  - Includes aircraft visibility and presence to visitors on the ground and of visitors on the ground to people in aircraft
- Aircraft noise intensity and duration — Percent Time Audible and Average Sound Level

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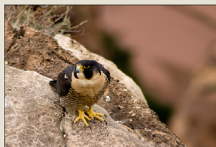
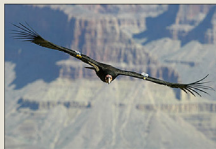


### Wildlife

- Applies to the park, Special Flights Rules Area (SFRA), and the entire Study Area
- Effects to natural conditions
- Distance between wildlife or habitat locations and aircraft routes
  - Includes visibility and presence of aircraft to species
- Audibility (human hearing) used as a surrogate for sounds heard by wildlife
- Habituation to aircraft noise in natural areas in a national park is considered an adverse impact
- Aircraft noise intensity and duration — Percent Time Audible and Average Sound Level



### Special Status Species



- Applies to the park, SFRA and the entire Study Area
- Effects to natural conditions
- Species analyzed include American peregrine falcon, California condor, and Mexican spotted owl
- Distance between habitat location and aircraft routes
  - Includes visibility and presence of aircraft to species
- Audibility (human hearing) used as a surrogate for sounds heard by wildlife
- Habituation to aircraft noise in natural areas in a national park is considered an adverse impact
- Aircraft noise intensity and duration — Percent Time Audible and Average Sound Level



### Socioeconomic Environment

- **Air-tour Operators**
  - Changes to each operator's tour characteristics and business operations in the SFRA
  - Financial impacts resulting in changes to employment and employee earnings
  - Financial viability of local air-tour industry, and effects on individual operators
- **American Indian Tribes**
  - Economic changes to tribal budgets and populations living on reservations
- **General Aviation**
  - Focuses on flights through the SFRA
  - Financial impact to General Aviation operators and economic activity at base of operations
- **Regional Economy**
  - Presented as an aggregate for six gateway communities and Las Vegas area
- **Direct Use and Intrinsic Values of Grand Canyon National Park**
  - Direct use value that visitors receive beyond actual expenditures from a park visit
  - Changes to park intrinsic or non-use values attributed to the general population



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## Summary of Impacts NPS Preferred Alternative (Ten-Year Forecast Peak Season)



### Soundscape

- Substantial restoration of natural quiet would be achieved in 67% of the park, compared to 53% in Alternative A
- The area experiencing the greatest noise intensity and duration would be reduced in the Wilderness Zone by up to 24% from Alternative A. The Wilderness Zone comprises 94% of the park
- The area experiencing the greatest noise intensity and duration would be reduced in the Non-Wilderness Zone by up to 65% from Alternative A. The Non-Wilderness Zone comprises 4% of the park
- The area experiencing the greatest noise intensity and duration would be reduced in the Developed Zone by up to 81% from Alternative A. The Developed Zone comprises 2% of the park
- Noise would continue to be at low levels in areas away from air-tour routes (for example, less than 5% Time Audible and less than 15 dBA)
- Noise would continue to be at high levels in areas under and near air-tour routes (for example, greater than 65% Time Audible and 40 to 50 dBA)



### Wilderness Character

- Greatest exposure to noise and visual impacts would occur under and near air-tour routes in East End and West End's northwestern portion
- Overall beneficial changes would occur due to differences in route location, route altitude, additional curfew hour, and quiet-technology aircraft conversion



### Ethnographic Resources

- Overall beneficial changes would occur due to differences in route location, route altitude, additional curfew hour, and quiet-technology aircraft conversion
- Aircraft noise would be reduced, allowing enhanced opportunities for traditional cultural practices and site preservation (Little Colorado River Confluence and Nankoweap)



### Visitor Use and Experience

- Ground-based Visitors**
  - Beneficial impacts to East End visitors would result from quiet-technology implementation, alternating seasonal use of Zuni Point and Dragon Corridors, and additional curfew hour
- Air-tour Visitors**
  - Overall, there would continue to be a wide variety of highly desirable opportunities for air-tour visitors to view park resources
  - East End, long- and short- loop tour routes would continue to provide excellent canyon and river views that includes views of the Little Colorado River confluence
  - West End routes would continue to provide excellent canyon views

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## Summary of Impacts NPS Preferred Alternative (Ten-Year Forecast Peak Season)



### Wildlife

- Conversion to quiet-technology aircraft would have substantial beneficial impacts to Wildlife on the East End due to decreased noise
- Greatest exposure to noise and visual impacts would continue to occur predominantly under and near heavily-used air-tour routes on the East and West Ends
- A large portion of habitat would continue to be relatively undisturbed by air tours in Marble Canyon and in the Central Area
- Beneficial impacts to Wildlife would occur due to increased route altitudes and an additional curfew hour in early evening



### Special Status Species

- Conversion to quiet-technology aircraft would have substantial beneficial impacts to California condors, Mexican spotted owls and peregrine falcons on the East End due to decreased noise
- Beneficial impacts to California condors, Mexican spotted owls and peregrine falcons due to increased route altitudes
- California condors do not currently inhabit the West End, therefore no analysis was completed



### Socioeconomic Environment

- Adverse socioeconomic impacts described in the Draft EIS would diminish over time as air-tour operators adjust to new rules, both to reduce impacts and to take advantage of opportunities
- Using a methodology based primarily on interviews solely with air-tour operators, the Draft EIS projects 9% less total gross revenue than Alternative A. However, if the growth allowed by annual allocations and daily caps is utilized, revenues would increase over time
- The daily cap of 364 air tours is 50 more than currently reported to FAA by air-tour operators, and would affect only a few of the busiest days. Flights currently exempt would continue to be exempt, and operators would not be subject to individual daily caps if the total daily cap is not exceeded
- An adaptive management process would be in place to monitor and reduce adverse socioeconomic impacts as well as adverse noise impacts
- The ten-year transition period for converting to quiet-technology aircraft allows time for air-tour operators to adapt, and several companies are already fully converted
- The largest socioeconomic categories, regional economy and intrinsic values, would be essentially unchanged, with continued opportunities for growth in the regional economy and growth in the number of park and regional visitors
- American Indian tribes are expected to be mostly unaffected by any Alternative. However, the Navajo Nation would receive some economic benefits due to the access routes in the NPS Preferred Alternative
- General Aviation would be mostly unaffected. Flights on Victor airways would not be affected. Flights under positive control of an air-traffic control center or tower could be routed over the Special Flight Rules Area if necessary for safety. Two of the four General Aviation Corridors would be slightly shifted