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Arizona Regional Airspace EIS
501 Butler Farm Rd., Suite H
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March 3, 2022

Attn: Draft EIS Team

To: Whom it Concerns,

This letter consists of new, follow-up comments to my comments submitted February 16.

At the AF Public Meeting in Animas NM, February 24, a Team Leader encouraged me to submit as many comments as needed before the deadline; and to present as much specific information as possible.

Please include these additional, specific, comments for consideration in the EIS for proposed changes of Regional Special Use Airspace Optimization to Support Air Force Missions in the Tombstone MOA:

Regarding Cultural and Geologic Impacts:

In 2019, the National Congress of American Indians (NCAI) adopted Resolution ABQ-19-006, "Opposing Renewal and Expansion of United States Military Installations without Tribal Consent and Calling on the United States Military to Meaningfully Consult with Affected Tribal Nations Regarding Impacts to Sacred Sites". The NCAI makes clear in this resolution, they strongly oppose military expansions which impact tribal nations. Furthermore, the NCAI calls on the US military to engage in meaningful consultation with tribal nations affected by such expansions, share all relevant information, facilitate visits to affected areas, and fully fund studies that would allow affected tribal nations to better identify cultural and spiritual sites within the proposed expansion areas.

Meaningful consultation with the Tohono O'odham Nation, Nde-Apache San Carlos Nation, and any other tribal communities which might have historic connections to cultural and spiritual sites within the Tombstone MOA, should be of utmost priority during scoping and drafting of the EIS.

From 1966-1972, a major problem for tribal relations and environmental impact in Arizona was that of sonic booms, as recorded by The National Parks Service Archives, in "Sonic Booms and People Problems", Chapter 10 of "Administrative History: Canyon De Chelly National Monument Arizona" https://www.nps.gov/cach/learn/historyculture/upload/cach_adhi.pdf

This publication notes that correspondence on the subject formed the majority of the park's administrative history materials during a six year period. With the help of Diné/ Navajo community members, a record was kept of the exact time and dates that the sound barrier was broken over the canyons by AF training - including observations of rocks falling from cliffs coinciding with the sonic booms.

A shock in the Canyon del Muerto caused a large portion of an overhanging cliff to collapse, which damaged ancestral Anasazi cliff dwellings below. Park visitors and Diné community members reported that the cliffs "vibrated" with each boom. The monument Superintendent, John Cook, was deeply concerned not only with damages to archeological ruins and cliffs, but also feared for fragile structures at Hubbell Trading Post. Trails were damaged and at risk. Some residents felt their homes were threatened.

Stewart Udall, then Secretary of the Interior, held a news conference on the problem. Secretary Udall's concern was outlined in a letter to Secretary of the Air Force Harold Brown.

Udall wrote, "this is a growing problem, and one that carries with it the alarming threat of destruction or defacement of some of this nation's priceless natural and archeological heritage, as well as exposing thousands of visitors to possible injury."

Although Superintendent Cook reported the Department of the Interior, the Air Force, and the Federal Aviation Agency were discussing the situation; he observed in records that the number of sonic booms continued to increase.

In 1967-1968, the issue was publicized by the Associated Press, the United Press International, and the New York Times, where Chief Ranger Kevin McKibbin was quoted: "I've even seen them (the booms) move our front glass doors. Sometimes when they're really intense, they'll open a door." Publicity likely led to a sharp reduction in AF sonic booms over the area.

In 1972, then park Acting Director Raymond Freeman reported, "the United States Air Force has issued a regulation prohibiting supersonic operations over all national parks."

Yet, as late as 1974, Assistant Director of Park Historic Preservation Robert Utleigh urged each park region to forward information on sonic booms, stating, "It is strongly recommended that any adverse effect suspected to result from sonic booms be referred immediately to the office of the Chief Scientist".

Due to this precedent of impacts from sonic booms to native communities, park visitors, tribal cultural sites, natural and archeological heritage sites, and other fragile structures - as well as due to the marked delay in impact mitigation despite communication between the Secretary of the Interior and the Secretary of the Air Force; the AF should take especial measures to research risks to ancestral sites sacred

to tribal nations, and to geological features in the Tombstone MOA; including Cave Creek Canyon, Portal Peak, and the iconic rhyolite hoodoos of Chiricahua National Monument (which is periodically considered for elevation to the status of National Park).

Regarding Fire Risk:

The proposed expansion of operations in the Tombstone MOA obviously brings increased risk of fire to an already high-risk zone. Neighbors have shared comments by District Ranger Doug Ruppel noting, the Forest Service has had multiple cases of wildfire ignition likely caused by AF flares, and that the 2021 Telegraph Fire near Globe AZ was likely ignited by a flare dropped from an AF training flight (which put more than 1,000 firefighters at risk and cost taxpayers an estimated \$35 million dollars).

The potentially vast health and economic impacts specifically related to fire risk in our region should be thoroughly investigated and outlined in the AF EIS.

Regarding Human Health Impacts:

Evidence from large-scale epidemiological studies links human exposure to noise, including aircraft noise, with adverse health effects. Noise pollution is defined as “unwanted sound”. The impact of noise depends both on its qualities and its interference with intended activities.

Avoidance of noise is a major concern for many local community members of, and visitors to, the Tombstone MOA area - which is valued for usually quiet activities including solitude and creative retreat, animal husbandry, horseback riding, wildlife observation, astronomy, research and retirement.

For persons routinely exposed to sounds at 65 dBA or more, research suggests there is a notable increase in:

- startle effects
- sudden involuntary reflexes
- decreased brain fluid pressure
- sleep and concentration disorders
- memory loss
- hypertension
- cardiovascular diseases
- cognitive disorders
- shortened life-span

In drafting the EIS, the AF should carefully consider not only the ever growing amount of scientific research on health effects of noise pollution; but current local noise levels, characteristics of noise sources, the local threshold for noise intrusion based on population demographics and the prevalent activities of our region, and non-linear relationships in exposure-response and value functions - in order to calculate a total potential welfare loss for our communities.

Vibrations can add to human and wildlife impacts. Low frequencies that may not be heard, but may cause shaking or rattling, should also be studied. In 2018, the Federal Interagency Committee on Aviation Noise (FICAN) stated the following concern: “FICAN finds that additional research needs to be conducted before a low-frequency noise metric and an associated dose-response relationship can be recommended.”

Furthermore, neighbors associated with Portal Rescue have noted the proposed AF operations directly conflict with the route/altitude medical helicopters take to get from hospitals to the Portal Rescue helipad. The emergency flight evacuation service providers have said they would need to cease services to Portal. This is an acute concern and a potentially devastating impact for human health in our community, which must be addressed in the EIS.

Regarding Economic Impacts:

The economic impact of unwanted noise is related to both the cost of damage caused, and the cost of reducing or repairing this damage; including medical treatment, insurance costs, and intangible costs related to loss of well-being.

The economic impact of noise can be observed in devaluation of property, rental prices, tourism - and additionally for our region, in the loss of valuable research.

In 2006, Melissa Johnson of the Air Force Institute of Technology authored “An Analysis of USAF Aircraft Noise and Hedonic Property Values”, as her thesis. This research effort was the first to evaluate a large number of USAF installations with the hedonic method, and found that homes located within the 65 dB DNL contour of US Air Force installations showed a significant negative impact due to the presence of aircraft noise when studied with the hedonic pricing method of non-market valuation. The AF should conduct current research, at higher levels of organization, on this issue.

As with human health impacts, when evaluating potential economic impacts as relates to real estate and tourism, the AF should use local thresholds for noise intrusion based on population demographics and the prevalent activities of our region. For instance, in addition to unique biodiversity, the area is renowned for clear night skies - and many visitors and property owners utilize expensive telescopes for astronomy. The AF should evaluate the economic impact of maneuvers after dark, flares, and vibrations on astronomy-related tourism and research, as well as on delicate equipment used for these purposes.

Regarding Biodiversity Impacts:

Changes in acoustic environment caused by anthropogenic noise are now known play a critical role in eroding biodiversity.

In 1988, the US Air Force Engineering and Services Center, and the Department of the Interior Fish and Wildlife Service, jointly published “Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: A Literature Synthesis” (NERC 88/29 AFESC

TR 88.14) https://www.fs.fed.us/t-d/programs/im/sound_measure/Manci_et_al_1988.pdf

It is noted in this report that the cue for adult emergence of spadefoot toads (such as those native in the Tombstone MOA) is low frequency vibration. The report states specifically, "The induced emergence of these toads during a season when water is not available is a potentially detrimental impact on spadefoot toad populations. Recently emerged toads are stressed because their fat reserves are depleted, and they are dehydrated. The act of emerging further depletes their energy reserves. If intense sounds, such as ORV's and low-altitude aircraft, cause the toads to emerge at a time when food and water are not available, chances are likely they will not survive, let alone be able to reproduce."

It has been over 30 years since the AF and Dept of Interior produced this report. Research techniques, technology, and data sharing have advanced exponentially in that period. Potential catastrophic impacts of AF expansions to the internationally renowned biodiversity of the region demand new, modern evaluation of the effects of aircraft noise, sonic booms, and particulate pollution on domestic animals and wildlife.

Regarding the Tombstone MOA in particular, exceptional study should be given to wildlife the region is well known for: amphibians and reptiles, Sonoran pronghorn, bees, migratory birds, and any endemic and endangered species. Raptor use of this major migratory flyway up to 10,000' altitude should also be of special concern.

Because the US is a participating non-party to the Convention on Migratory Species (CMS) of the United Nations Environment Program; the AF should engage officials of countries which are Party to the CMS MOU and which are the possible origin for migratory birds which travel through the Tombstone MOA - such as Argentina, Chile, Paraguay, and Panama.

As the proposed impact region includes at least seven Important Bird Areas designated with cooperation by the Department of Defense Partners in Flight as exceptional for conservation, other US and International coalitions which should be engaged in the process of this AF EIS, are: the Partners in Flight and US Important Bird Areas Program, the North American Bird Conservation Initiative, and the Secretariat of Environment and Natural Resources of Mexico (SEMARNAT).

Thank you for your careful review and inclusion of these additional comments in the AF drafting of an EIS befitting the singular attributes of the Arizona Sky Islands.

Sincerely,
Melinda Matson Spina



Casa Petra Vera