

U.S. Fish and Wildlife Southwest Region Migratory Birds Program
Recommendation for Minimization and Mitigation of Impacts to Migratory Birds at Starbase Texas
July 2024

Background

To support SpaceX in efforts to remain compliant with the Migratory Bird Treaty Act (MBTA) while launching rockets and other associated activities in Boca Chica, Texas, the U.S. Fish & Wildlife Service, Southwest Region Migratory Bird Program offers the following information and suggestions. The south Texas coast where SpaceX Starbase was built is surrounded by important habitats numerous migratory bird species depend upon year-round.

Recent monitoring results by a local non-governmental organization document damage to eggs of three of the primary migratory bird species nesting and rearing young near SpaceX launch pad: Snowy Plovers (*Charadrius nivosus*), Wilsons Plovers (*Charadrius wilsonia*), and Least Terns (*Sternula antillairum*). These species nest in sandy, mostly barren beach habitats; the plovers can extend nesting to include sparsely vegetated dunes. Recently hatched plovers are mobile after hatching and use sandy, open sites but will hide along edge of vegetation if needed. Newly hatched Least Terns remain in the nest bowl longer until they are able to fly short distances and thus, can be more vulnerable to impacts of the adults leaving the nest due to disturbance.

Egg laying starts with early Snowy Plovers nesting efforts beginning at the end of February into March while Wilson's Plovers and Least Terns nesting starts the beginning of April. All three species incubate for 25-30 days. Once hatched, plover chicks walk/run short distances to avoid predation, forage with their parents and find cover from the elements (heat, etc.). All three species can fly short distances 30-35 days after hatching. Egg laying and incubation can continue through early August depending on if renesting occurs (often in response to nest failure or destruction). Breeding (egg laying, incubation, and fledgling) efforts of plovers and least terns occur from March through August.

Other migratory bird species are nesting in similar and adjacent habitats such as interspersed upland vegetation and grasslands near Starbase throughout the spring and early summer period.

The greatest opportunity to avoid potential negative impacts and take of migratory birds breeding on tidal flats, sandy beaches, dunes, and grasslands near Starbase is to avoid rocket launches and other activities from March through mid-August every year.

Recommendations: Monitoring

Given recent proposals to increase rocket launches from 5 to 25 per year with 8 of those launches at night and also landing portions of the rockets onto the vertical launching pad, it is likely that additional impacts to breeding migratory birds similar to the egg destruction documented in June 2024 will occur. We suggest that SpaceX consult with the Southwest Region Migratory Bird office to document the response of breeding migratory birds to SpaceX rocket launches and other activities and the potential impacts to their nests and young. We are ready to work together to develop appropriate measures to avoid, minimize and mitigate those impacts to the degree possible.

Monitoring should be statistically rigorous, objective driven and preferably conducted by a neutral third-party based on an agreed-upon monitoring plan. SpaceX activities are novel, substantial (launching rockets) and change frequently on short notice. We understand SpaceX proposes to increase the cadence of launches as well as conduct night launches and some landings back to VLA. Relevant information on the impact of similar activities on migratory birds that would inform best management practices does not exist at this time. Research and monitoring efforts should develop viable, effective and innovative measures to minimize impact and take to

breeding, wintering and migrating birds, however; given the types of activities being employed by SpaceX (rocket launches and landings) and the increased cadence of those activities, mitigation measures may need to be considered as well.

Recommendations: Potential Mitigation

These recommendations primarily address SpaceX's non-compliance of MBTA relative to recent damage and loss of migratory bird eggs during the breeding season. However, given proposed increase in cadence, night launches and other activities in an area that hosts hundreds of thousands of migratory birds each year, it is likely that negative impacts or take of migrating birds will occur during wintering and migration periods on Boca Chica. SpaceX should consider and monitor the potential impacts of their activities on the ability of migratory birds to forage, rest and roost (nighttime) in habitats surrounding launch pad and other SpaceX facilities. The southern Texas coast is one of the most important and heavily used bird migration corridors in North America.

The Migratory Bird Program and relevant partners can explore viable and potentially novel mitigation measures to offset impacts of SpaceX's activities on migratory birds. Mitigation may include conserving similar habitats nearby that are not impacted by launches through fee-title or easement acquisition and restoration of similar habitats.

Should migratory birds be impacted by future activities, we recommend that SpaceX develop a relationship with a nearby wildlife rehabilitator that can work with any injured or orphaned birds, with the goal of returning them to the wild.

Recommendations: Potential Minimization

Hazing breeding birds away from launch pad and surrounding areas is a potential, though not preferred, option. These activities need to be done in advance of breeding and throughout the breeding season to ensure nesting activity does not occur. This would take significant effort and should not be done using vehicles to ensure that take does not occur as a result of hazing activities.