



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



February 8, 2024

Tiffany Whitsitt-Odell
United States Space Force
1028 Iceland Avenue Building 11146
Vandenberg SFB, CA 93437
Tiffany.Whitsitt-Odell@spaceforce.mil

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR THE PHANTOM SPACE CORPORATION DAYTONA-E AND LAGUNA-E LAUNCH OPERATIONS AT SPACE LAUNCH COMPLEX 5, VANDENBERG SPACE FORCE BASE, CALIFORNIA; SCH #2024010130

Dear Tiffany Whitsitt-Odell:

The California Department of Fish and Wildlife (CDFW) has reviewed the Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the Phantom Space Corporation Daytona-E and Laguna-E Launch Operations at Space Launch Complex 5, Vandenberg Space Force Base, California Project (Project). The United States Space Force (USSF) is the lead agency preparing an EA pursuant to the National Environmental Policy Act (NEPA) of 1969 with the purpose of informing decision-makers and the public regarding potential environmental effects related to the Project.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

Conserving California's Wildlife Since 1870

Tiffany Whitsitt-Odell
United States Space Force
February 8, 2024
Page 2 of 7

CDFW is also submitting comments as it relates to exercising regulatory authority as provided by the Fish and Game Code. For example, to the extent implementation of the Project as proposed may result in take, as defined by state law, of any species protected under the California Endangered Species Act (CESA), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

Proponent: Phantom Space Corporation (Phantom)

Objective: The stated purpose of the Project is to address the lack of U.S. Enterprise access to space and to fulfill requirements of commercial and governmental entities in the small satellite orbital and suborbital market. The Project includes construction of two 1,500-square-foot concrete launch pads, a 7,500-square-foot horizontal integration facility, and associated infrastructure. The Project also includes installing utilities, firebreaks, and improvements to access roads.

After construction of the facilities, Phantom proposes to conduct space launch activities related to the Daytona-E and Laguna-E vehicles in support of commercial and government customers. The Daytona-E is a 54.4-foot two-stage, ground-launched vehicle. The Laguna-E is a slightly larger two-stage vehicle, at 78.7 feet. The maximum number of launch and static fire tests carried out each year under the Project would gradually increase over the course of six years to a combined total of up to 48 launches and 48 static fire operations at the Project site per year.

Location: The Project site is located within Vandenberg Space Force Base (VSFB), along the northwestern coast of Santa Barbara. The Santa Ynez River and State Highway 246 divide VSFB into the north Base and south Base. The Project is located at south Base, at Space Launch Complex-5 (SLC-5). SLC-5 is a decommissioned launch site formerly used by National Aeronautics and Space Administration (NASA) to launch Scout space launch vehicles. SLC-5 is east of Surf Road, south of Delphy Road and Avery Road, and north of Honda Canyon Road.

Biological Setting:

The Project site is located on a previously disturbed site that had supported the former Scout Launch Program, which is now inactive. Native and non-native vegetation has become established on the Project site since the 2012 demolition. A total of 32.5 acres of predominantly vegetated habitat (native and non-native) will be permanently impacted by the Project. Native habitat alliances impacted by the Project include arroyo willow thicket (0.35 acre), mixed bush lupine scrub/annual grassland (0.27 acre), coyote brush scrub (1.27 acres), mixed coyote brush scrub/iceplant mat (6.73 acres), lemonade berry scrub (0.08 acre trimmed only, 0.04 acre removed), mixed lemonade berry scrub/veldt grass (9.50 acres), mock heather scrub (0.07 acre), needle grass grassland (1.10 acre), poison oak scrub (1.24 acre), and mixed poison oak scrub/iceplant mat (0.07 acre).

Wildlife species present or expected within and surrounding the Project area include, but are not limited to, Crotch's bumble bee (*Bombus crotchii*; CESA candidate endangered),

Tiffany Whitsitt-Odell
United States Space Force
February 8, 2024
Page 3 of 7

California red-legged frog (*Rana draytonii*; Endangered Species Act (ESA)-listed threatened, California Species of Special Concern (SSC)), and Arguello slender salamander (*Batrachoseps wakei*; newly discovered species endemic to VSFB). Snowy plover (*Charadrius nivosus*; ESA-listed threatened species) nests on the beach approximately 3.5 miles northwest of the Project site. Overwintering habitat for the Monarch butterfly (*Danaus plexippus plexippus*) occurs outside the Project site but within the noise footprint of the Project.

A Biological Opinion (BO) was issued for California red-legged frog and western snowy plover on April 24, 2023, by the United States Fish and Wildlife Service. The BO included a determination that the Project may affect but is not likely to adversely affect the federally threatened marbled murrelet (*Brachyramphus marmoratus*; CESA endangered) and southern sea otter (*Enhydra lutris nereis*), and the federally endangered California condor (*Gymnogyps californianus*; CESA endangered, CDFW Fully Protected), unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*; CESA endangered, CDFW Fully Protected), and tidewater goby (*Eucyclogobius newberryi*).

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the USSF in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources.

COMMENT #1: Crotch's Bumble Bee

According to the EA, Crotch's bumble bee is expected to occur on the Project site and may forage and nest in the construction area. The EA indicates the Project could potentially result in direct physical impacts and loss of habitat.

The EA identifies the Crotch's bumble bee as a California Species of Special Concern. However, the California Fish and Game Commission accepted a petition to list Crotch's bumble bee as endangered under CESA, determined the listing "may be warranted", and advanced the species to the candidacy stage of the CESA-listing process. Pursuant to Fish and Game Code section 2085, CESA candidate species enjoy the same protections as CESA-listed threatened and endangered species. Therefore, take of Crotch's bumble bee is prohibited, except as authorized by State law through the issuance of an incidental take permit (ITP) or other authorization (Fish & G. Code, §§ 2080, 2085).

Crotch's bumble bee inhabits open grassland and scrub habitats. They are generalist foragers and can be found throughout most of southwestern California in areas that have suitable nesting habitat and floral resources. Crotch's bumble bee primarily nest in late February through late September underground in abandoned small mammal burrows but may also nest under perennial bunch grasses or thatched annual grasses, underbrush piles, in old bird nests, and in dead trees or hollow logs (Williams et al. 2014; Hatfield et al. 2012). Overwintering sites utilized by Crotch's bumble bee mated queens include soft, disturbed soil (Goulson 2010) or under leaf litter or other debris (Williams et al. 2014).

Tiffany Whitsitt-Odell
United States Space Force
February 8, 2024
Page 4 of 7

Without appropriate avoidance and minimization measures for Crotch's bumble bee and their habitat, Project-related activities involving ground and vegetation disturbance could result in potential significant impacts, including loss of foraging resources, changes in foraging behavior, burrow collapse, nest abandonment, reduced nest success, reduced health and vigor of eggs, young, and/or queens, and direct mortality. CDFW recommends that analysis, impact avoidance measures, monitoring, and mitigation be included in the EA for Crotch's bumble bee, and that the following specifically be included:

- A habitat assessment should be conducted prior to Project implementation. A qualified biologist should determine if the Project area or its immediate vicinity contains habitat suitable to support Crotch's bumble bee. The assessment should include historical and current species occurrences as well as proximity to the last known sighting. The habitat assessment should include data from site visits to observe and document potential habitat including potential foraging, nesting, and/or overwintering resources. The habitat assessment should quantify which plant species are in bloom and what their percentage cover is. General plant diversity should also be assessed and documented. The foraging resources should be quantified across multiple site visits, corresponding with the Colony Active Season (April - August). Foraging resources recorded should not be limited to the preferred plant species known to be favored by Crotch's bumble bee but should include all flowering plants including non-natives and invasives. Nesting resources quantified can include bare ground, rodent burrows, and other potential nesting sites that may support bumble bee colonies. Leaf litter and woody forest edge that could provide overwintering habitat should also be described. The results of the assessment be provided to CDFW prior to initiating Project activities.
- If suitable Crotch's bumble bee habitat is present and may be impacted by Project implementation, focused surveys for Crotch's bumble bee should be conducted in potential habitat within the Project area during the Crotch's bumble bee flight period. The surveys should be conducted prior to Project implementation to evaluate impacts resulting from potential ground and vegetation disturbance associated with the Project. During the surveys, the biologist should flag inactive small mammal burrows and other potential nest sites to reduce the risk of taking. Once Project activities begin, the qualified biologist should continuously monitor potential nest sites and floral resources for Crotch's bumble bee activity for the duration of construction. If Crotch's bumble bee is detected, the qualified biologist should notify CDFW immediately as further coordination will be required to avoid or mitigate significant impacts.
- If nests are identified, a no disturbance buffer zone should be established around each nest to reduce the risk of disturbance or accidental take. The buffer zone should be a minimum of 15 meters and should be expanded as necessary to prevent disturbance; and
- Any floral resources associated with Crotch's bumble bee that are removed or damaged by Project implementation should be replaced at a 1:1 ratio at a minimum. Floral resources should be replaced as close to their original location as is feasible. If

Tiffany Whitsitt-Odell
United States Space Force
February 8, 2024
Page 5 of 7

active Crotch's bumble bee nests have been identified and floral resources cannot be replaced within 200-meters of their original location, floral resources should be planted in the most centrally available location relative to identified nests. This location should be no more than 1.5-kilometers from any identified nest. Replaced floral resources may be split into multiple patches to meet distance requirements for multiple nests. These floral resources should be maintained in perpetuity and should be replanted and managed as needed to ensure the habitat is preserved.

If the Project or any Project-related activity during the life of the Project could result in take of Crotch's bumble bee, CDFW recommends Phantom seek appropriate take authorization under CESA prior to implementing the Project. Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required to obtain a CESA Permit.

COMMENT #2: CEQA Obligations

It is unclear from the EA whether environmental analysis of the Project will occur at the State level. While we understand that the EA is written to satisfy USSF's obligations under NEPA, CDFW recommends that the EA be amended to include a discussion of other possible regulatory obligations of Phantom under CEQA. CDFW's issuance of a CESA Take Permit is a discretionary action under CEQA. If additional analysis of the Project occurs under CEQA, then CDFW is available for pre-Project scoping and will provide comments during the public review period. If additional analysis will not be pursued by a CEQA Lead Agency, then we strongly recommend USSF and Phantom consult with CDFW as soon as possible regarding Project impacts to CESA-listed species to avoid Project delays associated with State permitting.

COMMENT #3: Weed Management

According to the EA, at maximum cadence the Project would use up to 552,000 gallons (1.69 acre-feet) of water per year, which would be extracted from the San Antonio Creek Basin. The document indicates deluge water will be tested for pollutants after use and will be discharged to the surface via infiltration basins or spray fields if it is free from such pollutants. The EA evaluates the effect of drawing that amount of water from the basin on flow rates, hydration periods, and water levels in San Antonio Creek. The document does not, however, discuss the potential effects of discharging that water throughout the year on wildlife or vegetation communities. The document does not disclose the locations of the proposed spray fields, nor indicate what vegetation communities occur at the discharge locations.

Native vegetation communities are adapted to the natural periodicity of precipitation and seasonal fluctuations in soil moisture. Alteration to soil hydrology in semi-arid landscapes (e.g., a mediterranean climate) promotes the germination and growth of invasive non-native species. In addition, soil disturbance and vegetation clearing promotes establishment and growth of non-native weeds.

A weed management plan should be developed for the Project area, including spray fields, and implemented for the duration of the Project. As part of the Project, non-native weeds

Tiffany Whitsitt-Odell
United States Space Force
February 8, 2024
Page 6 of 7

should be prevented from becoming established both during and after construction, to control the local spread of non-native species. The Project area should be monitored via mapping for new introductions and expansions of non-native weeds. Annual threshold limits, eradication targets, and monitoring should be included in this plan. Monitoring for the spread of invasive weeds to adjacent lands should be included.

COMMENT #4: Arguello Slender Salamander

Arguello slender salamander (*Batrachoseps wakei*) is a newly described species whose entire range is a small 4-kilometer strip along the coast extending from Point Arguello to Honda Point (Sweet and Jockusch 2021). Figures in the EA (e.g., *Figure 3.3-2: California red-legged frog localities, Critical Habitat (inset), and launch noise impact areas*) show the 110 dB sound contour to overlap Arguello slender salamander habitat.

The EA provides species-specific information regarding the hearing of California red-legged frogs and discusses potential impacts from Project-related noise. The EA includes measures to minimize and avoid direct impacts to California red-legged frogs during Project construction and during the life of the Project. The EA also requires long-term monitoring of the population of California red-legged frogs in Honda Creek, and compensatory mitigation if adverse effects are determined. CDFW recommends that similar analysis, impact avoidance measures, monitoring, and mitigation be included in the EA for Arguello slender salamander. The EA should include a monitoring and management program to track impacts to Arguello slender salamander resulting from the Project. Adaptive management strategies should be addressed in the monitoring and management program. Data including occupied habitat, population data and trends, Project noise level monitoring data, and post-launch mortality should be collected and reported annually. If a significant decline in Arguello slender salamander numbers is detected over two years, or a declining population trend, adaptive measures should be implemented to reduce mortality and reverse the population decline.

ENVIRONMENTAL DATA

CDFW requests that information developed in environmental assessments be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). Instructions for submittal are available online at <https://wildlife.ca.gov/Data/CNDDDB>. Additionally, information on special status native plant populations and sensitive natural communities should be submitted to CDFW's Vegetation Classification and Mapping Program. Instructions for submittal are available online at <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Submit>.


CONCLUSION

CDFW appreciates the opportunity to comment on the EA to assist the USSF in identifying and mitigating Project impacts on biological resources.

Tiffany Whitsitt-Odell
United States Space Force
February 8, 2024
Page 7 of 7

Questions regarding this letter or further coordination should be directed to Kelly Fisher at (858) 354-5083 or Kelly.Fisher@wildlife.ca.gov.

Sincerely,

DocuSigned by:

5991E19EF8094C3...

Victoria Tang
Environmental Program Manager
South Coast Region

ec: California Department of Fish and Wildlife

Steve Gibson, Senior Environmental Scientist (Supervisory)
Jennifer Turner, Senior Environmental Scientist (Supervisory)
Cindy Hailey, Staff Services Analyst

Office of Planning and Research

State Clearinghouse, Sacramento
State.Clearinghouse@opr.ca.gov

REFERENCES

California Environmental Quality Act (CEQA). California Public Resources Code in section 21000 et seq. The “CEQA Guidelines” are found in Title 14 of the California Code of Regulations, commencing with section 15000.

California Office of Planning and Research. 2009 or current version. CEQA: California Environmental Quality Act. Statutes and Guidelines, § 21081.6 and CEQA Guidelines, § 15097, §15126.4(2).

Goulson, D. 2010. Bumblebees: behaviour, ecology, and conservation. Oxford University Press, New York, New York.

Hatfield, R., S. Jepsen, E. Mader, S. H. Black, and M. Shepherd. 2012. Conserving Bumble Bees Guidelines for Creating and Managing Habitat for America’s Declining Pollinators. Portland, OR: The Xerces Society for Invertebrate Conservation.

Sweet, S. S. and E. L. Jockusch. (2021). A new relict species of slender salamander (Plethodontidae: Batrachoseps) with a tiny range from Point Arguello, California. *The American Society of Ichthyologists and Herpetologists. Ichthyology & Herpetology* 109, No. 3, 2021, 836–850. 23 September 2021.

Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. 2014. Bumble Bees of North America: An Identification Guide. Princeton University Press.