

August 16, 2021

Memo: SAG Review of CDPR “DRAFT 2021 ODSVRA ARWP” (dated August 2, 2021)

From: Scientific Advisory Group (SAG)

To: Gary Willey, San Luis Obispo Air Pollution Control District (SLOAPCD)
Jon O’Brien, California Department of Parks and Recreation (CDPR)

Cc: Sarah Miggins, California Department of Parks and Recreation (CDPR)
Liz McGuirk, California Department of Parks and Recreation (CDPR)

Summary Statement

The Scientific Advisory Group (SAG) is generally pleased with the draft 2021 Annual Report and Work Plan (ARWP). The ARWP demonstrates tangible progress on dust mitigation treatments during the 2020-21 work year, and it sets forth a comprehensive 2021-22 work plan. In addition, the SAG appreciates that the CDPR, under the leadership of ODSVRA Dust Control Program Manager Jon O’Brien, has maintained close consultation with the SAG over the past year, including through the process of preparing this draft ARWP in coordination with a subgroup of SAG members.

Overall, the SAG is supportive of the draft 2021 ARWP as currently written. However, to contextualize and further improve this ARWP, the SAG offers general comments on the ARWP below. Additional specific minor comments from individual SAG members are provided in Appendix 1.

SAG Comments on Annual Report (Chapter 2)

Overall, the SAG is pleased with progress reported for 2020-21 activities. The scale of effort and coordination required to grow plants, install dust controls, and track the associated progress on dune restoration and dust mitigation is truly impressive. Dust control activities have led to demonstrable progress in reducing PM10 emissions from within the ODSVRA and in reducing airborne PM10 concentrations at receptor sites downwind of the ODSVRA. Some general SAG comments and recommendations on the Annual Report follow below:

DRI Report on Increments of Progress (Sec. 2.2.3.3). The SAG appreciates that this draft ARWP includes the DRI report, “Increments of Progress Towards Air Quality Objectives - ODSVRA Dust Controls” (see Attachment 04). This DRI report provides additional independent evidence, beyond the standard metrics reported in each ARWP, for the effectiveness of dust control measures. However, the SAG finds that the current framing of these DRI report results (which cover only the period up to July 2020) within Sec. 2.2.3 (which covers the August 2020-July 2021 report period) is confusing. Because the “Increments of Progress” report does not directly address the 2020-21 report period, the SAG recommends that results of this report be moved from Sec. 2.2.3.3 to within Sec. 2.4, i.e., under “Report on Other Dust Control Program-Related Activities.”

UCSB Report on UAS Foredune Restoration Monitoring (Sec. 2.3.3). Prior to submission of the final version of the draft 2021 ARWP, please be sure to provide the full UCSB UAS Foredune Restoration Monitoring report (Attachment 08) and to include a more comprehensive and appropriate summary of key findings of the UAS foredune restoration monitoring component within the ARWP main text (Sec. 2.3.3). Significant progress on the foredune restoration mitigation is currently not conveyed fully in the existing draft ARWP.

DRI Report on Effects of OHV (Sec. 2.4.3). The SAG appreciates that the draft ARWP includes the DRI report, “Examining Dust Emissions and OHV Activity at the ODSVRA” (see Attachment 13). However, the SAG suggests that a summary of this DRI report be added in Sec. 2.4.3, as the results of this research are significant and should not remain buried in the Attachment. In addition, it would be helpful for the ARWP to include cross-references between this section (Sec. 2.4.3) and the section on “PI-SWERL / Emissivity Monitoring” (Sec. 2.3.5).

Regarding the DRI report, the SAG wishes to highlight the fact that this report provides compelling evidence for the substantial and unambiguous impact of OHV activity on increasing PM10 mass emissions at the ODSVRA, as well as airborne PM10 concentrations downwind of the ODSVRA, relative to undisturbed natural conditions. Key findings of the DRI report include the following: (1) Riding Areas subject to intensive OHV activity produce substantially more PM10 mass emissions (per acre) than relatively undisturbed Non-Riding Areas; (2) During the 2020 COVID-19 closure, sampled locations within the Riding Area experienced a significant decline in PM10 emissivity relative to previous years; and (3) During the 2020 COVID-19 closure, airborne PM10 concentrations relative to wind strength (as defined by “wind power density” (WPD)) declined significantly over the course of the windy season, in contrast to the usual trend of increasing PM10 concentrations through time relative to WPD during a typical windy season. The SAG affirms that these DRI findings provide compelling evidence for the impacts of OHV on PM10 pollution at the ODSVRA, though the SAG urges caution in the interpretation of specific values and advises against attributing specific percentage reductions in airborne PM10 concentrations to the effects of the temporary ban on OHV activity. The SAG suggests strongly that these key points be conveyed distinctly in the ARWP, perhaps right up front in section 2.4.3, to be followed by more expansion in the remainder of the section.

Dust Control Terminology. Though the use of Project IDs for dust control treatments is clear and helpful, other terminology regarding dust control treatments is somewhat confusing and should be clarified. For example, the activities described in the following statement on p. 2-12 need to be better explained:

“Finally, estimates of dust control acreage do not fully consider or convey the annual maintenance and supplemental planting activities CDPR must undertake to maintain effective dust control measures.”

In addition, throughout the ARWP text, tables, figures, and attachments, there appears to be inconsistent terminology regarding straw treatments. For example, in Attachment 01 straw treatment types appear to be referenced by different names as years progress. Please strive for consistency; otherwise, the annual maps do not serve a very good purpose. For clarity, the SAG suggests that dust control terminology refer to what the treatment consists of, regardless of how it was actually applied. For example, consider using a generic term like "straw blanket" or "straw

mulch” for all types of distributed straw application (i.e., placed on the ground intact, scattered by hand, blown on, placed as a blanket or a mulch) and “straw bales” for placement of intact bales.

“CDPR” vs. “State Parks” Terminology. It is confusing when “CDPR” and “State Parks” are used in the same sentence or the same paragraph in close proximity. Such use suggests to the reader that these are two different entities. For example, see the following two sentences in Sec. 2.1.1.1 (p. 2-7):

“State Parks first applied straw mulch to the selected planting areas. Then, CDPR broadcast the treatment areas with limited seeds and sterile cereal grains.”

And at the bottom of page 3-5:

“... CDPR will restore the project areas. State Parks’ restoration methods are...”

It reads as if two different organizations were involved. This mixing of terminology also occurs elsewhere in the document (e.g., p. 2-21, first full paragraph.) Please use only one acronym or phrase per name. If both names must be used, please be sure to avoid any ambiguity, and please also define “State Parks” in the acronym table.

Accounting for Dust Control Acreage. The language around “keeping score” of dust control acreage is confusing (i.e., first partial paragraph of p. 2-12). The SAG argues that it is indeed possible to represent the total acreage covered by dust controls at any one time by a single value. It is fine to also take credit for replacement acreage, but this can simply be stated separately. For clarity, here is some suggested wording to replace the current passage starting with “Second, a “snapshot” estimate...” through the end of the paragraph (p. 2-12):

“While each of several steps in creating a new planted area provide some measure of reduction of PM10 – often over a period of two years – the totals are only reported when the plants have been installed.”

Reporting on Air Quality Progress. There continues to be some confusion regarding whether progress toward air quality targets should be reported for the entire ODSVRA or only for the Riding Area. Contributing to this confusion, the current SOA target (and associated modeling) for a 50% reduction in PM10 mass emissions refers only to modeled changes in mass emissions within the Riding Area, whereas reporting of modeled changes in PM10 airborne concentrations refers to the effects of all dust mitigation actions in the ODSVRA, both inside and outside the Riding Area. This is not a critique of CDPR’s overall reporting approach, which is bound to the current SOA target, but simply a reminder to be very careful when reporting values within the framework of this SOA target. Hopefully, the ongoing efforts to revisit the SOA target (i.e., ARWP Secs. 2.4.4 and 3.1.7.1) will help to reduce this reporting confusion. In the meantime, please be sure to be consistent and clear when interpreting these different metrics for progress (i.e., changes in PM10 mass emissions versus changes in PM10 airborne concentrations). In the current draft ARWP, the changes in conditions for the Riding Area versus the full ODSVRA are sometimes reported almost interchangeably. For example, the second paragraph on p. 2-1 of the draft ARWP refers to 323 total acres of dust control measures in the full ODSVRA, then it refers to a 21% reduction of mass emissions within the open riding and camping area. Though this statement is factually correct, the reporting of these two metrics side-by-side could cause confusion without further clarification. One way to clarify this would be to explicitly describe the 21% reduction directly in relation to the smaller spatial extent (i.e., 261 acres) with which it

is associated. As another example, a statement on p. 2-16 of the ARWP describes a 21% reduction in mass emissions resulting from 323 acres of cumulative dust control. This statement needs to be corrected, as it incorrectly mixes a 21% reduction for the Riding Area only with 323 acres of cumulative dust control for the full ODSVRA.

Accounting for Field Monitoring. There appears to be some inconsistency with reporting of English or metric units. For reported values of mass emissions, the SAG suggests using consistent mass units (i.e., always use metric tons).

SAG Comments on Work Plan (Chapter 3)

Overall, the SAG is pleased with proposed plans for the 2021-22 work year. In particular, the SAG commends plans to install 90 acres of new dust mitigation treatments, to convert existing temporary treatments to permanent treatments, and to continue monitoring and modeling activities to inform adaptive management. Some general SAG comments and recommendations on the Work Plan follow below:

Proposed 90 Acre Treatments (Sec. 3.1.1). The SAG is pleased to see that the draft ARWP proposes to add 90 acres of new dust mitigation treatments in the 2021-22 work year, keeping up with the pace of new treatments in previous years. The SAG affirms that CDPR closely consulted with SAG in the process of determining proposed treatment locations. These locations seek to balance progress both toward reductions in PM10 mass **emissions** (toward achieving the SOA 50% reduction target) and toward reductions in PM10 mass **concentrations** at the CDF and Mesa2 receptor sites (toward achieving federal and state ambient air quality standards). Though the SAG awaits completion of DRI model simulations of proposed treatment options (i.e., draft ARWP Sec. 3.2) before offering its full endorsement of either option, the SAG notes that it has already provided preliminary approval for Option 1 at the recent July 2021 SAG meeting. Option 2, which offers a slight modification of Option 1 to address operational considerations, also appears workable. In fact, the presence in Option 2 of a continuous “green wall” of dust mitigation treatments along the eastern edge of the ODSVRA could potentially offer additional indirect benefits on dust mitigation via downwind boundary layer dynamics that go beyond direct effects modeled in the DRI model. The SAG emphasizes the importance of planned activities in the coming year, as reflected in this draft ARWP, to fully account for the effects of dust mitigation treatments, including the use of CFD modeling to capture boundary layer dynamics, and the use of data from recent PI-SWERL campaigns to capture changing patterns of PM10 emissivity across the ODSVRA.

Proposed Conversion of Temporary to Permanent Measures (Sec. 3.1.2). Prior to submission of the final version of the draft 2021 ARWP, please be sure to finalize specific proposed locations for the conversion of temporary to permanent dust control. Table 5-2 indicates that consultation with the SAG on project selection will be complete by October 2021.

PI-SWERL Campaign Plans (Sec. 3.1.6.2). There is some inconsistency in the ARWP regarding plans for a PI-SWERL campaign in 2021-22. On page 3-1, “Dune emissivity (PI-SWERL) sampling campaign” is noted on the list of planned activities, whereas Table 5-6 declares that no PI-SWERL measurements will be collected in the coming project year. At its

recent July meeting, the SAG discussed the idea of conducting repeat PI-SWERL surveys within the foredune restoration zone as a way to better quantify the effect of the foredune restoration on dust mitigation. Though such plans have yet to be finalized, the SAG suggests that the ARWP consistently mention these plans for PI-SWERL measurements.

SOA Progress and Requirements (Sec. 3.1.7.1). The SAG commends CDPR’s continued engagement with the SAG on the determination of scientifically-justified alternatives to the current Stipulated Order of Abatement (SOA) 50% PM10 mass emissions reduction target to more directly reflect the impact of dust mitigation treatments on downwind airborne dust concentrations. This draft ARWP describes the expectation that such work on the SOA target will be completed within the 2021-22 work year. However, in light of the fact that the SAG has not yet had a chance to fully discuss the proposed timeline for work, as well as the fact that the UCSB historical vegetation study underpinning this process remains ongoing, the SAG suggests removing the specific timeline dates on p. 3-11 and instead framing this as a bulleted “Work Plan” with a target completion date of January 31, 2022.

Public Relations Campaign (3.1.8). The SAG encourages CDPR to define more actionable and time-bound goals for the PR campaign. Currently, Table 5-8 simply indicates this as an ongoing activity with no definable endpoint.

Coastal Commission Decision (Sec. 3.1.9). The ARWP does not reference the recent Coastal Commission decision to close the ODSVRA to OHVs in 2024. Though the SAG recognizes that ongoing litigation injects some uncertainty into the Coastal Commission decision, the SAG nonetheless encourages CDPR to begin planning for how a closure to OHVs would affect ongoing dust control efforts.

SAG Comments on Other Elements of ARWP (Chapters 4, 5, Attachments, and Omitted Elements)

The SAG is pleased to see comprehensive budgetary information (Chapter 4), implementation schedules (Chapter 5), and documentation in support of ARWP elements in the Attachments. Some general SAG comments and recommendations on these other elements of the ARWP follow below:

Accounting for Restoration Projects (Attachment 02). Attachment 02 consists of one table, and it is not at all clear what it is about. This attachment needs considerable clarification.

Evaluation Metrics (Attachment 11). The SAG appreciates the use of a simplified set of Evaluation Metrics, which more clearly convey the important indicators of progress in dust mitigation and dune restoration. However, for these Metrics to be useful, it is imperative that all values are reported and none are left as “TBD” (as was the practice in previous years). Please update all “TBD” values prior to submission of the final version of the draft 2021 ARWP for SAG comment and APCD approval.

Historical Vegetation Study. To inform consideration of the SOA requirements and adaptive management, the SAG urges timely completion and publication of the historical vegetation analysis report under preparation by UCSB.

Respectfully,
The Scientific Advisory Group

Dr. Raleigh Martin (Acting chair of SAG); Dr. William Nickling; Dr. Ian Walker; Ms. Carla Scheidlinger; Mr. Earl Withycombe; Mr. Mike Bush, Dr. John A. Gillies

Appendix 1: Specific Minor Comments on Draft 2021 ARWP from SAG Members

Carla Scheidlinger:

- a. *Introduction*: There is in the introduction a single mention of soil stabilizers; but there is not further information about it. Explain and amplify, or omit.
- b. *Attachment 1, A01-01*: What does "removed" mean? Standardize straw language: mulch? blown? bales? Are these all the same?
- c. *Attachment 1, A01-02*: Same as straw blown?
- d. *Attachment 1, A01-04*: Is "previous permanent project" always vegetation? If so, why is it a different color? Why can't it just be called "previous vegetation" if you want to separate it out from the current year's work?
- e. *Attachment 1, A01-06*: The area called Schnauzer is called "previous permanent" but it is straw bales, which is not permanent.
- f. *Attachment 1, A01-07*: What is a porous roughness element?
- g. *Attachment 1, A01-10*: Is the "fence installed" the same as a vehicle exclusion?
- h. *Attachment 1, A01-11*: Is "straw blown" the same as "straw bales"?
- i. *Attachment 1, A01-12*: Is "seed" considered permanent? Is this a new technique for 2021?
- j. *Attachment 2*: This is very confusing. Where are these? Are they on the previous maps? Is "scattered straw" yet a different straw treatment? Which if any of these are called permanent?
- k. *Attachment 11, 7c, Straw bales area*: Does this include "blown straw", straw mulch", and "scattered straw"?
- l. *Attachment 11, 7e, Stabilized vegetation surface area*: Does this include areas identified as "seed"?

Jack Gillies:

- a. *p. 1-2, first line*: Insert "to be" after "program activities"
- b. *p. 2-12, first bullet*: Replace "requires" with "required"
- c. *p. 2-13, second bullet*: Replace "to be achieved" with "assessed"; replace "being implemented" with "were implemented"
- d. *p. 2-16, Sec. 2.2.3*: In my opinion, decimal values are not warranted given the uncertainties.
- e. *p. 2-20, end of first paragraph*: Replace "was open" with "was opened"
- f. *p. 2-21, Sec. 2.3.1*: Suggest reporting that a new location for Met & PM was installed in the northern dune preserve area to provide measurements that characterize a non-riding area.
- g. *p. 2-35, second paragraph*: These dates are not correct. Measurements were carried out at Oso Flaco and the dune restoration sites. Delete "August 1, 2020, to July 31, 2020."
- h. *p. 2-36, Sec. 2.3.5*: Suggest adding information on the purpose of these measurements in 2020. i.e., to determine if there was an observable change in emissivity following the cessation of OHV activity.
- i. *p. 2-37, first full paragraph*: In the first line, replace "met" with "approached". In the third line, replace "meet the" with "have" and replace "of" with "similar to". In the fourth line, replace "saw" with "achieved".
- j. *p. 2-37, first full paragraph, second to last sentence*: It is unclear to me what this means. How do monitoring methods increase? Or do you mean that additional methods will be used to increase the rigor of the data collection to determine %cover?
- k. *p. 2-37, second full paragraph*: Replace "significantly increase" with "indicate that". Add "is increasing significantly" to end of paragraph.

- l. p. 2-38, *first full paragraph*: Are there any results from this monitoring?
- m. p. 2-38, *Sec. 2.3.7, second paragraph of section*: delete “for which”
- n. p. 3-8, *Sec. 3.1.6.2*: after “carried out”, insert “in 2021/2022”.
- o. p. 3-13, *Sec. 3.2*: This information became available to Parks on 08-09-2021.
- p. p. 3-14, *second line*: Insert “created by foredunes” after “sheltering effects”.
- q. p. 3-14, *third line*: Replace “to be complete” with “to be completed for an Oso Flaco-like foredune.”
- r. p. 3-14, *Sec. 3.3.1*: Delete “proposed” before “2021 plan”.

Earl Withycombe:

- a. p. IV (*Attachments*): It would be helpful to add a copy of the SOA with amendments so that the reader can confirm references to SOA requirements
- b. p. 2-3, *footnote 1*: The rounding of acreages should be consistent: either round up and down (above and below .5), always up, or always down. The lack of consistency suggests a lack of accuracy.
- c. p. 2-6, *Fig. 2-1 Legend*: Explain the system of acreage totals between the two tables in these plots. How do the tables relate to each other?
- d. p. 2-6, *Fig. 2-1 Table*: It would be useful for these specific area tables to be split into new vs. replacement projects, with subtotals for each.
- e. p. 2-7, *first bullet*: "SVRA" is not defined in the acronym table on p. v. Please consider using the consistent terminology of “ODSVRA.”
- f. p. 2-7, *last bullet*: There are no "SM" projects listed in the lower table in Figure 2-1. Instead, the Figure reports "SB" projects, which - I am assuming - are the same as "SM". Please be consistent in the use of these abbreviations.
- g. p. 2-9, *first line*: The lack of rounding consistency leads the reader to wonder if the 6 + 8 acres are an exact replacement of the 15 acres.
- h. p. 2-9, *Sec. 2.1.1.4*: "APCD" is not defined in the acronym table on p. v. Please consider using the consistent terminology of “SLOAPCD.”
- i. p. 2-16, *Table 2-4*: The footnotes should apply to specific cells in these columns, not to all cells in the columns. "145.2", for example, represents a 37.0 acre reduction from 182.2, not a 10.1 acre reduction. The same comment applies to the percentages in the rightmost column.
- j. p. 2-23, *first line*: Please include the equivalent particle size range in microns when referring to bins.
- k. p. 2-26, *third line*: BSNEs collect sand (saltation) particles, not dust.
- l. p. 2-27, *first full paragraph*: This statement needs to be clarified. How can an NSF value of 0.28 be lower than a value of 0.21 in the next two sentences? Reword this paragraph; it is confusing and difficult to understand.
- m. p. 2-29, *Fig. 2-6*: The map numbering system should be consistent with the text numbering system on pp. 2-27-28.
- n. p. 2-45, *Sec. 2.4.5.2*: Why aren't the conclusions of these new Scripps studies (i.e., April-May 2021) summarized here?
- o. p. 3-11, *third item*: Add a footnote defining “indirect effects,” i.e., “ ‘Indirect effects’ refer to the effects of dust mitigation treatments beyond the direct reductions in PM10 mass emissivity within treatment areas. These include downwind sheltering effects (as modeled by CFD) and changes in sediment flux.”

- p. *Attachment 03, first table*: The entries in the “Name Area” and “Description” columns appear to be mixed up - some descriptions are actually area names.
- q. *Attachment 03, second table*: A footnote should be added to discuss how this table is different from the following table. Is the only difference that of emissivity of specific areas?
- r. *Attachment 04, “Increments of Progress Towards Air Quality Objectives, 2013 – 2020 (Prepared by DRI),” first line of second page*: Define the unit “W” when it is first used.
- s. *Attachment 04, “Increments of Progress Towards Air Quality Objectives, 2013 – 2020 (Prepared by DRI),” Figure B*: I suggest splitting these plots into separate figures to be consistent with the format of Figures C and D.
- t. *Attachment 04, “Wind and PM10 Relations Between May/June 2019 and May/June 2020,” third paragraph, last sentence*: I suggest adding a footnote to reference Attachment 13 that does provide the data on OHV riding on dust emissions.
- u. *Attachment 04, “Wind and PM10 Relations Between May/June 2019 and May/June 2020,” third page, first full paragraph*: Delete “try and”; Replace “from one to three days” with “within three days.”
- v. *Attachment 05, first page, “VICINITY MAP”*: I think it would be worthwhile to add a footnote indicating that the Pier Avenue entrance may be closed entirely on July 1, 2022 if the Coastal Commission order is upheld in court.
- w. *Attachment 07, second page, first full paragraph*: Define “ND” here.
- x. *Attachment 07, third page, first paragraph*: This is a question for the SAG - why don't we have PM measurements upwind and downwind of the foredune? We continue to assume that treated areas are 100% controlled for modeling purposes, but is this a reasonable assumption? Shouldn't we be using available saltation data to estimate control effectiveness and translating reduced saltation into estimated emissions at least for modeling purposes?
- y. *Attachment 09, second page, first full paragraph, last sentence*: Please define - are these foredune restoration areas?
- z. *Attachment 09, Table 1*: Are these monitoring periods of sufficient duration to characterize flows during conditions of varying solar radiation, for example? How variable is upper airflow data on high wind hours each day?

Raleigh Martin:

- a. *Project IDs*: Sometimes the year is given as 2 digits (i.e., “21-VG-01”), and sometimes as 4 digits (i.e., “2021-VG-01”). Wherever possible, please strive for consistency.
- b. *p. 2-3, footnote 1 and Table 2-1, footnote C*: I don’t recall the SAG ever recommending that acreages be rounded. For consistency, I suggest reporting all acreages with one decimal digit, for consistency with maps.
- c. *p. 2-8, Sec. 2.1.1.3, first bullet*: Please include the Project ID for the 15-acre straw treatment that was replaced.
- d. *p. 2-12, Sec. 2.2, first bullet*: Please verify that this is correct. I believe the 48-acre foredune was not specified until the Amended SOA.
- e. *p. 2-15, footnote 3*: Please ensure consistent usage of “metric ton” terminology throughout the report.
- f. *p. 2-16, p. 2-18, and p. 2-19*: Note typo, “Ocean Dunes SVRA”
- g. *p. 2-16, Sec. 2.2.3*: When reporting these mean PM10 concentrations, I suggest noting that the “baseline period” refers only to the top 10 windiest days during the 2013 reference period, so that it’s clear that these high mean concentrations are not experienced every day.

- h. p. 2-17, Table 2-5, footnote A and p. 2-18, Table 2-6, footnote A: The units for concentration here should be ug/m³ (not metric tons per day).
- i. p. 2-19, Sec. 2.2.3.3, first paragraph of section: I believe the 223 acre value is incorrect. According to Table 2-6, the value should be 231 acres.
- j. p. 2-21, 2nd full paragraph: Please explain what is meant by “its establishment” and the significance of the year 2017.
- k. p. 2-23, first line: You may consider saying “for all size bins” rather than “through size bin six.” I doubt that most readers understand the binning methodology for the MetOne 212-2 Particle Profilers.
- l. p. 2-23, last paragraph: This comment about the Sensit instrument seems out of place. Is such a Sensit present with each met station? If so, I suggest mentioning this in the bullet points on p. 2-22 (or, instead, perhaps this could be mentioned within Sec. 2.3.2, “Saltation Monitoring”)
- m. p. 2-27, first full paragraph: I am having trouble understanding this paragraph. Please rewrite for clarity.
- n. p. 2-30, last paragraph: “BSNE dust collectors” is incorrect. I suggest “BSNE sand traps” instead.
- o. p. 2-32, Sec. 2.3.3, first paragraph of section: Though it is mentioned again later, it may be worth mentioning here that UAS surveys are not performed during plover nesting periods.
- p. p. 2-33, item 4: It may be worth mentioning here that, in contrast to the point measurements of BSNEs, the GCD maps provide spatial patterns of geomorphic change.
- q. p. 2-33, last paragraph: Instead of “before any restoration activity” I suggest “before any foredune restoration activity.”
- r. p. 2-34, second line: “detect better” appears to be a typo.
- s. p. 2-35, last full paragraph: “DEMS” should be “DEMs.”
- t. p. 2-36, second line: The phrasing “and at present” doesn’t quite make sense.
- u. p. 2-36, Sec. 2.3.6.1, last paragraph: “was noted” should be “were noted”
- v. p. 2-38, first line: By “in October” do you mean “each October”?
- w. p. 2-40, second line: I suggest including a reference here to Sec. 3.1.7 (“Continued SAG Consultation and Evaluation”)
- x. p. 2-42, last full paragraph: In light of the recent preliminary findings of the historical vegetation study, it is not clear that in fact vegetation covered a greater spatial extent in pre-disturbance times. Therefore, I suggest replacing language such as “decrease in vegetation,” “less dune vegetation coverage” and “increased vegetation” language with “changed vegetation coverage.”
- y. p. 2-43, line 6: insert a semicolon before “2)”
- z. p. 2-43, Sec. 2.4.5.1, 2nd line of section: “there is the” should be “there is in the”
- aa. p. 2-44, second bullet: Remove duplicate periods. Also, should “the District” be “SLOAPCD”?
- bb. p. 2-44, third bullet: Please clarify the meaning of “it” in “It refers to...” Is this talking about the mass closure?
- cc. p. 2-45, first full paragraph: Please clarify that work on the Proposal for Speciation Sampling is already underway.
- dd. p. 2-45, Sec. 2.4.5.2, end of first paragraph of section: Please note in the text that the SAG and SLOAPCD questioned the validity of the 20% value, and refer the reader to

SLOAPCD's response in Attachment 15 and the SAG's response in Attachment 12 for arguments as to why this 20% value is disputed.

- ee. p. 2-46, Sec. 2.4.6, first line of section:* "According to" should be "In response to." In addition, I suggest that the section mention that among the public, an important audience for the PR campaign are visitors to the ODSVRA.
- ff. p. 3-14, Sec. 3.3.1:* This section describes the ambitious speciation sampling plan as a proposal, whereas in fact it is already well underway. I suggest that the wording be revised to reflect this fact.
- gg. Table 5-7:* Please provide the following months for planned SAG quarterly meetings - Oct, Feb, May, and July