marie@mariejonesconsulting.com

From: marie@mariejonesconsulting.com
Sent: Monday, September 19, 2022 11:09 AM
To: 'Jacob Patterson'
Cc: 'O'Neal, Chantell'
Subject: RE: Preliminary Comment on the Draft IS/MND for the C&S Waste Transfer Project at 1280 N. Main Street, Use Permit 4-22

Hi Jacob,

I want to give you an accurate understanding of our outreach with the Coastal Commission staff on this project.

- They did receive from the State Clearinghouse database an announcement of the availability of the environmental document for this project on 9/15.
- The City sent a referral for the permit application in January of this year, for which Commission staff provided preliminary comments.
- The City also cc'd Commission staff on our response to comments received from State Parks.

They are aware of the project.
Thanks,

Marie Jones
Marie Jones Consulting
707-357-6480
www.mariejonesconsulting.com

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Friday, September 16, 2022 10:53 AM
To: CDD User <cdd@fortbragg.com>
Cc: Marie Jones <marie@mariejonesconsulting.com>; Ducey, Peggy <pducey@fortbragg.com>; Kraemer, Melissa@Coastal <melissa.kraemer@coastal.ca.gov>; Robinson, Aurora@Coastal <Aurora.Robinson@coastal.ca.gov>; Garcia, Tatiana@Coastal <Tatiana.Garcia@coastal.ca.gov>
Subject: Preliminary Comment on the Draft IS/MND for the C&S Waste Transfer Project at 1280 N. Main Street, Use Permit 4-22

City of Fort Bragg,

Please accept these comments on the Draft Is/MND for the C&S Waste Transfer Project at 1280 N. Main Street, Use Permit 4-22, which is currently out for public and responsible agency review and comment. The Draft IS/MND for the C&S waste transfer station project includes (IMO false) assertions that the project will not have potentially significant impacts within the transportation study areas. For example, the IS checklist has the following two questions that are relevant to this project and a customized study area might need to be developed in an amended CEQA document in order to address the project's impacts on the pedestrians parking on the site and crossing Highway One to access Virgin Creek beach and the state park.

XXIV. TRANSPORTATION

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Draft IS/MND includes only some policies in its analysis; however, the Circulation Element of the Inland General Plan includes the following applicable policies that addresses the circulation system, specifically pedestrian facilities, and the project details appear to be in direct conflict with the first policy because it contains no sidewalk improvements (i.e., "New development shall provide sidewalks along project frontages to close gaps in the City's sidewalk network"):

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Unfortunately, the IS/MND omits these very relevant policies from the table of applicable Goals, policies, and programs from the Circulation Element. This project meets the definition of new development and, although there are significant gaps in the sidewalk network north of Pudding Creek, this policy does not provide sufficient wiggle room to avoid filling in the gaps along the frontage on the project site even if Caltrans, who controls the Highway One right-of-way, did not request these specific improvements in their review of the project. (Caltrans limits their reviews and comments to conflicts with their policies but does not generally analyze a project's inconsistencies with local policies and regulations but a project still needs to meet those requirements.) In fact, some off-site improvements likely could have been required if the buy-back center was still included. As a result, I believe this project requires a mitigation measure to address this potentially significant impact, which would include adding sidewalks along Highway One along with an improved pedestrian crossing opportunity (e.g., a marked crosswalk along the existing path or to a re-aligned crossing path). Basically, there is a potentially significant but likely mitigatable impact due to these issues and the CEQA review needs to reflect that rather than omitting the necessary analysis and resulting mitigation measure(s).

The IS/MND also fails to analyze the pedestrian safety impacts of the project related to the numerous crossings of Highway One of people going between the parking area and the access trail to the beach and haul road in light of the increase in traffic from large waste collection vehicles accessing the project site. There is literally case law on this issue, although that specific analysis is frequently overlooked in CEQA documents because the standard Appendix G IS checklist questions don't explicitly mention this impact study area other than the reference to applicable policies. Since many jurisdictions don't have policies specific enough to address pedestrian crossing existing or proposed roadways to access the project site, planners and consultants can skip this important and often necessary analysis In any case, the City of Fort Bragg does have relevant policies that are mandatory (see "shall" in Policy C-11.1) and this project fails to

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Moreover, the Coastal Commission is not listed as receiving this notice or being consulted about this project. Although this project is outside the Coastal Zone, it is immediately adjacent to the Coastal Zone and includes significant coastal resources in the form of the long-established informal parking area that many people use to access the Coastal Zone and the beach, particularly surfers going to Virgin Creek beach. That has been the case for my entire life. I believe the Coastal Commission has some oversight and jurisdiction on projects outside the Coastal Zone but which contain coastal resources or which have a substantial likelihood of impacting coastal resources or access thereto. This project is immediately adjacent to the Coastal Zone across Highway One and includes such coastal resources, the parking area that is mentioned in the project materials. I think the Coastal Commission needs to be consulted because the CEQA analysis does not address these significant issues and they have the appropriate expertise. The removal of the buy-back center from the project in response to guidance from Caltrans reduces some of the concerns but it does not eliminate them because of the aspects of that roadway segment and the increased traffic from all the solid waste collection trucks and other vehicles turning off or onto Highway One in the middle of a sharp turn without dedicated turn lanes, without improved shoulders, and without any pedestrian facilities. This project is at the exact spot where numerous pedestrians cross Highway One to access the trail to the beach and haul road from the informal parking area. The existing crossings are already dangerous and there will likely be increased dangers to the pedestrians crossing the Highway when all of the large trucks are coming to and from the project site. That has not been analyzed within the CEQA review, which is a significant defect and objectionable error, because it is likely that the traffic generated by the project presents a cumulatively considerable contribution to the existing problem. I have been documenting the conditions relating to the parking areas and pedestrian crossing but the Draft IS/MND already acknowledges the situation; unfortunately, it doesn't address or analyze it sufficiently. As such, the Draft IS/MND needs revision to address this specific impact area, which may also justify elevation to a full EIR rather than an MND depending on the analysis.

Regards,

--Jacob

marie@mariejonesconsulting.com

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Monday, September 19, 2022 9:45 AM
To: marie@mariejonesconsulting.com
Cc: Ducey, Peggy
Subject: Re: Preliminary Comment on the Draft IS/MND for the C&S Waste Transfer Project at 1280 N. Main Street, Use Permit 4-22

Marie,

Thank you for your insights and the additional information. I don't disagree with the City's legal counsel that special conditions can deal with issues sufficiently but it depends on the issue and no one could provide an opinion across all situations since each instance involves a fact- and project-specific inquiry. I disagree if the particular topic at issue involves an environmental impact area and required area of study (based on applicable case law), which I believe applies to this situation. I have located such case law and I believe it is on point for this project and even more so to the S. Franklin Street Grocery Outlet project, which actually increases the volume of pedestrian traffic to and from the site rather than just increasing the vehicle traffic and the hazards to the pedestrians as this project does. IMO, safety concerns about pedestrians crossing roadways or other transportation corridors (e.g., train track segments) need to be analyzed within the CEQA document itself when that project contributes to the problem in a meaningful way. That is not a standard Appendix G checklist question but many projects involve additional study areas that need to be customized for the project rather than just going down the standard minimum IS checklist questions.

In general, I believe the CEQA document needs to stand on its own and evaluate the project as presented, not some future (unknown to the public or responsible agency reviewers) project that will be conditioned to include other things (e.g., special conditions that also haven't been reflected in updates to the project description under review). The fact that there is already a staff report when the public review period has only just started is a little concerning since the staff recommendations should depend, in part, on what the public has to say about the adequacy of the environmental review. IMO, most compliant reviews address specific issues through corresponding mitigation measures ***and*** special conditions (or one special condition about all the mitigation measures and the MMRP).

I acknowledge that I believe it is possible for an MND or EIR to analyze the pedestrian safety concerns and not end up with a mitigation measure but to end up with a special condition, but that could only happen after establishing an appropriate threshold of significance and actually analyzing the pedestrian safety impacts within the CEQA document, and even then only if the potentially significant impacts are determined to be less-than-significant without mitigation as a result of that analysis. My issue with this draft IS/MND is it doesn't appear to go through that process to get to the conclusion and I would likely object if it had because I think the only reasonable conclusion is that there are cumulatively considerable contributions to the existing pedestrian safety concerns and hazardous crossing due to the type and volume of additional vehicular traffic accessing the site as compared to the road conditions.

Please keep in mind that J&M's lawyers are usually in Southern California and may not know the local facts and conditions on the ground other than what they can read in the documents or hear from staff (staff aren't lawyers so they might not be aware that there are various court decisions that provide direction one way or the other about what needs to be included in a CEQA document). Helix is also not local, although you are, which is one of the reasons your renewed involvement is so welcome. As another local person with a relevant skill set, I think I usually have better and more comprehensive access to relevant information compared to the City's outside advisors and non-local contractors. I also understand community expectations, which are relevant within CEQA because appropriate thresholds of significance in many impact areas without a preexisting and applicable threshold can and should be based on what the community deems acceptable versus what we would collectively consider to be "significant" in a particular study area. Just something to consider as you evaluate my and other people's comments when they come in because we have a lot

of community expertise, including many people who qualify as subject matter experts and who submit written comments, which gives those comments more legal weight because expert opinion is (legally) different from lay opinion.

I offer the following observations to support my recommendation that the CEQA document needs to incorporate this topic and not defer it to the use permit review and special conditions. The pedestrian crossing location is further to the south on the site compared to the existing and proposed access driveway. The crossing location is much closer to the significant turn in Highway One that reduces visibility of both the pedestrians trying to cross the street and of the oncoming traffic that will now include a significant number of large solid waste collection vehicles. I don't think there is pedestrian crossing signage leading up to the sharp turn in Highway One and there is not a marked crosswalk across Highway One at the crossing point (or elsewhere on the site). The result likely should be requiring the installation of these measures in order to reduce the hazards and the project's (likely cumulatively considerable) contribution to them. I think the mitigation measures and special conditions should include such requirements, perhaps signage and a marked crosswalk with pedestrian operated flashing lights to alert drivers to the collision risk with the pedestrians when the crossing is in use. This project didn't create the underlying problem but it is likely contributing to it in a meaningful way and that is a CEQA issue not simply a matter of a project's inconsistency with planning documents and policies that can be fully and adequately addressed through special conditions without also identifying and acknowledging it as a potentially significant impact requiring mitigation.

When different lawyers have different opinions, which is most of the time, the result can be (non-frivolous) litigation. It is probably a more prudent approach to incorporate the omitted analysis in the CEQA document in a thoughtful way unless the issue brought up by someone really is beyond-the-pale ridiculous, more speculation, or isn't supported by evidence in the record or which could likely be introduced into the record before the entitlement review concludes. (We certainly don't want to approve a project without considering the obvious safety concerns and then have someone hit and potentially killed because of the increased traffic.) I also think that approach is more public-friendly and respectful to people's valid concerns rather than being dismissive, which has been a common complaint and concern and part of the reason why trust in the City as an organization is so low right now. (You aren't being dismissive, quite the opposite; I am just stating that is an issue in general IMO.) This is also just a draft IS/MND so it is kind of expected that there might be some changes based on the public and responsible agency input and that is my personal recommendation in this instance. In fact, the project has already been significantly scaled back due to Caltrans concerns and those changes in scope make this environmental review much less complex because the issues have been narrowed, including this particular issue because there would have been more pedestrian crossings and road hazards had it still included the buy-back center.

Best regards,

--Jacob

On Sun, Sep 18, 2022 at 1:33 PM <marie@mariejonesconsulting.com> wrote:

> Thank, Jacob for your comments and careful review of the MND. We did carefully consider this issue and it is addressed in the Staff Report as a Special Condition. According to our City attorney if an item is addressed as a Special Condition it does not need to be in the CEQA document. I guess you have a difference of opinion on this issue.
>
> The project will not have an impact on the informal parking on the parcel's west side as this is a pre-existing condition. As the project will not result in additional visitors to the site (it is an employee only operation with ten employees) it will not impact the ability of people to informally park in this location. This is not a sanctioned or official parking area.

Caltrans did not bring up any traffic or safety concerns regarding the crossings of highway 1 here by surfers in any of our correspondence or conversations. I will note that there are a number of nearby official parking lots where surfers can park that do not require crossing highway 1.

I will fully consider your email below. This is just my first response.

Thanks.

Marie Jones

Marie Jones Consulting

707-357-6480

www.mariejonesconsulting.com

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Friday, September 16, 2022 10:53 AM
To: CDD User <cdd@fortbragg.com>
Cc: Marie Jones <marie@mariejonesconsulting.com>; Ducey, Peggy <pducey@fortbragg.com>; Kraemer, Melissa@Coastal <melissa.kraemer@coastal.ca.gov>; Robinson, Aurora@Coastal <Aurora.Robinson@coastal.ca.gov>; Garcia, Tatiana@Coastal <Tatiana.Garcia@coastal.ca.gov>
Subject: Preliminary Comment on the Draft IS/MND for the C&S Waste Transfer Project at 1280 N. Main Street, Use Permit 4-22

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Regards,

--Jacob

From: Michelle Blackwell
To: cdd
Subject: New transfer station at 1280 N Main
Date: Thursday, September 15, 2022 5:34:28 PM

As this is close to residential homes off Airport Road, and a State Beach, and Virgin Creek. I would like to make the following comments.

The permit should require an odor and litter response plan. There should be a contact number for residents to call if problems arise and there should be response requirements to alleviate the problem within 24 hours.

At no time should Redwood Services be allowed to access the property off Airport Rd or any side streets off Airport Rd.

A fire response plan should also be required and signed off by both Cal Fire and FBFD.

Air quality monitoring should be required at the fence line and a notification plan for residents within 1 mile should be required and in place prior to authorization.

Burning should not be allowed ever.

If public access is given, this will make it even more difficult than it already is to turn onto hwy 1 from Airport. We need a light now, so consider adding one, plus some safe pedestrian crossing for hwy 1.

There is a native American family summer camp at the corner of hwy 1 and Airport Rd. Any allowed activity at the transfer should not adversly impact the camp, its activities or participants.

The transfer station should not be allowed to handle hazardous waste, chemicals or highly flammable materials. It will be located within shouting distance of two propane delivery facilities.

Michelle Blackwell
31458 Airport Rd
Fort Bragg, CA

Ducey, Peggy

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Friday, September 16, 2022 10:53 AM
To: cdd
Cc: Marie Jones; Ducey, Peggy; Kraemer, Melissa@Coastal; Robinson, Aurora@Coastal; Garcia, Tatiana@Coastal
Subject: Preliminary Comment on the Draft IS/MND for the C&S Waste Transfer Project at 1280 N. Main Street, Use Permit 4-22

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Regards,

--Jacob

From:	Leslie Kashiwada
To:	cdd
Subject:	Comments re: C&S Waste Solutions Transfer Station IS/MND
Date:	Friday, October 14, 2022 4:43:44 PM
Attachments:	Transfer Station_ISMND_Comments_10.14.22.pdf

Greetings,

Please find attached my comments regarding the IS/MND for the proposed transfer station

Thank you,
-Leslie

From: Leslie Kashiwada
To: Community Development Department
Date: 14 October, 2022
Re: C&S Waste Solutions Transfer Station IS/MND

Overall, I think this is a reasonably well-done document. For the most part, the mitigations seem appropriate. I do have a few concerns, which I elaborate upon below.

I appreciate that the biological study done by a relatively local consultant, who seems to understand our local habitats and environments. I also appreciate that the project is designed to have as little impact as possible on sensitive environments and species. I am, however, concerned about fencing. Of course, there is temporary disturbance caused by the construction of the fence; I am somewhat concerned about that, especially for slow-growing native plants. The fencing around the transfer station ramp (area of active operation) is essential to contain trash and keep out scavenging animals. However, the project describes fencing around the sensitive habitats to protect them. Whenever a habitat area is cut off from surrounding wild areas, it becomes an “island” and is more prone to decline. The “protective fencing” may actually cause more harm than good if it is not designed properly. I think there needs to be a thoughtful conversation about the type and extent of fencing around the sensitive habitats. CDFW and NPS can provide advice on this.

I have some concern about storm water run off, which might be allayed if there was more information about the bioswales. I also think tsunami impacts, as well as sea level rise and storm surge are understated.

I think the impact of increased truck traffic between two curves in SR1, one to the south and one to the north may be more problematical than described. I am concerned about the safety of pedestrians trying to cross the highway to get to the coast after parking in an area of traditional access on the west side of the project parcel. What if there are some incidents of contact between waste hauling trucks and pedestrians? How can that possibility be minimized. Wishful thinking isn’t so helpful here.

I hope the local residences on Airport Rd and environs were properly noticed and were made aware of the hours of operation and potential for noise, vibration, and odor. The project seems designed to keep those at a minimum, but they could still have an impact. What is the recourse for occupants of these residences if the noise, vibration, or odor are not tolerable?

I am unhappy that there is no buy-back center or hazardous waste drop off. I understand this site can’t accommodate those services and I agree with that assessment (both with regards to traffic and environmental impact). However, we need those services here on the coast and this document doesn’t mention how

they will be provided. Currently there is no buy-back center or hazardous waste disposal on the coast. There was only brief mention that C&S Waste Solutions offered to buy the Pudding Creek facility from Waste Management, who refused to sell it. If ever there was a case for eminent domain, it would be for the joint powers (City and County) to claim this site (offering fair market value for it). Such a valuable community service should not be held hostage by a private company. This property should be jointly owned by the City and County and leased to whatever waste-hauling company is currently under contract. Without that, people will be even more inclined to just dump their hazardous waste and to not return redeemables.

Finally, a few minor quibbles:
Pages 47 and 73 – Three Rivers Charter School (TRCS) used to be located in the buildings now occupied by Montessori Del Mar (previous to either of these charter schools it was a private school – Thomas Moore Academy). However, TRCS has been located on the campus of Mendocino College Coast Center for many years (starting several years before Mendocino College took it over from College of the Redwoods). In addition, TRCS has been part of the FBUSD for many years. I encourage Marie Jones Consulting to update their database with regards to this information by contacting the school at (707) 964-1128 or office@trcschool.org.

Page 64 – Table 1 M2 information does not match the description in the text.

All references to the airport describe it as more than 2 miles away, but the landing strip is closer than that. I don't think it affects this assessment, but I think it is inaccurate and misleading.

Thank you for receiving and considering public comments.

From: Peters, Sarah
To: Peters, Sarah
Subject: FW: City of Fort Bragg CEQA Comment Letter
Date: Tuesday, October 18, 2022 1:40:31 PM

From: Liebenberg, Angela@Wildlife <Angela.Liebenberg@wildlife.ca.gov>
Sent: Tuesday, October 18, 2022 12:00 PM
To: Gurewitz, Heather <hgurewitz@fortbragg.com>; Wildlife R1 Correspondence <R1Correspondence@wildlife.ca.gov>; Smith, John <jsmith@fortbragg.com>; Margadant, Lee@Wildlife <Lee.Margadant@Wildlife.ca.gov>; Van Hattem, Michael@Wildlife <Michael.VanHattem@wildlife.ca.gov>; McCormick, Sarah <smccormick@fortbragg.com>; marie@mariejonesconsulting.com
Cc: state.clearinghouse@opr.ca.gov; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>
Subject: Re: City of Fort Bragg CEQA Comment Letter

Dear City of Fort Bragg –

Thank you for the response to CDFW's October 14, 2022 CEQA comment letter regarding the proposed transfer station. The Department has received copies of the botanical surveys that meet the Department's seasonal criteria for the project location.

Regarding fencing, CDFW would like to clarify the specifics of Recommendation #2 through a discussion or brief site visit. Lee Margadant will be in contact with City staff as soon as possible to initiate that conversation.

Thank you for your quick response to our letter and we look forward to working with you on this project and others in the future.

Thank you,

Angela

Angela M. Liebenberg
Senior Environmental Scientist Supervisor
California Department of Fish and Wildlife
Coastal Conservation - Mendocino
32330 North Harbor Drive
Fort Bragg, CA 95437

From: Gurewitz, Heather <hgurewitz@fortbragg.com>
Sent: Friday, October 14, 2022 2:02 PM
To: Wildlife R1 Correspondence <R1Correspondence@wildlife.ca.gov>; Smith, John <jsmith@fortbragg.com>; Margadant, Lee@Wildlife <Lee.Margadant@Wildlife.ca.gov>; Van Hattem,

Michael@Wildlife <Michael.VanHattem@wildlife.ca.gov>; McCormick, Sarah <smccormick@fortbragg.com>; marie@mariejonesconsulting.com <marie@mariejonesconsulting.com>
Cc: state.clearinghouse@opr.ca.gov <state.clearinghouse@opr.ca.gov>; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>; Liebenberg, Angela@Wildlife <Angela.Liebenberg@wildlife.ca.gov>
Subject: RE: City of Fort Bragg CEQA Comment Letter

Dear CDFW,

Please see the attached response from the City regarding your comment letter on the MND for UP 4-22 for 1280 N. Main (

SCH# 2022090248).

Thank you,
Heather

Heather Gurewitz, MCRP, AICP
Associate Planner
City of Fort Bragg
416 N. Franklin St.
Fort Bragg, CA 95437
(707) 961-2827 x118

Please note that my emails are subject to frequent Public Records Requests, and the contents of emails sent to or received by me may be reviewed by members of the public.

From: Wildlife R1 Correspondence <R1Correspondence@wildlife.ca.gov>
Sent: Friday, October 14, 2022 8:51 AM
To: Smith, John <jsmith@fortbragg.com>
Cc: state.clearinghouse@opr.ca.gov; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>
Subject: City of Fort Bragg CEQA Comment Letter

Please find attached document for your review. All distribution has been completed electronically.

This email is being sent from an email account that is not monitored. If you have comments or wish to respond, please contact the person(s) listed in the attached document.

From: Marie Jones
To: cdd
Subject: Fwd: City of Fort Bragg CEQA Comment Letter
Date: Wednesday, October 19, 2022 3:01:16 PM

Hi Sarah, Can you please publish this letter to legislate or bring enough copies for the PC meeting tonight?
Thanks!
Marie

---------- Forwarded message ---------
From: **Liebenberg, Angela@Wildlife** <Angela.Liebenberg@wildlife.ca.gov>
Date: Wed, Oct 19, 2022 at 2:54 PM
Subject: Re: City of Fort Bragg CEQA Comment Letter
To: marie@mariejonesconsulting.com <marie@mariejonesconsulting.com>, Heather Gurewitz <hgurewitz@fortbragg.com>, Wildlife R1 Correspondence <R1Correspondence@wildlife.ca.gov>, Smith, John <jsmith@fortbragg.com>, Margadant, Lee@Wildlife <Lee.Margadant@wildlife.ca.gov>, Van Hattem, Michael@Wildlife <Michael.VanHattem@wildlife.ca.gov>, McCormick, Sarah <smccormick@fortbragg.com>
CC: state.clearinghouse@opr.ca.gov <state.clearinghouse@opr.ca.gov>, Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>

Marie -

I apologize for the delay. Yes, we concur that the project site is not likely a snowy plover nesting area, and extending the habitat protective fencing all the way to the ground is unnecessary.

Thank you,

Angela

Angela M. Liebenberg
Senior Environmental Scientist Supervisor
California Department of Fish and Wildlife
Coastal Conservation - Mendocino
32330 North Harbor Drive
Fort Bragg, CA 95437

From: marie@mariejonesconsulting.com <marie@mariejonesconsulting.com>
Sent: Wednesday, October 19, 2022 1:08 PM
To: Liebenberg, Angela@Wildlife <Angela.Liebenberg@wildlife.ca.gov>; Heather Gurewitz <hgurewitz@fortbragg.com>; Wildlife R1 Correspondence <R1Correspondence@wildlife.ca.gov>; 'Smith, John' <jsmith@fortbragg.com>; Margadant, Lee@Wildlife

<Lee.Margadant@Wildlife.ca.gov>; Van Hattem, Michael@Wildlife <Michael.VanHattem@wildlife.ca.gov>; 'McCormick, Sarah' <smccormick@fortbragg.com>

Cc: state.clearinghouse@opr.ca.gov <state.clearinghouse@opr.ca.gov>; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>
Subject: RE: City of Fort Bragg CEQA Comment Letter

Hello Angela & Lee,

I spoke with Lee yesterday and he provided the following verbal recommendation, however we have not received the promised email confirmation of his recommendation. Can you please follow up with him or reply to this email with written confirmation of your preferred approach to the habitat protective fencing prior to our Public Hearing on the permits for this project tonight?

Lees recommendation was as follows:

1. Habitat protective fencing shall be held up off of the top of ground by at least 12 inches to allow small mammals to access the site.

Lee's professional opinion is that the site is not a likely snowy plover nesting area and so extending the habitat protective fencing all the way to the ground is unnecessary.

Thanks in advance for your timely confirmation.

Marie Jones
Marie Jones Consulting
707-357-6480
www.mariejonesconsulting.com

From: Liebenberg, Angela@Wildlife <Angela.Liebenberg@wildlife.ca.gov>
Sent: Tuesday, October 18, 2022 12:00 PM
To: Heather Gurewitz <hgurewitz@fortbragg.com>; Wildlife R1 Correspondence <R1Correspondence@wildlife.ca.gov>; Smith, John <jsmith@fortbragg.com>; Margadant, Lee@Wildlife <Lee.Margadant@Wildlife.ca.gov>; Van Hattem, Michael@Wildlife <Michael.VanHattem@wildlife.ca.gov>; McCormick, Sarah <smccormick@fortbragg.com>; marie@mariejonesconsulting.com
Cc: state.clearinghouse@opr.ca.gov; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>
Subject: Re: City of Fort Bragg CEQA Comment Letter

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California Department of Fish and Wildlife
Coastal Conservation - Mendocino
32330 North Harbor Drive
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Sent: Friday, October 14, 2022 2:02 PM
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Cc: state.clearinghouse@opr.ca.gov <state.clearinghouse@opr.ca.gov>; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>; Liebenberg, Angela@Wildlife <Angela.Liebenberg@wildlife.ca.gov>
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SCH# 2022090248).
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Heather

Heather Gurewitz, MCRP, AICP
Associate Planner
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Cc: state.clearinghouse@opr.ca.gov; Falcone, Gil@Waterboards <Gil.Falcone@waterboards.ca.gov>
Subject: City of Fort Bragg CEQA Comment Letter

Please find attached document for your review. All distribution has been completed electronically.

This email is being sent from an email account that is not monitored. If you have comments or wish to respond, please contact the person(s) listed in the attached document.

--
Marie Jones
Marie Jones Consulting
Land Use Planning, Economic Development, Housing, Development Project Feasibility, Grant Writing

From:	Ducey, Peggy
To:	Peters, Sarah
Subject:	FW: Additional Public Comment -- 8/19/22 PC Mtg., Item No. 6A, Missing Sidewalks for 1280 N. Main
Date:	Wednesday, October 19, 2022 12:48:17 PM
Attachments:	Thompsons Porta Septic Service Staff Report.pdf

These are the public comments I have from Jacob. Two more coming.

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Wednesday, October 19, 2022 10:31 AM
To: cdd <cdd@fortbragg.com>
Cc: Ducey, Peggy <PDucey@fortbragg.com>
Subject: Additional Public Comment -- 8/19/22 PC Mtg., Item No. 6A, Missing Sidewalks for 1280 N. Main

Planning Commission,

The staff report mentioned that the City didn't require sidewalks for other projects north of Pudding Creek despite the code requirements and general plan policies in place and noted that this could be a matter of interpretation, implying that the prior review authorities for those projects considered these issues and interpreted the code to not require sidewalks to fill the gaps in this area of town because of the Haul Road providing the alternative pedestrian route. That is not exactly accurate. Rather than specifically considering and addressing this particular code and policy language interpretation issue, the prior projects didn't even consider the issue or make any interpretations of this applicable language--in one case the project is in the Coastal Zone, which has technically different but substantially similar code provisions and policies. At least that is the case for the most recent project, Thompson Portaseptic, which did not address the City's requirements for sidewalks using the parallel language from the CLUDC and Coastal General Plan. I have attached the staff report to demonstrate this topic was completely omitted from the analysis and Planning Commission deliberations. (The rest of the agenda materials for that entitlement review are found at https://cityfortbragg.legistar.com/LegislationDetail.aspx?ID=5536402&GUID=D5183909-13E9-4108-9108-C41F1F14AAD8&Options=&Search= and should be incorporated into this public comment by reference.) I do not know the meeting dates for the other projects referenced in the staff reports and staff has not provided any references to support the assertions in the staff report.

However, I can personally attest, and my prior public comments demonstrate, that many prior entitlement reviews omitted/ignored applicable general plan policies and code requirements rather than addressing them and creating some sort of local interpretive precedent for the Planning Commission to follow for this project. Had they been considered, there would be local precedent to follow but so far as I can verify, this is not actually the case for the issue of gaps in the sidewalk network for projects north of Pudding Creek Bridge. Carrying forward past mistakes and omissions is not how entitlement reviews are supposed to work and ignoring the plain language of existing code requirements or unambiguous general plan policy requirements would be an abuse of discretion.

As such, I recommend that you apply the plan language of the Circulation Element in Policy C-11.1 (note "shall" not "should") and ILUDC § 18.30.090 require the frontage sidewalk improvements. In the least, even if you deem the Haul Road as the preferred pedestrian path of

travel rather than a frontage sidewalk--something that is not really relevant since the applicable policy is about sidewalks not community trails like the Haul Road, which are addressed in distinct general plan policies, this project is not adjacent to the existing Haul Road and pedestrians accessing the Haul Road from the informal parking area rely on an informal dirt trail across the highway. Pedestrians of bicyclists seeking to access the project site from the Haul Road would need to use the pathway and cross the highway, which supports the necessary nexus to require off-site improvements to that dirt pedestrian trail as wella s the highway crossing, which is current not marked or improved with any pedestrian facilities. In the least, that should include a marked crossing, pedestrian crossing signs along the highway, and a small sidewalk segment and accessible curb cuts on the project site frontage at the crossing point. Most of the frontage would not involve installing curbs and sidewalks anyway because the informal parking area needs to still have vehicle access so a tat portion would need to remain open or additional vehicle driveways would need to be installed through the new sidewalks. Stating that the project has pedestrian paths from the existing haul road that is not even on the property or connected to the property does not address the existing gaps in the sidewalk network that are addressed by Policy C-11.1.

The staff report mentions that Caltrans has plans to install missing sidewalks as part of their Pudding Creek Bridge project, although I recall that that project does not extend as far north as this proposed site at the northern boundary of the city limits. However, the Planning Commission could consider an alternative special condition of requiring the applicant to install frontage sidewalks that preserve vehicle access to the informal parking area on the project site within 12 months of the completion of the Caltrans Pudding Creek Bridge project should Caltrans not install sidewalks all the way through this project site. That way we can be assured that there will be the required sidewalks one way of the other. IMO, there is no legitimate argument that Policy C-11.1 and ILUDC § 18.30.090 do not require us to do something concerning pedestrian access and facilities and the applicant has not applied for a variance from this requirement, which is a distinct entitlement application with its own required findings. Should they wish to do so, they can but they have not. Actually, you could also condition this project to require the successful application for such a variance or the installation of the pedestrian improvements along the project frontage. There is obviously some flexibility in how the Planning Commission chooses to address this issue but you should not ignore it.

Please keep in kind that I am not trying to stop this project, I only want what will likely be an approval to actually meet our local requirements and be the best project it can be while serving the project objective but not having negative impacts on the community and natural environment. It is not too much to ask that this project meet applicable requirements even if several past projects did not because they apparently omitted the specific issues at the time of those entitlement reviews.

Regards,

--Jacob

AGENCY:	**Planning Commission**
MEETING DATE:	**March 30, 2022**
PREPARED BY:	**Kevin Locke**
PRESENTED BY:	**Kevin Locke**

AGENDA ITEM SUMMARY REPORT

APPLICATION NO.: Coastal Development Permit (CDP) 11-19, Use Permit (UP) 2-19, & Design Review (DR) 4-22

OWNER: Eastman Family Trust

APPLICANT: Thompson's Porta Septic Service Inc.

PROJECT: Outdoor storage of porta-potties and supplies. Truck to truck waste transfer

LOCATION: 1241 N Main Street

APN: 069-232-12-00

LOT SIZE: 30,668 Sq. Ft.

ZONING: Heavy Industrial

ENVIRONMENTAL DETERMINATION: This project is exempt pursuant to CEQA per California Code of Regulations §15303 (c) Categorical Exemption for "New Construction or Conversion of Small Structures"

SURROUNDING LAND USES:
NORTH: Superior Pump Services
EAST: Single Family Residence
SOUTH: Geo Aggregates
WEST: MacKerricher State Park

APPEALABLE PROJECT:
☒ **Can be appealed to City Council**
☒ **Can be appealed to California Coastal Commission**

BACKGROUND & PROJECT DESCRIPTION

The project site is a 0.70 acre parcel in the northwest portion of the City at 1241 N Main Street. The site was a generally vacant lot with miscellaneous ground disturbances in the past. The City was made aware by an anonymous member of the public on July 17, 2017 that the vacant lot had been converted into a porta-potty/outdoor storage lot without the City's review first. Staff requested that the business owner submit an application for a Coastal Development Permit, Design Review, and Use Permit. The City's Coastal Land Use & Development Code (CLUDC) requires these entitlements for outdoor storage in the coastal zone.

Existing Operation

The main operations of the site are for the storage of portable toilets, fleet vehicles, and miscellaneous accessories. Units are loaded onto trucks along with supplies necessary to stock the units such as soap, paper towels, and toilet paper. All servicing of the toilets are done on-site and returned to the site cleaned and dry. Beyond the outdoor storage, truck to truck transfers of waste occur on site. Detailed explanations of operations can be found in **Attachment 3**. The proposed site map of operations can be seen on **Figure 1.** The applicants are seeking to maintain these operations on site through CDP, DR, and UP approval.

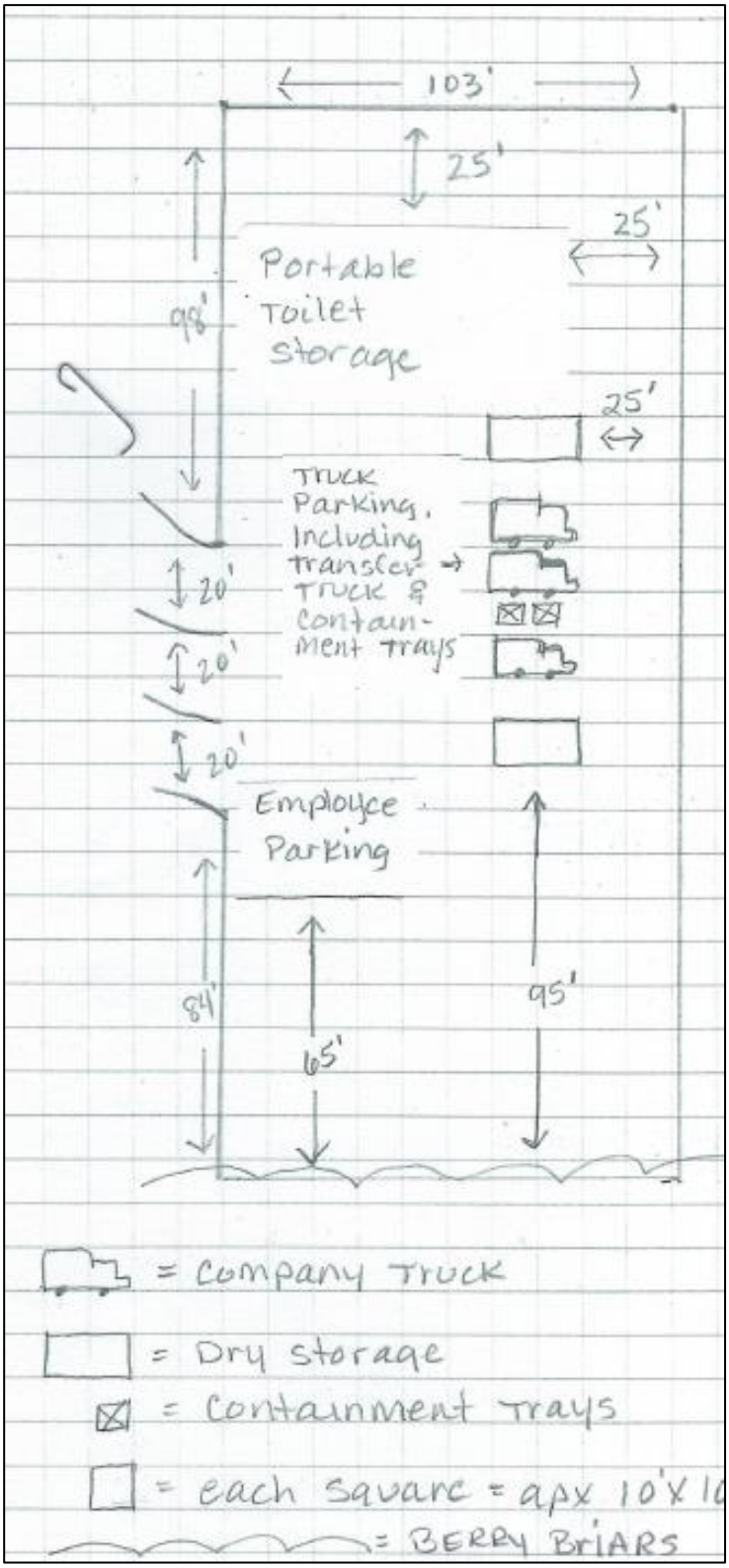

Figure 1 – Site Map

CONSISTENCY WITH PLANNING POLICIES

The CLUDC classifies and regulates the uses of land and structures within the City. The CLUDC considers the proposed use "outdoor storage," and specifically defines the use as follows:

> *"CLUDC Section 17.100.020. Storage – Outdoor. The storage of various materials outside of a structure other than fencing, either as an accessory or primary use."*

The subject parcel is zoned Heavy Industrial (IH). CLUDC Section 17.24.030 identifies the uses of land permitted in the industrial zoning districts, and the planning permit required to establish particular uses. Outdoor storage is an allowable use in the IH district with an approved use permit. The CLUDC references section 17.42.140 for standards and requirements necessary for the approval of a Use Permit for outdoor storage. These referenced regulations are discussed in greater detail later in this report.

In addition to regulating uses, the CLUDC includes multiple site planning and project design standards applicable to the project. Staff analyzed the project's consistency with these standards, and identified special conditions to make the project consistent.

Fencing: The proposed site plan or project description does not include plans for fencing. Per 17.42.170(A) – Outdoor Storage "*Outdoor storage areas shall be entirely enclosed by a solid wall or fence as approved by the reviewing authority with a minimum height of six feet and a maximum height of eight feet*". As well, section 17.42.140(B) states that "*the materials within the storage areas shall not be higher than the fence, except where authorized by the Use Permit for storage area*". As shown in attachment 2, the site has numerous natural and manmade features which obscure the view of the site.

The average height of a porta-potty is roughly 7'4", so any proposed fence should be at or above that height unless otherwise determined by Planning Commission. Also, per 17.30.050(B)(1), a fence that is greater than 6ft shall require a building permit. Therefore, staff are proposing the following special conditions:

> **Special Condition #1: The applicant shall install a screening fence where determined by the reviewing authority consistent with Coastal Land Use & Development Code section 17.30.050 – Fences, Walls, and Screening.**
>
> **Special Condition #2: Should the fence exceed 6 feet in height, the applicant shall apply for a building permit.**

Landscaping: Per 17.34.020(A), "Each new nonresidential and multi-family residential project shall provide landscaping in compliance with this Chapter". At this time, the applicant is not proposing any new landscaping and intends to leave any remaining foliage in its natural state. Generally, landscaping shall be provided on site in the setbacks, unused areas, and parking areas. However, per section 17.34.050(A)(2) and 17.34.050(B)(2), landscaping may not be required in the setbacks and unused areas if the applicant maintains the site in its natural state and it meets the purposes of the landscaping chapter. Parking lot landscaping will be analyzed in the parking section below.

The purpose of the landscaping standards is *"to enhance the appearance of development projects, reduce heat and glare, control soil erosion, conserve water, screen potentially incompatible land uses, preserve the integrity of neighborhoods, improve air quality, and improve pedestrian and vehicular traffic and safety".* Staff are proposing to waive the landscaping requirements for the setback and unused areas. See staff analysis of the purpose below. Ultimate discretion on waiving these requirements is with the reviewing authority.

- **Enhance the appearance of development projects:** The project site is heavily obscured and located in a heavy industrial zoning district where function comes in front of form. As well, **Special Condition #1** will screen any aesthetic incompatibility.
- **Reduce heat and glare:** The structures proposed on site will be minimal and will vary depending on the time of year, so impacts to heat and glare will be minimal.
- **Control soil erosion:** The existing site soil is heavily compacted and uses the existing natural landscape to control soil erosion. No structures or ground disturbance will occur on site beyond minimal disturbance due to **Special Condition #1**; therefore, there will be less than significant impact to soil erosion.
- **Conserve water:** The existing landscape uses no water, whereas additional landscaping may require additional water use through upkeep.
- **Screen potentially incompatible land uses:** With **Special Condition #1**, the site will be screened from any "incompatible" land uses.
- **Preserve the integrity of neighborhoods:** The site is not located in a neighborhood.
- **Improve air quality:** The existing site will act as outdoor storage and will have minimal impact to air quality. The Porta-potties will be dry-stored on site and odorless.
- **Improve pedestrian and vehicular traffic and safety:** The site is not open to the public, and the only vehicles entering the site are employee-operated vehicles. There is a maximum of 10-15 vehicles entering and exiting per day. No landscaping will have a less than significant impact to pedestrian and vehicular traffic and safety.

Should the findings for not requiring landscaping be insufficient to the Commission, Staff recommends the following optional condition:

1. **Optional Special Condition #1: The applicant shall submit a landscape plan for the site in compliance with Chapter 17.34 "Landscaping Standards" of the CLUDC.**

Parking: Per 17.36.020(A), off street parking is required for each land use and structure, including a change or expansion of land use or structure. As well, spaces shall be permanent and clearly marked. For outdoor storage, it is required that there be one space for each 3000 Sq. Ft. of lot area. Since the site is roughly 30,000 square feet, 10 spaces would be required.

However, the applicants have an existing permitted paved parking pad at their adjacent office at 1251 N Main Street. Based on 17.36.040(a), each land use shall provide off-street parking, except where greater or lesser number of spaces are required through Use Permit approval. The City discourages excessive parking spaces in order to avoid the inefficient use of land, unnecessary pavement, and excessive storm water runoff. As the site is not open to the public, and the applicants have used their existing facilities to adequately serve their vehicles,

staff believe additional parking spaces are not necessary and would be excessive. Currently the applicants do use both sites to park their vehicles, so in order to ensure a uniform use of land and compliance with chapter 17.36, staff are proposing the following condition:

Special Condition #3: Outside of necessary business operations, the applicants shall park their vehicles at 1251 North Main Street.

Should Planning Commission determine that parking is still necessary for the site; staff have prepared the following optional special condition:

2. **Optional Special Condition #2: The applicant shall install ten parking spaces in compliance with Chapter 17.36 Parking and Loading on 1241 N Main Street.**

LOCAL COASTAL PROGRAM & COASTAL RESOURCES

The Coastal Land Use & Development Code Section 17.71.045(l)(2)(a) requires that the finding be made that a proposed project is in conformity with the City of Fort Bragg's certified Local Coastal Program and will not adversely affect coastal resources.

Cultural Resources – The proposed project is located on a heavily impacted site due to the surrounding heavy industrial uses. The land is heavily compacted through use over the years. Ground disturbance will be minimal as the only disturbance involved with this project is the required installation of a screening fence. Should any materials of archaeological significance be unearthed during construction activities (i.e. shell fragments, stone tools, etc.), all activities would be required to be halted while the finds are investigated by a qualified archaeologist. This is listed as a standard condition of all permits.

Public Access – See "supplemental findings required by 17.56.070 for projects between the first public road and the sea" section for analysis of impact on public access.

Environmentally Sensitive Habitat Areas – On July 5, 2019 a botanical analysis was conducted for the site to determine if the project would have a significant adverse environmental impact to special status species. The result of the study found no California Native Plant Society (CNPS) 1A, 1B, 2A, or 2B species on site. Based on the fact that the botanical study did not find any special status plant species and the applicants are not proposing removal of any vegetation, the project would result in little to no impact to Environmentally Sensitive Habitat Areas (ESHAs).

Water Supply, Sewage Disposal, Solid Waste, and Public Roadway Capacity – The proposed project uses well water and properly disposes waste at numerous sites as described in Attachment 4. The City of Fort Bragg recently opened the septage receiving station at the Waste Water Treatment Plant to allow businesses to dispose of waste, allowing for further capacity to support Thompson's.

Impact on roadways would be minimal, expected traffic entering and exiting the site is roughly a combined 10-15 trips daily.

Visual Resources – Overall, the site is difficult to view from public roads and pathways due to manmade and natural visual obstructions. Large piles of debris on Geo-aggregates, natural

berry bushes adjacent to MacKerricher State Park, and a private residence all work to substantially obscure the site from public view. As per special condition #1, the site will be required to use screening fencing which will further obscure the project from public view.

However, the project is located within Map CD-1, related to potentially scenic views toward the ocean or the Noyo River. Therefore, a project must comply with the findings within 17.50.070 Visual Resources. Those findings and staff analysis can be found below:

Finding	Staff Analysis
1. Minimize the alteration of natural landforms;	The project is not altering natural landforms in any way, therefore complying with this finding.
2. Is visually compatible with the character of the surrounding area;	The area is zoned as heavy industrial and the site is substantially surrounded by those uses. Outdoor storage of materials is typical for the area and the project does not present a use of land not typically found in the zone.
3. Is sited and designed to protect views to and along the ocean and scenic coastal areas; and	As mentioned earlier, the site is already very difficult to view from the public right of way from manmade and natural obstructions. This means the project is sited to avoid most visual impacts to the ocean and scenic coastal areas.
4. Restores and enhances visual quality in visually degraded areas, where feasible.	Due to the zone the project is located in, generally, function comes before form, so the area is not visually pleasing compared to other locations in town. So any additional development would add to visual degradation. Special Condition #1 would shield the proposed storage from public viewing and minimize impact to visual quality.

CONSISTENCY WITH GENERAL PLAN

Land Use Element

The zoning for the subject site is Heavy Industrial (IH) in the Coastal Zone. The proposed use is “Outdoor Storage” which is a conditionally allowed use in the Heavy Industrial zoning district. The proposed project is consistent with the following Land Use Policy.

Policy LU-7.3 Siting New Industrial Development: Site new industrial development so that it is contiguous with, or in close proximity to, existing developed areas able to accommodate it, or where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects on coastal resources, either individually or cumulatively.

The proposed site is in close proximity and adjacent to a heavily developed industrial area. In addition, the project will require minimal use of public services, and will be able to be served (if needed) by public services. The project uses well water and properly disposes of any waste generally created on site as described in “Water supply, sewage disposal, solid waste, and public roadway capacity”.

Public Facilities Element
The project does not fall into any of the goals, policies, and programs listed in this element, but it does not conflict with any of the goals, policies, and programs in this element.

Conservation, Open Space, Energy, and Parks Element
The project is consistent with the following Conservation chapter goals, policies and programs:

Policy OS-9.1: Minimize Introduction of Pollutants. Development shall be designed and managed to minimize the introduction of pollutants into coastal waters (including the ocean, estuaries, wetlands, rivers, streams, and lakes) to the extent feasible.

The applicants ensure pollutants are minimized through their solid waste disposal plan and discharge response plan. See **Attachment 3** for more detailed plans.

Policy OS-11.3: Minimize Impervious Surfaces. Development shall minimize the creation of impervious surfaces (including pavement, sidewalks, driveways, patios, parking areas, streets, and roof-tops), especially directly connected impervious areas, where feasible. Redevelopment shall reduce the impervious surface site coverage, where feasible. Directly connected impervious areas include areas covered by a building, impermeable pavement, and/or other impervious surfaces, which drain directly into the storm drain system without first flowing across permeable land areas (e.g., lawns)

The applicant is not proposing any ground disturbance and will continue to use pervious surfaces on site.

Circulation Element
The project does not fall into any of the goals, policies, and programs listed in this element, but it does not conflict with any of the goals, policies, and programs in this element.

Community Design Element
The project is consistent with the following Community Design goals, policies and programs:
Policy CD-1.1: Visual Resources: Permitted development shall be designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance scenic views in visually degraded areas.

The site is located behind existing natural and manmade view blockers. The proposed project is minimal in scope and is difficult to view from public right of ways. The site is in a depressed area that allows for views of the ocean from Highway One.

Policy CD-1.4: New development shall be sited and designed to minimize adverse impacts on scenic areas visible from scenic roads or public viewing areas to the maximum feasible extent.

The site is located behind existing natural and manmade view blockers. The proposed project is minimal in scope and is difficult to view from public right of ways. The project is in a location that minimizes potential view blockers to the extent feasible.

Policy CD-1.9: Exterior lighting (except traffic lights, navigational lights, and other similar safety lighting) shall be minimized, restricted to low intensity fixtures, and shielded so that no light shines beyond the boundary of the property.

The project proposes no lighting.

Policy CD-1.12 Maintain Unobstructed Views of the Ocean: Require new development north of Pudding Creek to leave unblocked views to the ocean from Highway One.

Due to where the project is sited, a large portion of unobstructed views of the ocean are available between the site and Superior Pump's adjacent property to the north.

Policy CD-2.6 Property Maintenance and Nuisances : Ensure that properties are well maintained and nuisances are abated.

Should this entitlement be approved, the property will be abated and code enforcement would cease.

Safety Element
The project does not fall into any of the goals, policies, and programs listed in this element, but it does not conflict with any of the goals, policies, and programs in this element.

Noise Element
The project does not fall into any of the goals, policies, and programs listed in this element, but it does not conflict with any of the goals, policies, and programs in this element.

Housing Element
The project does not fall into any of the goals, policies, and programs listed in this element, but it does not conflict with any of the goals, policies, and programs in this element.

COASTAL DEVELOPMENT PERMIT ANALYSIS

According to the City of Fort Bragg Coastal Land Use Development Code Section 17.7.045(I)(2), the approval of any Coastal Development Permit shall be supported by the following findings:

Finding	Staff Determination
The proposed development as described in the application and accompanying materials, as modified by any conditions of approval, is in conformity with the City of Fort Bragg's certified Local Coastal Program and will not adversely affect coastal resources;	See "Local Coastal Program" analysis. The proposed development is in compliance with the Local Coastal Program.
If the project is located between the first public road and the sea, that the project is in conformity with the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code);	This finding is made because the project will not impact public access. The current site is generally surrounded by industrial uses and is not meant for public access. There are ample recreational opportunities in the area adjacent to the site. See also, analysis within "Supplemental Findings Required By 17.56.070 For Projects Between the First Public Road And the Sea"
Feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment;	The proposed project will have minimal impacts on the environment, so no mitigation measures have been proposed. There is no construction or grading involved for this project. As well, on July 5, 2019 a botanical analysis was conducted for the site to determine if the project would have a significant adverse environmental impact to special status species. The result of the study found no California Native Plant Society (CNPS) 1A, 1B, 2A, or 2B species on site. Based on the fact that the botanical study did not find any special status plant species and the applicants are not proposing removal of any vegetation, the applicants will complying with this finding.
The proposed use is consistent with the purposes of the zone in which the site is located;	The Heavy Industrial zoning district is appropriate for a range heavy industrial including manufacturing, assembly and processing, the storage and distribution of materials, aggregate plants, and related industrial uses that are generally compatible with and require locations removed from residential and visitor serving uses. As this is the storage of materials, the proposed project complies with one of the listed purposes of the Heavy Industrial Zoning District.
The proposed location of the use and conditions under which it may be operated or maintained will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity;	The project site is a 0.70 acre, square parcel that can demonstrably accommodate the design characteristics and operations of the proposed outdoor storage. The project was evaluated by the Planning and Public Works Department, and, as conditioned, found to be physically suitable in

	terms of design, location, shape, size, operating characteristics, and the provision of public and emergency vehicle access and public services and utilities. As such, the project would not endanger, jeopardize, or otherwise constitute a hazard to the public interest, health, safety, convenience, or welfare, or be materially injurious to the improvements, persons, property, or uses in the vicinity and zoning district in which the property is located.
Services, including but not limited to, water supply, sewage disposal, solid waste, and public roadway capacity have been considered and are adequate to serve the proposed development.	The proposed project was reviewed by the City of Fort Bragg Public Works and Planning Department. These departments reviewed the project for access to water, sewage disposal, solid waste, electricity, and public roadway capacity. The use proposed is minimal in scope and all services have been deemed available and capable of handing the project if necessary.
Supplemental findings for projects located between the first public road and the sea required by Section 17.56.070 Required Findings and Supporting Analysis for Public Access Dedications of this Development Code.	See "supplemental findings required by 17.56.070 for projects between the first public road and the sea" below. The project complies with these findings.

USE PERMIT FINDINGS

Finding	Staff Determination
1. The proposed use is consistent with the General Plan, any applicable specific plan, and the Local Coastal Program;	As conditioned, and as previously analyzed in this staff report, the project would be consistent with the Coastal General Plan and certified LCP.
2. The proposed use is allowed within the applicable zoning district and complies with all other applicable provisions of this Development Code and the Municipal Code;	The proposed use is allowed within the Heavy Industrial zoning district with a Use Permit. As discussed in this staff report, the project complies with the CLUDC and Fort Bragg Municipal Code.
3. The design, location, size, and operating characteristics of the proposed activity are compatible with the existing and future land uses in the vicinity;	The Heavy Industrial zoning district is appropriate for a range heavy industrial including manufacturing, assembly and processing, the storage and distribution of raw materials, aggregate plants, and related industrial uses that are generally compatible with and require locations removed from residential and visitor serving uses. The use would be compatible with the existing industrial which substantially surrounds the site.
4. The site is physically suitable in terms of design, location, shape, size, operating	The project site is a 0.70 acre, square parcel that can demonstrably accommodate the design

characteristics, and the provision of public and emergency vehicle (e.g., fire and medical) access and public services and utilities (e.g., fire protection, police protection, potable water, schools, solid waste collection and disposal, storm drainage, wastewater collection, treatment, and disposal, etc.), to ensure that the type, density, and intensity of use being proposed would not endanger, jeopardize, or otherwise constitute a hazard to the public interest, health, safety, convenience, or welfare, or be materially injurious to the improvements, persons, property, or uses in the vicinity and zoning district in which the property is located.	characteristics and operations of the proposed outdoor storage. The project was evaluated by the Planning and Public Works Department, and, as conditioned, found to be physically suitable in terms of design, location, shape, size, operating characteristics, and the provision of public and emergency vehicle access and public services and utilities. As such, the project would not endanger, jeopardize, or otherwise constitute a hazard to the public interest, health, safety, convenience, or welfare, or be materially injurious to the improvements, persons, property, or uses in the vicinity and zoning district in which the property is located.
5. The proposed use complies with any findings required by Section 17.22.030 (Commercial District Land Uses and Permit Requirements).	This finding is not applicable to the project as it is not located in a Commercial Zone.

DESIGN REVIEW FINDINGS

Per Program CD-1.1.1 of the Coastal General Plan: Design review is required for new projects located in areas designated "Potential Scenic Views Toward the Ocean or Noyo River" on Map CD-1. The project is located in this area, therefore requires Design Review. Prior to approval of a project in this area, the following findings shall be made:

Finding	Staff Determination
Complies with the purpose and requirements of this Section;	The project scope is minimal in nature and as conditioned, will be in conformance with the purpose and requirements of Design Review.
Provides architectural design, building massing, and scale appropriate to and compatible with the site surroundings and the community;	The project does not involve the creation of permanent structures. However, the proposed use is minimal and will be smaller in scale compared to many of the uses in the area. The area is intended for industrial type uses, and as this use is industrial, will be compatible with the site surroundings and community.
Provides attractive and desirable site layout and design, including building arrangement, exterior appearance and setbacks, drainage, fences and walls, grading, landscaping, lighting, signs, etc.;	The project will be properly screened from any public viewing points using a durable and high quality material based on Special Condition #1. The project will comply with the setbacks. The project does not propose any grading, landscaping, lighting, or signs. As conditioned, the project will comply with this finding.
Provides efficient and safe public access, circulation, and parking;	The project does not involve the creation of any new parking and is not intended for public

	access. The applicants will utilize existing parking spaces on an adjacent site. However, if necessary, optional special condition #2 would allow for further compliance with this finding.
Provides appropriate open space and landscaping, including the use of water efficient landscaping;	No changes to the existing open space and landscaping are proposed. However, if necessary optional special condition #1 will allow for further compliance with this finding.
Is consistent with the General Plan, any applicable specific plan, and the certified Local Coastal Program; and	See General Plan analysis and LCP analysis herein.
Complies and is consistent with the City's Design Guidelines.	Due to the proposed project lacking permanent structures or public access, most of the guidelines are not applicable to this project. However, the project will comply with screening requirements necessary for outdoor storage.

SUPPLEMENTAL FINDINGS REQUIRED BY 17.56.070 FOR PROJECTS BETWEEN THE FIRST PUBLIC ROAD AND THE SEA

Finding	Staff Determination
A. Required Overall Findings. Written findings of fact, analysis and conclusions addressing public access must be included in support of all approvals, denials or conditional approvals of projects between the first public road and the sea. Written findings of fact, analysis and conclusions addressing public access must be included in support of all approvals or conditional approvals of where an access dedication is included in the project proposal or required as a condition of approval. Such findings shall address the applicable factors identified by Section 17.56.070(B) of this Development Code and shall reflect the specific level of detail specified, as applicable. Findings supporting all such decisions shall include: 1. A statement of the individual and cumulative burdens imposed on public access and recreation opportunities based on applicable factors identified pursuant to Section 17.56.070(B) of this Development Code. The type of affected public access and recreation opportunities shall be clearly described. 2. An analysis based on applicable factors identified in Section 17.56.070(B) of this Development Code of the necessity for requiring public access conditions to find the project	This finding is made because the project will result in no change to public access, neither individually or cumulatively. The site is located in a heavy industrial area which is not intended for use by the public. It is not safe for the public to walk into an active industrial area.

consistent with the public access provisions of the Coastal Act. 3. A description of the legitimate governmental interest furthered by any access condition required. 4. An explanation of how imposition of an access dedication requirement alleviates the access burdens identified and is reasonably related to those burdens in both nature and extent.	
B. Required Project-Specific Findings. In determining any requirement for public access, including the type of access and character of use, the City shall evaluate and document in written findings the factors identified in subsections (1) through (5), to the extent applicable. The findings shall explain the basis for the conclusions and decisions of the City and shall be supported by substantial evidence in the record. If an access dedication is required as a condition of approval, the findings shall explain how the dedication will alleviate or mitigate the adverse effects which have been identified and is reasonably related to those adverse effects in both nature and extent. As used in this section, "cumulative effect" means the effect of the individual project in combination with the effects of past projects, other current projects, and probable future projects, including development allowed under applicable planning and zoning requirements or regulations.	
a. Identification of existing and open public access and coastal recreation areas and facilities in the regional and local vicinity of the development;	There are multiple existing open public access and coastal recreation areas existing in reasonable proximity to the site. MacKerricher State Park is located west of the project site including multiple trails to access said park. There are multiple public access locations to the north and south of the site (Pudding Creek Trestle, 1121 N Main Street, Adjacent to Postmile 63.691) at a reasonable distance for coastal enjoyment. Therefore this finding is made.
b. Analysis of the project's effects upon existing public access and recreation opportunities;	This finding is made because the project will have no impact on existing public access as it will not modify or remove any existing public access locations or recreational opportunities.
c. Analysis of the project's cumulative effects upon the use and capacity of the identified access and recreation opportunities, including public tidelands and beach resources, and upon the	The project will have minimal to no impact, as it does not increase traffic to access and recreational activities. It is a private site for outdoor storage. This finding is made.

capacity of major coastal roads from subdivision, intensification or cumulative buildout;	
d. Projection of the anticipated demand and need for increased coastal access and recreation opportunities for the public;	The City and State Parks have greatly increased public access to the coast over the last 10yrs. The Coastal Trail now runs from Noyo Headlands Park to Ten Mile Beach. As well, may new additional trails have been added over the years. The additional network of trails provides for any potential demand for increased public access the coast. This finding is made.
e. Analysis of the contribution of the project's cumulative effects to any such projected increase;	The project will not contribute to any project increase to coastal access or recreational opportunities. The project is related to outdoor storage and is not open for public use. This finding is made.
f. Description of the physical characteristics of the site and its proximity to the sea, tideland viewing points, upland recreation areas, and trail linkages to tidelands or recreation areas;	The project site is a vacant lot which has been used over the years for various purposes. The site has been heavily impacted by human intervention related to industrial uses. The site is roughly 500ft from the ocean and 1500ft from the nearest tideland viewing point at Virgin Creek/beach. The site is not located near any upland recreation areas or trail linkages. This finding is made.
g. Analysis of the importance and potential of the site, because of its location or other characteristics, for creating, preserving or enhancing public access to tidelands or public recreation opportunities.	This site is located in a heavy industrial area. The Coastal General Plan describes this zoning as incompatible with residential and visitor serving uses, meaning the site is not suitable for creating, preserving, or enhancing public access. As mentioned previously, there are numerous other access points in more suitable locations that do not create hazardous situations for the public and allow continued access to tidelands or public recreational opportunities. This finding is made.
2. Shoreline processes including:	
a. Description of the existing shoreline conditions, including beach profile, accessibility and usability of the beach, history of erosion or accretion, character and sources of sand, wave and sand movement, presence of existing or proposed shoreline protective structures, location of the line of mean high tide during the season when the beach is at its narrowest (generally during the late winter) and the proximity of that line to existing structures, and any other factors which substantially characterize or affect the shoreline processes at the site;	The site is located nearly 500ft from the nearest cliff face. There is no impact to shoreline processes.
b. Identification of anticipated changes to shoreline processes and beach profile unrelated to the proposed development;	There are no anticipated changes to shoreline processes and beach profile unrelated to the proposed development. The existing shoreline is part of MacKerricher State Park and as a result will remain in its natural state.

c. Description and analysis of any reasonably likely changes, attributable to the primary and cumulative effects of the project, to: wave and sand movement affecting beaches in the vicinity of the project; the profile of the beach; the character, extent, accessibility and usability of the beach; and any other factors which characterize or affect beaches in the vicinity;	The project site is located roughly 500ft from the nearest beach. The project will not have any foreseeable impacts to wave and sand movement, profile of the beach, character extent, accessibility and usability of the beach or any other beach related factors.
d. Analysis of the effect of any identified changes of the project -- alone or in combination with other anticipated changes -will have upon the ability of the public to use public tidelands and shoreline recreation areas.	The project is located roughly 500ft from the nearest tideland or shoreline recreation area. There are numerous public access points which provide sufficient access to public tidelands and shoreline recreation areas. The project will not affect the public's ability to use public tidelands and shoreline recreation areas as it does not modify or remove these access points or areas. There is no impact.
3. Historic public use including:	
a. Evidence of use of the site by members of the general public for a continuous five-year period (such use may be seasonal);	The site has been vacant for many years beyond miscellaneous industrial uses. It is fenced off from the public and is private property. The site has not been known to be used by members of the public.
b. Evidence of the type and character of use made by the public (vertical, lateral, blufftop, etc. and for passive and/or active recreational use, etc. Identification of any agency (or person) who has maintained	The site has not had any use by members of the public. Based on the deed, it has been owned and maintained by the Eastman Family Trust.
c. and/or improved the area subject to historic public use and the nature of the maintenance performed and improvements made;	Based on historic aerial photo review of the site, the site has remained vacant for years. It has been blocked off by a fence and natural barriers for years. No historic value of the site has been found for public use. It is in a heavy industrial area where public use has remained incompatible. This finding is made.
d. Identification of the record owner of the area historically used by the public and any attempts by the owner to prohibit public use of the area, including the success or failure of those attempts;	Based on review of records, there has been no historical use of the area by the public and no known attempts by the owner to restrict the public. This finding is made.
e. Description of the potential for adverse impact on public use of the area from the proposed development (including but not limited to, creation of physical or psychological impediments to public use).	The project site will be fenced off, however it will not change or impact public access to use of the area. There are no psychological impediments as a result of this change.
4. Physical obstructions including:	

a. Description of any physical aspects of the development which block or impede the ability of the public to get to or along the tidelands, public recreation areas, or other public coastal resources or to see the shoreline.	There is an existing private residence, chainlink fence on the eastern and western property lines, and tall berry bushes on the eastern property preventing access to the site. However, there are multiple access points near the property which allow public access to tidelands, recreation areas, and public coastal resources. This finding is made.
5. Other adverse impacts on access and recreation including:	
a. Description of the development's physical proximity and relationship to the shoreline and any public recreation area;	The project is located roughly 500ft from the nearest tideland or shoreline recreation area. There are numerous public access points which provide sufficient access to public tidelands and shoreline recreation areas. The project will not affect the public's ability to use public tidelands and shoreline recreation areas as it does not modify or remove these access points or areas. There is no impact.
b. Analysis of the extent to which buildings, walls, signs, streets or other aspects of the development, individually or cumulatively, are likely to diminish the public's use of tidelands or lands committed to public recreation;	The property is in a heavy industrial zoning area and not meant for resident or visitor populations. The impact of the outdoor storage would be minimal and would not affect the public's use of coastal areas.
c. Description of any alteration of the aesthetic, visual or recreational value of public use areas, and of any diminution of the quality or amount of recreational use of public lands which may be attributable to the individual or cumulative effects of the development.	The proposed use is for outdoor storage of porta-potties. This is not the most visually pleasing use, however with the proposed special conditions, visual impact will be minimized due to screening. Individual or cumulative effects will be insignificant.

ENVIRONMENTAL DETERMINATION

The project is exempt from CEQA per California Code of Regulations §15303 (c) Categorical Exemption for "New Construction or Conversion of Small Structures" as the storage of portable toilets will use less than 2500 square feet in floor area, uses minimal to no hazardous materials, all necessary public services and facilities are available, and the surrounding area is not environmentally sensitive.

RECOMMENDED PLANNING COMMISSION ACTION

Staff recommends adoption of the resolution approving Coastal Development Permit (CDP) 11-19, Use Permit (UP) 2-19, and Design Review (DR) 4-22 pursuant to all the evidence presented, both oral and documentary, and further based on the findings and conditions stated therein.

ALTERNATIVE PLANNING COMMISSION ACTIONS

1. Hold a hearing, close the hearing, deliberate without a decision, and revisit the application at the next scheduled meeting for a decision and the addition of any new findings.

2. Hold the hearing, and continue the hearing to a date certain if there is insufficient time to obtain all input from all interested parties. At the date certain, the Commission may then deliberate and make a decision.
3. Deny the Application.

STANDARD CONDITIONS

1. This action shall become final on the 11th day following the decision unless an appeal to the City Council is filed pursuant to CLUDC Chapter 17.92 – Appeals;
2. The use and occupancy of the premises shall be established and maintained in conformance with the requirements of this permit and all applicable provisions of the CLUDC;
3. The application, along with supplemental exhibits and related material, shall be considered elements of this permit, and compliance therewith is mandatory, unless an amendment has been approved by the City;
4. This permit shall be subject to the securing of all necessary permits for the proposed development from City, County, State, and Federal agencies having jurisdiction. All plans submitted with the required permit applications shall be consistent with this approval. All construction shall be consistent with all Building, Fire, and Health code considerations as well as other applicable agency codes;
5. If any person excavating or otherwise disturbing the earth discovers any archaeological site during project construction, the following actions shall be taken: 1) cease and desist from all further excavation and disturbances within 100 feet of the discovery; and 2) notify the Director of Public Works within 24 hours of the discovery. Evidence of an archaeological site may include, but is not necessarily limited to shellfish, bones, flaked and ground stone tools, stone flakes produced during tool production, historic artifacts, and historic features such as trash-filled pits and buried foundations. A professional archaeologist on the list maintained by the Northwest Information Center of the California Historical Resources Information System or Listed by the Register of Professional Archaeologists shall be consulted to determine necessary actions;
6. This permit shall be subject to revocation or modification upon a finding of any one or more of the following:
    a. That such permit was obtained or extended by fraud.
    b. That one or more of the conditions upon which such permit was granted have been violated.
    c. That the use for which the permit was granted is so conducted as to be detrimental to the public health, welfare, or safety or as to be a nuisance.
    d. A final judgment of a court of competent jurisdiction has declared one or more conditions to be void or ineffective, or has enjoined or otherwise prohibited the enforcement or operation of one or more conditions.
7. Unless a condition of approval or other provision of the Coastal Land Use and Development Code establishes a different time limit, any permit or approval not exercised within 24 months of approval shall expire and become void, except where an extension of time is approved in compliance with CLUDC Subsection 17.76.070(B).

SPECIAL CONDITIONS

1. Special Condition #1: The applicant shall install a screening fence where determined by the reviewing authority consistent with Coastal Land Use & Development Code section 17.30.050 – Fences, Walls, and Screening.
2. Special Condition #2: Should the fence exceed 6 feet in height, the applicant shall apply for a building permit.
3. Special Condition #3: Outside of necessary business operations, the applicants shall park their vehicles at 1251 North Main Street.

OPTIONAL SPECIAL CONDITIONS

1. Optional Special Condition #1: The applicant shall submit a landscape plan for the site in compliance with Chapter 17.34 “Landscaping Standards” of the CLUDC.
2. Optional Special Condition #2: The applicant shall install ten parking spaces in compliance with Chapter 17.36 Parking and Loading on 1241 N Main Street.

ATTACHMENTS

1. Draft Resolution
2. Site Photos
3. Business Plan & Best Practices

NOTIFICATION

1. Applicant
2. Planning Commission
3. California Coastal Commission
4. Property Owners within 300’
5. Residents within 100’
6. Notify Me- Public Hearing Notice

From:	Ducey, Peggy
To:	Peters, Sarah
Subject:	FW: Public Comment -- 10/19/2022 PC Mtg., Item No. 6A, Biological Resources
Date:	Wednesday, October 19, 2022 12:59:24 PM
Attachments:	Common Raven Impacts on Nesting Western Snowy Plovers_ Integratin.pdf Researchers Examine Links Between Raven Activity and Snowy Plover Nest Success as 2021 Breeding Season Begins (U.S. National Park Service).pdf Point Reyes Compiles Information on Snowy Plover-Common Raven Conflicts (U.S. National Park Service).pdf animals-09-00215.pdf

Another public comment

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Tuesday, October 18, 2022 12:16 PM
To: cdd <cdd@fortbragg.com>
Cc: Ducey, Peggy <PDucey@fortbragg.com>
Subject: Public Comment -- 10/19/2022 PC Mtg., Item No. 6A, Biological Resources

Planning Commission,

I will be submitting comments during the public hearing but want to highlight a particular issue beforehand because it doesn't appear to be addressed adequately in the draft IS/MND and it relates to the significant concerns raised by CDFW in their comment letter concerning the proposed fencing and impacts to biological resources. As you may be aware, ravens are a common predator for other birds and local wildlife.
Raven depredation is a serious environmental consideration for other birds, including the snowy plover. As the City notes in the MND and its supporting studies, this site has been identified as providing likely snowy plover habitat and the project is proposing protective fencing around the native plants and habitat areas in part to protect habitat, including potential snowy plover nesting sites. The City even included the fencing as a formal mitigation measure so this is an acknowledged concern.

CDFW is concerned that the proposed fencing itself may also have potentially significant impacts absent modifying it to permit wildlife access and travel routes through the habitat area of the project site. Instead of taking this documented concern from a responsible agency seriously, the City's Public Works Director submitted a response letter dismissing their concerns primarily because the fencing is a mitigation measure for an identified potentially significant impact. I believe this is an objectionable error and does not comply with the requirements of CEQA. As a result, the draft IS/MND needs revision to address these issues because it completely fails to analyze or address the potentially significant impacts of the proposed mitigation measure of the protective fencing, which is required by CEQA. This omission of required analysis paired with the lack of adjustment to the proposed mitigation measure to remove the potentially significant impacts of installing the proposed mitigation fencing all the way to the ground level presents a serious issue for this MND as currently written. I believe it would constitute an abuse of discretion for the City to adopt the draft MND without modification to the proposed mitigation measure and/or inclusion of adequate analysis demonstrating that CDFW's concerns about the impacts of the proposed mitigation fencing could amount to an additional significant impact.

The issue of raven depredation is a distinct issue that also needs analysis in the MND. I have attached scientific articles concerning raven depredation of snowy plover nests to support this point. Why is this important or particularly relevant for this proposed project? Well, ravens and similar corvid birds are attracted to and feed out of human trash as has been observed throughout their habitat. This project proposes to place and store the trash collected from our area in a location that is immediately adjacent to snowy plover habitat and potential nesting sites. Ravens will be drawn to the trash, and very clever and capable of uncovering or opening what appears to be secure solid waste receptacles. However, the MND does not analyze the potentially significant impacts of collecting and storing solid waste right next to nesting habitat for endangered birds whose eggs and nests are food sources for ravens. Thus, ravens will be drawn to the site for scavenging purposes because of the stream of solid waste that will be stored and transferred on the site right next to nests of endangered birds whose eggs are another food source for the predatory ravens. Why isn't this analyzed? This may not be mitigatable or it might require a mitigation measure of its own (e.g., regular monitoring of the potential nesting sites during snowy plover nesting season and installation of protective cages around observed nests to prevent or minimize raven depredation.

To summarize: this comment highlights two main concerns that should be addressed through revisions to the draft IS/MND. First, the proposed mitigation measure of the protective fencing either needs to be altered per CDFW's suggestion to remove the potentially significant impact of the mitigation measure, namely creating an "island effect" by fencing off the habitat and limiting wildlife paths of travel to and from the project site without leaving ground-level access open to small animals, or the potentially significant impacts of the proposed mitigation measure that CDFW's scientific experts have identified as a concern needs to be analyzed in the MND so the City can determine if modification or alternative/additional mitigation measures are necessary. Second, the MND needs to be revised to address the issue of likely raven depredation of nesting birds and their eggs, including snowy plover, within the ESHA on the site. The latter is necessary because the project will likely attract additional raven scavenging activity from the trash that is collected, stored, and transferred between vehicles and collection receptacles on the project site in close proximity to the protected habitat.

You don't need to take my word for it; you can read more about ravens on the Audobon Society website at https://www.audubon.org/field-guide/bird/common-raven as well as at the following: https://www.nps.gov/articles/point-reyes-compiles-information-on-snowy-plover-common-raven-conflicts.htm, https://www.nps.gov/articles/000/researchers-examine-links-between-raven-activity-and-snowy-plover-nest-success-as-2021-breeding-season-begins.htm, https://www.anthropology-news.org/articles/raven-polluters/, https://www.audubon.org/news/the-common-raven-boom-rugged-west-isnt-necessarily-good-thing, and https://inr.oregonstate.edu/sites/inr.oregonstate.edu/files/a_guide_to_snowy_plover_nest_predators_051220.pdf, all of which are incorporated by reference as part of this public comment.

Regards,

--Jacob

Case Study

Common raven impacts on nesting western snowy plovers: integrating management to facilitate species recovery

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Abstract: The U.S. Pacific coast population of the western snowy plover (*Charadrius nivosus nivosus;* plover) has declined due to loss and degradation of coastal habitats, predation, and anthropogenic disturbance. The U.S. Fish and Wildlife Service listed the subspecies in 1993 as threatened under the Endangered Species Act due to the population declines and habitat loss. Predation of nests and chicks has been identified as an important cause of historic population declines, and thus, most predator management actions for this subspecies are focused on reducing this pressure. In recent years, common ravens (*Corvus corax*; ravens) have become the most common and pervasive predators of plover nests and chicks, especially in areas with subsidized food sources for ravens and sites without predator management. We compiled data from a variety of sources to document the impact of raven predation on plover nesting success. We discuss current raven management and suggest several tools and strategies to increase plover nesting success, including multi-state approval for the use of the avicide DRC-1339, the use of lures and new trap types, and an increase in funding for predator management. The lack of coordinated and integrated management continues to impede the recovery of the Pacific coast plover population.

Key words: *Charadrius nivosus nivosus*, common raven, coordinated management, *Corvus corax*, nesting success, Pacific coast, predator management, species recovery, threatened species, western snowy plover

The western snowy plover (*Charadrius nivosus nivosus;* plover) is a small shorebird that nests on sandy beaches and salt pannes (e.g., salt flats or managed ponds) and relies on nest camouflage, precocial chick rearing, and inconspicuous plumage to avoid detection by predators. The Pacific coast population of the plover occurs in coastal habitats ranging from central

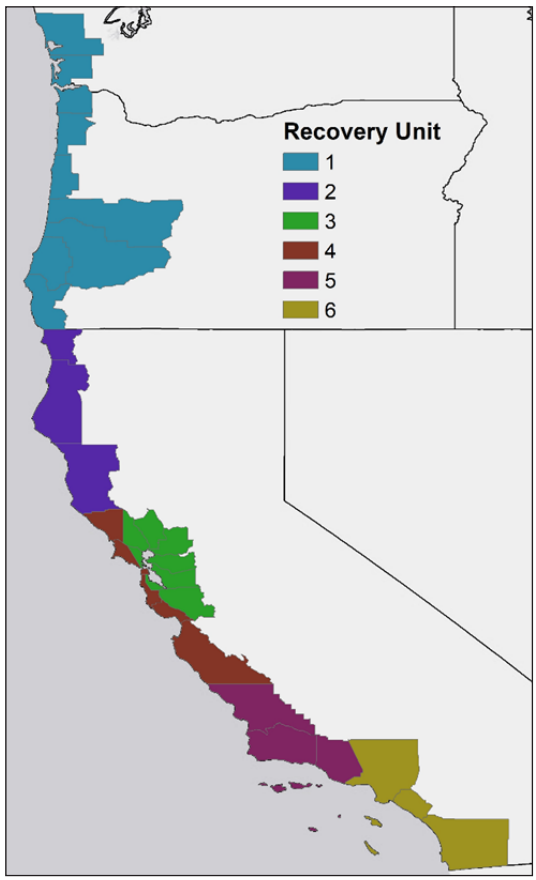

Figure 1. Map showing federally designated recovery units (by county) for the Pacific coast population of the western snowy plover (*Charadrius nivosus nivosus*) in the United States (adapted from U.S. Fish and Wildlife Service 2007).

Washington, USA, south through Baja California Sur, Mexico (U.S. Fish and Wildlife Service [USFWS] 2007, Eberhart-Phillips et al. 2016; Figure 1).

The plover was federally listed as threatened in 1993 due to a significant decline in the population size and number of occupied breeding sites (Page and Stenzel 1981, Page et al. 1991). Population declines are a result of loss and degradation of coastal beach and dune habitats, predation, and anthropogenic disturbance (USFWS 1993, 2007). Recovery efforts since the listing have focused on predator management, habitat protection and restoration, and public education and outreach. These efforts have resulted in increased reproductive success, population size, and number of occupied breeding sites in some areas. However, annual reproductive success and adult population size are still below the subspecies' recovery plan targets in most areas (USFWS 2007, 2019; Figure 2).

Plovers have been monitored within 6 recovery units (RUs) that constitute the range of the subspecies and are delineated by USFWS in the subspecies' recovery plan (USFWS 2007; Figure 1). Thus, substantial information is readily available on the 2 major facets of reproductive success, nest hatching success and chick fledging success, and current and historic approaches to predator management. Predation of plover nests, chicks, and adults is an important cause of population decline (Colwell et al. 2005, Dinsmore et al. 2017, Colwell et al. 2019), and alleviating these losses has been a main focus of management for this subspecies. Although a wide array of predators depredate plover nests (Neuman et al. 2004, Demers and Robinson-Nilsen 2012, Dinsmore et al. 2014), the common raven (*Corvus corax*; raven) has emerged as a major nest predator (Burrell and Colwell 2012, Dinsmore et al. 2014, Lau et al. 2021, Neuman et al. 2021). Over the past 60 years, raven abundance has increased in coastal California and Oregon, USA (Liebezeit and George 2002, Peery and Henry 2010, Sauer et al. 2017), and ravens have expanded their range into new areas (e.g., the central California coast; Roberson et al. 1993, Rinkert 2018).

Since listing in 1993, predator management has been implemented across the plover range, although not at all sites. The type and intensity of predator management conducted annually at plover breeding sites depends on available funding, landowner goals, public perception, regulatory requirements, and site-based constraints that influence feasibility of conducting management. Predator management has included nonlethal methods (such as hazing, trash management, and marine mammal carcass removal) and lethal removal (i.e., trapping, shooting, and the use of the avicide DRC-1339). Lethal removal has been conducted by U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services and private contractors under federal and state permits.

Individual nest exclosures, a technique employed to increase nest hatching rates of imperiled shorebird species (Smith et al. 2010), have also been widely used to protect nests from predators. Nest exclosures are wire cage structures that sit over the nest during the in-

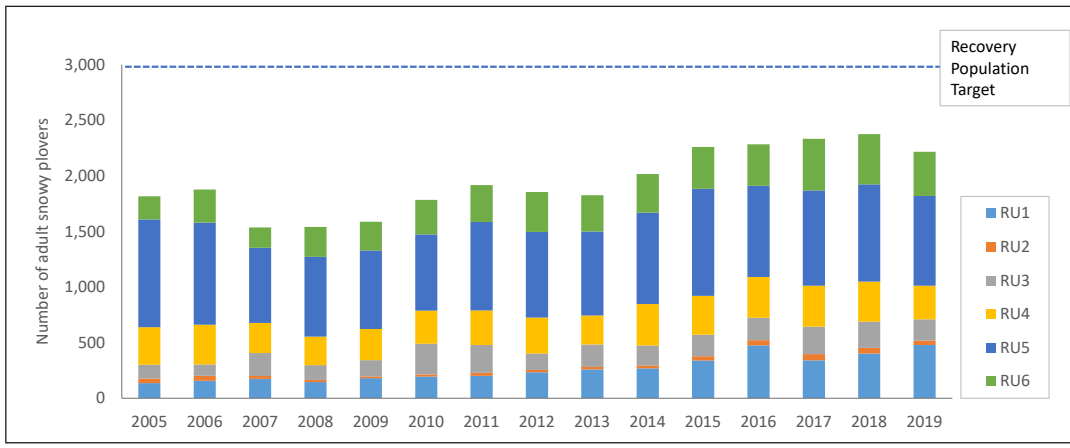

Figure 2. Western snowy plover (*Charadrius nivosus nivosus;* plover) breeding population as determined by single-day surveys in each of 6 federally designated recovery units (see Figure 1 for locations), the range-wide breeding population total, and the number of plovers required to remove this species from the endangered species list (U.S. Fish and Wildlife Service 2019).

cubation period, allowing adult plovers to pass in and out while excluding larger animals. Although exclosures have been demonstrated to increase plover hatching success, they can also increase the risk of nest abandonment and adult plover mortality (Neuman et al. 2004, Hardy and Colwell 2008, Dinsmore et al. 2014). Exclosures have been linked to lower adult survival rates (Gaines et al. 2020) and do not protect chicks from predation once the chicks leave the exclosure. The negative effects of exclosures also have been documented for other shorebird species (Isaksson et al. 2007, Barber et al. 2010). While using exclosures may provide benefits under certain circumstances (e.g., at times or in places with low raptor abundance), for a large part of the range of the plover population, the demographic costs associated with exclosures may outweigh the benefits (Eberhart-Phillips and Colwell 2014, Gaines et al. 2020).

Predator management techniques relying on behavioral modifications to predators (e.g., conditioned taste aversion, effigies) have been unsuccessful at minimizing predator impacts over the large spatio-temporal scales needed to improve plover reproductive success (Liebezeit and George 2002, Peterson and Colwell 2014, Brinkman et al. 2018) and thus have not been widely used.

Here we present a case study on raven impacts on plover nest hatching success. We also discuss current strategies and suggest several ways to improve management to increase plover numbers across the range. This case study relies on unpublished data sources and qualitative assessments from species experts rather than a rigorous experimental design and analysis. However, we believe that the information presented here provides a valuable overview and important regional perspectives on raven impacts and management practices.

Methods

We used 2 sources of information in compiling this case study on the impacts of ravens on plovers. We reviewed unpublished data and information from plover experts. We also reviewed data on population size from annual breeding window surveys (USFWS 2019) and from unpublished reports summarizing annual results at sites within each participating RU, including documentation of causes of nest failure. Breeding window surveys were conducted across the entire range of the listed population during a 1-week window of time in May to obtain a minimum estimate of the number of breeding plovers at current, historic, and potential breeding sites over time. Managers and volunteers have conducted these surveys since the 1990s. Breeding window surveys were conducted during non-migratory periods over a narrow time frame to minimize the chance of recounting birds moving between sites. Because all plovers are not detected on a single survey, window surveys provide an index of population size that is relatively consistent over time. Data from these window surveys were compiled in the USFWS 5-year review (USFWS 2019).

Figure 3. Common raven (*Corvus corax*; raven) tracks at a depredated western snowy plover (*Charadrius nivosus nivosus*) nest. Ravens tend to be messy around a nest site, sometimes digging into the nest bowl, walking around repeatedly, turning things over, or pecking at pieces of wood. They normally swallow eggs whole, so there is typically no evidence of the eggs (*photo courtesy of K. Castelein*).

Figure 4. Photo of a common raven (*Corvus corax*; raven) depredating a western snowy plover (*Charadrius nivosus nivosus*) nest in recovery unit 1. Ravens normally swallow eggs whole, as evidenced here (*photo courtesy of M. Lee*).

Methodologies for nest monitoring were similar among the sites for which we report nest monitoring data (e.g., Neuman et al. 2020). We monitored 1 or more times per week from the initiation of breeding (March or April) through the time that all broods fledged, typically by mid-September. We located nests using methods described by Page et al. (1985), finding nests by visually searching for incubating plovers, watching for plovers that were flushed off a nest, and following tracks.

We defined a nest as a nest bowl or scrape with eggs or tangible evidence of eggs in the bowl (i.e., eggshells). We predicted hatch dates by floating eggs (Westerskov 1950, Hays and LeCroy 1971). We monitored nests until they hatched or failed. We defined a hatched nest as a nest where at least 1 egg hatched and a failed nest as a nest where we found buried or abandoned eggs, infertile eggs, depredated eggs, signs of depredation (e.g., predator tracks or eggshell remains not typical of hatched eggs), or where eggs disappeared prior to the expected hatch date. If a failed nest was determined to be caused by predation, we determined the predator based on evidence at the nest including predator tracks (Figure 3), condition of the nest cup, and evidence from nest cameras (Figure 4). In places where nest failure due to ravens was widespread, we also attributed the failure of some "unknown fate" nests to ravens based on proximity and timing. The data we report here include sample sizes (number of nests monitored), hatch rate (percentage of nests that hatched 1 or more eggs), percentages of nest failure caused by predators, and percentages of nest failure caused by ravens.

In addition, researchers, land managers, and USFWS biologists from each participating RU summarized the current state of raven management, the barriers and constraints to improving management, and the best path forward for effective management. Most sites presented in this case study had predator management programs, and the use of these methods are described for each RU. Detailed descriptions of predator management techniques, equipment, and methods are in Hygnstrom et al. (1994). Below, we integrate these data sources and the information from experts to summarize the impacts of ravens on plovers, the state of predator management, and the resulting implications for

Table 1. Western snowy plover (*Charadrius nivosus nivosus;* plover) nests, nesting success, and nests depredated by common ravens (*Corvus corax;* ravens) throughout the plover range.

Recovery unit	Case study site(s)	Date range	Total nests with known fates	Total hatched nests (*n*)	Total hatched nests (%)	Total nests depredated by common ravens (*n*)	Total nests depredated by common ravens (% of all nests)	Total nests depredated by common ravens (% of failed nests)
1	Central Oregon coast[a]	2011–2020	4,765	1,956	41	294	6	10
2	Recovery unit 2[b]	2016–2020	417	147	35	68	16	25
3	Eden Landing Ecological Reserve[c]	2015–2016	186	79	42	40	22	37
4	Monterey Bay[d]	1984–2006	4,954	3,033	61	41	1	2
4	Monterey Bay[e]	2007–2019	5,098	2,896	57	486	10	22
4	Point Reyes National Seashore[f]	1996–2019	658	379	58	78	12	28
5	Vandenberg Space Force Base[f]	1994–2020	8,848	3,992	45	680	8	14
5	Oceano Dunes[d]	2003–2016	2,114	1,641	78	13	1	3
5	Oceano Dunes[e]	2017–2020	855	580	68	31	4	11
6	Marine Corps Base Camp Pendleton[a]	2006–2013	1,768	1,002	57	235	13	31
6	Marine Corps Base Camp Pendleton[g]	2017–2020	635	363	57	68	11	25

[a]Time period when nest exclosures were not used.
[b]Only reporting years where predator species was documented consistently.
[c]Only years with continuous camera monitoring to determine nest predators.
[d]Time period before increasing numbers of common ravens were present.
[e]Time period when increasing numbers of common ravens were present.
[f]All available data presented.
[g]Time period when nest exclosures were used.

future recovery of the plover population across the range of the listed population.

Results

Common raven impacts

Nest predation by ravens was reported across varying date ranges for each RU depending on available data. Some RUs report impacts dating back to the mid-1990s, and others report more recent impacts. The percentage of nests depredated by ravens varied from a low of 2% at Oceano Dunes (RU5) to a high of 22% at Eden Landing (RU3), with a rangewide average of 10% of all nests depredated by ravens. Raven predation was the cause of failure for 5% (Oceano Dunes) to 37% (Eden Landing) of all failed nests, with an average of 21% of all failed nests depredated (Table 1).

Common raven impacts by recovery unit

RU1. In RU1 (Washington and Oregon), plovers nest on exposed sandy beaches at 11 major sites and in smaller numbers at other sites along the coastline. The RU1 population has increased substantially in the past 2 decades due to collaborative management efforts between state and federal agencies (USFWS 2019; Figure 2). The recovery target for RU1 is 250 plovers; in 2019, 489 plovers were counted during the breeding season window survey (USFWS 2007, 2019).

The central Oregon coast population is among the most intensively monitored and managed populations on the Pacific coast, with higher levels of predator management than other sites, and this was reflected in the overall low rate of nest failure and failure attributed to ravens (Table 1). From 2009 to 2020, ravens were responsible for an average of 10% of all nest failures on the central coast of Oregon (n = 304; Table 1), the second lowest rate among the case studies. Nonlethal predator management has been conducted on the central coast of Oregon since 1991 and lethal predator management since 2002.

Predator management in Washington has also occurred on 3 beaches since 2013; raven impacts here are unknown. The RU1 area uses a wide variety of methods for predator management including nonlethal (e.g., hazing, marine mammal carcass and trash removal) and lethal (e.g., shooting, trapping, and DRC-1339). Exclosures have not been extensively used in RU1 since 2009, and the use of exclosures ceased completely in 2014.

RU2. In RU2, plovers have been recorded breeding at 23 sites (12 coastal beaches and 11 gravel river bars). The recovery target for RU2 (Del Norte, Humboldt, and Mendocino counties, California) is 150 breeding plovers (USFWS 2007). However, RU2 breeding plover numbers have never exceeded a high of 56 (USFWS 2019; Figure 2). Predation accounts for the highest percentage of identified nest failure every year, and in every year that predators were tracked (2016–2020) ravens were responsible for most predator-caused nest failure (Table 1).

In an 18-year study (2001–2018) of plover breeding activity in Humboldt County, the portion of RU2 with the most breeding sites, Colwell et al. (2019) reported a negative correlation between plover fledging success and raven activity. In 2020, only 11% of nests hatched, and ravens were responsible for 84% (n = 36 of 43) of all nest failure caused by predators. This was largely driven by a predation event during May and June at a single site with more than a dozen active breeding plover pairs (USFWS, unpublished data).

Despite the well-documented impacts of ravens in RU2, predator management has been limited to the use of nest exclosures at a few sites during 2000 to 2006 (13–28 nests per year) and 2010 (2 nests). Exclosure use was largely suspended in 2006 due to higher rates of nest abandonment, and adults nesting in exclosures were more vulnerable to predation, potentially impacting adult survival rates (Hardy and Colwell 2008, Eberhart-Phillips and Colwell 2014). Furthermore, the RU2 population is sustained by immigration from RU1, so there was additional concern that continued use of exclosures was encouraging plovers into a population sink (Eberhart-Phillips and Colwell 2014, Colwell et al. 2017).

RU3. In RU3 (San Francisco Bay estuary, California) plovers nest primarily at 6 major sites on tidally restricted, managed pond systems in the south bay. The breeding window survey in 2019 documented 190 adults in RU3 (USFWS 2019), which is well below the recovery target of 500 (USFWS 2007). Although there is substantial variability among years, breeding plover numbers in RU3 have stabilized in recent years due to improved habitat management and enhancement (USFWS 2019; Figure 2).

The unique habitat type in RU3 means that predators rarely leave a trace (i.e., no tracks left on hard-packed pond bottoms), and most depredated nests are attributed to unknown predators. However, using nest cameras, we documented ravens depredating plover nests in the 2015–2016 nesting seasons at the most densely populated breeding site within RU3 (Table 1). Ravens were responsible for 37% (n = 40 of 64) of all depredated nests and were the only confirmed nest predator caught on camera.

Lethal (e.g., trapping, shooting, predator nest removal) and nonlethal (e.g., hazing, perch removal and other habitat modifications) predator management occurs at most nesting sites in most years in RU3 but varies in scope depending on funding. Exclosures are not used due to

the challenge of deploying them in the pond environment and concerns about reduced adult survival.

RU4. In RU4 (Sonoma, Marin, San Mateo, Santa Cruz and Monterey counties, California), there is 1 large (Monterey Bay) and 1 small (Point Reyes) plover population that nests on exposed sandy beaches and within 1 managed pond complex with occasional nesting at other beaches. The recovery target for RU4 is 400 plovers (USFWS 2007), and although RU4 numbers have increased since 1999, approaching the target several times in recent years, breeding plover numbers have decreased since 2017 (USFWS 2019, Neuman et al. 2021; Figure 2).

From 2016 to 2019, the RU4 population declined 17%, from 366 breeding adults in 2016 to only 303 in 2019 (USFWS 2019), and the population did not rebound in 2020 (Lau 2020, Neuman et al. 2021). Because Monterey Bay comprises >90% of the RU4 breeding population, the RU4 decline is mostly driven by population decline at this site where raven predation of plover nests has increased substantially over the period from 2007 to 2019, compared with years prior. At Point Reyes, population size also appears to be limited by low hatching success, with raven predation as the major identified cause of nest failure (Lau and Press 2019, Lau 2020, Lau et al. 2021). From 1996 to 2019 ravens caused 12% (n = 78 of 658) of all nests to fail and were responsible for 29% of all failed nests (Table 1). In 2019, ravens depredated 46% (n = 16 of 35) of all plover nests and were responsible for 70% (n = 16 of 23) of nests that failed (Lau and Press 2019).

In Monterey Bay prior to 2007, ravens were not a predator of plover nests. From 1984 to 2006, ravens caused 1% of all nest failures and were responsible for 2% of all failed nests (Table 1). Beginning in 2007, raven predation of plover nests became more widespread. From 2007 to 2019, ravens caused 10% of all nest failures and were the cause of loss of 22% of all failed nests (Table 1).

Predator management in RU4 includes hazing, lethal removal (e.g., shooting, trapping, DRC-1339), and occasional use of individual nest exclosures. At Point Reyes, nest exclosures are the only predator management method used.

RU5. The RU5 area (San Luis Obispo, Santa Barbara, and Ventura counties, California) is the largest recovery unit, with a recovery target of 1,200 breeding plovers (USFWS 2007). The RU5 area came closest to this target in 2015, when 963 breeding plovers were counted (USFWS 2007, 2019; Figure 2). By the 2020 breeding season, this number had dropped to 861 breeding adults (USFWS, unpublished data).

Predation is the primary cause of nest failure throughout RU5, and ravens are among the most common nest predators. In 2020, 8 of 16 sites reported ravens as a primary source of nest predation, and ravens are now affecting an increasing number of sites where they had not previously been a primary nest predator (USFWS, unpublished data). In Morro Bay, ravens were not commonly documented nest predators until 2019 and 2020, when 4% and 10% of depredated nests were taken by ravens and 29% and 32% of depredated nests were taken by either ravens or American crows (*C. brachyrhynchos*; California Department of Parks and Recreation [CDPR] 2019*a*, 2020).

Similarly, at Oceano Dunes State Vehicular Recreation Area, prior to 2017, sightings of ravens and nest failure caused by ravens were rare (CDPR 2019*b*). Oceano Dunes is among the most intensively managed plover nesting sites on the Pacific coast, with comparatively higher levels of predator management than other sites and thus typically a low rate of nest failure to predators. From 2002 to 2016, an average of only 7% of nests failed due to predation, with only 11 nest failures during this time caused by ravens. However, from 2017 to 2020, this overall rate of nest failure due to predation increased to an average of 15%, with ravens responsible for 13–28% of nest depredations each year, driving the overall rate of nest failure to predators (CDPR 2020).

In contrast to Morro Bay and Oceano Dunes, where raven predation is a relatively new phenomenon, at Vandenberg Space Force Base, ravens have caused variable levels of plover nest loss in most years since at least 1994 (when monitoring began), ranging from 1–61% of predator losses or an average of 25 nests each year. In that time frame, an overall 14% of known nest failure has been caused by ravens (Table 1). Peaks in predation occurred in 2003 and 2004, when 63 and 66 nests were depredated, and in 2011, when 73 nest failures were attributed to ravens. The most recent peak in raven predation of plover nests was from 2017 to 2019, when 118, 48,

and 43 nest failures were caused by ravens, respectively (Robinette et al. 2019).

Predator management at most sites in RU5 includes both nonlethal methods (e.g., hazing, nest exclosures, fencing, trash management) and lethal methods (e.g., predator nest removal, predator trapping and relocation, shooting, and DRC-1339). In 2020, 10 of 16 nesting sites in RU5 had predator management programs in operation. Sites with more funding spent on predator management (i.e., Oceano Dunes) had lower levels of nest predation.

RU6. The RU6 area (Los Angeles, Orange, and San Diego counties, California) includes some of the most urbanized plover nesting sites in the range of the listed population. The RU6 recovery target is 500 breeding plovers. The RU6 area has approached but not achieved this goal in recent years (USFWS 2007, 2019; Figure 2). Brinkman et al. (2018) reported that ravens were limiting plover nest success in RU6.

At Marine Corps Camp Pendleton, ravens were the cause of 31% (n = 235 of 766) of all nest failure due to predation; even with the use of nest exclosures in more recent years, ravens were still responsible for 25% (n = 68 of 272; Table 1) of all nest failure due to predation. The RU6 area uses a wide variety of tools for predator management, including hazing, lethal removal, nest exclosures, and DRC-1339. It uses exclosures more commonly than any of the other recovery units, with little apparent impacts to adult plovers (S. Vissman, U.S. Fish and Wildlife Service, personal communication).

Discussion

The negative impact of ravens on plover nesting success adds to the suite of pressures on this threatened subspecies. The Pacific coast population has not met recovery population targets, and we believe that the evidence presented here demonstrates that raven predation of plover nests is becoming more widespread and common and is a contributing factor.

Ravens are one of the most common predators identified at most plover nesting sites. They are highly efficient predators that range over large distances (Rösner and Selva 2005), allowing them to depredate plover nests across a large area within a span of a few days. After predation events have occurred, many plovers lay replacement clutches. This widespread renesting can result in synchronous hatching, which may increase the susceptibility of nests and chicks to density-dependent impacts from predators (Page et al. 1983) and to extreme weather events related to climate change, such as high tides and storms (Neuman et al. 2019, 2020).

Plovers may respond to predation pressure by dispersing to other breeding sites, which can be adaptive if the alternative sites have lower predation pressure (Pearson and Colwell 2013). For example, in RU4, intense predation pressure from ravens probably has been an important factor causing within- and among-season movements ranging from local (1–5 km) to regional (10–30 km) scales (Point Blue, unpublished data). In the Monterey Bay area, raven predation pressure over many years is probably the primary factor causing the near-extirpation of breeding at 4 northern Santa Cruz County beaches by 2008; some plovers subsequently moved >30 km south to nest in areas with lower predation pressure (Point Blue, unpublished data).

At Point Reyes in 1989, after most nests were depredated by ravens, plovers moved within the nesting season from Point Reyes Great Beach to a site with lower predation pressure, Salmon Creek Beach, a distance of >20 km (Point Blue, unpublished data). With raven populations expanding in RU4, few low-pressure sites remain (Lau 2020, Neuman et al. 2021, Lau et al. 2021), and it is unclear if these documented small-scale or larger-scale movements have conferred any fitness advantages in the long-term.

Habitat restoration, when combined with predator management, has a positive effect on plover nest success (Dinsmore et al. 2014). However, the benefits of habitat restoration may diminish over time if there is no predator management. In RU2, plovers experienced substantial nest success for 4 consecutive years at a restored nesting site until the 2020 breeding season when predation from ravens increased significantly (USFWS, unpublished data). In RU4, plover nest success and occupancy at restored sites has declined over time, possibly due to raven predation pressure (Lau and Press 2019, Lau 2020). Given the high cost of habitat restoration, managers must consider that benefits to plovers may not persist without annual predator management.

Constraints

Site-specific constraints to managing predators exist, but there also are consistent themes that emerge across multiple RUs. Policy, planning, and permitting constraints are governed by state and federal agencies, as well as local land managers, and are influenced by public opinion. In addition, there are specific limitations to managing species as intelligent and adaptable as ravens. These limitations include technical challenges related to the availability of new tools as ravens learn, practical constraints imposed by local landscape-related factors, and the challenge of addressing landscape-level anthropogenic subsidies that are driving raven population increases at a larger scale. Finally, and perhaps most importantly, there are significant limits to the funding that is currently available for plover conservation actions, including predator management.

Most RUs use a variety of methods, from hazing to nest exclosures, to lethal removal, to control ravens, and are constantly working to improve the success of these methods, innovate new methods, and reduce costs. But while RU1 has used these methods to meet and exceed the population goals laid out in the recovery plan, these same methods are proving inadequate in other RUs. In RU4, for example, shooting has been a primary means of lethal control, but this method has been less successful over time as ravens learn to avoid areas when managers are present. Evidence from captive studies suggests that ravens recognize and learn to avoid specific humans they view as dangerous (Blum et al. 2020), which may affect the efficacy of methods such as shooting or baiting with DRC-1339 as ravens learn avoidance behaviors.

Predator management implementation success in many areas is affected by the physical constraints of the local landscape. In more than half of the RUs (RU1, RU3, RU4, RU5, RU6), many plover nesting sites are adjacent to public trails and beaches. This is often not compatible with lethal control of predators because of high public visibility or risk to humans. In some cases (RU3, RU4), adjacent private landowners allow predator control on their lands, but these agreements can be difficult to maintain due to the lack of common goals among private and public landowners. The de facto result is that predator control occurs along narrow swaths of habitats where ravens are spending relatively little time before departing back to adjacent areas where control is not feasible.

Adding to the implementation problems posed by adjacent lands are the subsidies provided to ravens, including food (e.g., garbage, agricultural and ranching products), water, and nesting sites (power towers, landscaping trees), which are driving raven population increases (Liebezeit and George 2002). Land uses that generate subsidies include agriculture (RU4, RU5), ranching (RU1, RU2, RU4), housing and other developments (RU3, RU4, RU5, RU6), landfills (RU3, RU4, RU5, RU6), and campgrounds and high-use visitor areas (all RUs).

Funding is a significant constraint on the type and intensity of predator management that can be implemented in every RU. Most nesting sites are in public ownership, and the land managers' ability to secure funding is variable. At sites with regulatory requirements to protect plovers, annual funding is more secure (e.g., Oregon Parks and Recreation Department's Habitat Management Plan in RU1, Oceano Dunes State Vehicular Recreation Area in RU5, military installations in RU5 and RU6), and these sites tend to be the most effective at reducing the amount of predation on plover nests. Where these regulatory requirements are lacking, funding must be carved from dwindling state and federal operating budgets, special funds, or from strategically coordinated grant sources.

Management implications

Successful predator management requires a wide variety of tools, long-term commitments to funding, and coordinated outreach to adjacent landowners and the public to enable management efforts. Our case study documents that ravens are a significant limiting factor and that improved management will be necessary to mitigate the decreasing efficacy of predator management methods and an increasing raven population. One tool, DRC-1339, is an important tool in raven management but has not been approved for use in all RUs. Multi-state or multi-county regulatory approval of DRC-1339 would allow more widespread use of this tool. In addition, new nonlethal methods and other lethal trapping methods (more widespread use of lures, bait, calls, etc.) have all been identified as important raven management needs.

For plover populations to reach recovery targets, we need landscape-scale management to address anthropogenic subsidies, streamlined and flexible permitting for predator management techniques, new on-the-ground techniques to address intelligent and adaptable predators, and more funding. Without consistent predator management, impaired breeding success across the range of the Pacific coast population of the plover will continue to be a barrier to recovery.

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Jenny L. Hutchinson graduated from Humboldt State University in 2012 after studying wildlife management and pollination biology, and she has worked with USFWS in Arcata, California, for the last 5 years as a fish and wildlife biologist. She helps coordinate snowy plover Recovery Unit 2 activities.

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Lena Chang was born and raised in southern California, where she continues to live and work. Her early background is in special education and wildlife rehabilitation, specializing in birds of prey. Inspired by conservation, she went back to school to earn a B.S. degree in environmental biology before being hired by the U.S. Fish and Wildlife Service (FWS) in 2008 as a fish and wildlife biologist. She spent nearly 13 years working with state, federal, local, and private partners toward conservation of threatened and endangered species in coastal southern California with the Ventura Fish and Wildlife Office in Ventura, California. In recent years, she transitioned to positions in FWS headquarters working in emergency management and to the Mountain-Prairie Region working in external affairs.

Joanna Iwanicha graduated from Cal Poly San Luis Obispo, California with a B.S. degree in ecology and systematic biology and has worked the past 17 years at the Oceano Dunes District of California State Parks as an environmental scientist specializing in snowy plover and least tern management.

Elizabeth Feucht has been involved with snowy plover monitoring efforts in Humboldt County, California for 8 years. She graduated with a degree in wildlife from Humboldt State University in 2016, then worked there as the Snowy Plover Research Project manager under the direction of Dr. Mark Colwell until 2019. She continues to survey, band, and help coordinate plover monitoring efforts in Humboldt County.

Matthew J. Lau is a wildlife biologist with Point Reyes National Seashore and leads the management and monitoring program for western snowy plovers. He has worked with snowy plovers for nearly a decade, at Point Reyes National Seashore (2016 to current) and in northern California while working on his master's degree at Humboldt State University (2012–2015). As a National Park Service biologist, he also conducts surveys of the Point Reyes mountain beaver and assists with elephant seal and tule elk monitoring. His interests include shorebird ecology, bat conservation, spatial ecology, conservation education, and diversity and inclusion work.

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Sarah Markegard has been a biologist with the U.S. Fish and Wildlife Service (USFWS) Ecological Services Program for 6 years, initially based out of Sacramento, California and currently stationed in Anchorage, Alaska. Sarah holds a B.S. degree in ecology, evolution, and behavior from the University of Minnesota, Twin Cities, and an M.S. degree in resource conservation from the University of Montana, Missoula. Prior to her work with the USFWS, she worked as an environmental educator in northern Minnesota and a wildlife technician in Rocky Mountain National Park. Her current work is focused on providing technical assistance on projects that impact USFWS trust resources and developing proactive conservation projects in collaboration with partners across southeast Alaska.

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He has been working with SFBBO since 2013 and leading the western snowy plover and California least tern programs since 2017. His efforts with SFBBO have focused on monitoring and aiding in the recovery of these 2 species in the South San Francisco Bay. As part of his work, he has attempted to increase public participation in local conservation by organizing several habitat enhancement and restoration events each year. He lives with his wife, son, and dog in Santa Clara and enjoys hiking, cooking new dishes, and seeing live music in his free time.

David L. Sherer is a U.S. Fish and Wildlife Service (USFWS) biologist at the Ventura Fish and Wildlife Office, where he implements endangered species policy and coordinates recovery activities for several federally threatened and endangered birds. He holds a B.S. degree in wildlife and fisheries science from Tennessee Tech University and an M.S. degree in biology from the University of Central Florida, with a thesis on the behavior and ecology of Florida scrub-jays. His work for USFWS emphasizes developing partnerships for conservation and enhancing public engagement in natural resources management.

Rachel Tertes is a wildlife biologist with the U.S. Fish and Wildlife Service. She started as an intern at the Don Edwards San Francisco Bay National Wildlife Refuge in 1999 after graduating from Virginia Tech with a B.S. degree in forestry and wildlife. She joined the staff of the San Francisco Bay National Wildlife Refuge Complex in 2001 and continues there today. She is currently a wildlife biologist for the Don Edwards Refuge where she is the lead for tidal marsh species, including salt marsh harvest mice and California Ridgway's rails, as well as the lead for waterbirds, including the western snowy plover.

Susie Tharratt is the regional recovery permit coordinator for the U.S. Fish and Wildlife Service California-Great Basin Region. A coastal California native, she has formed a deep bond with the ocean at a young age. She is a marine ecologist by training and has spent the majority of her professional career in both field and lab, conducting research, and more recently guiding monitoring programs, policy, and adaptive management of threatened and endangered species. In addition to her work with western snowy plovers, she is currently engaged in Pacific green sea turtle and California condor recovery efforts along the West Coast. She attributes to her early time working in such locations as the Great Barrier Reef, Papahānaumokuākea Marine National Monument, Cape Cod Bay and Islands, and the Channel Island National Park as setting her firmly in her trajectory to conserve both places and species that are naturally and culturally significant. In her time off, she enjoys family, photography, and travel adventures abroad.

Travis Wooten serves San Diego Zoo Wildlife Alliance as a research coordinator in recovery ecology. In this role, he coordinates the California least tern and western snowy plover project at Marine Corps Base Camp Pendleton. He is interested in understanding the driving forces that determine fledgling rates for terns and plovers as well as examining seasonal and yearly movements of plovers within metapopulations.

ARTICLE

Point Reyes Compiles Information on Snowy Plover-Common Raven Conflicts

Point Reyes National Seashore

Common ravens prey on western snowy plover eggs (as shown here) and hatchlings in Point Reyes. Between 1996 and 2019, biologists found 658 western snowy plover nests in the park. Common ravens depredated at least 78 (11.9%) of them.
NPS / Matt Lau

April 2020 - Common raven numbers have exploded across the West because of reliable human resources, such as trash, agricultural practices, fresh water sources, and roadkills. But these hawk-sized omnivores eat far more than trash. They also hunt eggs and small animals. At-risk species like greater sage-grouse and desert tortoises are negatively affected by the increase in raven numbers. To learn more about the scope and scale of such raven conflicts in the region, biologists with the US Fish & Wildlife Service (USFWS) formed a committee. In collaboration with the coast-wide snowy plover working group, biologists from Point Reyes National Seashore recently submitted information to this committee. In particular, they detailed the impacts ravens have had on nesting western snowy plovers within the park.

Common ravens prey on western snowy plover eggs and hatchlings in Point Reyes. The breeding **snowy plover monitoring program** at the park has documented such impacts since it began in 1996. Between 1996 and 2019, biologists found 658 western snowy plover nests in the park. Common ravens depredated at least 78 (11.9%) of them.

Before 2013, common ravens depredated approximately 5% of snowy plover nests, due in part to reliance on nest exclosures. Biologists began decreasing nest exclosure use in 2013 to reduce risks to adult plovers (see **Lau et al. 2017** and **Hardy and Colwell 2008** for more information). Between 2013 and 2019, raven nest depredation soared to 21.2%. Common raven impacts increased significantly in 2019. Of the 35 plover nests found in the park, 45.7% were lost to ravens.

Common ravens have even caused local extirpation of breeding plovers in Point Reyes. One event occurred during the 1989 breeding season. Biologists from what is now Point Blue Conservation Science observed plovers move from Point Reyes Great Beach to a site more than 20km north to avoid high raven depredation pressure. More recently, park biologists documented an increase in the number of ravens at the Abbotts Lagoon restoration area. They counted 1.4 ravens per hour in 2015, and 11 per hour in 2019. Faced with rising nest loss, the plovers have been fleeing to other sites.

Point Reyes biologists aim to help the park's breeding snowy plovers to recover. To do so, they need to be able to try more comprehensive, innovative techniques to ease common raven depredation pressure. With their submission to USFWS on the park's raven-plover conflicts, they hope to secure logistical and financial support to do just that.

For more information

- Contact Snowy Plover Ecologist **Matt Lau**
- Pacific Coast Science and Learning Center **Western Snowy Plovers webpage**
- **Snowy Plovers at Point Reyes webpage**
- San Francisco Bay Area Network **Western Snowy Plover Monitoring webpage**
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Last updated: May 8, 2020

ARTICLE

Researchers Examine Links Between Raven Activity and Snowy Plover Nest Success as 2021 Breeding Season Begins

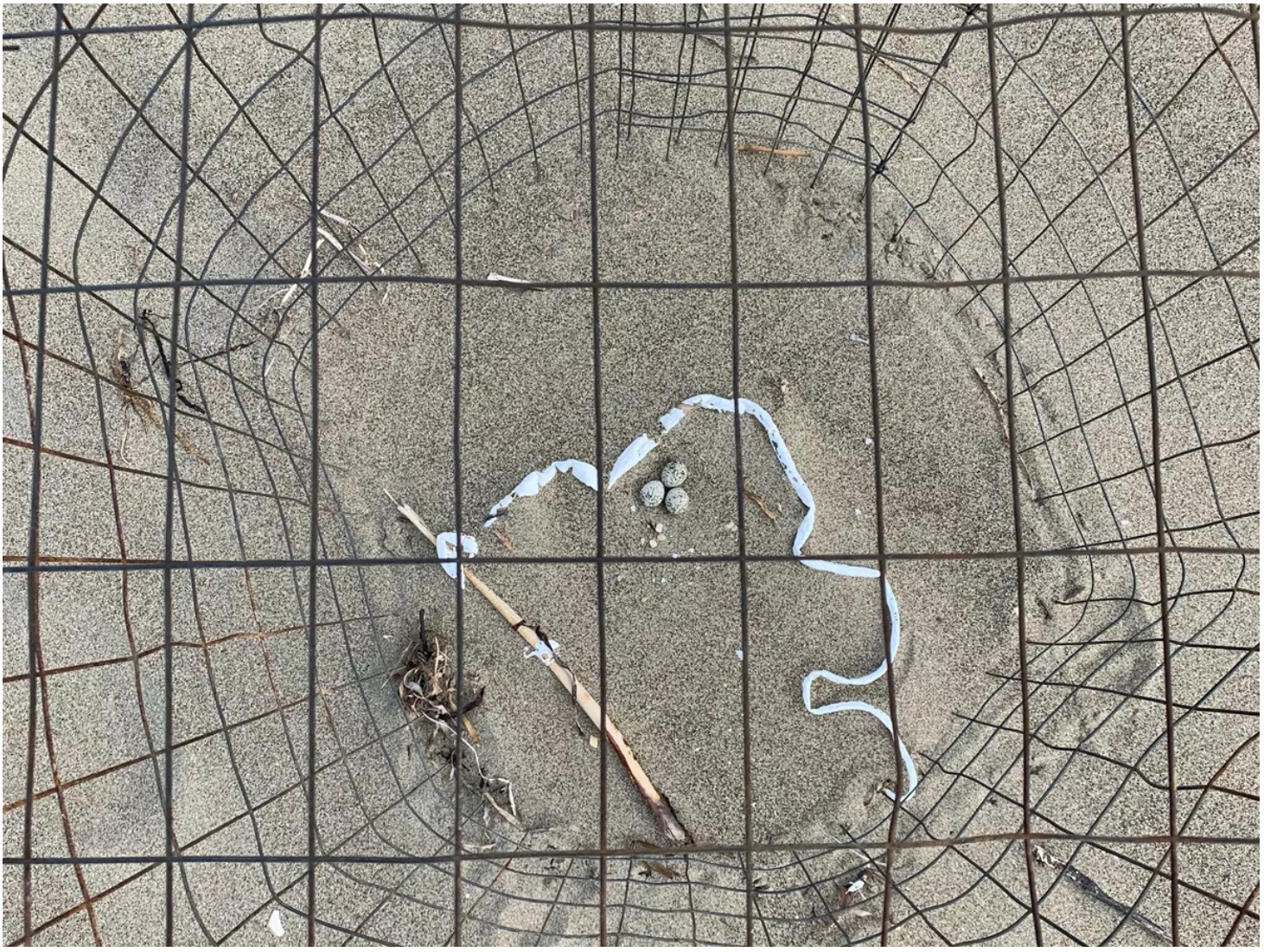
Point Reyes National Seashore

Nest exclosures are the mesh fences that biologists sometimes place around and over nests. They exclude most predators while allowing the plovers to come and go as they please. Biologists found that nest exclosures significantly improved nest success by protecting nests from depredation.
NPS / Matt Lau

April 2021 - When common ravens devour western snowy plover eggs, they leave behind empty nest cups with tracks as evidence of the depredation event. Plover nests surrounded by raven tracks have become a worryingly familiar sight for biologists at Point Reyes National Seashore. So this past winter, they decided to take a closer look at their past plover monitoring data. With new analyses, they were able to better understand the problem, and also the effectiveness of continuing the use of nest exclosures.

Nest exclosures are the mesh fences that biologists sometimes place around and over nests. They exclude most predators while allowing the plovers to come and go as they please. Ravens accounted for 33.7% of all plover nest failures and 40.8% of unexclosed nest failures between 2002-2020.

First, biologists looked at the number of ravens they spotted per hour during their western snowy plover breeding surveys. They found that raven activity is highest at Kehoe Beach and the Abbotts Lagoon Restoration Area. Plover pairs in these same areas fledge fewer chicks than those at other sites. Then the biologists used statistical modeling to check whether raven activity is in fact hindering long-term plover nest success. Sure enough, they found that it is. At the same time, they found that nest exclosures significantly improved nest success by protecting nests from depredation. This new statistical evidence that nest exclosures are important to long-term plover productivity in Point Reyes will help the park make crucial decisions about how much to use them. This research is currently under peer-review.



At least 11 pairs of plovers are breeding along the Great Beach and Limantour Beach so far this season.
NPS / Matt Lau

Meanwhile, the 2021 western snowy plover breeding season at Point Reyes has begun. At least 11 pairs of plovers are breeding along the Great Beach and Limantour Beach. The monitoring team also found the first nests of the season on April 2nd at the north end of Kehoe Beach. As of April 22nd, they've found a total of six nests, including three on Kehoe Beach, two on North Beach, and one on Limantour Beach. Common ravens depredated two nests, an unknown predator depredated two more, one nest was abandoned for unknown reasons, and only one nest remains active. The team expects to find several more nests in the next couple weeks as more pairs establish their nesting areas.

For more information

- San Francisco Bay Area Network **Western Snowy Plover Monitoring webpage**
- Pacific Coast Science & Learning Center **Western Snowy Plovers webpage**
    - **San Francisco Bay Area Western Snowy Plover Blog**
- Contact Snowy Plover Ecologist **Matt Lau**

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animals

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Article

Waste Disposal Sites as All-You-Can Eat Buffets for Carrion Crows (*Corvus corone*)

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Simple Summary: Several bird species like common ravens, carrion crows, hooded crows, and rooks are held responsible for damage to agricultural land and crops. Especially in urbanized areas, they are increasing in abundance and are considered nuisance animals. We estimated the population size of carrion crows over the course of one year in relation to waste and non-waste sites in the federal state Vorarlberg, Austria. The current study showed that several human-related food resources influence the abundance of crows. More crows were observed in survey areas of biogas production and green-waste sites compared to reference sites 3 km distant from waste sites. Continuous hunting activities over the past two decades have not reduced population size. We suggest that the sustainable long-term stabilization and reduction of generalist corvid species populations can only be achieved if anthropogenic food resources are limited.

Abstract: In cities and densely populated areas, several corvid species are considered nuisance animals. In Austria, particularly carrion (*Corvus corone*) and hooded crows (*C. cornix*) are regarded as pests by the general public that frequently cause damage to crops, feed on human waste, and thus spread trash. We conducted a detailed one-year field survey to estimate the abundance of carrion crows in relation to potential anthropogenic food sources and reference sites in the Austrian Rhine valley. Our results demonstrated that the number and proximity of waste management facilities, animal feeding areas, and agricultural areas, and the productive capacity of agricultural areas, predominantly influenced habitat choice and abundance of carrion crows. In the current study, the probability of observing more than two carrion crows at a survey site decreased with increasing human population density. Moreover, the abundance of crows increased despite a continuous increase in crow hunting kills registered during the past 25 years. Our study suggests a regionally comprehensive waste management plan could serve as a promising strategy to manage nuisance birds. A reduction in anthropogenic food supply through improved waste management practices is required for long-term, sustainable management to limit the abundance of crow populations in and close to urban environments.

Keywords: abundance; anthropogenic food; *Corvus corone*; crow; corvid; ecology; waste management

1. Introduction

Several bird species adapted to human settlement have increased their abundance in urbanized areas throughout the world. Many crows and ravens (corvids) are opportunistic foragers, generalists

that successfully colonize urban habitats and congregate near human-related food sources. Corvids benefit from the anthropogenic impact on the environment caused by urban development, and their populations have increased in cities, suburbs, and agricultural areas worldwide [1–5]. Detailed studies on American crows demonstrate that crow populations increase in areas with more anthropogenic resources, reduce home range size, increase reproduction, and use less space for breeding in urban areas [2,3,6,7]. Several corvid species are considered nuisances or pest animals, and are the focus of agricultural, conservation, and legal control programs [8–11]. In particular, common ravens (*Corvus corax*), carrion crows (*C. corone*), hooded crows (*C. cornix*), and rooks (*C. frugilegus*) are held responsible for damage to agricultural property and crops, as they break open silage bales [12–14] and feed on newly planted seeds in fields [12,15–17]. Members of the genus *Corvus* also successfully use waste disposal sites as a reliable food source. An increased abundance of crows is often related to the supplementary food supply [6,18–20]. Limiting the amount of, and accessibility to, available waste has been suggested as an effective long-term method to reduce the population of common ravens [21]. Similar suggestions to reduce inadvertently provided food via garbage incineration and dumpster covering have been proposed by the U.S. Fish and Wildlife Service [21,22]. However, regulations and improvements of garbage and waste-disposal management can only take effect when implemented over large geographical areas [21,23,24].

In Austria, waste-disposal management underwent substantial changes due to both the modifications of waste separation and residual waste treatment according to regulations of the European Union and a federal law passed in 2004. The legally regulated threshold required the mechanic, biological, and/or thermal treatment of residual waste instead of the mere disposal of waste. Such treatment is not available in the Austrian federal state of Vorarlberg. Hence, the three main waste disposal sites, which used to deposit garbage without treatment, could no longer be used as such. Waste management in Vorarlberg now depends on the capacity of neighboring provinces or companies in bordering Switzerland. Today, waste is collected and sorted at transfer stations in Vorarlberg and successively relocated for processing. At the current transfer stations, less waste is generally available for crows than in former disposal sites (Markus Boeckle, pers. obs.). However, it remains questionable whether there is a decreased amount of waste available to corvids as a result of this change in waste handling. Additionally, so-called green-waste areas were developed in every community in Vorarlberg to mitigate the deposition of green waste in the countryside. Likewise, biogas production sites in Vorarlberg, which are anaerobic digester facilities that treat farm waste, currently deposit agricultural waste for a short period without covering the to-be-treated waste. All of the above-mentioned waste management areas provide human-related food sources to crows and other corvid species, and thereby might contribute to the increased occurrence and abundance of crows in the vicinity of waste facilities.

In addition to changes in waste management regulations, hunting could potentially negatively impact the abundance of corvid species in general and crows in particular in Vorarlberg. In Austria, hunting is used as a control method to limit the population size of corvids. Since 2009, the European parliament has prohibited the hunting of passerine bird species to conserve wild birds. However, the 1979 adopted and 2009 amended European directive on the conservation of wild birds [16] grants exemptions for carrion crows (*C. corone*), rooks (*C. frugilegus*), western jackdaws (*C. monedula*), Eurasian jays (*Garrulus glandarius*), and Eurasian magpies (*Pica pica*) for several member states, including Austria. In Austria, the game law is regulated by province (Länder) authority, and therefore different regulations apply in different federal provinces. For example, the hunting regulations in the province Burgenland stipulate year-round protection, while in Styria, the hunting of 13,300 hooded crows and 3700 carrion crows per year is allowed, and in Vorarlberg corvid species, among others, are excluded from the conservation of wild living bird species [25]. Several studies, however, report a lack of scientific evidence for a reduction of corvid populations as a result of hunting [26–28]. In several cities, populations of carrion crows, hooded crows, and rooks might have increased due to the hunting pressure they experience in the countryside [1,28,29].

Crow breeding pairs, which mainly eat insects that provide sufficient protein for growing juveniles [29], defend food sources and territories against other intruding birds. A reliable availability of subsidized food can increase the breeding performance, including the survival rate of juveniles [1,2]. The size of non-breeder flocks, formed in several corvid species by juveniles and adults alike [30–33], might increase with food availability in early life stage periods. Additionally, non-breeders often inform each other about the location of food sources using food calls [1,14,34–36], and thus a large number of individuals can be recruited to food sources [14,34,37–39]. The similar attraction of large numbers of non-breeding individuals gathering at roosts and around substantial but ephemeral food sources is reported for carrion crows [13,15]. It appears likely that subsidized anthropogenic food sources, e.g., waste disposal sites, contribute to an increasing abundance of crows.

The aim of this study was to investigate the effects of anthropogenic food sources on the abundance of carrion crows. Surveys were conducted to examine the spatial relationship between crow abundance and the location of biogas, green-waste sites, and transfer stations, as well as agricultural areas, animal feeding areas, rivers, and the Lake Constance in the Vorarlberger Rhine Valley (federal state Vorarlberg, Austria). Crow abundance and occurrence were recorded with regard to seasonal and daily temporal differences. To evaluate the relationship and effectiveness of recent regulations potentially influencing the population growth of crows, we compared hunting kills and population size reported for corvid species from the past 20 years. We discuss the results of the occurrence and abundance of crows in relation to their ecology and social behavior and in light of current waste-management.

2. Materials and Methods

2.1. Ethics Statement

The study was approved by the regional environmental office of Vorarlberg. The survey was performed without physical contact with the study animals and did not access privately owned or protected land. The protocol for data collection adhered to the Animal Behavior Society guidelines, and no permit was necessary for the described field observations.

2.2. Study Species and Site

Carrion crows have a mean body length of 44–51 cm and wingspan of 84–100 cm; the body mass of females and males ranges from 430 to 650 g [40]. They exhibit a completely black plumage and are closely related to the partly gray hooded crow [41]. The hooded crow is considered a 'semispecies' of the carrion crow, as gene flow occurs, but a reduced fitness of hybrids has been reported [42]. In Middle and Southern Europe, *C. corone* breeds predominantly in cultivated, agricultural landscape, along forest edges, in parks, and in marsh areas [17,41]. In the breeding period from March to July, two to seven eggs are laid, and the hatching period lasts up to 22 days [41]. Juveniles are raised by breeding pairs until the summer, and afterwards they are expelled from the natal territory and form non-breeder flocks [41]. Crows are adaptable and opportunistic species, especially regarding their food resources [41]. During winter, crows mostly feed on vegetables, whereas in the summer their diet consists of insects, snails, earthworms, small mammals, bird eggs and fledglings, as well as garbage from waste disposal sites [41,43].

The study area is the Austrian Rhine Valley (Rheintal), located in the western part of Austria near the border with Switzerland, 400–500 m above sea level (Figure 1). The area comprises the districts and cities of Feldkirch (34,012 inhabitants), Dornbirn (49,620 inhabitants), and Bregenz (29,826 inhabitants), with an overall estimated population of 395,012 people recorded in December 2018. The valley itself is divided into the upper and the lower part (Oberes Rheintal Unteres Rheintal). The lower part is situated next to the coast of Lake Constance; it comprises about 180,000 inhabitants and hosts about half of the whole federal state of Vorarlberg. Although Vorarlberg is the second smallest state of Austria and has the smallest population of all federal states, it has the second highest population density in the country with 150 inhabitants/km^2. Most inhabitants live in small towns, which form a long continuous

settlement structure including 29 single municipalities. Landscapes between the conurbations are often protected areas under agricultural use. Main forms of agriculture are meadow orchards, pastures for animal husbandry and milk production, croplands for grain (e.g.,: *Triticum aestivum* subsp. *spelta*) and rapeseed (*Brassica napus*), and wood and forestry industries. Lake Constance (47°35′ N, 9°28′ E) is the third largest lake in Europe, covering 571.5 km^2, and is approximately 395 m above sea level. The 28 km-long coastline of Lake Constance belongs to Vorarlberg, while the remaining coastline runs though Switzerland and Germany. One major highway runs through the valley connecting three major cities of the area and the coastline of Lake Constance with the Arlberg, a mountain range between Vorarlberg and Tyrol. The Rhine Valley is the warmest area of Vorarlberg with a yearly mean temperature between 8 and 9 °C and a yearly rainfall of about 1100 mm.

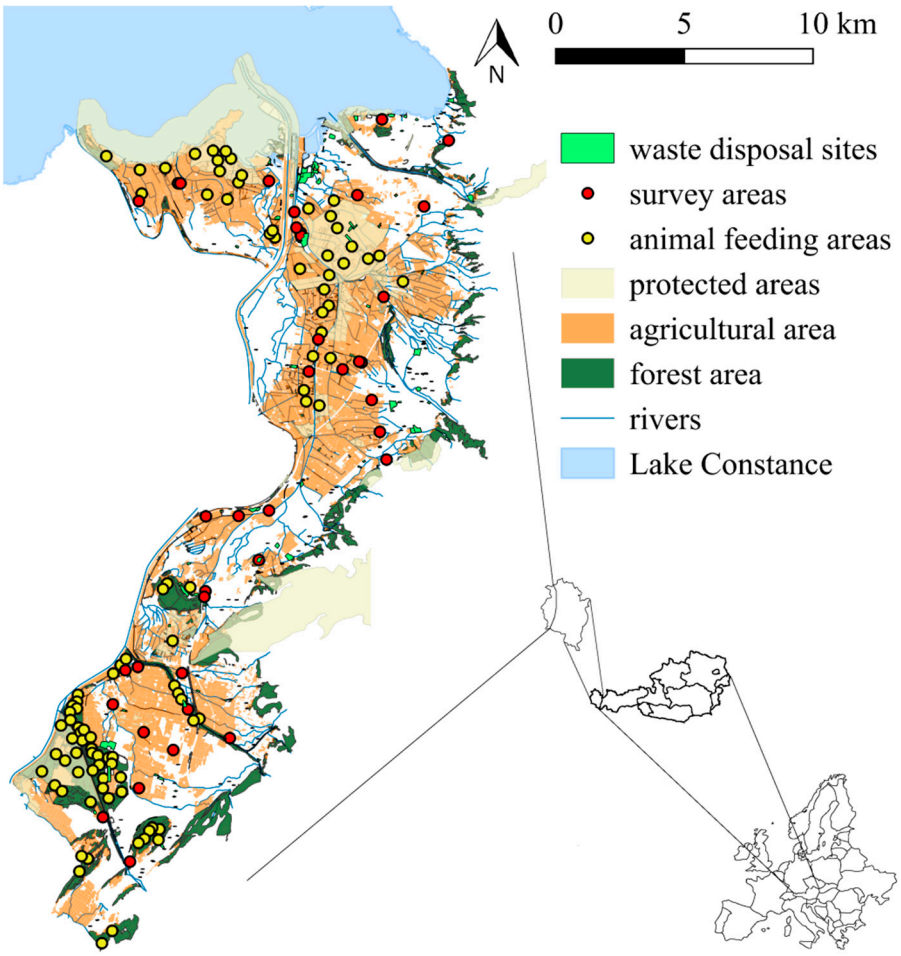

Figure 1. Map of spatial factors that may influence the abundance of *Corvus corone* and *C. cornix* Geographic data included in the full model for the study area are presented including survey areas, waste disposal sites, animal feeding areas, protected areas, agricultural areas, forest areas, and rivers. Maps were provided by http://vogis.cnv.at (© Land Vorarlberg).

2.3. Data Collection and Analysis

We surveyed the population size of carrion crows for one week and repeated this survey five times within one year. We surveyed 42 selected waste and non-waste sites in week 30 (July) and 40 (October) 2013 and in weeks 5 (January), 19 (May), and 33 (August) 2014, to analyze seasonal patterns of abundance. Survey areas of waste sites included biogas production sites with (n = 10) or without (n = 5) agriculture, green-waste sites (n = 14), wastewater treatment plants (n = 3), and transfer stations (n = 5). As points of reference in non-waste related sites, we selected reference sites at least 3 km from known waste survey sites in the Rhine Valley. We visited the sites twice a week along a fixed route, with

the starting point switched between successive survey occasions. All event sampling was performed for a period of five minutes at the survey sites. At every survey point within those five minutes, we recorded every individual of *Corvus corone* and *C. cornix* seen with the unaided eye within a distance of 300 m. Additionally, we recorded every individual seen within 1 km while we were driving from one site to the next in order to identify areas of high crow abundance other than the focal study sites.

We included information on distance to number of waste deposit sites (all existing deposit sites within the study area) and animal feeding areas (locations with supplementary food supplies from hunters for wild animals, e.g., deer (*Cervus elaphus*, *Capreolus capreolus*), pheasants (*Phasianus colchicus*)) as possible predictor variables in the analysis, as they are potential feeding areas for crows. Further predictor variables were distance to rivers, agricultural areas, protected (conservation-based) areas, and Lake Constance. These distances were included, as they potentially can influence habitat use by crows; distance to Lake Constance is highly related to altitude in the valley. The habitat structure that is close to Lake Constance shows more open areas in agricultural and protected wild life areas, while the habitat progressively changes with increasing distance from the lake to smaller structured and more mountainous habitats. Furthermore, especially in summer, higher temperatures could occur and thus provide potentially better roosting sites. Additionally, we used the capacity value of farmland as a predictor in the models, which was used as a proxy for the productive capacity of an agricultural area—hence the crop yield and/or agricultural output (for the rest of the article abbreviated under the term "capacity value"), which might directly relate to feeding opportunities. Capacity values are evaluated according to economic factors under consideration of environmental influences on a scale of 1–100. All spatial and geographical data used in this study are available from the land surveying office of Vorarlberg VoGis [44]. For calculating geographical and spatial attributes of the survey points, we used the software "R" (R Core Team) [45] and the packages "sp" (version 1.0-16) [46,47]), "rgdal", (version 0.9-1) [48], "rgeos" (version 0.3-8) [18], and "geosphere" (version 1.3-11) [49]. For calculating spatial auto-correlation, we used the package "spdep" (version 1.1-2) [50]. We calculated Moran's I as a measure of spatial autocorrelation [51] using the package "ape" (version 5.3) [52]. All available shapefiles were converted to the geodetic reference system WGS 84 to build a uniform and standardized analysis basis. The measured data that were assigned to spatial and geographic characteristics and/or distances to geographic elements (e.g., waste related sites, coast of Lake Constance) were calculated. As maximum distance to the next location we estimated 2.5 km, as this will provide distances for all analyzed and calculated variables. The full model included the predictor variables: capacity value, number of waste sites and animal feeding sites within 2.5 km, distance to animal feeding areas and to Lake Constance, daytime (transformed in decimal minutes) and season (winter, spring, summer, and fall), as well as the variable accounting for spatial auto-correlation. We excluded any predictor with a variance inflation factor above 4 in the full model. We specifically excluded human population density, as it showed a high inverse relationship with agricultural usage as measured by capacity value as well as distance to nearest agricultural area as it showed a high relationship with capacity value. In all models, we specified Poisson distribution for the error structure and excluded all interactions between predictor variables. We computed all models using the "R" package "MuMIn" (version 1.15.6) [53] as well as "lme4" (version 1.1-21) [54]. Variance inflation factor was calculated using the package "car" (version 3.0-2) [55]. We selected the best model based on Akaike's Information Criterion corrected for low sample size (AICc) as the model with the lowest AICc value [56]. We calculated all possible models and ranked them according to delta AICc. We selected the models for which AICc delta was below 6, and calculated model-averaged parameter estimates, ranking them based on how frequently they occured in the previously selected models with delta AICc below 6 [56]. We used Bonferroni correction for multiple comparisons in all models except in the previously described averaged model.

To test the hypothesis that abundance (number of individuals) of crows is increased in areas of biogas, green-waste sites, and transfer stations, we compared 866 GPS logged observations using a Generalized Linear Model (GLM) in Model 1. The number of individuals observed was entered as a

dependent variable, with the data on the survey points as predictor variables and the identity number of the survey points as random factor to account for repeated measurements.

In Model 2, a Generalized Linear Mixed Model (GLMM) was performed to analyze if the abundance of crows showed differences based on differences between survey point, daytime, or season at the 42 survey points. The number of individuals observed was entered as dependent variables, with survey point, daytime, and season as predictor variables and the identity number of the survey points as random factor to account for repeated measurements.

The impact of hunting on the abundance of *C. corone*, *C. cornix*, *P. pica*, and *G. glandarius* was documented by comparing the hunting kills from official records for annual hunting seasons in Vorarlberg (http://www.vorarlberg.at/pdf/wildabschussentwicklungab.pdf) with the counts of the respective species from the Bodensee–Brutvogelatlas 2000 [57]. We calculated the percentage of increase or decrease in the number of individuals per species occurring in Vorarlberg reported over a period of 20 years.

Data points were logged with the program GPS Tours on iPhone 4S and the parameters date, taxon, time, GPS coordinate, location, accuracy, and individual number. The resulting data were analyzed with the software "R" (R 3.0.2 GUI 1.62 Snow Leopard build (6558)) and IBM SPSS 19 (IBM, Armonk, NY, USA) for generalized linear mixed models (GLMM) of geographic data.

3. Results

During the survey, we recorded 8323 individuals of *Corvus corone* and *C. cornix* at 866 survey points. No crows were observed at 67 survey points. The best model explaining the abundance of crows (*C. corone* and *C. cornix*) included capacity value, distance to the nearest waste disposal site, the number of waste disposal sites within 2.5 km, distance to animal feeding areas, the number of animal feeding areas within 2.5 km, distance to the nearest agricultural area, river, Lake Constance, and protected area, and excluded the distance to the nearest animal feeding area, daytime, and season (Table 1).

Table 1. Models with delta AICc below 6.

Model	Intercept	Predictors								df	logLik	AICc	delta	weight
220	1944	1/			4/		6/	7/	8/	9	−9875.68	19,769.60	0.00	0.43
224	1878	1/		3/	4/		6/	7/	8/	10	−9875.17	19,770.60	1.03	0.26
252	1949	1/			4/	5/	6/	7/	8/	10	−9875.42	19,771.10	1.54	0.20
256	1886	1/	2/	3/	4/	5/	6/	7/	8/	11	−9874.97	19,772.20	2.68	0.11

Term Codes: 1: capacity value; 2: season; 3: daytime; 4: distance to nearest animal feeding area; 5: distance to Lake Constance; 6: number of waste disposal sites within 2.5 km; 7: number of animal feeding areas within 2.5 km; and 8: auto-covariation. Model 256 represents the full model. df: degrees of freedom; LogLik: logistical likelihood; AICc: corrected Akaike Information Criterion; delta: difference of AICc between the models; weight: model weight.

In the averaged model, on average two crows were observed (y-intercept = 1.92; GLM: z_{863} = 27.5; see Table 2). In agricultural areas with high capacity value, an increased abundance of crows was observed (GLM: z_{863} = 46.7; see Table 2). Decreasing number of waste sites within 2.5 km was correlated with crow abundance (GLM: z_{863} = −14.2; see Table 2). Similarly, decreasing distance to animal feeding areas (GLM: z_{863} = −4.7; see Table 2) increased the abundance of crows, and the number of animal feeding areas predicted higher abundance (GLM: z_{863} = 11.0; see Table 2). No significant influence of the distance to Lake Constance (GLM: z_{863} = −0.3; see Table 2) and daytime (GLM: z_{863} = 0.5; see Table 2) was found. Fall (GLM: z_{863} = 8.9; see Table 2) and spring (GLM: z_{863} = 19.1; see Table 2) showed lower abundances of crows than summer, while winter had a higher abundance of crows than summer (GLM: z_{863} = 8.3; see Table 2). For detailed results, see Table 2.

Table 2. Summary results of crow abundance after model averaging: effects of each parameter on crow abundance.

Parameter	Estimate	Unconditional SE	CI	Relative Importance
(Intercept)	1.921	0.070	(1.784, 2.05)	
Capacity value	0.001	0.000	(0.00081, 0.00089)	1.00
Season 2 *	−0.279	0.031	(−0.340, −0.218)	1.00
Season 3	0.229	0.027	(0.175, 0.283)	1.00
Season 4	−0.680	0.035	(−0.750, −0.611)	1.00
Distance to feeding area	0.00004	0.000	(0.000024, 0.000059)	1.0
Auto-covariation	0.006	0.002	(0.0020, 0.0094)	1.0
Number or waste disposal sites	−0.011	0.001	(−0.0125, −0.0095)	1.0
Number of animal feeding sites	0.021	0.002	(0.018, 0.025)	1.0
Daytime	0.00003	0.000	(−0.000088, 0.000268)	0.37
Distance to lake of Constance	−0.0000003	0.000	(−0.0000034, 0.0000017)	0.31

* Season 1 was the reference category; summer = 1, fall = 2, winter = 3, and spring = 4.

In Model 2, the abundance of crows in areas of biogas-, green-waste sites, and transfer stations differed significantly from reference sites (GLMM: $F_{42,301} = 5.499$; $p > 0.001$). We found an increased abundance (estimated mean > 10) of individuals of *C. corone* and *C. cornix* at seven waste related sites (Table 3).

Table 3. Survey sites with high abundance of crows in the Vorarlberger Rhine Valley, Austria. All survey points where the mean number of crows observed (*Corvus corone* and *C. cornix*) exceeded 10 are listed. Values represent estimates from generalized linear model analysis.

Survey Point Number/Description	Number of Crows/Site			
	Mean	SE	Minimum	Maximum
ID4/Biogas	19.0	6.7	9.5	37.9
ID9/Biogas	88.2	27.6	47.7	163.2
ID11/Biogas	14.1	5.4	6.6	29.9
ID26/Biogas	56.3	15.0	33.3	95.1
ID27/Transfer station	46.6	16.0	23.7	91.5
ID29/Green waste	16.8	5.4	9.0	31.5
ID32/Biogas	15.4	5.3	7.8	30.5

Crow abundance did not differ in daytime in Model 2 (GLMM: $F_{1,337} = 9.639$; $p < 0.05$). Seasonal differences in the abundance of *C. corone and C. cornix* were recorded (GLMM: $F_{3,301} = 1.245$; $p = 0.265$) at the survey points (Figure 2). Abundance was higher in winter compared to spring (GLMM: pair-wise comparison, $ß = 1.064$; SE = 0.206; t = 5.156, $p = 0.006$), summer (GLMM: pair-wise comparison, $ß = 0.787$; SE = 0.224; t = 3.505; $p = 0.006$), and fall (GLMM: pair-wise comparison, $ß = 0.652$; SE = 0.235; t = 2.772; $p = 0.04$). In fall, tendentiously fewer individuals were observed at survey points compared to summer (GLMM: pair-wise comparison, $ß = -0.413$; SE = 0.167; t = −2.476; $p = 0.084$), while no difference in crow abundance was recorded between summer and fall (GLMM: pair-wise comparison, $ß = -0.135$; SE = 0.186; t = −0.729; $p = 1$) as well as spring and summer (GLMM: pair-wise comparison, $ß = -0.277$; SE = 0.139; t = −1.995; $p = 0.282$) (Figure 2).

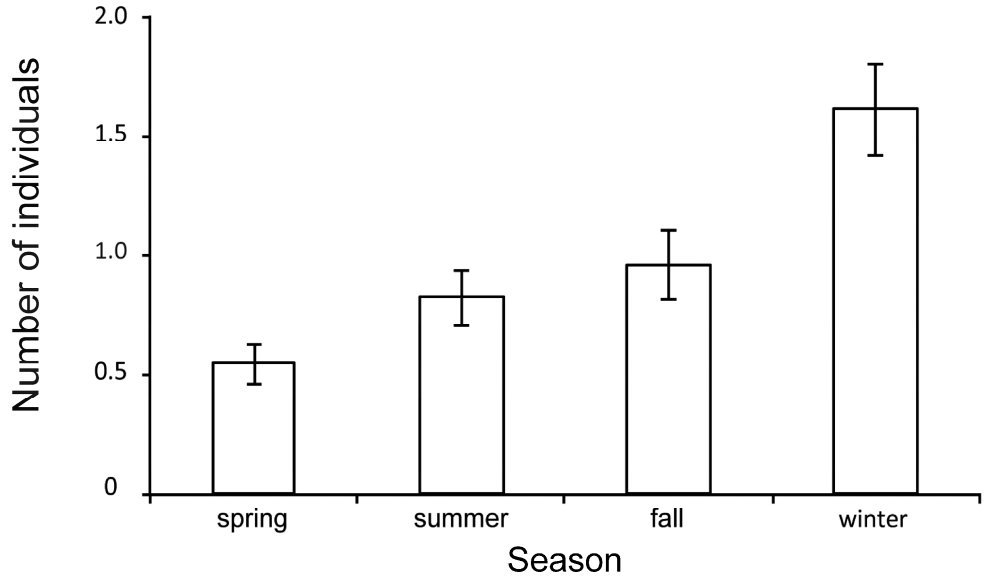

Figure 2. Estimated mean number (±SE) of *Corvus corone* and *C. cornix* observed in four seasons in the federal state of Vorarlberg, Austria.

Crow hunting kills increased during the last 25 years (Figure 3). In the years 1988 to 1990, 2.6 times (161%) more crow hunting kills were registered.

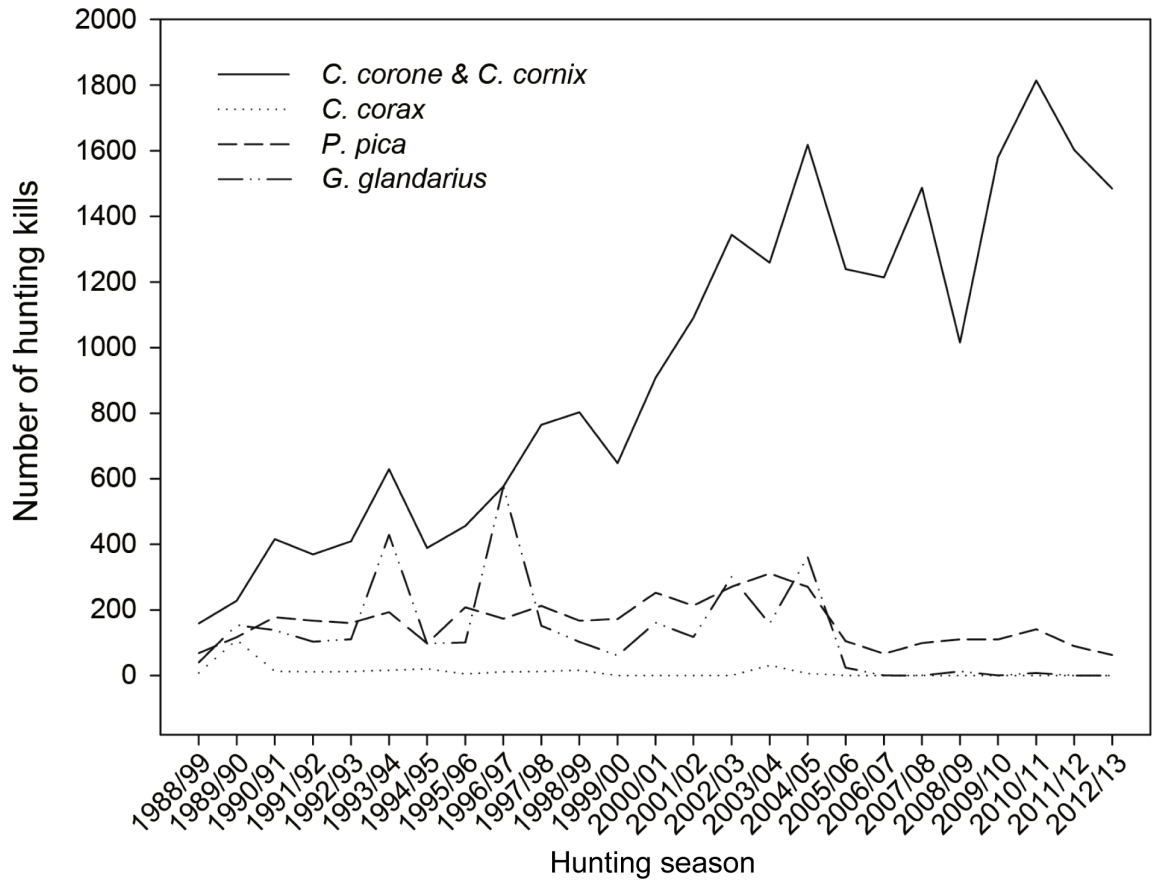

Figure 3. Hunting kills of corvid species (*Corvus corone*, *C. cornix*, *C. corax*, *Pica pica*, and *Garrulus glandarius*) during the annual hunting seasons from 1988 to 2013 in Vorarlberg, Austria.

The decennial development from 1990 to 2000 demonstrated a further increase of 118% and a rising trend in the following years [57]. The population size in the years 1980–1982, 1990–1992, and 2000–2002 denoted an increase in the number of individuals (Figure 4).

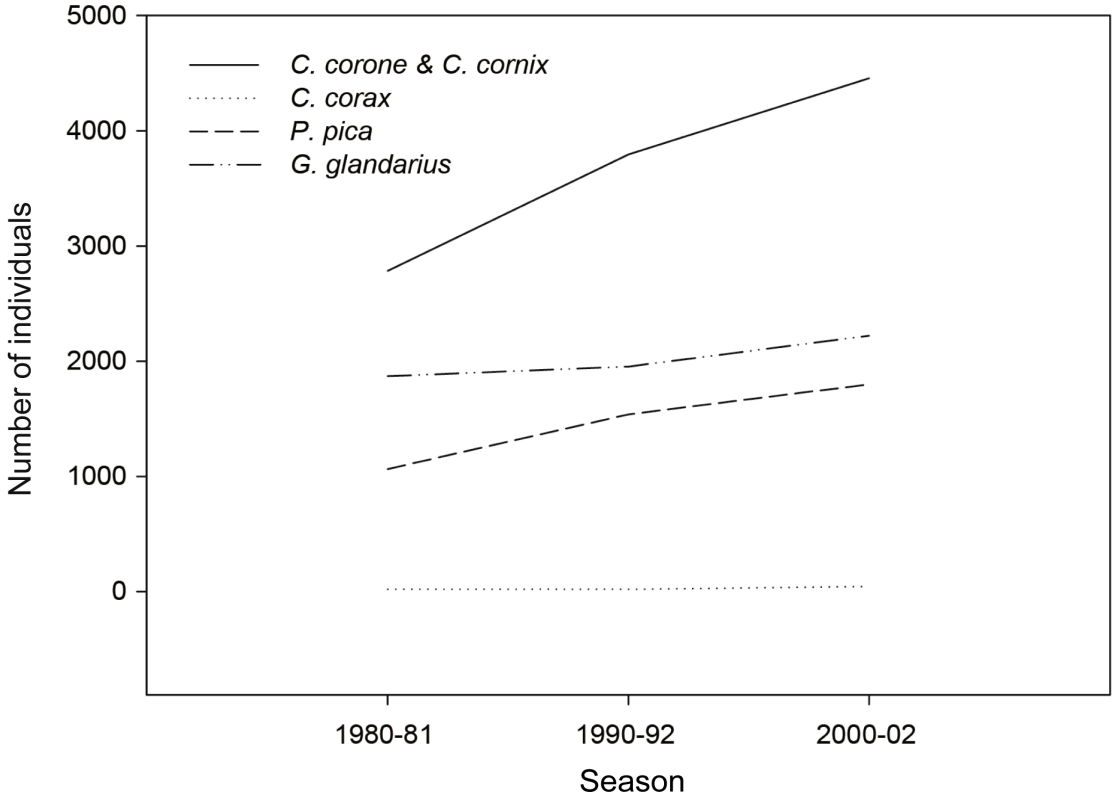

Figure 4. Changes in population sizes of corvid species (*Corvus corone*, *C. cornix*, *C. corax*, *Pica pica*, and *Garrulus glandarius*). Census results from the years 1980–1981, 1990–1992, and 2000–2002. Graphical representations developed from data of the "Brutvogelatlas" [57]. Data are not necessarily described by linear increase but are presented as lines in order to enhance their visibility.

In 2000, the carrion crow population was 1.6 times higher than in 1980, with an increase of 36% in the first decade and further 17% in the second decade. Carrion crows increased from 2784 individuals in 1980 to 3796 individuals in the year 1990 and up to 4456 in 2000–2002 [57]. Population changes of carrion crows in Austria between 1998 and 2016 report a stable long-term trend without statistically significant variation [58].

4. Discussion

The number of recorded crows increased closer to animal feeding areas and Lake Constance. Similarly, higher crow abundance was found in areas with higher agricultural capacity values and more waste- and animal feeding sites. Our findings demonstrate that the abundance of crows increased in developed areas with anthropogenic food sources. Although the best model may not predict the absolute number of crows, it clearly exhibited the relative importance of anthropogenic food sources. Crow abundance was particularly high in areas with supplementary or easily accessible food sources in or close to human settlements.

Our findings agree with those of other studies reporting local increases in crow population size in areas with frequent human activity, food sources, water, and nest site availability, e.g., in common ravens [21,24]. A spatial correlation between the abundance of corvid species and waste disposal sites has also been observed in other provinces of Austria [59]. In the capital Vienna, the number of wintering rooks counted at roosting sites increased by more than 50% from 1992/93 to 1994/95. A large-scale

waste disposal site provided food for the most dense roosting site that contained approximately 100,000 rooks [60]. In a further census of rook's wintering grounds in 1997, 188,719 individuals were counted, representing a doubling of the population size within 10 years [61]. Nevertheless, increases in overwintering populations in cities might result from immigration of birds from more northern and eastern populations (Poland, Finland, Belarus, etc.). Thus, the increase in the number of wintering birds is likely to be related to high productivity during the breeding season in more northern and eastern areas.

The higher abundance of crows close to waste management areas was confirmed in our comparison of waste and non-waste survey points. The seven areas with the highest numbers of crows were in locations of biogas sites, green-waste disposal sites, and transfer stations with uncovered waste that provided a permanent food supply to birds. Predicted abundances from the model with geographical data showed increased abundance of crows when more waste sites are within 2.5 km. This effect might be underestimated because of the inclusion of various waste disposal sites, including disposal sites with no potential food items. The comparison of waste and non-waste sites, however, included only food-related deposit sites and thereby demonstrated that the accessibility of waste in urban areas was directly linked to a higher abundance of crows when comparing waste to non-waste survey points. Our results correspond to recent findings in non-breeders of common ravens deployed with GPS loggers. Analysis of spatial and temporal GPS data showed that ravens spend 75% of the time in close vicinity to anthropogenic food sources [62]. As generalist omnivore, dietary shifts or the exploitation of available food sources can occur rapidly due to the adaptability of corvids to novel resources [2,63].

Waste management changes from former waste disposal sites to transfer stations in Vorarlberg, according regulations of the European Union, were developed to process garbage economically and ecologically and to prohibit pollution of soil and rivers. The alterations in waste handling did not target the management of anthropogenic food sources for birds or other animals. The transformation from waste disposal to transfer stations did seemingly not influence the abundance of carrion crows in the area. Although the amount of accessible waste at transfer stations is less than at former waste disposal sites (MB, pers. obs.), waste, or rather food, remains available for crows, uncovered and thereby easily accessible. Comprehensive, city-wide waste management in Berlin and the closure of the last disposal area in 2005 resulted in a distinct reduction of rooks, hooded crows, and Western jackdaws (*C. monedula*) [64]. Waste management in Berlin has set an example of how an area can prohibit the incentive of additional food resources for corvid species. The implementation of only closed waste treatment facilities reduced the native breeding population of *C. corone* and the migration of *C. frugilegus* [64].

An increased crow abundance was also related to higher capacity value of agricultural land (e.g., higher production of crops), as well as distance to, and number of, agricultural areas. Since human population density is inversely related to agriculture land use, this result demonstrated that increased crow abundance is not restricted to human areas and several anthropogenic food sources facilitate colonization. The majority of protected areas in the Vorarlberger Rhine valley were established to protect the biodiversity of the respective region. Nevertheless, these areas are often used intensively for agriculture, with sufficiently high capacity values or crop production; similarly to areas where animal feeding takes place, these locations provide accessible food sources for crows.

Crow abundance did not increase in the proximity to Lake Constance. The Vorarlberger Rhine Valley is a plain located at low altitude surrounded by high mountains. Hence, our results do not predict that crows are observed at higher abundance in the vicinity of Lake Constance. Still, carrion crows prefer areas up to 1500 m above sea level [65]. The possible influence of low altitude water bodies and surrounding mountains on the abundance of carrion crows suggests that habitat composition can act as a restricting factor for habitat use. This effect, however, was not further investigated in this study, as no observations were made along a wide range of elevations.

On average, two crows could be observed at each observation point in the area of the Vorarlberger Rhine Valley. This observation corresponds to the social structure of territorial corvid species, which

occupy territories in pairs [41,43,66]. Seasonal abundance differences were consistent with the behavior of territorial crows. In winter, defense of territorial boundaries by carrion crows is diminished or absent [41,43] thereby allowing a higher abundance of crows [67]. We hypothesize that areas defended by territorial pairs are mainly used by two individuals, while areas that are not defended by a territorial pair are potentially overtaken by a larger number of non-breeding individuals, as suggested by data on ravens [29,68]. Non-breeding flocks form during the winter period, but the individual density is limited by the abundance of food sources [69] unless accessory food or foraging sites are available. Additionally, an increase in the number of individuals within non-breeder flocks might be based on migratory birds joining juvenile and subadult non-breeder flocks (also see [67]). Territories are formed in early spring before the breeding period [41,43,66,69], and crows are less dependent on additional anthropogenic food sources [3], which corresponds to the seasonal observations in our study that showed a decreased abundance during spring. The availability of natural food is presumably higher during this period and not restricted to anthropogenic food sources.

The comparison of population growth and hunting efforts suggests that continuous hunting activities over the past two decades have not achieved the expected reduction in population size of *C. corone* and *C. cornix*. Although population increase might have been slowed as a result, hunting of corvids has been questioned as ineffective and not sustainable [29]. Monitoring of the correct use of granted derogations in order to control corvid populations was advised [70]. The infectivity of a population decrease by hunting might be based on either (i) a high rate of population increase (possibly based on surplus of food availability), which is only slightly curbed by hunting; (ii) most hunting occurring in winter, when many non-resident birds are present, thereby having little impact on the resident local population; or (iii) population growth also resulting from the predominant hunting-kills of territorial breeding pairs. Breeding pairs can be detected in particular territories and thus are more easily located. Similar to common ravens, crows occupy large areas and defend their territory together against competing non-breeding opponents [66], thereby displaying intraspecific spatial avoidance [68,71]. However, if a pair-partner is killed the other partner also leaves the territory [72]. We presume that consequently these territories will be colonized by a larger number of non-breeders, as observed also in common ravens [29]. We suggest the hunting of territorial pairs in addition to anthropogenic food sources promotes the population increase of crows [29]. Accordingly, we assume that due to the abundance of fewer breeding pairs, intraspecific competition for territories and food is reduced. Thus, fewer breeding pairs are able to successfully breed or use more nesting attempts during one year due to subsidized food and additional resources, which in turn can increase the survival rate of juveniles [17,69,73,74]. This leads to a possible increase of number of individuals within the non-breeder flock. Furthermore, large areas without suitable habitat (e.g., agricultural land), as found in our survey areas, offer little or no nesting sites, additionally constrain territorial breeding pairs, and may increase the number of individuals in non-breeder flocks [20,69]. We suggest the constant population growth originates from the vast anthropogenic food resources, and a sustainable effect of hunting remains questionable even in seasons of high hunting returns [73].

Admittedly, the interpretation of our data is limited as our corvid census data collection took place over a single year and research detailing movement and dispersal patterns are needed. The size of the population under investigation might also change across years according to weather fluctuations, agricultural production, etc. The found characteristics might be specific to the observed time period; however, urbanization of highly adaptive corvids is a global phenomenon. Several corvids utilize large home ranges, including a variety of habitats as well as diverse food resources [60,75,76]. We suggest that relatively simple waste control measures could decrease food sources and provide an un-invasive method to limit corvid abundance in urban areas. We assume equal detectability between sites and types of sites, which might influence the recorded data and our results but was used as an approximation. Although the measuring points along a fixed route were travelled several times, each observation was tracked exactly with a GPS. That is to say, there are single points in their proximity we surveyed several times. However, there are also numerous points at which only one survey has been

carried out. Therefore, we have not used a repeated measurements account with potential influences on the calculation of variance.

5. Conclusions

While most observations focus on the abundance of corvids in cities, the current study showed that human activity and anthropogenic food sources influence the abundance of crows. Agricultural areas; their capacity value; uncovered waste sites; and animal feeding areas, in particular, increase the abundance of crows. Even increased hunting efforts have seemingly had no influence on crow population size in recent years [70]. Following the results of the current and previous studies, we suggest that the sustainable long-term reduction of generalist bird species like *Corvus corone* and *C. cornix* can only be achieved if anthropogenic food sources are limited [64,77]. The current study analyzed for the first time the relationship between anthropogenic food availability and the abundance of crows in Vorarlberg and provides a foundation for management recommendations. Continued studies and surveys would help to identify factors influencing the long-term pattern of population change, as well as effective strategies to reduce crow abundance in human settlements.

Author Contributions: Conceptualization, M.B.; methodology and data collection, M.B. and B.S.; formal analysis, M.B. and D.K.; investigation, M.B.; writing—original draft preparation, D.P. and M.B.; writing—review and editing, D.P. and M.B.; visualization, M.B.; project administration, M.B.; funding acquisition, M.B.

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Conflicts of Interest: The authors declare no conflict of interest.

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From: Rick Childs
To: cdd
Subject: C&S Proposal
Date: Wednesday, October 19, 2022 11:02:48 AM

Hello Jeremy and Planning Commissioners,

I'm sending you these comments on the C&S proposal at Wednesday's meeting. Because the 3 min time limit prevents a fuller, more informed presentation, I hope your commissioners will have the opportunity to read this beforehand.

My guess is most on the Planning Commission aren't familiar with the long history and "big picture" of the Coast garbage situation saga. I'm a private citizen who's been following it closely and working on it for years - and believe I may have some helpful information for you-all. Long-story-short, while this proposal is short-term very positive economically and environmentally, approval of it is likely to freeze out much larger long-term economic/environmental benefits were it instead located at a better location (Pudding Creek or Hwy 20). Because once C&S sinks considerable capital into this less-than-desirable north-of-town location, I worry they'll be unwilling to move to another superior location.

Highway 20 (and Pudding Creek as a back-up) have been the preferred locations for a future state-of-the-art new Transfer Station to handle all (curbside and self-haul) garbage operations. FB City and County just spent $25K to confirm it was economically and environmentally superior to the current system -- the separate curbside and self-haul operations, longer trucking distances, location inefficienceies, unloading/reloading in Willits, etc. The study concluded that a new state-of-the-art Transfer Station (at either Hwy 20 or Pudding Creek) would generate modest cost savings (over the next 20 years - much larger savings after that), but more importantly, generate huge environmental benefits with significantly reduced CO2 emissions. I worry if C&S invests considerable capital at this north-of-town location, they'll be unwilling to move to Hwy 20 (or Pudding Creek) in the future.

Two other corollary issues should be considered:

- There has also been an exploration of declaring "eminent domain" to acquire Pudding Creek from Waste Management...where does that stand? Would C&S move there if that happened? Hwy 20,

after years of nothing happening, may be moving forward again as well.

- C&S says they can't create a self-haul (or buy-back) operation for two reasons: a) Caltrans would require costly Hwy 1 modifications and b) the site's "rare plant communities" make part of their land unusable for garbage operations.

  But self-haul is 1/3 of all Coast garbage (half of that coming from inside FB itself). Think how much customer driving expenditures and CO2 savings would be generated if C&S could handle self-haul (and buy-back) – thousands of 5 mile round trips each year from FB instead of that 18 mile round trip to 409.

  Given that major economic and environmental benefit, what pressure/appeals have been made to Caltrans to drop their overly-cautious road improvement; and is C&S's reported "rare plant community" problem really true?...and if so, couldn't it be mitigated somehow to free up space for self-haul operations? Do they *want* to offer self-haul to help the Coast community?

Bottom line, I believe the Planning Commission would serve the Coast most effectively by holding off approval of this project right now. Instead set up a subcommittee of knowledgeable commissioners and city staff (I'd be happy to join) to explore whether approval might seriously compromise future long-range garbage options. That subcommittee should also work with C&S, Caltrans, and any other appropriate agency to explore how self-haul and buy back operations could be included here, at least temporarily, until a permanent Transfer Station is built.

I submit all this, as I know I could never cover it in the three minute comment period.

Thank you,

Rick Childs 964-1722

From:	Ducey, Peggy
To:	Peters, Sarah
Subject:	FW: Another Additional Public Comment -- 10/19/2022 PC Mtg., Item No. 6A, Mitigation Measures in Draft MND and MMRP
Date:	Wednesday, October 19, 2022 12:48:36 PM
Attachments:	Habitat Mitigation and Monitoring Plan from Biological Study.pdf

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Wednesday, October 19, 2022 11:52 AM
To: cdd <cdd@fortbragg.com>
Cc: Ducey, Peggy <PDucey@fortbragg.com>
Subject: Another Additional Public Comment -- 10/19/2022 PC Mtg., Item No. 6A, Mitigation Measures in Draft MND and MMRP

Planning Commission,

I am alarmed that the draft MND for your consideration tonight does not appear to address the issues that the City's consulting scientists identified in the biological reports and studies. This is a serious flaw that undermines this project. For example, the MMRP includes mitigation measures but those measures do not align with the analysis and measures that the supporting studies prepared for this entitlement review and draft MND. Basically, the City has overlooked its own experts and failed to incorporate sufficient mitigation. As a result, there is not substantial evidence in the record to support the recommended action tonight to adopt the MND as drafted. Unfortunately, because the flaws in the draft MND and associated MMRP involve incomplete or missing mitigation measures, the City needs to revise it to include the new or revised mitigation measures in line with the supporting studies and their recommendations, which requires the revised draft MND to be recirculated. As such, you should not take any action on either draft resolution tonight.

For example, BIO-1 includes restoration activities to address the permanent impacts of the bioswale to the native plant community as follows "Invasive pampas grass (Cortaderia jubata) and blue gum trees (Eucalyptus globulus) adjoining the Coastal Strand community shall be mechanically removed to protect Coastal Strand habitat and its species from further encroachment." However, the biological report that is referenced and discussed in the analysis of Biological resources identified different required mitigation measures that the City's own consulting scientists determined to be necessary to reduce the project's impacts to less than significant. However, since these mitigation measures were ot actually carried forward through to the MND and MMRP for the project, those impacts remain potentially significant and unmitigated. The biological study is attached as Appendix C to the MND. Page 5 of that report states "The proposed project will impact approximately 0.09 acres of Coastal Strand Community. ... The Mitigation and Monitoring Plan (MMP), in Appendix D, details the mitigations designed to offset the Project's permanent impacts to Coastal Strand community and the special status plant species (dark-eyed gilia) present within this community's impact area." Similarly, page 9 states "Approximately 80 dark-eyed gilia were identified within the Project’s impact area (landscaping and stormwater swale areas), covering approximately 0.02 acres of area within the impacted coastal strand community (0.09 acres). The Mitigation and Monitoring Plan (MMP), in Appendix E, is designed to offset Project impacts to special status plant species dark-eyed gilia (approximately 80 plants on 0.02 acres) located within the

impacted special status coastal strand natural community (0.09 acres)." Page 10 provides the reports conclusions as follows:

> **4.0 CONCLUSION**
>
> The proposed Project will directly impact special status natural community Coastal Strand and special status plant species dark-eyed gilia (Gilia millefoliata). The Project also has the potential to indirectly impact special status animal species western snowy plover (Charadrius nivosus nivosus) and Behren's silverspot butterfly (Speyeria zerene).
>
> Project impacts to Coastal Strand natural community and dark-eyed gilia will be reduced to less than significant through implementation of the Mitigation and Monitoring Plan included in Appendix E of this report. The MMP details removal and monitoring plans for the approximate 0.27 acres of invasive sea fig (Carpobrotus chilensis) primarily located within the BRAA's Coastal Strand community. Removing sea fig for the un-impacted BRAA will protect and enhance dark-eyed gilia populations within the BRAA's remaining Coastal Strand community and will also benefiting special status species Menzies' wallflower (Erysium menziesii) and round-headed Chinese-houses (Collinsia corymbose), also located with the BRAA's Coastal Strand community.

Unfortunately, the mitigation measures that the scientists determined were necessary in order to reduce the project's impacts to less than significant did not get included in the MND and its associated MMRP, including the lack of specific restoration efforts removing invasive sea fig and the ongoing monitoring and reporting of those restoration efforts. As a result, this project retains a significant and unmitigated impact to biological resources without the necessary mitigation measures based on the evidence in the record. CDFW's comment letter aligns with this conclusion and they also determined that the City lacks sufficient supporting analysis and evidence. The draft MND and MMRP need to be revised to address these apparent deficiencies. In the least, BIO-1 should be revised to include the full details of the mitigation measures outlined in the biological study provided in Appendix C of the draft MND or an additional mitigation measure matching the requirements in the study and report should be added as new BIO-5. (I attached the relevant excerpt for your review so you don;t need to scan through the entire 255 page MND PDF.) The mitigation plan from the biological study focuses on invasive sea fig but BIO-1 only includes the removal of pampas grass and blue gum eucalyptus trees rather than also including the removal of sea fig. (Sea fig is another name for ice plant.) It is important to note that the project impacts that need to be mitigated remain unchanged by the reduced scope project because they relate to the stormwater bioretention swale that will be located adjacent to and within the existing Coastal Strand natural community, which was not removed from the project along with the buy-back center component.

Regards,

--Jacob

HABITAT MITIGATION AND MONITORING PLAN

for the proposed direct transfer operation and buy-back center located at:

1280 N. Main St., Fort Bragg, CA

April 28, 2022

Prepared for:
Redwood Waste Solutions
3515 Taylor Drive
Ukiah, CA, 95482

Prepared by:
Clifton Environmental ,LLC
PO Box 932
Redwood Valley, CA 95470

TABLE OF CONTENTS

FIGURES

1.0 INTRODUCTION

As legally required by state and federal statutes, this Mitigation and Monitoring Plan has been prepared for Redwood Waste Solutions (RWS) to satisfy mitigation requirements to address significant impacts to special status natural community coastal strand and special status plant species dark-eyed gilia (*Gilia millefoliata*), as a result of the proposed direct transfer operation and buyback center "Development." This document will help guide the enhancement of coastal strand community, within un-developed portions of the site, to mitigate the Development's impacts on the special status community and plant resources identified in the Biological Resource Assessment (BRA), as well as guide the monitoring of the restoration work.

2.0 PROJECT SUMMARY

The proposed mitigation "Project" will occur at the Development site, located at 1280 N. Main Street, Fort Bragg, California. The accompanying Biological Resource Assessment Report (BRAR) identifies impacts that the Development will have on special status biological resources within the BRA Area (BRAA). Of the 1.45 acres of identified special status coastal strand natural community, 0.09 acres, including several small populations of special status plant species, dark-eyed gilia, will be permanently impacted by the Development. To mitigate these impacts restoration to the un-developed coastal strand natural community is proposed.

2.1 Restoration Design

The coastal strand community will be restored through the eradication of multiple populations of invasive sea fig (*Carpobrotus chilensis*) that has colonized significant portions of this natural community. By removing the competing invasive species, coastal strand natural community within the BRAA will be enhanced, creating an opportunity for adjacent native plant populations to repopulate those portions of the habitat colonized by sea fig. Special status plant species in the restoration area include roundhead Chinese houses (*Collinsia corymbosa*), Menzie's wallflower (*Erysimum menziesii*), and dark-eyed gilia (*Gilia millefoliata*).

2.2 Responsible Parties

Redwood Waste Solutions (RWS) is responsible for accomplishing the mitigation and monitoring work.

2.3 Rationale for Expecting Implementation Success

Manual removal of sea fig is an effective non-chemical treatment and can be executed without impacting desirable plant species in the vicinity. While sea fig is a vigorously colonizing invasive species, the size of the sea fig population within the Project can be removed within five years of careful monitoring (DiTomaso 2013). Mitigation for the permanent impacts to the coastal strand natural community and dark-eyed gilia will occur on the same property in the same community type, thus protecting adjacent special status plant populations from sea fig colonization.

3.0 MITIGATION GOALS

The goal of the mitigation plan is to enhance the special status coastal strand natural community on the property by eradicating sea fig, which is primarily isolated to the coastal strand community. Of the existing sea fig populations on the property, a portion will be removed within the Project's development

footprint where regionally sourced native landscaping is proposed. The precise acreage of sea fig throughout the property has not been carefully quantified but is approximately 0.27 acre, based on site observations and a review of aerial imagery (Figure 1). The permanent loss of 0.09 acre of coastal strand, due to the Development, will be mitigated at a replacement ratio of 3:1 of habitat area (California Coastal Commission 2013). This habitat enhancement goal safeguards successful mitigation of the permanent impact to coastal strand and dark-eyed gilia created by the development project.

3.1 Success Criteria

Performance standards for this project will be measurable by systematic monitoring methods. At the end of 5 years, within the restoration area, absolute vegetative cover of sea fig will be 0%, thus reducing the Development's level of impacts to less than significant.

4.0 MITIGATION SITE BASELINE INFORMATION

The accompanying BRAR includes a detailed description of the site's existing physical attributes, including the permanently impacted coastal strand community and a delineation of other vegetation types throughout the entire site. Prior to removal work, a map shall be prepared by a qualified botanist or landscape architect that includes geolocation points with estimated population size for each population of sea fig, for follow-up monitoring.

5.0 IMPLEMENTATION

5.1 Native Species Protections and Exclusions

Avoidance measures will be implemented to minimize impacts to desirable biological resources through restoration work. Prior to restoration and Development work, temporary lathe stakes connected by flagging will be installed, by a qualified botanist, along the border of the construction zones and special status species populations adjacent to the restoration areas, with a 5-foot buffer tolerance. Construction work will not go beyond the border established. Project work will minimize foot traffic within the avoidance areas.

5.2 Invasive Plant Species

The invasive sea fig is listed by the California Invasive Plant Council (Cal-IPC) with a *Moderate* impacts rating. Species with *Moderate* ratings have substantial and apparent impacts, but generally not have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment (Cal-IPC, n.d.). Like iceplant (*Carpobrotus edulis*), sea fig is of particular concern due to its competitive advantages to crowd out native species where they colonize (Albert 2000). Accumulated litter or duff, generated by sea fig, can encourage colonization of the coastal strand community by exotic annuals species (State Parks 2012).

5.3 Invasive Plant Removal Strategies

The field crew doing the treatment will be led by a trained supervisor. The supervisor will meet with a qualified botanist or landscape architect to properly identify the target invasive plant species and established natural community protection areas throughout the Project. Entire removal of sea fig is necessary to prevent any regrowth or reproduction. Whole sea figs will be removed manually with hand

tools, such as a grub hoe, shovel, or rake, digging out or hand-pulling plants. Where special status plants are known to be present, the field crew will hand-pull sea fig and minimize disturbance to the coastal strand natural community, to protect special status plant species. In addition to plant removal, enough sea fig duff will also be removed to discourage establishment of exotic annual species.

The crew will check for new growth once after the initial treatment and remove any recolonizing sea fig plants.

5.4 Equipment Sanitation

Tools and equipment must be cleaned and inspected for soil and debris before Project commencement. Equipment can become contaminated with invasive seed stock and should be cleaned with a mobile pressure washer in an upland staging area. The field crew must prevent unwanted seed stock or propagules from entering unaffected areas, and where removal has occurred.

5.5 Waste Material Removal

Invasive species waste material will be removed from the site in garbage bags or tarps to prevent the spread of any viable plant material and seeds. Waste material will be burned, composted in a fully permitted compost facility, or disposed of in a landfill.

6.0 IMPLEMENTATION SCHEDULE

The project is proposed to commence this year, 2022.

Table 1: Implementation Timeline

Task	Schedule
Create a map of existing sea fig populations	July 2022
Train field crew supervisor	August or September 2022
Eradicate all sea fig	September 2022 – January 2023
Check for resprouts of sea fig	February 2023
Maintenance eradication of residual sea fig (if needed)	September 2023 – January 2024
Maintenance eradication of residual sea fig (if needed)	September 2027 – January 2028
End of monitoring period	July 2027

7.0 MONITORING

7.1 Vegetation Monitoring Methods

Monitoring of the restoration area will be performed by a qualified botanist or landscape architect. The monitor will visually assess the site for any occurrences of sea fig, using the baseline map as a reference. The assessment will document successful eradication of sea fig and any successful reestablishment of native plant species. A map that includes location points with estimated population size for each population of sea fig will be prepared. Presence of sea fig during monitoring will be noted and reported to the applicant for removal, using the implementation guidelines in this MMP.

7.2 Monitoring Schedule

Vegetation monitoring in the restoration area will commence post implementation and will occur for the duration of the five-year monitoring period. Monitoring will occur during Year 1 and 2 and will commence again in Year 5. The two-year break will allow any remaining sea fig to reveal itself again.

Table 2: Monitoring Timeline

Task	Schedule
Vegetation Monitoring	March - July 2023
Monitoring Report	July 2023
Vegetation Monitoring	March - July 2024
Monitoring Report	July 2024
Vegetation Monitoring	March - July 2027
Monitoring Report	July 2027

8.0 MAINTENANCE DURING MONITORING PERIOD

8.1 Processes

Natural ecosystems are dynamic and subject to change over time, particularly in modern fragmented natural spaces. Ecological processes may partially or completely disrupt habitats. Natural processes include drought and flooding, fog, fire, wind, and disturbance by burrowing animals. Management may be needed to prevent resprouting of highly invasive sea fig.

8.2 Inspection Tasks and Frequency

Longer term maintenance after the end of the initial implementation period will generally be performed on an annual basis in the spring or at the time of mitigation monitoring. Field notes will document if conditions are normal or abnormal, and the annual monitoring report will recommend remedial actions to address any re-population of sea fig or other issues as deemed necessary. The annual monitoring will note if there are any new or reestablished populations of the sea fig, including the geolocation and square footage.

8.3 Maintenance Schedule

Maintenance, in accordance with the monitoring timeline, will be conducted annually in the spring, between March and June from 2023 to 2027, unless another time of year is more appropriate to avoid disturbance of sensitive plant species. If timing of maintenance needs to be modified for certain items, the rationale for the decision will be documented in annual reports.

8.4 Remedial Tasks

An adaptive management strategy for maintaining the restoration area will include extending the time horizon beyond five years for 100% eradication and monitoring of invasive sea fig.

9.0 MONITORING REPORTS

Annual reports will be submitted to the City of Fort Bragg Community Development Department, in accordance with the monitoring timeline. Reports will note if there are any new or reestablished populations of sea fig, including the geolocation and square footage. Photographs of the restoration

area will be included, as necessary, to document site conditions. The first annual report shall be delivered by July 31 of 2023, with subsequent semi-annual reports following the above Monitoring Timeline.

10.0 CONTINGENCY MEASURES

If final criteria are not met, a report shall be prepared analyzing the cause of failure and, if necessary, proposing remedial action for approval. Potential remedial actions include but are not limited to modifying management strategies or extending the monitoring period.

RWS will be responsible for funding any adaptive management or additional measures which it determines are necessary and which the City of Fort Bragg concurs. RWS will provide the City with a financial assurance memorandum of understanding as a standalone document.

11.0 COMPLETION OF MITIGATION MEASURES

When performance criteria have been met, the applicant will notify the City of Fort Bragg. Documentation will be provided within the accompanying annual report. Upon notification of completion, the City may concur based on written documentation or, at their discretion, may request a site visit to observe the completed project.

12.0 BIBLIOGRAPHY

Albert, Marc. 2000. *Carpobrotus edulis.* pp. 90-94 in Bossard, C.C., J.M. Randall, and M.C. Hoshovsky. Invasive Plants of California's Wildlands. University of California Press. Berkeley, CA.

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California Invasive Plant Council (Cal-IPC). n.d. Internet site – "The Cal-IPC Inventory" https://cal-ipc.org/plants/inventory/.

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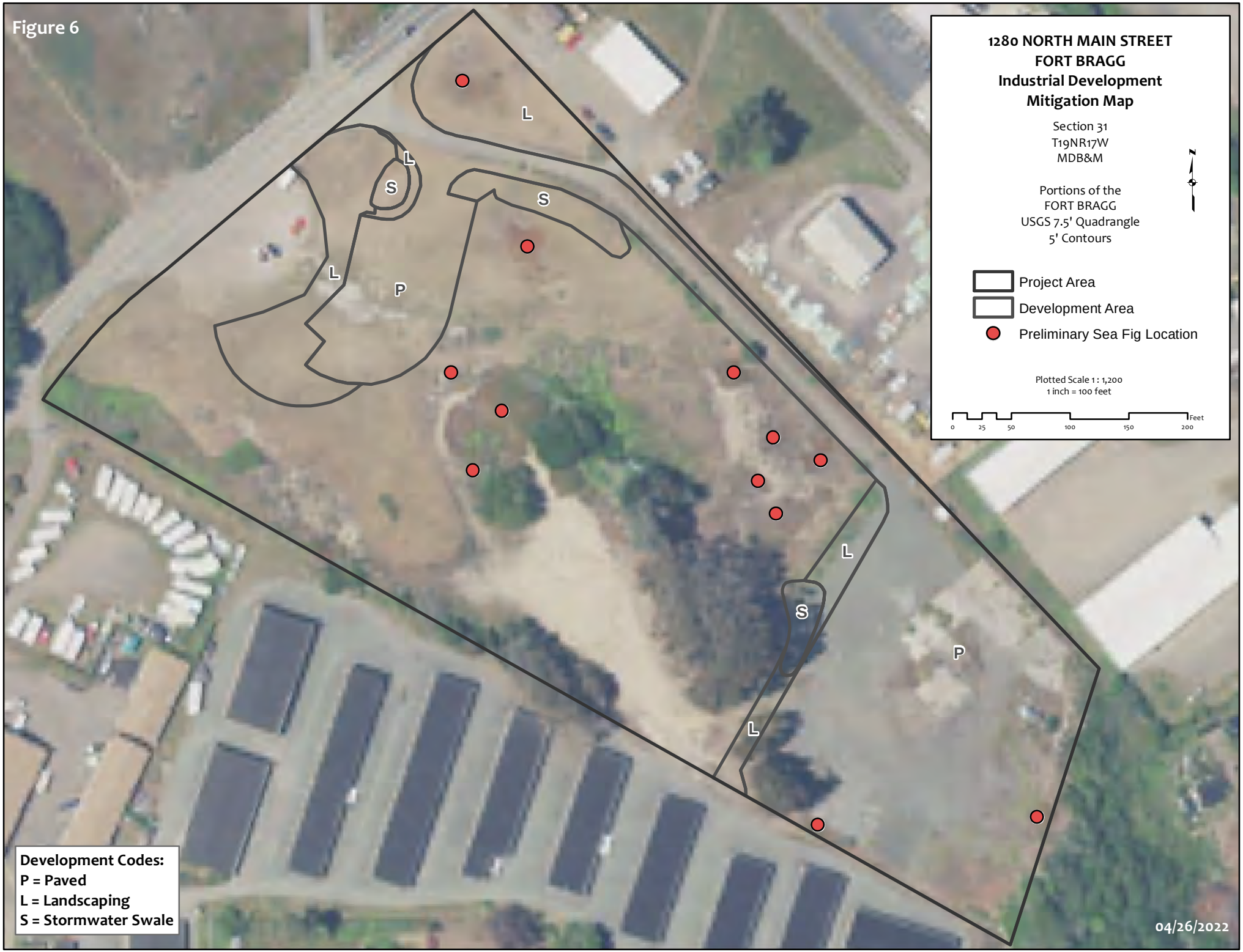
DiTomaso, J.M., G.B. Kyser et al. 2013. Weed Control in Natural Areas in the Western United States. Weed Research and Information Center, University of California. 544 pp.

Figure 6


1280 NORTH MAIN STREET
FORT BRAGG
Industrial Development
Mitigation Map
Section 31
T19NR17W
MDB&M
Portions of the
FORT BRAGG
USGS 7.5' Quadrangle
5' Contours
Project Area
Development Area
Preliminary Sea Fig Location
Plotted Scale 1 : 1,200
1 inch = 100 feet
0 25 50 100 150 200 Feet
L
S
P
Development Codes:
P = Paved
L = Landscaping
S = Stormwater Swale
04/26/2022

From: Ducey, Peggy
To: Peters, Sarah
Subject: FW: Additional Public Comment -- 8/19/22 PC Mtg., Item No. 6A, Missing Sidewalks for 1280 N. Main
Date: Wednesday, October 19, 2022 12:48:58 PM

From: Jacob Patterson <jacob.patterson.esq@gmail.com>
Sent: Wednesday, October 19, 2022 11:53 AM
To: cdd <cdd@fortbragg.com>
Cc: Ducey, Peggy <PDucey@fortbragg.com>
Subject: Re: Additional Public Comment -- 8/19/22 PC Mtg., Item No. 6A, Missing Sidewalks for 1280 N. Main

I wrote the wrong date in my subject line, this is for tonight's PC meeting of 10/19/2022 not August.

On Wed, Oct 19, 2022 at 10:30 AM Jacob Patterson <jacob.patterson.esq@gmail.com> wrote:

> Planning Commission,
>
> The staff report mentioned that the City didn't require sidewalks for other projects north of Pudding Creek despite the code requirements and general plan policies in place and noted that this could be a matter of interpretation, implying that the prior review authorities for those projects considered these issues and interpreted the code to not require sidewalks to fill the gaps in this area of town because of the Haul Road providing the alternative pedestrian route. That is not exactly accurate. Rather than specifically considering and addressing this particular code and policy language interpretation issue, the prior projects didn't even consider the issue or make any interpretations of this applicable language--in one case the project is in the Coastal Zone, which has technically different but substantially similar code provisions and policies. At least that is the case for the most recent project, Thompson Portaseptic, which did not address the City's requirements for sidewalks using the parallel language from the CLUDC and Coastal General Plan. I have attached the staff report to demonstrate this topic was completely omitted from the analysis and Planning Commission deliberations. (The rest of the agenda materials for that entitlement review are found at https://cityfortbragg.legistar.com/LegislationDetail.aspx?ID=5536402&GUID=D5183909-13E9-4108-9108-C41F1F14AAD8&Options=&Search= and should be incorporated into this public comment by reference.) I do not know the meeting dates for the other projects referenced in the staff reports and staff has not provided any references to support the assertions in the staff report.
>
> However, I can personally attest, and my prior public comments demonstrate, that many prior entitlement reviews omitted/ignored applicable general plan policies and code requirements rather than addressing them and creating some sort of local interpretive precedent for the Planning Commission to follow for this project. Had they been considered, there would be local precedent to follow but so far as I can verify, this is not actually the case for the issue of gaps in the sidewalk network for projects north of Pudding Creek Bridge. Carrying forward past mistakes and omissions is not how entitlement reviews are supposed to work and ignoring the plain language of existing code requirements or

unambiguous general plan policy requirements would be an abuse of discretion.

As such, I recommend that you apply the plan language of the Circulation Element in Policy C-11.1 (note "shall" not "should") and ILUDC § 18.30.090 require the frontage sidewalk improvements. In the least, even if you deem the Haul Road as the preferred pedestrian path of travel rather than a frontage sidewalk--something that is not really relevant since the applicable policy is about sidewalks not community trails like the Haul Road, which are addressed in distinct general plan policies, this project is not adjacent to the existing Haul Road and pedestrians accessing the Haul Road from the informal parking area rely on an informal dirt trail across the highway. Pedestrians of bicyclists seeking to access the project site from the Haul Road would need to use the pathway and cross the highway, which supports the necessary nexus to require off-site improvements to that dirt pedestrian trail as wella s the highway crossing, which is current not marked or improved with any pedestrian facilities. In the least, that should include a marked crossing, pedestrian crossing signs along the highway, and a small sidewalk segment and accessible curb cuts on the project site frontage at the crossing point. Most of the frontage would not involve installing curbs and sidewalks anyway because the informal parking area needs to still have vehicle access so a tat portion would need to remain open or additional vehicle driveways would need to be installed through the new sidewalks. Stating that the project has pedestrian paths from the existing haul road that is not even on the property or connected to the property does not address the existing gaps in the sidewalk network that are addressed by Policy C-11.1.

The staff report mentions that Caltrans has plans to install missing sidewalks as part of their Pudding Creek Bridge project, although I recall that that project does not extend as far north as this proposed site at the northern boundary of the city limits. However, the Planning Commission could consider an alternative special condition of requiring the applicant to install frontage sidewalks that preserve vehicle access to the informal parking area on the project site within 12 months of the completion of the Caltrans Pudding Creek Bridge project should Caltrans not install sidewalks all the way through this project site. That way we can be assured that there will be the required sidewalks one way of the other. IMO, there is no legitimate argument that Policy C-11.1 and ILUDC § 18.30.090 do not require us to do something concerning pedestrian access and facilities and the applicant has not applied for a variance from this requirement, which is a distinct entitlement application with its own required findings. Should they wish to do so, they can but they have not. Actually, you could also condition this project to require the successful application for such a variance or the installation of the pedestrian improvements along the project frontage. There is obviously some flexibility in how the Planning Commission chooses to address this issue but you should not ignore it.

Please keep in kind that I am not trying to stop this project, I only want what will likely be an approval to actually meet our local requirements and be the best project it can be while serving the project objective but not having negative impacts on the community and natural environment. It is not too much to ask that this project meet applicable requirements even if several past projects did not because they apparently omitted the specific issues at the time of those entitlement reviews.

Regards,

--Jacob

From:	Annemarie
To:	cdd
Cc:	Ducey, Peggy; Lemos, June
Subject:	Public Comment -- 10/19/2022 PC Mtg., Item No. 6A, Draft MND
Date:	Wednesday, October 19, 2022 4:54:47 PM
Attachments:	Transfer Station.pdf

Planning Commission,

Please accept my comments, A. Weibel

To Planning Commissioners,

For the most part, the mitigations/special conditions seem appropriate. I read the IS/MND including the appendix. I do have some concerns, which I will list below:

Not addressing the need for a buy-back, waste processing or self haul waste drop off, hazardous waste collection and not finding a solution to replace the transfer station at 409 is unfortunate. It is not clear if a maintenance building is still included in the project. I realize why the above mentioned services were eliminated for this site.

For many who are on a tight budget having a place to bring the buy-back goods was important. Not having that will create more waste to be deposited illegally and causes an environmental problem as well as a financial problem for those who are relying on this income. The IS/MND did not address the socioeconomic resources.

The IS/MND lists that the site would be open starting at 5-5:30am, wit the first trucks returning at 7am, and open until 3pm. The staff report indicates 4:30am to 5pm.

In the IS/MND the environmental factors listed below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” or “Less than Significant with Mitigation Incorporated” as indicated by the checklist: Biological Resources, Geology & Soil, Hydrology & Water Quality, Noise, Cultural Resources, and Transportation.

Further in the document Air Quality was also addressed and 4 mitigation measures were mentioned, and were also addressed in the MMRP. Also Land User Planning was addressed in the MMRP by 3 mitigation measures, but not mentioned above. Also no mitigations were listed for the Tribal Cultural Resources. Mandatory Findings of Significance were also not addressed in the MMRP, not listed above.

Based on all the comments from Caltrans, CDFW, and the public there are lots of still unaddressed issues, some typos, some duplications. I suggest that you would hold another meeting to address these issues as the public can not address them all in a 3 min. speech. I know it is possible to write as well.

Many of the comments submitted in these documents are valid and have not been addressed. An MND with 21 Mitigation Measures 32 Special Conditions, and 8 Standard Conditions indicates to me (especially as not all the agencies and community comments have been addressed) the necessity to hold another meeting, or even to address the issues in an EIR.

I agree with many of the comments by CDFW (fencing issue) Leslie Kashiwada, Michelle Blackwell (neighbors and noise/odor and access), and Jacob Patterson (traffic and ravens issues). The description of bioswales or stormwater swales is not described clearly. Caltrans is not that knowledgeable currently as far as our area is concerned with the retirement of Frank Demling.

Thanks for considering my request,
Annemarie Weibel

10-19-2022

October 19, 2022

Dear Fort Bragg Planning Commission,

Don't Trash Our Neighborhood, a group of residents concerned about the proposed trash transfer facility north of town, would like to encourage you to consider this project's likely impacts on neighboring property and the community before you make a decision. We are concerned that this project will have negative effects on our community and that it should be located at the existing location on Pudding Creek Road rather than where it is proposed. Has that alternative been explored enough? We read it wasd explored and rejected by Waste Management but is that the end to exploring the far superior option where we have all been taking out toxic waste at monthly collection events and bringing our recycling.

Besides the community and neighborhood impacts, we are troubled that this transfer station will not include a CRV buy-back center because many local residents rely on redemption values to supplement their income, including seniors and others on fixed incomes. Where will that go if not on this new site? Why is this project where the Virgin Creek parking is and how will it impact people going to the beach?

Don't Trash Our Neighborhood objects to this proposed project and asks the Fort Bragg Planning Commission to deny the permits or to work with the new trash company to come up with a better solution for our community compared to what they have requested.

Thank you and please consider our concerns.

Sincerely,

Don't Trash Our Neighborhood