CITY OF CARMEL-BY-THE-SEA

FOREST AND BEACH COMMISSION

Chair David Refuerzo, Commissioners Mo Massoudi, Al Saroyan, Christopher Bolton, and Michael Caddell

All meetings are held in the City Council Chambers
East Side of Monte Verde Street
Between Ocean and 7th Avenues

REGULAR MEETING
11/9/2017
TOUR OF INSPECTION 3:00 p.m.
MEETING 3:30 p.m.

CALL TO ORDER AND ROLL CALL

TOUR OF INSPECTION

1. Tree removal request – Crespi Avenue, 8 southeast of Mt. View Avenue. Public/private, thirty-four inch diameter Monterey pine.

ROLL CALL

PLEDGE OF ALLEGIANCE

EXTRORDINAY BUSINESS

A. Introduction of new commissioner Michael Caddell.

PUBLIC APPEARANCES Members of the public are entitled to speak on matters of municipal concern not on the agenda during Public Appearances. Each person's comments shall be limited to 3 minutes, or as otherwise established by the Commission. Matters not appearing on Commission's agenda will not receive action at this meeting but may be referred to staff for a future meeting. Persons are not required to give their names, but it is helpful for speakers to state their names so that they may be identified in the minutes of the meeting.

ANNOUNCEMENTS

A. Announcements from Chair and Commissioners.

CONSENT AGENDA Items on the consent agenda are routine in nature and do not require discussion or independent action. Members of the Commission or the public may ask that any items be considered individually for purposes of Commission discussion and/ or for public comment. Unless that is done, one motion may be used to adopt all recommended actions.

1. Approval of the minutes for the 10/12/17 regular meeting.

PUBLIC HEARING

2. Consideration of a request to remove a 34 inch diameter Monterey pine tree as a public nuisance. The public/private tree is located on the east side of Crespi Avenue, 8 south of Mt. View Ave. The applicants are Kristin and Fred Wolf and the City of Carmel by-the-Sea.

ORDERS OF BUSINESS Orders of Business are agenda items that require Commission discussion, debate, direction to staff, and/or action.

3. Receive a presentation from the Director of Public Works on the Public Works Department and a City infrastructure report card.

4. Receive an annual report on the North Dunes Habitat Restoration Project.

5. Update on the Friends of Carmel Forest street tree project.

6. Review and comment on the 2017 Arbor Day event at Forest Hill Park.

7. Receive the City Forester's Report.
   a. August tree data
   b. Parks activities
   c. Beach activities
   d. Tree survey update
   e. Other items of interest to the Commission

FUTURE AGENDA ITEMS

ADJOURNMENT

This agenda was posted at City Hall located on Monte Verde Street between Ocean and 7th Avenues, Harrison Memorial Library located on the NE corner of Ocean Avenue and Lincoln Street, and the Carmel-by-the-Sea Post Office located on 5th Avenue between Dolores Street and San Carlos Street, and the City's webpage http://www.ci.carmel.ca.us/carmel/ on 11/3/2017 in accordance with the applicable legal requirements.

Mike Branson, City Forester

SUPPLEMENTAL MATERIAL RECEIVED AFTER THE POSTING OF THE AGENDA
Any supplemental writings or documents distributed to a majority of the Community Activities and Cultural Commission members regarding any item on this agenda, received after the posting of the agenda will be available for public review in the Public Works Department Office located on the east side of Junipero Avenue between Fourth and Fifth Avenues during normal business hours.

SPECIAL NOTICES TO PUBLIC
In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the City Clerk's Office at 831-620-2007 at least 48 hours prior to the meeting to ensure that reasonable arrangements can be made to provide accessibility to the meeting (28CFR 35.102-35.104 ADA Title II).

CHALLENGING DECISIONS OF CITY ENTITIES The time limit within which to commence any lawsuit or legal challenge to any quasi-adjudicative decision made by the City of Carmel-by-the-Sea is governed by Section 1094.6 of the Code of Civil Procedure, unless a shorter limitation period is specified by any other provision, including without limitation Government Code section 65009 applicable to many land use and zoning decisions, Government Code section 66499.37 applicable to the Subdivision Map Act, and Public Resources Code section 21167 applicable to the California Environmental Quality Act (CEQA). Under Section 1094.6, any lawsuit or legal challenge to any quasi-adjudicative decision made by the City must be

filed no later than the 90th day following the date on which such decision becomes final. Any lawsuit or legal challenge, which is not filed within that 90-day period, will be barred. Government Code section 65009 and 66499.37, and Public Resources Code section 21167, impose shorter limitations periods and requirements, including timely service in addition to filing. If a person wishes to challenge the above actions in court, they may be limited to raising only those issues they or someone else raised at the meeting described in this notice, or in written correspondence delivered to the City of Carmel-by-the-Sea, at or prior to the meeting. In addition, judicial challenge may be limited or barred where the interested party has not sought and exhausted all available administrative remedies.

The next regular meeting is December 14, 2017
Tour of Inspection – as required
3:30 p.m. – Regular Agenda

CITY OF CAREML-BY-THE-SEA
FOREST AND BEACH COMMISSION-MINUTES
REGULAR MEETING
THURSDAY, OCTOBER 12, 2017

CALL TO ORDER AND ROLL CALL

COMMISSON MEMBERS PRESENT:	David Refuerzo, Chair Mo Massoudi Al Saroyan Chris Bolton
COMMISSION MEMEBERS ABSENT:	Michael Caddell
STAFF PRESENT:	Mike Branson, City Forester Matt Feisthamel, Assistant City Forester Bob Harary, Public Works Director Yvette Oblander, Admin. Coordinator, Commission Secretary

PLEDGE OF ALLIGIANCE

Chair Refuerzo led the audience in the Pledge of allegiance.

PUBLIC APPERANCES

No public appearances.

ANNOUNCEMENTS

A. Chair Refuerzo announced and welcomed Chris Bolton as the new commissioner to Forest and Beach.

Commissioner Bolton gave a brief update on his background and his connection to the community.

CONSENT AGENDA

1. Approval of the minutes from the September 14, 2017 regular meeting

Commissioner Massoudi, moved to approve the minutes for the September 14, 2017 regular meeting, seconded by Commissioner Saroyan.

AYES:	Massoudi, Saroyan, Refuerzo
NOES:	None
Abstain:	Bolton
Absent:	Caddell

ORDERS OF BUSINESS

2. Report on the downtown street tree improvement collaboration with the Friends of Carmel Forest (FOCF).

Mr. Branson, gave an update about his meeting with Maria Sutherland, and the different phases that the Friends have developed for tree planting and pruning

Remie Allard commented on the downtown project area and the grant from PG&E.

3. Report from the 2017 Arbor Day event committee

Mr. Feisthamel updated the Commissioners on the progress and the details for the Arbor Day event. Flyers will be posted, and lunch will be available for everyone that participates and helps to plants trees.

4. Report on tree inventory software

Mr. Harary recommended that the City move towards a GIS (Geographic Information System). The City has a funded capital improvement project to launch a GIS program this year. GIS systems have robust capabilities for data collection and mapping of many City resources. The City received a Statement of Qualifications (SOQ) from Chico State University, which has a non-profit organization who does GIS mapping.

5. Receive the City Foresters Report
    a. September tree data
       7 tree removal permits issued
    b. Parks activities
       Friends of Mission Trails had a work day, and the debris was picked up by Public Works.
    c. Beach Activities
       3 more smokeless pits were put down at the beach
    d. Other items of interest to the Commission
       Mr. Harary presented a report on the Public works Department and a City infrastructure report card at the City Council workshop last Monday. He will also present his report at next month's Commission meeting.
       The Carmel Residents Association/FOCF showing of "Intelligent Trees" was well attended by the public.

ADJOURNMENT

There being no further business to come before the Commission, the meeting was adjourned at 4:41 PM

_____

David Refuerzo, Chair

ATTEST:

_____

Yvette Oblander, Administrative Coordinator/Commission Secretary

CITY OF CARMEL-BY-THE-SEA

Forest and Beach Commission
Staff Report

November 9, 2016
Orders

TO:	Forest and Beach Commissioners
FROM:	Robert M. Harary, P.E., Director of Public Works
SUBJECT:	Approve a Tree Removal Permit due to Extraordinary Circumstances

RECOMMENDATION

Approve Applicant's request for a Tree Removal Permit to remove, at Applicant's expense, one Monterey Pine tree located on both public and private property, conditioned upon replacement of one tree as required by the City Forester.

BACKGROUND / SUMMARY

Background:

Applicant Kristin Wolf has owned and resided with her family on Crespi Avenue, 8 Southeast of Mountain View Avenue, since September 2001. The subject Monterey Pine tree is approximately 80 feet tall, 34 inches in diameter, and located about equally on City and private property. As detailed on Attachment #1, an email/ letter dated October 4, 2017, the Applicant alleges that there have been numerous property damage incidents, as well as a couple of minor personal injuries, over the past 16 years.

In early 2014, Applicant applied for a tree removal permit which was denied by City staff. On April 3, 2014, the matter was heard by the Forest and Beach Commission following a Tour of Inspection and Public Hearing. On a split vote of 3-1-1, the Commission agreed with staff's recommendation to deny this permit. Applicant subsequently appealed the decision to the City Council who upheld the Commission's findings.

The City Forester recently inspected this tree and found that the tree remains healthy; however, there are several branches within the high canopy that appear to be dead and may fall at any time unless these dead branches are removed as soon as possible. The Forester made the same findings prior to this matter appearing before the Forest & Beach Commission in 2014.

Since early 2014, the situation appears to have become more dangerous. For example:

- 2014, Toyota 4 Runner front windshield destroyed due to fallen tree limb
- 2014, 7-foot long limb falls within inches of 11-year old child's arm
- 2015, Toyota Land Cruiser front windshield destroyed due the fallen tree branch
- 2017, Tree limb knocks down side yard fence (for the 3rd time)
- 2017, Toyota Camry rear windshield destroyed due to fallen large limb (Police Report filed, see Photographs)
- Ongoing, Damage to wood shingle roof, gutters, and driveway.

The City Forester recently provided Applicant with a list of eight (8) tree trimming contractors who may be able to provide quotes for cutting the dead limbs, although some of these contractors on that list are not certified to

cut trees in close proximity to PG&E electric power lines. The Applicant contacted and met with two (2) firms who inspected the tree, but refused to provide quotes due to the precarious nature of the dead limbs above and/or the proximity of the power lines.

Analysis:

The City Forester has the duty to preserve healthy trees, whether public or private, throughout the City. While the Director of Public Works fully respects the Forester's judgment regarding the health and potential dangers of the tree, the Director has a duty to protect public health and safety. Based on discussions with the Applicant, site visit, and review of the history of alleged damage, the Director believes that this particular tree may be considered a public nuisance and should be removed and replaced, upon concurrence of the Forest and Beach Commission.

Carmel Municipal Code Title 12, "Streets, Sidewalks, and Public Places," Chapter 28, "Trees and Shrubs," Section 180, "Permit for Removing Trees, Pruning or Removing Roots on Private Property – Application," states,

> *"The Forest and Beach Commission may approve or deny the application and require as a condition on which a permit is granted that replacement trees be planted at a place, of a species, and of a size designated by the Commission on public or private property. The person requesting the permit will be required to pay the cost of obtaining and planting any replacement trees."*

While the Applicant admits that the canopy has not been pruned since 2014, the Applicant and Director of Public Works concur that this tree has the potential of adversely affecting the health and safety of the residents, neighbors, and of visitors parking along this portion of the public street. The Applicant is pleading for relief and is willing to plant a new tree upon removal of the Monterey Pine. There is insufficient space at this location to replant more than one tree.

FISCAL IMPACT

There is no fiscal impact to the City beyond administration of the permit. Acknowledging that the tree is located equally on both public and private property, and because the Applicant previously paid for a tree removal permit, the Director of Public Works waived the application cost of this 2017 tree removal permit for this extraordinary case.

In Attachment #1, Applicant states near the bottom of page three (3), *"the City of Camel by the Sea should pay all costs related to damages incurred after April of 2014."* The intent of Carmel Municipal Code Section 12.28.180 is clear that the Applicant must absorb the costs of removal of the existing tree and for obtaining and replacing it with a new tree.

The matter before the Forest and Beach Commission is only related to whether or not the existing Monterey Pine tree should be removed. Approval or denial of this permit in no way correlates to the fiscal responsibility of the City, if any, for alleged damages outlined by the Applicant. The Applicant has the right to submit a claim against the City, and if she proceeds, the City will defend or negotiate that action separately from the tree removal permit process.

PRIOR COMMISSION ACTION

On April 3, 2014, this matter appeared before the Forest and Beach Commission following a Tour of Inspection and Public Hearing. On a split vote of 3-1-1, the Commission agreed with staff's recommendation to deny the permit. The matter was subsequently appealed to the City Council who upheld the Commission's findings.

ATTACHMENTS

1. Applicant Email, dated October 4, 2017
2. Photographs of Car Damage

Attachment 1 – Wolf email

On Wed, Oct 4, 2017 at 4:25 PM, Kristin Wolf <po6474@aol.com> wrote:

Hello Mr. Harary,

Thank you for your concern regarding the tree on Crespi Ave (8 S.E.-Mt. View).

As we discussed, there is a mature, 70-80-ft-tall, Monterey Pine Tree with no lower limbs but a large, disorganized canopy of huge limbs, which **straddles our property and also property owned by The City of Carmel By The Sea (according to a lot-line survey). It sits at the SE corner of our lot--curbside at Crespi 8 S.E.-Mt. View.**

For over 20 years, this tree has continuously shed large limbs, branches and pine cones onto two residences at the following addresses: Crespi 8 S.E.-Mt. View and also Crespi 9 S.E.-Mt. View. We are asking that the tree be removed due to the most recent incident, last month, which put our daughter's well life at risk and caused significant damage to her car (her 1st car, which she worked at McDonald's, Monterey, to purchase).

A brief history of "The Tree":

Fred and I purchased our home at Crespi 8 S.E.-Mt. View in Sept of 2001. Within the first month of moving into the house, we observed a steady shedding of debris by the large Pine Tree, which has a canopy extending over all access points to our home, over our entire driveway and parking area.

The tree continually sheds: limbs, branches, heavy, pine-cone laden branches and a constant shower of needles (the needles have led to the premature destruction of two roofs). Even during no wind and light winds, this tree produces huge amounts of debris on a daily/weekly basis.

In 2001, I hired a maintenance service specifically to clean our front driveway once per week and to haul away larger pieces of debris. This service continues to this day.

Within a couple of months of purchasing our home, I contacted the City Forester and voiced my concerns about potential injury and property damage from some of the very large, falling branches as well as softball- sized pinecones.

It had very quickly become apparent that the tree posed an imminent, constant threat to people passing under and property located under the tree. In that first year, after being denied assistance from the City Forrester, a huge limb fell, damaging a vistior's vehicle (large dent in hood), which was parked at the curb. The damage was covered by auto insurance (although technically the car was on city property).

I contacted the City Forester again and explained our escalating concern and the most recent "situation". He informed me that I could fill out a request for a permit to trim the tree but that we would not be allowed to remove any of the large limbs and certainly wouldn't be allowed to top or remove the tree (as I requested).

I spoke to a professional tree trimmer (Topes? I can't remember but Brian Smith and Topes have both declined to work on the tree).

Time passed and the tree continued to grow, and as it increased in girth and height, it became dangerously close to P.G.&E. power lines. Occasionally P.G.&E. would/will come out and trim limbs near the power lines.

The rain of limbs and branches has continued in our sixteen years in this home, uninterrupted. Sections of limbs--six, seven-foot-long pieces, heavy with pine cones, come crashing down almost every year, without warning. Branches break lose, denting and scratching the paint on our vehicles and taking out

fences and rain gutters. At night, we can hear the crashing limbs from our bedroom at the back of our home.

Our former neighbor (Ilse Lowery), now deceased, told us that in **1997 (?),** the tree had dropped a huge, projectile-like, 10-ft-long limb, though her bedroom rood and ceiling as she slept. The limb actually missed Ilse by "inches," as she slept and punched through the hardwood bedroom floor, becoming impaled in the subfloor of the home. (Terrifying power of destruction). Clearly this could have killed Ilse. In the home she and her husband, a WWII veteran, built to raise their family. For the rest of her life, Ilse never fully recovered from the shock and horror of that night. She lived, terrified, of another limb falling through her roof. This PTSD persisted for the final two decades her life.

At the behest of Ilse, age 77, I contacted The City Forester (again) and explained that the tree was causing incredible stress for our neighbor and for our family.

Neighbors began to urge us to "saw it down, we won't tell!" but we are talking about a 70-80-foot-tall tree. The urging continues to this day and nearly everyone on our street has a "Tree Story" about our pine....

Following, are the **Major Events**

Approx **20 years ago, (1997?),** the tree shed, as a projectile, an 8-10-ft-long limb, which pierced through the roof and ceiling of Crespi 9 S.E.-Mt. View (Ilse Lowery's home). **Cost: approx $25,000**

2001-Current: Weekly professional clean up and removal of debris: Cost: 192 months @ $100. per month: **Total Cost $19,200.**

2001, Winter: The tree shed a huge limb which tore down the fence between my driveway and my neighbors' home. The fence was replaced at my personal coast (**Approx $2,500**)

2002, Spring: Hardscape (driveway) damage, necessitating removal of hardscape and replacement with asphalt strip (**Approx $1,500**)

2005: Replacement of Copper Rain Gutter, ripped off of garage by limb, repair of plaster surface of house exterior, painting of new plaster and garage door(s) **(Approx $5,000)**

Date unknown: Request to remove tree filed at City Hall **($250?)**

2006, Spring: Replacement of fence (2nd time) due to fallen limb **(Approx $2,500.)**

2010: Removal and replacement of asphalt strip of driveway due to tree roots causing crumbling **(2nd time, Approx $1500.)**

August 2011: Replacement of rear windshield of Cadillac Escalade, destroyed by falling, pinecone laden branch: **(Approx $650.)**

2013: Replacement of corner/downspout portion of copper rain gutter and repair of 30 ft. of rain gutter running above garage doors.
(Approx $1500)

2014: Replacement of front windshield of Toyota 4 Runner, broken by tree limb **(Approx $700)**

2015: Replacement of front windshield of Toyota LandCruiser, broken by branch full of pinecones. **(Approx $700)**

2014: Incident: Tree sheds a 7-ft-long limb which comes within inches of hitting our child, then 11-yrs-old. Several eye witnesses observed this event. I again filed a permit request (4th request?) Approx $250. (x4) total $1,000.

9/12/2017: Tree sheds limb which destroys rear window of 2013 Toyota Camry (please see costs below)**

After the 2014 incident in which my youngest daughter was almost hit by a limb, I made my most recent appearance before the Forest and Beach Commission (April of 2014). Despite letters from an eye-witness and a letter from Ilse Lowery's surviving relatives regarding the troubled history of the tree and the residents living beneath it, concerns for our safety and sense of well being and the protection of our property as well as the safety of any pedestrian on the street, or any resident living at Crespi 8 S.E. or Crespi 9 S.E., our concerns were dismissed as Inconsequential.

The tree was valued as a a "significantly aesthetic contribution to the street" (none of my neighbor's agree) and also, valuable to the "Forest Canopy" (Mission Trail Forest, which is 1/4 mile from the tree. The tree *has*a canopy but is not, in the strict, Current, Urban Forest Definitio, "part" of a canopy--it is a stand alone, "nuisance" tree according to Urban Planning guidelines in CA.

By modern definition, the trees if the Forest Canopy are adjacent and grove-like. Our tree is isolated, unsightly and unstable.

After the City of Carmel denied our last plea for permission to remove the tree, I wrote the City, asking for a lot line adjustment so that we would be free from liability caused by the tree they insisted would stand over Crespi 9 S.E. and over the entry and autos parked at Crespi 8 S.E.

Also, As per the Instructions of State Farm Insurance and two attorneys, I sent a written letter to The City of Carmel, stating that my husband Fred, and I, from that moment forward, would NO LONGER ACCEPT ANY FINANCIAL RESPONSIBILITY for injuries or property damage caused by The Tree.

Current Damage still in need of repair/restitution:

Replacement of Cedar Shake, Shingle Roof: Constant damage to wood shingle roof, caused by pile up of debris including piles of needles, causing pre-mature aging of the roof, and also the disruption of shingles and the undermining of shingle integrity due to continual impact of limbs & branches and pinecones onto the shingels, roof surface: Estimate to replace 17-yr-old roof (which should have had a 30-50 year lifespan:
3 Estimates ranging from $65,000-85,000.
See Attached

2017, Winter Tree limb strikes and knocks down fence (3rd time) between our house and neighbors' house. Handyman straps fence back together (I've given up at this point) **Cost to return fence to current, unstable condition: (Approx $200)**

Cost to repair/replace fence (3rd time): $5,000.

****I've attached a receipt for the replacement of the car windshield ($523.33)**, which I paid last week after the Monterey Pine at the curb of Crespi 8 S.E.-Mt. View, shed a large limb which crashed through the rear windshield of my daughter's 2013 Toyota Camry on Tuesday, 9/12. **(There is a police report on file)**
Destruction of rear windshield of 2013 Toyota Camry: sap damage to interior upholstery, extensive scattering of tiny pieces of glass throughout passenger compartment of car requiring "Professional Power Vac" towing of car to glass co.: Approx $725 total

Attachment 1 – Wolf email

AS OF YET, UNPAID COSTS:

Replacement (3rd time) side fence between Crespi 8 & Crespi 9: $2,500

Repair/Replacement of asphalt driveway (3rd time): $1,250

Estimate (professional, 3 bids) to replace pre-maturely deteriorated roof ("Excessive wear and tear caused by constant coverage of pine needles, constant impact of large branches, pieces of branches & large pine cones): $65,000-85,000.

Fred and I have received legal advice, as well as advice from State Farm Insurance Co., that the City of Carmel By The Sea should pay all costs related damages incurred after April of 2014.

Tuesday, September 12, 2017: Just after my daughter pulled her 2013 Toyota Camry into the driveway, a huge limb fell, crashing through her back windshield. Tree branches, pinecones and thousands of small pieces and slivers of glass exploded into the passenger compartment of the car. Molly still is finding tiny pieces of throughout her carr and also in her hands, in hair and even under the driver's seat (when she went to adjust the seat, she cut her finger).

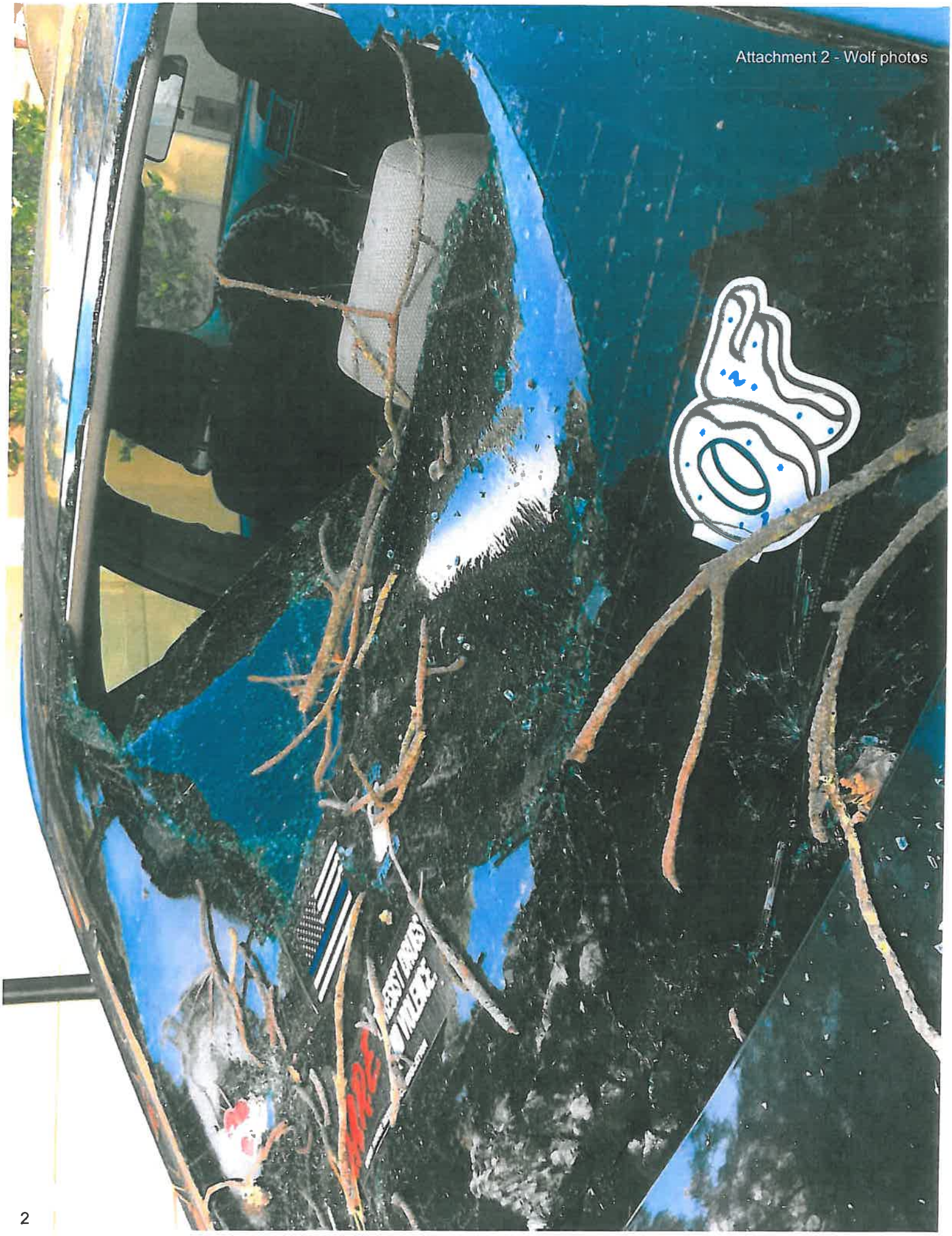
I want to mention that oftentimes, my daughter has a load of kids in her car after school (there are four other teenagers who live within a few houses of ours). We are So Fortunate that she was, contrary to the norm, alone in her vehicle that afternoon. I called the Carmel Police Dept, non-emergency line and they were good enough to send Officer Chris Johnson to our home to "officially document" the "incident." (We are so grateful, always, to our wonderful police dept).

Due to 16 years, for our family, of continual loss and damage of property and also extreme emotional distress as a result of accidents and the potential threat of another accident, We respectfully request that the City of Carmel By The Sea remove this tree (at the expense of the City).

Thank you,

Kristin & Fred Wolf
831-915-6996
po6474@aol.com

Attachment 2 - Wolf photos


Attachment 2 - Wolf photos

Attachment 2 - Wolf photos


Attachment 2 - Wolf photos
4


Attachment 2 - Wolf photos
5

North Dunes Restoration Project
2017 Annual Report

Prepared for:
City of Carmel-by-the-Sea
October 31, 2017

Submitted by:
Joey Dorrell-Canepa
Dune Biologist
Native Solutions
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Introduction

The North Dunes of Carmel-by-the-Sea contain eight acres of environmentally sensitive habitat area (ESHA) rising from the high tide line of Carmel Beach to about 100 feet in elevation, bounded by San Antonio Avenue to the east and Ocean Avenue to the south. The North Dunes are designated as open space parkland in a busy area that receives thousands of visitors annually. This unique area is the most diverse and contiguous dune habitat remaining in Carmel. The North Dunes contain over twenty-five native plant species, including the federally endangered Tidestrom's lupine (*Lupinus tidestromii*), and a species of special concern, the California legless lizard (*Anniella pulchra*). With views of the ocean and Pescadero Point, the North Dunes are perfectly situated for year-round nature walks amidst the dune vegetation and coastal forest.

The diverse native vegetation and sparkling white sands of the North Dunes have been degraded over the years due to uncontrolled public access in the fragile dunes, and invasion by non-native species such as iceplant (*Carprobrotus*), Sydney golden wattle (*Acacia longifolia*), and weedy annual grasses. These non-native species are aggressive competitors, reducing native species diversity and changing the structure of the dunes and white sands. In 2016, a dune restoration program was implemented by the City of Carmel to protect and restore the North Dunes to a thriving and functional dune ecosystem.

The mission of the North Dunes Restoration Project is to re-create a self-sustaining native dune habitat with thriving populations of the special status species, Tidestrom's lupine (*Lupinus tidestromii*) and California legless lizard (*Anniella pulchra*). The City also seeks to provide safe visitor access and enjoyment of the dunes without compromising the health of the dune habitat. To fulfill this mission, the biological objectives are to eliminate all aggressive non-native species, restore the native dune scrub, expand the population of Tidestrom's lupine, and increase quality habitat available for the legless lizard. The visitor-serving objectives are to establish a trail system to provide safe visitor access to the Carmel Dunes, without compromising the dune habitat and its wildlife, and to provide interpretive signage to enhance visitor experience and knowledge of the dunes.

This annual progress report describes management and restoration activities completed in YEAR ONE for the North Dunes Restoration Project (July 1, 2016 - June 30, 2017). Monitoring data includes counts of special status species and transect data that measures percent cover of native and non-native species, as well as iceplant debris and bare sand. Monitoring results are discussed to determine progress toward

meeting success criteria for the project, and to inform management decisions. Pending restoration activities for 2017-2018 and management recommendations are described. To fulfill permit requirements, this report is submitted to the City of Carmel, the California Coastal Commission, and the California Department of Fish and Wildlife (Habitat Conservation Planning Branch).

The Planning Commission of the City of Carmel-by-the-Sea approved the North Dunes Coastal Development Permit for Habitat Restoration in September 2016, with 11 conditions (see Attachment). After a review period, the California Coastal Commission approved habitat restoration efforts to begin in late October 2016. Biological management, implementation, and monitoring for the project are provided by Ms. Joey Canepa of Native Solutions, a local dune biologist. Restoration activities follow the protocol described in the North Dunes Restoration Summary (Canepa, July 2016) and an earlier source document, the North Dunes and Del Mar Dunes Habitat Restoration Plan (Ferreira, April 2009).

Completed Restoration Tasks (Table 1, Figure 1)

Habitat restoration activities began in December 2016. During the restoration season, "Pineapple Express" storms dropped an impressive 23 inches of rainfall on the sand dunes at Carmel-by-the-Sea. Combined with focused restoration efforts, the consistent and prolific rainfall led to strong gains toward the biological objectives of the project including removal of large quantities of non-native plants, robust survival from native plantings, and an expansion of the Tidestrom's lupine population clusters.

Cable fencing was installed to protect new plantings and the special status species, Tidestrom's lupine, which favors high quality white sands. The guideline fencing prevented trampling of germinating seedlings and young plants. Other visitor-serving goals, such as interpretive signage and sidewalk improvements are currently in the design or funding phase.

Dead trees and hazardous limbs were removed to improve visitor safety. Downed pines and dead snags were left to decompose in place. Large stands of non-native acacia were cut, stacked and removed by contracted crews, following training to prevent disturbance to the Environmentally Sensitive Habitat Areas (ESHA). All non-native acacia shrubs were removed within the central dune area and the Pine Grove boardwalk.

During winter/spring of 2017, dedicated volunteers and labor crews removed the largest volume of iceplant (40 cubic yards) and weeds (5950 pounds) to date. Weed removal included live and dead iceplant, false iceplant (*Conicosia pugioniformis*), Bermuda buttercup (*Oxalis pes-caprae*) and annual grasses. During January - March 2017, crews and volunteers, including student groups, installed one thousand site-specific native seedlings in weed-free areas (Table 2).

Pending Restoration Tasks (Table 2, Figure 2)

During Nov-Dec 2017, all remaining acacia within the project boundaries will be cut and removed up to the edge of the ocean bluff, where acacia will be trimmed to a height of 2-3 feet. The remaining acacia "mulch" will be raked and removed to reduce seed dispersal and leaf litter. A multi-year surge of acacia seedlings is expected, and will be factored into the weed control budget. Understory plantings that follow acacia removal will be spaced to accommodate ongoing weed control and deer cages. This acacia removal will improve ocean views and species diversity, by opening up substantial habitat area in the forest and dune areas for native plantings, and natural recruitment from existing native vegetation.

The volleyball courts will be relocated slightly in Nov–Dec 2017 to minimize impacts on sensitive habitat and improve public access through the area. After excavation of the cypress stump, the courts will be consolidated into a rectangular configuration and moved 10 feet south and 5 feet west to protect highly sensitive dune habitat. Guideline fencing will be installed to the east of the volleyball court area.

Over two winters (2018 and 2019), native coastal strand and central dune scrub species will be planted in open dune areas, with dune sedges/rushes and forest understory species planted in the Pine Grove area. During the same time period, the environmentally sensitive habitat area along the northern boundary of the North Dunes area will be restored. Non-native landscaping plants and weeds will be removed up to the City of Carmel's boundary line, including up to the Sand & Sea property line and the 4th Avenue canyon drainage. Native dune/ understory species will then be planted during late fall/winter.

Focused iceplant/weed control and native plantings will continue through 2019, and should soon tip the scales toward native species cover and diversity prevailing over non-native vegetation. Restoration in the acacia removal areas and the Pine Grove forest area will require more time to rebuild quality native habitat. Continued installation and relocation of guideline fencing will be required to protect habitat areas so native species can establish successfully.

Pending Restoration Tasks – YEAR TWO 2017-2018 (Figure 2)

- Guideline fencing
  - Delineate and cable pathways to protect plantings (central dune area)
  - Cable forest area opened by Acacia removal (Pine Grove, east side)
  - Expand cabled area along San Antonio north to NE corner entrance (Sand & Sea)
  - Close middle entrance (of three) along San Antonio Avenue
- Relocate Volley ball Courts (10 ft South, 5 ft West)
  - Remove large Cypress Stump at volleyball court area
- Maintenance – Repair boardwalk (erosion under boardwalk near 4th Street entrance)
  - Replace rusted cabling (San Antonio walkway)
- Install Signage – Cohesive, directional & regulatory signage
  - Restoration in progress- Please stay on trails
- Acacia removal/native plant replacement in Pine Grove boardwalk area
  - Remove all Acacia N/NW of the boardwalk up to boundary fencing (Nov-Dec 2017)
  - Remove Acacia to top of beach slope (W), reduce height to 2-3 feet (Nov-Dec 2017)
  - Replace Acacia with dune scrub species, forest understory, sedges (Dec 2017-2018)
- Remove non-native species
  - Dead iceplant piles (Nov-Dec 2017)
  - Remaining live iceplant - pile in berms (remove all piles Oct-Nov 2018)
  - Annual weeds, *Acacia* and *Conicosia* seedlings, all areas
  - Landscaping plants up to northern property line & Sand & Sea (2018 and 2019)
- Plant native species
  - 1800 native dune strand and central dune scrub seedlings as needed
  - 50-100 cells/gals – Sand/Sea property line (Jan-Feb 2018 & 2019)
  - 50-100 gals – understory with cages, Pine Grove/fence boundary (Jan-Feb 2018 & 2019)
- Train and supervise volunteer groups, relocate CA. legless lizards as needed
- Monitor – Plant survival, Tidestrom's lupine, Transects (Feb-June 2018)
- Reports – Jan 31 (CADFW), March 30 (interim progress report), Sept 30 (annual)

Monitoring Methods (See Figure 3)

It is essential to gather monitoring data for a restoration project to determine progress toward project goals and inform management decisions. Figure 3 includes transect and special status species locations.

The North Dunes Restoration Plan states:

"All restoration and maintenance efforts shall be designed and implemented to create a high quality dune habitat that is self-sustaining in perpetuity. Success criteria will be met when the number of native dune species in the project area is restored to a minimum of 30 species and 50% average native plant cover within 5 years. The average cover of aggressive, non-native species will be reduced to no more than 10% cover within 5 years, with the number of non-native species reduced by at least half, from 30 species to <15 species. The endangered population of Tidestrom's lupine shall total 1000+ individuals, with at least ten locations scattered throughout the North Dunes, each supporting a minimum of 100 plants.

Monthly site monitoring occurred March-June 2017 to observe planting survival and note any problems. Tidestrom's lupine population clusters were observed monthly for growth stage (vegetative, budding, flowering, fruiting, seed dispersal) and number of juvenile vs. mature (reproductive) plants. The final counts of reproductive vs. non-reproductive Tidestrom's lupine were tallied on May 20, 2017.
In June 2017, twelve permanent line transects throughout the project area were monitored for percent cover of native species, non-native species, iceplant debris, and bare sand.

The line intercept method is an efficient method for measuring small scale vegetation change on project sites. This method measures cover of vegetation along a measuring tape (transect) and allows evaluation of weed removal, vegetation enhancement and habitat improvement efforts. Permanent transects are frequently used in small-scale projects to save time and provide necessary information about restoration success.

The North Dunes project area measures ~8 acres by GPS, if one walks the property boundaries. Permanent transects are located throughout the project area, in baseline areas with existing native vegetation, as well as pre-and post-treatment areas. Treatments include restoration activities such as acacia removal, weed removal by hand, weed control by spray (Roundup) and planting.
Twelve transects (30 m=100 ft) were measured in June 2017, and 4 transects will be added in 2018 for a total of 16 transects (one transect per half acre). Transect measurements may be done earlier during dry years, possibly mid-to-late May.

The line intercept method measures the distance that the crown diameter of each plant intercepts the measuring tape, looking vertically downwards. The distances for each individual species along the tape are added together. The percent cover for each species is the cumulative length of intercepts for the species, divided by transect length, then multiplied by 100. Calculating the percent native and non-native cover for each transect allows comparison between transects in similar or different locations (open dune vs. forested area), or different stages of restoration (pre-or post-treatment). The average percent native and non- native cover of all transects on the project site is a useful (and cost efficient) calculation for year to year comparisons, but is a limited assessment of the whole restoration area. Permanent transects are not random, but provide a tool for efficient assessment of smaller project sites. Carefully located transects (representing baseline conditions, high/low quality areas, problem spots) provide valuable information about the efficacy and efficiency of restoration methods, whether success criteria will be met, and facilitate qualitative observations of the site.

Monitoring Results

This year's prolific and consistent rainfall was a stellar beginning for the North Dunes Project. Over 23 inches of rainfall resulted in robust growth and healthy survival for the 1000 native plants installed between January and March 2017. There was abundant recruitment of germinating seedlings beneath established native vegetation. All native species were loaded with seed due to rich vegetative growth.

Species richness (the number of native species growing onsite) was 26 species, which is an increase from the 22 native species recorded in 2015 during the project planning period. The goal of 30 native species within the project area by YEAR FIVE is well within reach. Several species known from one occurrence in 2016, increased in number including California beach poppy *(Eschscholzia californica ssp. maritima),* common deerweed *(Acmispon glaber)*, and Heermann's lotus *(Acmispon heermannii var. orbicularis)*. Ample rainfall stimulated the colorful sand verbena species into amazing abundance. The North Dunes sand verbena is known for a brilliant array of colors among the unique sub-species found onsite. Flower colors include white, salmon, and lavender in addition to the characteristic yellow (*Abronia latifolia*) and purple/pink (*Abronia umbellata*) blooms. The flowering season was long and lovely, and seed production was phenomenal. Prior to germination, sand verbena seed can weather in the sand for many years. The seed produced this season will supply colorful sand verbena seedlings for many years to come.

Transect results for percent cover of native and non-native vegetation were very encouraging for the first year of restoration work (Table 3). The percent cover of native dune species from 12 separate transects ranged from a low of 24% cover of native species (acacia removal area) to a high of 102% cover of native species cover (Carmel Garden Club corner restored in 2012-2014).
In YEAR ONE, **the average percent cover of native dune species was 47% (all 12 transects).**
This site average of native cover is only 3% below the 5 year goal of 50% native cover.

The percent cover of non-native dune species from 12 separate transects ranged from a low of 1% cover of non-native species (San Antonio rock wall transect restored in 2017) to a high of 35% non-native cover (Pine Grove, untreated iceplant area).
In YEAR ONE, **the average percent cover of non-native dune species was 14% (all 12 transects).**
This site average of non-native cover is only 4% above the 5 year goal of <10% non-native cover.

The number of non-native species was 20 species, a reduction of 10 non-native species since 2009.
This result is only 6 species away from the 5 year goal of <15 non-native species.

Special Status Species

Tidestrom's Lupine (See Table 4)

Goal: Tidestrom's lupine numbers shall total 1000+, with at least 10 locations scattered throughout the North Dunes, each supporting a minimum of 100 plants.

Early surveys in March 2017 showed high numbers of seedlings and expansion of the population clusters, but there is no data for comparison from previous years.
The final number of Tidestrom's lupine counted on May 20, 2017 was 401 individuals.
There were 211 mature (reproductive) individuals, and 190 juvenile (non-reproductive) individuals.
The May 2017 total (401) indicates a 17% decline from June 2016 (481 individuals)
According to the stated 5 year goal for success of 1000+ individuals, the Tidestrom's lupine population of 401 plants in May 2017 indicates the project site is at 40% of the goal in Year One.
There are three separate clusters of Tidestrom's lupine in the project area. Two of the clusters contain at least 100 plants. A third cluster has 33 plants. In the fourth "cluster", there is only 1 single plant surviving in an exposed location at the top of the central dune area. This cluster may be augmented with protected seedlings in winter 2018.

Excess herbivory was noted in two of four locations. Deer and mice are known grazers of Tidestrom's lupine, but further observations are required to determine the perpetrators. It was very time consuming to monitor the four different clusters and students/volunteers should help in the future. Seedling recruitment from mother plants can be easily tracked, so downslope areas should be carefully monitored for possible Tidestrom's lupine recruitment next year.

California legless lizards were not observed during tree work or debris removal, probably due to the piling of debris before removal, allowing time for lizards to relocate. However, crews, volunteers, and students with MEarth Educational Program observed legless lizards on numerous occasions while hand pulling iceplant and weeds in moist sands during the winter months. Dead iceplant piles were a haven for lizards, due to the increased insect activity beneath the decomposing material. The legless lizards were a unique and exciting find, and were relocated gently beneath native vegetation by trained staff.

Initial training was provided to staff, crews and volunteers by Patti and Bob Kreiberg, California legless lizard consultants for 20+ years (Sunset Coast Nursery). Their expert training was key to maximum engagement with the volunteer groups, and essential for the crews and staff working onsite. Tool use was modified to minimize hazards for the slow moving lizards. There were no known negative impacts to lizards the entire restoration season.

A total of 21 lizards were encountered between January-June 2017, during hand-pulling of iceplant/annual weeds and removal of iceplant piles. Lizard occurrences are noted on Figure 3. The lizards were found under live and dead iceplant, and the following native species: *Ericameria ericoides* (mock heather), *Carex pansa* (dune sedge), *Camissonia cheiranthifolia* (beach primrose) and the non-native weed *Oxalis pes-caprae.* **Seven legless lizards were relocated out of harm's way to nearby native vegetation clusters within 10-20 feet of the occurrence. The remaining fourteen lizards burrowed back into their sandy home surrounded by native vegetation**.

Discussion

The first year of habitat restoration at the North Dunes Project in Carmel exceeded expectations due to an abundant rain year and dedicated efforts by volunteer crews, contractors, and city staff. The prolific and consistent rainfall was a welcome beginning for the project and resulted in robust vegetative growth and good establishment from plantings. There was ample recruitment of germinating seedlings under established native species. The extended spring and summer bloom of the native dune species (and the resulting seed dispersal) was beautiful (!) and vitally important for long-term growth and sustainability of the native populations.

Transect results were very good for YEAR ONE of restoration work. The pending restoration tasks will continue to improve monitoring results, and we should be able to meet and exceed success criteria related to native and non-native cover by YEAR THREE.

Native plant health and diversity is very good in the oldest treatment area restored by the Carmel Garden Club from 2012-2014, especially where the soils are pristine and there is ample sunlight. The prolific native vegetation along the drainage in this area successfully prevents erosion of sand onto the street and sidewalk, and is very beautiful in spring and summer. The natural recruitment of seedlings from seed dispersal under existing vegetation in this original restoration area was especially prolific after winter 2016-17. It was difficult to walk between native species without stepping on germinating native seedlings! Native seedling recruitment is a prime indicator of successful restoration efforts, indicating habitat sustainability and resiliency.

The federally endangered Tidestrom's lupine *(Lupinus tidestromii)* showed robust numbers of new seedlings and expansion into adjacent pristine sands (see comparison of 2016 to 2017 GPS measurements-Figure 3). The spring bloom of this federally listed endangered species was phenomenal, showing healthy vegetative growth and heavy fruiting. The plants were easy to observe along the boardwalk within the Pine Grove, and within the newly cabled area adjacent to the Sand and Sea homes.

Monthly tallies from the various lupine clusters, showed that herbivory was heavy in some lupine clusters, such as the more exposed cluster southwest of the Sand and Sea homes. Older, larger plants have a longer bloom period and more prolific fruiting period due to their size. Larger plants also exhibit an adaptation that reduces grazing on their pea-like pods. The seed pods get heavy as they ripen and get

buried under windblown sands. The seeds escape herbivory beneath the sand and dehisce from their pods, to germinate in future years. Dehisced seeds have a distinctive curlicue shell, while grazed pods and stems are visibly chewed. Seed viability can be many years for lupine species, and foredune winds are active, so burial of fruits should result in successful Tidestrom's lupine germination in the future.

A scientific collection permit was issued by the CA. Department of Fish and Wildlife (CADFW) in December 2016 for conservative seed collection and propagation of Tidestrom's lupine. Twenty Tidestrom's lupine seeds were collected in spring 2017 and are being propagated for planting in January 2018. In January/February 2018, careful transplantation from early stage seedlings will be attempted.

The goal is to reach 1000 Tidestrom's lupine individuals, in 10 separate locations within the project area, to help provide the resilience and sustainability for this southernmost occurrence of Tidestrom's lupine to survive into the future. The Tidestrom's lupine is an indicator species of pristine, high quality sands and diverse coastal strand habitat. Not all of the North Dunes Project area can support the species. There are four population clusters that are currently protected and undergoing careful weed control. Six additional areas are being treated to provide open sands for recruitment of the Tidestrom's lupine, using associated coastal strand and shrub species: Mock heather (*Ericameria ericoides*), mock heather, American dune grass (*Leymus mollis)* and sand verbena (*Abronia* spp.).

Tidestrom's lupine recruitment was at an all time high in early 2017. Seedling numbers were high, but final tallies indicated a decrease in total numbers in 2017 (401 individuals) compared to 2016 (481). This is a surprising result, given the prolific rain year and the installation of protective guideline fencing. Further data over the next few years will clarify whether this fluctuation is natural variability, or perhaps increased herbivory due to changing conditions onsite.

Adding Diversity: A Carmel staff report includes a Tidestrom's lupine survey at Indian Village Dunes that details the high diversity of native species associated with Tidestrom's lupine at that site. "In addition to the plants found with the Tidestrom's lupine on the North Dunes, the Indian Village Dunes population also has the following natives: *Erysimum menziesii, Plagiobothrys* spp., *Polygonum paronychia, Poa douglasii, Dudleya caespitosa*, *Chorizanthe pungens var. pungens, Lessingia filaginifolia, Pteridium aquilinum, Layia carnosa, Lotus heermanii var. orbicularis, Eschscholzia californica maritima and Cardionema ramossimum*." (Jean Ferreira, May 20, 2009 report to City of Carmel-by-the-Sea). Subsequent surveys at Indian Village Dunes (J. Canepa in 2015 and 2017) have confirmed this rich diversity and suggest that adding some of the non-listed species to the North Dunes site would improve species diversity and provide critical habitat to buffer the ongoing loss of pristine coastal dune habitat. A conversation with CA. Department of Fish and Wildlife was initiated to discuss this "migration" of several non-listed, native coastal strand species from the Indian Village Dunes to suitable, protected areas of the Carmel North Dunes, a distance of less than 5 miles.

Weed Control: Street drainage causes weed dispersal into the North Dunes, specifically erect veldt grass (*Ehrharta erecta*) and Bermuda buttercup (*Oxalis pes-caprae*). Increased weed control efforts along Fourth Avenue and Ocean Avenue are essential to prevent the spread of these highly invasive weeds that are difficult to control in natural landscapes.

Volunteer Groups: Valued assistance from volunteer groups such as the Carmel-by-the-Sea Garden Club, MEarth Education and Stewardship Program, the Pebble Ridge Vineyards Crew, and the Beach Garden Project has been critically important to the success of restoration efforts in the North Dunes. These hard-working groups provide invasive weed removal and planting help on par with contracted labor. Perhaps more importantly, their volunteer stewardship of open space parkland and educational outreach extends far beyond city boundaries.

Management Suggestions: The following list summarizes management suggestions for 2017-2018 and future years.

Management Suggestions 2017-2018

- Tree Survey of North Dunes by registered forester – Dec/Jan 2018 after final acacia removal

- Prepare a subsequent Coastal Development Permit to clarify policy and future work

  Designate selective live tree removal to enable restoration in dune management areas:

  Remove 5 planted cypress east of the volleyball courts

  Thin/limb up dense cypress trees in drainage area (remove 6 of 9)

  Map location of 10 trees to replace dead/dying trees in forest management areas

  Pine Grove (4), historic Cypress Corridor (6)

  Dedicate future budget for tree maintenance at the North Dunes

- Design main entrances to North Dunes, coordinate with sidewalk improvements

- Design and install interpretive signage

- Enlist college students/volunteers for Tidestrom's lupine surveys - seedling survival (Mar-June)

- Reduce CA. legless lizard monitoring project to occurrence/ relocation mapping

  Expand to a lizard research project if CSU-Monterey Bay intern/volunteer available

- Seek permission & permits for seed sourcing from Indian Village Dunes (Pebble Beach)

  Goals: Augment species diversity and genetic variability in North Dunes project area

  Expand protected habitat for dwindling populations of dune strand and scrub species

  Potential species: *Achillea millifolia, Armeria maritima, Chorizanthe pungens var pungens, Calystegia soldanella, Corethrogyne filaginifolia, Dudleya caespitosa, Linaria Canadensis, Eschscholzia californica var. maritima, Plagiobothyrs spp.*

- Weed control along 4th Street and Ocean Avenues to prevent seed dispersal into North Dunes

  Erect veldt grass (*Ehrharta erecta*), Bermuda buttercup (*Oxalis pes-caprae*)

  Foxtail (*Hordeum murinum*), Ripgut grass (*Bromus diandrus*)

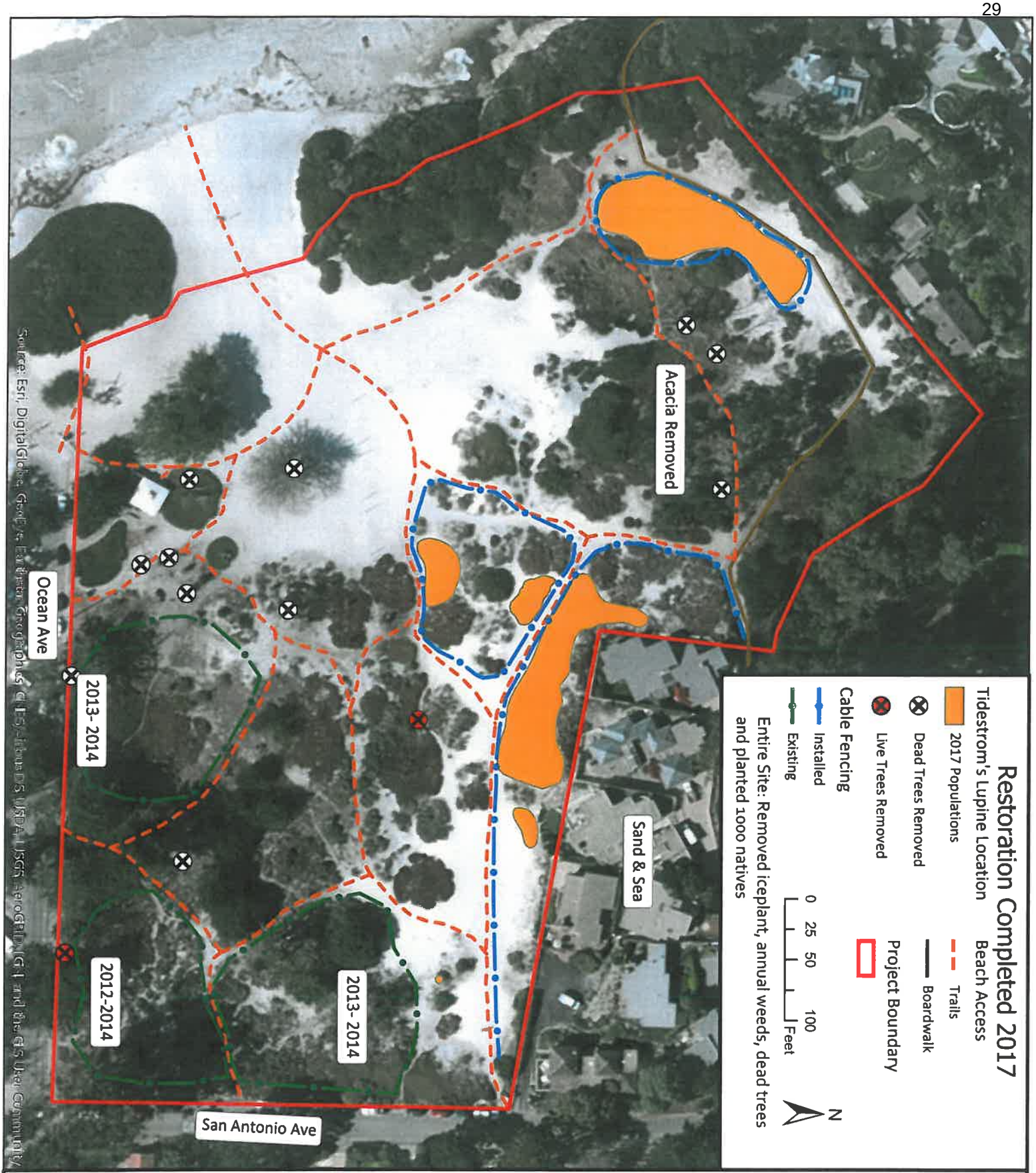
Table 1. Completed Restoration Tasks YEAR ONE 2016-2017

Date	Task		# Days	Company
Dec 2016	Cable fencing – Central Dune ESHA areas	1100 ft.	5	Steele Tape Construction
Mar 2017	Stake/rope fencing – Tidestrom's Lupine area	550 ft.	1	City Staff
	Guideline Fencing TOTAL	**1650 linear feet**		
Jan-Feb 2017	Weed control: Roundup 2% (Iceplant/Oxalis/Ehrharta)		4	Native Solutions
Feb 2017	Weed control: Roundup 100% (Acacia stumps)		2	Native Solutions
Nov-Jun 2017	Planted 936 cells, 64 gal – site-specific dune species			Nat. Solutions/MEarth
	Native Dune Plant TOTAL	**1000 Plants**		
Feb 2017	Cut/stacked Acacia – Central dune area, Pine Grove		3	John Ley Tree Service
Feb 2017	Cut 5 dead trees & hazardous limbs Pine Grove 3, Volleyball Area 1, Street 1		2	John Ley Tree Service
Mar 2017	Removed 5 skeleton trees- Bathroom area		1	John Ley Tree Service
Mar 2017	Removed 1 live cypress, 1dead oak, lowered stumps		2	John Ley Tree Service
Feb-Mar 2017	Haul out/ Chipped – Tree debris, Stumps, Acacia		5	John Ley Tree Service
Jan-Feb 2017	Pulled live iceplant, piled into berms		10	MEarth Vols/ Students
Jan-Feb 2017	Removed dead iceplant (MEarth volunteers)	30 cu.yds.	4	MEarth Volunteers
Apr 2017	Pulled & removed dead iceplant (6 vols)	10 cu.yds.	3	Pebble Ridge Winery
	Iceplant Removal TOTAL	**40 cubic yards**		
Apr-Aug 2017	Annual Weed eradication (52 bags* 48#/bag)	2500 lb		Native Solutions
Jan-Feb 2017	Weed eradication-annuals (50 bags * 44#/bag)	2200 lb	4	MEarth Volunteers
Apr 2017	Weed eradication-annuals (25 bags * 50#/bag)	1250 lb	3	Pebble Ridge Winery
	Annual Weeds TOTAL	**5950 pounds**		
Nov-Feb 2017	CA. legless lizard training- staff/crews/volunteers		5	Patti/ Bob Kreiberg
Feb-Jun 2017	Annual Monitoring - Survival, LUTI, Transects		10	Native Solutions

Table 2. Plants Installed (2017) and Proposed for Installation (2018)

Carmel North Dunes Restoration Native Species		TOTAL **Planted 2016-2017**	TOTAL **Proposed 2017-2018**
Scientific Name	**Common Name**		
Abronia latifolia	yellow sand verbena	5	20
Abronia umbellata	pink sand verbena	8	20
Achillea millefolium	yarrow		50
Acmispon glaber = *Lotus scoparius*	common deerweed		20
Acmispon heermannii var. orbicularis	Heermann's lotus		
Ambrosia chamissonis	beach burr		20
Armeria maritima	sea thrift		50
Artemisia pycnocephala	sagewort	342	300
Baccharis pilularis	coyote bush		10
Camissonia cheiranthifolia	beach primrose	45	40
Carex pansa	dune sedge		400
Castilleja latifolia	Indian paintbrush	50	50
Chorizanthe pungens var. pungens	Mon. spineflower		40
Corethrogyne filaginifolia	CA. beach aster		50
Dudleya caespitosa	liveforever		40
Ericameria ericoides (24 gal, 34 cells)	mock heather	60	100
Erigeron glaucus	seaside daisy	60	60
Eriogonum parvifolium	dune buckwheat	255	150
Eriophyllum staechadifolium	lizardtail	115	100
Eschscholzia cal. var. maritima	CA. beach poppy		50
Leymus mollis (gal)	American dune grass	40	50
Lupinus arboreus	tree lupine	20	20
Lupinus tidestromii var tidestromii	Tidestrom's lupine		50
Phacelia ramosissima	branching phacelia		
Poa douglasii	sand dune bluegrass		50
Rhamnus californica (gal)	CA. coffeeberry		10
Ceanothus spp. (gal)	California lilac		10
Ribes sanguineum (gal)	red flowering currant		10
Iris douglasiana (gal)	Douglas iris		10
Mimulus aurantiacus (gal)	sticky monkey flower		20
TOTAL		**1000**	**1800**

Species not found on site, but within 5 miles



Native Solutions
Joey Dorrell-Canepa
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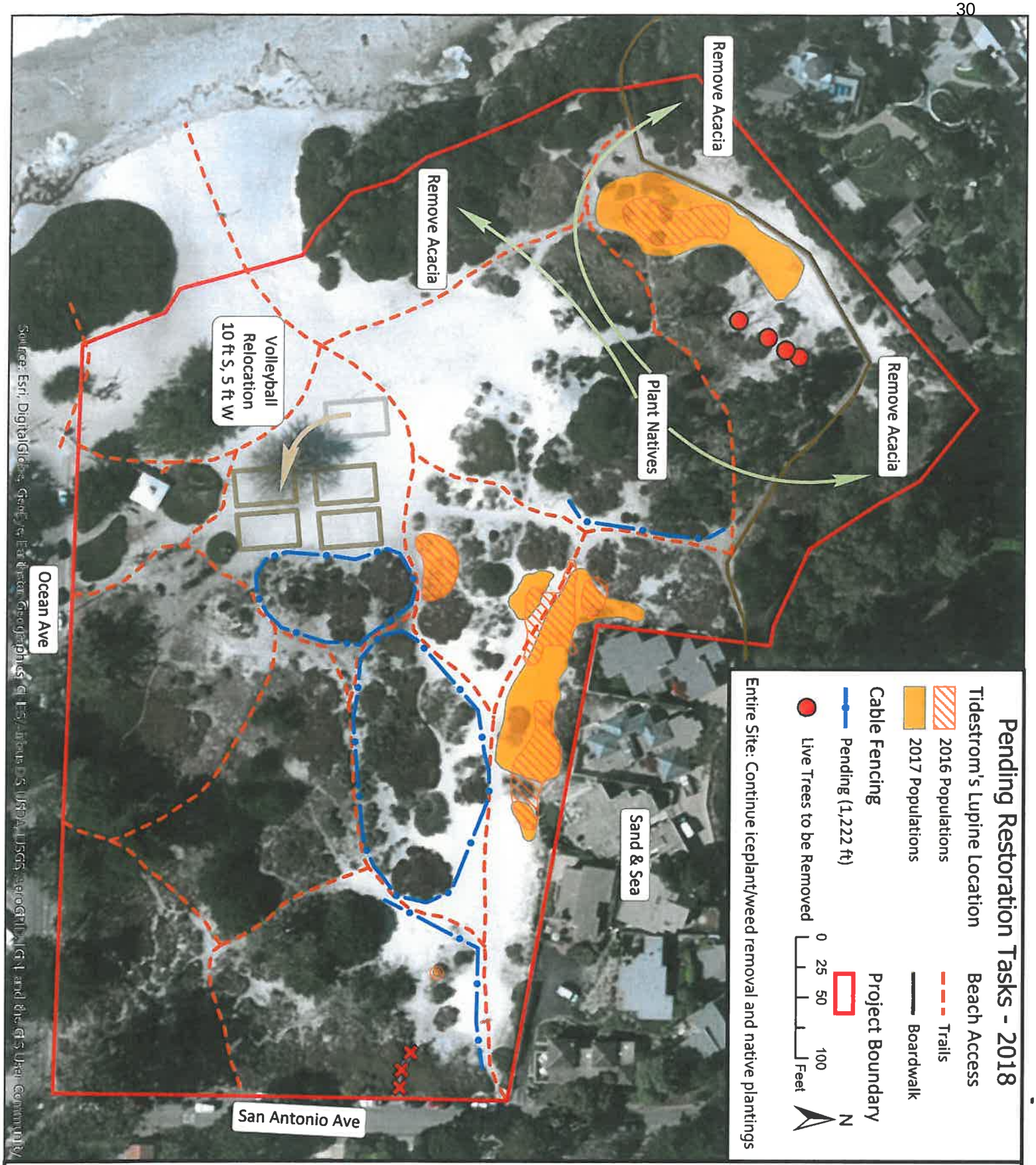
September, 2017

City of Carmel: North Dunes

2017 Annual Report - Figure 1
Restoration Completed 2017



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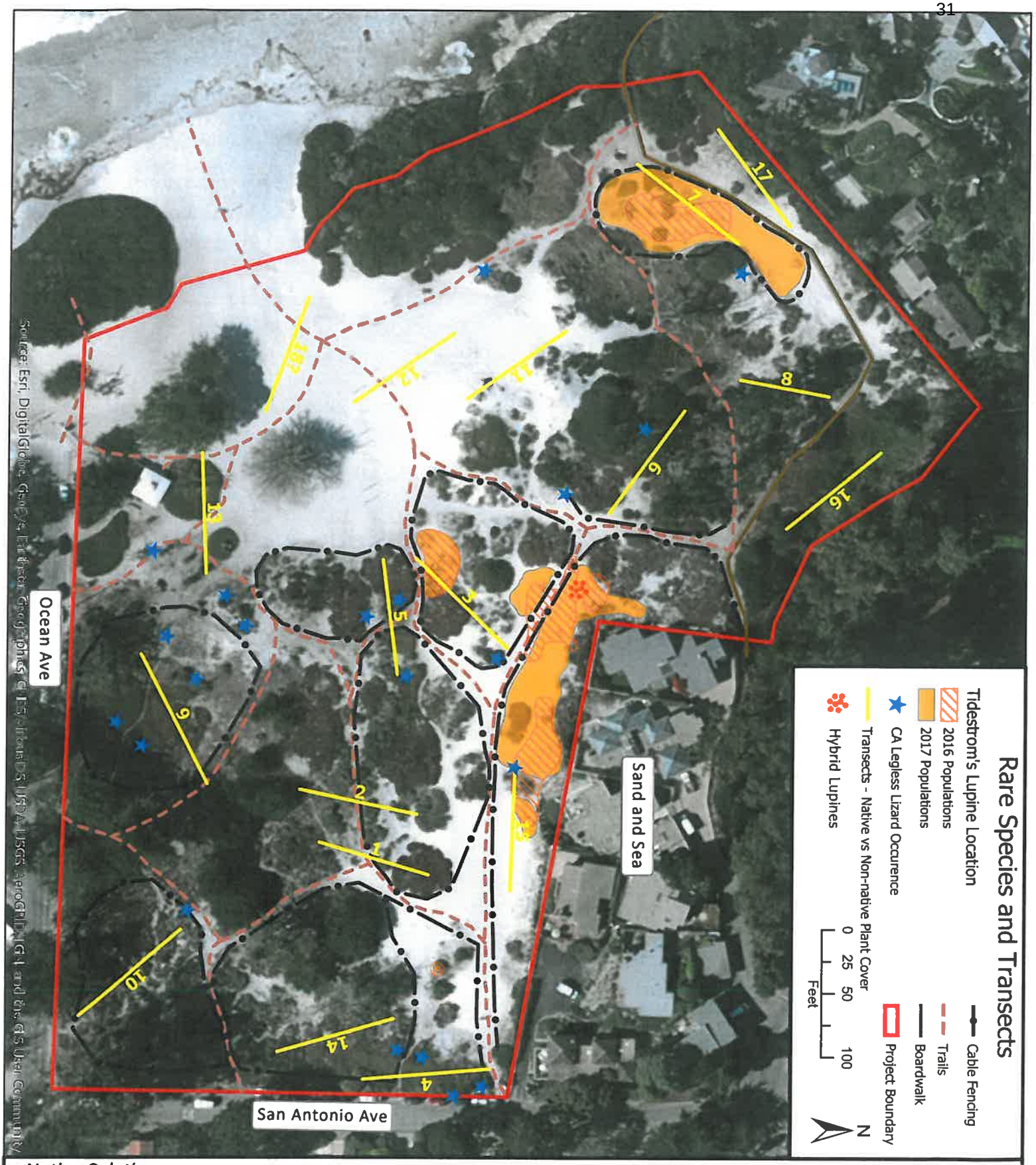
September, 2017

City of Carmel: North Dunes

2017 Annual Report - Figure 2
Pending Restoration Tasks 2018



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September, 2017

City of Carmel: North Dunes

2017 Annual Report - Figure 3

Tidestrom's Lupine, Black Legless Lizard and Plant Cover Transects

City Trees Removed (upper/lower)		October 10(8/2)	YTD 134(115/19)	2016 143
w/ Casanova bet. 2nd & Palou	28", 15" Monterey pines			
e/ San Carlos bet. 7th & 8th	30" black acacia			
e/ Forest bet. Pine Ridge & 8th	8" Monterey pine			
w/ Torres bet. 3rd & 4th	10" Monterey pine			
n/ Alta bet. Mission & Junipero	26" Monterey pine			
w/ Lopez bet 2nd & 4th	25" Monterey pine			
n/ Ladera bet. Rio and end	24" Monterey pine			
s/ 4th bet. Torres & Junipero	3" Arbutus			
s/ 5th bet. Mission & San Carlos	8" redwood			

City Trees Planted (upper/lower)		October 17(8/ 9)	YTD 42(22/20)	2016 46
	2 - 1 gal. pines, 2 - 5 gal. Oaks			
	15 gal New Zealand Christmas tree			
ci/ Junipero bet. Ocean & 7th	2 - 1 gal. Monterey pines - r			
FHP	6 - pines, 5 - oaks, Catalina cherry			
ne Mission & 1st	1 gal. pine - r			

r = replacement planting

Private Removal Permits (upper/lower)		7(3/4)	82(45/61)	117
sw Sant Fe & 2nd	10" oak			
e/ Carmelo bet. 10th & 11th	15" Incense cedar			
w/ Torres bet. Mt. View & 8th	14" oak			
e/ Torres bet. Mt. View & 8th	8" oak			
w/ Dolores bet. 8th & 9th	33" Monterey pine			
w/ Mission bet. 13th & Santa Lucia	10" Monterey pine			
nw Guadalupe & 5th	10" oak			

Private Planting Requirements	October 2(1/2)	YTD 32(13/23)	2016 68
2 - 24" box oaks			
5 gal. Deodar cedar			

Construction Permits (remove/prune)		3(1/2)	17(12/12)	24
sw 5th & Dolores	20" Monterey pine			
ne 10th & Torres	3", 8" oaks			
se Lopez & 2nd	20", 8" oak limbs			

Construction Planting Requirements	October 0	YTD 6	2016 13
TBD			

Private Pruning Permits		2	26	24
w/ Carmelo bet. 4th & Ocean	22" oak limb			
nw Guadalupe & 5th	14", 8" oak limbs			

Trees Under Care	
FOCF trees planted	86
City watered	187
City irrigated	40

City Pruning by contractors			
level I - total tree	60	76	22
level II - hazard /emergency	1	42	5
level III - specific purpose		14	0

Construction Finals	Planted

Trees planted / removed 2013 to date	329 / 635 (52%)