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THE WORLD IN A GRAIN OF SAND

By Mike Cipra, Executive Director



USFWS Biologists performing a botanical survey of the dune mat. Photo by Justin Legge.

"To see a World in a Grain of Sand And a Heaven in a Wild Flower Hold Infinity in the palm of your hand And Eternity in an hour." -William Blake

This article is not about saying goodbye, even though I will be leaving my role as Executive Director of Friends of the Dunes on March 15 of this coming year.

Instead, it's about creating a moment of gratitude for where we are now in this remarkable shared journey of coastal conservation, outdoor education, and habitat restoration that is Friends of the Dunes. And it's about charting our shared future.

Friends of the Dunes' most ambitious native dune habitat restoration project in our 41-year history is currently in full swing. Take a walk out to the foredunes at the Humboldt Coastal Nature Center property some sunny day this winter, and you'll see how far we've come in one season. The first dig of invasive species is now nearly complete across the entire foredune of our property, thanks to our partners at the National Fish and Wildlife Foundation, Redwood Community Action Agency, and US Fish and Wildlife Service. Samara Restoration has collected healthy seeds from a number of native foredune species on our property, and is currently growing native dune plants to accelerate the pace of restoration.

Meanwhile, Humboldt Bay National Wildlife Refuge is restoring the foredunes north of Lanphere Dunes as part of this same collaborative project. We'll be calling on our community in the fall and winter of 2025 to help plant the native plants that are being grown from seed today. As always, we do this hopeful work of native habitat restoration in partnership with you, our community.

Speaking of hope: over the next year, and the next, and the next, thousands of Humboldt County students will be forming inspiring connections with coastal environments on free, dynamic, outdoor learning adventures in the dunes. We know that children who connect with nature in their youth will grow up to be adults who care about protecting the natural world. We protect what we love, and Friends of the Dunes' outdoor education programs inspire a deep love of nature—right now and in the future.

We continue to steward the Samoa Dunes and Wetlands Conservation Area, while working to ensure the long-term future of this wonderland of native coastal forest, wetlands filled with birdsong and the music of amphibians, sweeping parabolic dunes, and foredunes overflowing with wildlfowers and native bees. Conversations with the Wiyot Tribe about the cultural and natural values of their ancestral homeland are continuing, and together we are likely on a trajectory of environmental justice that ends with Friends of the Dunes donating this entire property to the Wiyot Tribe in a historic land return.

This is the inspiring present and future of Friends of the Dunes. My wife often jokes with me that I have been married to the dunes these last five years as Executive Director of Friends of the Dunes. In some ways, she is right. My stepping aside in a few months from my role doesn't mean I am divorcing the dunes. This is the evolution of a lifelong relationship... and maybe a relationship that extends beyond life. My wife and I have recently put Friends of the Dunes in our will.

If you care about Friends of the Dunes, I'm asking you to think about what it means to go on this journey together, to be a part of the community that chooses hope and shared work and yes, financial contribution to make our coastal dunes a better place. You've been there in the past for us, you're with us now, and we're asking for your support for the future we are building together.

What an honor, and what a miracle-to see a World in a Grain of Sand, and to be a Friend of the Dunes for life.

HELP RESTORE THE DUNES

Become part of the Dunes Ecosystem Restoration Team by helping remove invasive plants and making space for native biodiversity in our amazing dunes. We meet:

Every 2nd Saturday from 10 am to 1 pm at Humboldt Coastal Nature Center Every 3rd Sunday from 10 am to 1 pm at Ma-le'l Dunes North Parking Lot

Wear work clothes and bring water. A quick training on plant identification and tools for plant removal will be provided. For more information contact restoration@friendsofthedunes.org.

Volunteers at a Dune Ecosystem Restoration work day. Photo by Max Tepper.

VOLUNTEER HIGHLIGHT Jonathan Hill

Jonathan Hill has a passion for coastal dune botany, and he has been one of Friends of the Dunes' most dedicated Dune Ecosystem Restoration Team volunteers for the last decade. Jon has contributed literally thousands of hours of hard work to restore native dune habitats, and he's heartened to see the current pace of restoration accelerate as we work with the community, the National Fish and Wildlife Foundation, the Humboldt Bay National Wildlife Refuge and Redwood Community Action Agency to restore the entire foredune at the Humboldt Coastal Nature Center. We thought it would be appropriate to recognize and honor Jon for his incredible volunteer work with Friends of the Dunes over the last decade by letting him describe his restoration journey. Here's Jonathan Hill, in his own words.

⁶ I was born in Indiana but I can't really say that I'm from anywhere in particular. My family moved around frequently when I was growing up. I moved to Humboldt in 1988 to study botany at Humboldt State University. I became particularly interested in the plant taxonomy of California native plants. I have been a student of California native plants ever since.

While attending Humboldt State University, I took a class which trained people to be docents at Lanphere Dunes. I'll never forget the first time I stepped through the trees into the majesty of Lanphere, I knew immediately that the dunes were a very special place.



Yellow sand verbena (Abronia latifolia). Photo by Emily Walter.



My first restoration workday with Friends of the Dunes was in the spring of 2014. In the ten years since then I've felt fortunate to be working with an organization that is so passionately committed to restoration.

My favorite spots in the dunes are anywhere in Ma-le'l and Lanphere Dunes, especially in the restored areas. These areas, with their multiple species of native plants and the wind sculpted topography, are truly spectacular in their beauty and biodiversity. Of course, I'm also partial to the areas I've helped restore within the special and unique dunes of the Humboldt Coastal Nature Center.

My favorite dune plants are yellow sand verbena (*Abronia latifolia*) with its wonderful and strong fruity fragrance, and purple owl's clover (*Castilleja exserta*) with its stunning multicolored leaves and flowers. Also, it's always a special treat when one spots the elusive and uncommon pink sand verbena (*Abronia umbellata*).

Restoration work is meaningful and satisfying. Over the years I've seen many areas go from being smothered in one invasive species to being a diverse array of native species. Besides being a great opportunity for some exercise and fresh air right off the ocean, it's very fulfilling to watch the beautiful native plants, especially the endangered species, returning to their habitat.

Increasing our Impact with College Corps

by Suzie Fortner, Programs & Operations Director

As a community-supported organization, we are always building our volunteer base and welcoming any students seeking service-learning opportunities. When our partners at Cal Poly Humboldt invited us to participate in the College Corps program as a community partner host site, we jumped at the opportunity. Modeled after AmeriCorps, the state-funded California Volunteers College Corps Program will provide job experience and financial support for 10,000 college students across the state over 4 years. As part of the #CaliforniansForAll initiative, the College Corps program has 3 main goals: 1) create a generation of civic-minded leaders with the ability to bridge divides and solve problems, 2) help lowincome students graduate college on time and with less debt, and 3) address societal challenges and help build more equitable communities across California. In the first year of the program (2022-2023 academic year), 64% of participating fellows were first-generation college students, 80% were black, indigenous, and students of color, and 500 fellows were AB540 Dreamers. Locally, students from Cal Poly Humboldt and College of the Redwoods are placed with community organizations across the county to serve in 3 priority areas: K-12 education, climate action, and food insecurity. Participating fellows serve about 10-15 hours per week with their community partners, receive a monthly living stipend, and gain valuable work experience while serving the community. Upon completion of service, fellows will also receive an education award.



College Corps Erika Ospenson removing invasive European beach grass from the foredune.

Last academic year we hosted 2 fellows, and this academic year we are excited to welcome 3 fellows to our team. Maria Hurtado will be focusing on K-12 education through our school field trip programs and offering support for our Spanish and bilingual programs such as Explorando Juntos. Erika Ospenson and Timothy Mair are focusing on climate action by supporting our ecosystem restoration efforts, ultimately improving the health and resilience of our coastal dunes.



Welcome to the Team!



Justin Legge

Restoration Manager

Justin loves all things about the natural resources of Humboldt! After graduating from HSU, he worked for the US Forest Service in Lake Tahoe. While there, he realized how much he loved the Humboldt Redwood Coast, and had to return. Justin formerly worked as Restoration Volunteer Coordinator with Friends of the Dunes in 2012. In recent years, he has been working in the vacation and tourism industry as a Property Manager and Private Naturalist Guide. Justin is very excited to return to the non-profit sector and take on the role of Restoration Manager to complete the foredune restoration along the Friends of the Dunes property! Justin has developed, coordinated, and led a diverse range of outdoor programs for people of all types and ages, in every ecosystem in Humboldt County. His love is to help other humans find a positive and meaningful connection with nature and one another. Justin believes that by demonstrating authenticity, passion, and gumption he can help inspire others to give back and live compassionately.

Maria Hurtado

College Corps Intern

Maria grew up in Zacatecas, Mexico where she became interested in nature at a very young age. She studied at National Polytechnic Institute (IPN) where she became interested in GIS and making maps. She came to Humboldt County in 2020 and fell in love with the majestic redwoods and beautiful Humboldt landscapes. Maria is now a student at College of the Redwoods pursuing a career in Environmental Science and Geospatial Analysis. She started working with Friends of the Dunes through the College Corps program, she works on environmental education and Spanish nature outings. In her spare time Maria likes running, hiking and going on adventures with her partner Teng and their dog Maya.





Welcome to the Team!



Timothy Mair

College Corps Intern; not pictured

Erika Ospenson

College Corps Intern

Erika grew up with their feet in the mud and their hair filled with bugs, this is to say that they grew up feeling like the wild was just as much a part of them as they are of it. As a student at Cal Poly Humboldt, Erika is pursuing a double major with the hope of combining the Environmental Resource Engineering and Ecological Restoration degrees to pursue a brighter future that prioritizes ecological balance. Through this program Erika was connected with the Friends of the Dunes as a restoration volunteer. At the dunes Erika can be seen diligently pulling re-sprouts of European Beach Grass and hosting the Nature Center to welcome visitors. Erika is also involved with the local Engineers Without Borders chapter and is working with a cohort of engineering students to establish an EWB Student Chapter that is further able to connect volunteers with community needs by working in partnerships with organizations like Friends of the Dunes.

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I Love Sand

By Justin Legge, Restoration Manager

Our vegetated coastal dunes are a special treasure. This odd and rare ecosystem is a place of beauty any season of the year. Moving into the colder and darker time of the fall and winter seasons, a person might not find as many colorful wildflowers, but there is still so much to experience and explore!

Specifically this time of the year, it is the sand itself that stands out to me. Grain by grain our dunes grow and shift. Those that walk the large open sand sheets on our dunes regularly have experienced this constant shift and change as the transverse dunes move across the landscape. The dark striations in the sand sheets are more starkly contrasted with the winter moisture held in the small valley, compared to the dried out sand sheets of the summertime.

A person might wonder, when are the dunes moving? More to the point, what time of the year is it that sand grains actually move from the beach up through the dunes? Sand transportation from the beach slope up into large back dunes is a slow and important process. Having large back dunes will help to protect our coastal communities, we want our dunes to grow with additional sand! One might guess that dune sand recharge occurs more during the winter months, when our harsh Humboldt rain storms are common, with gusts of powerful wind strong enough to topple our massive ancient redwoods. Interestingly enough, the sand movement through our dune ecosystem is less during the wet winter months. When the sand grains are saturated with water, they are strongly bonded together, making it more difficult for the wind to blow the sand grains up the dunes. During our more dry summer months, although the winds might be less, the dry sand has the ability to be sculpted by the wind and slowly transported up the dunes. In the summertime, sand is deposited on our beaches and coastline, compared to the winter when the ocean erodes our beaches and takes some of our sand.



Ma-le'l Dunes North. Photo by Daisy Ambriz-Peres.

If you walk slowly enough, you can experience the different sensations moving across the dunes, dense solid patches of sand giving way to soft sinking patches. You can feel with your own body the way the earth has shifted our dunes. Next time you are meandering across the open dunes of Ma-le'l, try to move slowly and consider the sensations under your feet! When you move slowly through nature, you might just see or understand things in a different way.



Promoting Coastal Resilience

by Suzie Fortner, Programs & Operations Director

Humboldt's coastal dunes are dynamic, diverse, and unique. They host an array of habitats that are home to many plant and animal species, a handful of which are threatened or endangered. In addition to the biodiversity and beauty that have led many of us to fall in love with these coastal habitats, our dunes also act as a coastal barrier protecting our low-lying environments and communities against sea level rise. For these reasons, we must protect Humboldt's dunes and manage our coastal lands in a way that promotes resilience.

For the past 8 years, collaborative research has been underway to help understand exactly how the dunes are expected to change with rising sea levels and increased storm intensity caused by climate change. Through the Dunes Climate Ready Study (2015-2018), researchers collected detailed data on dune topography and vegetation along 73 cross-shore transects between Little River and Centerville Beaches. During this time, Adaptation Sites were established at the Lanphere Dunes to compare the geomorphological changes in dunes with different vegetation types, specifically looking at a control site dominated by non-native European beachgrass (Ammophila arenaria) versus

dunes where invasive beachgrass was removed and native plants were introduced. During the second phase of this project, the Humboldt Coastal Resilience Project (2019-2023), this research continued and partners began putting all the pieces together to complete a Vulnerability Assessment of Humboldt's outer beachdune barrier system, update a sediment budget for our area, and develop management recommendations to share with local agencies, land managers, municipalities, and decision-makers. It's been very exciting to witness years of research come together and we have now reached my favorite part of the project - the part where we can share the results with our community and put this knowledge to use.

As we've mentioned in previous Dunesberry articles, the results of all this hard work and research show that restoring dunes to native vegetation promotes coastal resilience. The reason for this has to do with the movement of sand. Our foredunes act as a sand-sharing system between the beach and the dunes, and they are an integral part of the story. In the winter, high tides and storm surges erode our beaches and foredunes, often resulting in scarping (cliffing) of our foredunes. During the calmer summer months when sand is deposited back onto beaches, these winter scarps begin to heal as sand forms a ramp from the beach to the dunes, allowing sediment to be transported back into foredunes and ultimately replenishing our dune system. We learned from the Lanphere Dunes adaptation sites that dunes with native vegetation heal about 2 years faster from erosional events than dunes that are dominated by European beachgrass. The invasive beachgrass acts like a wall, preventing sand from moving back into the foredune, while the naturally dispersed and low-lying native plants allow sand to move easily up the ramp and into the foredune. The natively vegetated dunes at these adaptation sites were also wider and taller, holding a higher volume of sand, and the crest of the dunes moved landward. Overall, restored native dunes constitute a more resilient condition that provides more coastal protection than Ammophila-covered dunes, which tend to be narrower and steeper, and do not show any movement inland. Researchers expect that since Ammophila-covered dunes take longer to recover and the stabilized condition does not allow the foredune to move inland.

they will ultimately continue to erode and hold less sand, providing less coastal protection against sea level rise and increased storm energy caused by climate change.

We have known for decades that dune restoration promotes biodiversity. Now, thanks to the outcomes of this peer-reviewed, collaborative research, we can confidently say that dune restoration promotes coastal resilience and dune restoration can serve as a naturebased adaptation strategy to sea level rise. I've only scratched the surface of this 8-year research project in this short article, but you can learn more about the outcomes at the Humboldt Coastal Resilience Project Final Presentation, taking place on Zoom on Friday, December 1st from noon to 1:30 p.m. To register for this lunchtime presentation, visit:

friendsofthedunes.org/calendar

The Humboldt Coastal Resilience Project is funded by the California State Coastal Conservancy, Ocean Protection Council, and California Sea Grant. A full list of project partner is available on our website.

Friends of the Dunes is dedicated to conserving the natural diversity of coastal environments in Humboldt County, California, through community supported education and stewardship programs.

FRIENDS OF THE DUNES STAFF

EXECUTIVE DIRECTOR Mike Cipra

PROGRAMS & OPERATIONS DIRECTOR Suzie Fortner

OUTREACH MANAGER Daisy Ambriz-Peres

EDUCATION COORDINATOR Emily Baxter

RESTORATION MANAGER Justin Legge

RESTORATION & STEWARDSHIP MANAGER Dante Ryman

RESTORATION & STEWARDSHIP TECHNICIAN Ryland Sherman

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Summer Sand Adventures

by Emily Baxter, Education Coordinator

The crisp Autumn air is chilling the dunes, creating a quiet landscape. There aren't many voices to be heard and the frost coats the kinnikinnick ever so gracefully. For now, the dunes are quiet and education programs are on winter break. Just a few months ago though, as the plethora of native plants were blooming and the bees were busy, a different program was underway.

After multiple years without summer programming for kids, Friends of the Dunes was once again able to offer summer camp programs in 2023. Summer programs included two camps: Dune Detectives for ages 5-8, and Coastal Connections for ages 9-12. In a week of camp, these campers got to see nature up close and investigate different parts of the dunes. We used binoculars to look for birds, identified plants and animal tracks, and of course, went to the beach every day. Each camper made their own nature journal to draw in, and took home nature crafts.



Children from the Coastal Connections Summer Camp exploring the bay through Binoculars. Photo by Zeen Vincent.

Nature focused camps like this are essential for kiddos today. It has been shown in research that more screen time leads to an increased risk for depression and anxiety, as well as shortened attention spans and decreased problem-solving skills. Many children know a plethora of corporate logos, but can't identify a few plants in their own community. Not only is it imperative for us to spend time in nature, but having fun in nature is the first step towards taking care of it.

Do you know someone who might be interested in 2024 summer camps? Be on the lookout for registration this spring!

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RETURN SERVICE REQUESTED

Save the Dates!

- Humboldt Coastal Resilience Project
 Final Results Presentation
 Friday, December 1
- Know Your Dunes: Humboldt Dunes
 Cooperative Lectures
 Wednesday, December 6



 Lanphere Dunes New Year's Hike Saturday, January 6

Visit <u>friendsofthedunes.org/calendar</u> for more details and a complete list of upcoming programs.

Join our email list for updates about guided walks, restoration days, and school programs.

Contact info@friendsofthedunes.org to receive Dunesberry by email, or view it in color at friendsofthedunes.org/publications

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