



# DUNESBERRY

NEWSLETTER OF FRIENDS OF THE DUNES

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## A RESILIENT NATURE

*Mike Cipra, Executive Director*

How are you dealing with all of this? Really—how are you managing the difficult, life-altering changes in our world and society?

At Friends of the Dunes, we're thinking a lot about resilience these days. We understand resilience as the capacity to recover from difficulty, misfortune, or adversity. Resilience often goes hand-in-hand with creativity, because resilience can be about adapting to changing conditions with new approaches. Sometimes resilience is more about how we frame our situation—the stories we tell about what is happening to us.

We'd like to share some stories of resilience with you.

Inside this Dunesberry, you'll read about how we're continuing a successful, multi-year restoration project for dark-eyed gilia habitat while maintaining physical distancing. In our education program, when schools stopped convening students this spring, we adapted. We created distance learning resources online, and then turned to you for inspiration. You didn't disappoint! You'll see the creativity of our community—and the love of nature and learning—expressed through our Solitary Bee Art Contest.

In these challenging times, we're realizing resilience intersects with so many things we do. When resilience applies to natural systems like the coastal dunes, it means the long-term ability of plants, animals, and the places we love to survive in the face of threats like climate change and sea-level rise. In these pages, you'll read about the lessons we're learning through the Humboldt Coastal Resilience Project, a multi-year study in which Friends of the Dunes is partnering with the U.S. Fish and Wildlife Service, the Coastal Conservancy, Arizona State University, and many others to determine the best way to provide our coastal dunes the resilience they need to thrive.

The work goes on because it must. We've continued to keep our property open so that you have a place to explore nature safely, to find peace, to connect with the coast in ways that bring you strength, comfort, and joy—all the things that ultimately make you more resilient as well. In the end, your story of resilience may be the most important one of all. Thank you for letting us be part of it.



## Sand Sculpture Festival 2020: Sculpting Apart, Together

Suzie Fortner, Programs & Operations Director

The 25th Annual Sand Sculpture Festival is going to look a lot different than the previous 24, but we won't let this pandemic stop us from playing in the sand!

We obviously cannot gather hundreds of people on the beach at the same time to view masterpieces made of sand as teams compete for prestigious prizes such as Best of Show, Most Dedicated Diggers, Best Youth Sculpture, and the coveted Golden Shovel. However, we can still create sand sculptures with our households and share photos of our sandy creations.

Our local beaches are open, abundant, and most are great places to practice physical distancing. Rather than taking place at a designated beach on a designated day and time with stressful time limitations, the Sand Sculpture Festival will take place throughout the entire month of July at any beach the sculptors choose to sculpt! We will ask that sand sculpting teams follow the usual rules plus practice physical distancing, which means teams should only consist of households or people that are sheltering together.

Once the sculptures are complete, teams can share them on social media with specific hashtags or email them to us to be entered into the competition. Posting locations will be encouraged so that interested spectators can find the sculptures before the tides wash them away.

Our business partners at Humboldt Bay Social Club have generously offered gift certificates or specials for teams of participating sculptors so that after a day of sculpting with your household (and tagging Friends of the Dunes), you can drop by Humboldt Bay Social Club, relax in their safe and stylish outdoor space, and support a wonderful local business.

Keep an eye on our website and social media accounts for more information soon, including competition details and some exciting prizes!



### Welcome to the Team, Sophie!

Raised in Yosemite National Park, Sophie feels most at home when surrounded by nature. So naturally, she gravitated to Humboldt to earn her degree in Environmental Science and Management at Humboldt State University. There, she fell in love with the old growth forests, the sandy coastal dunes, and a growing sense of community. Upon graduating in 2017, Sophie worked as an Interpreter and Social Media Coordinator for California State Parks, a Park Ranger for the Bureau of Land Management, and finally, as the Outreach and Operations Manager for Friends of the Dunes. While we are currently working from home, Sophie sees this time as an opportunity to increase engagement with the community through our social media platforms and website. To see more of what Sophie does, follow us on Instagram and Facebook.

# New Ways of Sharing Nature

Bee by Allie Green, Kindergarten

Sophie Hamann, Outreach & Operations Manager

It's springtime on the North Coast, and the dunes are blanketed with wildflowers and buzzing with bees. At this time last year, we were busy coordinating educational school programs, leading guided walks, hosting fundraising events, and restoring the dunes.

Enter a global pandemic. Like many organizations, we had no other choice than to close the doors to the Nature Center and postpone or cancel our events. Today, we find ourselves in a position that requires us to think outside the box and find creative and positive ways to fulfill our mission. We have fully embraced the 'new normal' and are determined to adapt with new ways to engage our community during this time of physical distancing.

In our first dive into virtual learning, we organized an art contest that emphasized dune education. In the spirit of shelter in place and maintaining a physical distance between ourselves and other people, it was only natural to make the theme of the art contest about solitary bees. After all, as participants learned, most of the world's 20,000 bee species are solitary, meaning that they practice physical distancing just like we do.



Thus, people of all ages across California submitted artwork and learned about solitary bees and their role in the coastal dune ecosystem.

After receiving an abundance of positive feedback from the community, it is our hope that we continue to provide virtual learning opportunities similar to the Solitary Bee Art Contest both now and in the future. When we return to "normalcy", we will do so with a new sense of wonder for the dunes and an increased passion for our mission. Although we look fondly back at the time B.C. (before COVID), there is no doubt that through this experience, we have grown as an organization.



## Dark-Eyed Gilia, Tiny but Mighty

Ginevra and Dante Ryman

Hiding in the dunes, dwarfed by many larger and more charismatic species, lies the diminutive and rare dark-eyed gilia, *Gilia millefoliata*. Standing less than 30 centimeters high with delicate violet-tipped white flowers and blue pollen, it faces many of the challenges common to endemic dune plants.

Throughout its range in northern California and Oregon, it is threatened by development, disturbance from vehicles and foot traffic, and numerous invasive plants. In 2017, Friends of the Dunes was approached by Pacific Gas and Electric with the opportunity to complete a 2-acre restoration as a mitigation project for the dark-eyed gilia spanning the course of three years. Companies are required to complete mitigations when they have a project that will negatively impact or destroy habitat.

The site selected for restoration, which is on Friends of the Dunes' property, had previously been cleared of non-native yellow bush lupine, European beachgrass, and ice plant, but the threat from annual grasses remained. Several species of non-native grass grow aggressively, forming thick mats that interfere with natural dune movement, and outcompete native species. Starting in the spring of 2018 and continuing annually, Friends of the Dunes has been able to hire two interns and provide hours for the restoration coordinator to hand pull annual grasses as an effective and low-impact way to create more habitat for the dark-eyed gilia.



Friends of the Dunes staff member Daisy Ambriz pulling annual grasses.



A single *Gilia* in bloom can produce one or several flowers that are striking to behold. Spotting these tiny beauties can be challenging.

In addition to removing annual grasses, gilia seeds were collected during the fall of 2017 from Fairhaven (in the area disturbed by PG&E) and dispersed in summer 2018. We have conducted surveys at the site each year to measure not only the number of gilia, but also the area covered by non-native species and open sand. The last two years of monitoring have seen the gilia population double in size within the plots and the annual grasses virtually eliminated.

We are very thankful to be able to field our restoration team, though this season has required extra safety precautions. The hard work of our Interns Steph Morian and Blake Ramirez, as well as our Education Coordinator Daisy Ambriz-Peres, has kept the pressure on the invasive species and allowed us to push further out from the cleared plots. The gilia is now beginning to come into bloom, which makes it the perfect time to conduct our restoration monitoring.

This is the last year of our contract with PG&E, and we are currently looking for funding opportunities to extend this project and expand its scope. Without sustained efforts, invasive annual grasses will continue to endanger the gilia and the entire dune ecosystem. Working together to maintain this project will ensure these resilient beauties have a fighting chance against the numerous threats of invasive plants.

## The Buzz

Peter Haggard, Co-author of *Insects of the Pacific Northwest*

When the topic of native bees comes up, the bee species that come to mind for most people are bumble bees, since these big black and yellow bees are the ones that we usually see buzzing around.

Bumble bees live in a female-dominated world—the males die after having impregnated the females, usually in late summer or fall. The females (queens) emerge in late winter and spring looking for places to start a new colony. Unlike the other social bees, bumble bees nest in the ground in colonies. In the dunes, they prefer areas that are stable, where the sand is more compact (e.g., recovering blowouts). Because they are unable to dig their own nests, they can only nest in tunnels built by rodents, such as gophers.

When the queens find a suitable place to start their colony, they build nests that are comprised of cells, in which they lay eggs. Each queen's body provides warmth to her eggs, and, when they hatch, she collects food and nectar for the growing larvae. Since all these tasks have to be done by the queens alone, the first generation of larvae are extremely stressed resulting in the adult workers from this generation almost always being comparatively small. The following generations of workers will do more of the work, allowing the queens to stay safe in the colony to lay more eggs.



*Anthophora pacificus* male with yellow face and white tufted hair on second pair of legs. *A. pacificus* are solitary bees approximately the size of a small bumble bee. Here he is on a manzanita twig waiting for a female to appear.



*Bombus melanopygus* is one of our more common bumble bee species and often the first to start a colony in late winter early spring. The picture is a queen trying to warm up and continue collecting nectar and pollen on manzanita flowers.

Bumblebee nests are extremely hard to find, but it is possible to find one in the summer early in the morning that has been plundered by a skunk. Using their sense of smell, skunks are much better at finding bumble bee colonies than we are using our sense of sight. Look for a small crater with fragments of the nests scattered about. Skunks are more interested in getting at the brood so they will often leave the disoriented adults near or in the crater.

The queens and the first generation of workers are around early in the blooming season, when there are not many flowering plants available to them. Manzanitas, and other early flowering plants, are extremely important to the bees because they provide much needed food at this time, helping to ensure the survival of the colony.

So, next time you see a queen bumble bee on a cold wet day collecting pollen and nectar, wish her a long life!



*Bombus vosnesenskii*, commonly known as the yellow-faced bumble bee, is the most abundant species of bumble bee within its range.

## Studying Dune Resilience at Lanphere Dunes

Zach Hilgendorf, PhD student

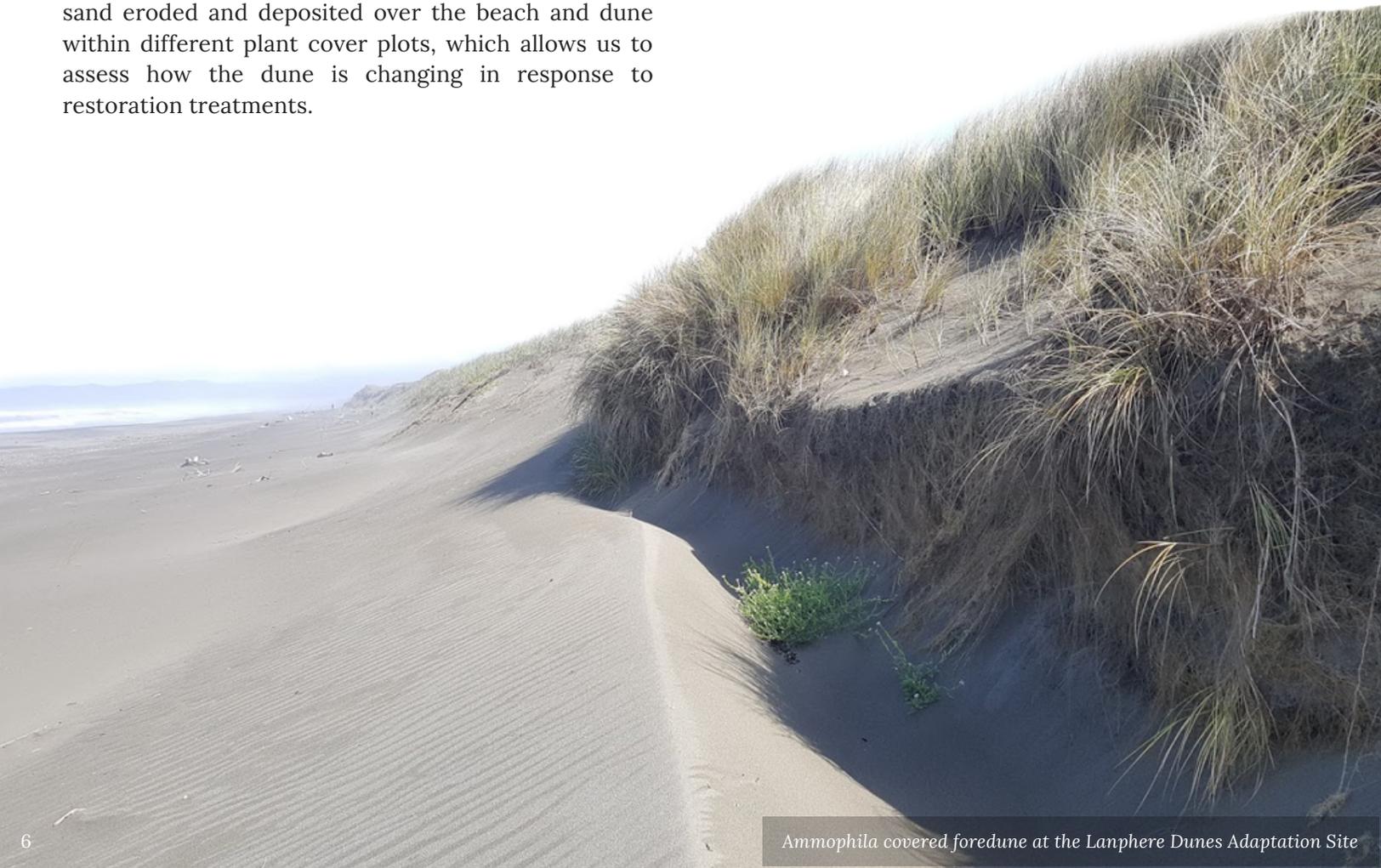
My name is Zach Hilgendorf and I am a PhD student at Arizona State University, studying with Dr. Ian Walker. Our research assesses the effectiveness of dune restoration projects, such as at Lanphere Dunes, as a means of increasing coastal resilience to erosion, flooding, and sea-level rise.

Since 2015, we have monitored changes in foredune form and function in response to removal of invasive European beach grass (*Ammophila arenaria*) and replanting of native species. Our research examines how vegetation restoration alters the ability of coastal dunes to respond to erosion or change.

Detailed land surveys using terrestrial laser scanning are conducted twice a year during key stages of plant growth and senescence (late spring, early fall). Data are compared to previous surveys to calculate volumes of sand eroded and deposited over the beach and dune within different plant cover plots, which allows us to assess how the dune is changing in response to restoration treatments.

The winters of 2015-16 and 2016-17 saw an extreme El Niño season and erosive winter storms. Removal of invasive species and native replanting occurred early in this period followed by substantial erosion of the beach and creation of an erosional 'scarp' in the seaward face of the foredune. While this is not uncommon during winter storms, the data from this period allowed us to assess how the foredune responded to erosion with varying native and invasive plant cover.

(Continued on page 7)



Since the winter of 2017, areas on the foredune where native vegetation was replanted showed quick rebuilding of the erosive scarp by windblown sand after just a few months. This re-establishes the buffering capacity of the foredune to future storms as sand transport pathways from the beach into the foredune and backdune areas reconnect and function properly. In turn, this nourishes dune plant species whose ecological success depends on sand burial, abrasion, or other nutrient transfers.

Invasively vegetated reaches of foredune show a different response. Since 2017, the seaward slope remains scarped, the rebuilding response is limited, and large blocks of sand anchored by invasive *Ammophila* roots continues to slump and erode.

Not only is the biodiversity of such stretches of foredune limited, but the overall ecological resilience of the dune to natural and accelerated erosion processes is challenged.

What does this tell us about how native plants help dunes at Lanphere? Reaches of foredune with native vegetation appear to be more resilient to erosion as they rebuild more quickly than *Ammophila* stretches. The recent winter of 2019-20 reinforces these observations and shows that invasively vegetated areas can remain impacted for years afterwards. In this way, native plants help facilitate more natural dune rebuilding processes that improve the resilience of the system to return to its pre-disturbance state more quickly.

# Spring & Summer in the Dunes

HERE'S WHAT TO LOOK FOR:



Beach morning glory  
(*Ipomoea imperati*)



Beach strawberry  
(*Fragaria chiloensis*)



Sea thrift  
(*Armeria maritima*)



Yellow sand verbena  
(*Abronia latifolia*)



Rough-skinned newt  
(*Taricha granulosa*)



White-crowned sparrow  
(*Zonotrichia leucophrys*)

## John St. Marie

If you've ever been on one of John St. Marie's naturalist walks, you know it's an experience that leaves you with a sense of wonder and an indelible memory of the coastal dunes. Maybe it's the thatch ants moving in a captivating mass of coordinated activity. Maybe it's the way John lets you discover the first blooming Humboldt Bay Wallflowers of the spring in areas that volunteers have restored. Or maybe it's the whole, rich web of life on the dunes that John gets you to see, understand, and appreciate.

"Leading walks is my favorite way to volunteer for Friends of the Dunes," said John. "I love sharing nature and the dunes with people. I really believe that for people to value the dunes, they need to have knowledge and understanding of these places."

John is a skilled naturalist who graciously shares his passion for the coastal dunes, but that's certainly not all he contributes as a Friends of the Dunes volunteer. John helps manage the Humboldt Coastal Nature Center facilities, putting in hours of volunteer work to make sure our earth-shelter building is a welcoming place for the public and a positive place for our staff to work. John also volunteers behind the scenes at all of our events, often taking on the most difficult jobs, and making sure these ambitious community conservation events run smoothly.

"Leading walks is my favorite way to volunteer for Friends of the Dunes," said John. "I love sharing nature and the dunes with people. I really believe that for people to value the dunes, they need to have knowledge and understanding of these places."



As a longtime member of our all-volunteer Board of Directors and current chair of our Stewardship Committee, John generously shares his wisdom and perspective, and helps guide Friends of the Dunes' strategic direction and goals.

"John St. Marie is a gem," said Executive Director Mike Cipra. "He invests himself deeply and meaningfully in projects that make a positive difference for our dunes and our community. All of our volunteers at Friends of the Dunes are special, but John is truly one of a kind. He is an inspiring conservation leader on the North Coast, and he has helped Friends of the Dunes serve our community over many years."

Late last year, a donor to Friends of the Dunes made a generous donation of \$2,000 for the first Beacon of Light in honor of John St. Marie, and it was installed at the Humboldt Coastal Nature Center by local artist John King. Every night when the sun sets to the west over the dunes, this gentle downcast light automatically turns on, illuminating the walkways of the Humboldt Coastal Nature Center. It's a fitting tribute to John St. Marie, a guiding light of Friends of the Dunes.

# THANK YOU

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*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.*

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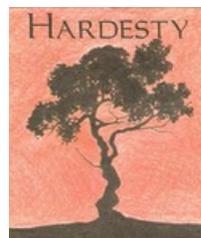
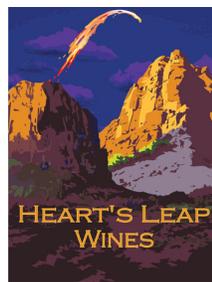
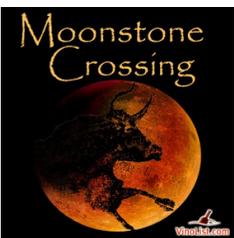
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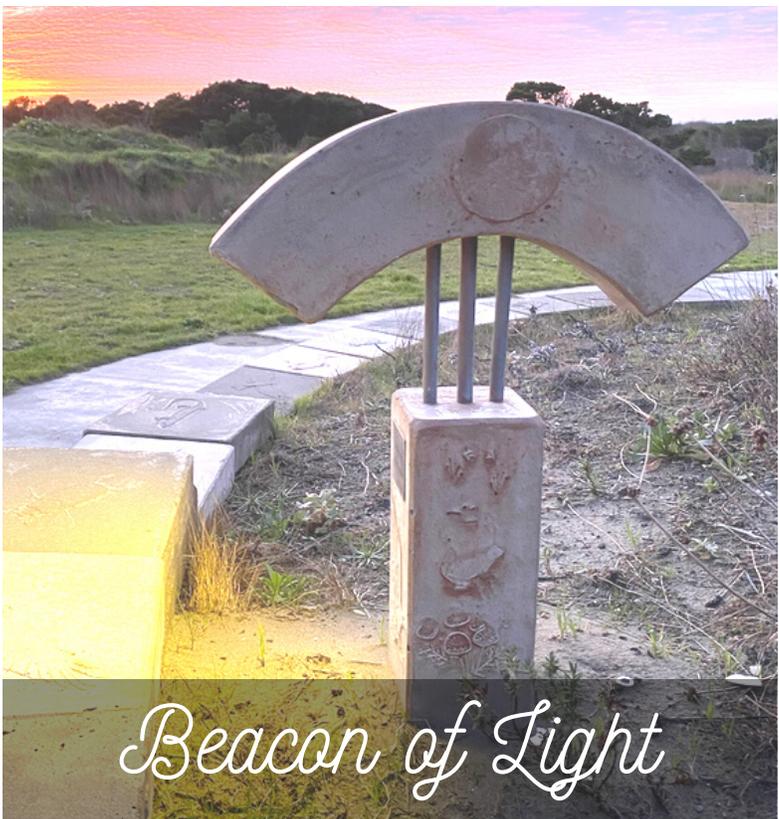
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