Project Phoenix

2024 YEAR-END REPORT

Our 2024 season was a tremendous success, thanks to the hard work of our incredible volunteers and community partners. Thank you for your enthusiasm and dedication to Project Phoenix in 2024. Our research would not be possible without you!

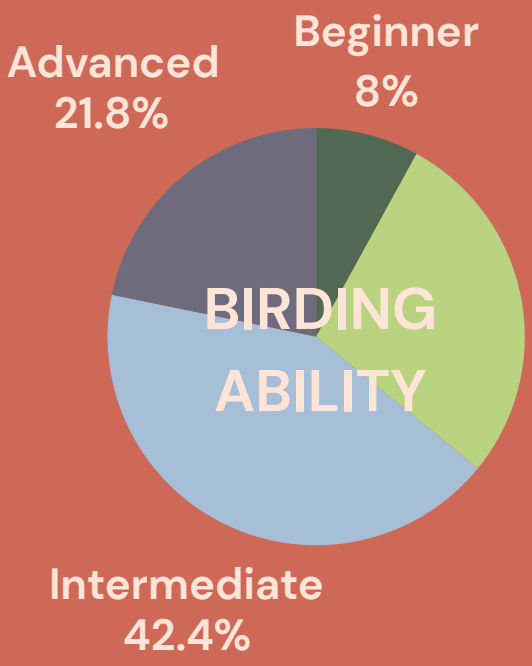
During the 2024 fire season, our volunteers monitored birds at hundreds of locations in California, Oregon, and Washington. We are actively using the data collected to learn more about how birds respond to wildfire smoke.

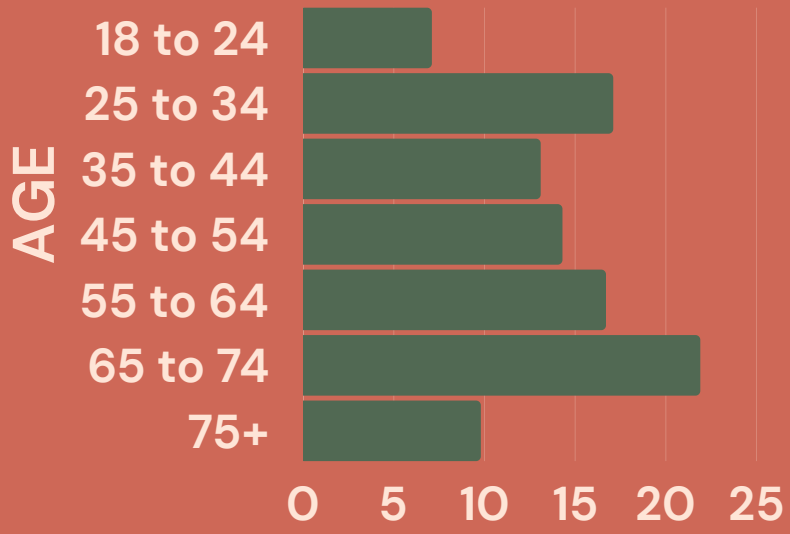
AT A GLANCE

361 Sites
427 Volunteers
3,002 Surveys
500 Hours
230 Species

PROJECT PHOENIX

OUR VOLUNTEERS

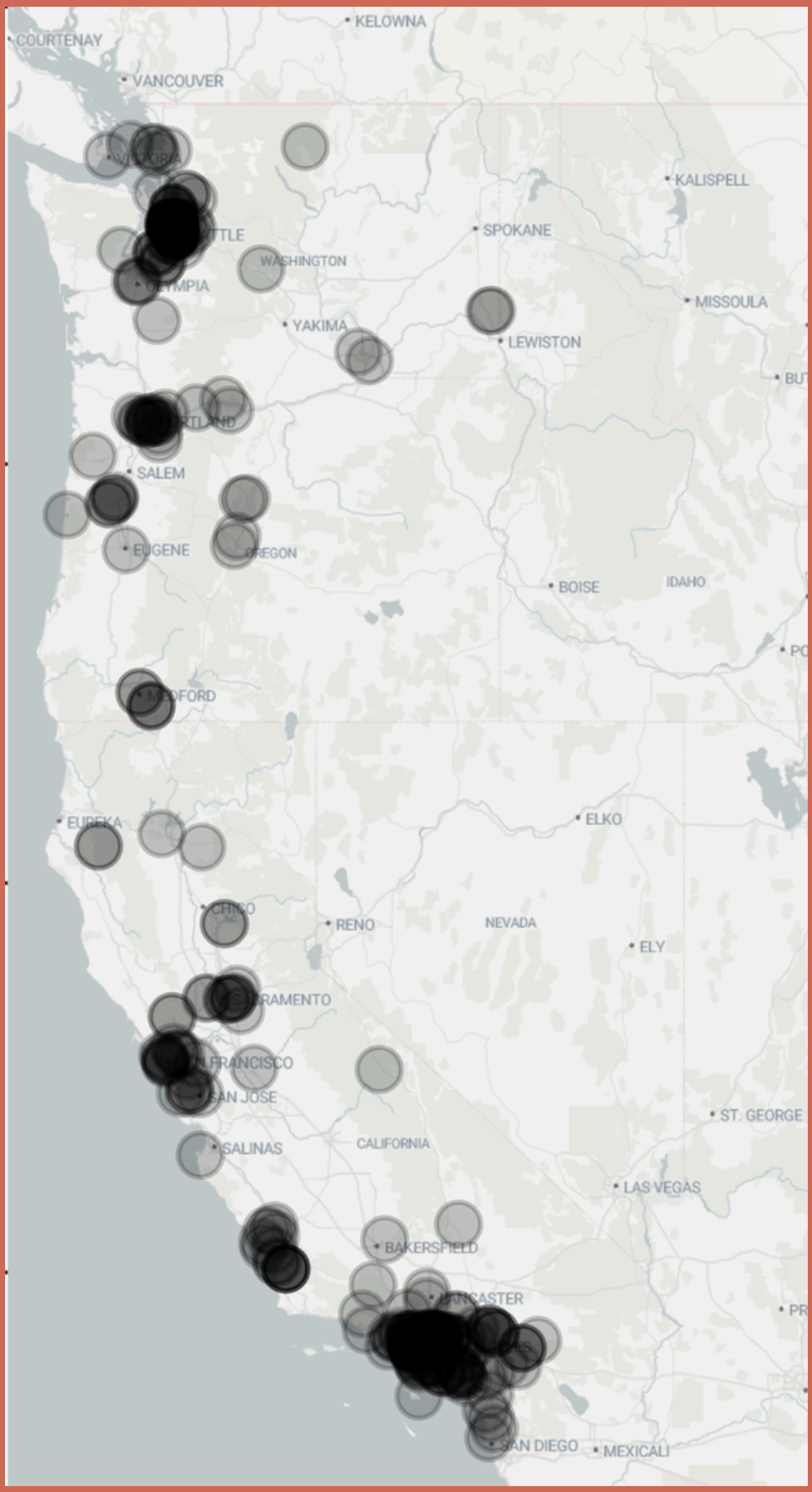




What motivates our volunteers?

- My concern for the environment and protecting nature
- Fascination with birds/my interest in the environment
- Connecting to nature
- Learning about the environment/nature/birds
- The chance to contribute to science
- Broad interest in community science
- My internal drive
- Being part of the birding community

OUR MONITORING SITES



In 2024, Project Phoenix volunteers monitored birds at **361 locations**.

Although most of our volunteers are based in Southern California, our roster includes community scientists from **247 zip codes**!

Top Species:

1. House Finch
2. American Crow
3. Anna's Hummingbird
4. Lesser Goldfinch
5. Dark-eyed Junco
6. California Scrub-Jay
7. Allen's Hummingbird
8. Mourning Dove
9. Black Phoebe
10. California Towhee
11. Black-capped Chickadee
12. House Sparrow

ABOUT OUR SITES

Our team will investigate if birds are more likely to use sites with bird feeders, hummingbird feeders, or bird baths when it is smoky. Our goal is to determine if providing these resources to birds when air quality is hazardous could be a simple intervention to help shepherd birds through smokier fire seasons.

41.3%

of sites had seed or suet feeders

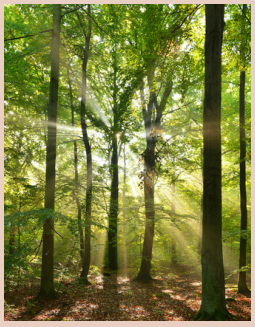
36.3%

of sites had hummingbird feeders

39.5%

of sites had bird baths

Project Phoenix volunteers are welcome to survey birds outdoors or indoors, such as by their kitchen window.



83.2%

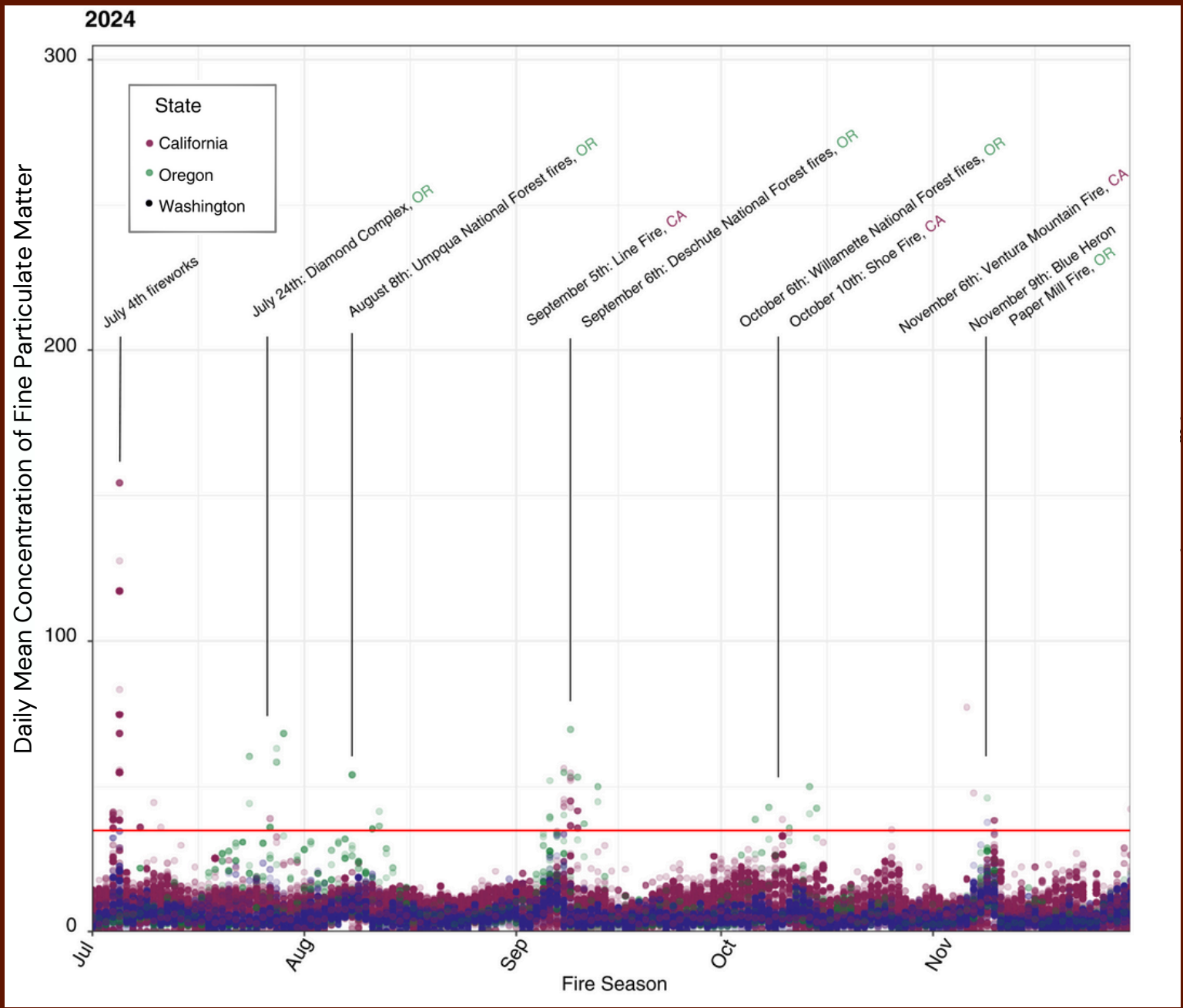
outdoors

16.8%

indoors

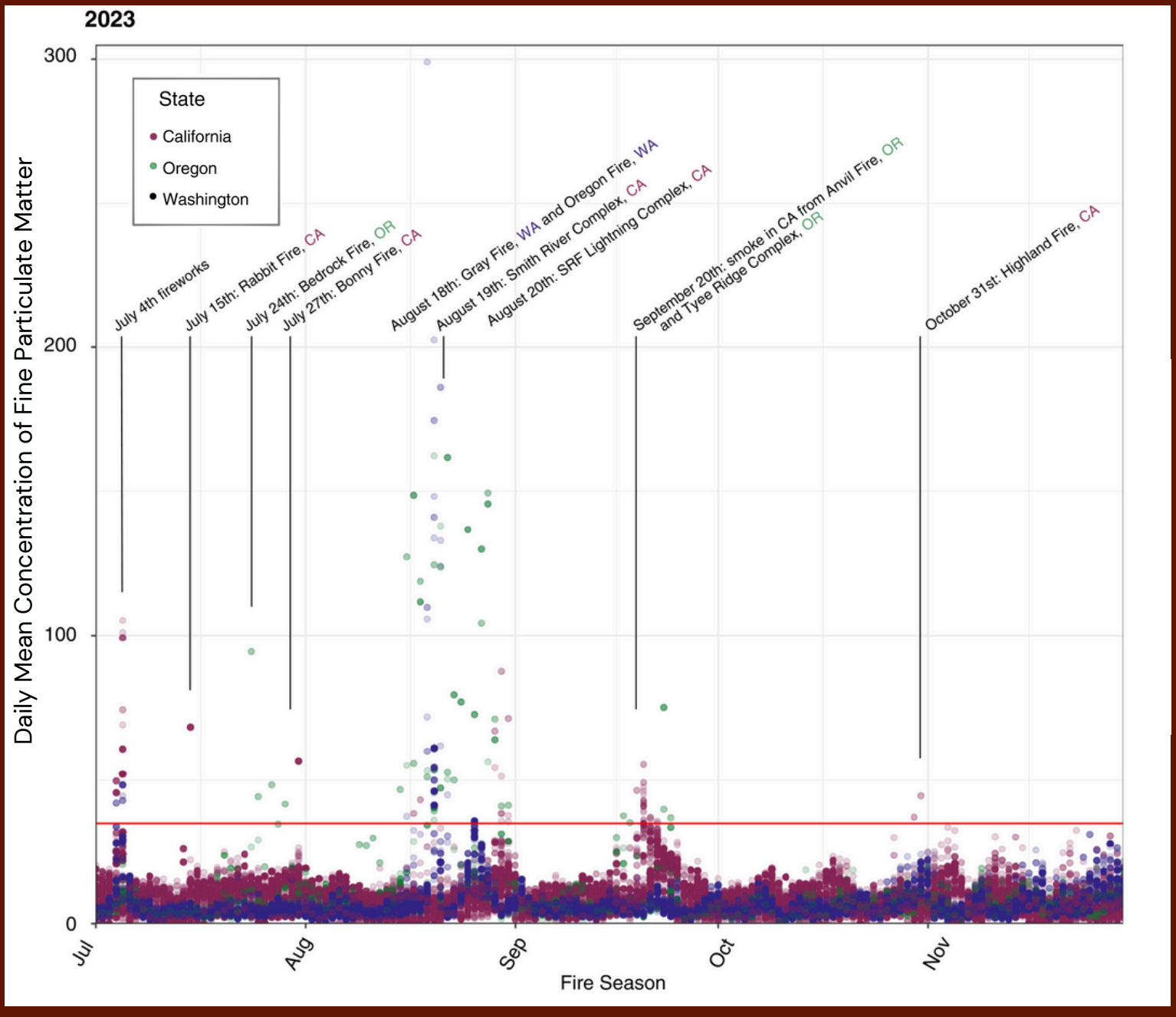
AIR QUALITY: 2024

Wildfires impacted air quality at dozens of Project Phoenix monitoring sites in 2024. This plot shows the daily mean concentration of fine particulate matter, a well-established marker of wildfire smoke, during the 2024 fire season across all 511 locations surveyed by Project Phoenix volunteers to date. Sites are color coded by state – red for California, green for Oregon, and blue for Washington. In 2024, fires in Oregon, northern California, and southern California contributed to smoke events experienced by our volunteers. However, the worst air pollution occurred at locations in California as a direct result of fireworks displays on the Fourth of July.



AIR QUALITY: 2023

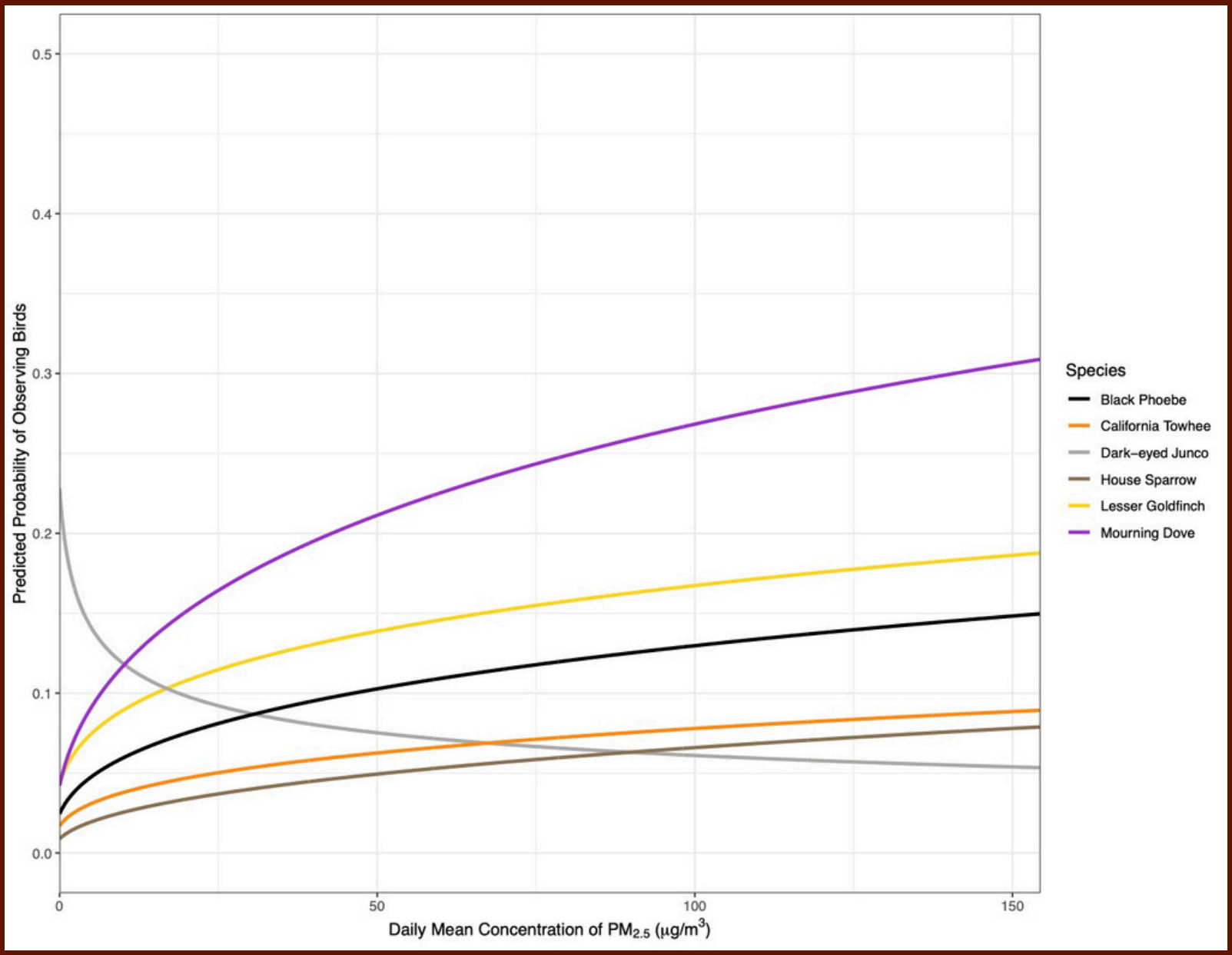
Wildfires also impacted air quality at Project Phoenix monitoring sites in 2023. This plot shows the daily mean concentration of fine particulate matter during the 2023 fire season at all Project Phoenix survey locations. Sites are color coded by state – red for California, green for Oregon, and blue for Washington. The worst air pollution in 2023 occurred at sites in Oregon and Washington as a result of fires burning in Spokane County and northern California. Unfortunately, Project Phoenix was not collecting data in Oregon and Washington during our pilot season. We will be using additional eBird data to fill in these gaps in our analysis.



PRELIMINARY RESULTS

We are using the data collected in Project Phoenix to determine how birds respond to wildfire smoke disturbance. We hypothesize that birds either *stay*, *shift*, or *go* when they encounter smoke. Some birds may *stay*, persisting on the landscape without noticeably altering their presence or behavior. Others may *shift*, sheltering in place, but changing their use of microhabitats (e.g., shade, water) or altering their behavior (e.g., moving or vocalizing less) to mitigate or recover from negative health impacts. And some birds may *go*, leaving altogether to seek refuge elsewhere.

We are still refining our methods to test these hypotheses. To start, we asked a simple question – how does the probability of observing birds change when it is smoky? We used Project Phoenix data to explore how our observations of common birds vary with exposure to fine particulate matter, a marker of wildfire smoke. We found that whereas some species are *less* likely to be observed when it is smoky (such as Dark-eyed Juncos) others are *more* likely to be observed (such as Black Phoebes). These results suggest that not all birds respond to smoke in the same way. We are excited to dig deeper in the coming months!



FREQUENTLY ASKED QUESTIONS

It wasn't smoky at my monitoring site this year. Is my data still useful?

Yes! To understand how smoke affects birds, we need to collect data on bird observations in a wide range of air quality conditions. If your site did not experience smoke this year, your observations provide a snapshot of bird activity when air quality is good. This is incredibly valuable baseline data!

I submitted my checklists on eBird. How do I know you received them?

You will not receive a confirmation from our team that your eBird checklists for Project Phoenix were submitted. However, you should feel confident we received your data if you can view your checklists under "Submitted" on the eBird app or in "My Stats" on ebird.org. We are not able to download recent additions to the eBird database until the 15th of each month, and are therefore unable to determine in real time whether or not volunteers have successfully submitted their surveys.

What can we learn in ten minutes?

Some volunteers have wondered if 10-minute surveys are sufficient to learn more about smoke impacts on birds. Great question! Although it feels short, 10 minutes provides an excellent snapshot of bird activity at a specific place and time. Alone, a single survey does not tell us much, but together, our observations will provide a powerful tool to learn more about how bird activity is influenced by daily changes in air quality.

Our survey protocol has already been tested in the field – our program director, Dr. Olivia Sanderfoot, led a study as part of her Ph.D. that leveraged 10-minute surveys to learn more about how birds were affected by changes in human activity during COVID-19 lockdowns! Read more in *Scientific Reports*.

FREQUENTLY ASKED QUESTIONS

Should I adjust the time I conduct my weekly surveys after Daylight Saving Time ends?

Although our clocks might "fall back," birds will continue to time their activities with the rising and setting of the sun. So, should you adjust the time you conduct your weekly surveys? That's up to you! You might prefer to start your surveys one hour earlier, as you may have more light and would be able to observe birds at the same time relative to sunrise/sunset, and their activity may therefore be more consistent across your surveys. But, this might not work for your schedule – and that's okay! We will be accounting for changes in sunrise/sunset and other aspects of seasonality in our analysis, and we have many tricks up our sleeve to be sure that we have considered any changes in bird activity due to the times folks conduct their surveys. TL;DR: It's totally your choice!

Are there any best practices for using Merlin Sound ID?

Yes! We recommend the following best practices when using Merlin Sound ID:

1. *Turn your location services on*. Merlin will not work well if the app doesn't know where you are and which species are likely to be near you!

2. If Merlin suggests species you have previously observed at your monitoring site, or you know the call or song, go ahead and report that species BUT...

3. if Merlin suggests a species that is new to you, *particularly if it is rare*, try to confirm the species visually. And remember, you can always report larger taxonomic groups on your checklists if you're not sure (e.g., "finch species" or "hummingbird species").

THANK YOU, VOLUNTEERS!

We'd like to thank our amazing volunteers for all the time, energy, and support you have invested in Project Phoenix. Here are just a few of the many testimonials we received from volunteers this year:

"I enjoyed participating in Project Phoenix and have continued the habit of doing a 10-minute sit in my yard each week. I appreciated seeing your newsletter updates each week. They were informative and helped me feel like I was part of a larger community. Thank you!"

"I always felt better after 10 minutes of birding, even if I woke up in a bad mood."

"This reinvigorated my interest in and commitment to practicing birding, and I'm now learning how to lead birding trips in my community."

"[Project Phoenix] helped me become more aware of the birds in my neighborhood."

SIGN UP NOW FOR PROJECT PHOENIX 2025!

We are now accepting volunteers for Project Phoenix 2025! Join our team and help us solve the mystery of how wildfire smoke impacts our feathered friends.

Do you have a question about Project Phoenix or an idea to improve next year's programming? Get in touch with us at projectphoenix.socal@gmail.com.