MEGAFIRE ACTION

To: Interested Parties
From: Teresa Feo, Research Director, Megafire Action,
James Campbell, Director of Federal Affairs, Megafire Action
Date: January 14, 2026
Subject: FOFA and the Environment
Addendum: Monarch Butterflies and Wildfire Management

This memo complements our "FOFA and the Environment" memo from January, 2026 by providing additional examples of the known co-benefits of wildfire mitigation activities in enhancing Monarch butterfly conservation.

The iconic monarch butterfly (*Danaus plexippus*) can be found across North America and is renowned for its unique long-distance migration from wintering grounds in California and Mexico to as far north as Canada.[1] Since the lifespan of individual monarchs are measured in months, the 1,000+ mile yearly migration is typically accomplished by four successive generations of butterflies. Populations of Monarchs in North America used to number in the tens of millions, but since the 1980s, populations have crashed by more than 95%. In response to these alarming declines, there has been a considerable focus on improving the management of critical monarch habitat. Research conducted across the US has found that wildfire management activities, in particular well-timed prescribed fire, can provide significant co-benefits for monarch conservation by enhancing the availability of milkweed and other nectar plants along the spring, summer, and fall migration route. However, balancing wildfire management and monarch conservation goals in Californian winter sites requires additional study to determine how to best reduce wildfire risk without impacting the specific sites preferred by clustering monarchs.

There are several provisions in FOFA that establish a framework for managing wildfire risk and expanding the use and application of beneficial fire. Sec 101 of FOFA establishes landscape-scale Fireshed Management Areas (FMA) for firesheds in the top 20% of wildfire risk creating the foundation to get more wildfire resilience projects on the ground. Sec. 102 creates the Wildland Fire Intelligence Center to provide decision support for all levels of government during all stages of wildfire mitigation, preparation, response, and recovery. This center will make it easier to assess windows of opportunity to apply more beneficial fire and safely monitor them. Sec. 105 establishes the Fireshed Assessment process in which federal agencies in collaboration with state, Tribal, and local entities, and informed by public input, create landscape-level strategies for managing wildfires, natural resources, ecosystem services, and other environmental and cultural values of interest. Sec 106 of FOFA then provides permitting relief to projects that will help

[1] Western Monarch Butterfly Conservation Plan, https://wafwa.org/wpdm-package/western-monarch-butterfly-conservation-plan-2019-2069/

realize the goals identified by the Fireshed Assessments. The entirety of subtitle D focuses on increasing the application of prescribed fire. Sec. 116 improves upon the collaborative forest landscape restoration program. Sec. 121 establishes regional wildland fire research centers to research foundation wildland fire science. The intent of FOFA is to reduce the risk of destructive wildfires while maintaining the integrity of wildfire-dependent ecosystems.

Below we review the available evidence in support of expanding beneficial fire and other proactive wildfire management activities to enhance critical habitat for Monarch butterflies.

Beneficial fires enhance critical habitat for migrating Monarchs

During the spring, summer, and fall migration, monarchs depend on flowering nectar plants for feeding adult butterflies and on milkweed plants for laying eggs and feeding the next generation of caterpillars. Protecting and expanding nectar and milkweed plants is a critical goal of monarch conservation efforts. Although wildfires can temporarily destroy monarch habitat in the short-term, research from many states across the country find that beneficial fires can improve monarch habitat in the long-term. Appropriately timed prescribed fires and beneficial wildfires are important for managing critical habitat in grasslands, prairies, and open canopy forests to ensure that ample flower and milkweed plants are at peak abundance right when monarchs are migrating through a particular region.[2]

- **Arkansas:** The USFS and partners have been using selective thinning and frequent prescribed fire to restore shortleaf pine-bluestem grass communities in the Ouachita Mountains of Arkansas.[3] Rudolph et. al. (2006) found that the forests managed with prescribed fire treatments supported greater abundances of nectar plants and migrating monarchs compared to untreated forests that were managed with widespread fire suppression.
- **California:** Milkweed in northern California typically blooms once a year in late spring and early summer. After the mid-summer 2024 Park Fire burned through areas previously managed with prescribed and cultural burning, local scientists observed an unexpected second flowering of milkweed in late

[2] Monarch Joint Venture. 16 Jun 2020. “More than Monarchs: Effects of Wildfire on Monarch Butterfly Habitat”https://monarchjointventure.org/blog/more-than-monarchs-effects-of-wildfire-on-monarch-butterfly-habitat

[3] KUAF, 10 Dec 2024. “Restoring shortleaf pine bluestem grasslands on the Ouachita Mountains”: https://www.kuaf.com/show/ozarks-at-large/2024-12-10/restoring-shortleaf-pine-bluestem-grasslands-on-the-ouachita-mountains

summer that coincided with the return migration of monarch butterflies through the area.[4]

- **Iowa & Missouri:** Moranz et. al. (2012) found that monarchs were more abundant in prairie pastures managed with prescribed burning in Iowa and Missouri compared to pastures managed with only grazing.
- **Minnesota:** Leone et. al. (2019) found that monarchs were more abundant in tallgrass prairie sites in Minnesota that were managed with prescribed fire compared to sites managed with only grazing.
- **North Dakota:** Johnson et. al. (2025) found that rangelands in North Dakota managed with frequent prescribed fire had higher milkweed abundance, providing more critical habitat for breeding monarch butterflies.
- **Oklahoma:** Baum and Sharber (2012) found that summer prescribed fire in tallgrass prairie of northcentral Oklahoma generated an abundant second bloom of milkweed in treated sites that was then heavily used by monarchs in late summer to produce a new generation of butterflies in time for their southern migration to their overwintering grounds. In contrast, sites that were not treated with summer burns collectively hosted only one monarch egg on a single milkweed plant in the late summer.
- **Texas:** The U.S. Fish & Wildlife Service has partnered with private landowners in Texas to use prescribed fire and managed wildfire to enhance more than 7,000 acres of monarch butterfly habitat on the Balcones Canyonlands National Wildlife Refuge and surrounding lands.[5]

Balancing wildfire management and Monarch conservation in California's overwintering groves needs more study

Every winter, hundreds of tree groves along the California Coast accumulate clusters of thousands of overwintering monarch butterflies. Overwintering grounds are frequently located in very high risk areas and some have been destroyed by wildfires in recent years, including during the 2018 Woolsey Fire[6]. Unfortunately, in many areas, monarchs prefer to cluster on non-native eucalyptus trees, which are extremely flammable and are typically recommended for removal to reduce wildfire

[4] KQED, 25 Oct 2024. "After California's Park Fire, A Second Bloom of Milkweed". https://www.sciencefriday.com/segments/california-fire-milkweed-butterflies/

[5] USFWS. Mar 11, 2022. "Project Helps Private Landowners Use Prescribed Fires to Enhance Pollinator Habitat" https://www.fws.gov/story/2022-03/burning-for-butterflies

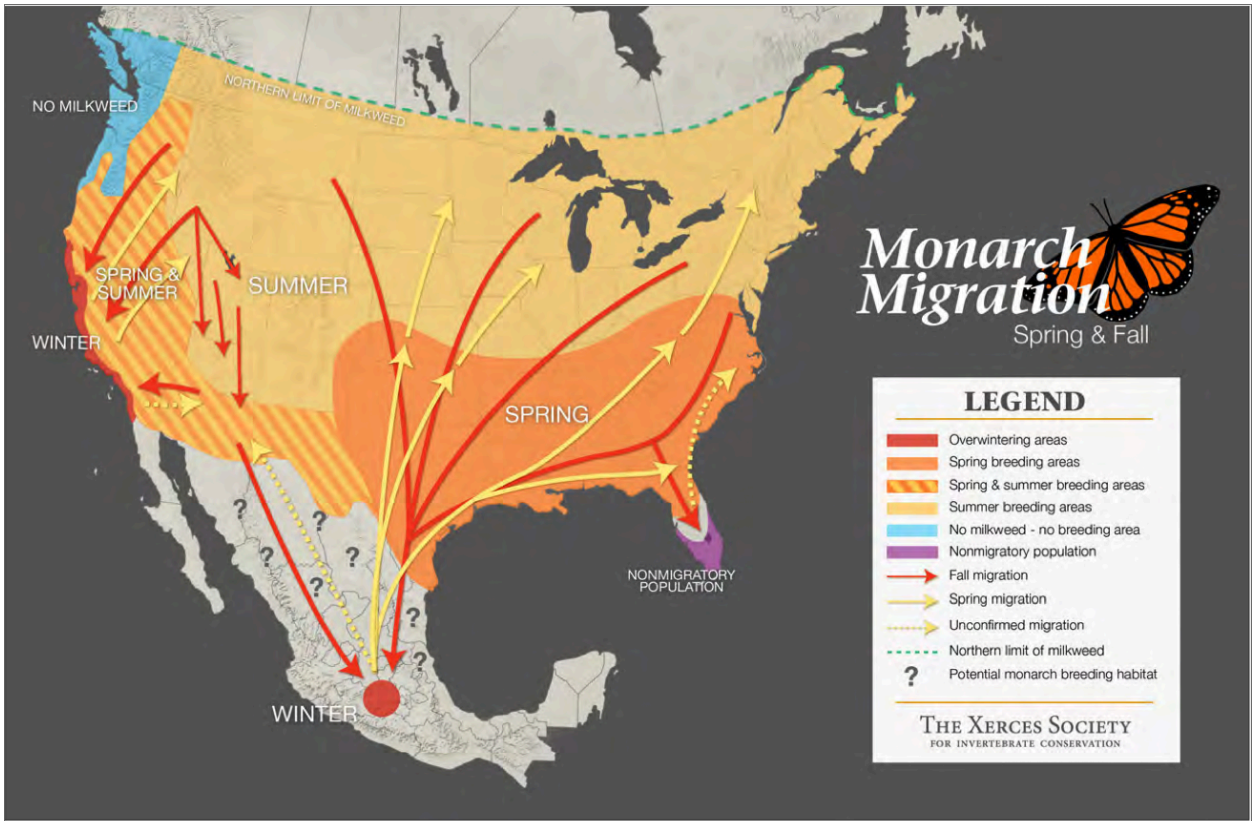
[6] Western Monarch Butterfly Conservation Plan, https://wafwa.org/wpdm-package/western-monarch-butterfly-conservation-plan-2019-2069/

risk. Striking the best balance between wildfire management and monarch conservation in these Californian overwintering grounds is complicated and currently under careful study.

USGS and California State Projects are conducting a project to understand how to balance wildfire management goals with monarch conservation goals in tree groves that serve as critical habitat for overwintering monarch butterflies along the California coast.[7] The specific goals of this multi-year study are 1) to identify the risks posed by drought and fire to monarch habitat, 2) to better understand the drivers of monarch clustering locations across California and within specific tree groves, and 3) to determine how fuel management and prescribed burns influence monarch clustering and movement. Additionally, California Department of Fish & Wildlife are currently working to balance eucalyptus management to reduce wildfire risk while also maintaining sites for overwintering Monarchs.[8]

[7] USGS study page: https://www.usgs.gov/programs/climate-adaptation-science-centers/science/reducing-wildfire-risk-while-maintaining#overview

[8] https://wildlife.ca.gov/Conservation/Invertebrates/Monarch-Butterfly#conservation-work
See also the update from Michelle Selmon with CDFW at the Dec 12, 2025 CA Wildfire and Forest Management Task Force meeting. At 1:23:00 of the LOOKING FORWARD: THE DRAFT 2026 ACTION PLAN, https://wildfiretaskforce.org/december-12-sacramento-meeting-recap/



Migration routes, breeding areas, and overwintering grounds of monarchs in North America. Source: Xerces Society

Arkansas shortleaf pine forest before restoration (*left*) and after restoration (*right*) with native flowing plants. Source: KUAF

MEGAFIRE ACTION

Bibliography of scientific articles on wildfire management and Monarch butterflies

Note that many scientific papers are behind a paywall, contact Megafire Action for help with accessing any of these papers.

- Baum, Kristen A., and Wyatt V. Sharber. 2012. "Fire Creates Host Plant Patches for Monarch Butterflies." *Biology Letters* 8 (6): 968–71. https://doi.org/10.1098/rsbl.2012.0550.

- Johnson et. al., 2025. "Abundant Litter Accumulation Decreases Milkweed Abundance While Fire and Grazing May Benefit Milkweed". Prairie Naturalist. Special Issue 2:58–78. https://www.eaglehill.us/prna-pdfs-special/spec02/004-Johnson.pdf

- Leone et. al., 2019. "Adult Monarch (Danaus Plexippus) Abundance is Higher in Burned Sites Than in Grazed Sites." *Frontiers in Ecology and Evolution* 7: 435. https://doi.org/10.3389/fevo.2019.00435

- Moranz et. al,. 2012. "Untangling the Effects of Fire, Grazing, and Land-Use Legacies on Grassland Butterfly Communities." *Biodiversity and Conservation* 21 (11): 2719–46. https://doi.org/10.1007/s10531-012-0330-2.

- Rudolph et. al.,. 2006. "Monarch (Danaus Plexippus L. Nymphalidae) Migration, Nectar Resources and Fire Regimes in the Ouachita Mountains of Arkansas." *Journal of the Lepidopterists' Society*. 60(3), 165-170. https://www.srs.fs.usda.gov/pubs/ja/ja_rudolph018.pdf