

LA BIODIVERSITY GUIDELINES





INTRODUCTION

The LA Biodiversity Guidelines have been developed jointly by the City of Los Angeles and the County of Los Angeles as a mechanism to incorporate biodiversity into the urban environment and support City and County biodiversity objectives. The intent is that projects that adhere to these guidelines will support and enhance urban nature while adhering to sustainable management practices. The document provides guidance to public and private entities on how to best design, construct, and landscape projects so that they improve local habitat quality. These guidelines cover six topics: Habitat, Maintenance, Water, Built Elements, Healthy Soils, and Sustainability. A comprehensive checklist, which includes the guidance from each of the six sections, is also included for easy reference.

ACKNOWLEDGEMENTS

The Guidelines were created by the LA Sanitation & Environment (LASAN) Biodiversity Team and the LA County Chief Sustainability Office. Michelle Barton, LASAN's Biodiversity Program Manager, and Rebecca Ferdman, the County's Sustainability Policy Advisor, co-wrote and edited the guidelines and Michelle designed the guidelines. LASAN's Assistant General Manager, Dr. Mas Dojiri, and other members of the Biodiversity Team, namely Amanda Amaral, Environmental Affairs Officer, Jon Ball, Environmental Affairs Officer, and Susie Santilena, Acting Senior Environmental Engineer, contributed content and helped edit the final document. Special thanks to the City's Biodiversity Expert Council and the Interdepartmental Biodiversity Team, both of which provided valuable feedback and edits that enhanced the final LA Biodiversity Guidelines. Unless otherwise credited, photos in this document are from LASAN staff or from the public domain.

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LA BIODIVERSITY GUIDELINES

HABITAT





COVER PHOTO: NURIT KATZ

Use a diverse plant palette to create, enhance, or restore habitat

Develop a diverse planting palette for the site or project with an array of native plants, shrubs, and trees with different heights, and densities, to create complex habitat structure with multiple microhabitats for wildlife, where appropriate. For best results, aim for no less than 70% locally native species in landscaping designs. Ensure that the site has the appropriate conditions (e.g., sunlight, water, soil, space) for the selected plant species to mature and thrive. Many native plants are able to thrive in small spaces and in pots/containers. Use the following zip code-specific plant finders to select appropriate native species for your site:

- [Calflora's Planting Guide](#)
- California Native Plant Society's [Calscape Tool](#)
- Xerces Society's [Pollinator-Friendly Native Plant Lists](#)
- The Butterfly Net's [Lepidoptera Conservation Tool](#)



Do not plant invasive species

Avoid use of all species on the lists published by [CAL-IPC](#) or on the [PlantRight Invasive Plant List](#) for the South Coast ([PDF](#)).



Use local plant material

Use [locally-collected native seeds and propagules](#) which are best adapted to local conditions and help protect the local genetic pool. The act of seed collection should be left to experts that understand and respect collection protocols to protect plant populations and sensitive ecosystems. This is particularly significant in restoration projects.

Source plant stock from local native plant nurseries

Support nurseries that are utilizing best management practices for nursery management and pathogen reduction or via organizations and regional seed banking partnerships like [SeedLA](#), which safely collect seeds and propagate stock locally. Visit, learn more, and shop at:

- [The California Botanic Garden](#)
- [The Theodore Payne Foundation](#)
- [El Nativo](#)
- [S&S Seeds](#)
- [Las Pilitas Native Plant Nursery](#)
- [Hahamonga Native Plant Nursery](#)
- [Palos Verdes Peninsula Land Conservancy's Native Plant Nursery](#)
- [Tree of Life Nursery](#)
- [Matilija Nursery](#)





Preserve existing native vegetation

Protect and preserve native shrubs and trees on site as feasible and permitted. In particular, retain urban woodlands, individual native trees, and large canopy trees that provide shade.



Enhance wildlife connectivity

Help create habitat patches and corridors through urban areas, by planting locally appropriate California native species in key locations that can help connect large natural parks and open spaces. Efforts can range from planting large native shrubs and trees that provide cover for large mammals or planting species that will be utilized by birds, butterflies, and other pollinators. See the '[Built Elements](#)' section for ways to enhance wildlife connectivity in the built environment.

Use historical ecology as a guide

The [Historical Ecology of the Los Angeles River Watershed](#) and the [Los Angeles Ecotopes Framework](#) provide useful information for understanding the local microclimate, soils, and naturally adapted plant communities for your property. Locally appropriate native plants adapted to site conditions provide the best opportunity for plant health, ecological benefits, and support for native biodiversity. Keep in mind that the climate is warmer and development has significantly reduced permeability and surface water resources compared to earlier periods.

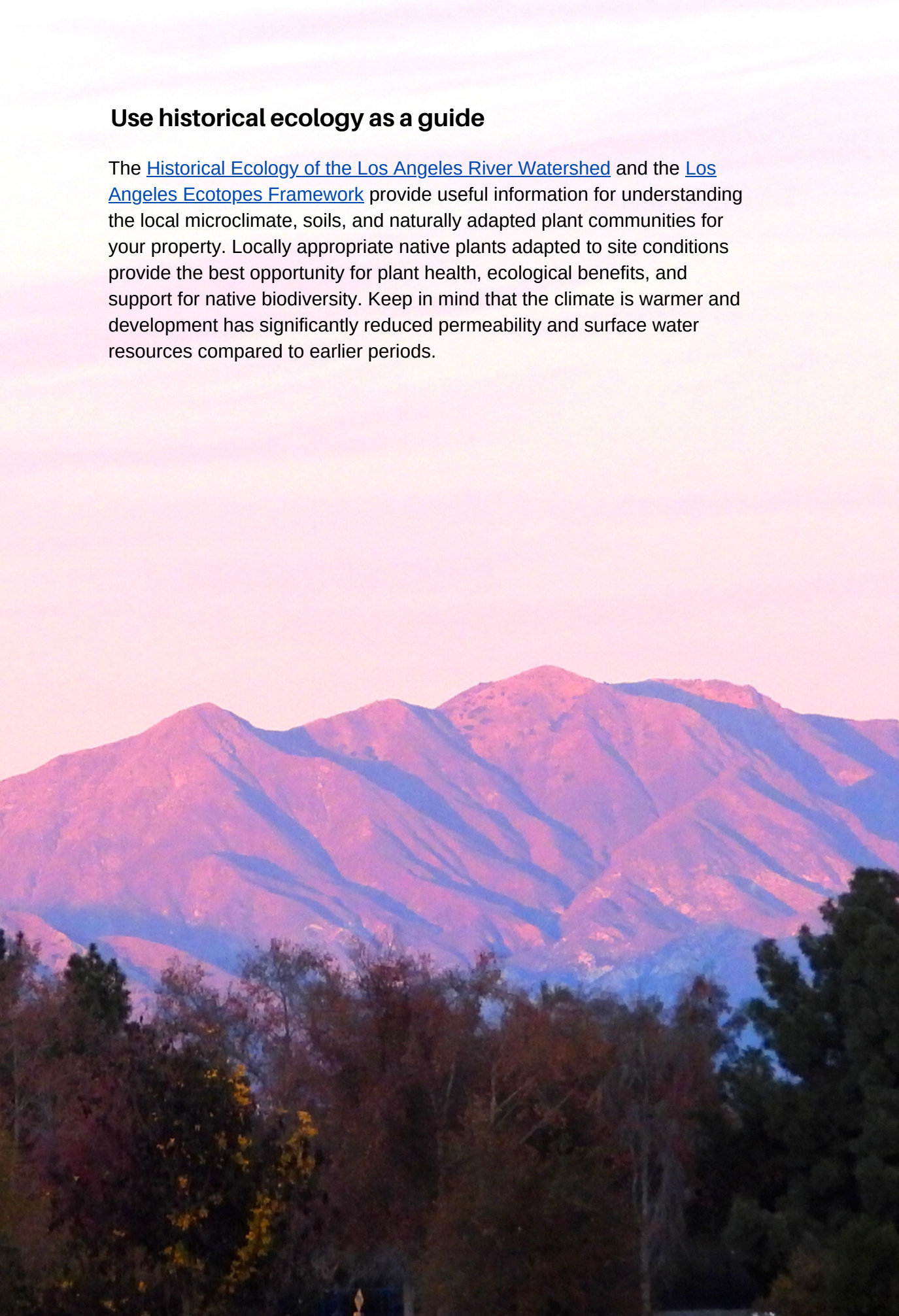


PHOTO: NURIT KATZ



Support pollinators

Plant native California milkweeds, pollinator-friendly nectar plants, and pollinator host plants, including large shrubs, to support LA’s pollinator species, like the monarch butterfly. Xerces maintains [a list](#) of host and nectar plants for our region, widely available at nurseries. Do not plant tropical milkweed. Provide insect hotels to support ground burrowing pollinators.



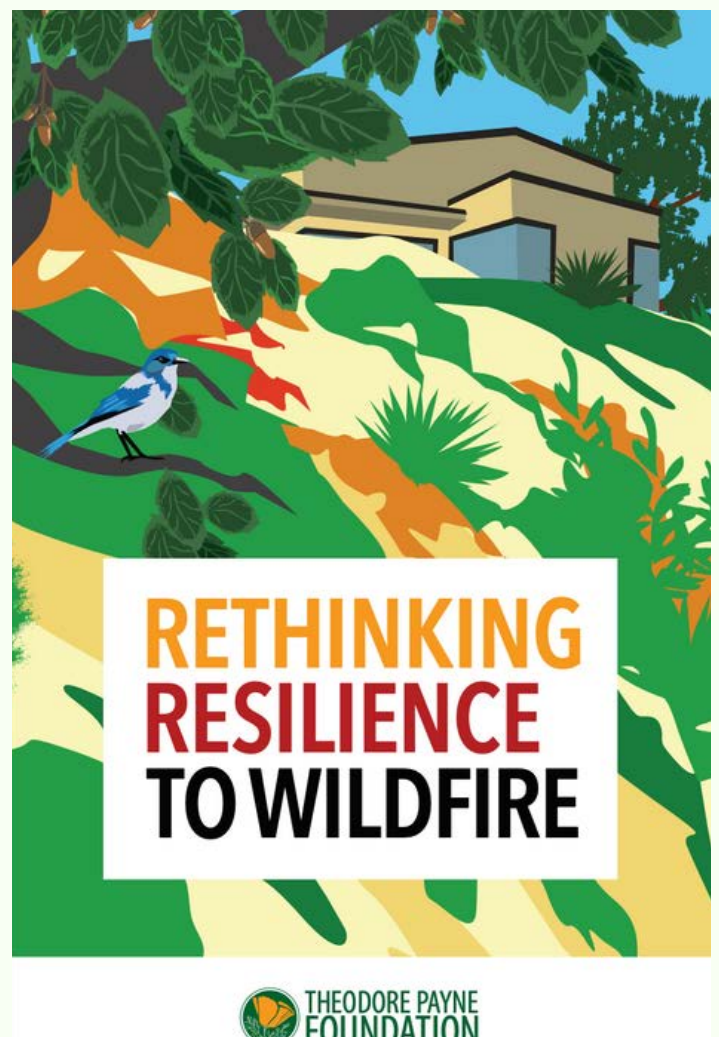
Retain natural materials, such as woody debris and leaf litter, on site to provide wildlife shelter and to enrich soils

Support wildlife by retaining dead trees, also known as snags, when safe to do so, letting plants go to seed, and retaining leaf litter on site to shade the soil, hold moisture, and serve as slow-release mulch. Avoid gas-powered leaf blowers and follow other guidance presented in the ‘[Sustainable Practices](#)’ section.



Perform wildlife-friendly vegetation management

Take care to undertake vegetation management for fire prevention and creation of defensible space in a way that limits impacts to biodiversity and reduces the spread of invasive species, while adhering to [LAFD protocols](#). This may include removing dead plant material, trimming low branches, and weeding out invasives, but should not result in removal of living (including dormant) shrubs. In areas prone to wildfire, adhere to the [Plant Selection Guidelines](#) set forth by LA County Fire. Refer to the Theodore Payne Foundation's [Rethinking Resilience to Wildfire](#) for best practices on wildfire-resilient garden design.



Certify your space

Take the [Xerces Pollinator Protection Pledge](#) or certify your habitat via the [National Wildlife Federation](#), the [Surfrider Foundation](#), and/or [Audubon International](#) to demonstrate commitment to sustainable, wildlife-friendly practices. Display relevant signage/placards on site to advertise your certification(s).





Follow best practices for work in the public parkway

If working in the parkway within the City of LA, adhere to the City's [Residential Parkway Landscaping Guidelines](#) which includes a list of [Preferred Drought-Tolerant Plant Species](#). If you live in a different city or unincorporated LA County, adhere to locally relevant guidelines.



PHOTO: THEODORE PAYNE FOUNDATION, MARIE ASTRID GONZALEZ

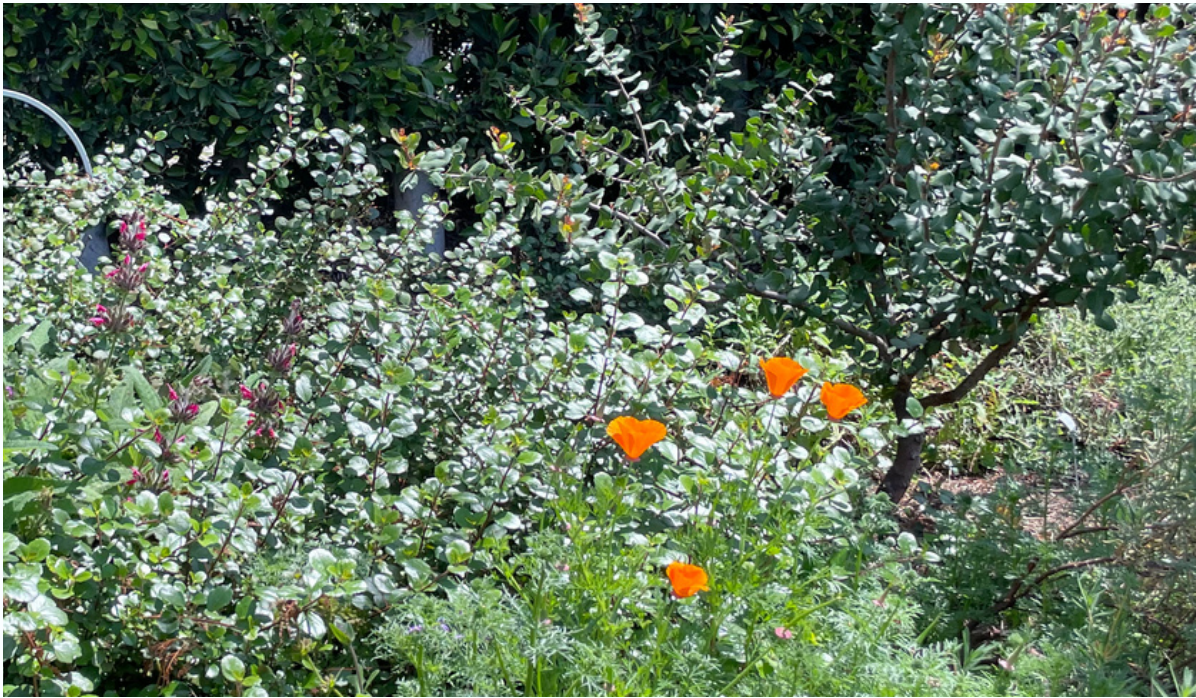
Additional Information

Refer to the '[Maintenance](#)' and '[Sustainable Practices](#)' sections for more information on creating and sustaining wildlife habitat using wildlife-friendly management practices

LA BIODIVERSITY GUIDELINES

MAINTENANCE





Select and maintain plants based on their specific maintenance requirements

To ensure your garden thrives, understand species-specific maintenance needs and select plant species that meet the maintenance needs of your site. Take care to plan pruning, dead heading, plant placement, and watering frequency accordingly.



PHOTO: ANDY KLEINHESSELINK



PHOTO: THEODORE PAYNE FOUNDATION, MARIE ASTRID GONZALEZ

Consider hiring a gardener or landscaper who is trained to care for California native plants

Seek gardening or landscaping professionals who have been certified to care for California native plants and use environmentally-friendly maintenance practices, such as Theodore Payne's [California Native Plant Landscaper Certification Program](#). Or, consider undertaking training or certification yourself.



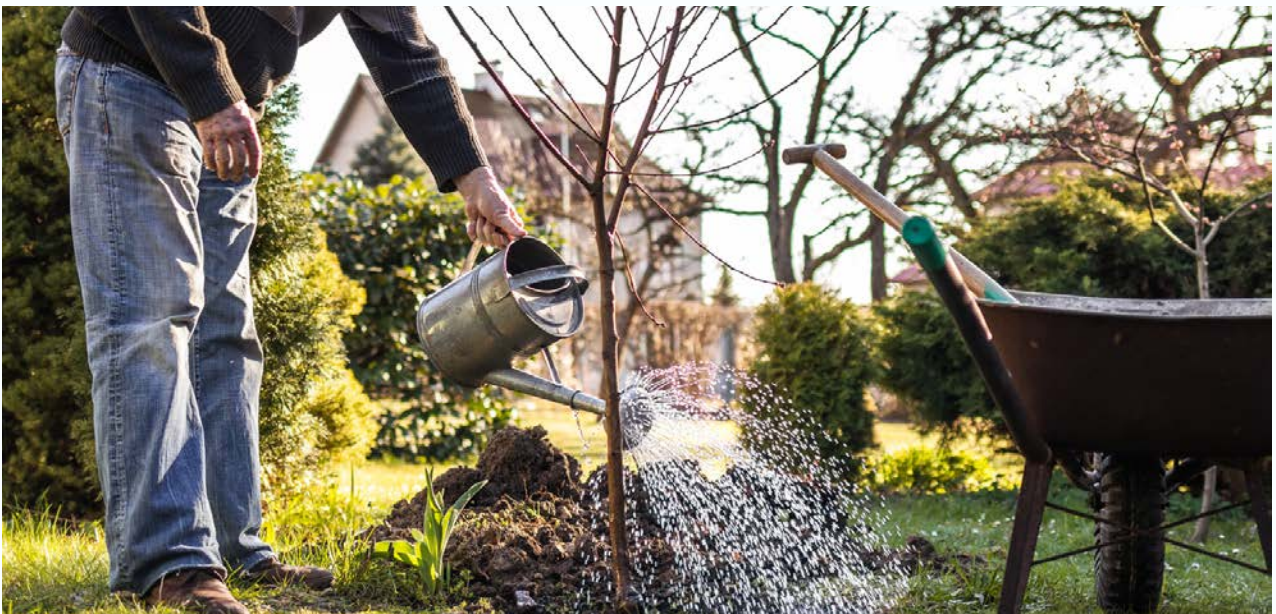
PHOTO: THEODORE PAYNE FOUNDATION



PHOTO: THEODORE PAYNE FOUNDATION, MARIE ASTRID GONZALEZ

Strategically prune and maintain trees

Avoid non-essential pruning or thinning, particularly during hot, dry times, as it can weaken woody plants. Minimizing pruning and thinning will also help [maximize the environmental benefits of trees](#) (e.g., reducing carbon dioxide, mitigating air pollution, etc.). For best results, prune when trees and shrubs are dormant (i.e., before plants start growing during their particular growing season) ([CNPS](#)). For more information on pruning native trees and shrubs, visit the [UC Marin Master Gardeners website](#).



Protect nesting birds

Take precautions to prevent disturbing nests or nesting birds (e.g., avoiding vegetation removal or clearance) during the nesting season, which runs from February - August. [Tree Care for Birds](#) and the [LA Audubon](#) have great tips on how to prevent harm to birds and wildlife when pruning/caring for trees, performing brush management, or doing other maintenance.



PHOTO: NURIT KATZ



Manage weeds and invasive species

Hand weed regularly, particularly in winter and spring before plants go to seed. When weeding, aim to remove the full plant, including the roots.



Reduce ground disturbances & mowing

Avoid or reduce mowing to promote deep root growth and limit habitat impacts for bees, other pollinators, and other wildlife ([USDA Forest Service](#)). When mowing must be performed, consider using a hand mower.

Prioritize the use of organic, biodegradable interventions

Prioritize environmentally-friendly interventions and only use synthetic chemicals in your space as a last resort. If pesticides, herbicides, or fertilizers are used, minimize their use as much as possible and avoid application prior to rainfall to avoid polluted runoff that can lead to algae blooms and poor water quality.



Practice Integrated Pest Management (IPM)

[IPM](#) emphasizes using the least toxic methods as the first line of pest defense to limit risks to humans and the environment. Carefully check product labels, understand the inherent [risks of active ingredients](#), and [follow best practices](#) to use pesticides safely and effectively. [Avoid pyrethroids, carbaryl, metaldehyde, and neonicotinoids](#), which can be particularly harmful to wildlife. Be aware of local bans and laws regarding pesticides. California bans certain pesticides, including neonicotinoid pesticides ([AB-2146](#)) and rodenticides. The City of Los Angeles adopted a motion ([CF #07-2342](#)) mandating use of IPM for all City facilities.





**Avoid all rodenticides
(i.e., rat poisons), including
first and second generation
products**

Adhere to the California Ecosystems Protection Act ([AB-1788](#)) which prohibits the use of second-generation anticoagulant rodenticides. LA County is [exploring banning](#) first-generation anticoagulant rodenticides and the State is considering a ban on first-generation diphacinone ([AB-1322](#)). Instead, use [exclusion and sanitation](#) practices to control rodents.

LA BIODIVERSITY GUIDELINES

WATER

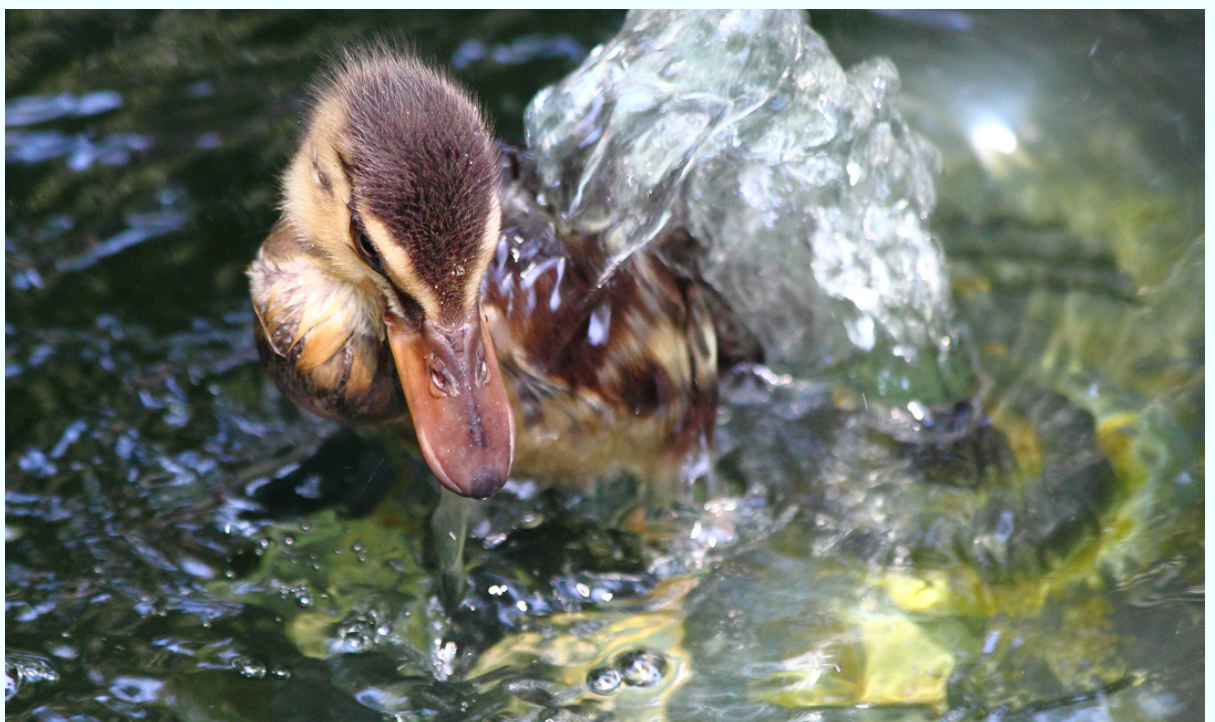




Incorporate a source of freshwater for birds

Sources of water include birdbaths and fountains. Any running water feature should use a recirculating system. Exercise caution with still water features due to their potential to breed mosquitoes; if a still water feature will be used, it should include an agitator or be refreshed regularly. Refer to the Audubon website for additional tips for cleaning birdbaths.

Alternatively, mosquitofish, which are [available for free from LA County Vector Control](#), may be introduced to water features to control mosquito populations.



Mimic natural hydrology

Design your landscape to take advantage of rainwater and mimic natural hydrology. Contour the site to absorb and retain rainwater. Place rock gardens or swales where rain naturally collects, and consider restricting the use of [riparian or higher water needs](#) native plants to those areas. Group plants with water similar needs together. Refer to the [California Watershed Approach to Landscape Design](#) for additional guidance.



Take advantage of sandy or gravelly soils for groundwater recharge

Some locations have naturally sandy or gravelly soils that can very effectively infiltrate rainwater. Incorporate parkway basins, bioswales, or other infiltration features to capture rainwater from streets and built lands in high infiltration areas. Consider performing [a soil drainage test](#) to determine the infiltration potential of your site.





Use water-efficient plant species

Select native plants with water use profiles that are appropriate for your site, or subsections of your site. For example, low-water-use plants are appropriate for well-drained soils, while high-water-use plants may be appropriate for shady areas with clay soils or near natural sources of water. Reference [WUCOLS](#), [Calscape](#), and [Landscape Plants for California Gardens](#) for more information.



Plant during late fall or winter

Plant native plants in the later fall or winter to take advantage of cooler temperatures and seasonal rains. Many newly-planted native plants require shading, especially in the San Fernando Valley and other hot climates, and will require moist soil to become established. In the absence of rain, provide supplemental deep, infrequent watering.

Use appropriate irrigation

Select an irrigation system that is well suited to the water needs of native plants. Hand watering will most closely mimic natural rainfall. Drip irrigation can be used, but should be closely monitored and regularly adjusted to avoid flooding root systems. Drip systems are generally not effective for plants with shallow spreading root systems, such as coastal sage scrub species. If using overhead irrigation, use [high efficiency rotary nozzles](#). Otherwise, avoid traditional overhead spray irrigation, which is highly inefficient and can cause overspray, runoff, and soil erosion.



PHOTO: THEODORE PAYNE FOUNDATION, MARIE ASTRID GONZALEZ



Follow seasonal watering best practices:

Summer: Minimize or avoid watering established native plants that have been in the ground for two or three years during the summer. Many native southern California plants [go dormant](#) in the summer, losing leaves to adapt to hot dry temperatures, and supplemental water may kill them. However, limited supplemental water may be helpful for young plants that are not yet established, especially during drought years. To support deep rooting and prevent disease, allow the soil to dry between any supplemental watering.

Other Seasons: In the absence of regular rainfall, provide supplemental water to simulate seasonal rainfall. Generally, [water deeply and infrequently](#) to maintain moisture in the root zone.

Protect water features onsite

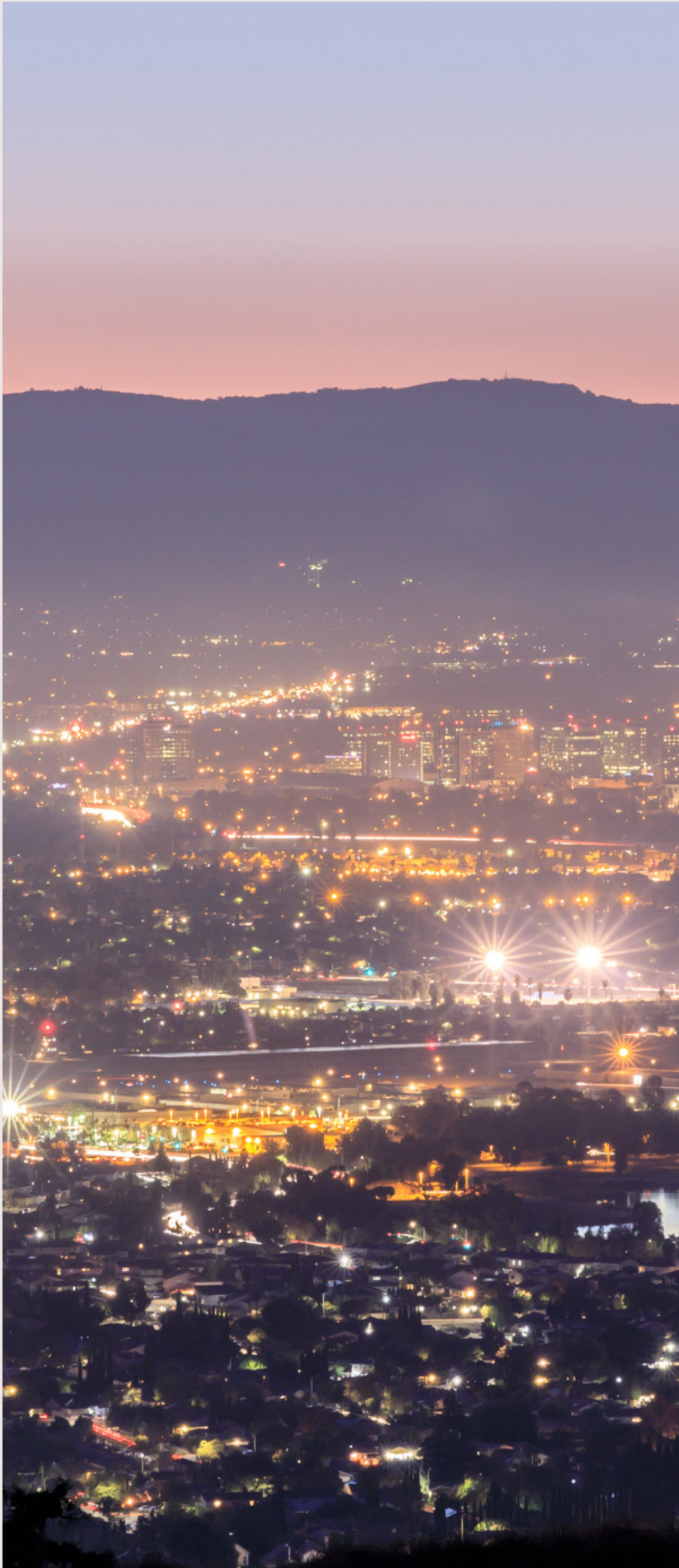
Protect streams, rivers, or wetlands onsite or adjacent to the project by taking extra care to avoid potential disturbances including herbicides and pesticides, invasive plants, and development activities, like grading. In some cases, an increase in urban runoff from a project or yard can affect the ecology of a local stream.



LA BIODIVERSITY GUIDELINES

BUILT ELEMENTS





Reduce artificial light pollution

Take steps to reduce ecological light pollution at your home, work, or school, especially if the building is in an area buffering natural areas, by directing lights away from natural habitat/open space, dimming lights, using timers, using motion sensors, drawing blinds, or turning lights off completely when not needed at night. In addition, limit overall lumens, shield lights and direct them downwards, use warmer lights (i.e., not blue LEDs), and avoid searchlights, as advised by the [International Dark-Sky Association](#) and the City's [Wildlife Ordinance](#).

Use wildlife-friendly fencing

Choose fencing materials that are wildlife-friendly and are designed to allow animals to [jump over](#), [crawl under](#), or [pass through](#) without harm. Fencing should be highly visible for large mammals, like deer, and birds, that otherwise may collide with or become tangled in fencing. Use fencing free of sharp materials or spikes that can harm wildlife and avoid fencing with mesh or netting at the base as wildlife can get trapped in the netting. Specifically, avoid the following materials, which are called out in the City's [Wildlife Ordinance](#):

- Barbed wire
- Plastic mesh
- Concertina wire
- Razor wire
- Spikes
- Sharp glass
- Uncapped hollow fence posts.



Minimize hardscape

When in doubt, don't pave. Minimize the use of impermeable hardscape surfaces such as concrete and asphalt paving, and maximize planted and landscaped areas with soils that can infiltrate rainwater. As feasible, remove existing concrete and hardscape to encourage infiltration. Where minimal hardscape is absolutely necessary, use permeable hardscape options, such as decomposed granite, gravel, and permeable paving like pre-cast concrete pavers, natural stone, or clay bricks with open joints to allow water to infiltrate and recharge groundwater.





Minimize building footprint

[Minimize overall square footage](#) of building footprints by building up, rather than out, to minimize habitat disturbance.



Protect trees and tree roots

Protect existing trees, and do not excavate soil, change the elevation, or construct foundations or other built elements within a tree's critical root zone (i.e., the area from the trunk of a tree to the edge of the canopy).



Secure trash receptacles

Securely enclose outdoor trash receptacles to prevent wildlife scavenging and prevent human-wildlife conflict. Securing exterior trash enclosures is particularly important in neighborhoods near open space.



PHOTO: TIMOTHY BEATLEY

Ensure windows are bird-friendly

Prevent window bird strikes by using bird-safe window glass or treatments, like frosting, fritting, or angling, or by using tall shrubs or trees to visually break up expanses of windows.



Install living roofs, terraces, & walls

Install a living roof, terrace, or wall with proper soil volumes to add important greening and habitat elements to heavily urbanized areas. Some applications, such as living roofs, are best on the coast where average temperatures are cooler and more moisture is available. For hotter areas, consider climbing vines, hanging wall planters, or other alternatives.



Establish buffers or setbacks for wildlife movement:

Minimize harm to wildlife by establishing space, or a buffer, between natural areas and other biological resources and planned construction or development.



Ensure safe crossings for wildlife

Support the [Statewide initiative to prevent vehicle-wildlife collisions](#) (AB-2344) by strategically using fencing to guide wildlife to places they can safely cross roads or other barriers. If pertinent to the project, design wildlife-friendly road underpasses or overpasses or install large culverts that encourage safe wildlife passage and keep vulnerable animals off roadways.



Preserve ridgelines and minimize site grading

Utilize all previously graded or disturbed areas on the site for new development to the greatest extent possible, before developing or grading new areas, to reduce impacts to undisturbed areas. Preserve the most prominent and unique slopes, hilltops and ridgelines, and contiguous undisturbed open space throughout the site.





Adhere to wildlife regulations during construction

Take measures to protect habitat (e.g., shrubs and trees) and wildlife, including bird nests, onsite during construction. Construction in the City must adhere to the regulations set forth in the [Protected Tree Ordinance](#), the [Migratory Bird Treaty Act](#), and in [LAMC Sec. 53.48](#).



LA BIODIVERSITY GUIDELINES

HEALTHY SOILS



Compost

Turn food scraps and yard waste into nutrient-rich compost by participating in [backyard composting](#), dropping your food scraps off at a [farmers market](#), joining a [compost co-op](#), or by participating in mandatory municipal composting by placing your food scraps in your green bin (via [OrganicsLA](#) in the City) to divert organic materials from landfills, avoiding harmful methane emissions while producing a great soil amendment.



PHOTO: LA COMPOST

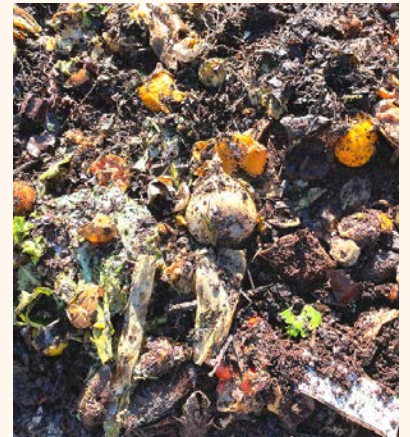


PHOTO: LA COMPOST



Apply organic soils amendments

Consider using amendments like compost or mulch in gardens or yards as prescribed in LASAN's [guidelines](#) to increase water infiltration/holding capacity and suppress weeds. However, such amendments should not be used in wildland areas, unless part of a specific restoration objective.



Test the soil in your yard or neighborhood

Use the [ribbon test](#) or jar test to understand your soil's texture. Send a soil sample to a testing lab, like [Wallace Laboratories](#), to understand if contaminants, like lead or other heavy metals, are present. Refer to the [SSURGO soil map](#) to learn more about your soil.



Remediate and restore soils

Take steps to remediate contaminated, compacted, or unhealthy soils by adhering to [urban soil best management practices](#) to promote soil health and climate resilience.



Unpave soils

Promote soil infiltration by removing impermeable materials (e.g. concrete and asphalt paving) when feasible and replacing them with plants or permeable surfaces (e.g., soil, mulch, or vegetation) to allow on-site infiltration, and to increase habitat, cover, and sources of food for wildlife.

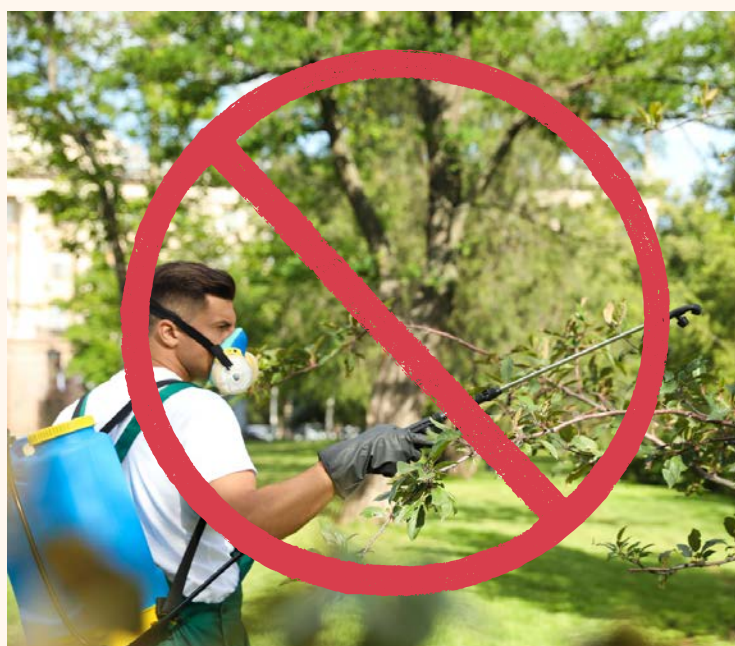


Avoid synthetic weed fabrics

Avoid the use of synthetic weed fabric, also called weedcloth or landscape fabric, which can [impede the movement of water and air and harm plants and soil.](#)

Eliminate the use of synthetic fertilizers, pesticides, and herbicides

Eliminating the use of synthetics helps to protect soil microbes, biodiversity, and waterways, and human health. For information on alternatives, see the information on Integrated Pest Management in the '[Maintenance](#)' section. In addition to having negative ecosystem impacts onsite, synthetic chemicals, especially when overused or when used during wet conditions, can find their way into runoff and negatively impact waterways. Please note that discharging pollutants, including pesticides and herbicides, into the storm drain system is prohibited ([LAMC Sec. 64.70.02](#)).





Increase vegetation cover and mycorrhizal fungi

Increase soil carbon, nutrient availability, and healthy mycorrhizal fungi by growing a diverse array of living plants, using mulch, and retaining leaf litter in your garden.



PHOTO: THEODORE PAYNE FOUNDATION, MARIE ASTRID GONZALEZ

Use regenerative organic management practices

For example, minimize soil disturbance (e.g., grading or tilling) and maximize soil cover (via mulch or plants). Refer to [Rescape's 8 Principles for Regenerative Landscapes](#) for additional guidance

LA BIODIVERSITY GUIDELINES

SUSTAINABLE PRACTICES





Remove or reduce lawns

Reduce lawns as much as feasible and replant with California native plants to create habitat and conserve water. If lawn-like aesthetics are desirable, use [California native grasses](#) and other native and non-invasive, low-water plants to create meadows. The [LA Department of Water & Power offers incentives](#) to replace grass with California-friendly and native plants.



Avoid artificial turf

Concerns have been raised about the chemicals associated with artificial turf, and it offers little in the way of habitat value. Use natural or living groundcovers instead, which are more environmentally-friendly and support pollinators and other wildlife whose habitat is limited in urban areas.



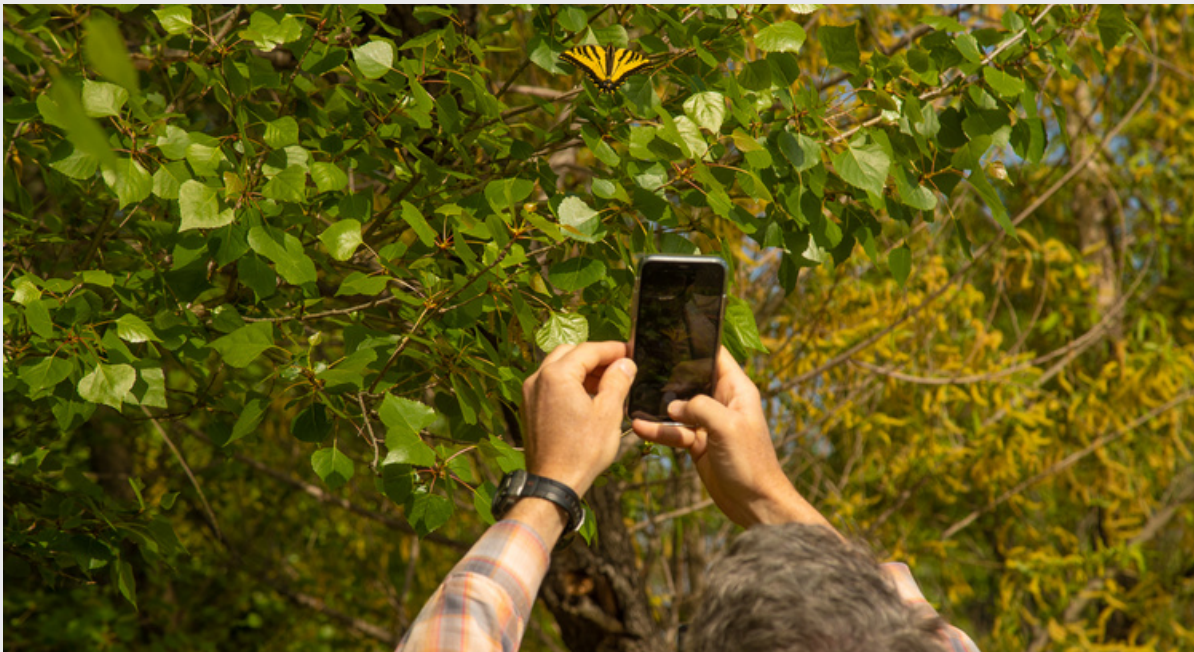
Participate in small-scale urban agriculture

Plant an edible garden at a private residence, public park, or community garden to enable hyper-local food production and increase food security. Connect with other community gardeners via the LA Community Garden Council's [Find a Garden](#) feature.

Adhere to wildlife- and watershed-friendly pet care practices:

- Keep cats indoors or in confined outdoor spaces as free-ranging domesticated and feral cats can lead to predation, competition, and disease in native biodiversity ([LAMC Sec 53.06.1](#)). [Predation by cats](#) is a bigger threat to bird populations than any other human-caused impact.
- When walking your dog, always carry a non-plastic (e.g., cornstarch) bag to pick up your pet's waste and properly dispose of it in the trash ([LAMC Sec. 53.49](#)). Pet waste has high levels of nitrogen which can lead to algae growth and bacteria that can spread disease in our watersheds.





Become a community scientist!

Document occurrences of wild plants and animals on community science platforms like [iNaturalist](#) & [eBird](#).



Limit air pollution through use of zero-emission maintenance equipment

Gas-powered leaf blowers are prohibited in the City of Los Angeles ([LAMC Section 112.04\(c\)](#)) and the City of Pasadena. LA County Supervisors have introduced a [motion](#) to explore banning gas-powered leaf blowers in unincorporated LA County. Gas-powered blowers pollute the air, emit GHGs, cause wind erosion, prevent the development of healthy soils, and deplete the soil of important leaf litter, invertebrates, and microorganisms. The South Coast Air Quality Management District offers [incentives](#) to purchase zero emission maintenance equipment.

Volunteer

Sign-up for planting, monitoring, restoration, and clean up efforts with groups like:

- [TreePeople](#)
- [CityPlants](#)
- [Heal the Bay](#)
- [Friends of Ballona Wetlands](#)
- [Palos Verdes Peninsula Land Conservancy](#)
- [LA County Department of Parks and Recreation](#)
- [Friends of the LA River](#)



PHOTO: CITY PLANTS



PHOTO: CITY PLANTS

Do not feed wildlife, keep lids on trash cans, & report injured wildlife

Don't feed wildlife or birds. Keep lids on trash cans and/or secure them to deter wildlife. If you find injured wildlife, call:

- Ojai Raptor Center 805-649-6884
- Intl Bird Rescue 310-514-2573
- Animal Services 888-452-7381
- CA Wildlife Center 310-458-9453

Report poaching violations to CALTIP via web or phone at 888-334-2258



LA BIODIVERSITY GUIDELINES

CHECKLIST



HABITAT CHECKLIST

- ☐ Use a diverse plant palette to create, enhance, or restore habitat: Develop a diverse planting palette for the site or project with an array of native plants, shrubs, and trees with different heights, and densities, to create complex habitat structure with multiple microhabitats for wildlife, where appropriate. For best results, aim for no less than 70% locally native species in landscaping designs. Ensure that the site has the appropriate conditions (e.g., sunlight, water, soil, space) for the selected plant species to mature and thrive. Many native plants are able to thrive in small spaces and in pots/containers. Use the following zip code-specific plant finders to select appropriate native species for your site:
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 - The California Botanic Garden
 - The Theodore Payne Foundation (In Sunland and at the Los Nogales Nursery at the LA Audubon Center at Debs Park)
 - El Nativo
 - S&S Seeds
 - Las Pilitas Native Plant Nursery
 - Palos Verdes Peninsula Land Conservancy's Native Plant Nursery
 - Tree of Life Nursery
 - Matilija Nursery
- ☐ Preserve existing native vegetation: Protect and preserve native shrubs and trees on site as feasible and permitted. In particular, retain urban woodlands, individual native trees, and large canopy trees that provide shade.
- ☐ Enhance wildlife connectivity: Help create habitat patches and corridors through urban areas, by planting locally appropriate California native species in key locations that can help connect large natural parks and open spaces. Efforts can range from planting large native shrubs and trees that provide cover for large mammals or planting species that will be utilized by birds, butterflies, and other pollinators. See the 'Built Elements' section for ways to enhance wildlife connectivity in the built environment.

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- ☐ Follow best practices for work in the public parkway: If working in the parkway within the City of LA, adhere to the City's Residential Parkway Landscaping Guidelines which includes a list of Preferred Drought-Tolerant Plant Species. If you live in a different city or unincorporated LA County, adhere to locally relevant guidelines.

*Refer to the 'Maintenance' and 'Sustainable Practices' sections for more information on creating and sustaining wildlife habitat using wildlife-friendly management practices.

MAINTENANCE CHECKLIST

- ☐ Select and maintain plants based on their specific maintenance requirements: To ensure your garden thrives, understand species-specific maintenance needs and select plant species that meet the maintenance needs of your site. Take care to plan pruning, dead heading, plant placement, and watering frequency accordingly.
- ☐ Consider hiring a gardener or landscaper who is trained to care for California native plants: Seek gardening or landscaping professionals who have been certified to care for California native plants and use environmentally-friendly maintenance practices, such as Theodore Payne's California Native Plant Landscaper Certification Program. Or, consider undertaking training or certification yourself.
- ☐ Strategically prune and maintain trees: Avoid non-essential pruning or thinning, particularly during hot, dry times, as it can weaken woody plants. Minimizing pruning and thinning will also help maximize the environmental benefits of trees (e.g., reducing carbon dioxide, mitigating air pollution, etc.). For best results, prune when trees and shrubs are dormant (i.e., before plants start growing during their particular growing season) (CNPS). For more information on pruning native trees and shrubs, visit the UC Marin Master Gardeners website.
- ☐ Protect nesting birds: Take precautions to prevent disturbing nests or nesting birds (e.g., avoiding vegetation removal or clearance) during the nesting season, which runs from February - August. Tree Care for Birds and the LA Audubon have great tips on how to prevent harm to birds and wildlife when pruning/caring for trees, performing brush management, or doing other maintenance.
- ☐ Manage weeds and invasive species: Hand weed regularly, particularly in winter and spring before plants go to seed. When weeding, aim to remove the full plant, including the roots.
- ☐ Reduce ground disturbances & mowing: Avoid or reduce mowing to promote deep root growth and limit habitat impacts for bees, other pollinators, and other wildlife (USDA Forest Service). When mowing must be performed, consider using a hand mower.
- ☐ Prioritize the use of organic, biodegradable interventions: Prioritize environmentally-friendly interventions and only use synthetic chemicals in your space as a last resort. If pesticides, herbicides, or fertilizers are used, minimize their use as much as possible and avoid application prior to rainfall to avoid polluted runoff that can lead to algae blooms and poor water quality.
- ☐ Practice Integrated Pest Management (IPM): IPM emphasizes using the least toxic methods as the first line of pest defense to limit risks to humans and the environment. Carefully check product labels, understand the inherent risks of active ingredients, and follow best practices to use pesticides safely and effectively. Avoid pyrethroids, carbaryl, metaldehyde, and neonicotinoids, which can be particularly harmful to wildlife. Be aware of local bans and laws regarding pesticides. California bans certain pesticides, including neonicotinoid pesticides (AB-2146) and rodenticides. The City of Los Angeles adopted a motion (CF #07-2342) mandating use of IPM for all City facilities.

MAINTENANCE CHECKLIST

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Avoid all rodenticides (i.e., rat poisons), including first and second generation products: Adhere to the California Ecosystems Protection Act (AB-1788) which prohibits the use of second-generation anticoagulant rodenticides. LA County is exploring banning first-generation anticoagulant rodenticides and the State is considering a ban on first-generation diphacinone (AB-1322). Instead, use exclusion and sanitation practices to control rodents.

WATER CHECKLIST

- ☐ Incorporate a source of freshwater for birds: Sources of water include birdbaths and fountains. Any running water feature should use a recirculating system. Exercise caution with still water features due to their potential to breed mosquitoes; if a still water feature will be used, it should include an agitator or be refreshed regularly. Refer to the Audubon website for additional tips for cleaning birdbaths. Alternatively, mosquitofish, which are available for free from LA County Vector Control, may be introduced to water features to control mosquito populations.
- ☐ Mimic natural hydrology: Design your landscape to take advantage of rainwater and mimic natural hydrology. Contour the site to absorb and retain rainwater. Place rock gardens or swales where rain naturally collects, and consider restricting the use of riparian or higher water needs native plants to those areas. Group plants with water similar needs together. Refer to the California Watershed Approach to Landscape Design for additional guidance.
- ☐ Take advantage of sandy or gravelly soils for groundwater recharge: Some locations have naturally sandy or gravelly soils that can very effectively infiltrate rainwater. Incorporate parkway basins, bioswales, or other infiltration features to capture rainwater from streets and built lands in high infiltration areas. Consider performing a soil drainage test to determine the infiltration potential of your site.
- ☐ Use water-efficient plant species: Select native plants with water use profiles that are appropriate for your site, or subsections of your site. For example, low-water-use plants are appropriate for well-drained soils, while high-water-use plants may be appropriate for shady areas with clay soils or near natural sources of water. Reference WUCOLS, Calscape, and Landscape Plants for California Gardens for more information.
- ☐ Plant during late fall or winter: Plant native plants in the later fall or winter to take advantage of cooler temperatures and seasonal rains. Many newly-planted native plants require shading, especially in the San Fernando Valley and other hot climates, and will require moist soil to become established. In the absence of rain, provide supplemental deep, infrequent watering.
- ☐ Use appropriate irrigation: Select an irrigation system that is well suited to the water needs of native plants. Hand watering will most closely mimic natural rainfall. Drip irrigation can be used, but should be closely monitored and regularly adjusted to avoid flooding root systems. Drip systems are generally not effective for plants with shallow spreading root systems, such as coastal sage scrub species. If using overhead irrigation, use high efficiency rotary nozzles. Otherwise, avoid traditional overhead spray irrigation, which is highly inefficient and can cause overspray, runoff, and soil erosion.

WATER CHECKLIST

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Follow seasonal watering best practices:

- Summer: Minimize or avoid watering established native plants that have been in the ground for two or three years during the summer. Many native southern California plants go dormant in the summer, losing leaves to adapt to hot dry temperatures, and supplemental water may kill them. However, limited supplemental water may be helpful for young plants that are not yet established, especially during drought years. To support deep rooting and prevent disease, allow the soil to dry between any supplemental watering.
- Other Seasons: In the absence of regular rainfall, provide supplemental water to simulate seasonal rainfall. Generally, water deeply and infrequently to maintain moisture in the root zone.

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Protect water features onsite: Protect streams, rivers, or wetlands onsite or adjacent to the project by taking extra care to avoid potential disturbances including herbicides and pesticides, invasive plants, and development activities, like grading. In some cases, an increase in urban runoff from a project or yard can affect the ecology of a local stream.

BUILT ELEMENTS CHECKLIST

- ☐ Reduce artificial light pollution: Take steps to reduce ecological light pollution at your home, work, or school, especially if the building is in an area buffering natural areas, by directing lights away from natural habitat/open space, dimming lights, using timers, using motion sensors, drawing blinds, or turning lights off completely when not needed at night. In addition, limit overall lumens, shield lights and direct them downwards, use warmer lights (i.e., not blue LEDs), and avoid searchlights, as advised by the International Dark-Sky Association and the City's Wildlife Ordinance.
- ☐ Use wildlife-friendly fencing: Choose fencing materials that are wildlife-friendly and are designed to allow animals to jump over, crawl under, or pass through without harm. Fencing should be highly visible for large mammals, like deer, and birds, that otherwise may collide with or become tangled in fencing. Use fencing free of sharp materials or spikes that can harm wildlife and avoid fencing with mesh or netting at the base as wildlife can get trapped in the netting. Specifically, avoid the following materials, which are called out in the City's Wildlife Ordinance:
 - Barbed wire
 - Plastic mesh
 - Concertina wire
 - Razor wire
 - Spikes
 - Sharp glass
 - Uncapped hollow fence posts.
- ☐ Minimize hardscape: When in doubt, don't pave. Minimize the use of impermeable hardscape surfaces such as concrete and asphalt paving, and maximize planted and landscaped areas with soils that can infiltrate rainwater. As feasible, remove existing concrete and hardscape to encourage infiltration. Where minimal hardscape is absolutely necessary, use permeable hardscape options, such as decomposed granite, gravel, and permeable paving like pre-cast concrete pavers, natural stone, or clay bricks with open joints to allow water to infiltrate and recharge groundwater.
- ☐ Minimize building footprint: Minimize overall square footage of building footprints by building up, rather than out, to minimize habitat disturbance.
- ☐ Protect trees and tree roots: Protect existing trees, and do not excavate soil, change the elevation, or construct foundations or other built elements within a tree's critical root zone (i.e., the area from the trunk of a tree to the edge of the canopy).
- ☐ Secure trash receptacles: Securely enclose outdoor trash receptacles to prevent wildlife scavenging and prevent human-wildlife conflict. Securing exterior trash enclosures is particularly important in neighborhoods near open space.
- ☐ Ensure windows are bird-friendly: Prevent window bird strikes by using bird-safe window glass or treatments, like frosting, fritting, or angling, or by using tall shrubs or trees to visually break up expanses of windows.

BUILT ELEMENTS CHECKLIST

- ☐ Install living roofs, terraces, & walls: Install a living roof, terrace, or wall with proper soil volumes to add important greening and habitat elements to heavily urbanized areas. Some applications, such as living roofs, are best on the coast where average temperatures are cooler and more moisture is available. For hotter areas, consider climbing vines, hanging wall planters, or other alternatives.
- ☐ Establish buffers or setbacks for wildlife movement: Minimize harm to wildlife by establishing space, or a buffer, between natural areas and other biological resources and planned construction or development.
- ☐ Ensure safe crossings for wildlife: Support the Statewide initiative to prevent vehicle-wildlife collisions (AB-2344) by strategically using fencing to guide wildlife to places they can safely cross roads or other barriers. If pertinent to the project, design wildlife-friendly road underpasses or overpasses or install large culverts that encourage safe wildlife passage and keep vulnerable animals off roadways.
- ☐ Preserve ridgelines and minimize site grading: Utilize all previously graded or disturbed areas on the site for new development to the greatest extent possible, before developing or grading new areas, to reduce impacts to undisturbed areas. Preserve the most prominent and unique slopes, hilltops and ridgelines, and contiguous undisturbed open space throughout the site.
- ☐ Adhere to wildlife regulations during construction: Take measures to protect habitat (e.g., shrubs and trees) and wildlife, including bird nests, onsite during construction. Construction in the City must adhere to the regulations set forth in the Protected Tree Ordinance, the Migratory Bird Treaty Act, and in LAMC Sec. 53.48.

HEALTHY SOIL CHECKLIST

- ☐ Compost: Turn food scraps and yard waste into nutrient-rich compost by participating in backyard composting, dropping your food scraps off at a farmers market, joining a compost co-op, or by participating in mandatory municipal composting by placing your food scraps in your green bin (via OrganicsLA in the City) to divert organic materials from landfills, avoiding harmful methane emissions while producing a great soil amendment.
- ☐ Apply organic soils amendments: Consider using amendments like compost or mulch in gardens or yards as prescribed in LASAN's guidelines to increase water infiltration/holding capacity and suppress weeds. However, such amendments should not be used in wildland areas, unless part of a specific restoration objective.
- ☐ Test the soil in your yard or neighborhood: Use the ribbon test or jar test to understand your soil's texture. Send a soil sample to a testing lab, like Wallace Laboratories, to understand if contaminants, like lead or other heavy metals, are present. Refer to the SSURGO soil map to learn more about your soil.
- ☐ Remediate and restore soils: Take steps to remediate contaminated, compacted, or unhealthy soils by adhering to urban soil best management practices to promote soil health and climate resilience.
- ☐ Unpave soils: Promote soil infiltration by removing impermeable materials (e.g. concrete and asphalt paving) when feasible and replacing them with plants or permeable surfaces (e.g., soil, mulch, or vegetation) to allow on-site infiltration, and to increase habitat, cover, and sources of food for wildlife.
- ☐ Avoid synthetic weed fabrics: Avoid the use of synthetic weed fabric, also called weedcloth or landscape fabric, which can impede the movement of water and air and harm plants and soil.
- ☐ Eliminate the use of synthetic fertilizers, pesticides, and herbicides: Eliminating the use of synthetics helps to protect soil microbes, biodiversity, and waterways, and human health. For information on alternatives, see the information on Integrated Pest Management in the 'Maintenance' section. In addition to having negative ecosystem impacts onsite, synthetic chemicals, especially when overused or when used during wet conditions, can find their way into runoff and negatively impact waterways. Please note that discharging pollutants, including pesticides and herbicides, into the storm drain system is prohibited (LAMC Sec. 64.70.02).
- ☐ Increase vegetation cover and mycorrhizal fungi: Increase soil carbon, nutrient availability, and healthy mycorrhizal fungi by growing a diverse array of living plants, using mulch, and retaining leaf litter in your garden.
- ☐ Use regenerative organic management practices: For example, minimize soil disturbance (e.g., grading or tilling) and maximize soil cover (via mulch or plants). Refer to Rescape's 8 Principles for Regenerative Landscapes for additional guidance.

SUSTAINABLE PRACTICES CHECKLIST

- ☐ Remove or reduce lawn size: Reduce lawns as much as feasible and replant with California native plants to create habitat and conserve water. If lawn-like aesthetics are desirable, use California native grasses and other native and non-invasive, low-water plants to create meadows. The LA Department of Water & Power offers incentives to replace grass with California-friendly and native plants.
- ☐ Avoid artificial turf: Concerns have been raised about the chemicals associated with artificial turf, and it offers little in the way of habitat value. Use natural or living groundcovers instead, which are more environmentally-friendly and support pollinators and other wildlife whose habitat is limited in urban areas.
- ☐ Participate in small-scale urban agriculture: Plant an edible garden at a private residence, public park, or community garden to enable hyper-local food production and increase food security. Connect with other community gardeners via the LA Community Garden Council's Find a Garden feature.
- ☐ Adhere to wildlife- and watershed-friendly pet care practices:
 - Keep cats indoors or in confined outdoor spaces as free-ranging domesticated and feral cats can lead to predation, competition, and disease in native biodiversity (LAMC Sec 53.06.1). Predation by cats is a bigger threat to bird populations than any other human-caused impact.
 - When walking your dog, always carry a non-plastic (e.g., cornstarch) bag to pick up your pet's waste and properly dispose of it in the trash (LAMC Sec. 53.49). Pet waste has high levels of nitrogen which can lead to algae growth and bacteria that can spread disease in our watersheds.
- ☐ Become a community scientist! Document occurrences of wild plants and animals on community science platforms like iNaturalist & eBird.
- ☐ Limit air pollution through use of zero-emission maintenance equipment: Gas-powered leaf blowers are prohibited in the City of Los Angeles (LAMC Section 112.04(c)) and the City of Pasadena. LA County Supervisors have introduced a motion to explore banning gas-powered leaf blowers in unincorporated LA County. Gas-powered blowers pollute the air, emit GHGs, cause wind erosion, prevent the development of healthy soils, and deplete the soil of important leaf litter, invertebrates, and microorganisms. The South Coast Air Quality Management District offers incentives to purchase zero emission maintenance equipment.
- ☐ Volunteer: Sign-up for planting, monitoring, restoration, and clean up efforts with groups like: TreePeople, CityPlants, Heal the Bay, Friends of Ballona Wetlands, Palos Verdes Peninsula Land Conservancy, LA County Department of Parks and Recreation, and Friends of the LA River.
- ☐ Don't feed wildlife, secure trash cans, and report injured wildlife: Don't feed wildlife or birds. Keep lids on trash cans and/or secure them to deter wildlife. If you find injured wildlife, call the Ojai Raptor Center 805-649-6884, International Bird Rescue 310-514-2573, or LA Animal Services 888-452-7381. Report poaching violations at CALTIP (1 888 334-CALTIP (888 334-2258)).

RESOURCES & REGULATIONS



 [Calscape.org](https://www.calscape.org)

 [CalTIP](https://www.caltip.org)

 [cnps.org/gardening](https://www.cnps.org/gardening)

 [darksky.org](https://www.darksky.org)

 [eBird.org](https://ebird.org)

 [Farmers' Market Food Scrap Drop-off Sites](#)

 [Free Composting Workshops](#)

 [iNaturalist.org](https://www.inaturalist.org)

 [Join a Compost Co-op](#)

 [landdesignpublishing.com](https://www.landdesignpublishing.com)

 [Migratory Bird Treaty Act](#)

 [NWF.org/certify](https://www.nwf.org/certify)

 [OrganicsLA](#)

 [Pruning Native Trees and Shrubs](#)

 [WUCOLS Plant Search](#)

 [Xerces.org](https://www.xerces.org)

 [LAMC SECTION 53.06.1](#)

 [LAMC SECTION 53.48](#)

 [LAMC SECTION 53.49](#)

 [LAMC SECTION 64.70.02](#)

 [LAMC SECTION 112.04\(C\)](#)

 [LA CITY COUNCIL FILE #07-2342](#)

 [LA COUNTY MOTION](#)

 [CA ASSEMBLY BILL 1322](#)

 [CA ASSEMBLY BILL 1788](#)

 [CA ASSEMBLY BILL 2146](#)

 [CA ASSEMBLY BILL 2344](#)

GET IN TOUCH

LASAN's Biodiversity Program oversees the City's efforts to protect and enhance biodiversity. The program originated in 2017 when the LA City Council adopted the Biodiversity Motion and directed LASAN to lead Citywide biodiversity efforts.

☎ 800-773-2489

➤ lacitysan.org/biodiversity

