

Creation of a Climate Adapted Urban Oasis Through the Hyperlocal Lens —Palm Springs Downtown Park in California, USA

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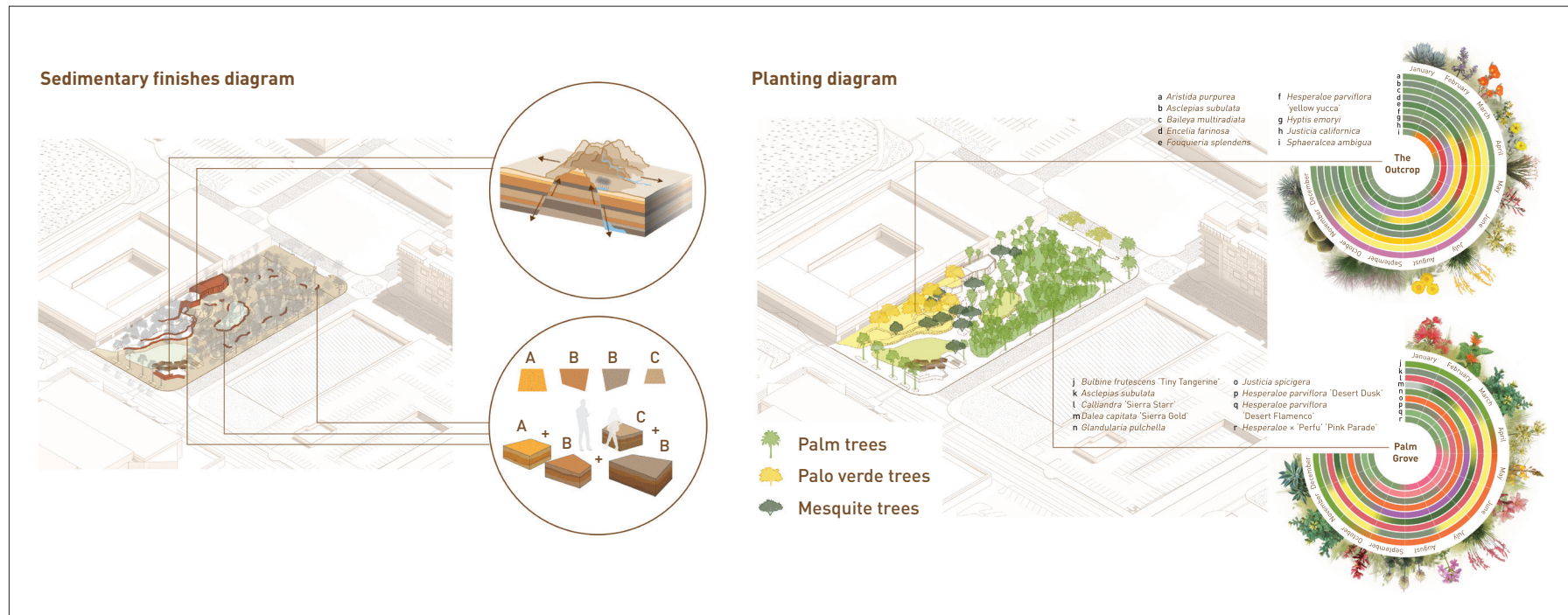
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GRAPHICAL ABSTRACT



HIGHLIGHTS

- The project provides an opportunity to rethink the design of public parks in extreme heat environments
- A hyperlocal lens drives the design process, reinterpreting the local ecology and geology into a distinctive and authentic environment
- Hyperlocal design leverages local materials and climate adaptation strategies to reduce the environmental footprint of the project

KEYWORDS

Landscape Architecture;
Public Space;
Hyperlocal Design;
Urban Oasis;
Climate Adaptation;
Urban Renewal

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Palm Springs Downtown Park is an inviting 1.5-acre urban oasis for residents and visitors to Palm Springs, a design-forward desert destination nestled along the base of the San Jacinto Mountains along the southwestern boundary of the Coachella Valley in California's Sonoran Desert of the USA. The site lies in the ancestral homeland of the Agua Caliente band of the Cahuilla people who seasonally migrated between the shady palm groves and meltwater creeks of mountain canyons in summer and the hot springs and temperate climate of the valley floor in winter. The park is also located on the historic site of the Desert Inn, Palm Springs' first wellness resort. Nellie Coffman, the Desert Inn's founder, famously promoted the "space, stillness, solitude, and simplicity" of Palm Springs, and the park is imbued with her spirit.

Drawing inspiration from local natural features such as the oases of endemic California fan palms (*Washingtonia filifera*) in

Palm Canyon and the striated geology of nearby Tahquitz Canyon, the park design creates hospitable, comfortable spaces for the community in the extreme heat of the desert. The park features dense palm grove planting with ample shaded areas for seating, two picnicking and event lawns, rock outcrop-like amphitheater seating for community events, shade structures inspired by palm fronds, and a grotto-like interactive water feature for play and cooling. Locally sourced stone, native desert plantings, and creature comforts create a common ground rooted in a hyperlocal use of materials to create a sense of place for the diverse, growing community of Palm Springs and its visitors.

EDITED BY Ying WANG, Jiayi ZHOU

1 Unearthing the DNA of the Site

Palm Springs Downtown Park is part of an urban redevelopment masterplan for the downtown district of Palm Springs in California, USA that has been underway for more than a decade. Following the closure of the original Desert Inn in 1955, the whole resort was razed in the mid-1960s to make way for an indoor shopping mall, which closed in the early 2000s and was demolished in 2013. The site was earmarked as a significant open space in the downtown district, which would connect new retail and hospitality developments along Palm Springs' main commercial street, Palm Canyon Drive, and the Palm Springs Art Museum sitting at the foot of the dramatic backdrop of the San Jacinto Mountains. Having secured public funding for the park through a 1% sales tax dedicated to local community improvements and the revitalization of the downtown district, the City of Palm Springs approached RIOS, an international design collective, to design the park in 2017.

As a starting point in the design process, the design team conducted in-depth research into the cultural histories of Palm Springs and Coachella Valley. Gathering literature on topics ranging from the region's native Agua Caliente band of Cahuilla people, early

20th century bohemian settlers and desert seekers, the history of Nellie Coffman and the Desert Inn, and singing cowboys to the city's contemporary art, architecture, and music culture, the team dove deep into the histories of this unique place and the intrinsic qualities that have drawn people to Palm Springs for centuries.

The team also studied the natural history of Palm Springs in order to understand the ecology, geology, climate, and hydrologic systems that characterize the unique landscape of the Coachella Valley. Taking group hikes through nearby Indian Canyons, the team was inspired by the presence of natural springs which created lush oases characterized by dense groves of California's only endemic palm species, California fan palms (*Washingtonia filifera*). The team also studied the geology of the San Jacinto Mountains and surrounding geological formations, which were created by seismic uplifts in the earth's crust and the creation of deep canyons caused by erosion from snowmelt. Hiking through Palm Springs' legendary Tahquitz Canyon, the sedimentary layers of rock, traces of minerals, and the cascading waterfalls through the canyon would become a source of inspiration for the park.

At the outset of the design process, RIOS conducted public engagement workshops, exhibits, and online questionnaires over

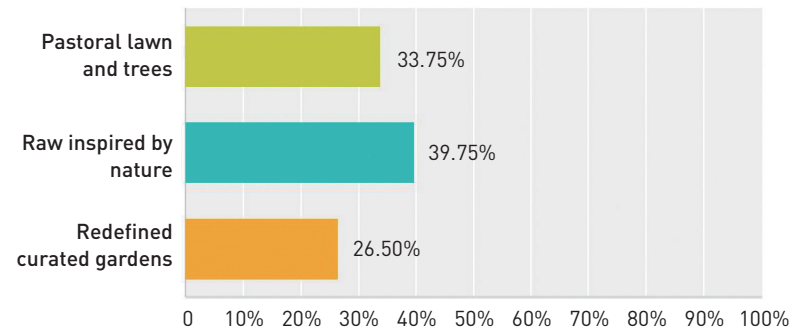


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a six-month duration to understand the community's needs and desires. The team held two community workshops that asked attendees to write down their dreams for the park, identify preferences for park character and materiality, and create their own programmatic layouts. In addition, the Palm Springs Art Museum's Architecture and Design Center hosted an exhibit on the proposed park concepts and invited school children groups to leave comments and drawings on the park design. Finally, the team posted an online questionnaire for a month on the City's website for public comment on the park concepts, receiving an overwhelming nearly 1,500 responses, all of which were reviewed by RIOS. The common themes from all the community engagement activities (Fig. 1) included the public's desire for shade, safety, water, and

Which character did you prefer?

Answered: 1,366 Skipped: 15



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the use of materials and plantings (Fig. 2) that would reflect the uniqueness of Palm Springs.

The team's cultural and natural research, inspirational hikes, and the themes gleaned from the community's input informed the subsequent development of the design. The park site was organized into three overlapping spaces reflecting the team's research and the needs of the community: the Palm Grove, the Outcrop, and the Theater. Each offered distinct programmatic capacities and revealed facets of the region's dynamic geology, distinctive vegetation, and rich history (Fig. 3).

1.1 The Palm Grove

The densely planted Palm Grove satisfies the need to achieve



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1. Comments from the first public workshop where community members expressed their desires for the park.
2. Results on preference of park characters from online questionnaires conducted as part of community engagement process.
3. Plan of the Palm Springs Downtown Park



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thermal comfort in the extreme heat of summer days. The tight arrangement of over 130 *Washingtonia filifera* (Figs. 4, 5), California's only native palm, was inspired by team hikes to Palm Canyon on the Agua Caliente Reservation. The canyon's sandy floor and continuous canopy formed a cooling cathedral that would significantly influence Downtown Park's identity. The native palms were also characterized by their frond skirts except where a fire had burned them off and charred their trunks. Some had even been struck by lightning, creating a sinuous trunk form known as a

"snake palm." For the park, palms of varying heights were selected for their unique and irregular forms and composed along with seat walls to create shady social eddies of varying sizes. Custom aluminum park furnishings stay cool to the touch and are left loose for users to "follow the shade" throughout the day. Visitors are encouraged to move furnishings around to support morning coffee klatches, family picnics, or quiet reading. After dark, the grove is illuminated to glow like a lantern, inviting park usage into the cooler evening hours (Fig. 6).



6 © RIOS

4. A selection of 130 *Washingtonia filifera* of varying heights with intact frond skirts for their unique, irregular forms. The densely planted trees provide cooling shade during the extreme heat of summer days.
5. Overhead view of the Palm Grove
6. As the temperature reduces in the evening, the park comes to life with dramatic lighting.



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7-1. Model of the Outcrop

7-2. The dramatic Outcrop rising reflects the ombre of tones and sedimentary that make up the adjacent San Jacinto Mountains.

8. Sedimentary seat blocks are rotated, stacked, and combined to form a variety of expressions with comfortable seating at multiple heights and integrated skate deterrence.

1.2 The Outcrop

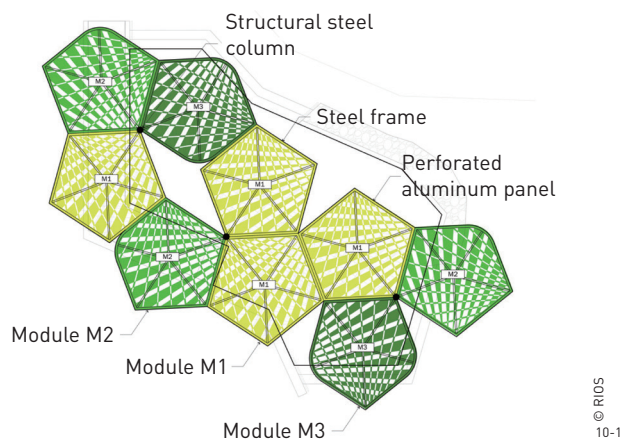
The dramatic Outcrop rising along the park's northern edge was initially conceived to obscure an adjacent parking garage and house the park restroom building and a police substation (Fig. 7). Fusing the project's architectural requirements with landscape allowed for an immersive park experience that relates to the surrounding mountains. Team hikes in Tahquitz Canyon offered an up-close experience of the colorful banded rock formations which offer such

striking views from the valley floor. As a result, the team abstracted this geology into a custom "sedimentary" finish for shotcrete vertical walls and pre-cast concrete modular seat blocks that retain slopes and form gathering spaces in the park (Fig. 8). The uplifted geologic layers of the Outcrop reflect the ombre of tones that make up the adjacent San Jacinto Mountains, from reddish and rumpled sandstones along the base to desaturated and smooth granite along the top. Meandering trails rise with a landform at the east as the

9. Sedimentary feature wall and water feature



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Outcrop becomes the backdrop for the park’s dramatic centerpiece, a powerful cascade inspired by Tahquitz Canyon’s iconic waterfalls. In front of the waterfall is an interactive water feature of jets and fog emitters that cools the heart of the park while bringing the magic of surrounding mountains into the urban core (Fig. 9).

1.3 The Theater

Park visitors flock to the shade of the Palm Grove and the relief of the Outcrop’s water features to beat the heat during the day, but at night as temperature comes down, the Theater comes to life. With a capacity of over 1,000 people on the event lawn and amphitheater seat blocks stepping up into the Outcrop, the stage is framed by a palm frond-inspired shade canopy (Fig. 10) and has a dramatic backdrop of the Palm Springs Art Museum and the San Jacinto Mountains. This space honors the cultural heritage of Palm Springs and the Coachella Valley, a world-class destination for the performing arts from the days of singing cowboys to contemporary music, dance, and film festivals. The Theater hosts many events, from live performances, lectures, film nights to music festivals (Fig. 11).

2 Climate Adaptation Through the Hyperlocal Lens

RIOS approached the design of the project through the lens of “hyper-localism”^[1] both to reinforce an intrinsic identity for the park and its spirit of place and as a means of climate adaptation. In an environment of extreme heat that is projected to get even hotter since climate change, it was important for the team to use the park design as a test case for how to futureproof park spaces against extreme heat and create comfortable spaces for users. Additionally, given the challenges of water scarcity in Southern California, the design team had to carefully balance the public’s desire for water and lawns in the park with a minimal approach to water usage and a desert-appropriate planting palette.

2.1 Thermal Comfort and Climate Resilience

One of the most significant considerations of the park’s design was how to create an outdoor environment that could remain comfortable for as many hours as possible in the extreme heat of the desert. In a climate that increasingly reaches over 43°C in the

10-1. Design of the shade canopy

10-2. The stage in the Theater is framed by a palm frond-inspired shade canopy.

11. The Theater can host an array of events, from live performances and lectures to film nights and festivals.

summer, there are periods when occupation of outdoor spaces is challenged. However, through careful study of the surrounding landscape characteristics, the design team extended the “shoulder” hours of morning and evening by promoting various cooling techniques and thereby increase the usable times of day during the less hospitable months of the year^[2]. Equally, the design team, along with the lighting designer, recognized the importance of nighttime use when the ambient temperature drops, and focused on creating a welcoming and safe environment through ample lighting and special lighting in the water feature, which can be programmed for holidays and events.

The team conducted temperature, wind, and humidity readings during the hottest times of the year at the beginning of the design process to study the effects of introducing shade and moisture. Then, through 3D modeling of seasonal shade scenarios, the team mapped the actual spacing of the native palms in Palm Canyon onto the site both to recreate the cathedral-like effect of the native Palm Canyon and to maximize shade coverage throughout the year. Thermal coatings were also researched and specified to reduce surface temperatures of metal handrails, door handles, and armrests.

The interactive water feature, in addition to being a spectacle and attraction for children and others to wet their feet, was also carefully sited and designed to provide ambient cooling for the park. The 15-foot tall waterfall increases air movement and provides the cooling sound of water falling, and fog emitters waft mist across the park spaces^[3] (Figs. 6, 9).

Upon completion of the park, the team conducted post-occupancy readings of air and surface temperature using infrared

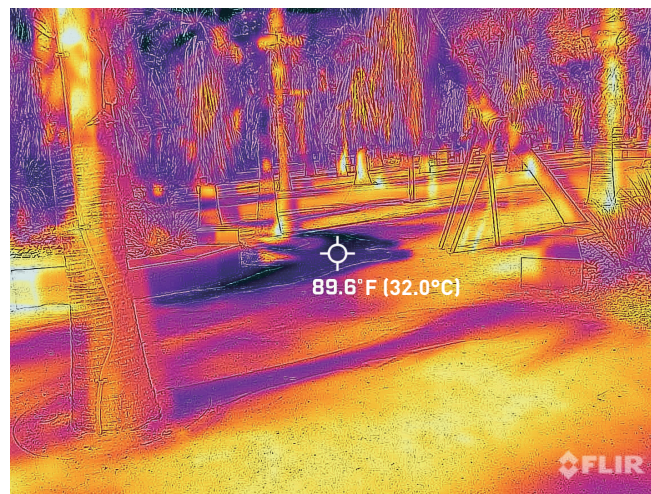
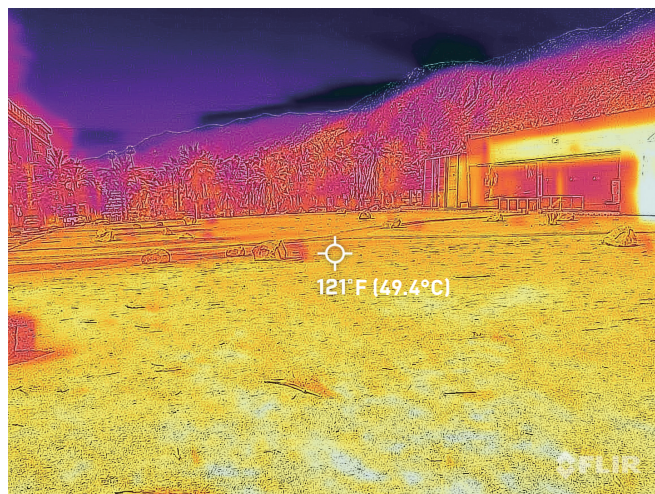
and climate measurement tools. Comparing with data from baseline existing conditions, the completed park was found to reduce air temperature by an average of 2.8°C to 3.9°C and reduce surface temperatures of hardscape surfaces by up to about 17.4°C (Fig. 12).

Through the cumulative effects of shade, water movement, and thermal coatings, the park design aims to maximize users’ outdoor comfort in an extreme heat environment. Since the park’s opening, visitors have been observed taking advantage of movable furnishings to “follow the shade” in the park throughout the day, and the water feature area has become a magnet for families and others wishing to cool off. Further post-occupancy studies are under way to track trends of use in the park.

2.2 Hyperlocal Materiality

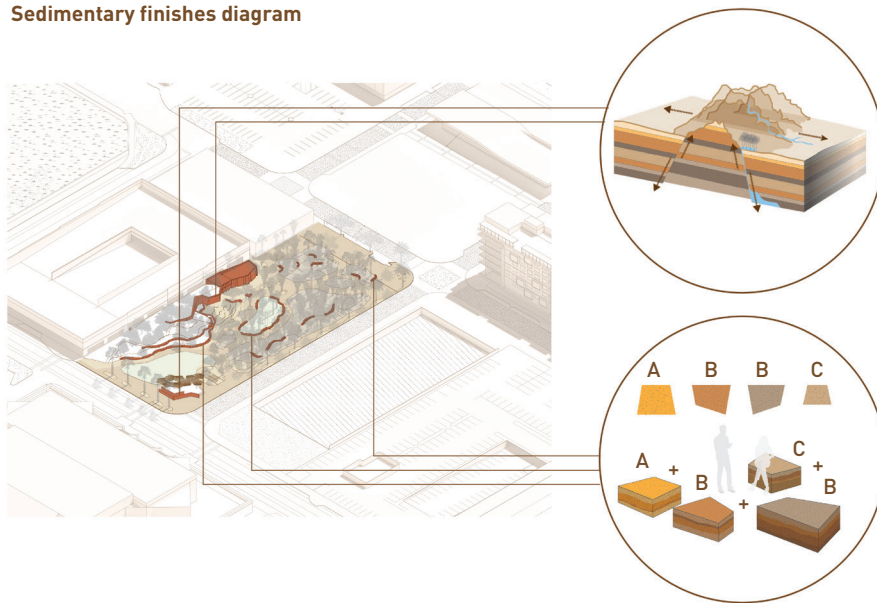
The selection of materials and plantings in the park was guided by a “hyperlocal” ethos, using local stone and aggregates and native plantings from sources as close to the site as possible.

On an early research trip, the team visited a local stone quarry in nearby Whitewater of California, 12 miles from the park site. The quarry was the source of “Palm Springs Gold,” a local quartzitic stone known for its golden tone, feldspar sparkle, and dusty pink and rust colored accents. Enamored with the warmth and subtle variations of the material, the team made the prompt decision to use this material to tie all the hardscape components of the park together, covering the decomposed granite walkways, a gradient of aggregate sizes in planting areas and boulders, and even the concrete flatwork, feature walls, and seating elements. A modular system of pre-cast concrete block units using three molds (one of which was used in the reverse to create the fourth module) was



12. Infrared images measuring baseline versus completed conditions of the park demonstrated a reduction of surface temperatures up to 17.4°C.

Sedimentary finishes diagram



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13. Team hikes in Tahquitz Canyon offers an up-close experience of the colorful banded rock formations. The team abstracted this geology into a custom “sedimentary” finish for shotcrete vertical walls and pre-cast concrete modular blocks.



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14-2

14. Pre-cast modular concrete blocks were efficiently produced from only four molds and seeded in layers with Palm Springs Gold aggregate and sands.

developed to create seats that could be arranged in a variety of ways across the park, from the amphitheater seating at the Theater to the partition wall at the restroom building, and to seating nooks and eddies in the Palm Grove (Fig. 13). Palm Springs Gold aggregate and sands were used in a layered pattern in the pre-cast block units, lending them a distinct but varied sedimentary effect (Fig. 14).

The main feature of the park is the sedimentary wall, the Outcrop, which was created in a series of shotcrete lifts to recreate the striated effect of the natural geological layers of the nearby canyon walls (Fig. 9). Working closely with the concrete trades, numerous mockups and tests were done to develop the patterning of the sedimentary wall through different integral colors, local sands, aggregates, and textural effects. “Pan sample” mockups, full scale print mockups, and a half scale panel mockup on site allowed for honing and refining the design at various stages of the design and construction process. The resulting feature wall rises like a rock outcrop in the park, mimicking the jagged edges and hues and tones of the adjacent San Jacinto Mountains.

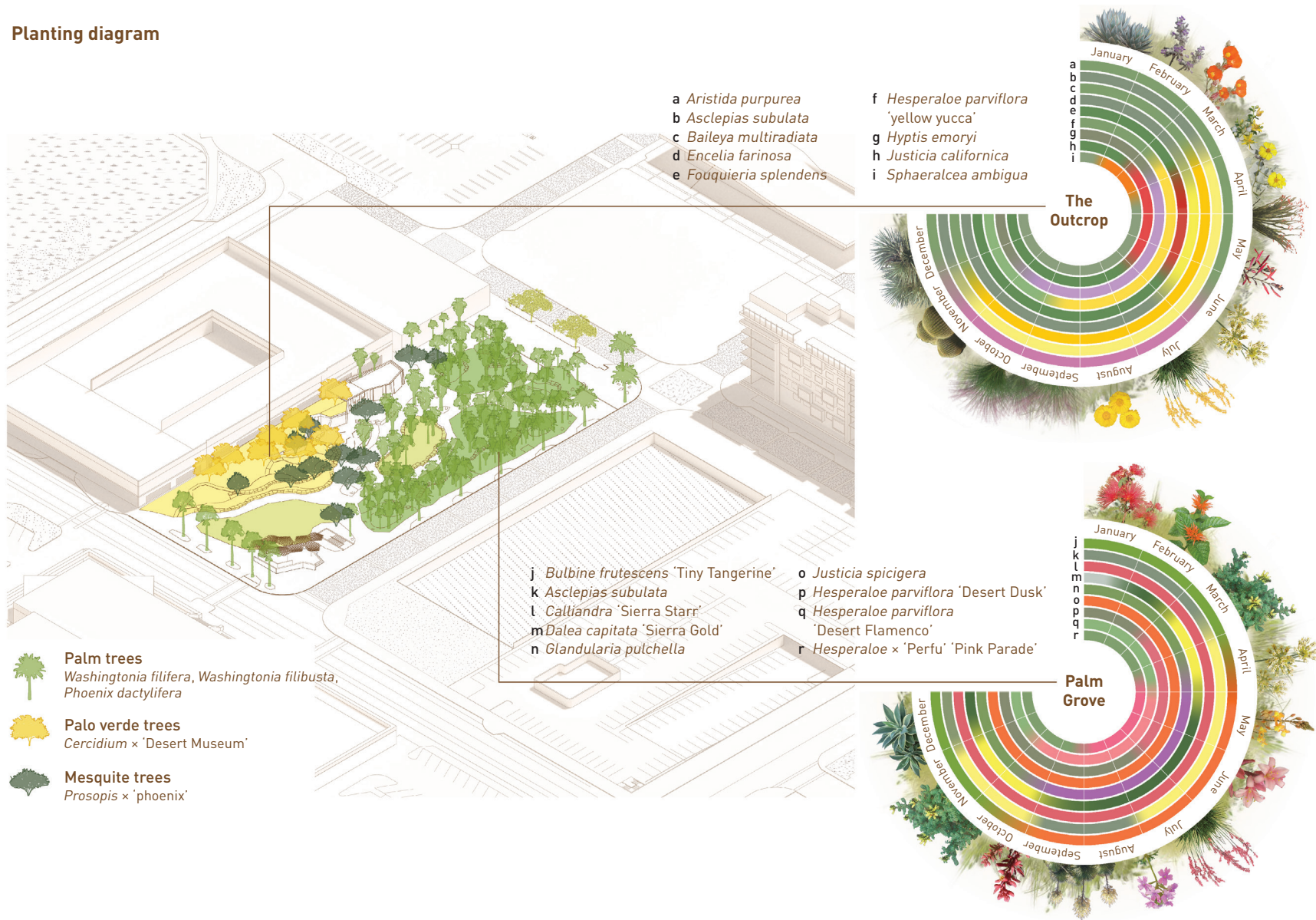
Climate-appropriate native and regional desert plantings were specified to provide ecological habitats, attract native pollinators such as monarch butterflies (*Danaus plexippus*) and

hummingbirds (Trochilidae), and display the biodiversity of the desert^[4] (Fig. 15). *Washingtonia filifera* was sourced from nearby nurseries in the Anza Borrego Valley. *Prosopis* × ‘phoenix’ and *Cercidium* × ‘Desert Museum’ provide shade and anchor a more arid and sculptural palette of *Fouquieria splendens*, *Dasyllirion wheeleri*, and *Echinocactus grusonii* on the Outcrop (Fig. 16). *Hesperaloe* spp., *Calliandra* sp., *Bulbine* sp., and *Asclepias subulata* are among the more colorful species in the Palm Grove planting areas, which also contain a series of rain gardens receiving and filtering all stormwater from the park. Water usage was carefully considered in the planting design, limiting areas of drought-tolerant lawn to areas where it would have the most impact for events. Armrests on the seat blocks increase accessibility while offering pops of vibrant color sampled from the blooms of surrounding flora (Figs. 17, 18). The overall effect of the park’s hyperlocal materials is a landscape which captures the essence of the local desert and supports native habitat.

3 Reflections on an Urban Oasis

The Downtown Park has been open to the public for over a year and has become a beloved space for the community and venue for

Planting diagram



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15. The planting design prioritizes native species with vibrant blooms throughout the year, showcasing the botanical abundance of the desert and supporting native pollinators.
16. Palm Springs Gold stone was used, decomposing granite mixed with *Prosopis* x 'phoenix' and *Cercidium* x 'Desert Museum' trees to provide shade and anchor the arid and sculptural palette of diverse plants on the Outcrop.

a multitude of public events, from film and concert nights to food festivals, dog shows, and cheerleading competitions, Black History and LGBTQIA+ Pride events (Fig. 19). It has been celebrated at Modernism Week, Palm Springs' annual festival highlighting mid-century architecture and design.

The park is used by visitors and residents of all walks of life who visit downtown Palm Springs. The park's movable furniture migrates as groups gather for coffee or lunch, following the shade



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17. Custom aluminum park furnishings allow visitors to move pieces around the park to follow the shade throughout the day. Seat blocks in the shade of the Palm Grove include generous armrests. Their colors were coordinated with nearby blooms of *Hesperaloe* spp., *Bulbine* sp., and other native plants to provide moments of surprise and delight.
18. The design team selectively calibrated a color palette for park elements drawing on the warm tones of surrounding geology, vibrant greens and yellows of native vegetation, and the spectacular blooms of desert flowers.
19. Palm Springs Downtown Park has become the centerpiece for the community to gather.



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of the palm and mesquite trees, allowing visitors to make the park their own space. Additionally, the water feature has become a destination for families across the Coachella Valley. From young children to adults, the water feature is enjoyed by all.

The success of the park can also be seen by the numerous species of butterflies, including endangered monarchs, as well

as hummingbirds and other native birds that have been spotted with each visit. The alternating blooms of the desert flowers add a richness to the botanical experience of the park from month to month.

Overall, the park has become the centerpiece of Palm Springs' downtown revitalization and an open place for the community to



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gather and celebrate. With its shaded palm groves and desert blooms, materials harmonized with the local landscape, and cooling water features, the park offers visitors a sense of what has drawn people to Palm Springs for centuries—the space, stillness, solitude, and simplicity of the desert.

The Downtown Park offers an opportunity to consider how we might adapt open spaces elsewhere to a 1.5°C future. As the planet heats and weather patterns become more extreme, the design of parks and open spaces, even in non-arid climates, must adapt. Picturesque park traditions characterized by vast expanses of grass must give way to more sustainable alternatives that reduce irrigation, restore native habitat, and increase shade coverage to mitigate the urban heat island effect. Local materials should be considered not only to reflect a hyperlocal sense of place, but to decrease the carbon footprint of construction. The Downtown Park offers valuable lessons for creating open spaces that not only serve the needs of the community and reflect a deep sense of place, but also contribute to a more sustainable and resilient future.

PROJECT INFORMATION

LOCATION: Palm Springs, California, USA

AREA (SIZE): 1.5 acres

CLIENT: City of Palm Springs

LANDSCAPE DESIGN: RIOS

PROJECT TEAM: Mark Rios, Nate Cormier, Jason Shinoda, Heejae Lee, Zhihuang Li, Tamar Cotler, Laura Kos, Crystal Huang, May Wang, Erin Williams, Misato Hamazaki

COLLABORATORS: Shaw & Sons, Fast-Track Construction, Fluidity Design Consultants, MGAC

DESIGN PERIOD: March 2017 ~ May 2019

CONSTRUCTION PERIOD: October 2019 ~ October 2021

AWARDS: 2022 ASLA Award of Excellence; 2022 Southern California Development Forum Citation; 2023 World Landscape Architecture Awards Finalist

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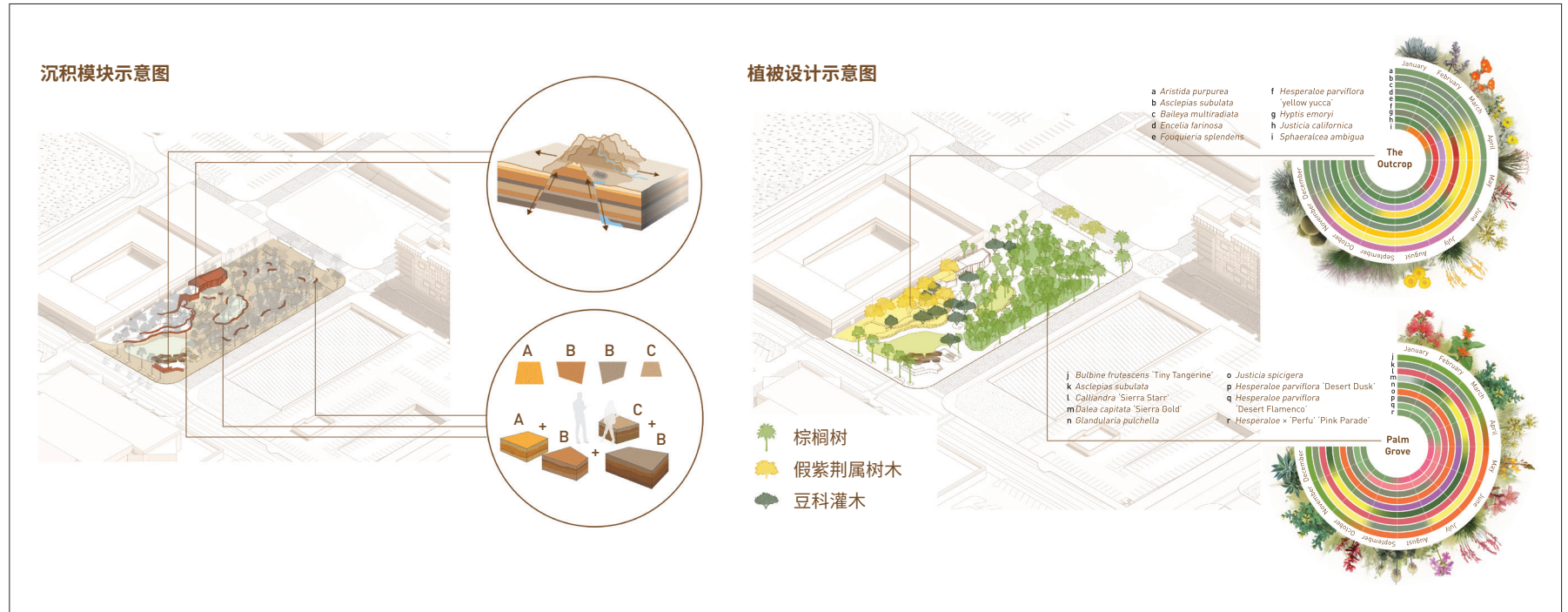
超本地化视角营造气候适应性城市绿洲 ——美国加利福尼亚州棕榈泉市中心公园

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图文摘要



文章亮点

- 项目提供了一个重新思考极端高温环境下公共公园设计策略的机会
- 由超本地化视角驱动设计过程营造独特而真实的环境，以重新诠释当地的生态和地质特征
- 超本地化设计运用本土材料和气候适应性策略来减少项目对环境的影响

摘要

棕榈泉市中心公园占地面积约为0.6hm²，坐落于美国加利福尼亚州索诺兰沙漠科切拉谷地西南角圣哈辛托山麓。受启发于当地的自然特征，如棕榈峡谷特有的加利福尼亚扇形棕榈 (*Washingtonia filifera*) 树林和附近塔奎峡谷的地貌，棕榈泉市中心公园的设计在极端炎热的沙漠中为社区创造了舒适的城市绿洲。公园的特色景观包括设有充足遮荫休憩区的茂密棕榈树林、两个供野餐和举办活动用的草坪、由形似岩层的座椅围而成的圆形露天剧场、棕榈叶造型的遮荫构筑物，以及有助于降温的互动水景。就地获取的石材、原生沙漠植物和宜人的环境相互交融，共同实现了超本地化材料的使用，为棕榈泉持续发展的多元化社区及游客营造了一种独特场所感。

关键词

景观设计；
公共空间；
超本地化；
城市绿洲；
气候适应；
城市更新

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