



**REGULAR MEETING
UNITED LAGUNA WOODS MUTUAL
LANDSCAPE TREE AD HOC COMMITTEE**

**Monday, September 19, 2022 – 9:30 a.m.
SYCAMORE ROOM/VIRTUAL
Laguna Woods Village
24351 El Toro Road, Laguna Woods, CA**

Laguna Woods Village owners/residents are welcome to participate in all open committee meetings and submit comments or questions for virtual meetings using one of three options:

1. *Join in-person in the Sycamore Room*
2. *Join the Zoom meeting at <https://us06web.zoom.us/j/89462534641> Please raise your “Virtual Hand” during the agenda item you wish to speak to.*
 - *If you have a comment regarding a topic that is **not** on the agenda, please raise your “Virtual Hand” during the “Member Comments” agenda item.*
3. *Via email to meeting@vmsinc.org any time before the meeting is scheduled and before the agenda item you wish to speak to during the meeting. Please use the name United Mutual Landscape Committee in the subject line of the email. Name and unit number must be included.*

FYI: All landscaping rules and regulations may be found in the United Landscape Manual on the Village website:

<https://www.lagunawoodsvillage.com/documents/view/United-Landscape-Maintenance-Manual-Updated-June-2020.pdf?v=1597776227>

AGENDA

1. Call Meeting to Order
2. Acknowledgment of Media
3. Approval of the Agenda
4. Approval of the Meeting Report from July 18, 2022
5. Chair Remarks

6. Department Head Comments

Items for Discussion and Consideration

7. Canary Island Pine Tree Trimming and Watering
8. Urban Forest Proposal
9. Environmental Assessment Discussion

Concluding Business:

10. Committee Member Comments
11. Date of Next Meeting – TBD
12. Adjournment

Diane Casey, Chair
Kurt Wiemann, Staff Officer
Jayanna Abolmoloki, Landscape Administrative Assistant
Telephone: 949-268-2565

*A quorum of the United Board, or more, may also be present at the meeting.



OPEN MEETING

**REGULAR MEETING OF THE UNITED LAGUNA WOODS MUTUAL
LANDSCAPE TREE AD HOC COMMITTEE**

**Thursday, July 18, 2022 – 9:00 A.M.
Sycamore Room / Virtual Meeting
Laguna Woods Village Community Center Board Room
24351 El Toro Road**

REPORT

COMMITTEE MEMBERS PRESENT: Chair- Diane Casey, Carl Randazzo, Ken Benson, Mary Sinclair, Robert Reyes

COMMITTEE MEMBERS ABSENT: Cheryl Nielsen, John Salvador

OTHERS PRESENT: None.

ADVISORS PRESENT: None.

STAFF PRESENT: Kurt Wiemann, Jayanna Abolmoloki, Robert Merget

1. Call to Order

Chair Casey called the meeting to order at 9:17 a.m.

2. Acknowledgment of Media

No media were present.

3. Approval of the Agenda

The agenda was approved by consensus.

4. Chair's Remarks

None.

5. Department Head Update

Mr. Wiemann stated that the intention behind the Ad Hoc committee is to be informal, however, the agenda must be honored due to the fact that it is an official committee. Mr. Wiemann thanked the Ad Hoc Committee members for participating.

6. Purpose of the Ad Hoc Committee

Mr. Wiemann informed the committee that the purpose is to bring members into the tree removal process, to brainstorm, talk, and to educate the community through the Ad Hoc Committee.

Members made comments and asked questions.

7. Status of Environmental Review

Mr. Wiemann discussed the environmental review with the committee.

Members made comments and asked questions.

8. Urban Forest Report

Mr. Wiemann discussed the urban forest report with the committee.

Members made comments and asked questions.

9. Tree Evaluation Presentation

Mr. Merget reviewed each slide of this presentation with the committee and discussed the tree evaluation process that his crew considers during tree inspections.

10. Field Trip to Visit Tree Requests

The committee boarded a Village bus and arrived at multiple tree request locations to evaluate the trees in-person. Mr. Merget lead the group, and explained why the different trees needed different services.

Concluding Business:

11. Committee Member Comments

Various comments were made.

12. Date of Next Meeting – TBD

13. Adjournment at 11:30 a.m.

Diane Casey

Diane Casey (Jul 26, 2022 12:06 PDT)

Diane Casey, Chair

Mutual Tree Assets

Section Total Trees

Species Third

Pruning Cycle United

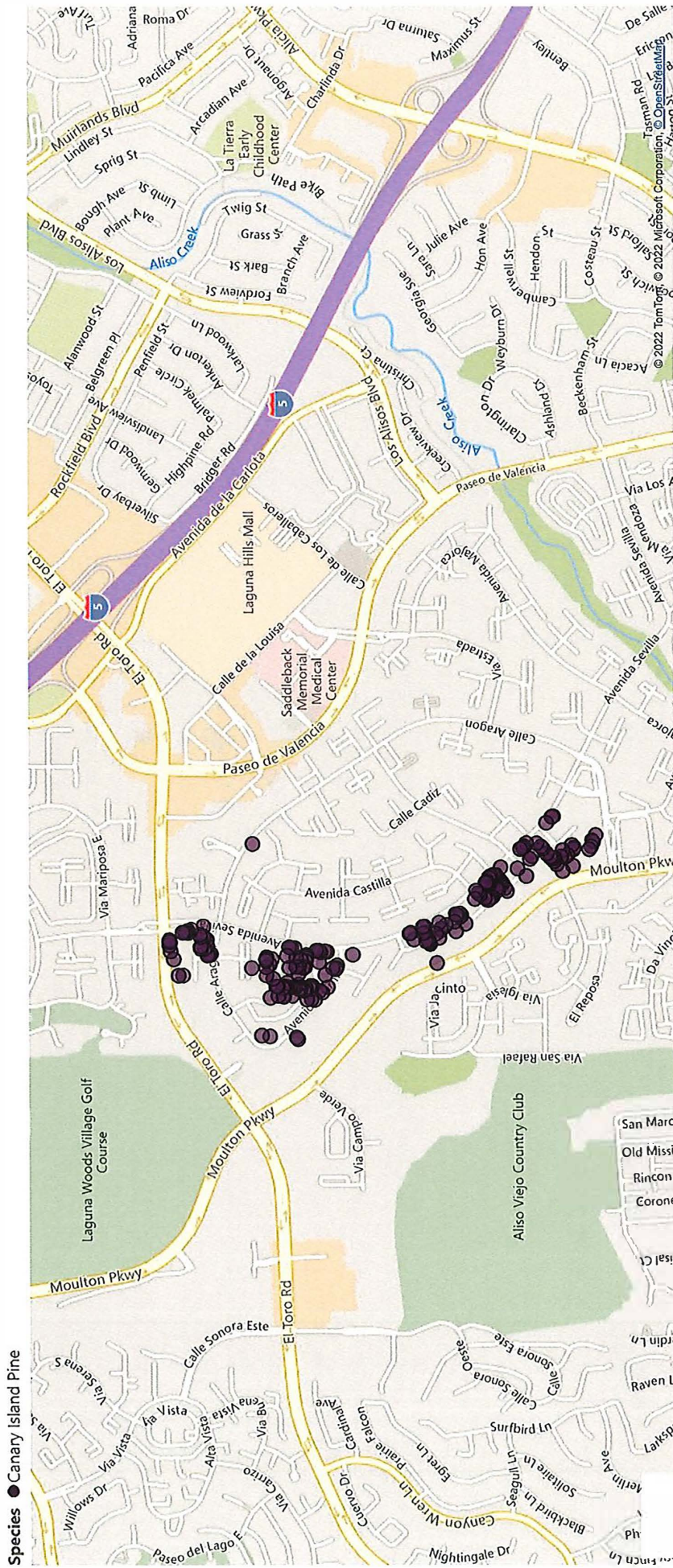
Street GRF

Towers

Species ● Canary Island Pine



| | | | | |
|------------------------|--------------------|--------------------|---------------|---------------------|
| Mutual | Section | Species | Pruning Cycle | Street |
| All | All | Canary Island Pine | All | Multiple selections |
| 957.16K Tree Assets | 195 Total Trees | (Blank) Third | 195 United | (Blank) GRF |
| | | | | (Blank) Towers |



Attachment 2

Cover Letter

July 22, 2022

Kurt Wiemann
 Director of Landscape Services
 Laguna Woods Village
 24351 El Toro Road
 Laguna Woods, California 92637

Subject: United Laguna Woods Mutual, Urban Forest Management Plan Proposal

Dear Mr. Wiemann,

Dudek understands that the United Laguna Woods Mutual (Mutual) requires a team with a comprehensive approach to urban forest management planning. The Mutual can count on Dudek to develop an urban forest management plan (UFMP) that will be a high-quality management tool that will incorporate key stakeholder tree priorities and values toward developing a long-term management plan. The Dudek team will bring the Mutual the following strengths:

ISA-Certified Project Manager Leading a Comprehensive Team. Project Manager Ryan Allen, an International Society of Arboriculture (ISA)-Certified Arborist with 14 years' experience in urban forestry will lead the Dudek team. Mr. Allen will be supported by subject matter experts, including ISA-Certified Arborists, municipal specialists, tree risk assessment qualified arborists, a plant pathologist, urban planners, geographic information system (GIS) specialists, community engagement specialists, environmental data scientists, and graphic designers. In addition, the project team includes Great Scott Tree Care, who bring years of experience working with Laguna Woods Village to better understand the maintenance needs of the community.

Applications of Best Practices from Similar Experience. The Dudek team has successfully completed numerous UFMPs, street tree master plans, and related urban forestry projects. Recent relevant UFMPs include those for the Northpark Mutual and Cities of Los Angeles, La Mesa, Temecula, Beverly Hills, Downey, and San José.

Dudek genuinely appreciates the opportunity to present our proposal, and we are excited at the prospect to further discuss our comprehensive approach to urban forest planning with the Mutual. Should you have questions regarding this proposal, please contact Ryan Allen at 626.658.0070 or rallen@dudek.com.

Sincerely,



Joseph Monaco, AICP
 President/CEO

Joseph Monaco is authorized to sign on behalf of Dudek.



Ryan Allen
 Project Manager

CONSULTANT INFORMATION

Dudek

Headquarters: 605 Third Street
 Encinitas, California, 92024

Ryan Allen, Project Manager

38 North Marengo Avenue
 Pasadena, California, 91101
 626.658.0070
 rallen@dudek.com

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Experience

Firm Profile

Dudek assists municipalities on a broad range of projects that improve California’s communities, infrastructure, and natural environment. From planning, design, and permitting through construction, we move projects through the complexities of regulatory compliance, budgetary and schedule constraints, and conflicting stakeholder interests. We have a long history of providing environmental services to municipalities throughout California and know the local environmental resources and agency policies pertaining to resource management, development impact assessment, and mitigation.

DUDEK AT A GLANCE

- 42 years in business
- Employee-owned California corporation
- 12 California offices, including, Pasadena
- 700+ employees

Dudek has built a reputation for providing exemplary environmental, planning, regulatory, engineering, construction management, operations, and funding expertise, offering municipalities a cost-effective way to accomplish short- and long-term goals. Dudek’s project managers are empowered to make nimble decisions and quickly draw from our pool of technical experts.

Urban Forestry

Dudek offers clients a diverse urban forestry practice with expertise in a variety of urban and wildland forestry specialties. Our certified and licensed arboriculture and forestry professionals bring experienced, valuable insight to tree management issues, providing creative approaches to difficult and controversial projects. Among our specialties are urban forest management plans (UFMPs), arborist and forester reports documenting tree resources within a project area, health and condition assessment reports, and appraised value reports; we also offer training on tree maintenance and pruning.

Our arborists have successfully completed thousands of arboricultural projects focused on tree inventories and tree preservation, including the following tree-related issues:

- Tree inventories
- Pest and disease assessments
- Tree hazard assessment
- Sidewalk repair
- Conflict resolution
- Tree appraisals
- Insurance case support
- Development/construction impact analysis
- Tree relocation studies and support
- Tree protection plans

We have developed unique solutions to a wide variety of tree-related issues and draw upon this insight for project success.

The Dudek team of certified arborists and foresters have extensive experience conducting technical field evaluations, conducting tree and forestland assessments, supervising tree maintenance activities, monitoring trees during construction activity, and inspecting and diagnosing tree pest/disease conditions. We also understand tree hazard assessment protocols and conduct tree hazard evaluations on individual trees and larger stands of trees.

Our team includes Tree Risk Assessment Qualifications (TRAQ)-certified arborists who understand that tree hazards must be proactively managed. We routinely develop tree pruning, removal, and planting specifications and have monitored such activities for compliance with adopted protocols and standards. Dudek foresters and arborists also have significant experience preparing technical written documents, reports, and management plans for trees/forests, and help our clients secure necessary approvals or permits for conducting work on regulated trees.

| Client | Project Name | Completion Date |
|----------------------------|---|-----------------|
| City Plants | First Step to an Urban Forest Management Plan | December 2018 |
| Sacramento Tree Foundation | GreenPrint Neighborhood Program | December 2019 |
| City of Downey | Urban Forest Management and Street Tree Master Plan | February 2021 |
| *Northpark HOA | Community Forest Management Plan | March 2021 |
| City of Oxnard | City-Wide Tree Program Review | November 2021 |
| City of San José | Community Forest Management Plan | February 2022 |
| City of Rancho Cordova | Urban Forest Management Plan | March 2022 |
| City of La Mesa | Urban Forest Management Plan | May 2022 |
| City Plants | City of Los Angeles Urban Forest Finance Study | June 2022 |
| City of Beverly Hills | Urban Forest Management Plan | July 2022 |
| City of Willits | Urban Forest Management Plan | July 2022 |
| City of Portland | Urban Forest Analysis | July 2022 |
| City of Temecula | Urban Forest Management and Street Tree Master Plan | August 2022 |
| Town of Hillsborough | Tree Ordinance Update | September 2022 |
| City of Chico | Urban Forest Management Plan | October 2022 |
| City of Salinas | Urban Forest Management Plan | March 2023 |
| City of Santa Maria | Urban Forest Management Plan | May 2023 |
| City of Fresno | Urban Forest Management Plan | December 2023 |
| County of Los Angeles | Urban Forest Management Plan | April 2024 |

***Partnered with Great Scott Tree Care**

Reference Projects

The Dudek team has provided urban forestry and wildfire prevention and mitigation services for municipalities throughout California, including tree inventories and assessments and the development of UFMPs. Additionally, we have led or supported clients with community and stakeholder outreach and engagement to educate and gain consensus among diverse participants. Following is a representative sample of projects completed by Dudek that demonstrate our ability to perform the services outlined in the Request for Proposals (RFP).

CITY OF LOS ANGELES, FIRST STEP TO AN URBAN FOREST MANAGEMENT PLAN

Client: City Plants

Dudek was selected in a competitive process to prepare a UFMP framework for the City of Los Angeles. We completed extensive City of Los Angeles department interviews, an online public survey resulting in more than 2,600 responses, monthly stakeholder working group meetings, comparison of Los Angeles urban forestry with three other strategically selected cities, evaluation of the urban forest governance structure and current urban forestry budgets against industry standards, assessment of urban forest policies and regulations, and development of a road map to urban forest sustainability. The project was completed in December 2018, and Dudek presented the findings and recommendations at two public hearings. The plan can be viewed online at https://www.cityplants.org/wp-content/uploads/2019/07/10939_LA-City-Plants_FirstStep_Report_FINAL_updt_7-2019.pdf.



BEVERLY HILLS URBAN FOREST MANAGEMENT PLAN

Client: City of Beverly Hills

Dudek is currently developing the 30-year UFMP document for the City of Beverly Hills, with the goal of implementing sustainable management practices to create a healthy urban forest canopy. Dudek also analyzed the City-managed tree population, completed a wildfire hazard assessment for an area designated as a very high fire hazard severity zone, and provided recommendations to manage a more fire safe community that will be included as a chapter of the UFMP.



DOWNEY URBAN FOREST MANAGEMENT PLAN AND STREET TREE MASTER PLAN

Client: City of Downey

Dudek developed the City of Downey’s 30-year planning document to expand canopy cover, implement efficient management practices, and increase public awareness of the urban forest. This process included a thorough analysis of the current tree inventory, canopy cover analysis, calculating ecological benefits of the urban forest using the i-Tree Eco suite, and determining the current value of the City of Downey’s trees. We have reviewed current policies and ordinances against urban forest sustainability standards and will update these documents and create new policies as appropriate. We assessed the governance structure, interdepartmental protocols, and management practices of the City of Downey through departmental interviews with all staff who impact trees. Tree inventory and geographic information system (GIS) data was used to develop a Street Tree Master Plan as a section of the UFMP that provides specific guidance on where trees are needed and what species could be planted in vacant planting sites.



TEMECULA URBAN FORESTRY MANAGEMENT PLAN AND INVENTORY

Client: City of Temecula

Dudek is in the process of developing the City of Temecula’s UFMP, which includes a tree inventory of 27,000 trees. The project includes analysis of the current status of the urban forest and identified threats to current species based on predicted climate change and invasive pests/pathogens. In addition, Dudek developed a significant community education component, including an urban forest summit, pop-up outreach events, a working group, and outreach pamphlets. Other project tasks include re-establishing the City’s tree maintenance policy and standards, reviewing the City’s existing tree ordinance, and developing a master tree planting plan with a recommended tree species palette that received input from various stakeholders and community groups. The plan will align with the City’s core steering document, Quality of Life Master Plan, to ensure that the UFMP will be successfully implemented.



EUCALYPTUS WINDROW STUDY

Client: City of Irvine

Dudek arborists and urban foresters conducted the initial urban forest inventory (75,000 trees) throughout city streets, urban areas, and parks. Follow-up inventories continue on a 4-year cycle to update the City of Irvine’s database and maintain data accuracy. Inventory data was critical in analyzing tree populations and tree attribute information. This information ultimately supported the preparation of the City of Irvine’s UFMP, which addresses tree species diversity, distribution, trim cycles, species recommendations for future planting, changes from initial plantings, and planting opportunity identification throughout the city.

OXNARD TREE PROGRAM REVIEW

Client: City of Oxnard

Dudek used a comprehensive approach to address issues associated with deferred maintenance, declining tree health, species diversity, out-of-date City tree policies, and infrastructure conflicts to develop a Tree Program Review for the City of Oxnard. The Tree Program Review provides a roadmap for the City to address its challenges, at a pivotal stage for the City while under new leadership to steward, maintain, and enhance its current urban forest and associated practices. Dudek conducted a review of the City's 1988 Landscape Standards and Municipal Codes, the environmental and economic benefits associated with the City's 48,000 trees, survey of infrastructure issues associated with tree planting, the City's tree liability claims, and created a recommended tree species palette to be used by multiple City departments.

References

Dudek Urban Forestry Project References

| Project/Client | Project Dates | Contract Amount | Reference Information |
|--|----------------------------------|-----------------|--|
| Temecula UFMP and Inventory <i>City of Temecula</i> | 2020–Ongoing (September 2022) | \$318,265 | Stacy Fox , Maintenance Superintendent 951.308.6306; stacy.fox@temeculaca.gov |
| *Eucalyptus Windrow Evaluation <i>City of Irvine</i> | 2020–2022 (August 2022) | \$393,360 | Aaron Reece , Landscape Maintenance Supervisor 949.724.6000; areece@cityofirvine.org |
| Beverly Hills UFMP <i>City of Beverly Hills</i> | 2019–2022 (July 2022) | \$202,680 | Daren Grilley , City Engineer 310.285.1132; dgrilley@beverlyhills.org |
| Los Angeles UFMP Preliminary Planning and Roadmap <i>City Plants</i> | 2017–2018 (December 2018) | \$90,460 | Rachel O’Leary , Program and Policy Manager 626.360.5989; rachel.oleary@lacity.org |
| Tree Program Review <i>City of Oxnard</i> | 2021 (December 2021) | \$50,000 | Steve Howlett , Assistant Public Works Director 805.385.7900; steve.howlett@oxnard.org |

***Great Scott Tree Care is providing follow up tree removal and maintenance**

Staff Biographies

All licensed and certified Dudek staff members routinely engage in continuing education efforts to maintain their credentials and stay current on the latest research and technologies employed in the urban forestry field. This helps our team maintain up-to-date knowledge regarding trees, impact minimization techniques, and preservation methods where trees may experience disturbances. Dudek personnel and credentials include the following:

- Registered Consulting Arborist (RCA), American Society of Consulting Arborists
- International Society of Arboriculture (ISA)- and ISA TRAQ Certified Arborists
- Municipal Arborist Specialist
- Certified Planners, American Institute of Certified Planners

Ryan Allen

PROJECT MANAGER

Ryan Allen is an urban forester with 14 years’ experience providing strategic environmental planning to organizational programs, including UFMPs. Mr. Allen’s work deepens the positive impact on the communities he serves and increases organizational capacity. Mr. Allen has experience working with elected officials and staff and building and maintaining strategic partnerships. His urban forestry expertise includes managing tree inventories and assessments, ordinance and policy review, tree planting and removal, and wildfire management.

Relevant Projects/Experience

- UFMP Roadmap | CITY OF LOS ANGELES
- UFMP | CITY OF TEMECULA
- UFMP | CITY OF LA MESA
- UFMP | CITY OF BEVERLY HILLS
- UFMP and Street Tree Master Plan | CITY OF DOWNEY



Education

Pepperdine University
BA, Communications, (Creative Writing emphasis)

Certifications

ISA-Certified Arborist,
No. WE 10316A
ISA TRAQ
ISA Municipal Specialist

Abby Beissinger

PLANT PATHOLOGIST AND URBAN FORESTER

Abby Beissinger is an urban forestry analyst and plant pathologist with 8 years' experience implementing integrated pest management strategies in the green industry and commercial agriculture. Her expertise includes developing science-based plant health management plans; pathogen and insect diagnostics on trees, vegetables, fruit, and ornamental crops; community engagement; and research and data analysis. Ms. Beissinger has assisted with the development of UFMPs and wildfire management plans for municipalities throughout California.

Relevant Projects/Experience

- UFMP | CITY OF LA MESA
- UFMP and Street Tree Master Plan | CITY OF DOWNEY
- CFMP | CITY OF SAN JOSÉ
- UFMP | CITY OF BEVERLY HILLS
- Tree Program Review | CITY OF OXNARD

Christopher Kallstrand

URBAN FORESTRY PLANNER

Christopher Kallstrand is an urban forestry specialist with 17 years' experience providing technical assistance on projects ranging from arboricultural assessments and large-scale oak management plans to biological resources monitoring. Projects include UFMPs, assessment and inventory of oak woodlands, relocation and preservation of trees on development sites, native trees and vegetation surveys, post-burn damage assessments, landscape tree appraisal, GPS mapping, environmental and biological resources monitoring, data analysis, and preparation of assessment reports and oak management and preservation plans. In addition, Mr. Kallstrand routinely uses GIS and aerial photography in mapping, analysis of resource data, preparation of project plans, and conducting project impact analyses.

Relevant Projects/Experience

- Tree Inventory and Mapping | CITY OF IRVINE
- As-Needed Arboricultural Services | CITY OF ENCINITAS
- On-Call City Arborist | CITY OF LAGUNA BEACH
- Wildland-Urban Interface Fuel Hazard Assessment | CITY OF NEWPORT BEACH
- Hazard Tree Removal Project | SOUTHERN CALIFORNIA EDISON



Education

*Washington State University
MS, Plant Pathology*

*University of Wisconsin-
Madison*

BA, Anthropology

Professional Affiliations

*American Phytopathological
Society*



Education

*Iowa State University
BS, Forestry: Natural Resource
Conservation*

Certifications

*ISA-Certified Arborist,
No. WE-8208A*

TRAQ

ISA Municipal Specialist

Kalie Ortiz

COMMUNITY OUTREACH SPECIALIST

Kalie Ortiz is an urban forestry specialist with a background in forestry and an applied focus in hydrology. She has 2 years’ experience as a water equity organizer and community outreach coordinator for a nonprofit organization where she managed and supported urban forestry/water-related project development in the greater Los Angeles region. Ms. Ortiz’s expertise in forestry and community engagement assists her as she contributes to the development of sustainable and equitable UFMPs.

Relevant Projects/Experience

- UFMP | CITY OF TEMECULA
- Urban Forest Master Plan | CITY OF CHICO
- Urban Forest Financing Study | CITY OF LOS ANGELES



Education

*Humboldt State University
BS, Forestry, concentration in
Hydrology*

Clarissa Boyajian

DATA SCIENTIST

Clarissa Boyajian is a certified arborist with 5 years’ experience in urban forestry nonprofit management. Ms. Boyajian has experience using R, Python, and command line programming languages for projects to analyze satellite and spatial data to calculate tree canopy cover and create custom map layers for tree inventory systems. Ms. Boyajian has cultivated strong collaborative relationships with community members, business owners, and municipal staff.

Relevant Previous Projects/Experience

- UFMP | CITY OF SALINAS
- Urban Forestry Analysis | CITY OF PORTLAND
- Koreatown Youth & Community Center | LOS ANGELES
ENVIRONMENTAL SERVICES DEPARTMENT
- Urban Forestry Manager | TREEPEOPLE



Education

*University of California,
Santa Barbara
MS, Environmental Data Science
Occidental College
BA, Urban and Environmental
Policy*

Certifications

*ISA-Certified Arborist,
No. WE-12099A*

Jared Davis

URBAN FORESTRY PLANNER

Jared Davis is a certified arborist and urban forestry specialist with 3 years' experience in arboriculture, including tree maintenance and inventory. Mr. Davis also has expertise in herpetology, native plant identification, and vegetation mapping. He has led restoration projects focused on invasive species control, wildfire fuels reduction, and sensitive species monitoring, and planned for subsequent tree planting. Additionally, Mr. Davis has served as a vegetation management consultant for utilities projects, including hazard tree identification and mapping using GIS platforms.

Relevant Projects/Experience

- UFMP | COUNTY OF LOS ANGELES
- Habitat Restoration and Vegetation Monitoring | SONOMA ECOLOGY CENTER
- Vegetation Management and Hazard Tree Identification | PACIFIC GAS & ELECTRIC COMPANY



Education

University of Colorado, Boulder
 BS, Biology
 BS, Environmental Studies

Certifications

ISA-Certified Arborist
 ISA TRAQ

Raoul Rañoa

SENIOR GRAPHIC DESIGNER

Raoul Rañoa is a senior graphic designer with 24 years' experience breaking down complex data and processes into detailed, visual presentations suitable for experts and a general audience. Mr. Rañoa has prepared print, online, and animated visuals covering every facet of the environmental consulting industry, including large-scale construction projects, unmanned aerial survey missions, sea-level rise, hydrological processes, and green-technology. He is knowledgeable in print and web graphics production, including prepress, vector and 3D illustration, GIS, social media, video, and motion graphics.

Relevant Projects/Experience

- UFMP | CITY OF DOWNEY
- CFMP | CITY OF SAN JOSÉ
- UFMP | CITY OF RANCHO CORDOVA



Education

California Polytechnic State University, Pomona
 BA, Communications
 (Journalism Focus)



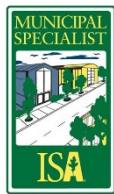
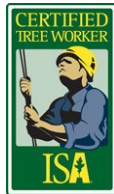
Great Scott Tree Care

Great Scott Tree Service was started in 1976 with a pickup truck, a chain saw and a mission to provide high quality tree maintenance at a competitive cost. Over the years we have developed into a key member of the Southern California tree maintenance industry. Our business is focused on Municipalities and Commercial accounts in the Orange County and Los Angeles County Areas. We provide our customers with on-line computerized inventory with mapping; multi-year maintenance plans; scheduled tree maintenance; tree removal and planting; and full electronic tracking from Proposal thru Invoicing. We stand on our reputation for excellent customer service and high-quality tree care in the tree service industry. Our Corporate offices are located at 10761 Court Ave, Stanton, CA since 1987.

We currently employ over 120 qualified professionals including Arborists and Tree Workers certified by the International Society of Arborists (ISA). They are fully trained and knowledgeable of the latest pruning standards and techniques. We have 190 pieces of state-of-the-art equipment located at Corporate Office/Green-Waste Recycle Center, North County Yard, and South County Yard.

COMPANY WORKFORCE

Great Scott Tree Service, Inc. goes one step beyond just hiring qualified employees, it also works with employees to obtain arborist certification, tree worker certification, as well as wildlife certifications, and is an accredited TCIA member. The breadth of knowledge within our staff is important as in the event of absence or illness another qualified and certified employee would be able to fill in seamlessly. A list of certified employees is listed below.



SERVICES OFFERED

Great Scott Tree Service, Inc. is a full-service operation equipped and qualified to provide you with the best solutions for all of your tree maintenance needs. GSTS will deliver a level of quality that meets or exceeds the International Society of Arboriculture (ISA) standards. We are dedicated to providing tree services that results in a neat, clean and attractive appearance to trees and associated sites serviced. Below is an overview of the most common tree maintenance services that we can provide.

- Tree Pruning
- Service Request Pruning
- Clearance Pruning
- Palm Tree Care
- Juvenile Tree Care
- Tree Removal
- Tree Planting
- Emergency Services
- Root Pruning
- Root Barrier Installation
- Tree Watering
- Equipment Rental

REFERENCES

Great Scott Tree Service, Inc. holds the most diversified client portfolios of all Southern California tree maintenance contractors specializing in many Private, Commercial, Municipal, and Educational markets. Below is a small sample of some of the clients we have had the privilege of serving.

PRIVATE

- Laguna Woods Village
- Northpark Maint. HOA
- The Groves

COMMERCIAL

- BHE Management
- CBRE
- Irvine Company

MUNICIPAL

- City of Irvine
- City of Lake Forest
- City of Newport Beach

COMPANY VISION

"The Great Scott Tree Service vision is caring for trees that enhance the beautiful landscapes of Southern California communities for today and future generations."

Scope of Work

Urban Forest Management Plan

Task 1: Project Management

Dudek will initiate the project with a kickoff meeting between United Laguna Woods Mutual (Mutual) staff and the Dudek team to identify specific project goals and confirm reporting and communication procedures. The kickoff meeting will also be a data acquisition meeting, prior to which we will have prepared a list of any data needs or gaps. During the meeting, we will discuss these needs and gaps, and any remaining information voids will be filled through research efforts or further coordination with the Mutual. We will provide an agenda prior to the meeting and will submit meeting minutes summarizing major topic discussions following the meeting.

Project Meetings

Following the project kickoff meeting, Dudek will facilitate four (4) project meetings (virtually) with Mutual staff to discuss scope of work details, and to ensure clear communication of progression of the project and on-time completion of desired deliverables. It will also be an opportunity to discuss community engagement strategies and tree maintenance efforts, as well as to identify criteria for documenting and developing the UFMP. These project meetings will occur throughout the duration of the project and will be the chief way the Mutual will be informed of project progress. Additional project communication not addressed during the monthly meetings will occur via email or telephone.

Task 1.1 Community Meetings

Long-term community involvement and education is an important component of any successful UFMP program. Dudek recognizes that each community is unique and requires a tailor-made community engagement plan to meet community member needs. The Dudek team will first consult with Mutual staff to identify stakeholders, key residents, and/or organizations to accomplish Mutual goals and priorities for fostering diverse community member participation and public education avenues.

Following this, Dudek will lead up to two (2) public and two (2) virtual information sessions for the residents of the Mutual. The first public meeting will occur in the beginning of the project and will inform stakeholders of what a UFMP is, the UFMP process, and how they will support development of the UFMP. The second and third meetings will be held virtually with the goal of understanding resident priorities and needs related to trees and tree management within the neighborhood. The virtual meetings will be a guided discussion to solicit direct input to ensure community stakeholder values are represented accurately in the UFMP.

The final meeting will be held in person and will share the results of the UFMP development process and receive comment from residents on the key findings and recommendations. The information gathered during these meetings will be critical to ensure management recommendations and long-term goals are inclusive of resident input.

Task 2: Review of Management Practices

Task 2.1 Staff Interviews

Following the project kickoff meeting, we will meet with representatives from the Mutual who are involved in design and/or management activities that may also directly affect tree preservation and green infrastructure design or planning efforts within the Mutual. The intent of the staff interviews will be to review the following:

- Existing tree management and protection policies and regulations
- Internal protocol and processes for design, tree removal, pruning, use of inventory database and GIS, and other maintenance and tree planting activities
- Potential future tree management or planting activities
- Goals, policies, and priorities of the Mutual that relate to tree management, tree protection, or tree planting
- Program funding

Dudek will also consult with Great Scott Tree Care to understand the historical maintenance and care of trees within the Mutual, as well as to better understand potential future needs. The staff interviews and consultation with Great Scott Tree Care will be an important component in developing the management goals of the UFMP. We will provide meeting minutes summarizing the major discussions from each interview. We expect that up to three (3) interviews will be needed for this task.

Task 2.2 Identify Best Management Practices

Development of this section of the UFMP will include a review of Mutual management and design practices that relate to trees within the Mutual. Existing management practices will be measured against ISA and American National Standards Institute (ANSI) standards, current research, and experience of the consultant team. Existing management practice to be reviewed include the following:

- Parameters for Tree Removal
- Tree Removal Approach
- Tree Planting Plan
- Pruning
- Other Maintenance Actions

Based on the staff interviews and management practice review process, we will document the Mutual’s current maintenance procedures, provide a summary of our analysis and comparable ISA and ANSI standards, make recommendations for altering the maintenance strategies based on best practices, and provide justification for the recommended revisions. Dudek will use the analysis to work with the Mutual on developing best management practices that are specific for the Mutual.

Task 3: Develop Standards/Guidelines for Contractors

Development of this section of the UFMP will include a review of the current standards and guidelines that are to be implemented by contractors performing tree work within the Mutual. The review will lead to the development of new and updated standards and guidelines to ensure ISA and ANSI best management practices are followed, trees are preserved when appropriate, and minimizing infrastructure conflicts. Standards and guidelines for development and updating will include the following:

- **Tree planting** Assessment of tree planting guidelines will examine the Mutual standard details for planting trees to verify they meet industry standards set by ISA and ANSI, as well as current research for proper

installation, staking, backfill amendment, tree well construction, use of root barriers, spacing requirements, and other planting practices.

- **Tree maintenance** This section will review existing policies and practices for tree maintenance and provide recommendations, as appropriate, for changes that may result in more efficient management. This will include the method and frequency of watering newly planted trees, tree staking and removal, tree well management, and structural pruning.
- **Tree Pruning** The development of tree pruning standards will ensure compliance with ISA and ANSI standards, and provide specific recommendations for pruning cycles of individual tree species.
- **Root pruning** Examination of root pruning guidelines will review whether current practices are meeting the goals of the program, the process by which trees are selected for root pruning, what tree species are considered for root pruning, and the frequency with which trees are root pruned. The goal of this assessment will be to verify root pruning practices are maintaining safe and healthy trees in the public space, while limiting conflicts with infrastructure.
- **Tree protection during construction** A review of the guidelines for tree protection during construction will identify if Mutual standards meet best management practices, if standards are consistently enforced on construction projects, and whether staffing is at the needed level to enforce these standards.
- **Minimizing Infrastructure Conflicts** Development of these guidelines will include an analysis of current practices to minimize infrastructure conflicts through avenues of proper tree selection and implementation of alternative design standards. Following the review, we will compile a recommended list of practices and alternative design standards that can be implemented to reduce current infrastructure conflicts and avoid conflicts in the future.
- **Nursery Stock Selection** We will prepare a set of guidelines that are based off ISA best management practices for nursery stock selection to help ensure trees selected for planting projects have no structural, proper root growth, no pests or diseases, and strong trunk taper.

Task 3.1 Updating Tree Species Palette

Dudek will develop a comprehensive tree species list for use for future tree plantings that includes a discussion of trees in developed public property (i.e., sidewalks, streets, medians, and landscaped parks), and parkway and median sizes. The list of recommended tree species will be suitable for the Mutual’s current environmental conditions as well as anticipated conditions caused by climate change. To complete this task, Dudek will utilize the tree inventory data, Water Use Classification of Landscape Species research, and climate change research to assess the following:

- Appropriateness of the type of tree by location (“right tree, right place”)
- Appropriateness for future climate conditions
- Low water use
- Pest and disease vulnerability
- Appropriate planting of numbers of species to achieve species diversity goals of UFMP

Task 4: Urban Forest Sustainability

Task 4.1 Tree Inventory Environmental and Economic Value

Dudek will work with Great Scott to secure Mutual tree inventory data and will use the i-Tree software to analyze the tree inventory and to calculate the economic value of the Mutual’s urban forest and the cost benefits of strategic tree and forest investments. The ecosystem services we will examine include carbon sequestration,

average pollutant capture, avoided runoff, avoided emissions, and structural and functional value. Dollar amounts will be provided for these benefits, which will be useful for education, long-term planning, and securing tree program funding. The i-Tree analysis will quantify and put a dollar amount on the annual functional value (environmental benefits provided by the community's urban forest), and structural value (total cost to replace the environmental benefits provided by the community's urban forest) of the urban forest. The analysis will help describe urban forest structure and management needs to help guide the goals and objectives of the UFMP, and to help the community plan for the future.

Task 4.2 Tree Inventory Analysis and Replanting Plan

We will begin by analyzing the Mutual managed tree inventory data against research supported urban forest sustainability metrics for species composition, health distribution and overall condition, canopy extent, age distribution, and pest vulnerability. The resulting analysis will inform whether the current condition of the tree inventory is progressing towards sustainability and develop management recommendations to improve sustainability through the integration of a replanting plan.

The replanting plan will consider what current species are vulnerable to climate change and provide recommendations for new species that are climate adapted and will maintain community character. We will also identify tree species and locations where trees are aging or in poor condition and develop a long-term strategy to replace these trees while providing a continuum of tree canopy cover for current and future residents. Finally, the analysis of the tree inventory against pest vulnerabilities will be used to develop goals for managing potential pest threats to the tree inventory through an integrated pest management program.

Task 5: Urban Forest Management Plan

The goal of the final UFMP document is to clearly display the key findings, management recommendations, and other pertinent data so current and future Mutual tree managers have an easy to understand and implement management plan. UFMP development will include the following.

Task 5.1 UFMP Outline

Dudek anticipates first developing one content outline by chapter before proceeding with development of the UFMP product. The content outline will be established to verify that the project meets the required elements and goals of the Mutual. This content outline will be submitted to the Mutual for review and comment within 14 calendar days of project initiation.

Task 5.2 Administrative and Final Draft

Dudek will submit an administrative draft to Mutual staff within five (5) months from the day of the commencement of work. We request that the appropriate Mutual personnel provide comments on the first draft within a 4-week time frame. Following completion of the first draft review process, the final UFMP will be developed, incorporating comments from the Mutual and public meeting. Dudek will prepare and submit the final UFMP within approximately eight (8) months from the start date of the contract. The final copy will be submitted as an electronic copy in Adobe PDF, along with four (4) hardbound copies and will include all figures and appendices.

Schedule

Table 1. Schedule

| Tasks | 2022 | | | | | 2023 | | |
|---|------|------|-----|-----|-----|------|-----|-----|
| | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar |
| Anticipated Contract Agreement | | | | | | | | |
| Task 1: Project Management | | | | | | | | |
| Kick-Off Meeting | | | | | | | | |
| Project Meetings | | | | | | | | |
| Task 1.1: Community Meetings | | | | | | | | |
| Task 2: Review of Management Practices | | | | | | | | |
| Task 2.1: Staff Interviews | | | | | | | | |
| Task 2.2: Identify Best Management Practices | | | | | | | | |
| Task 3: Develop Standards/Guidelines for Contractors | | | | | | | | |
| Task 3.1: Updating Tree Species Palette | | | | | | | | |
| Task 4: Urban Forest Sustainability | | | | | | | | |
| Task 4.1: Tree Inventory Environmental and Economic Value | | | | | | | | |
| Task 4.2: Tree Inventory Analysis and Replanting Plan | | | | | | | | |
| Task 5: Urban Forest Management Plan | | | | | | | | |
| Task 5.1: UFMP Outline | | | | | | | | |
| Task 5.2: Administrative and Final Draft | | | | | | | | |

Cost

Dudek’s cost estimate (Table 2) to complete this project is based on our 2022 Standard Schedule of Charges (Table 3).

Table 2. Cost Estimate

| Cost Estimate | | | |
|--|--------------------|---------------------|--------------------|
| Task | Labor | Direct Costs | Total |
| Task 1. Project Management | \$7,310.00 | \$234.00 | \$7,544.00 |
| Task 2. Review of Management Practices | \$6,700.00 | – | \$6,700.00 |
| Task 3. Develop Standards/Guidelines for Contractors | \$9,370.00 | – | \$9,370.00 |
| Task 4. Urban Forest Sustainability | \$3,820.00 | – | \$3,820.00 |
| Task 5. Urban Forest Management Plan | \$16,180.00 | – | \$16,180.00 |
| Total | \$43,380.00 | \$234.00 | \$43,614.00 |

Table 3. Dudek 2022 Standard Schedule of Charges

| DUDEK 2022 Standard Schedule of Charges | |
|---|-------------|
| Engineering Services | |
| Project Director | \$310.00/hr |
| Principal Engineer III | \$285.00/hr |
| Principal Engineer II | \$275.00/hr |
| Principal Engineer I | \$265.00/hr |
| Program Manager | \$255.00/hr |
| Senior Project Manager | \$255.00/hr |
| Project Manager | \$245.00/hr |
| Senior Engineer III | \$240.00/hr |
| Senior Engineer II | \$230.00/hr |
| Senior Engineer I | \$220.00/hr |
| Project Engineer IV/Technician IV | \$210.00/hr |
| Project Engineer III/Technician III | \$200.00/hr |
| Project Engineer II/Technician II | \$185.00/hr |
| Project Engineer I/Technician I | \$165.00/hr |
| Senior Designer II | \$190.00/hr |
| Senior Designer I | \$185.00/hr |
| Designer | \$175.00/hr |
| Assistant Designer | \$170.00/hr |
| CADD Operator III | \$165.00/hr |
| CADD Operator II | \$155.00/hr |
| CADD Operator I | \$140.00/hr |
| CADD Drafter | \$125.00/hr |
| CADD Technician | \$115.00/hr |
| Project Coordinator | \$145.00/hr |
| Engineering Assistant | \$120.00/hr |
| Environmental Services | |
| Project Director | \$255.00/hr |
| Senior Specialist IV | \$235.00/hr |
| Senior Specialist III | \$225.00/hr |
| Senior Specialist II | \$210.00/hr |
| Senior Specialist I | \$195.00/hr |
| Specialist V | \$185.00/hr |
| Specialist IV | \$175.00/hr |
| Specialist III | \$165.00/hr |
| Specialist II | \$150.00/hr |
| Specialist I | \$140.00/hr |
| Analyst V | \$130.00/hr |
| Analyst IV | \$115.00/hr |
| Analyst III | \$105.00/hr |
| Analyst II | \$95.00/hr |
| Analyst I | \$85.00/hr |
| Technician III | \$75.00/hr |
| Technician II | \$65.00/hr |
| Technician I | \$55.00/hr |
| Mapping and Surveying Services | |
| Application Developer II | \$195.00/hr |
| Application Developer I | \$155.00/hr |
| GIS Analyst V | \$205.00/hr |
| GIS Analyst IV | \$185.00/hr |
| GIS Analyst III | \$145.00/hr |
| GIS Analyst II | \$130.00/hr |
| GIS Analyst I | \$115.00/hr |
| UAS Pilot | \$115.00/hr |
| Survey Lead | \$185.00/hr |
| Survey Manager | \$135.00/hr |
| Survey Crew Chief | \$115.00/hr |
| Survey Rod Person | \$95.00/hr |
| Survey Mapping Technician | \$95.00/hr |
| Construction Management Services | |
| Principal/Manager | \$195.00/hr |
| Senior Construction Manager | \$185.00/hr |
| Senior Project Manager | \$175.00/hr |
| Construction Manager | \$160.00/hr |
| Project Manager | \$150.00/hr |
| Resident Engineer | \$150.00/hr |
| Construction Engineer | \$150.00/hr |
| On-site Owner's Representative | \$140.00/hr |
| Prevailing Wage Inspector | \$139.00/hr |
| Construction Inspector | \$135.00/hr |
| Administrator/Labor Compliance | \$100.00/hr |
| Hydrogeology/HazWaste Services | |
| Project Director | \$305.00/hr |
| Principal Hydrogeologist/Engineer II | \$280.00/hr |
| Principal Hydrogeologist/Engineer I | \$260.00/hr |
| Senior Hydrogeologist V/Engineer V | \$240.00/hr |
| Senior Hydrogeologist IV/Engineer IV | \$230.00/hr |
| Senior Hydrogeologist III/Engineer III | \$220.00/hr |
| Senior Hydrogeologist II/Engineer II | \$210.00/hr |
| Senior Hydrogeologist I/Engineer I | \$200.00/hr |
| Project Hydrogeologist V/Engineer V | \$185.00/hr |
| Project Hydrogeologist IV/Engineer IV | \$175.00/hr |
| Project Hydrogeologist III/Engineer III | \$165.00/hr |
| Project Hydrogeologist II/Engineer II | \$155.00/hr |
| Project Hydrogeologist I/Engineer I | \$145.00/hr |
| Hydrogeologist/Engineering Assistant | \$120.00/hr |
| District Management & Operations | |
| District General Manager | \$210.00/hr |
| District Engineer | \$205.00/hr |
| Operations Manager | \$160.00/hr |
| District Secretary/Accountant | \$135.00/hr |
| Collections System Manager | \$135.00/hr |
| Grade V Operator | \$125.00/hr |
| Grade IV Operator | \$110.00/hr |
| Grade III Operator | \$100.00/hr |
| Grade II Operator | \$80.00/hr |
| Grade I Operator | \$75.00/hr |
| Operator in Training | \$75.00/hr |
| Collection Maintenance Worker | \$75.00/hr |
| Creative Services | |
| Creative Services IV | \$165.00/hr |
| Creative Services III | \$150.00/hr |
| Creative Services II | \$135.00/hr |
| Creative Services I | \$120.00/hr |
| Publications Services | |
| Technical Editor IV | \$165.00/hr |
| Technical Editor III | \$150.00/hr |
| Technical Editor II | \$135.00/hr |
| Technical Editor I | \$120.00/hr |
| Publications Specialist IV | \$120.00/hr |
| Publications Specialist III | \$110.00/hr |
| Publications Specialist II | \$100.00/hr |
| Publications Specialist I | \$90.00/hr |
| Clerical Administration | \$90.00/hr |
| <p>Forensic Engineering – Court appearances, depositions, and interrogatories as expert witness will be billed at 2.00 times normal rates. Emergency and Holidays – Minimum charge of two hours will be billed at 1.75 times the normal rate. Material and Outside Services – Subcontractors, rental of special equipment, special reproductions and blueprinting, outside data processing and computer services, etc., are charged at 1.15 times the direct cost. Travel Expenses – Mileage at current IRS allowable rates. Per diem where overnight stay is involved is charged at cost. Invoices, Late Charges – All fees will be billed to Client monthly and shall be due and payable upon receipt. Invoices are delinquent if not paid within 30 days from the date of the invoice. Client agrees to pay a monthly late charge equal to 1% per month of the outstanding balance until paid in full. Annual Increases – Unless identified otherwise, these standard rates will increase 3% annually.</p> <p>The rates listed above assume prevailing wage rates does not apply. If this assumption is incorrect Dudek reserves the right to adjust its rates accordingly.</p> | |



Urban Forest Tree Assessment Report Laguna Woods, California

Prepared for:

UNITED LAGUNA WOODS MUTUAL
P.O. Box 2220
Laguna Hills, CA 92654

Prepared by:

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August 2022

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SECTION 1.0 – INTRODUCTION

1.1 DOCUMENT PURPOSE

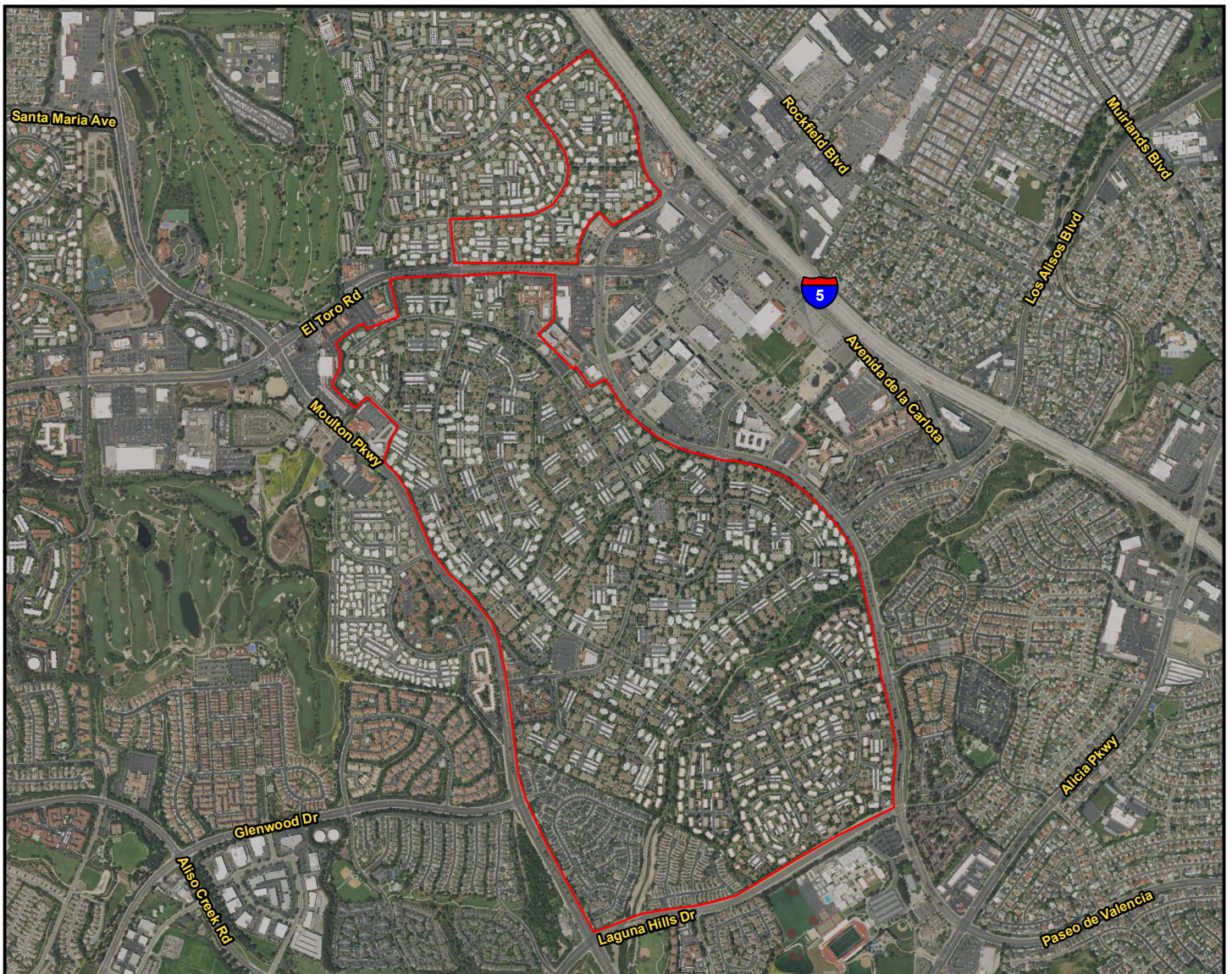
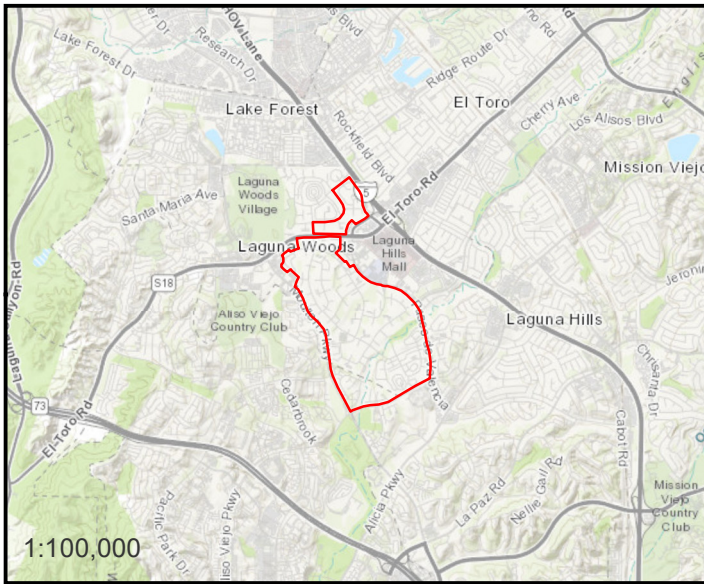
Chambers Group Inc. (Chambers Group) was contracted by United Laguna Woods Mutual (ULWM) to conduct a general overview assessment of its residential landscape trees (urban forest) and evaluate how existing conditions align with current considerations for environmental effects such as climate change resilience, water conservation, and special status resource protections. Chambers Group Arborist Heather Clayton and Biologist Joanna Kipper conducted a reconnaissance-level site inspection on July 27, 2022, to document current site conditions and interview landscape maintenance personnel. The assessment did not include an in-depth tree inventory for each individual specimen within the ULWM community, but rather focused on the overall health of the forest and long-term function. The results of the site inspection and subsequent analysis are presented below.


1.2 SITE DESCRIPTION

ULWM is an association representing approximately 6,300 homeowners in the City of Laguna Woods, County of Orange (County), California (Figure 1). Most residential structures and facilities within the City of Laguna Woods were built in phases from around 1964 through the late 1980s. Approximately 236 acres of ornamental turf grass, shrubs, and trees comprise ULWM's urban forest.

Common upper canopy species found within the community include non-native Aleppo pine (*Pinus halepensis*), American sweet gum (*Liquidambar styraciflua*), Brazilian pepper (*Schinus terebinthifolius*), Canary Island pine (*Pinus canariensis*), carrotwood (*Cupaniopsis anacardioides*), crepe myrtle (*Lagerstroemia indica*), gum (*Eucalyptus* spp.), jacaranda (*Jacaranda mimosifolia*), Mexican fan palm (*Washingtonia robusta*), Peruvian pepper (*Schinus molle*), Shamel ash (*Fraxinus uhdei*), and southern magnolia (*Magnolia grandiflora*). A few native tree species are present and include coast live oak (*Quercus agrifolia*), western sycamore (*Platanus racemosa*), and white alder (*Alnus rhombifolia*), but these are in lower frequencies. Mid-canopy shrubs and perennials include bougainvillea (*Bougainvillea* spp.), bird of paradise (*Strelitzia reginae*), English ivy (*Hedera helix*), hibiscus (*Hibiscus* sp.) and oleander (*Nerium oleander*). Ornamental turf grass is dominated by Bermuda grass (*Cynodon dactylon*) and kikuyu grass (*Pennisetum clandestinum*). Attachment A lists tree species known to occur within the ULWM community.

The ULWM community is bisected by Aliso Creek which contains a high frequency of native willow (*Salix* spp.) and western sycamore trees. Native emergent marsh vegetation is present within and along the banks including cattails (*Typha* spp.) and common spikerush (*Eleocharis palustris*), among others. The California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB) are two resource agencies that govern certain activities within the creek. The jurisdictional creek areas are excluded from the ULWM community and managed by a separate homeowner's association (The Golden Rain Foundation); however certain activities that occur within ULWM can affect natural resources within the creek.



 United Laguna Woods Mutual

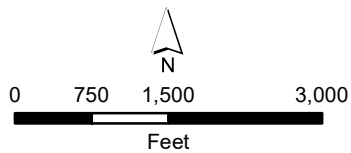


Figure 1
United Laguna Woods Mutual

SECTION 2.0 – URBAN FORESTRY

Initial development of the landscape plant palette focused on a mosaic of fast-growing aesthetically pleasing arboreal (tree) species that were readily available at the time of construction. Many tree species were planted in dense unnatural groupings (groves), in lines adjacent to streets and sidewalks or within close proximity to structures (Attachment B, Site Photographs). Currently, there are approximately 18,300 trees of various species, life stage, height, and canopy size throughout the ULWM community. Some of the most common mature tree species observed include non-native Aleppo pines, Brazilian pepper, Canary Island pine, crepe myrtle, gum (multiple species), Shamel ash, and southern magnolia.

Although not considered sensitive and valuable native habitat that would typically be regulated by resource protection agencies including CDFW, RWQCB, or the United States Fish and Wildlife Service (USFWS), an urban forest can offer certain local environmental benefits similar to established native vegetation. There are however maintenance challenges and undesirable effects on adjacent areas if not kept under strict control and monitored regularly.

2.1 BENEFITS OF AN URBAN FOREST

2.1.1 Habitat For Wildlife

An urban forest can offer foraging and dwelling habitats for many terrestrial and avian wildlife species. Native mammalian wildlife species presumed to be present within the ULWM community include coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). In addition to terrestrial wildlife, more than 30 avian species have been observed within the Aliso Creek area of the ULWM Community including red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), snowy egret (*Egretta thula*), hooded oriole (*Icterus cucullatus*), and western bluebird (*Sialia mexicana*). Attachment C lists the wildlife species or their sign (i.e., tracks, scat) Chambers Group has observed on site.

2.1.2 Air Filtration and Energy Reduction (Carbon Sequestration)

Modern community developments and new construction incorporate climate change considerations in their landscape design and building codes. Excess carbon in the atmosphere is considered a main contributor to reduced air quality and a warming climate. Carbon sequestration (direct capture) from the atmosphere or reducing carbon emission (indirect capture) are two of these considerations in effect for today's modern project development.

A healthy well-designed urban forest can have positive effects on a community's micro-climate through decreasing excess carbon outputs and increasing oxygen. The chemical element carbon and carbon-based molecules are fundamental building blocks for nearly everything on earth, including trees. Trees synthesize water and nutrients (e.g., Iron, nitrogen, calcium) and utilize chemical elements (e.g., carbon dioxide) to create their root system, trunk, branches, and leaves. Through this process (photosynthesis), trees take (direct capture) excess carbon molecules from the environment to build their structures and in turn release oxygen molecules back into the atmosphere.

Indirect carbon sequestration can occur through a reduction in energy use, such as electricity. Electricity production creates greenhouse gases (i.e., carbon dioxide) linked to climate change. Air conditioners require a significant amount of electricity to operate. Shading the exterior of residential and commercial structures with dense tree canopies can cool the interior of structures, reducing air conditioning needs (energy use). Although the degree to which shade can assist in energy reduction is difficult to measure as it is dependent on several variables including canopy density, proximity to structure, cardinal direction, season, and type of structure being shaded, any reduction in energy can equate to cost savings and improved efficiency.

2.1.3 Water Filtration

Trees, particularly long-lived mature trees, require large amounts of water to persist. Approximately 50 percent of a tree's biomass can be comprised of water (Somvichian-Clausen, 2016). Trees can assist with water filtration by absorbing precipitation, irrigation water, and general urban runoff directly into their biomass (e.g., roots and bark), synthesizing the oxygen, and releasing it back into the atmosphere or ground water. This attribute can be beneficial for riparian systems that receive urban runoff which typically contain environmentally harmful contaminants.

2.1.4 Aesthetics and Screening Effects

Trees with large robust canopies can provide privacy screening for densely populated residential communities such as ULWM. Thickets of densely planted trees can also provide noise reduction from adjacent major cross streets such as Moulton Parkway and El Toro Road. However, trees used for screening and aesthetics must be planted so as not to deter from structural integrity or compromise public safety.

2.2 CHALLENGES OF MAINTAINING AN AGING URBAN FOREST

Not all trees are equally beneficial in urban forest. A tree's morphology, life cycle, location, and maintenance needs can be extremely problematic for community management if proper care is not afforded. Overall long-term maintenance challenges and environmental deficiencies can often outweigh their perceived environmental benefits within the community. Understanding these deficiencies and their cumulative long-term effects is critical for improving current maintenance practices and planning for future environmental requirements and budget needs.

2.2.1 Habitat Competition for Native Species

Non-Native Wildlife

Many non-native wildlife species use urban forests for foraging and reproduction, outcompeting native wildlife. Non-native avian species include rock pigeon (*Columba livia*), Eurasian collared dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), European house sparrow (*Passer domesticus*), and Egyptian geese (*Alopochen aegyptiaca*), among others. A high frequency of non-native eastern fox squirrels (*Sciurus niger*) are present within the ULWM community and are regularly observed foraging and nesting within many of the taller mature conifer trees throughout the community. Urban areas tend to support less native wildlife biodiversity and have lower species richness than natural native communities

such as coastal sage scrub, chaparral, oak woodland, and willow riparian forest communities. Planting more native tree species such as coast live oak, western sycamores, and toyon (*Heteromeles arbutifolia*) can improve habitat opportunities for native wildlife.

Non-Native Plant Species

Several ornamental non-native trees species commonly planted within Southern California urban areas have been deemed invasive by the California Invasive Plant Council (Cal-IPC), a category assigned to species that can be harmful to native aquatic systems, plant communities, and wildlife species. Examples of ways non-native trees affect the environment include:

- Prolific seeding can quickly establish dense stands of vegetation within watersheds creating flood control hazards.
- Outcompeting native trees within adjacent wilderness areas (i.e., Aliso Creek and Laguna Coast Wilderness), alter those ecosystems and subsequently have a negative effect on foraging and breeding resources native wildlife depend on.
- Contain toxins in their fruits causing severe illness or mortality in birds or small mammals (including domestic pets) when consumed.

Examples of invasive species within the ULWM community include Brazilian pepper tree, Peruvian pepper, Mexican fan palm, ngaio tree (*Myoporum laetum*), pampas grass (*Cortaderia selloana*), Russian olive (*Elaeagnus angustifolia*), Shamel ash, blue gum (*Eucalyptus globulus*), red gum (*Eucalyptus camaldulensis*), cherry plum (*Prunus cerasifera*), edible fig (*Ficus carica*), and glossy privet (*Ligustrum lucidum*), blackwood acacia (*Acacia melanoxylon*), and Canary Island date palm (*Phoenix canariensis*).

Modern urban (residential and commercial) developments and municipalities are increasingly including provisions during their pre-development planning phases that restrict the planting of those species deemed moderately to highly invasive by the Cal-IPC or that have been known to be problematic in natural areas and wildlife.

ULWM should reference the Cal-IPC Inventory (Cal-IPC 2022) online reference guide for species that should be disallowed for installation to avoid inadvertent negative effects on adjacent natural areas and other unintended consequences.

2.2.2 Flammability and Fire Concerns

Modern residential and commercial developments incorporate fire science and local fire authority guidance into their designs. Modern developments prohibit certain tree species to be planted within close proximity to structures due to their flammability potential such as palm trees that can easily spread embers to adjacent structures or trees with a high oil content in their leaves and stems. The vegetation management division of ULWM should consult the Orange County Fire Authority's recent guidelines (OCFA 2022) as well when selecting and replacing various tree species throughout the community.

2.2.3 Invasive Pests

Several tree species within the community (i.e., Canary Island and Aleppo pines) can be susceptible to a variety of deadly pathogenic diseases and insects such as shothole borers (*Euwallacea fornicatus*), Mediterranean pine engraver (*Orthotomicus erosus*), redhaired pine bark beetle (*Hylurgus ligniperda*), root rot (*Phytophthora* spp.), and spider mites (*Tetranychus urticae*) (UCIPM 2008). Infected trees can serve as source trees or hosts that perpetuate the spread to other otherwise healthy trees.

Such pests and diseases can stress the trees, causing weakness or dead limbs, and/or lead to complete die off of the trunk. Heavily infested trees can spread such pests and diseases to other trees. Weak and dying trees can also create safety hazards as parts or all of the tree can fall unexpectedly, particularly in heavy winds such as the Santa Ana winds. Treating these pathogens can be labor intensive and not always effective. Transitioning the ULWM urban forest to trees with a lower susceptibility to such invasive pests or diseases is recommended to reduce the overall maintenance effort and to preserve the health and stability of existing trees.

2.2.4 Aggressive Root System Species

Many tree species are known to have aggressive fast-growing root systems that can negatively affect adjacent infrastructure such as cinderblock retaining walls, rooftops, building foundations, roads, and sidewalks. This growth can compromise the integrity of structures over time or cause safety hazards for pedestrians. Although cracks or lifting of sidewalks or roadways/asphalt streets in carports can often be patched or repaired, this may be required multiple times at the same location as the tree ages in place. Damage and associated repairs are unanticipated maintenance costs that should be considered when assessing a tree's overall benefit to the immediate area.

2.2.5 Self-Pruning or High Debris Load Species

Many trees are described as self-pruning in that they frequently drop substantial amounts of dead branches (and associated leaves/needles, or seed pods) which may occur in and around public spaces. These types of trees require substantially more labor and material costs to frequently and properly maintain to minimize the potential for inadvertent damage to property, persons, or wildlife.

Several self-pruning or high debris load trees such as Canary Island pines, gum trees, and Aleppo pines were observed during the site visit to have tall robust canopies abutting or spanning over adjacent structures (e.g., rooftops). Unmaintained leaf litter can promote moisture retention, mold growth, or wood rot. Extended debris accumulation can attract undesirable small mammals. Debris accumulation can also obstruct drainage systems (e.g., gutters and downspouts).

Increased maintenance attention and frequency (trimming, thinning, or removal) is recommended to minimize the cumulative negative effects of these self-pruning and high debris load species.

2.2.6 Overplanting

Initial landscape designs resulted in the unnecessarily dense installation of fast-growing tall tree species. Overplanting and the limited distance between some of these trees can negatively affect growth opportunities by restricting resource availability such as light, water, and nutrients. Overplanting of trees

can restrict sunlight to desirable flowering perennials and shrubs in the understory, limiting growth and causing potential mortalities. Large mature trees can absorb between 10 and 150 gallons of water daily, yet of all the water absorbed by plants, less than 5% remains in the plant for growth (Purcell, 2021) depending on soils, irrigation methods, and species. Therefore, overplanting requires more water usage to maintain each tree's biomass. Additionally, some trees (i.e., pines) produce growth chemicals (allelopathy) in their roots that enter the soils and thus inhibit growth of neighboring plants. Excessive amounts of these species in a restricted location and within close proximity can substantially alter the soil biochemistry, limiting above ground plant diversity and plant health.

Selective removal of trees, especially those already deemed problematic for other reasons (i.e., diseased, dying, or causing damage to infrastructure) from within these existing dense groves could produce substantial short-term and long-term benefits to their surrounding environment through improved soil chemistry, improved plant diversity in the understory, decreased water use, and increased upper canopy growth potential through reduced resource competition.

2.2.7 Water Filtration and Use

Although trees, particularly those in natural riparian settings such as Aliso Creek, can absorb substantial amounts of urban runoff to assist with stormwater filtration within subterranean ecosystems, many trees within the ULWM community are located within relatively flat hardscape settings. Therefore, their ability to assist with natural storm water filtration can be limited to primarily filtering the large amounts of potable irrigation water they require to persist year-round.

Most ornamental tree species within southern California require substantial amounts of water to grow and maintain a healthy biomass. Several trees within the ULWM community appeared to be drought stressed at the time of the site visit evidenced by necrotic tissue (brown limbs and canopy die off). Drought stressed trees also tend to be aesthetically unappealing, have increased susceptibility to pests and disease, and become weak which create public safety hazards with limb die-off or increased fragility during high wind events.

Drought tolerant trees should be prioritized as replacement options within the community to assist with water use reduction and improve climate change resiliency. Supplemental watering through non-specific overhead irrigation systems can also be wasteful. Overhead watering can result in run-off onto adjacent hardscape areas that do not require irrigation (i.e., sidewalks, streets). Additionally, different species require more water than others. Transitioning to specialized drippers or individual bubblers per tree is recommended for some species to minimize overwatering and runoff.

2.2.8 Chemical Use

Urban forests also often contain plant species not adapted to southern California's Mediterranean climate. They are often from more humid tropical or cooler temperate climates. Fertilizers are often required to enhance ornamental plant health to maintain the lush, robust, and floristic displays of these non-native species.

Pest control products (i.e., pesticides, herbicides, insecticides, and rodenticides) are also commonly used to control a variety of nuisance organisms within the community that these non-native species are prone

to attracting. Excessive, inappropriate, or illegal use of chemicals can degrade soils and vegetation, pollute aquatic systems, and may cause severe illness or death in wildlife and humans. ULWM retains certified personnel contracted to recommend, acquire, and employ chemical means of pest control including a Certified Pest Control Advisors and Qualified Applicators. Pesticide Use Reports are submitted to the County of Orange Agricultural Commissioner monthly.

The need for chemical intervention to maintain an urban forest can be reduced through improved plant selection such as selecting those species that are more pest and disease resistant, those tree species that do not produce edible fruit, and those that require less water.

2.2.9 Limitation to Carbon Sequestration

Although trees in general can be capable of direct carbon sequestration and oxygen production, some species do it much more efficiently than others.

The location and cardinal direction planted in relation to a structure of tall matures trees can limit their indirect benefits for energy reduction. Trees planted within 60 feet on the south or southwestern side of a building provide substantially more shade during peak daylight hours on the Pacific coastal areas of southern California than a tree on the northern or eastern side of a building (Ravdin 2016).

The age of tree can also limit its carbon sequestration. The bulk of direct carbon sequestrations occurs in the preliminary growing years of a tree's life and slows at maturity as less biomass is generated.

A tree's morphology and growth habits affect its carbon sequestration potential. Long-lived broadleaved deciduous trees that drop their leaves annually and dense hardwood species tend to directly capture more carbon over time as they require more carbon to generate and maintain their structure compared to evergreen coniferous trees (Ravdin 2016). Therefore, a mature softwood coniferous evergreen (i.e., pine) is far less effective at carbon sequestration compared to a young hardwood broadleaf deciduous tree species (e.g., western sycamore, velvet ash (*Fraxinus velutina*), and American sweet gum).

Installing moderately tall hardwood deciduous broad-leaved trees with non-aggressive root systems within appropriate proximity to structures on their southern sides, maximizes the indirect carbon sequestration potential. However, trees planted on the north or northeast sides of a structure provide nominal shade effects. There are several trees planted within very close proximity to structures within the ULWM community, and many of them are evergreen pines with aggressive root systems and that are located on the northern or northeast sides of structures.

SECTION 3.0 – SUMMARY AND RECOMMENDATIONS

Long-term maintenance requirements, invasive pests and diseases, invasive root systems, climate change, extended drought, evolution of environmental regulations, and budget constraints are all unforeseen challenges being realized as the ULWM community's urban forest ages into the 21st (twenty-first) century.

Although many of the existing mature trees within the ULWM community provide certain benefits such as some carbon sequestration, shade, habitat for certain wildlife, privacy screening, and aesthetic appeal, in certain species, the cumulative and long-term negative effects that occur by maintaining or allowing them to persist outweigh their perceived benefits.

Trees that pose long-term cumulative maintenance challenges such as those that are self-pruning, have heavy debris loads, trees that are too densely planted, trees that threaten infrastructure, have aggressive roots, are currently prohibited by OCFA guidance, those that are infested with pests or disease and/or pose threats to environmental resources (i.e., native wildlife or riparian systems) should be prioritized for improved routine maintenance inspection frequency, trimming, removal, or replacement.

Transitioning the ULWM traditional ornamental landscape to appropriately-placed, lower-maintenance, climate-friendly, non-invasive, and fire-wise species will improve maintenance efficiencies, lower maintenance costs and financial liabilities, improve the ULWM microclimate, and reduce negative effects on natural resources in the future. Chambers Group recommends ULWM educate its residents on the benefits that such improved maintenance considerations can have on the environment as a whole.

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ATTACHMENT A –TREE SPECIES WITHIN UNITED LAGUNA WOODS MUTUAL

| Botanical Name | Common Name |
|--|----------------------------------|
| <i>Lagerstroemia indica</i> | Crape Myrtle (including hybrids) |
| <i>Pinus canariensis</i> | Canary Island Pine |
| <i>Cupaniopsis anacardioides</i> | Carrotwood |
| <i>Magnolia grandiflora</i> | Southern Magnolia |
| <i>Citrus limon</i> | Lemon |
| <i>Callistemon citrinus</i> | Lemon Bottlebrush |
| <i>Syagrus romanzoffianum</i> | Queen Palm |
| <i>Schinus terebinthifolius</i> | Brazilian Pepper |
| <i>Afrocarpus gracilior</i> | Fern Pine |
| <i>Melaleuca quinquenervia</i> | Cajeput Tree |
| <i>Juniperus chinensis 'Torulosa'</i> | Hollywood Juniper |
| <i>Liquidambar styraciflua</i> | American Sweet Gum |
| <i>Archontophoenix cunninghamiana</i> | King Palm |
| <i>Citrus sinensis</i> | Orange |
| <i>Jacaranda mimosifolia</i> | Jacaranda |
| <i>Grevillea robusta</i> | Silk Oak |
| <i>Pinus halepensis</i> | Aleppo Pine |
| <i>Cinnamomum camphora</i> | Camphor |
| <i>Melaleuca linariifolia</i> | Flaxleaf Paperbark |
| <i>Eucalyptus polyanthemus</i> | Silver Dollar Gum |
| <i>Metrosideros excelsa</i> | New Zealand Christmas Tree |
| <i>Prunus cerasifera</i> | Purple-Leafed Plum |
| <i>Brachychiton populneus</i> | Bottle Tree |
| <i>Fraxinus uhdei</i> | Shamel Ash |
| <i>Ficus rubiginosa</i> | Rustyleaf Fig |
| <i>Platanus racemosa</i> | California Sycamore |
| <i>Callistemon viminalis</i> | Weeping Bottlebrush |
| <i>Ficus benjamina</i> | Weeping Fig |
| <i>Schinus molle</i> | California Pepper |
| <i>Raphirolepis 'Majestic Beauty'</i> | Majestic Beauty Indian Hawthorne |
| <i>Eucalyptus sideroxylon</i> | Red Ironbark |
| <i>Ficus carica</i> | Edible Fig |
| <i>Magnolia grandiflora 'Little Gem'</i> | Little Gem Magnolia |
| <i>Eriobotrya japonica</i> | Edible Loquat |
| <i>Prunus lyonii</i> | Catalina Cherry |
| <i>Ilex altaclarensis 'Wilsonii'</i> | Wilson Holly |
| <i>Ficus microcarpa 'Nitida'</i> | Indian Laurel Fig |
| <i>Geijera parviflora</i> | Australian Willow |
| <i>Ulmus parvifolia</i> | Chinese Elm |
| <i>Handroanthus impetiginosus</i> | Pink Trumpet Tree |
| <i>Araucaria columnaris</i> | Star Pine |
| <i>Cupressocyparis leylandii</i> | Leyland Cypress |
| <i>Citrus X paradisi</i> | Grapefruit |
| <i>Lophostemon confertus</i> | Brisbane Box |
| <i>Cercis canadensis var. texensis</i> | Texas/Oklahoma Redbud |
| <i>Corymbia citriodora</i> | Lemon-Scented Gum |

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|----------------------------------|------------------------|
| <i>Pyrus kawakamii</i> | Evergreen Pear |
| <i>Cercis canadensis</i> | Eastern Redbud |
| <i>Eriobotrya deflexa</i> | Bronze Loquat |
| <i>Prunus persica</i> | Peach |
| <i>Bauhinia variegata</i> | Purple Orchid Tree |
| <i>Persea americana</i> | Avocado |
| <i>Ginkgo biloba</i> | Maidenhair Tree |
| <i>Yucca gloriosa</i> | Spanish Dagger |
| <i>Morus alba</i> | White Mulberry |
| <i>Cupressus sempervirens</i> | Italian Cypress |
| <i>Archontophoenix myolensis</i> | King Palm |
| <i>Koelreuteria bipinnata</i> | Chinese Flame Tree |
| <i>Ceratonia siliqua</i> | Carob |
| <i>Podocarpus henkelii</i> | Long-Leafed Yellowwood |
| <i>Betula pendula</i> | European White Birch |
| <i>Corymbia ficifolia</i> | Red-Flowering Gum |
| <i>Trachycarpus fortunei</i> | Windmill Palm |
| <i>Rhus lancea</i> | African Sumac |
| <i>Pinus pinea</i> | Italian Stone Pine |
| <i>Brachychiton discolor</i> | Pink Flame Tree |
| <i>Chitalpa tashkentensis</i> | Chitalpa |
| <i>Eucalyptus globulus</i> | Blue Gum |
| <i>Psidium guajava</i> | Guava |
| <i>Juniperus species</i> | Juniper Species |
| <i>Platanus x acerifolia</i> | London Plane Tree |
| <i>Corymbia maculata</i> | Spotted Gum |
| <i>Diospyros kaki</i> | Japanese Persimmon |
| <i>Agonis flexuosa</i> | Peppermint Tree |
| <i>Citrus aurantifolia</i> | Lime |
| <i>Pinus thunbergiana</i> | Japanese Black Pine |
| <i>Pinus radiata</i> | Monterey Pine |
| <i>Syzygium paniculatum</i> | Brush Cherry |
| <i>Fortunella margarita</i> | Nagami Kumquat |
| <i>Olea europaea</i> | Olive |
| <i>Citrus reticulata</i> | Tangerine |
| <i>Punica granatum</i> | Pomegranate |
| <i>Prunus caroliniana</i> | Carolina Laurel Cherry |
| <i>Brahea edulis</i> | Guadalupe Palm |
| <i>Pittosporum undulatum</i> | Victorian Box |
| <i>Pyrus calleryana</i> | Ornamental Pear |
| Other Tree | Other Tree |
| <i>Eucalyptus rudis</i> | Desert Gum |
| <i>Alnus rhombifolia</i> | White Alder |
| <i>Ligustrum lucidum</i> | Glossy Privet |
| <i>Dodonaea viscosa</i> | Green Hopseed |
| <i>Washingtonia robusta</i> | Mexican Fan Palm |
| <i>Solanum macranthum</i> | Tree Solanum |

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|----------------------------------|--------------------------|
| Albizia julibrissin | Mimosa; Silk Tree |
| Chamaerops humilis | Mediterranean Fan Palm |
| Cassia leptophylla | Gold Medallion Tree |
| Eucalyptus lehmannii | Bushy Yate |
| Malus domestica | Edible Apple Species |
| Platanus occidentalis | American Sycamore |
| Ceiba speciosa | Floss Silk Tree |
| Tristaniopsis laurina | Water Gum |
| Myoporum laetum | Myoporum |
| Schefflera actinophylla | Queensland Umbrella Tree |
| Araucaria heterophylla | Norfolk Island Pine |
| Quercus agrifolia | Coast Live Oak |
| Brachychiton acerifolius | Flame Tree |
| Ziziphus jujuba | Chinese Jujube |
| Cercis canadensis 'Forest Pansy' | Forest Pansy Redbud |
| Triadica sebifera | Chinese Tallow Tree |
| Phoenix canariensis | Canary Island Date Palm |
| Prunus domestica | Plum |
| Gleditsia triacanthos f. inermis | Thornless Honey Locust |
| Pittosporum viridiflorum | Cape Pittosporum |
| Eucalyptus globulus 'Compacta' | Compact Bluegum |
| Prunus armeniaca | Apricot |
| Eucalyptus viminalis | Manna Gum |
| Robinia x ambigua 'Purple Robe' | Purple Robe Locust |
| Acer palmatum | Japanese Maple |
| Arbutus unedo | Strawberry Tree |
| ↳ Eucalyptus cladocalyx | Sugar Gum |
| Fraxinus pennsylvanica | Green Ash |
| Hymenosporum flavum | Sweetshade |
| Ligustrum japonicum | Japanese Privet |
| Ficus elastica | Rubber Plant |
| Lycianthes rantonnetii | Blue Potato Bush |
| Pittosporum tenuifolium | Blackstem Pittosporum |
| Psidium cattleianum | Strawberry Guava |
| Eucalyptus camaldulensis | Red Gum |
| Harpephyllum caffrum | Kaffir Plum |
| Ligustrum sinense | Chinese Privet |
| Ilex aquifolium | English Holly |
| Pittosporum crassifolium | Seaside Pittosporum |
| Maytenus boaria | Mayten |
| Cedrus atlantica | Atlas Cedar |
| Cotinus coggygria | Smoke Tree |
| Acacia longifolia | Sydney Golden Wattle |
| Leptospermum scoparium | New Zealand Tea Tree |
| Photinia fraseri | Fraser Photinia |
| Acacia melanoxylon | Blackwood Acacia |
| Auranticarpa rhombifolia | Queensland Pittosporum |

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| <i>Cunonia capensis</i> | African Red Alder |
| <i>Juniperus chinensis</i> | Chinese Juniper |
| <i>Pistacia chinensis</i> | Chinese Pistache |
| <i>Radermachera sinica</i> | China Doll |
| <i>Prunus serrulata</i> | Japanese Flowering Cherry |
| <i>Cedrus deodara</i> | Deodar Cedar |
| <i>Cotoneaster lacteus</i> | Red Clusterberry |
| <i>Pinus brutia</i> var. <i>eldarica</i> | Afghan Pine |
| <i>Robinia pseudoacacia</i> | Black Locust |
| <i>Carica papaya</i> | Papaya |
| <i>Chionanthus retusus</i> | Chinese Fringe Tree |
| <i>Dyopsis decaryi</i> | Triangle Palm |
| <i>Podocarpus macrophyllus</i> | Yew Pine |
| <i>Sequoia sempervirens</i> | Coast Redwood |
| <i>Xylosma congestum</i> | Shiny Xylosma |
| <i>Erythrina caffra</i> | Kaffirboom Coral Tree |
| <i>Pittosporum tobira</i> | Tobira, Mock Orange |
| <i>Leptospermum laevigatum</i> | Australian Tea Tree |
| <i>Prunus persica</i> var. <i>nucipersica</i> | Nectarine |
| <i>Robinia x ambigua</i> 'Idahoensis' | Idaho Locust |
| <i>Magnolia doltsopa</i> | Michelia |
| <i>Platycladus orientalis</i> | Oriental Arborvitae |
| <i>Prunus</i> species | Stone Fruit Species |
| <i>Eucalyptus pulverulenta</i> | Silver Mountain Gum |
| <i>Hibiscus mutabilis</i> 'Flore Pleno' | Double Confederate Rose |
| <i>Thuja occidentalis</i> | American Arborvitae |
| <i>Acacia baileyana</i> | Bailey Acacia |
| <i>Calocedrus decurrens</i> | Incense Cedar |
| <i>Hyophorbe lagenicaulis</i> | Bottle Palm |
| <i>Phoenix dactylifera</i> | Date Palm |
| <i>Cercis occidentalis</i> | Western Redbud |
| <i>Cocculus laurifolius</i> | Snailseed |
| <i>Melaleuca nesophila</i> | Pink Melaleuca |
| <i>Phoenix rupicola</i> | Cliff Date Palm |
| <i>Spathodea campanulata</i> | African Tulip Tree |
| <i>Tipuana tipu</i> | Tipu |
| <i>Calliandra haematocephala</i> | Pink Powderpuff |
| <i>Plumeria rubra</i> | Plumeria |
| <i>Stenocarpus sinuatus</i> | Firewheel Tree |
| <i>Araucaria araucana</i> | Monkey Puzzle Tree |
| <i>Fraxinus uhdei</i> 'Tomlinson' | Tomlinson Ash |
| <i>Fraxinus velutina</i> | Arizona Ash |
| <i>Fraxinus velutina</i> 'Modesto' | Modesto Ash |
| <i>Ilex cornuta</i> | Chinese Holly |
| <i>Pyrus communis</i> | Edible Pear |
| <i>Schefflera pueckleri</i> | Tupidanthus |
| <i>Taxodium distichum</i> | Bald Cypress |

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| Eucalyptus cinerea | Ash Gum |
| Macadamia integrifolia | Smooth-Shell Macadamia |
| Photinia serrulata | Chinese Photinia |
| Beaucarnea recurvata | Ponytail Palm |
| Butia capitata | Pindo Palm |
| Casimiroa edulis | White Sapote |
| Citrus X 'Tangelo' | Tangelo |
| Cordyline australis | Dracaena |
| Dracaena draco | Dragon Tree |
| Duranta repens | Sky Flower |
| Eucalyptus leucoxylon | White Ironbark |
| Eucalyptus torquata | Coral Gum |
| Howea belmoreana | Sentry Palm |
| Magnolia champaca | Champaca |
| Paulownia fortunei | Princess Tree |
| Acer palmatum 'Bloodgood' | Bloodgood Japanese Maple |
| Annona cherimola | Cherimoya |
| Bauhinia variegata 'Candida' | White Orchid Tree |
| Dodonaea viscosa 'Purpurea' | Purple Hopseed |
| Erythrina coralloides | Naked Coral Tree |
| Gleditsia triacanthos | Honey Locust |
| Handroanthus chrysotrichus | Golden Trumpet Tree |
| Hibiscus species | Hibiscus |
| Melia azedarach | Chinaberry |
| Zelkova serrata | Sawleaf Zelkova |
| Aralia elegantissima | Threadleaf Aralia |
| Brugmansia versicolor | Angel's Trumpet |
| Carya illinoensis | Pecan |
| Casuarina cunninghamiana | River She-Oak |
| Catalpa bignonioides | Eastern Catalpa |
| Citrus species | Citrus Species |
| Dyopsis lutescens | Areca Palm |
| Eucalyptus species | Eucalyptus Species |
| Ficus species | Ficus Species |
| Handroanthus umbellatus | Yellow Trumpet Tree |
| Heteromeles arbutifolia | Toyon |
| Howea forsteriana | Paradise Palm |
| Melaleuca armillaris | Bracelet Honey Myrtle |
| Melaleuca styphelioides | Prickly-leaf Paperbark |
| Picea pungens | Colorado Spruce |
| Pyrus calleryana 'Aristocrat' | Aristocrat Pear |
| Pyrus calleryana 'Bradford' | Bradford Pear |
| Quercus ilex | Holly Oak |
| Quercus suber | Cork Oak |
| Ravenea rivularis | Majesty Palm |
| Rhaphiolepis indica | Indian Hawthorne |
| Salix babylonica | Weeping Willow |

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| Salix discolor | Pussy Willow |
| Salix lasiolepis | Arroyo Willow |
| Thuja plicata | Western Red Cedar |
| Ailanthus altissima | Tree of Heaven |
| Alnus cordata | Italian Alder |
| Calodendrum capense | Cape Chestnut |
| Citrus maxima | Pumelo |
| Dimocarpus longan | Longan |
| Erythrina americana | Naked Coral Tree |
| Erythrina crista-galli | Cockspur Coral Tree |
| Ficus lyrata | Fiddle Leaf Fig |
| Ficus microcarpa | Cuban Laurel |
| Ficus microcarpa 'Green Gem' | Green Gem Indian Laurel Fig |
| Fraxinus species | Ash Species |
| Hibiscus rosa-sinensis | Chinese Hibiscus |
| Ilex cornuta 'Burfordii' | Burford Holly |
| Koelreuteria paniculata | Goldenrain Tree |
| Lagerstroemia speciosa | Queen Crape Myrtle |
| Lagunaria patersonia | Primrose Tree |
| Laurus nobilis | Sweet Bay |
| Manihot esculenta | Cassava |
| Nerium oleander | Oleander |
| Parkinsonia florida | Blue Palo Verde |
| Photinia serratifolia | Chinese Photinia |
| Populus deltoides | Cottonwood |
| Prunus dulcis | Almond |
| Pyracantha coccinea | Firethorn |
| Salix nigra | Black Willow |
| Thevetia peruviana | Yellow Oleander |
| Trithrinax acanthocoma | Spiny Fiber Palm |
| Washingtonia filifera | California Fan Palm |
| Wisteria sinensis (Standard) | Chinese Wisteria (Standard) |
| Abies procera | Noble Fir |
| Acacia decurrens | Green Wattle |
| Acacia stenophylla | Shoestring Acacia |
| Acca sellowiana | Pineapple Guava |
| Acer pseudoplatanus | Sycamore Maple |
| Acer rubrum | Red Maple |
| Acer saccharinum | Silver Maple |
| Afrocarpus falcatus | False Yellowwood |
| Agonis flexuosa 'After Dark' | Purple-leafed Peppermint Tree |
| Albizia distachya | Plume Albizia |
| Araucaria bidwillii | Bunya-Bunya Tree |
| Bauhinia x blakeana | Hong Kong Orchid Tree |
| Betula papyrifera | Paper Birch |
| Brachychiton rupestris | Queensland Bottle Tree |
| Brahea armata | Mexican Blue Palm |

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|----------------------------|--------------------------|
| Callistemon species | Bottlebrush Species |
| Cedrus libani | Cedar-of-Lebanon |
| Cercidiphyllum japonicum | Katsura Tree |
| Chamaecyparis species | False Cypress Species |
| Chilopsis linearis | Desert Willow |
| Dicksonia antarctica | Tasmanian Tree Fern |
| Dioon edule | Mexican Cycad |
| Dombeya cacuminum | Strawberry Snowball Tree |
| Eriobotrya X 'Coppertone' | Coppertone Loquat Hybrid |
| Erythrina humeana | Natal Coral Tree |
| Ficus macrophylla | Moreton Bay Fig |
| Ficus rubiginosa 'Florida' | Florida Rustyleaf Fig |
| Ilex latifolia | Tajaro |
| Juniperus virginiana | Eastern Red Cedar |
| Liriodendron tulipifera | Tulip Tree |
| Lyonothamnus floribundus | Catalina Ironwood |
| Magnolia x soulangeana | Saucer Magnolia |
| Malus floribunda | Crabapple Species |
| Mangifera indica | Mango |
| Mimosa species | Mimosa Species |
| Morus alba 'Pendula' | Weeping White Mulberry |
| Musa species | Banana |
| Other Tree 1 | Other Tree 1 |
| Persea indica | Canary Island Bay |
| Pinus coulteri | Coulter Pine |
| Pinus patula | Jelescote Pine |
| Pinus torreyana | Torrey Pine |
| Pithecellobium dulce | Guamuchil |
| Pittosporum eugenioides | Tarata |
| Prunus serrulata 'Kwanzan' | Kwanzan Flowering Cherry |
| Rhamnus alaternus | Italian Buckthorn |
| Salix species | Willow Species |
| Schefflera arboricola | Dwarf Schefflera |
| Senna splendida | Golden Wonder Senna |
| Sequoiadendron giganteum | Giant Sequoia |
| Strelitzia nicolai | Giant Bird of Paradise |
| Tamarix aphylla | Athel Tree |
| Taxodium mucronatum | Montezuma Cypress |
| Ulmus pumila | Siberian Elm |
| Vitex lucens | New Zealand Chaste Tree |
| Yucca species | Yucca Species |

ATTACHMENT B – SITE PHOTOGRAPHS -UNITED LAGUNA WOODS MUTUAL



Photo 1.

Photograph 1 depicts several Canary Island pine trees densely planted along the north and northeast side of residential structures along Avenida Sevilla within the ULWM community.



Photo 2.

Photograph 2 depicts several densely planted trees along the north and northeast side of a residential structures along Avenida Sevilla.



Photo 3.

Photograph 3 depicts several large trees planted adjacent to residential structures, concrete retaining walls, and a sidewalk.



Photograph 4.

Photograph 4 is an example of how aggressive tree root growth can impact adjacent infrastructure such as concrete retaining walls.



Photograph 5.

Photograph 5 is an example of how trees planted within close proximity to structures can directly impact facade boards and roof integrity.



Photograph 6.

Photograph 6 is an example of leaf litter debris build-up from trees planted within close proximity to structures. Accumulation of debris can cause wood rot, attract pests, and create excessive fuel loads. Frequent clearing efforts and maintenance are recommended.



Photograph 7.

Photograph 7 is an example of how the roots of certain trees planted within close proximity to structures can impact concrete slabs and exterior stucco.



Photograph 8.

Photograph 8 is an example of how trees planted within close proximity to sidewalks can create lifting and shifting of the concrete slabs that may lead to safety hazards and require continued resurfacing/repair efforts.



Photograph 9.

Photograph 9 is an example of the shade effect from dense tree canopies blocking sunlight and inhibiting growth of lower canopy perennial shrubs.

APPENDIX C – WILDLIFE OBSERVED WITHIN UNITED LAGUNA WOODS MUTUAL

| Scientific Name | Common Name |
|--|---|
| CLASS MALACOSTRACA | crustacean |
| CAMBARIDAE | CRAYFISH |
| <i>Cambarus dubius</i> | crayfish |
| CLASS INSECTA | INSECTS |
| NYMPHALIDAE | BRUSH-FOOTED BUTTERFLIES |
| <i>Danaus plexippus</i> | Monarch butterfly |
| <i>Vanessa cardui</i> | Painted lady |
| CLASS AMPHIBIA | AMPHIBIANS |
| RANIDAE | TRUE FROGS |
| <i>Lithobates catesbeianus</i> | bullfrog |
| CLASS REPTILIA | REPTILES |
| EMYDIDAE | BOX AND WATER TURTLES |
| <i>Actinemys marmorata pallida</i> | southwestern pond turtle |
| <i>Trachemys scripta elegans</i> | red-eared slider |
| PHRYNOSOMATIDAE | ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS |
| <i>Sceloporus occidentalis</i> | western fence lizard |
| ANGUIDAE | ALLIGATOR LIZARDS |
| <i>Elgaria multicarinata multicarinata</i> | California alligator lizard |
| CLASS AVES | BIRDS |
| ARDEIDAE | HERONS, BITTERNS |
| <i>Butorides virescens</i> | green heron |
| <i>Ardea alba</i> | great egret |
| <i>Egretta thula</i> | snowy egret |
| ANATIDAE | DUCKS, GEESE, SWANS |
| <i>Anas platyrhynchos</i> | Mallard |
| ACCIPITRIDAE | HAWKS, KITES, EAGLES |
| <i>Accipiter cooperii</i> | Cooper's hawk |
| <i>Buteo jamaicensis</i> | red-tailed hawk |
| <i>Buteo lineatus</i> | red-shouldered hawk |
| COLUMBIDAE | PIGEONS & DOVES |
| <i>Zenaida macroura</i> | mourning dove |
| TROCHILIDAE | HUMMINGBIRDS |
| <i>Calypte anna</i> | Anna's hummingbird |
| <i>Selasphorus sasin</i> | Allen's hummingbird |
| PICIDAE | WOODPECKERS |
| <i>Picoides nuttallii</i> | Nuttall's woodpecker |

| Scientific Name | Common Name |
|-------------------------------|----------------------------|
| TYRANNIDAE | TYRANT FLYCATCHERS |
| <i>Empidonax difficilis</i> | Pacific-slope flycatcher |
| <i>Sayornis nigricans</i> | black phoebe |
| HIRUNDINIDAE | SWALLOWS |
| <i>Hirundo rustica</i> | barn swallow |
| CORVIDAE | JAYS & CROWS |
| <i>Corvus brachyrhynchos</i> | American crow |
| AEGITHALIDAE | BUSHTITS |
| <i>Psaltriparus minimus</i> | bushtit |
| TROGLODYTIDAE | WRENS |
| <i>Troglodytes aedon</i> | house wren |
| TURDIDAE | THRUSHES |
| <i>Sialia mexicana</i> | western bluebird |
| <i>Turdus migratorius</i> | American robin |
| VIDUIDAE | WHYDAHs |
| <i>Vidua macr</i> | Pin-tailed whydah |
| PARULIDAE | WOOD WARBLERS |
| <i>Geothlypis trichas</i> | common yellowthroat |
| ICTERIDAE | BLACKBIRDS |
| <i>Agelaius phoeniceus</i> | red-winged blackbird |
| <i>Icterus cucullatus</i> | hooded oriole |
| EMBERIZIDAE | EMBERIZIDS |
| <i>Melospiza melodia</i> | song sparrow |
| <i>Pipilo maculatus</i> | spotted towhee |
| <i>Zonotrichia leucophrys</i> | white-crowned sparrow |
| FRINGILLIDAE | FINCHES |
| <i>Spinus psaltria</i> | lesser goldfinch |
| <i>Spinus tristis</i> | American goldfinch |
| <i>Carpodacus mexicanus</i> | house finch |
| ESTRILDIDAE | ESTRILDID FINCHES |
| <i>Lonchura punctulata</i> | Scaly-breasted Munia |
| PASSERIDAE | OLD WORLD SPARROWS |
| <i>Passer domesticus</i> | house sparrow |
| CLASS MAMMALIA | MAMMALS |
| DIDELPHIDAE | NEW WORLD OPOSSUMS |
| <i>Didelphis virginiana</i> | Virginia opossum |
| LEPORIDAE | HARES & RABBITS |
| <i>Sylvilagus bachmani</i> | brush rabbit |
| SCIURIDAE | SQUIRRELS |

| Scientific Name | Common Name |
|--------------------------|------------------------------|
| <i>Sciurus niger</i> | eastern fox squirrel |
| GEOMYIDAE | POCKET GOPHERS |
| <i>Thomomys bottae</i> | Botta's pocket gopher |
| MURIDAE | MICE, RATS, AND VOLES |
| <i>Mus musculus</i> | house mouse |
| <i>Rattus rattus</i> | black rat |
| CANIDAE | WOLVES & FOXES |
| <i>Canis latrans</i> | coyote |
| PROCYONIDAE | RACCOONS |
| <i>Procyon lotor</i> | raccoon |
| MEPHITIDAE | SKUNKS |
| <i>Mephitis mephitis</i> | striped skunk |