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Nearing the end of his term, on December 16, 2016, President Obama signed the Water Infrastructure Improvements for the Nation (WIIN) Act into law, a measure that includes the Water Resources Development Act (WRDA) of 2016. The WIIN Act authorizes critical water projects across the country, including improvements to dams, levees, and other water resources infrastructure. It also sets aside funds for environmental protection and restoration efforts—from benefitting fish and wildlife in the Great Lakes, to restoration efforts and forest management in the Lake Tahoe Basin. Five wetland and delta restoration projects will receive $451 million in Puget Sound, and across the country. Florida will receive more than $100 million for upcoming projects to restore the Central Everglades and other distressed estuaries.

This is big news.

And, while federal funding is important, it’s not the only way to address restoration efforts. Local communities also take matters into their own hands. The San Francisco Bay Area passed Measure AA this past November, making it the first parcel tax in California’s history to be levied across multiple counties. The tax is expected to produce about $500 million in restoration funds for the Bay’s wetland projects over the next 20 years. An entire region banded together in recognition of the importance of the wetlands, and in turn the area will continue decades-long efforts to open tidal wetlands back to the Bay.

These are wise investments, in both the short and long term. The health, resilience, and longevity of our coasts, rivers, deltas, wetlands, and other waterways all over the country are not just good for the environment, but provide multiple public benefits (e.g., water quality control, flood control, and recreation) and can also stimulate local economies. According to a study conducted by the U.S. Fish and Wildlife Service, coastal restoration projects can have a significant positive impact for local economies. The authors determined that in 2011 an initial investment of $19.2 million the coastal restoration program generated $12.78 in economic returns for every dollar contributed, resulting in $35.6 million in output and 473 new jobs.

Looking ahead into 2017, we remain optimistic. With a new administration in the White House, we expect shifts in policies and attitudes regarding environmental regulation, but we also see the country’s momentum toward protection and restoration of our natural heritage, including the growing awareness of the public benefits provided by these resources.

With five presentations and a poster session, ESA was well represented at the Restore America’s Estuaries conference in New Orleans last December. Now more than ever, as we face issues of sea-level rise, flooding, water quality degradation, and land subsidence and erosion, we are focused on protecting our communities, resources, and infrastructure assets. Restoration of our estuaries and other wetlands will play a vital role in coastal resilience, community protection and health, and ecosystem sustainability.

Happy New Year,

Leslie
However, starting in the 1960s, changes in how citizens regarded the habitat value and beauty of the Bay, and the resulting policies and actions, led to great strides in promoting restoration projects throughout the region. Those working in the San Francisco Bay region have been actively restoring wetlands for more than 40 years, making it rich in restoration success stories and lessons that can benefit projects throughout the country.

The historic wetland environment of the Bay consisted of more than 540,000 acres of tidal marshes—the largest estuary on the Pacific Coast. The dawn of the Gold Rush in 1849 set the trajectory of rapid population and industrial growth that the San Francisco Bay Area sees to this day. Wetlands at the Bay’s fringe were prime candidates for filling or diking to accommodate agriculture and population growth, as well as for ports for trade and commerce.

Public concern for the Bay’s health began to grow in the 1950s, and reached a tipping point in 1961, when Save San Francisco Bay began its successful movement to halt the destruction caused by filling the Bay. Founded by three East Bay women—Kay Kerr, Sylvia McLaughlin, and Esther Gulick—Save the Bay garnered the support of residents throughout the Bay Area. By 1966, the McAteer-Petris Act—the first wetlands protection in the United States—had passed, preventing further filling of wetlands in San Francisco Bay. This set the course for increased Federal and local interest in the restoration of all areas subject to tidal action, from South San Francisco Bay to San Pablo Bay and all the way up to the Sacramento Delta.

Restoration efforts began in the 1970s, with Dr. H. Thomas Harvey of San Jose State University leading the way. Dr. Harvey taught a prominent pioneer in the field, Dr. Philip Williams—now happily retired from ESA—the significance of the health of the entire wetland ecosystem in relation to the success of a restoration project. And so, 40 years ago, Philip Williams and his team began their career-long pursuit to restore wetlands—starting with the San Francisco Bay.

The initial attempts at restoration in the San Francisco Bay were primarily driven by compensatory mitigation requirements. The general approach involved setting the right elevations, planting native marsh grasses and then breaching levees to flood the restored area. These “first generation” marsh restorations were successful in creating a vegetated tidal marsh, however, they typically lacked physical and biological complexity by having only a few, artificially straight tidal channels or low plant diversity. An example of this is Muzzi Marsh, one of the first large-scale restoration projects. Completed in 1976, the 128-acre site was graded and filled to the appropriate elevation of a mature marsh, with the expectation that the “marsh” would immediately start acting like one.

In the 1990s, Williams and the ESA team began to incorporate additional design approaches that rely on the power of natural ecosystems to reinstate diversity.
processes acting over time to create desired wetland features. ESA worked with the U.S. Army Corps of Engineers and California State Coastal Conservancy in 1996 to design the restoration of the nearly 300-acre Sonoma Baylands project using this new approach. Imported dredged materials were used to raise the subsided site, but to elevations slightly below a natural marsh, leaving room for tidal flows to form new channels on the land and for bay sediments to build up soils of appropriate quality and texture. Rather than excavate a large channel through sensitive habitat to provide water to the site, tidal flows were used to naturally enlarge a small, existing channel over time. Based on 20 years of data collected by ESA staff, we now know that this approach has been successful.

The 1990s also brought escalating growth in the size of individual restoration efforts, enabling us to apply lessons learned to progressively larger and more complex sites. Our projects jumped from the 300-acre San Leandro Shoreline to the 450-acre Hamilton Wetlands Restoration, to the 1,400-acre Bair Island project, and then the whopping 10,000-acre Napa-Sonoma Marsh Restoration. The largest-scale opportunity for tidal marsh restoration in the Bay came with the purchase in 2003 of the 15,100-acre South Bay Salt Ponds by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. This project will not only restore tidal wetlands, but will also provide flood protection and public access for neighboring communities. ESA has been providing engineering and environmental services for the project along 20 miles of shoreline. The first phase of the project restored 3,200 acres of wetlands and 6.7 miles of new trails. Future phases will continue this trajectory and explore the beneficial reuse of dredged material for sea-level rise resilience.

As the projects have evolved, restoration approaches have expanded to address additional issues. Current Bay restoration issues, as documented in the Goals Project Science Update 2015 that ESA staff helped develop, include accelerated sea-level rise, a shortage of estuarine sediments, more extreme weather events, and invasive species. Our projects have also evolved to cover restoration of a broader range of tidal and associated habitats, ranging from oyster and eelgrass areas to upland ecotone slopes that add ecological diversity and climate resiliency. Another consideration for restoration projects is the potential integration of flood protection, which was the case for the Martinez Salt Marsh project. As always, we look to elements of prior projects for lessons we can apply.

San Francisco
Tidal Wetland Restoration and Select ESA Project History

LEGEND

- Started Design
- Breached/Implemented
- ESA Monitoring

Cooley Landing 115 acres

Warm Springs Marsh 198 acres

Muzzi Marsh 128 acres

1940s–1960s
1970
1980
1990

Reber Plan proposes to fill the Bay leaving only a shipping channel (Late 1940s to early 1960s)

Founding of Save the Bay (1961)

First wetlands protection legislation passed in U.S., preventing further filling of SF Bay tidal wetlands (1965)

New restorations attempt to replicate the natural marsh, considered the “first generation” of restoration projects (1970s and 1980s)

First wetland restoration project in SF Bay – Faber Tract: 79 acres (1972)

Federal funding approved for U.S. Army Corps of Engineers restoration projects (1980s)
The San Francisco Bay Area’s commitment to wetland restoration through these projects and many others has paved the way for similar efforts to be funded and completed throughout the country. In November, the Bay Area region voted to pass Measure AA—a new $12 per-parcel tax that will raise a total of $500 million for Bay enhancement and habitat restoration over the next 20 years. New and existing restoration, flood protection, and public access projects will be eligible for these funds, which can be applied to all project phases, from planning to implementation and monitoring. This is promising news for the health and resiliency of San Francisco Bay. ESA looks forward to being a part of a vibrant future for wetland restoration.

To learn more about wetland restoration, or to see if your project is eligible for Measure AA funds, contact Michelle Orr at morr@esassoc.com or by calling 415.896.5900.

This story was developed with the help of the following resources.
Restoration and Nature-Based Approaches to Coastal Resilience

With almost half of our country’s population living within 50 miles of a coastline, a significant portion of our nation’s critical infrastructure providing power, water, communication, and transportation services are at risk from the threat of sea-level rise. New, innovative approaches to protect our critical infrastructure, as well as private development, residential areas, and natural habitats, are gaining more traction as these areas plan for coastal resilience. For more than two decades, ESA has been working with coastal communities to cultivate plans for long-term resilience in our changing climate. While some states and low-lying communities are still grappling with the causes of sea-level rise, one thing is certain: we need to plan for the health, safety, and long-term vitality of our shoreline.

The historic approach to managing flooding attributed to sea-level rise has really been an effort to “hold the line,” and primarily involves the construction of a physical barrier, such as engineered concrete seawalls or levees. This approach is also known as coastal armoring. As time has passed, some of these structures have failed, causing catastrophic damage, while others require regular maintenance and investment to remain viable. These solutions are engineered to accommodate a specific rise in sea level or storm size, so they have a timeline associated with them. ESA has been actively exploring alternatives to protect our coastlines, searching for the most effective, multi-benefit, and naturally sustainable solutions.

There are softer approaches referred to as “living shorelines” or “green infrastructure,” which provide a more natural way to “hold the line.” Some communities are using continual beach nourishment, adding sand to restore and maintain eroding beaches. ESA has been involved in both the San Francisco Bay and San Diego Bay efforts to restore oyster reefs as a method of providing habitat for oysters, sea birds, and other bay creatures, while also providing coastal erosion protection. Other living shoreline strategies include beaches, dunes, and wetland restorations as a first line of protection for coastal infrastructure.

One approach that is gaining traction in lesser developed and populated coastlines is adaptation. Instead of trying to restrict the water to a certain area or height using hard engineered solutions, we create a natural transition or buffer area between the sea and coastal development using natural plants and materials to absorb energy from waves and tides, contributing to the area’s natural habitat, processes, and resources. These projects can restore natural habitat and provide new public access and amenities along the shoreline.

In Whatcom County, Washington, the seaside community of Birch Bay has experienced significant beach erosion since the U.S. Army Corps of Engineers excavated gravel from the bay in the 1950s and created a sediment deficit, altering the natural beach erosion and accretion processes. Traditional hard engineered solutions that aimed to stabilize the beach and protect Birch Bay Drive from flooding, such as concrete seawalls, have failed. As an alternative solution, ESA designed a sustainable soft shore protection berm to reduce flood risk and potential damage, improve stormwater drainage, and protect water quality. This design solution restores natural coastal geologic and ecological processes and greatly improves beach access with a new 1.5-mile-long pedestrian trail.

There are some instances where the flood hazards along the coastline and vulnerabilities associated with sea-level rise are so high that it may make more economic sense for governing agencies to buy back private property and abandon public infrastructure along threatened coastal areas. Our ongoing studies in Tampa Bay, Florida, show that even with a conservative estimate of sea-level rise, a significant amount of the urban...
development will be inundated by the year 2100. Working with progressive leaders in Southeast Florida, ESA has been developing coastal resilience strategies for the region that include a planned retreat in some locations. When a retreat is deemed as the most appropriate course of action, it is in effect a declaration that the land is no longer economically viable and will soon be unlivable (for humans, that is). As one might expect, relinquishing private coastal property can be expensive—and controversial. Evaluating the costs of various approaches to coastal resiliency is critical to helping communities understand their options and most effectively plan for the future.

While retreating may be inevitable, some communities are taking hybrid approaches to coastal resiliency to make the necessary adjustments less drastic. “Accommodate now, retreat later” was the recommended tactic for the Ocean Beach Master Plan in San Francisco, a first-of-its-kind effort to address and plan for long-term adaptations in response to sea-level rise. The plan lays out multi-objective solutions to balance habitat, recreation, and infrastructure along the 3.5-mile stretch of sandy beach, ultimately determining which areas will need to be relinquished over time to rising waters.

Balancing the economics, environmental, and safety concerns for the coast is complicated. It requires data, forecasting, and scenario-building to best gauge what an area might look like a hundred years from now. In our work for the Monterey Bay Sanctuary Foundation in California, ESA provided a sea-level rise and vulnerability assessment for the region. We produced detailed maps that allowed us to “walk through time” and see the eroding coast, thus allowing us to model the economic losses of each of the three approaches—protect, adapt, retreat. While it may seem counterintuitive, the results of the study determined that the most cost-effective solution for the Monterey region’s longevity is to purchase private property, abandon coastal infrastructure, and retreat inland to accommodate the rising sea and coastal erosion.

One thing scientists and coastal leaders agree on is the risks and threat of sea-level rise are real. The starting point for all coastal communities in improving their resilience is to understand the unique risks and threats their communities are facing. Once an understanding is in place, it’s easier to analyze the potential solutions in terms of what gives the most benefit and what’s realistic: holding the line, accommodating, or retreating.

For assistance conducting a coastal vulnerability assessment to help determine the risks facing your communities, contact Bob Battalio at bbattalio@esassoc.com or by calling 415.262.2300.

### Coastal Resilience Approach

<table>
<thead>
<tr>
<th>PROTECT – Engineered Armor/Hold the Line Levees, seawalls, beach nourishment</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Immediate coastal protection for an entire area</td>
<td>• Short-term solution</td>
<td>• Does not require land use changes</td>
</tr>
<tr>
<td>• Predictable response</td>
<td>• Accommodates only determined storm events or set rise in sea level</td>
<td>• Implemented at parcel level and by individual utility and other districts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROTECT – Nature Based Living Shorelines/Green Infrastructure Oyster reef establishment, dune or wetland restoration, beach nourishment</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Creating/restoring natural habitat</td>
<td>• Depending on restoration method, could be a short-term solution</td>
<td>• Reduces coastal erosion and/or flooding</td>
</tr>
<tr>
<td>• Reduces coastal erosion and/or flooding</td>
<td>• Short-term solution due to practical limitations on amount of sea-level rise and erosion that can be accommodated</td>
<td>• Potential recreation areas or public access</td>
</tr>
<tr>
<td>• Potential recreation areas or public access</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RETREAT – Abandonment/Restoration Managed retreat, abandoning areas that are no longer economically viable</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Restores lost habitat</td>
<td>• Loss of investment in infrastructure and development</td>
<td>• Greater coastal buffer space</td>
</tr>
<tr>
<td>• Greater coastal buffer space</td>
<td></td>
<td>• Potential recreation areas or public access</td>
</tr>
<tr>
<td>• Potential recreation areas or public access</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HYBRID – Combination Adapt/accommodate now, retreat later</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provides immediate safety for existing coastal development</td>
<td>• Eventual loss of infrastructure and development</td>
<td>• For the long-term, will restore habitat, provide coastal buffer space, and, potentially, create recreation areas or public access</td>
</tr>
<tr>
<td>• For the long-term, will restore habitat, provide coastal buffer space, and, potentially, create recreation areas or public access</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADAPTATION – Informed Planning “A change in structure, function, or behavior by which a species or individual improves its chance of survival in a specific environment.”</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Maintains risks at manageable levels over long term with minimum effective costs consistent with multiple objectives</td>
<td>• Requires effort to identify desired balance between multiple objectives</td>
<td>• Provides basis for funding and approvals</td>
</tr>
<tr>
<td>• Provides basis for funding and approvals</td>
<td>• May require greater monetized costs early on than traditional “Accommodate” approach</td>
<td></td>
</tr>
</tbody>
</table>

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1. The American Heritage® Science Dictionary Copyright © 2002. Published by Houghton Mifflin. All rights reserved.
Congratulations to the City of American Canyon and the entire project team on the award-winning Energy Efficiency Climate Action Plan.

The City received the Beacon Award at the League of California Cities conference in September, recognizing their innovative programs for energy efficiency, sustainability and climate change.

For more information, check out the City’s website: http://www.cityofamerican canyon.org/departments-services/community-development/energy-efficiency-climate-action-plan
Restoring Rivers for Salmon Recovery

For several decades, the decline of salmon and other native fish along the West Coast has been a concern for fisherman, tribes, resource agencies, and conservationists across Washington, Oregon, and California. Reversing this trend is a challenge.

Multiple actions have been taken to benefit listed and commercial salmon, including protection measures, legal decisions, and funding of salmon recovery programs. Ultimately, how these actions are implemented on the ground is a critical component in the overall success and recovery of salmon and other native fish.

River restoration that benefits fish involves recreating sustainable habitat features known to be linked to the natural processes that fish have adapted to in their life cycle. There is no one formula for river restoration. The solution depends on the degree to which resilient natural processes can be restored now and in the future. In many cases, we cannot completely turn back the clock; therefore, we aim for habitat “enhancement” rather than complete restoration. Over the past 20 years, ESA has had success aiding salmon recovery across a number of river systems and has honed successful approaches to various recovery actions.

In many instances, we are limited to enhancing habitat in regulated rivers that are impacted by alterations in flow and landform. As part of the U.S Fish and Wildlife Service’s Anadromous Fisheries Restoration Program, ESA has designed salmon habitat restoration and enhancements for several regulated California rivers, including the Yuba, Stanislaus, and Merced Rivers. For example, the Merced River is a major tributary to the San Joaquin River in California’s Central Valley—where flow regulation and historic dredger mining of the valley floor have impacted flows and the river corridor variability, which are necessary for rearing and spawning salmon habitat. ESA worked with Cramer Fish Sciences to design fish habitat enhancements for over two miles of the lower Merced River below the Crocker-Huffman Dam by removing dredger tailings from the historic floodplain and then using those sediments to reshape the channel to recreate natural river morphology suitable for salmon spawning. With the dams in place, historic flows and gravel supply cannot be restored, so the reconfigured channel...
is scaled to function at the lower, regulated flows. This required developing scientifically derived design criteria specific to the Merced River’s managed hydrology to meet the physical and biological needs of salmon.

In some cases, impacts from dams and water diversions are so great that major court decisions have ordered increased flows to excessively regulated rivers. We know that increasing river flows (timing and volume)—even at a fraction of historic levels—is only the first step to recovery of the river, and ultimately its native fishes. The operation of Friant Dam completely dried out California’s San Joaquin River in some stretches and decimated the river’s salmon population. A 2004 court decision ordered the flows be increased to allow for salmon recovery. Since then, a large team led by the Bureau of Reclamation, which includes ESA, has been developing a comprehensive plan to address the many factors limiting Chinook salmon in the San Joaquin River. Up- and downstream fish passage and channel improvements are being combined and integrated with the restoration flows in an effort to support a reintroduction program for spring-run Chinook salmon. This is a very “hands-on” approach to restoration required by the intensive management of flows in the river.

Floodplain restoration is another powerful action for expanding and enhancing salmonid habitat. In some cases, restoring floodplain function can be as simple as setting back levees and letting nature take its course. In other instances, more intervention can help to jump-start desirable habitat conditions, such as in the Colewort Creek Restoration in Oregon. Colewort Creek is an important tributary to the Lewis and Clark and Columbia Rivers and is home to Coho and Chinook salmon. Working with the Columbia River Estuary Study Taskforce and the National Park Service, ESA designed the restoration of the formerly diked 45-acre floodplain on Colewort Creek. We recognized that, in addition to restoring tidal action, site grading would increase inundation frequency and duration, and that secondary channels and log structures could significantly improve channel edge habitat. The project—constructed in 2012—is providing much-needed habitat and food sources for juvenile salmon.

Increasing populations of salmon and steelhead in watersheds along the West Coast will require a combination of recovery actions, from improving flows to actively expanding, diversifying, and improving habitat conditions.

For more information related to our experience and expertise with river restoration design and salmonid habitat enhancement, please contact either Rocko Brown at rbrown@esassoc.com, Ken Vigil at kvigil@esassoc.com, or Tom Taylor at ttaylor@esassoc.com.
Protected Species Update
A summary of agency actions recently taken to protect sensitive species in the United States

By Mark Roll, Senior Managing Associate

Agencies are continually taking actions to protect sensitive species. If you have questions about the following actions, contact Mark Roll at mroll@esassoc.com or Barbra Calantas at bcalantas@esassoc.com or call 619.719.4200.

U.S. Fish and Wildlife Service Proposes Listing of San Fernando Valley Spineflower (California)

September 15: The U.S. Fish and Wildlife Service (USFWS) proposed listing the San Fernando Valley spineflower (Chorizanthe parryi var. fernandina) as threatened under the Endangered Species Act. This low-growing herbaceous annual is currently known from two locations in Southern California totaling about 35 to 40 acres. One population is located within the Upper Las Virgenes Canyon Open Space Preserve in Ventura County (the Laskey Mesa population) while the other is located in Los Angeles County on land owned by Newhall Land Company (the Santa Clarita population). These two populations are approximately 17 miles apart. The species was presumed to be extinct until it was discovered in 1999 in southeastern Ventura County (last previous known record was from 1929). The species has been a candidate for listing since the 1999 discovery. The USFWS notes the following threats to the species: development; non-native, invasive plants; Argentine ants; grazing and agriculture; utility line easements and maintenance; miscellaneous land use; recreation; wildfire; and climate change. Comments on the proposed listing were due on November 14, 2016. More information is available here: https://www.fws.gov/policy/library/2016/2016-22167.pdf.

U.S. Fish and Wildlife Service Announces Issuance of Second Programmatic Eagle Take Permit (California)

November 2: The USFWS announced availability of a Finding of No Significant Impact (FONSI) for issuance of a 5-year programmatic eagle take permit to the 137-megawatt Alta East Wind Project located in Kern County, California. This represents only the second programmatic eagle take permit issued under the Bald and Golden Eagle Protection Act to date. The permit authorizes take of up to three golden eagles during the 5-year permit duration. Among other conditions, the permit requires turbine curtailment (i.e., shut down) when a full-time biological monitor identifies a potential collision risk to eagles, as well as monthly fatality monitoring for all turbines for at least the first year following permit issuance. The permit also requires the applicant (Alta Wind X, LLC) to provide compensatory mitigation by retrofitting 138 power poles. Permit conditions of the USFWS’s Selected Alternative are reflected in the project’s final Eagle Conservation Plan, which is available here: https://www.fws.gov/cno/conservation/MigratoryBirds/AltaEast-EA/Attachment_3_Final%20Eagle%20Conservation%20Plan%202016-09.pdf.

California Fish and Game Commission Determines Listing of the Flat-Tailed Horned Lizard Not Warranted (California)

December 8: The California Fish and Game Commission (Commission) considered the potential listing of the flat-tailed horned lizard (Phrynosoma mcallii) under the California Endangered Species Act. The Center for Biological Diversity petitioned listing of the species in June 2014 and the species was designated as a candidate species in March 2015. Commission staff determined listing of the species was not warranted, supporting the California Department of Fish and Wildlife’s (CDFW’s) recommendation in their status review report. The flat-tailed horned lizard’s range is restricted to southeastern California, the extreme southwestern portion of Arizona, and the adjacent portions of northeastern Baja California and northwestern Sonora, Mexico. In California, the species’ range is confined to lower elevations throughout much of the Salton Trough, in sections of eastern San Diego County, central Riverside County, and western and southern Imperial County. The species will retain its designation as a California species of special concern; the species is also a Bureau of Land Management sensitive species. More information available here: http://www.fgc.ca.gov/meetings/2016/Dec/Exhibits/SS_1208_Item_25_FTHL.pdf.

California Fish and Game Commission Designates the Coast Yellow Leptosiphon a Candidate under the California Endangered Species Act (California)

December 13: The Commission accepted for consideration a petition from the California Native Plant Society (CNPS) to list the coast yellow leptosiphon (Leptosiphon croceus) as an endangered species under the California Endangered Species Act. By accepting the petition for consideration, the species is now designated as a candidate species under the act. CDFW will
have one year to prepare a status review to determine if listing of the species is warranted; the Commission will then consider CDFW’s recommendations to make a final determination regarding the petitioned listing. According to CNPS’s petition, the coast yellow leptosiphon, a low-growing annual, is currently known from one occurrence on Vallemar Bluff in Moss Beach, San Mateo County, California. Primary threats to the species noted in the petition include: habitat destruction through potential development; competition from non-native plants; and other human-related activities (e.g., informal trails). CDFW prepared an evaluation of the CNPS’s petition to list the species, which is available here: http://www.fgc.ca.gov/CESA/Coast_Yellow_leptosiphon/cyl_eval.pdf.

U.S. Fish and Wildlife Service Finalize Revised Regulations for Eagle Take Permits (Nationwide)

December 16: The USFWS finalized revised regulations related to eagle incidental take permits and eagle nest take permits. The revised regulations replace the original eagle permitting regulations promulgated in 2009 (the 2009 Eagle Rule). Key revisions include: eliminating the two permit type previously described by the 2009 Eagle Rule (standard and programmatic permits) and renaming them as “incidental take” permits, setting a single standard for all permits; increasing the maximum duration of incidental take permits from 5 years to 30 years; requiring monitoring by independent third parties for longer-term permits; requiring compensatory mitigation at a ratio of 1.2:1 for take of golden eagles; and expanding compensatory mitigation options to include actions beyond power pole retrofit (i.e., mitigation banks). The revised regulations will become effective January 17, 2017. More information, including the revised regulations, Final Programmatic Environmental Impact Statement, and Record of Decision, is available here: https://www.fws.gov/birds/management/managed-species/eagle-management.php.

U.S. Fish and Wildlife Service Proposes Nonessential Experimental Population of the Oregon Silverspot Butterfly (Oregon)

December 23: The USFWS, with support from the State of Oregon Parks and Recreation Department, proposed a plan to establish nonessential experimental populations of the Oregon silverspot butterfly (Speyeria zerene hippolyta) on two sites in north-western Oregon: Saddle Mountain State Natural Area in Clatsop County and Nestucca Bay National Wildlife Refuge in Tillamook County. The Oregon silverspot butterfly, a medium-sized butterfly currently limited to six sites (one in California and five in Oregon), is listed as threatened under the Endangered Species Act. Section 10(j) of the Endangered Species Act authorizes the designation of reintroduced populations of listed species as “experimental populations.” Under Section 10(j), the USFWS may designate experimental populations for an endangered or threatened species that has been or will be released into suitable natural habitat outside the species’ current natural range but within its probable historical range. When the USFWS establishes an experimental population, they must determine whether the population is essential or nonessential to the continued existence of the species. The USFWS determined that the proposed experimental populations of the Oregon silverspot butterfly at the Saddle Mountain State Natural Area and Nestucca Bay National Wildlife Refuge to be nonessential, allowing for tailored take prohibitions related to these populations. Comments on the proposed rule to establish a nonessential experimental population of the Oregon silverspot butterfly are due by February 21, 2017. More information is available here: https://www.fws.gov/policy/library/2016/2016-30817.pdf.

U.S. Fish and Wildlife Service Finalizes Compensatory Mitigation Policy (Nationwide)

December 27: The USFWS issued the final Compensatory Mitigation Policy (Policy), which clarifies expectations regarding permittee-responsible mitigation, conservation banking, in-lieu fee programs, and other third-party mitigation mechanisms. The Policy stresses the need to hold all compensatory mitigation mechanisms to equivalent and effective standards, and reflects a shift from a project-by-project to a landscape-scale approach to mitigation. The Policy is effective immediately. More information is available here: https://www.fws.gov/policy/library/2016/2016-30929.pdf.
New Faces

Joseph Richards, MBA, PE, CWRE
Senior Civil and Water Resources Engineer
Portland, OR | jrichards@esassoc.com

Joe brings more than 20 years of experience in stream restoration design, stormwater management, water supply, hydropower development, water quality investigations, hydraulic design, hydrologic analysis, and project monitoring, and construction observation. He is a seasoned project manager and has assisted many local clients, including the City of Portland Bureau of Environmental Services and the Multnomah County Drainage District. Joe is a licensed professional engineer in Oregon and a Certified Water Right Examiner.

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ESA continues to strategically add expertise and resources to better meet our clients’ needs. Join us in welcoming the latest additions to our growing team!
See our experts at these upcoming events!

### January

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>4-7</td>
<td><strong>Society for Historical Archaeology</strong></td>
<td>Fort Worth, TX</td>
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<tr>
<td></td>
<td>Climate Leadership Summit Resilient Communities – Prosperous Region</td>
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<tr>
<td></td>
<td>Alicia Valentino, PhD, RPA, is presenting <em>The archaeology of a Seattle city block from 1880s squatters. Great Northern Railroad workers, and the establishment of Pike Place Market</em></td>
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<tr>
<td>8-12</td>
<td><strong>Transportation Research Board Annual Meeting</strong></td>
<td>Washington, DC</td>
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<tr>
<td>18-19</td>
<td><strong>Mid-Pacific Region Water Users Conference</strong></td>
<td>Reno, NV</td>
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<tr>
<td>21</td>
<td><strong>APA Salton Sea Tour</strong></td>
<td>Salton Sea, CA</td>
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<td></td>
<td>Enjoy a two-mile guided hike with Sonny Bono Salton Sea Wildlife Refuge staff and other groups to discuss planning issues including habitat, air quality, renewable energy. Salton Sea restoration projects. After the tour, a mixer with Imperial Valley Planners will be held at the Inferno restaurant in Downtown Brawley.</td>
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<tr>
<td>25-26</td>
<td><strong>California Climate Change Symposium 2017</strong></td>
<td>Sacramento, CA</td>
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<tr>
<td>27</td>
<td><strong>31st Annual Land Use Law &amp; Planning Conference</strong></td>
<td>Los Angeles, CA</td>
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<tr>
<td>29-Feb</td>
<td><strong>SWAAAE (Southwest Chapter of American Association of Airport Executives)</strong> Airport Management Short Course</td>
<td>Monterey, CA</td>
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### February

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>2-5</td>
<td><strong>Cal Desal Annual Conference</strong></td>
<td>San Diego, CA</td>
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<tr>
<td>6-10</td>
<td><strong>Wetland Training Institute’s Basic Wetland Delineation Annual Conference</strong></td>
<td>San Diego, CA</td>
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<tr>
<td>6-10</td>
<td><strong>The Wildlife Society (Western Section) Annual Meeting</strong></td>
<td>Reno, NV</td>
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<tr>
<td>7-9</td>
<td><strong>River Restoration Northwest Annual Stream Restoration Symposium</strong></td>
<td>Skamania Lodge, WA</td>
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<tr>
<td>8-10</td>
<td><strong>FAC Legislative Summit Annual Meeting</strong></td>
<td>Tallahassee, FL</td>
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<tr>
<td>8-10</td>
<td><strong>Florida Shore and Beach Preservation Association 2017 National Conference on Beach Preservation Technology</strong></td>
<td>Stuart, FL</td>
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<tr>
<td>20-22</td>
<td><strong>California’s Coalition for Adequate School Housing (CASH) 38th Annual Conference of School Facilities Annual Conference</strong></td>
<td>Sacramento, CA</td>
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<tr>
<td>21-23</td>
<td><strong>ACC/AAAE Airport Planning, Design and Construction Symposium 2017</strong></td>
<td>New Orleans, LA</td>
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<tr>
<td>21-23</td>
<td><strong>Northwest Hydroelectric Association 2017 Annual Conference</strong></td>
<td>Portland, OR</td>
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<tr>
<td>26-Mar</td>
<td><strong>UC Davis Noise Symposium</strong></td>
<td>Palm Springs, CA</td>
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<td>Steve Alverson will be teaching the Aircraft Noise 101 course</td>
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<tr>
<td>28-Mar</td>
<td><strong>ASBPA’s 2016 National Coastal Conference</strong></td>
<td>Washington, DC</td>
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Share your responses

ESA is a leading environmental planning and design firm committed to the principles of sustainability. We specialize in environmental and community planning, ecosystem restoration design, technical studies and investigations, environmental impact assessment and documentation, and environmental compliance. Learn more about us at www.esassoc.com. To receive ESA News, subscribe by emailing news@esassoc.com.