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Sketches
SAN DIEGO AUDUBON

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Great Horned Owls by Tammy Kokjohn

Rulers of the Night Skies

Nature never sleeps as owls and other nocturnal creatures complete their rounds in the dead of night.

Rulers of the Night Skies

by LaTresa Pearson, Sketches *Editor*

Great Horned Owl

Hoo-h'Hoo-hoo-hoo. The familiar call lures me from my sleep. I've heard it hundreds of times, but this time feels different. I've been researching owls and nightjars for a few weeks, trekking out with the setting sun like the nocturnal predators I've been seeking. The call of a Great Horned Owl outside my bedroom window feels like an invitation. I reach for the watch on my nightstand, 4:42 a.m. *Hoo-h'Hoo—hoo.* A second owl returns the call, and this one is even closer. I climb out of bed, grab my glasses, and head out to my backyard. A hint of light dimly illuminates the eucalyptus trees that tower behind my house. I scan the trees, searching for owl shapes among the branches. Nothing stands out, so I get comfortable in a patio chair and wait. *Hoo-h'Hoo-hoo-hoo.* The call comes from the trees a few houses away. Not one, but two owls respond. Beyond my fence line, a single coyote howls, and I hear rustling in the brush. The owls are not the only predators on the prowl.

In the distance, the high-pitched screech of a Barn Owl adds to the drama. I grab my phone to use the Sound ID on my Merlin app. At first, I capture only the sound of crickets, and then, *Screeeeeech.* The Barn Owl's startling call pierces the air. It's much closer this time. The Great Horned Owls follow with a series of hoots, and then it's quiet again. After a few moments, a strange sound—part clicking and part chirping—catches my attention. *Kleak, kleak, kleak, kleak, kleak, kleak.* I touch record again, and the ID quickly comes up as the Barn Owl. I shift my focus from the trees to overhead, hoping to catch a glimpse of it flying by, but all I see is empty sky. The sound continues for more than a minute, growing louder then quieter, in waves, as if the owl is flying back and forth. I still don't see any sign of it, but I feel its presence, and a chill runs down my spine.

Momentarily spellbound, my attention is drawn to movement in one of my neighbor's trees just in time to see a shadowy figure emerge and fly silently to perch on a branch high up in one of my eucalyptus trees. The branch is out in the open, and I can easily tell by the owl's large size and shape that it's one of the Great Horned Owls. Reaching for my binoculars, I focus on the owl perched above. Even in the dim light, I can make out its tufts and large eyes, as well as some of its markings. As I watch, the owl bends forward, sending its tail feathers into the air as if taking a bow. It bellows out one last, *Hoo-h'Hoo-hoo-hoo*, expanding the white patch of feathers at its throat with each hoot. I look away for a moment, expecting a return call from nearby, but there is no answer. When I look back at the perch, the owl is gone. The sun begins to rise, painting swirls of pink across the sky, and I remain on my patio, savoring the quiet moments between nighttime and daytime activity.

Soon, an Anna's Hummingbird perches on a nearby feeder and several Western Bluebirds descend from the trees, signaling the beginning of the day shift.

Few birds capture the imagination as owls do. More than 200 species rule the night skies around the world. You can find them on every continent except Antarctica and in nearly every habitat, from forests and grasslands to deserts and tundra. Their exceptional nocturnal hunting abilities enable them to dominate their foraging niche like no other family of bird. Experiments have shown that a Barn Owl can pinpoint the location of a mouse from 30 feet away and then fly to that exact spot purely by sound. In his book, *What It's Like to Be a Bird*, David Allen Sibley writes, "Barn Owls can determine the precise direction of their prey because of their ear adaptations. But how do they know the distance? And once they leave their perch and begin flying—in total darkness—how do they track their progress in the air and land precisely on a tiny mouse thirty feet from their starting point? These are unanswered questions." We may not know all of their tricks, but we do know that owls have evolved several adaptations, including super-sensitive hearing, superior night vision, and nearly silent flight, which contribute to their mastery of nocturnal hunting.

Here in San Diego, nine species of owls reside in or migrate through the county: Great Horned Owl, Barn Owl, Western Screech-Owl, Burrowing Owl, Long-eared Owl, Short-eared Owl, Northern Saw-whet Owl, Spotted Owl, and Flammulated Owl. *(See pages 6-7).* In addition, the county is home to two members of another fascinating family of nocturnal birds, the nightjars. The species you can find here are the Common Poorwill and the Lesser Nighthawk. Other related species may make rare appearances. To learn about these local birds and get a close-up look at some of their amazing adaptations, I head to the San Diego Natural History Museum in Balboa Park to meet with Phil Unitt, Curator for the Department of Birds and Mammals and author of the *San Diego County Bird Atlas*. Unitt meets me at the staff entrance and leads me through the museum and the labyrinth of offices behind the scenes to a large room where the museum stores its nearly 50,000 meticulously tagged bird specimens in orderly rows of floor-to-ceiling sliding cases.

The owl you're most likely to see and hear in San Diego County is the Great Horned Owl. "I don't think there'd be a single square of our atlas grid that isn't filled in," Unitt says, indicating how widespread the species is throughout the county. He opens one of the sliding cases to reveal several rows of Great Horned Owls. "We're in the contact zone between two subspecies," he tells me, pointing out color variations between the specimens. The population of Great Horned Owls in the Imperial Valley and Colorado River area *(bubo virginianus pallescens)* are mostly pale, an adaptation to the dryer, desert climate. Those along the Central California coast are darker *(bubo virginianus pacificus)*, associated with more humid climates (known as Gloger's Rule). "San Diego just happens to sit right at that zone of intergradation," he says. As with all owl species, the plumage is designed to camouflage the birds, allowing them to blend into their surroundings whether they're hunting or sleeping. Even the "horns" or tufts of a Great Horned Owl aid in camouflage by breaking up its outline. They're also used to communicate and are a good indicator of an owl's mood *(See "Signs of a Stressed Owl", page 8).* What they are not used for is hearing.

Blue highlights the asymmetrical ear opening of the Saw-whet Owl.

An owl's ears are on the sides of its skull, like ours, but the ears are hidden under feathers. Our outer ears are shaped to funnel sound into our inner ears, but owls have a facial disk that funnels the sound into their ear openings. Although I can see the facial disk on the Great Horned Owl, it's much more pronounced on the Barn Owl, which relies heavily on sound to hunt. We head to another case to take a closer look at its facial disk. Unitt removes a specimen and points to the outer edge of the facial disk. "Do you see how the feathers of this part are kind of bristly?" he asks. I run my fingertips along the edge. They remind me of the bristles of a broom. These stiff, interlocking feathers around the outside of the disk bounce the sound toward the ear openings while loose, non-interlocking feathers cover the ear openings and allow the sound to pass through. Owls can change the shape of the disk by using muscles at the bases of the feathers to help them hone in on sounds.

Some owls, including the Barn Owl, also have asymmetrical ear openings to help them further hone in on sounds. "The species I like to demonstrate that with is the Saw-whet Owl because it has the most extreme asymmetry of any North American bird," says Unitt, retrieving the skull of a Northern Saw-whet Owl from another case and placing it on the table in front of me. A Barn Owl's asymmetrical ear openings are only in its skin, but the Northern Saw-whet Owl's ear openings are actually in the skull. The right ear opening is toward the top of the owl's skull and angled upward, while the left ear opening is toward the bottom of the skull and angled downward. While it looks wonky, this asymmetry helps the highly nocturnal Northern Saw-whet Owl hone in on sound both horizontally and vertically to get the most precise read on the location of prey.

Owl skulls courtesy SDNHM, photos by LaTresa Pearson

The barrel-like sclerotic rings of the Great Horned Owl lock the owl's large eyes in place, allowing quick, sharp focusing on its prey.

While owls rely heavily on their hearing to hunt, they also have excellent night vision, which helps them maneuver in the dark. As is very apparent in the Northern Saw-whet, owls have enormous eyes with pupils that can expand to cover nearly the entire eye area, maximizing the amount of light that can enter the retina at the rear of the eye. While their eyes look round, they are actually more tubular. The front of an owl's eye is smaller than the back. Just as in our eyes, an owl's retina has light-detecting cells called "rods" and "cones." Cones work better in bright light and help detect different colors of light, whereas rods work better in low light and help with night vision. Owls' eyes are packed with rods, giving them better night vision, but not all owls have the same distribution of rods and cones. Species that are more diurnal or crepuscular (most active at dawn and dusk) have fewer rods than those species that are more nocturnal. Like other animals that can see well at night, owls also have a layer of cells behind the retina called the "tapetum lucidum." After light hits the rods at the rear of the eye on the way in, it is reflected by the tapetum lucidum, sending the light back through the rods on the way out, nearly doubling the animal's sensitivity to low light and resulting in the familiar eyeshine.

Barn Owl face, showing the disk shape that helps focus sound. Photo by Catherine Werth

To go along with the tubular shape of their eyes, owls also have a tubular-shaped *sclerotic* ring, the layer of bone that encircles a bird's eye. To illustrate, Unitt brings over the skull of a Great Horned Owl and slides the tubular sclerotic ring bones out of its eye sockets. They are about an inch and a half long. He slides them back in to show how tightly they fit. "You can see the sclerotic ring really holds the eye in place," he says. "It is what prevents the owl from looking around." When they want to look around, owls have to move their entire head, which can rotate 270 degrees in either direction—but not completely around. Although their feathers make it look like they don't have much of a neck, and their head eerily swivels around, owls actually have twice as many neck vertebrae as we have, giving them their large range of motion.

Another feature that contributes to owls' eeriness, as well as their success as nocturnal predators, is their ability to fly silently across the night sky. An obvious reason for evolving silent flight is that prey can't hear

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Owl cartoons by Haiwa Wu

(continued from page 3)

the owl coming, but silent flight also makes it easier for the owl to hear its prey. Wing size and shape, as well as feather modifications, give owls their stealthy flight capabilities. Owls have broad, rounded wings that produce a lot of lift, allowing them to fly more slowly, and thus more quietly, while still achieving good lift. Unitt retrieves a wing salvaged from a Spotted Owl that he found smashed on the side of the road while surveying Willow Flycatchers near Lake Henshaw. He points out the serrations on the front edges of the outer wing feathers. These serrations allow air to flow smoothly over the wing, reducing noise caused by turbulence. The rear of the leading-edge feathers is fringed, which also reduces noise from turbulence. In addition, the flight feathers of most owls are covered in small filaments that form a velvety-soft layer, which muffles the noise made by flapping its wings. All those soft, fluffy feathers, however, create wind resistance, so owls must use more energy to fly than most birds do. That's probably why not all owls have evolved these modifications to the same degree. Owls that hunt more during the day have fewer leading-edge serrations, less velvet, and less fringe on their feathers than strictly nocturnal owls.

A Barn Owl feather with the fluffy, soft-edged form that helps muffle its near-silent flight.

Owls are not the only birds that have adapted to hunt at night. They are joined by the nightjars, also referred to by the unsavory term "goatsuckers." The family name, *Caprimulgidae*, is actually from the Latin words *capra*, meaning "nanny goat," and *mulgere*, meaning "to milk." The name stems from a myth that the birds would use their enormous mouths to suckle milk from domesticated goats. Because the birds foraged at night, people didn't realize the birds' mouths were actually much better equipped to scoop up the insects that inevitably accompanied the goats.

One of the most interesting adaptations of some species of nightjars, including the Common Poorwill and the Lesser Nighthawk, is the ability to enter a state of torpor when conditions are harsh and there aren't enough insects to feed on. "Most birds answer that question with migration, but migration takes a lot of energy," says Unitt. "If you can just go to sleep for three months, then you've dispensed with the expense of migration." A 2015 study published in the journal *Nature* titled, "A Comprehensive Phylogeny of Birds *(Aves)* Using Targeted Next-Generation DNA Sequencing," confirmed that nightjars and hummingbirds, who also go into torpor, are related. While hummingbirds go into torpor overnight, some nightjars can stay in a state of torpor for weeks or even months during the winter. Common Poorwills can lower their body temperature to 41 degrees Fahrenheit and reduce their oxygen consumption by more than 90%.

To get a closer look at the Common Poorwill, Unitt takes a tray of specimens out of one of the cases and brings it to a table. The birds are lined up on their backs, and one of the first things I notice are the long rictal bristles that surround their tiny beaks. "They are common among flycatchers, but the Poorwill's are among the most developed," he tells me. While the Common Poorwill has adaptations to night vision similar to owls', it is very nocturnal, so having long, sensitive rictal bristles help it to feel insects and funnel them toward its large mouth. I ask Unitt whether its hunting style is similar to that of flycatchers. "It's difficult to observe Poorwills' foraging behavior in the dark, but often the concept is the same," he says. "Sometimes you'll see them sitting on the ground, and then fly up and come back to the same spot, flycatcher

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Owling Field Ethics *Source: International Owl Center*

- Move slowly and keep your voice down.
- Avoid using artificial lights after dark. Artificial lights interfere with an owl's sensitive night vision. Aim flashlights low to the ground and well below the owl's eye level. Consider using colored filters or diffusers to reduce glare. Avoid spotlighting and flash photography, especially if the owl is in flight.
- Limit the use of call playback. Owls will often call back or come to the playback of their own species' calls. Although playback is used by researchers, it should be used sparingly, if at all, for recreation. Don't use playback in any public area to avoid repeated disturbance, limit playback on private property, and never use it for sensitive species such as Spotted Owls or Long-eared Owls. It is illegal to use playback in national parks due to the high number of visitors and the extreme disturbance this would cause to the owls.
- Do not feed or bait owls to attract them. Assume every owl will encounter many observers/photographers.Let them find their own food. A series of people baiting the same owl can cause owls to associate humans with food. This may draw owls to places where people are, increasing their risk of hazards such as collisions with cars and exposure to rodenticides.
- Leave branches on trees. Don't remove tree branches to get an unobstructed view of an owl. Owls need to conceal themselves to avoid being mobbed by smaller birds, being eaten by larger hawks and owls, or feeling threatened by dogs, people, and other perceived threats. This is especially important for Northern Saw-whet Owls, which habitually roost in the same spot and are small enough to be a meal for many other animals.
- Never purposely flush an owl to observe it or photograph it.
- Give owls space and learn to read their body language. For tips on how to interpret an owl's body language. *(See "Signs of a Stressed Owl," page 8)*. When photographing owls, use cameras with long lenses. For more tips on photographing owls, see "How to Find and Photograph Owls With Good Field Ethics" by Melissa Groo in *Outdoor Photographer* https://www.outdoorphotographer.com/pro-perspectives/melissa-groo/how-to-find-and-photograph-owls-with-good-field-ethics/.
- Limit your time with the owl. Most species of owls are trying to sleep much of the day. They are also trying to avoid being mobbed by other bird species, and your presence increases their chances of being mobbed. Impacts are cumulative, so consider how much time others are spending with the owl, too.
- Use caution when sharing the location of an owl. Nesting owls are easy to photograph because they are tied to their location once they lay eggs. It is easy for these birds to be mobbed by photographers and other observers if locations are shared, especially on social media and birding websites. A good practice is to report the owl's location only at the county level or after the owl is no longer in the area.
- Be respectful of other people. If you observe others who are not behaving ethically around owls, respectfully point out how their behavior is affecting the owl and model good behavior yourself. If they choose not to heed your advice, decide whether you want to tolerate their behavior or leave the situation. If they are behaving illegally, report it to the authorities. Verbal altercations or photographing the offender to smear them on social media will not improve the situation or help owls.
- Respect private property, fences, and signs.
- Avoid using drones. Owls and other raptors often perceive a drone as a threat in their airspace, especially around a nest. This can be highly stressful and may provoke owls to attack the drone and potentially injure themselves.
- Use your car as a blind. Owls are often more tolerant of people in vehicles. Park on the correct side of the road and observe/photograph from the passenger seat. Be sure to turn your engine off, so hunting owls can hear their prey.

Make California's Skies Dark Again

by Andrew Meyer, Director of Conservation

As I walked along the banks of Mission Bay one night in late August, the bioluminescence was off-the-hook! Stomping my feet in the shallow water sent plumes of toxic-ooze-colored bioluminescence swirling away from my footprints. Fish darted by, lighting up their own currents like visible circuits. It was magical. I felt like a superhero with electrical powers. But as I got closer to the brightly lit shoreline buildings, my superpowers ebbed. The bright lights overwhelmed the bioluminescence, making it invisible along those stretches of beach.

This experience got me thinking about the well-known environmental effects of light pollution. In North America, 70% of our bird species migrate, and of those, 80% migrate at night, according to the National Audubon Society. That number surprised me, but there are several good reasons to migrate at night. Night offers less extreme weather, cooler temperatures for all that wing pumping, and better protection from predators. But our lit-up urban environment endangers night-migrating birds. Audubon California reports that every day, at least a million birds die from colliding with buildings because of outdoor night lighting, and 60% of those birds could be saved by improving our nighttime lights.

BARN OWL GRAPHIC BY DAVID STUMP

A bill before the California legislature could help. Introduced by Assemblymember Alex Lee, AB 2382 would require "all outdoor lighting fixtures installed or replaced on state buildings and structures after January 1, 2023, to have an external shield to direct light to where it is needed, be equipped with an automatic shutoff device, or be motion-activated." In a press release, Assemblymember Lee said, "AB 2382 is a small but meaningful change that can have a significant impact on our ecosystem."

"What do we want to see at night, a bunch of bright, glaring lights, or billions of twinkling stars? The choice is ours! We can flip the switch on light pollution."

Cathy Handzel, Vice President of the San Diego County Chapter of the International Dark Sky Association

The California State Assembly passed the bill, but it was still making its way through the Senate at press time. If AB 2382 passes, California would join 19 other states with laws that promote bird-friendly lighting design. Though the law would cover only state buildings, several other states and many communities have programs that go farther, providing examples of what we can do to save energy and save birds.

Just over a year ago, our very own Julian became California's second community to earn recognition as an International Dark Sky Community. Borrego Springs earned the title in 2009. They are celebrating their night sky and preserving it through technology, including timers, shields, and intensity thresholds, as well as community education about lighting and its impacts.

There are many actions individuals can take, too. If you're in charge of your outdoor lighting, choose lights with warmer color temperatures and the lowest brightness possible for the task. Use motion sensors to turn lights off when you don't need them, and point lights downward and shield them to prevent light from shining upward. These actions will not only help reduce light pollution, they will help you save on your electricity bill and lower your carbon footprint. If you're not in charge of your lights, talk to your landlords and Homeowners Associations about how to save money while also reducing light pollution. Log on to **www.darksky.org** for more infomation.

Don't miss my centerfold!

OWLS

And Other Birds of the Night

The **Barn Owl** is the only member of the family *Tytonidae* in North America. All of the other owl species shown here are in the family *Strigidae*, known as the "typical owls." A year-round resident, Barn Owls will readily use nest boxes *(read about our success at Anstine on page 9)*. They offer a far better solution to rodent control than rodenticides, which endanger other wildlife.

PHOTO: PHIL LAMBERT

The **Great Horned Owl** is a widespread year-round resident, found from the coast to the mountains to the desert. While they are more often seen in rural and natural areas, they are common in developed parts of the county. They are most active at dawn and dusk when their hooting duets announce their presence. Up to 24 inches long or more, with powerful talons, these distinctive owls are formidable hunters, preying on mammals (including skunks), birds, reptiles, and even insects.

PHOTO: TAMMY KOKJOHN

The small size, camouflaged plumage, and highly nocturnal nature of **Western Screech-Owls** can make them difficult to see, but their bouncing-ball call is unmistakable. They are a common year-round resident and can be observed in oak woodlands, at least by sound. They are so reliably present at Los Peñasquitos Canyon Preserve (along with Great Horned Owls) that the Friends of Los Peñasquitos Canyon Preserve host semi-regular Owl Prowls. You can also observe (with care!) the longtime resident pair at our Silverwood Wildlife Sanctuary.

The tiny **Northern Saw-whet Owl** is a year-round resident of the coniferous woodlands of Palomar Mountain and Hot Springs Mountain. It is not commonly observed, partially because it is so highly nocturnal. Along with the Spotted Owl, this species faces threats from fire and drought. Both the Spotted Owl and the Northern Saw-whet have probably been extirpated from Rancho Cuyamaca State Park due to the 2003 Cedar Fire.

Flammulated Owls *(not shown)* are rare summer visitors to San Diego County, with observations primarily on Palomar and Hot Springs Mountains. Measuring only about six inches long, these highly nocturnal owls have a very low-pitched hoot.

PHOTO: ED HENRY

Long-eared Owls are one of the few owls that roost communally, and you can see as many as 20 roosting together in the desert during the winter. The Tamarisk Grove Campground in Anza–Borrego Desert State Park has been a reliable place to observe them. They are highly sensitive to disturbance, including artificial lights, so observe with great care. Back off at any sign of stress.

PHOTO: GERRY TIETJE

Short-eared Owls are winter visitors to San Diego County and are most often seen hunting over marshes from the South Bay to Bataquitos Lagoon. In 2018, Short-eared Owls caused a lot of excitement when they were seen at Fiesta Island. Like Burrowing Owls, Short-eared Owls are more diurnal.

While **Spotted Owls** are year-round residents of San Diego County, there aren't many of them and observations are infrequent. They are highly nocturnal and prefer the old growth oak and conifer woodlands of our local mountains. They face threats from fires and drought, as well as human encroachment. They are a highly sensitive species that should not be actively sought out. If you encounter a Spotted Owl, take great care not to stress it.

SPOTTED OWL AND SAW-WHET OWL DRAWINGS BY DAVID STUMP

PHOTO: BOB SERLING

PHOTO: KAREN STRAUS

Lesser Nighthawks *(at left)* are spring and summer migrants, most easily observed during the summer flying low over open chaparral at dusk in search of insects. They are most widespread in the Anza–Borrego Desert.

Highly nocturnal and masters of camouflage, **Common Poorwills** are far more frequently heard than seen. They rest on the ground under chapparal or among rocky crevices during the day and forage for insects with their unusually large frog-like mouths at night. They are widespread throughout the county, especially in chaparral areas. A good place to observe them is Mission Trails Regional Park.

A real page turner...

(continued from page 5)

style." Because the Common Poorwill is so nocturnal, you're more likely to hear it than see it, although you might inadvertently come upon one resting on the ground during the day.


Lesser Nighthawk by Bruno Enriquez Struck

Although Lesser Nighthawks are migratory and are only in San Diego County during the spring and summer months, you have a better chance of seeing them than the Common Poorwill. This is because Lesser Nighthawks forage over open chaparral areas during dawn and dusk. They tend to fly low and a bit erratically over bushes, scanning for insects. You can also see them flying around streetlights, snatching moths drawn to the lights. One of the interesting behaviors of this species is that it nests directly on the ground, not even making scratches in the dirt. Because it nests primarily in desert regions, the female will actually move the eggs periodically, rolling them into the shade to protect them from the scorching heat, says Unitt. When I ask if the eggs are well-camouflaged, he takes me to one of the cases and shows me a clear plastic container with two small gray and white speckled eggs. If they weren't perfectly egg-shaped, they could easily be mistaken for pebbles.

After spending a day at the museum learning about owls and nightjars, I'm eager to get out into the field to observe them in action. Peter Thomas, board chair for San Diego Audubon's bird walks, agrees to meet me at Mission Trails Regional Park to do some nocturnal birding. He and his wife, Millie, who lead walks at the park, live nearby and had a Lesser Nighthawk fly right over them on a walk the night before. I arrive at the trailhead on the west side of the park early, so I check out the Barn Owl box near the entrance. It's August, and there aren't any owls inside, but the ground is littered with tiny bones and owl pellets, indicating it's well used.

It's dusk, and the light is fading as we head out onto the trail, serenaded by a Northern Mockingbird. California Towhees dart in and out of shrubs and forage along the ground. A Wrentit calls periodically from somewhere nearby, and a pack of coyotes howl and yelp in the distance. An occasional Mourning Dove flies overhead, momentarily getting our hopes up, but no Lesser Nighthawk yet. After we've been walking for at least half an hour, Millie suddenly stops and quietly says, "There!" She points to our left, and I catch a glimpse of a bird with long wings flying almost swallow-like over the chaparral, and just as suddenly, it's gone. Buoyed by the brief sighting, we continue walking, hoping we'll get a second look. Several minutes go by before the bird re-appears. It's flying low over some shrubs before us, and I get a better look. This time we can even identify the white wing bars before it disappears. The sky grows darker, and we turn on our flashlights to illuminate the ground as we walk. Peter and Millie saw a Southern Pacific Rattlesnake the night before, and I'm anxious to avoid stepping on it. We don't see any owls, but Millie pulls out a blacklight to illuminate several small scorpions hiding along the side of the trail. Peter tells me that during a recent full-moon hike, they saw 22 young tarantulas emerging from the mother's burrow. "There is so, so much more out there at night," Peter tells me. "Nocturnal birding is the window to all the rest of nature that is out there."

Be Aware of These Signs of a Stressed Owl…

- **Wide-eyed look**. When an owl's eyes are totally round, they are hyper-alert and focused on something. Make sure you aren't the focus of their attention.
- **The "go-away" blink**. Some owls will rapidly and/or very deliberately blink their eyes, often in conjunction with wide eyes and small pupils. This is a signal that they want you to back off or leave.
- **Concealment posture.** Head and body plumage compressed, ear tufts straight up, eyes reduced to slits.
- **Looking to fly away.** When an owl rapidly looks around, bobs its head, squats, and puts its wings slightly out, it is preparing to fly away and is looking for a safe place to go.
- **Head lowered, wings partially fanned out, rocking back and forth.** Barn Owls will lower their bill almost to the ground, not look at you, and shake their head "no" back and forth. This display is referred to as "toe dusting." *It is an extreme threat and may precede an attack*.
- **Defense display.** Many owls, especially medium to large owls, will fan out their wings and puff up when scared. This display is usually accompanied by hissing and rapidly snapping the bill shut. This is a sign of extreme fear and is generally only given when an owl is grounded and approached closely by a human or predator.

Source: International Owl Center *Thanks for caring*

Bats: A Word about Some Other Denizens of the Night

There are 23 species of bat found in San Diego County, all but two of those being night-hunting insectivores who rely on echolocation to effecively target their prey. The others feed on nectar. Bats are the most significant predators of night-flying insects. A single little brown bat, with a body no bigger than a human thumb, can eat 4 to 8 gm (the weight of about a grape or two) of insects each night.

How dooes light and noise pollution impact bats? Rather badly, as it turns out. From roost to feeding grounds and back, bats are creatures of established routes, learned over many bat generations, and both the major increase in light created by human development and the decibel rise in noise from traffic and other sources are disruptive to the bats' efforts to feed. Bats will usually seek to avoid both, if possible, which can push them away from good hunting areas, causing them to burn more calories while getting less to eat.


California Leaf-nose Bat. Photo by Russ Hunsaker

Some research has suggested a measure of adaptability, but the impacts of light and noise, on top of other habitat degradations, may make sustainable populations of some species more challenging. And then there is the white-nose syndrome, a fungal disease that wipes out entire colonies. On a larger scale, bat numbers nationwide are dropping.

On the positive side, 16 of our region's bat species, including all eight that are listed as California Species of Special Concern (CSSC), are found in the Multiple Species Conservation Program area (MSCP). There is one federally listed species.

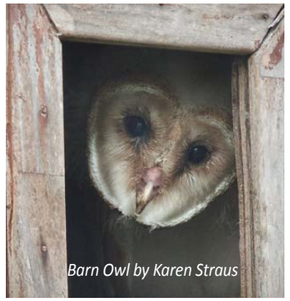
There are five bat species that have been identified as needing local management and conservation attention: the Pallid Bat *(Antrozous pallidus)*, Townsend's Big-eared Bat *(Corynorhinus townsendi)*, California Leaf-nosed Bat *(Macrotus californicus)*, Western Mastiff Bat *(Eumops perotis)*, and Western Red Bat *(Lasiurus blossevillii)*. These names may be unfamiliar to many of us, but they are an important part of the biodiversity we champion.

Of course, the night life of San Diego County's native species is far more extensive than that of owls and bats. While they are among the specialists, hundreds of other species have complex nightly challenges they need to successfully navigate, from tiny arthropods in the leaf litter to the largest of our mammals. Anthropogenic light and noise affects them all, at some level, giving some an advantage, but perhaps locking others in a spiral to local extirpation.

We are familiar with the plight of endangered sea turtle hatchlings clambering toward the lights beckoning from roads and malls rather than toward the moonlit sea. As we learn more about the world of darkness, even as the darkness recedes, we will better appreciate the intricate balance in the cycles and rhythms of nature.

Anstine after Dark *Sundown Brings a Very Different Nature Experience*

by Rebekah Angona, Director of Education and Anstine-Audubon Manager


Barn Owl by Karen Straus

After the gates close to visitors and the sun sets, a moment of evening tranquility emerges here at the Anstine-Audubon Nature Preserve. The afternoon winds calm, the feeder birds' chatter quiets as they settle in for the night, and the roar of afternoon traffic comes to a halt. That peaceful pause is only temporary, as the night skies encourage an entirely new energy of life at the preserve.

In the chilly months of fall, dusk is electrifying. It begins with a canvas of orange and pink skies. Soon after, large flocks of Red-winged Blackbirds take flight over the pond, performing a rhythmic dance as they feed, then settle down to roost in the reeds. Caught up in their trance, it is easy to forget it is nearly too dark to see your way back from the trails.

Usually, the owls begin the nightly calls. Great Horned Owls can be heard calling to one another with their deep *"hoo-h'HOO-hoo-hoo"* as males and females exchange romantic dialogue. While the Great Horned Owls can be heard easily, our meeker resident owls tend to keep their chatter low. That is, unless it's nesting season. Barn Owls have been known to nest at the preserve, and the unequivocal screech of hungry baby Barn Owls is a sure sign that breeding efforts were successful this year. The Barn Owl chicks cry constantly as mom and dad spend all evening trying to keep up with their insatiable demand. The branches soon become their playgrounds as the young birds begin to fledge. If you are lucky, you may see them hopping from one branch to the other, strengthening their wings for their maiden flight. The loudest bellowing of all, though, arises from the nightly hunts of the newly grown coyote pups. Throughout the year, coyotes hunt quietly and humbly throughout our trails.

Once the pups grow strong and confident enough to join in the hunt, however, the sounds of exuberant cries and songs of victory echo loudly throughout the preserve. The preservation of unobstructed habitats, such as the Anstine-Audubon Nature Preserve, are ever more important as wildlife finds less and less accessible space to breed, nest, and raise their young. Our goal is to maintain a balance between human enjoyment of nature and quiet refuge for wildlife to remain wild.

The Anstine-Audubon Nature Preserve *is open to the public on Saturdays, from October through June, from 9 a.m. to 12 noon. Please visit our website at* **https://www.sandiegoaudubon.org/what-we-do/anstine.html** *to learn more about the preserve and to pre-register for your visit.*


Anstine-Audubon sunset by Rebekah Angona

Farewell to a True Friend of Silverwood

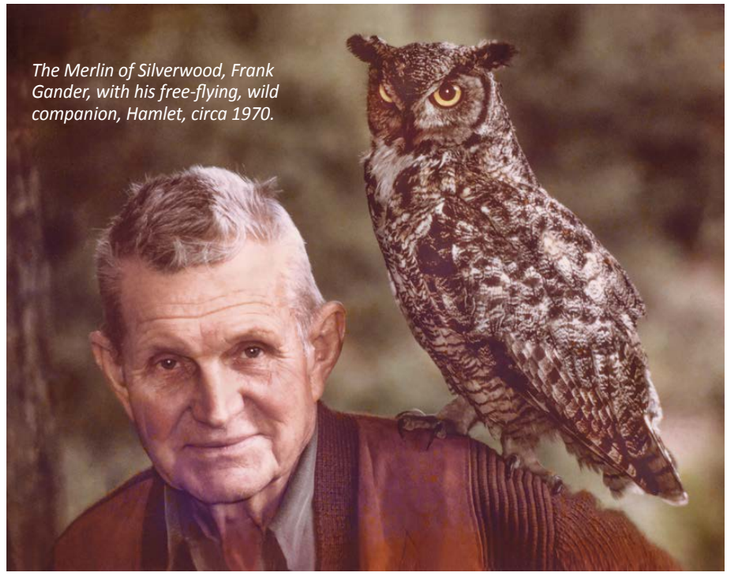
Michael Sixtus, a dedicated volunteer at Silverwood Wildlife Sanctuary, passed away earlier this year. He and Ann, his wife of 48 years, served as greeters and outdoor education teachers at our Lakeside sanctuary for several years, helping each visitor receive not only a friendly welcome but an experience that might deepen their understanding of the endless wonders of nature's mysterious ways.

A native Californian raised in Puerto Rico, Mike followed a lifelong passion for biology working as (among other things) an aquaculture hatchery manager, a science curriculum consultant, and a Sweetwater UHSD high school teacher. He donated his time and knowledge to the San Diego Zoo and the San Diego Natural History Museum, as well as San Diego Audubon.

Our two sanctuaries best thrive in their mission when volunteers like the Sixtus's come forward to serve faithfully and well. *Thank you, Mike and Ann*!

Silverwood Scene *By the Light of the Silverwood Moon*

by Phil Lambert, Silverwood Manager



The Merlin of Silverwood, Frank Gander, with his free-flying, wild companion, Hamlet, circa 1970.

The Silverwood Wildlife Sanctuary is home to two resident species of owls that can be observed year-round: the Great Horned Owl and the Western Screech-Owl. Great Horned Owls have long been a feature at Silverwood. Frank Gander, Silverwood's resident manager from 1966 to 1976, even befriended a Great Horned Owl, which he named Hamlet. Hamlet would come to Frank's call during education programs, delighting students.

In more recent years, a pair of Great Horned Owls has claimed most of Silverwood as their territory. They are commonly heard in the late evening, but they may be heard throughout the night and into the early morning hours, especially during breeding season. Great Horned Owls take over the nests of other raptors and large birds, instead of building their own. Silverwood's resident pair seems to prefer the Common Raven nests that are built high up in the oak canopies or in the crevices of steep outcropping boulders. While the female sits on the nest with the owlets during the day, a murder of crows occasionally spots the nest site and begins mobbing it. The male owl, who is never far from the site, flies into the open over the dense chaparral to distract the crows. Once they are on his tail, he dives down, taking cover in the brush. The crows then focus on dive-bombing the male, who has successfully taken their attention away from the nest site. Once the owlets fledge in the spring, the parents guide them to the oak trees in the observation area, where they learn to hunt the small rodents that feed on fallen seed below the bird feeders.

Since 2010, a pair of Western Screech-Owls has taken up residence in the observation area. During the daylight hours, the male can be seen guarding the entrance of a hollowed-out oak cavity where they nest each season. As with the male Great Horned Owl, whose job is to divert any threats away from the nest site, the male Western Screech-Owl sits out in the open during the morning hours and takes the brunt of the scolding from rambunctious songbird species who sit in the nearby branches, unhappy with a predator in their midst. California Scrub-Jays, Towhees, Oak Titmice, Western Bluebirds, and even the Bewick's Wren all take part in the morning scolding of the little male owl, who just wants to get some sleep.

While Western Screech-Owls feed mostly on small rodents such as deer mice, their pellets have revealed that they feed on large insects, too, such as the California *Prionus* Beetle, also known as California Root Borers. The beetle's larvae feed on the roots of trees. Here at Silverwood, the larvae have cut off the root systems of several large old-growth oaks, causing the trees to die. The adult *Prionus* beetles, measuring up to 2 ½ inches long, are only active during the night, leaving very few predators to help keep the population in check. Western Screech-Owls are one of the few predators here that feed on this destructive beetle, making the owls welcome residents of the sanctuary.

Occasionally, Barn Owls are heard or seen in the observation area, although they were more common at Silverwood a few years after the 2003 Cedar Fire, when the chaparral was lower in height and still recovering. During spring 2006, a pair nested in a burnt-out oak tree trunk in the observation area, producing three owlets. So far this is the only recorded nesting of Barn Owls here. Frequently, Barn Owls are seen lying dead in or on the side of roads and freeways. In one such incident back in 2011, a Barn Owl was spotted lying on the side of Wildcat Canyon Road and presumed dead. After three days of seeing the bird lying on the hot pavement, Silverwood's resident assistant at the time, Larry Guilin, pulled over and checked on the owl. To his surprise, it was still alive. He immediately brought it back to Silverwood, where I began treating it for dehydration. The next morning it was sitting up on its own in the carrier. We began feeding it defrosted mice, and within a few days, it began testing its wings for flight capability. By the next week, we released it back into the wild.

Although the Silverwood Bird Checklist shows recordings of the Long-eared Owl and Northern Saw-whet Owl, no sightings of these owls have been recorded at Silverwood since 1996. Two other nocturnal bird species included on the checklist are the Common Poorwill and the Lesser Nighthawk. Only the Common Poorwill, however, is frequently heard at Silverwood, with records from every month of the year over the past 15 years. They are occasionally seen on the ground at night when driving down the Silverwood driveway or flushed out of shrubby hillsides while eradicating invasive weeds. No nest sites have been observed yet. The Lesser Nighthawk hasn't been seen here since I began working at Silverwood, but I have observed them down the road. During the spring when the annual *Clarkia* species are in bloom, many Sphinx moths begin feeding on their nectar at night. During this time of year, you can see thousands of Sphinx and other species of moths swarming the Barona Casino's parking-lot lights at night. There, you may see Lesser Nighthawks feeding on the bounty.

Silverwood Calendar, Fall/Winter 2022

Silverwood Wildlife Sanctuary in Lakeside is free and open to the public on Sundays from 9 a.m. to 4 p.m. ***Registration required.*** To sign up for a visit, RSVP at **www.sandiegoaudubon.org/what-we-do/silverwood.** Please note that COVID-19 safety rules may still be in place.

Silverwood is also open on Wednesdays, 8 a.m. to 12 p.m. *for SDAS Friends members only*. Please call a week in advance of the day of your visit at **619-443-2998**. See our web page for all updates.

Teaching Moments

Our Expanded Education Programs Welcome Students Back to the Classroom and the Trail

by Rebekah Angona, Director of Education

Fall is an exciting time of year for students and teachers alike. Shopping for new school clothes, packing backpacks with crisp notebooks and sharpened pencils, and sprucing up classrooms with welcoming decorations. Sharing their excitement and enthusiasm, our San Diego Audubon Naturalists have prepared for the new year, anticipating our first field trips walking the trails with eager students. These students will explore the Otay River Valley Regional Park through our OutdoorExplore program; they'll go birding along the Bayside Birding and Walking Trail through our Sharing Our Shores: South Bay program; or they'll discover local wildlife at our sanctuaries through our Silverwood Science Discovery and Anstine Adventures programs.

Beginning birding: a first look through real binoculars. Photo by Kindra Hixon

This year, San Diego Audubon has partnered with the Vista Unified School District to expand our Anstine Adventures program to 11 elementary schools, allowing local youths to develop a love and appreciation for the nature spaces in their community. Each school will receive our third-grade Anstine Adventures program, which includes three weekly field trips to the Anstine-Audubon Nature Preserve to explore the local flora, fauna, and habitats through hands-on, exploratory activities. Students will learn the artful skill of birdwatching, investigate the anatomy of local insects, dissect owl pellets, build native wildflower habitats, and experience local raptor behavior through live bird presentations.

We have also expanded Anstine Adventures to include a new Junior Explorers program. We will introduce first- and second-grade students to the world of pollinators through Naturalist-led presentations and labs at their schools. Through these experiences, they will learn about the role of pollinators in maintaining healthy habitats for wildlife, and they'll develop ways to help pollinators thrive in nature. Students will even create a mini pollinator garden, including a pollinator water station and feeders. The following year, these students will then participate in the Anstine Adventures field trips, armed with a passion for preserving wildlife and an eagerness to discover the wildlife in their neighborhoods. We are especially grateful for the continued support from the Vista Unified School District, which allows us to offer these programs to our local youths, inspiring generations of new scientists, advocates, and bird and nature lovers in our community.

Roy Little: *Ambassador for Mission Bay's Marshes*

By Megan Flaherty

Last summer, Mission Bay lost an important ally when Roy Little, founding member of the Friends of Mission Bay Marshes, passed away after an extended illness. San Diego Audubon and the University of California Natural Reserve System are indebted to his efforts to study and protect the Kendall-Frost Marsh.

A career physicist, Roy retired in San Diego, where he became deeply involved in championing the protection of the Kendall-Frost Marsh Reserve. Living close to this special place, Roy immersed himself in learning everything he could about the marsh, including its hydrology, environmental threats, and biodiversity. Roy began documenting the wildlife he saw in the marsh through his photography. Roy framed a selection of his pictures and posted them on the surrounding fence for passersby to enjoy. He brought nature to life for the neighborhood, inspiring others to care about this space.

He also saw the need to increase community involvement to tackle more and larger projects, leading efforts to create the Friends of Mission Bay Marshes, a volunteer group that helps with maintenance and restoration of the marsh. As a member of the Wetlands Working Group, Roy also contributed to the design and analysis of the ReWild Mission Bay Feasibility Study. He also helped to plan and execute the very first "Love Your Wetlands Day" in 2005, which drew about 40 attendees. The 2022 LYWD drew more than 600.

Roy dedicated thousands of hours to the Kendall-Frost Marsh—inspiring community members, contributing to scientific understanding of its species, and supporting efforts to ensure that future generations can also enjoy this special place.

THE ART OF BIRD PHOTOGRAPHY: SOUTHERN CALIFORNIA

45 new works by Blake Shaw

Mission Trails Visitor Center Gallery

October 22–December 2, 2022