

## What About Dragonflies

Article and Photos by Trail Guide David Cooksy

A typical hike through Mission Trails Regional Park may encounter any number of insects: flies, beetles, bugs, spiders, gnats, mosquitoes, bees, butterflies, moths, etc. Each of these takes great pleasure in biting, gnawing, piercing, lapping, sucking and persistent groping at our body. Reaching home we are battered, bruised, and perhaps feel faint if not a bit anemic. But what about the largest and fastest flying insect within MTRP; did you spy a dragonfly? If so, for how long and what did it do? Nothing, to us most likely. But to everything else it can get its mouth into - PLENTY!

In my research to write this article I discovered most sources devote a majority of the space to basic entomology of a dragonfly, i.e. scientific name, life cycle, food, etc. But very little is devoted to perhaps the most impressive characteristic of the anisoptera: how they fly.

What about them indeed! As Trail Guides a firm grasp of the cold hard facts is important. You never know when that 10 year old budding bugologist will ask for minutiae of the mandible. So, I offer a brief description of the essentials before launching into the weightless wonder that is the anisoptera.

*Dragonflies, continued on p.4*







Photo by David Cooksy

# Art-in-the Park Fundraiser a Huge Success.

Fine art, great wine, live entertainment, a silent auction, an outstanding group of dedicated volunteers, and over 200 guests created a fantastic “Art in the Park” on Saturday evening, October 5 at the Mission Trails Regional Park (MTRP) Visitor and Interpretive Center. This annual event, sponsored by MTRP Foundation raised nearly \$5,000 for park programs and projects.

The art exhibition and sale in the Gallery included 110 pieces of award-winning art by 47 local artists. Special lighting for the event was provided by Don Brennan and San Diego Event Pros.

Fine wine, donated by MTRP Foundation Board member Dr. Gary Krueger, was served throughout the evening.

Eugene Sukhorukov, with the San Diego Native American Flute Circle, entertained the guests as they entered. Master Sumi-e artist and teacher Takashi Ryuho Ijichi, demonstrated his art form, and presented three fortunate attendees with one of his creations. The Caprice Strings Trio then entertained with wonderful music.

The silent auction included everything from fine wine to a four room camping tent donated by LightSpeed.

Vicky DeLong, MTRP Foundation Art Program Coordinator, said, “This was the greatest display of fine art we have ever exhibited. Nearly all the artists were on-hand to talk with everyone about their art.”

Among the attendees were Councilmember Scott Sherman and his wife Norma, Mission Times Courier Editor Doug Curlee, and Mission Times Publisher Jim Madaffer and his wife Robin. All are very strong supporters of Mission Trails Regional Park.

Neil Mohr, MTRP Foundation Board member and event chair, stated “It was a wonderful evening for everyone. The variety of art and a full program of events throughout the evening created a very friendly atmosphere. Art in the Park continues to grow each year. The only thing more exciting than the event is knowing hundreds of children and adults will benefit from the educational programs and activities this event helps to fund.”

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## Nest Boxes Help Support a Healthy Bird Population in Spite of Low Rainfall

By Volunteer Nest Box Project Coordinator Richard Griebe

MTRP's nest box project volunteers maintain a hundred bird boxes located throughout the Park. These boxes provide nesting sites for seven species of cavity-nesting birds from House Wrens to Barn Owls. Because suitable natural cavities are scarce, the project supplements birds' requirements with man-made nest sites. Without our help, many birds would forego reproduction thereby contributing to population declines.

Just as abundant rainfall brings life to the Park's plants; it also brings life to more baby birds by providing a larger insect population for adults to feed hungry young. Insects are an essential source of protein for growing birds and short supplies result in fewer young surviving. Rainfall in San Diego County was below average for the last two years (8.5", 10.9") in contrast to an above average rainfall year in 2010-2011 (21.7"). The number of birds fledging for the past three years reflects the amount of rainfall in the months preceding nesting. In 2013, 164 young fledged as compared to 172 and 274 in the two wetter preceding years.

From early March until late June, 15 volunteers monitored nesting progress, recording 274 eggs laid. However, only 186 hatched and, of those, 164 lived to leave their nest. They also recorded 63 nesting attempts, however only 35 successfully fledged young birds. Mortality rate is high due to predation, abandonment or food shortages. Sometimes a snake finds the nest and eats the eggs or young, other times a jealous House Wren destroys a competitor's eggs. Occasionally a predator such as a Cooper's Hawk catches one of the adult birds causing nest abandonment



**MTRP Nest Box Monitoring Team 2013**

*Back row l to r: Wendy Esterly, Petra Koellhoffer, Nancy Reed, Jeanne Raymond, Jacob Larson, Richard Griebe, Terry Esterly, Doug Fenske. Front row l to r: Terry Hurst, Vern Clinton, Dawn Rucker, Joe Stafford, Linda Stafford. Not Pictured: Ann Sixtus, Betty Matthews.*

*Photo by Wendy Esterly*

by the surviving bird. Even our tiny Argentine ants attack en mass, killing and devouring helpless young. In spite of the many disappointments, watching these natural dynamics play out is one of the rewards that volunteers enjoy in their connection to nature.

Our ubiquitous House Wrens built more than half of the nests recorded and produced nearly half of the fledglings. Close behind the wrens were Ash-throated Flycatchers with 19 nesting attempts resulting in 57 young flycatchers leaving the safety of their nest to face life's challenges.

The Park has a higher concentration of Ash-throated Flycatchers compared to similar habitat in San Diego County. These birds, like most others, have a high "site fidelity," that is, returning to nest in the same area where they were hatched or nested previous years. Over the past ten years, our bird boxes have helped the population of flycatchers grow well beyond the population

which could breed in the Park without human assistance. In mid-April Ash-throated Flycatchers leave their wintering grounds in Central America and migrate north to the Southwestern United States to breed. By the end of August birds leave with their young to make the 2500 mile journey to return to their wintering grounds. Ornithologists believe young are imprinted on the type of nest site where they are fledged and grow up. Studies wherein parents and young are banded validate this hypothesis as birds often return year after year to the same nest box even though they travelled thousands of miles migrating between breeding and wintering grounds. Ash-throated Flycatchers hatched at Mission Trails this year are likely to return to breed next year if they can escape the many perils awaiting them on their long migrations.

The pair of Wood Ducks that nested in the Park last year provides another

*Nest Boxes, continued on p. 6*



## *Dragonflies, continued from p. 1*

A. History: the dragonfly, like cockroaches, is one of the oldest known types of insects. Archeologists have found fossilized dragonflies dating approximately 300 million years old. That pre-dates the dinosaur! Very little has changed in the dragonfly. In fact, the only thing that has changed about dragonflies (order: Odonata) is their size. In prehistoric times, odonata were as big as hawks. With the exception of the Arctic and Antarctic, dragonflies can be found virtually all over the world. Some 5,680 species of dragonfly are known to exist, approximately 450 in North America; eleven families of Odonata in California.

B. Characteristics: (Adults) the head of an anisoptera is large and dominated by two compound eyes. These eyes may each contain as many as 30,000



individual lenses or ommatidia. By comparison, the human eye has one lens each. Because dragonflies possess exceptional eyesight, they can catch other insects in flight. In fact, they only eat food caught while in flight.

Dragonflies do not have teeth. However, they do have strong chewing mouth parts called mandibles which are used to capture and crush their prey. Dragonflies are voracious eaters and eat just about any animal they



can catch and chew. Dragonflies are not poisonous, are generally harmless insects to humans and will not bite people impulsively. Dragonflies are a curious creature, they might hover about as if inspecting you, but do not panic! They will cause no harm.

The dragonfly thorax is smaller in front, larger in back. This design allows for advanced perching skills. Odonata are unique in that they cannot fold their wings over the body like most insects. Thus, while perched, the dragonfly wings will be outstretched. Their legs are strong enough to hold prey but not fit for walking. The abdomen is elongated and at least the length of one wing; it is flexible and divided into ten segments. Both male and female odonates have claspings organs at the end of the abdomen.

A mating pair of dragonfly form a 'wheel' position: the male is positioned in front and clasps the head of the female with the claspers at the end of his abdomen; the female is behind and bends her abdomen downward to the secondary genitalia of the male to fertilize her eggs. Dragonflies can mate while perched but frequently mate while in flight. The male is often hovering nearby when the female lays her eggs so that other male competition will not disturb her.

Eggs are laid either inside the living tissue of a plant or into the water or the mud of fresh water lakes and streams. Eggs, several hundred per day, are normally laid in batches. Some temperate dragonflies over winter in the egg stage and thus the eggs do not hatch for several months. However, with tropical species the eggs can hatch in as little as 5 days. Larvae are aquatic and carnivorous detecting their prey by sight; they eat mostly other invertebrates.

After emerging most dragonflies leave the vicinity of the water and go through a period of maturation, this generally lasts about one month during which time the body color brightens. The new born dragonfly does not continue to grow, it is already fully grown!

## *Dragonflies, continued on p. 5*





C. Principles of Flight: despite bulging eyes and elongated thorax, the most impressive characteristic of a dragonfly is its dramatic ability to fly. Dragonflies possess two sets of wings, the hind wings being wider than the front, that can be used in tandem or independently. As such, dragonflies can propel themselves in six directions, hover, or not use the wings at all and glide. Dragonflies are excellent fliers and can loop-the-loop quite easily.

Both pairs of wings usually have a stigma (a colored patch near the middle of the leading edge) and a complex structure of cross veins giving the appearance of mesh. Unlike most insects which either flap both pairs of wings in unison (i.e. bees and butterflies), or only flap the hind pair (beetles), or only have one pair (flies), dragonflies can control each set of wings independently. In so doing, the front wings may be moving down or forward while the back set are moving up or back. You can see this happening if you watch closely as they flap their wings relatively slowly at less than 30 beats per second. Compare this with 300 bps for a honey bee.

While gliding, dragonfly wings being so exceptionally strong, yet flexible, act more as ultra-light aerofoils. This flight characteristic is made possible by a unique and complex construction. Where most insects, and manmade airplane wings, rely upon established principles of aerodynamics the dragonfly wing is comprised of cross-sectional corrugation which creates a unique air pressure profile resulting in exceptional aerodynamic performance. With two sets of independently controllable wings, the dragonfly is a constant aviation airshow.

So, the next time you hike MTRP be wary of bugs and beetles but keep a sharp eye for the harmless master of flight, the dragonfly.

## Father Junipero Serra Trail

The shortest distance between two points may be a straight line; however, as anyone who has driven a curvy mountain road can attest, put mountains between those points and it will not be the quickest route. Mission Trails has its own curvy mountain road, better known as Father Junipero Serra Trail (FJST), named after the Spanish missionary responsible for most of the southern California missions. As one of two paved trails in the park (the other being at Lake Murray,) it can be enjoyed by a variety of users in the southbound lane, including children on bicycles, mothers with strollers and people with wheelchairs. The one-way northbound lane is dedicated to vehicular traffic between the Visitor Center and the Old Mission Dam.

Using FJST, visitors can access the San Diego River at four points. About a quarter mile from the Visitor Center, a short side trail takes people to one of the prettiest spots in the park; here, an ancient Kumeyaay grinding rocks site is situated along the riverbank and is visited regularly by elementary school groups and casual hikers alike. Another mile along FJST is one of San Diego's and California's earliest water works projects - Old Mission Dam. As a national registered historical site and California State Landmark, it is one of the most visited spots in the park, and a great place to stop and watch the River pass by. Just below the dam, you can access the Oak Canyon trail, one of the most beautiful trails in the park. The third point is another couple of hundred yards above the dam at the Grasslands Crossing. There is not much of a scenic "wow factor" at the crossing itself, but it is a great place to spot birds and sometimes aquatic life. Further along FJST is the entrance to the Kumeyaay Lake Campground, home of another favorite scenic spot, the manmade



Kumeyaay Lake; just beyond campsite 10 is where the lake spills into the river.

From FJST you can also access the Climbers Loop trail, along the west face of Kwaay Paay. This trail, with its impressive views of the river below and rock faces above, is the only area in the park where rock climbing is permitted. Across the road from the Old Mission Dam parking lot is the Kwaay Paay Mountain trailhead. The summit has great views of the surrounding open space, but make sure you retrace your steps down along the same route you took to get to the top, as this trail leads to a dead end.

FJST was not always a user-friendly outdoor experience. Prior to the construction of the six-lane major roadway over the saddle of Pyle's Peak and Kwaay Paay during the mid-sixties, FJST was once a major artery connecting San Diego and Santee. It was the original Mission Gorge Road, winding its way along the San Diego River. The road was also a notorious accident zone with traffic which used to navigate its curves at 50 mph. The addition of the new roadway and the establishment of Mission Trails Regional Park changed all that, with the exception of its route winding along the River.

The next time you are on your way to Santee and you want to experience what it must have been like during "the good ol' days" traveling a curvy short distance between two points, take Father Junipero Serra Trail. But, don't be in a hurry to get to Santee, because the speed limit is now only 15 mph with numerous speed bumps along the way.



## *Nest Boxes, continued from p. 3*

example of site fidelity. While this project does not mark or band any birds, it is very likely that the pair of ducks that used a specially-sized box placed along the San Diego River in 2012 are the proud parents of ducklings again this year. This riparian habitat is ideally suited to Wood Ducks.

Just as many birds return to the same nest site year after year, many nest box project volunteers return to again experience the joys of watching fledglings grow to become next year's parents.

Reflecting on his first year as a volunteer monitor, Jacob Larson summed up his enthusiasm commenting, "I was able to get out to the Park on my own schedule, meet some great people, learn heaps about birds, and explore new parts of the Park. I watched little eggs become little birds become slightly bigger birds, then fly away. Not a bad gig! Certainly looking forward to next spring!"

People interested in volunteering for next year's nest box project should contact Ranger Heidi at (619) 668-3279, or email [hgutknecht@mtrp.org](mailto:hgutknecht@mtrp.org).

## ***Training, cont. from rear cover***

at a graduation ceremony. Trail Guide graduates are expected to share their new knowledge on at least one guided walk per month, but are welcome, of course, to do more than that after they get their feet wet.

In addition to leading guided nature walks, MTRP Trail Guides also staff Discovery Tables in the Visitor Center; help out with special events, such as our annual "Explore Mission Trails Day;" attend monthly Trail Guide meetings, with special guest speaker presentations; and enjoy monthly outings to other open space areas with fellow Trail Guides on Trail Guide Treks. The training program is really a lot of fun, is with a great group of

## **Winter Solstice Hikes on Cowles Mountain**



The Mission Trails Regional Park Trail Guides will lead pre-dawn hikes to the area of the solstice observatory on Cowles Mountain on December 20th and 22nd. The Canyoneers of the San Diego Natural History Museum will lead the hike on December 21st. Each hike begins at 6:00 a.m. and lasts approximately two hours. The solstice site is approximately one mile up the trail. The age of the site is unknown. It is known that the Kumeyaay used similar sites in southern California. For all three hikes, we hope to see the rising sun split by a peak on the eastern horizon. The ascent will be in the dark. Good shoes and a flashlight are recommended. There is danger of eye damage if you stare directly at the sun. You can observe the sunrise safely for a very few seconds through narrow slits (such as between your fingers held together) or smoked glass.

people, and, we are always looking for fresh new faces to join the MTRP Trail Guide team.

So, if you already know and love Mission Trails Regional Park, then why not learn more about it, so you can share that love with others? No experience is necessary, just a willingness to learn and share. The 2014 Trail Guide Training program is scheduled to begin on Saturday, January 11th and runs through March 29th. Please note there is a \$25 materials fee due at the first class meeting. Space is limited in this once-a-year training, so don't wait to contact Ranger Heidi (at [hgutknecht@mtrp.org](mailto:hgutknecht@mtrp.org) or at 619-668-3279) if you would like to be added to the 2014 Class Interest List, as it is already filling up!

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Mission Trails Regional Park Foundation provides opportunities for individuals, businesses, community organizations, and foundations to support a variety of programs and projects within the park. Community support is important to ensure adequate funding to maintain the award winning Mission Trails Regional Park Visitor and Interpretive Center and the multiple amenities the park has to offer.

Special event and project sponsorship are also available. Sponsorships for Explore Mission Trails Day, an annual event held each May, range from \$500 to \$5,000. Exhibit sponsorships begin at \$2,500. Bench and table sponsorships range from \$1,500 to \$4,000 depending upon the item and its location in the park. Contact Mission Trails Regional Park Foundation at 619-668-3280 or [mtrp@mtrp.org](mailto:mtrp@mtrp.org) for additional information.

Names of contributors of \$1,000 or more will be engraved on the donor board displayed at the Visitor and Interpretive Center. Yearly donations of \$100 or more are accumulated from year-to-year for donor recognition purposes.

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**Mission Trails Regional Park News**  
**Volume 24, Number 4, Fall 2013**

*Mission Trails Regional Park News is funded in part by the City of San Diego Special Promotional Program.*

*Mission Trails Regional Park Foundation, Inc., established January 1988, is a non-profit public benefit corporation organized for the purpose of preserving, improving and maintaining Mission Trails Regional Park.*

*Mission Trails Regional Park News is a publication of the Mission Trails Regional Park Foundation, Inc., published four times a year.*

*Roland Roberge, Editor*  
*Gerald Tietje, Masthead Photo*

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# Trial Guide Training

By Ranger Heidi Gutknecht

*Below, Trail Guides, Carma Ricks and Opal Daly, explore owl pellets with visitors during our annual Explore Mission Trails Day event.*



Recruitment time is here again, for our annual Trail Guide Training program. Each year, this training is conducted for people interested in learning about the natural and cultural history of Mission Trails, and then sharing this knowledge with others on interpretive nature walks throughout the park.

The class curriculum covers a variety of subjects, including ecology, botany, geology, history, birds, mammals, reptiles, insects, Kumeyaay culture and more! This 10-week training involves a three-hour classroom session every Wednesday evening, from 6:30 to 9:30 p.m., and a three-hour field study session on Saturday mornings, from 8:30 to 11:30 a.m. During the 11th week, students are evaluated on their interpretive skills during a sample nature walk, take an extensive written final exam on the material learned, and then receive a certificate of completion

*Training, continued on p. 6*