

# The Inland Koi Connection



THE OFFICIAL  
NEWSLETTER  
OF **IKS**  
ISSUE 303  
APRIL 2024

WEEKEND OF 4/27-28/24

[WWW.INLANDKOISOCIETY.ORG](http://WWW.INLANDKOISOCIETY.ORG)

## FLOWER SHOW AND GARDEN TOURS

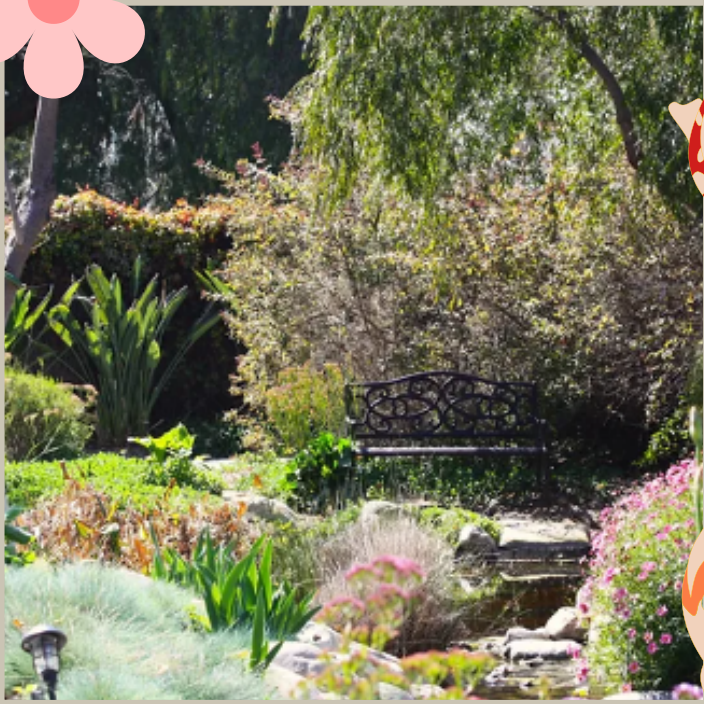
FLOWER SHOW: 9AM - 5PM  
GARDEN TOURS: 10AM - 5PM

WEEKEND OF APRIL 27TH AND 28TH 2024

Free Flower show and  
vendor fair

**\$10** garden tour

Riverside Elks Lodge 6166 Brockton Avenue  
Riverside 92506





## APRIL HOST PROFILE

Come to see six **amazing** local home gardens!! These six gardens will display how to attract the wonderful creatures that pollinate our planet while maintaining the **eye-catching** garden environment for our friends. The Milfeld's beautiful yard will be one of these six featured gardens.



The annual **Riverside Community Flower Show and Garden Tour** is finally here! The theme for this year is "**Garden Friends with Benefits**". Come to see beautiful displays and learn useful information from longtime partners; Raincross Rose Society, Riverside/San Bernardino Counties Orchid Society, Inland Region Iris Society, Gates Cactus and Succulent Society, Riverside Master Gardeners, and our very own **Inland Koi Society!**

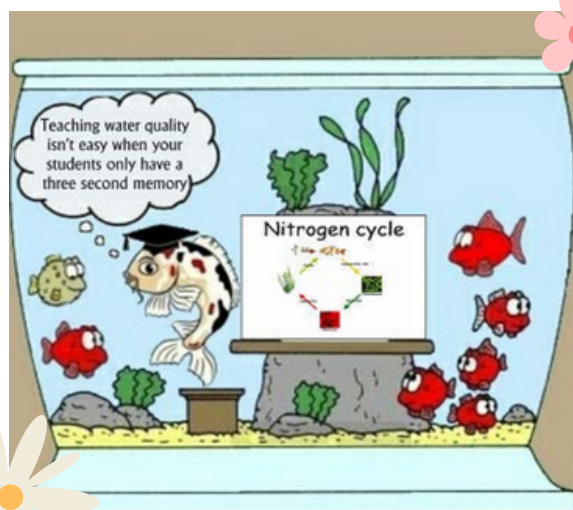


### How can you get tickets and how much do they cost?

The cost for the flower show is **free!!** For the garden tour its **\$10** per ticket for adults and **kids ages 16 and younger are free!!** Tickets can be purchased **both days of the event at the Riverside Elks Lodge.**

Your tickets will be exchanged for a wristband and a map at the Riverside Elks Lodge.

There will not only will be self guided garden tours, but at the Elks Lodge there will also be **fun and informative Seminars** as well as opportunities to shop for very **unique hand-crafted garden treasures** for your Garden at home!!



Cartoon by Syd Mitchell

“Water, never touch the stuff, heard Koi spawn in it...” (this is a family read newsletter). When we examine the health of our Koi, invariably part of the cause is a problem with water quality. We all know this, but all too often we are lulled into a false sense of security because the water is clear. We do test the pH, and if it’s above 6 we know the pond is not heading for a pH crash. Is that all we should be monitoring? Why is it that we spend hundreds or even thousands of dollars on fish, yet we sometimes skip the purchase of a KH, ammonia or nitrite test kits? Remember that even a crystal-clear pond might contain toxic levels of chemicals potentially lethal to your fish, while an algae bloom might look terrible (and make it difficult or impossible to see your Koi) but actually might be beneficial for the fish.

There are 4 CRITICAL tests that should be done regularly in every pond. Those tests are KH, pH, ammonia and nitrite. Test all 4 every day in a new pond, or in the spring while the water is warming, up until nitrite tests ZERO. Establish your water change schedule, and test after water changes until you can predict how the water changes affect the test results. Once a filter is established, test at least weekly, until you know how quickly KH is consumed. When you keep to a schedule of water changes and baking soda additions (and assuming you don’t suddenly get 2” of acid rain!), many pond owners only test every couple of weeks, but keep an eye on Koi health and behavior to indicate the first sign that some parameter may have changed and is irritating the Koi.

Our ponds are artificial, self-contained ecosystems. Koi are ammonotelic, that is the majority of their nitrogenous waste is excreted by diffusion (the movement of a substance from an area of higher concentration to one of lower concentration attempting to achieve equilibrium) via the gills into the water as ammonia. Ammonia is excreted in two forms:  $\text{NH}_3$  is the toxic form, and  $\text{NH}_4^+$  is the ionized and non-toxic form. The relationship between these two forms is greatly dependent on pH and water temperature. The higher (more alkaline) the pH, the greater the amount of (toxic)  $\text{NH}_3$ , while the lower (more acidic) the pH, the greater the amount of (non-toxic)  $\text{NH}_4^+$ . The colder the water, the more  $\text{NH}_3$ , the warmer, the more  $\text{NH}_4^+$ .

Our biofilters become populated with bacteria that convert ammonia to nitrite. Nitrite is also a very toxic substance. Unlike ammonia, it does not come directly from Koi, but is formed almost solely in the filter or from that family of bacteria. Because nitrite does not come from the Koi, when it contacts the Koi’s gills it enters the fish by diffusion (again, from the area of higher concentration, the pond, into the lower concentration of the Koi blood) binding to the hemoglobin in the Koi’s blood, and rendering it unable to carry oxygen. A second population of bacteria grow in our biofilters to convert nitrite to nitrate, which is fairly harmless to the Koi, and is used by algae and plants as fertilizer. As the Koi eat the algae and plants, the “nitrogen cycle” begins all over again. The bacteria that convert nitrite to nitrate are the most susceptible to aberrations in water quality and are therefore the last colony to be established and the first colony to be destroyed by change.

Causes of excess ammonia and/or nitrite may include overstocking, overfeeding, low oxygen saturation, an undersized biofilter, an immature filter (the bacterial colonies have not increased to a sufficient number yet, such as in a new pond or in the spring), a dirty filter, a filter aggressively or frequently cleaned with chlorinated tap water, or chemical treatments that may harm the bacteria.

Because excess ammonia or nitrite will destroy gill tissue, goldfish and Koi suffering from high levels of ammonia or nitrite will often congregate around an air-stone, waterfall, or any source of oxygen. Other symptoms of high ammonia may include lethargy and red streaking. Symptoms of high nitrite may also include lethargy (sometimes lying on the pond bottom, though swimming up for food before going down again). Both excess ammonia and nitrite will cause flashing, and destruction of slime coat, which is the first line of the fish's defense against parasites and bacteria. Thus, poor water quality where there are even low levels of persisting ammonia or nitrite can then be the cause of parasite infestations and bacterial infections.

The final important test, and maybe the most important for ponds that are not new, is KH. A KH test measures the available carbonates in the water. Carbonates stabilize the pH. If the carbonate level drops below 100ppm, the pH will start to fluctuate wildly, and eventually the pH will crash (become too low to sustain life) and all fish and plants will die.

There are two types of test kits for ammonia, Nessler and Salicylate. A Nessler test uses one chemical and the color goes from clear to shades of yellow and red. A Nessler test will still indicate that ammonia is present at harmful levels even though the toxic ammonia is bound and cannot harm the fish. A Salicylate test uses two chemicals and goes from yellow to shades of blue or green. For Koi and Goldfish ponds, it is important to use Salicylate test kits because they read properly with our commonly used ClorAm-X and Ultimate binders.

There is only one version of the Nitrite test, which usually will change from clear to purple. The KH test involves adding one drop of chemical at a time and shaking the tube. At some point, the color will suddenly change from blue to yellow. The number of drops before the change, multiplied by the number provided by the kit manufacturer, will give you the KH in ppm.

Treatment for high ammonia may include water changes to dilute it, or binders such as ClorAm-X and Ultimate. Note that ClorAm-X and Ultimate are called binders, because they do not remove the ammonia from the water – they simply change the ammonia from the toxic  $\text{NH}_3$  to the non-toxic  $\text{NH}_4^+$ . The non-toxic ammonia is still in the pond, and will be removed by the filter bacteria, which can consume both versions of the ammonia.

In goldfish ponds, sometimes Zeolite rocks are used to absorb ammonia from the water. Remember that salt used at concentrations greater than 0.3% will release the ammonia bound to the Zeolite, and instantly kill the fish.

Treatment for high nitrite includes water changes, suspended feeding, salt to 0.1% and increased oxygenation. If the nitrite reading remains above zero after 2 months, something may be damaging the filter or preventing the nitrite-to-nitrate colony of bacteria from forming.

KH should always be maintained in every pond above 100ppm. What most pond owners forget is that carbonates (and thus KH) are always being consumed by every living cell in the pond, so KH continues to decrease every day, and should be checked regularly. Higher KH (up to 500ppm!) is actually good for the colonies of bacteria in the filter! Check the KH of your source water – if it is higher than that of the pond, then a water change will increase the KH of the pond. If higher KH is still required, one pound of baking soda, will raise 1000 gallon of water by 72ppm. No need to predissolve the baking soda – it will dissolve quickly in water and will be circulated throughout the pond by the pump. Koi and goldfish adapt nearly immediately to pH changes – BUT always remember that you must ascertain that ammonia is ZERO before adding any baking soda. Always neutralize ammonia with a binder, then raise KH with baking soda to prevent a pH crash.

When the fish's health or behavior changes, immediately perform all 4 water quality tests, and try to address the underlying cause, especially checking your filter. In the spring, you may need to check the 4 water parameters with your test kits daily until your bacterial colonies are at full strength again. New test kits should be purchased every spring. Use the new test kits to check your previous year's kits, and if the old kits are still accurate, then use them up. Once test kits are more than 2 years old, just throw them out. Frequent water testing may prevent a small problem from evolving into a disaster.

This is the most elementary review of water testing. If you are a serious pond owner who wants to keep healthy and beautiful fish, take the K.O.I. Course #201 on Water Quality. Use the website below to learn more about the course: <https://koioorganisationinternational.org/course/water-quality>





## 2024 Board of Directors

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- President –  
**Scott Zehm** ~ c 951.237.2508  
scottzehm@eee.org
- Vice President – Location Chair  
**Rob Fales** ~ 951.279.0181
- Secretary –  
**Monica Dirac** ~ 909.887.7497  
monicadirac@aol.com
- Treasurer –  
**Nick Milfeld** ~ c 951.892.4269  
Nick Milfeld-@inlandkoi.org
- Newsletter Editor –  
**Braelynn Zoetemelk** ~ c 951.529.3328

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- **Linda Kushner** ~ 951.520.0092  
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- **Larry Leverett** ~ 951.781.3887  
@inlandkoi.org
- **Theo Zoetemelk** ~ 951.735.9896  
@inlandkoi.org

## Upcoming Events

- 04 27 & 28~ Riverside Flower Show and Garden Tour**  
**9am - 5Pm**  
Riverside Elks Lodge 6166 Brockton Avenue  
Riverside 92506
- 05 05~ IKS Board Meeting**  
**5:30 PM**  
Nick and Peggy Milfeld  
Interested members are welcome to attend, but please call hosts to let them know beforehand, 951.780.7395
- 05 19~ IKS General Potluck meeting**  
**12:00 PM**  
Loni Vogler - Hemet California  
San Diego Koi Club Joint Meeting
- 06 02~ IKS Board Meeting**  
**5:30 PM**  
Interested members are welcome to attend, but please call hosts to let them know beforehand
- 06 23~ IKS General meeting**  
**8:00AM**  
Barstow Koi In Barstow  
We will be carpooling for this event
- 07 07~ IKS Board Meeting**  
**5:30 PM**  
Interested members are welcome to attend, but please call hosts to let them know beforehand
- 07 28~ IKS General Potluck meeting**  
**3:00 PM**  
Steve and Laura Nyirady

# March Meeting Recap



Our March meeting at the **Henry's** beautiful home was a success!! Two of our wonderful members, **Gavin Alexander** and **Larry Wolf**, presented about their inspiration and processes for building their ponds at home. They shared the good times and their troubles that they have experienced with this intriguing hobby. They also enlightened us with their process for maintaining a healthy and clean pond.  
**Thank you Gavin and Larry for being our Guest Speakers!!!**

A very big **thank you to DeeDee's dad** for cooking us delicious hot dogs straight off of the grill!!!

A huge thank you to **Rick and DeeDee** for opening up their home to us, **Gavin Alexander** and **Larry Wolf** for being our guest speakers, and an even bigger thank you to those who attended!!!



**Rick and DeeDee's** pond had beautiful koi of all types, they even had a **Chinese Hi Fin Shark!**





We are in need of someone with enough space to house rescue fish!!! Please see **Scott Zehm** for more information.

Thank you to **Chien Lee of Nijikawa USA** and to **Iva Gaglione of Ultra Balance** for supplying the Inland Koi Society with a supply of nutritional koi food for its rehoming program!!!

Remember to start feeding your koi as the weather gets warmer!!!!

Thank You!!!

### Word Search

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flowers kohaku tancho bees  
 kujaku bekko garden koi

2024 Riverside Community Flower Show & Garden Tour  
 Garden Friends with Benefits



Saturday & Sunday, April 27 & 28  
 FREE Flower Show • 9 am - 5 pm  
 Elks Lodge • 6166 Brockton Ave., Riverside  
 Garden Tour \$10 or 6 Gardens • 10 am - 5 pm  
 Tickets available on our website (Children 16 and under Free)

Submit an entry to our flower show for FREE!  
 Accepting entries Friday, April 26 only • 4 to 8 pm

Don't miss our Garden Tour at the Flower Show!

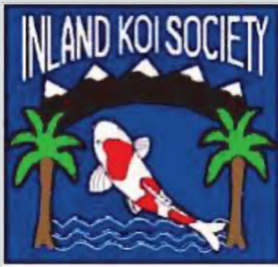
Flower Show Seminars Include:

Saturday, April 27	Sunday, April 28
9:30 am Getting to Know Your Backyard Hummingbirds Suzanne Colquitt Wild Birds Unlimited	9:30 am I'll Be There for You: Be a Friend of the Western Monarch Michele Felix-Derbarmdiker RRCRD Certified California Naturalist
10:30 am Attracting Beneficial Bugs to Your Garden Lucy Heyming UCCE Master Gardener	10:30 am Bringing Nature Home: California Native Plant Gardening Linda Powell UCCE Master Gardener



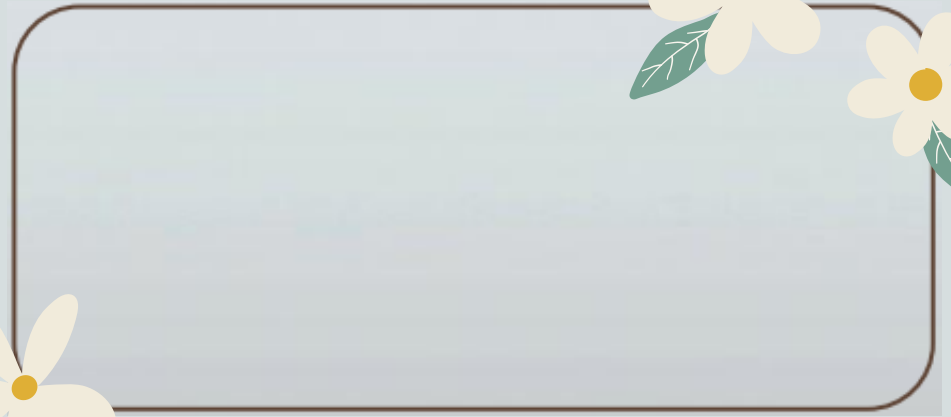

For ticket sales and further information go to:  
[RiversideFlowerShow.com](http://RiversideFlowerShow.com) or [Facebook.com/Riversideflowershow](https://www.facebook.com/Riversideflowershow)

Get tickets to the Riverside community flower and Garden show the weekend of April 27th - 28th!!! We hope to see you there!!!



**INLAND KOI SOCIETY**  
**5198 ARLINGTON AVE., #146**  
**RIVERSIDE, CA 92504**

**Return Service Requested**



**Visit Our Website: [www.inlandkoisociety.org](http://www.inlandkoisociety.org)**