

Life Cycle of the Great Blue Heron

San Francisco Nature Education
2021 Heron Watch Interns



Our Youth Naturalist Internship Program

Francisco Nature Education provides interactive environmental education programs that develop leadership and stewardship in youth and adults. Our goal is to create tomorrow's environmental stewards and leaders by inspiring a lifelong love of nature. Our interns complete a research project, and sketch and record their observations of the heron colony. Weekly birding walks with experienced naturalists enhance their experience of the world around them. Normally our interns use spotting scopes to educate the public about the heron colony and sharpen their communication skills. This year, because of the pandemic, we limited interns' interactions with the public as the students were not vaccinated. We will resume that part of the program in 2022.

The internship program runs year-round. Student interns must be between sixth grade and college to apply. We provide training, and supply our interns with binoculars, field guides, and resource materials.

In March, we conduct training for the public Heron Watch program. During the spring breeding season we set up an observation site on Saturdays at Stow Lake in Golden Gate Park. Our interns answer questions and use high-powered spotting scopes to show the heron chicks and nesting adults. Over 1,500 adults and children attend the seven-week program annually. To date, 255 students have graduated from the Youth Internship Program.

www.sfnature.org

Drawings and Captions

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Title page: *Mass Flight* by Joy Chang
Back cover drawing: *Incubating* by Jackson Fukutome



Introduction

Our Spring 2021 Heron Watch program at Stow Lake was a big success despite the ongoing pandemic. Our interns spent thirty hours studying and drawing the Great Blue Herons over eight Saturdays, taking birding walks with naturalists, drawing local birds they observed on their weekly walks, and restoring native habitat. During the program the interns saw 43 species of birds. Ten heron chicks fledged in four nests of the Stow Lake colony.

This year's interns were diligent, dedicated, and equal to the many tasks required by our program. All the interns sketched the various stages of the life cycle of the Great Blue Heron, and created panels for an animation program to be completed by Joy Chang, senior intern, in September. Joy also directed and edited a short film that will be available at sfnature.org.

At the end of the program each intern was presented with a certificate of achievement in recognition of their hard work, and with books to encourage their nature inquiries: Audubon's *Birds of America* for David, *The Laws Guide to Nature Journaling* for Jackson and Anasuya, Butler's seminal book *The Great Blue Heron* for Joy, *Guide to the Birds of Argentina* for Jose, and small field guides to the birds of San Francisco.

In addition, each intern received glossy photos of the herons courting, by David Sullivan, and six-week-old chicks by Ian Reid. We wish the interns success in all their future adventures.

Nancy DeStefanis
Executive Director, San Francisco Nature Education

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First Attempts at Attracting a Female

Joy Chang



Male herons choose the best nest locations to attract a female.



Some males start new nests; others take old ones.



Male herons display signs of aggression toward rivals who may pose a threat.



Male herons will sometimes take off in mass flight if startled.



Crown plumes erected indicate excitement and eagerness to a female being courted.



A male may drive a female off. She will approach again. This establishes a bond.

Going Steady

David Aguayo



The male stretches to attract a female.



The male brings a stick to the female.



She places the stick in the nest.



Copulation occurs.



Mutual preening is a common pair behavior.



Adults bill-duel to cement the pair bond.

Starting a Family

Jackson Fukutome



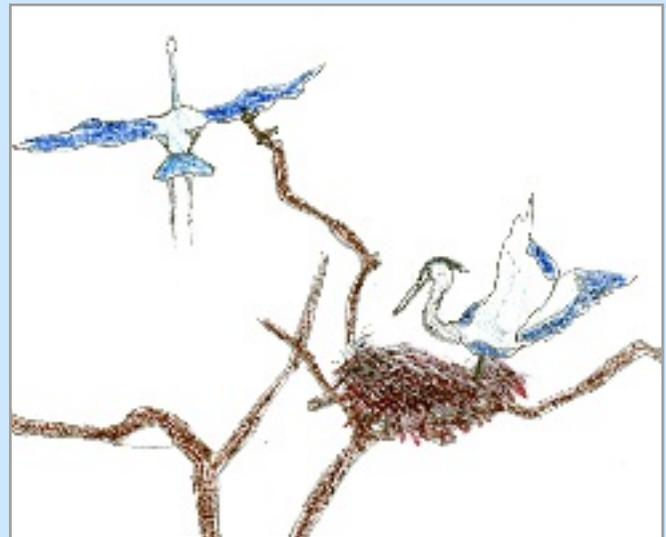
During copulation the male steps on female's back as she leans forward. The pair mates until she lays eggs.



Hérons usually lay two to five eggs. They begin incubating when the first two have been laid.



Both adults share incubation duties. They take turns sitting on the eggs.



Nest relief occurs when a parent flies in to trade places so the other can leave to forage.



A heron chick will use an egg tooth located under its bill to crack the egg open and emerge.



At about one week old chicks are ready to pull down a parent's beak to stimulate regurgitation.

Hatchlings Need Food

Anasuya Pawate



A one-week-old chick with parent.



An adult stays with chicks when they're young.



To feed their young the parents regurgitate food into the bottom of the nest.



Herons take turns brooding the chicks. An adult sleeps with chicks to keep them warm.



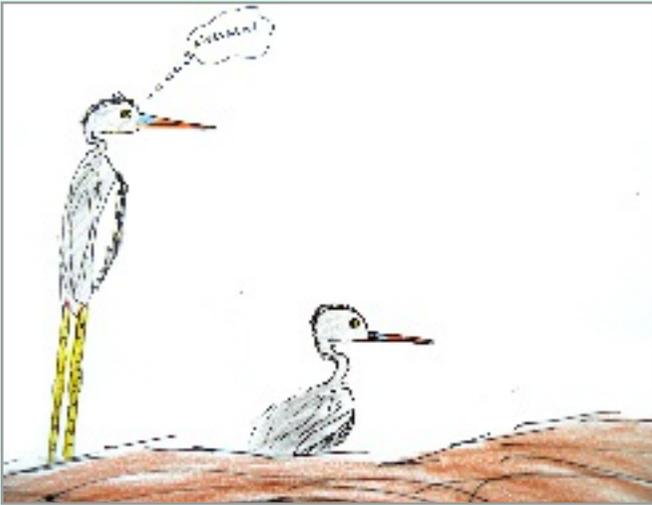
At three weeks the chicks grab the adult's bill and make a "kek-kek" call for food.



After four weeks the chicks are left alone in the nest while both parents forage.

Chicks Grow Fast

Jose Aguayo



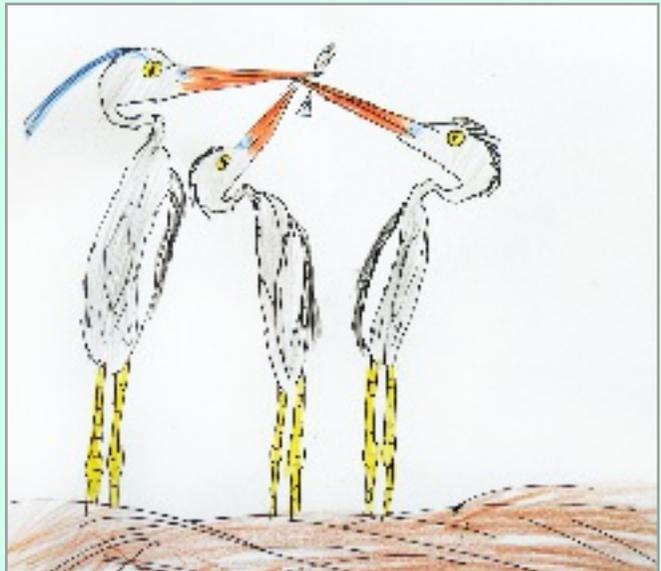
Parents leave chicks unattended at four weeks.



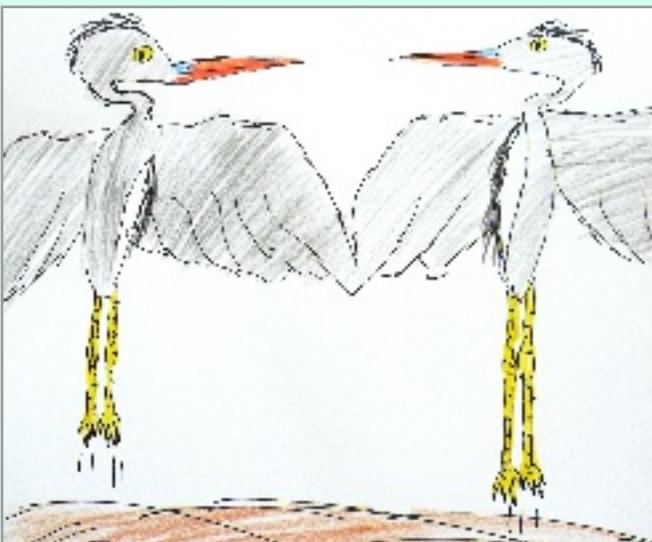
Chicks are full size at six weeks.



Parent flies in with a gopher for a meal.



Chicks jostle to get a fish from a parent.



Chicks jump before hopping from the nest.



Stretching wings prepares chicks for flying.

Leaving the Nest

by Interns

David Aguayo



Eight-week-old chicks are restless to leave.

Joy Chang



At ten weeks the oldest hops to a nearby branch.

Jackson Fukutome



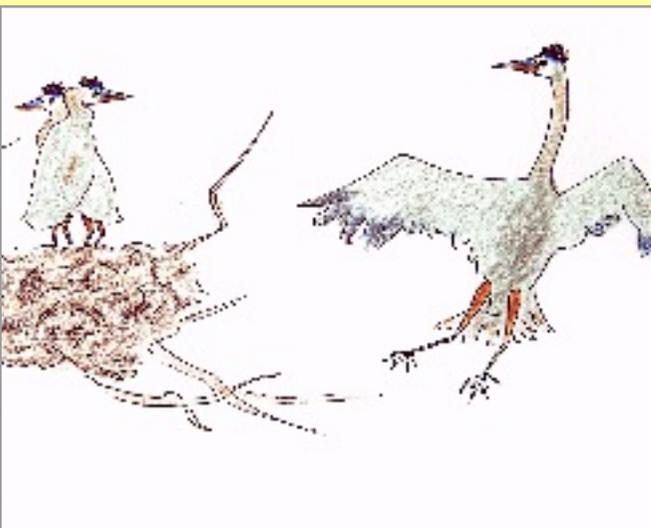
Then it hops awkwardly back to the nest.

Jose Aguayo



A chick makes a wobbly flight to another tree.

Joy Chang



The chick tentatively flies back after its first flight.

Jose Aguayo



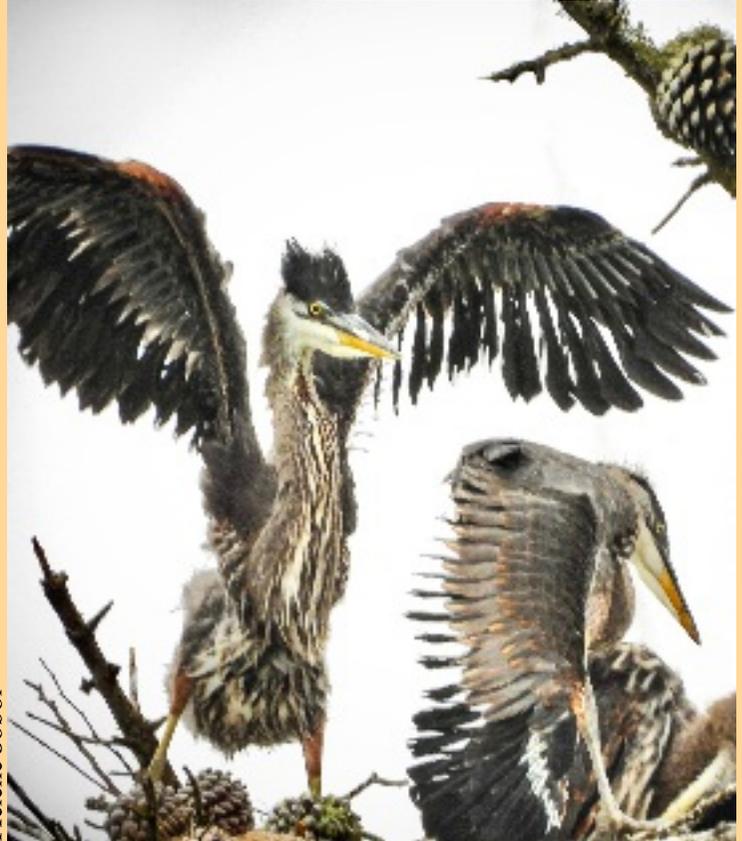
At the end of June an empty nest is all that is left.

The Spring 2021 Great Blue Heron Colony Was Hopping!



Ian Reid

Three young chicks wait for the return of a parent.



Helene Sobol

Wing-stretching is part of growing up.



Grace Ruth

Nearly-grown chicks compete for space and food.

Helene Sobol



Heron chicks fight over food.

Grace Ruth



Chicks demand food from a parent.

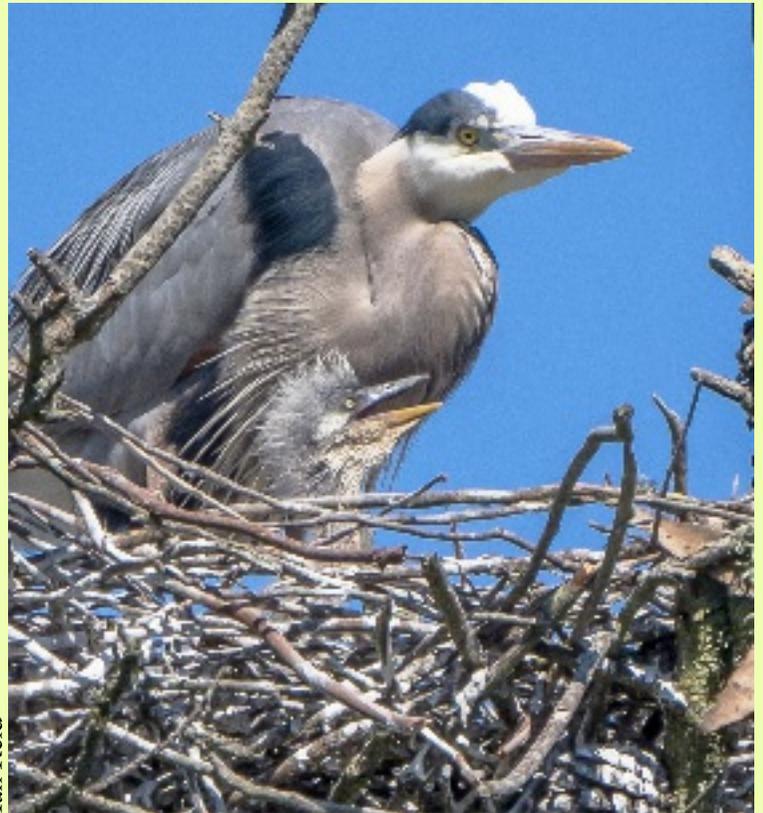
In early June the first chick started branch hopping. In the next two weeks all the chicks ventured out on branches and practiced flapping and lifting off. In the following weeks chicks will make their first flights to nearby trees. The parents will continue feeding the chicks until the last one leaves. Then the parents will go their own ways. All the chicks will probably leave by July.

Rachel Way



Three chicks watch a parent expectantly.

Ian Reid



Parent and chick in their nest.

Interns Stayed Busy Drawing, Restoring Habitat, and Birdwatching on Nature Walks



Above: Jose with his drawing of the Heron Tree.



Above and below: Joy, Anasuya, and David work to protect native plant habitat on Strawberry Island.

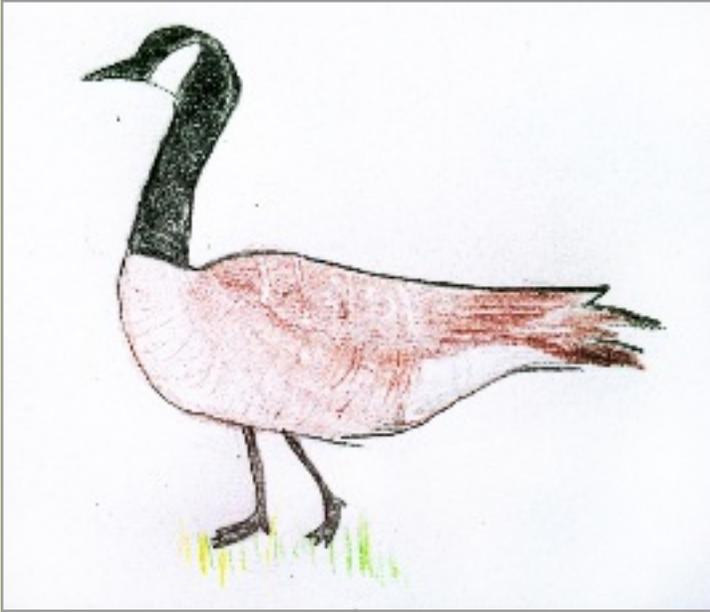




Top row: David and Jackson. Above: Alan Hopkins leads interns on a nature walk around Stow Lake.
Below: Interns, with park supervisor Andy Stone, prepare to restore habitat on Strawberry Island.



Birds Observed on Nature Walks



Canada Goose by Anasuya



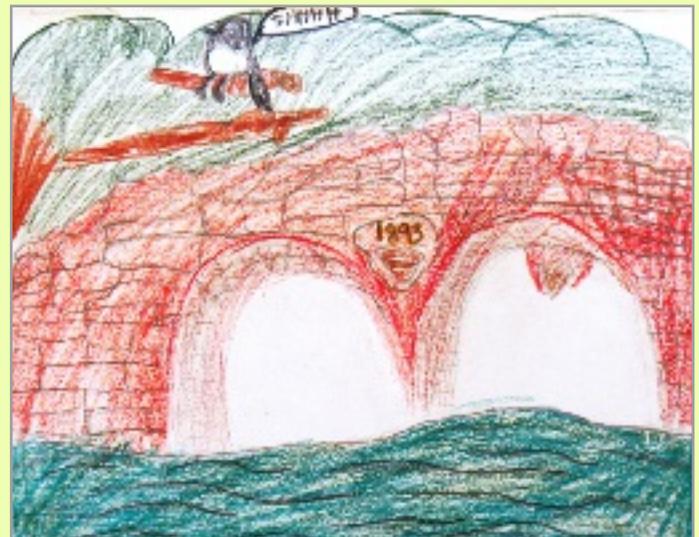
Tree Swallow by Anasuya



Steller's Jay by Anasuya



Red-winged Blackbird by Anasuya



Black Phoebe at the Rustic Bridge by Jose



Black-crowned Night Heron by Jose



Tree Swallow by Joy



Golden-crowned Sparrow by Jose



American Robin by Joy

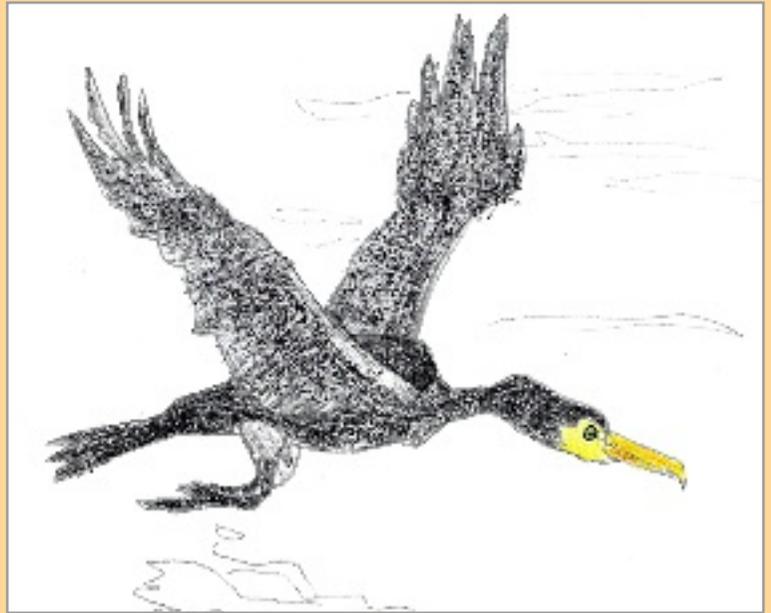


Mallard by Jose

Birds Observed on Nature Walks



Steller's Jay by Joy



Double-crested Cormorant by Jackson



California Towhee by Joy



Turkey Vulture by Jackson



Steller's Jay by Jackson



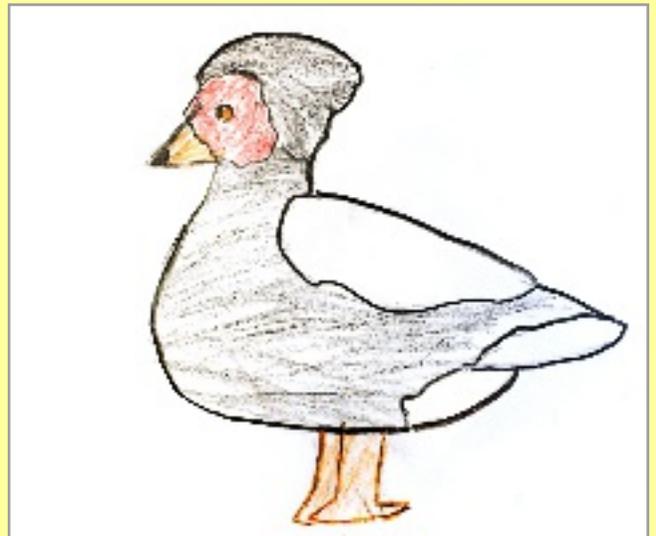
White-crowned Sparrow by David



Red-tailed Hawk by David



American Robin by David



Muscovy Duck by David

Interns Report on their Heron Watch 2021 Season



Jose Aguayo Three things that really stood out to me were learning about habitat restoration and how to water plants, studying birds with Alan Hopkins, and sketching herons. During habitat restoration, Andy Stone, our guide, taught me how to water a plant, which I probably to this day would've never known how to do without his help. Alan Hopkins taught us how to call out and find birds by pishing. This allowed us to find the Song Sparrow, bringing our total to 43 birds seen this season.

I learned how to sketch herons with Joy. She gave us tips to draw herons more accurately. This helped me become a better artist. Nature walks were by far the most restful part of the program. I loved them because they took a lot of negative stuff off my mind, especially with high school applications, and thankfully I got into one of my high schools of choice.

Being able to see the baby heron chicks up close was such a gift, and I appreciate Ms. D for the spotting scopes. Lastly, it was fun rediscovering birds from the 2019 program, and sketching them. The contest for finding the most birds was also fun. My crew found the Tree Swallow, Pygmy Nuthatch, House Finch, and more.

This program was one of the best experiences I've had during this hard year of Covid-19. I recommend Heron Watch for these reasons:

- You get the best teacher for heron watching, Ms. D
- You go on nature walks
- You have amazing interns by your side to help you
- You use scopes to look at heron chicks close-up

I hope to return to this program next year. This summer I plan to join programs for the high school I will be attending in the fall. These may include basketball, soccer, and academic camp. I might be doing other programs on academics too, such as AIM High.



Jackson Fukutome In the 30 hours of my internship for Heron Watch I learned how to see if a bird was female or male, how to sketch quickly but still put in detail, clean my binoculars, and a lot about Great Blue Herons. I also learned to always wear a hat when it's cold.

Looking through the scopes makes looking at the herons 100 times better. I liked to go on the birding walks because I got to see nature and other birds besides the Great Blue. I really liked going with Alan Hopkins because he knows a lot about the different bird species and is a pro. And I really enjoyed learning and sharing information on birds with other interns. I am going to keep sketching over the summer. I sketch birds, anime, still lifes, and portraits.

If Covid is over, next year I would like the interns to talk with the public as they did before the pandemic. I would like to participate in Heron Watch again in 2022.



Anne Galjour, volunteer, with Jackson, Jose, and Anasuya.



Joy with a work in progress.



David with Alan Hopkins.



Joy Chang I learned how to be organized and to plan ahead since we were working on a lot of projects this year. I also learned how to take charge of my own projects (documentary film, animation). Teaching the interns helped me learn since I had to really know the ins and outs of nature journaling in order to instruct them well. For example, I spent a lot of time studying the plumage of the herons so I could give detailed feedback on the interns' drawings.

I really enjoyed the magazine project. I liked that it was broken up into chunks so it didn't feel rushed. I liked drawing a variety of activities and taking my time on details and accurate coloring. I'm looking forward to seeing how all the interns collectively documented the life cycle of the herons.

This summer I will be working on the documentary for Heron Watch. I'll also have a summer job and will be trying to get my driver's license. I'll be studying for the SAT and taking a community college course. I have to work on college essays for applications. Finally, I'll be preparing for a major skating competition in August.

I think it would be cool to do more in-session sketching of things besides the herons and the heron tree. It would be great practice to make quick sketches of scenes around the lake, or birds we see on nature walks. I think this would add a variety of subjects to nature journaling. Thank you for a great internship, Ms D!



David Aguayo I learned how to draw birds. Before I used to draw herons and hawks really small. During the eight Saturdays at Stow Lake my drawings of the Great Blue Herons and local birds improved because of the weekly drawing sessions and examples I saw on the internet. Another thing I learned was spotting birds with Alan Hopkins. Alan helped me spot small birds that I didn't even know of, like the Pygmy Nuthatch, the Chestnut-backed Chickadee, and the Yellow-rumped Warbler. Alan taught me pishing (bird calling). I learned about habitat restoration with Andy Stone. Andy taught me how to pull weeds and gave us information about plants and whether they are safe to eat. If you pull weeds from the ground you need to pull from the roots, not the bottom.

I enjoyed seeing the Great Blue Heron Chicks grow up. I was very happy because for almost two years I couldn't see the heron chicks grow up due to the pandemic. I also liked seeing the chicks do so many things I didn't know they could do. I learned they could grow to the size of their parents at six weeks and they could fly at ten weeks.

This was my second time as an intern because I first participated in 2019. I definitely recommend this program to other students. This summer I plan to attend the Summer Institute of Sacred Heart and Sacred Heart Soccer Camp.



Anasuya Pawate During my Heron Watch internship I learned a lot about Great Blue Herons and the heron colony. In every session I practiced nature journaling and sketching. Joy gave us special lessons in journaling. During nature walks I learned which bird was which species, and experienced birding with experts. By providing me with the opportunity and training to look through scopes, and sketching, journaling, and birding, Heron Watch exponentially enhanced my understanding of birds.

The birding walks were the highlight of the day. I loved meeting new people and the experiences that came with each walk. Stow Lake is the best place to watch birds — one day we observed more than 30 species! I enjoyed the opportunity to watch the heron chicks grow up. The spotting scopes made me see them in a whole new way, and every detail was visible. Watching how a small chick gradually turned into a young adult was a real treat. During the summer I plan to continue birdwatching. I also plan on traveling, coding, and running.



Anasuya, holding gifts, with Joy, David, Jackson, Jose, and Ms. D at graduation ceremony.



Jackson with his drawing.



Anasuya holds her certificate with Ms. D.

Graduation Arrives!

On May 22, the last day of Heron Watch at Stow Lake, the interns graduated from San Francisco Nature Education's 2021 program.

Gifts were given and goodbyes were said.

Thank you for all your hard work. Keep sketching and birding!



David and Jose with *Audubon's Birds of America*.



Joy with Ms. D and scope.