



# BOSQUE WATCH

SPRING 2022



*Native to the southwestern United States and Mexico, the Desert Willow is a member of the catalpa family.*

## Desert Arboretum News

The wind is howling, so spring must be just around the corner. In April, after a two-year hiatus, the Arboretum Stroll will be returning on Saturday, April 23, 2022 from 10 AM – 12 noon. The featured stars of the stroll will be the flowering plants and possibly migrating and resident birds. What can visitors expect to see blooming? The first cactus to bloom every spring is the Chihuahuan pineapple cactus. The exact date is variable but always in March. The first shrub to bloom will be the New Mexico olive or privet, also about mid-March.



*The Green-flowered hedgehog cactus grows singly, never in clusters or mounds. Photo by Wayne Washam*



*One of the most attractive hedgehog cacti is the claret cup, which can grow in clumps as large as 3-4 feet across.*

*Photo by Wayne Washam*

The olive is especially important because each tree is covered with hundreds of small fragrant flowers that provide a substantial meal for bees, wasps, and, most importantly, migrating monarch butterflies. Following those early bloomers will be a succession of hedgehog cacti, including the claret cups, Bonker's, green-flowered hedgehog, Arizona and Texas rainbows, and the strawberry hedgehogs. The chollas and yuccas follow the hedgehogs, and then by June the prickly pears will be ready to

flower. It's always a surprise when an agave flowers, and we have had one agave flower every spring for the last four years. So-called century plants don't need one hundred years to bloom. Twenty years is usually sufficient.

The point of flowers is for plants to achieve pollination. From the insects' point of view, it's all about nectar and pollen, their protein and carbohydrate sources. We have been discussing ideas about increasing the pollination potential of the arboretum. Unfortunately, it's limited by arid conditions, poor soil, and short flower life. However, the pollination potential of the refuge is vast. And we have one particular species in mind: monarch butterflies. New Mexico and the Bosque del Apache NWR do play a role in the nearly unbelievable North American migration of monarch butterflies. We are at the western edge of the main migratory route followed by millions of monarchs. We will probably always be marginal but nevertheless important. The monarchs need only one thing from us, which we can easily provide: flowers, especially

milkweed. So, our idea is to plant milkweed and other pollinator species, such as chamisa, New Mexico olive, and wildflowers in selected areas of the refuge, largely using funds from the Petschek Pollinator Project. The refuge has expressed interest, and the Watermolen family has donated money for, the construction of water-control structures in the targeted area. We'll keep you informed about how this idea develops. What can all of you readers do to help monarchs? Plant milkweed and other wildflowers. You will likely need to buy seed and grow your own, so look for propagation methods and resources online.

Occasionally, visitors at the arboretum ask about climate change and its influence on our plants. It's a difficult question to answer largely because we live in such a highly variable climate. However, the evidence is now clear that our average temperatures are increasing as rainfall remains stable. Sufficient precipitation may seem like a ray of hope, but as temperatures increase so does evaporation, and plant transpiration results in less usable



*The antelope horn milkweed plant is attractive to bees, butterflies and/or birds. This species of milkweed attracts huge bees as pollinators.  
Photo by Wayne Washam*



*A refuge for plants, the arboretum allows visitors the opportunity to see the incredible diversity of the Northern Chihuahuan desert. In this photo, former Friends Board President JR Seeger measures a growing Havard's agave.*

moisture overall. Additionally, in recent years, we have not received dependable winter moisture. A possible indirect effect of climate change and the resulting decades-long drought is a shortage of forage for rodents and mammals. The animals, probably packrats but also possibly javelinas, are eating the yuccas in the arboretum. One of the keys to survival in the coming decades will be adaptation. For example, cacti may become spinier for

protection from the sun, and cacti growing in the shade of a creosote bush or mesquite will survive where those in the full sun will not. Watching these changes at the Desert Arboretum will be interesting.

The Desert Arboretum will soon be in bloom, and the Arboretum Stroll is returning Saturday, April 23 from 10 AM – 12 noon. Come and enjoy the blooms and birds.

• Tom Hyden, Master Gardener & Friends Volunteer of the Year 2021

# Mankind, Monarchs, and Machines: Our Queens



*JCB engine and pump—the refuge Queen*



*Elizabeth II, Queen of the United Kingdom & 14 other Commonwealth realms*

Sustainability and resilience are two very important qualities for mankind, for monarchs (not only the butterflies), and for machines—and, of course, for the Friends organization. Recent developments at our refuge have brought these qualities into sharp focus; and, as the only British member ever to serve on Friends board of directors, I am in a unique position to assess how they are exemplified in two monarchs—one in my home country and one on Bosque del Apache National Wildlife Refuge. Intrigued?

On December 1, 2021, our well number 15 welcomed a new ecoMAX (ECO) engine from the British company, JCB (of which, more below). The ECO attracted a great deal of attention, not only for its (undoubted) functionality but, unusually, for its beauty. So much so, that it became known by refuge staff and some donors as, “The Queen.” I wondered, are there any more parallels between this new arrival and my own monarch? We’ll see . . .

Joseph Cyril Bamford (JCB) founded his company in 1945 (in his garage – where else?) in the English Midlands. He was an early proponent of the sustainability and circular economy movements (ahead of his time), re-using scrap metal from World War II to build his first piece of agricultural equipment. Behind his motto, “Jamais content” (French for “never be satisfied”), his company has grown into the industrial powerhouse it is today, employing 11,000 people world-wide with twenty-two manufacturing plants on four continents.

Originally concentrating on plant equipment and machinery, JCB started making engines in 2004, the pre-cursors to our own newly acquired ECO.

Queen Elizabeth II—aka, Elizabeth Regina (ER)—came to the throne in 1952 (seven years after Bamford began his business venture) at the tender age of 25, upon the untimely death of her father, King George VI. In June this year, she celebrates her platinum (seventy years) jubilee. Queen Elizabeth is already Britain’s longest-serving monarch and the longest-serving female head of state anywhere. Little known fact: ER will become the longest-reigning monarch of a sovereign state if she is still reigning on 27 May 2024, passing Louis XIV of France. Based at Windsor Castle (five miles from my own UK residence), her other main “offices” are Sandringham House, Buckingham Palace, and Balmoral Castle.

Our queen on the refuge, ECO, will pump water to five hundred acres in Unit 13a (the majority of our crop acreage) and will play a critical role in the water infrastructure. ECO is tried and tested, with seventy already installed in central California. ECO has a number of unique characteristics, many of which are shared by Her Majesty. Just as ECO will sit at the heart of the refuge’s farmland, ER sits firmly at the heart of the British nation. A few more similarities are highlighted below.

EcoMax was easy to install. Likewise, Elizabeth succeeded to the throne with minimal pomp and ceremony upon her father's death (6 February 1952), although her formal coronation the following year was a more elaborate affair. Many people in the UK acquired their first televisions (black and white) to watch the proceedings. She was immediately up and running, attending her first formal engagement less than two months later, distributing "Maundy Money" to the poor and needy, a tradition dating back to the 13<sup>th</sup> Century.

EcoMax is reputedly "reliable, with minimal downtime." According to public record, ER is also extremely reliable, regularly attending her fair share of the Royal Family's 2,000 annual engagements. She performs well in all conditions—notably at her diamond jubilee, which took place in appalling (and typically English) weather.

EcoMax is powerful. Compared to the ECO's maximum 100 Horsepower, ER owns over 100 racehorses and has access to many more for



*Joseph Cyril Bamford CBE, founder of the JCB company.*

formal ceremonies. Not surprisingly, Kentucky is apparently her favorite US location to visit. Unlike our ECO, ER relies on "soft power," and much of her theoretical power, e.g., to dissolve parliament, has never been used. She is also Head of the Commonwealth, an association of some fifty-four countries, most of which are former colonies, although this is not required for membership.

EcoMax is economical to operate. While the efficiency of the ECO engine is undisputed, opinions differ as to whether the Royal Family represents good value for money spent. While the official annual cost is around \$100 million annually, some have estimated the true cost of the monarchy to be four times this amount. Whatever the real number, many (and probably the majority in the UK) subscribe to the view that ER herself is worth the investment because she is the figurehead that epitomizes the UK "brand." Opinions about the value represented by other members of the Royal Family are often less generous.

Compact: the ECO has a modest footprint, measuring approximately 6' x 6' x 6'. At 5'4", ER is the smallest member of the Royal Family

EcoMax is "accompanied by a world-class support package"; JCB support quality has been well-respected in the engineering industry for many years. As for ER, wherever she goes, she is supported by the Royal Household, which, according to latest estimates, comprises some 1,133 employees. To be clear, they don't all travel on every trip! They are famed for their attention to detail and commitment to the Royal Family.

"Environmentally friendly": ECO is known for its low emissions. Reportedly, the Royal



*JCB engine, the Queen at work.*



# Friends Annual Meeting: Thriving in a Challenging Year

The Friends Annual Meeting was held on Saturday, February 19, 2022. Friends Board President Mary Ruff kicked off the meeting, explaining that despite the challenges of the past two years, Friends is thriving and has been able significantly to support the refuge. She thanked our community for their amazing support. Mary overviewed the agenda and noted that a recording of the entire meeting would be available within two weeks. You may review charts presented at the meeting on the Friends website, as well as listen to the recording, at [friendsofbosquedelapache.org/friends-annual-meeting/](https://friendsofbosquedelapache.org/friends-annual-meeting/). Mary then turned the meeting over to refuge manager Deborah (Deb) Williams for her State of the Refuge address.

Family produces fifty times more carbon than the average UK family. Having said this, it is difficult to quantify the value of Prince Charles’ contribution to the climate change debate (for example) and Prince William’s sponsorship of the \$1.4 million “Earthshot Prize” (<https://earthshotprize.org>), which next year comes to the US!



Queen Elizabeth II, then and now.

Two great Queens: we look forward to many more years of trouble-free operation for both our monarchs. Long live the Queen(s)!

- Jonathan Manley, Friends of Bosque del Apache Vice President & Fundraising Committee chair



## SUMMARY OF THE STATE OF THE REFUGE REPORT BY DEB WILLIAMS

Deb Williams kicked off her report by noting that her entire two-year tenure as Bosque del Apache refuge manager has been during a global health pandemic. The refuge staff and volunteers have needed to be creative in serving the public because the Visitor Center has not yet reopened; with guidance from the US Fish and Wildlife Service (USFWS) regional office, the visitor centers at the Middle Rio Grande refuges (Bosque del Apache, Sevilleta, and Valle de Oro) may be able to open later this spring/early summer. In the meantime, the refuge has been active: the refuge reopened its fee booth this past fall, roving USFWS volunteers have been on the tour loop assisting visitors, the Nature Store (open since October 2020) has been offering support with visitor information, and the new bathrooms (east of the Visitor Center) opened during our busy fall/winter 2022 season. In spite of the pandemic, the refuge had near-record numbers of visitors this past year. Volunteers in RVs were the face of the refuge; they had over 9,000 interactions and logged 7,000 volunteer hours, the equivalent of forty-two months of full-time employment.



*Rehabilitating refuge wells for more efficient flow.*

In addition to the pandemic, Williams said the refuge continues to grapple with extreme drought conditions. Friends partnered with the refuge to address challenges and to be as effective and efficient as possible. This past year, five wells have been rehabilitated so far, and two capped. A new engine was purchased for one well. Two other wells were re-drilled in recent years. While this past year's farm program did not fare well, refuge moist soil units produced much native seed, and peak waterfowl numbers (~40,000) rivaled 1980s numbers. While all well work is not done, it's a relief to know we'll have water for farming and wetlands.

This year, the corn crop did not fare well for a number of reasons. For one, the refuge is not allowed to plant genetically modified (GMO) or "round-up ready" corn; so during our strong monsoon season, the Johnson grass out-competed the corn. In the coming year, refuge staff will plant one hundred twenty-five acres of corn, one hundred acres of triticale, and fifty acres of nitrogen-fixing alfalfa. We will continue to partner with Bernardo in growing

food for the wintering flock.

Williams also noted that much of refuge staff has turned over in her tenure due to retirements, promotions, or transfers. Some staff changes have already been highlighted in Fall 2021 and Winter 2022 Bosque Watch editions; Friends will soon produce a special edition because we've had so many retirements, moves, and new hires on the refuge. To help with staff shortages, Friends paid for more summer interns than ever—seven in Summer 2021—and will pay for five in 2022. Bosque del Apache will also receive funding from Headquarters for three college interns for special projects and an eighteen-month student fellow who will focus on climate change and work with a team of US Geological Survey scientists to examine the water and groundwater budget on the refuge.

Williams was pleased to report that the refuge



*New farm leader Tommy Rosales with new ripper.*

is making progress on habitat improvements. For example, we are providing better habitat for the endangered New Mexico Meadow Jumping Mouse, and we have removed more invasive salt cedar. This summer, refuge staff will begin a project to revitalize Unit 3, the much-loved "wetland roost" on the west side of Highway 1. This project will include water infrastructure improvements and terrain recontouring to achieve optimal depths for crane roosting. This unit will be filled with irrigation tailwaters, not groundwater.

Williams closed by sharing her excitement about the plans for a hybrid model for our fall festivals (discussed later in the State of the Friends Report and slides). Williams did not have slides,

but her remarks are in the meeting recording – <https://friendsofbosquedelapache.org/friends-annual-meeting/>

## **SUMMARY OF THE FRIENDS FINANCIAL REPORT BY JON D’ALESSIO**

Jon d’Alessio, Friends Board Treasurer, emphasized that the Friends have done very well despite the challenges. (He shared slides during his presentation that are on the Friends website, and his talk is recorded.) The biggest challenge was that 70% of our revenue used to be visitor driven (Nature Store, Festival of the Cranes), but those revenue streams were curtailed during the past two pandemic years. In light of this, our financial profile has drastically changed, such that more than half of our revenue was from fundraising this fiscal year. He made the point that YOUR donations make a big difference. Despite the challenges of the past two years, Friends was still able to do a lot for the refuge (fund interns, wells, farm equipment, and more) and was able to retain all staff. We expect to generate a surplus next year and are well positioned to address whatever challenges come our way.

## **SUMMARY OF THE STATE OF THE FRIENDS REPORT BY MARY RUFF & FRIENDS STAFF**

Despite many challenges, Mary Ruff, Friends Board President, said that Friends had a banner year and is thriving. Thanks to our generous community, Friends brought in grants of \$480,000 from two private foundations to address well repair; and thus far, five wells have been repaired, two capped, and an engine replaced. Mauldin Drilling must complete a bit more work to use up the entire \$480,000 raised. In addition, Friends has received \$64,000 in restricted funds, which have been or will be spent on summer interns, pollinator projects, farm equipment, and improvements on the Observation Blind Trail. While it’s been wonderful to acquire so much in restricted funds this year, it’s also been a banner year for receiving unrestricted funds. Unrestricted funds are important because they build the platform for sustaining the

Friends organization and enabling it to best support the refuge. Unrestricted funds allow for flexibility and adaptability as refuge needs change or arise. This fiscal year, unrestricted funds paid for endangered species project needs, some of our summer interns, and critical farm equipment. These funds also paid staff salaries so that Friends could write grant proposals, plan and run events, and reach out to donors; they also covered our required audit and insurance costs, office supplies, and advocacy efforts. Further, in Friends growth, we’ve needed to hire expert help in marketing, messaging, branding, social media and security, and unrestricted funds have allowed us to do all this. Looking forward, Friends fundraising priorities will be securing water and food for wildlife needs, building community, providing education, and increasing outreach.

Trisha Sanchez, Friends Donor Care Manager, reported that Friends currently has a 66% donor retention rate and has community members in three countries, forty-six US states, and the District of Columbia. We have thirty-one business sponsors, our highest number ever. Our monthly donor program, Oasis, is growing; currently we have one-hundred-seventy-four members making an average gift of \$20.47 per month. Oasis members receive exclusive monthly news and access to quarterly calls with key staff. Funds from this program will continue to be a significant source of unrestricted funds.

Friends Nature Store has had \$240,000 in sales so far this fiscal year, which is amazingly close to our sales in pre-pandemic years! The store has served as one of the main points of contact at the refuge since October 2020 because the Visitor Center has been closed since March 2020.

Friends Festival Manager Julie-Anna Blomquist shared the exciting news that Friends is bringing the in-person Festival of the Cranes back this winter! This year will be a combination of a virtual Crane Fiesta and a live, in-person Festival of the Cranes. Crane Fiesta on November 18 and 19 will whet appetites for the live festival and serve those who cannot come in person. Festival of the Cranes will be December 1-3 and will be a collaborative

event among the refuge, Friends, the City of Socorro, and New Mexico Tech (NMT), our local university. We aim to make this event Covid-safe by holding many workshops out in the field on the refuge and a few on the NMT campus. We'll likely run more than fifty events, and the variety will include birding, photography, kids' events, and community events. Blomquist is currently reaching out to stakeholders and planning the festival. Watch the website and future editions of Bosque Watch for exciting news as the plans unfold!



*Volunteer Tom Hyden*

## BOARD ELECTIONS

Mary Ruff, Friends Board President, presented the slate for 2022 elections and shared some details about each candidate. She noted that all current board members would stay in place if this slate were accepted, but there would be movement in positions. The following candidates were up for election: Jonathan Manley for Vice President; Pat Funes for Secretary; and Lane Leckman, Jim Lommen, and Lesley Urquhart for board members at large. After Mary's presentation, Rex Myers moved that we accept the slate, and Jon d'Alessio seconded the motion. With no questions or comments, the vote was taken, and the slate was unanimously accepted.

## MARTHA HATCH AWARD PRESENTED TO TOM HYDEN

Mary Ruff presented the Martha Hatch Volunteer of the Year Award to Tom Hyden. Tom has been a volunteer for the Friends and the refuge for over a decade, mainly focusing his efforts on the Desert Arboretum. Tom has strategized changes to the garden, led volunteers and staff in hands-on projects, and run educational sessions in the spring during Desert Arboretum Stroll and in the fall during Festival of the Cranes. He has also been the narrator and lead in educational videos we've produced about native plants and pollinators. Further, he and Deb Caldwell, Friends Executive Director, made a presentation to the Petschek family that resulted in the family's generous funding of the Petschek Pollinator Program. This program helps Friends sustain

the birds and plants not only at the Desert Arboretum, but also (soon) at the Observation Blind area on the refuge's North Loop.

## CLOSURE OF THE BUSINESS PORTION OF THE ANNUAL MEETING

Mary Ruff, Friends Board President, called the business portion of the meeting to a close and introduced keynote speaker, Dr. Fred Phillips, for the final portion of the Annual Meeting. Dr. Phillips is a key member of a team of climate and water resources scientists convened by New Mexico Governor Michelle Lujan-Grisham and the Bureau of Geology & Mineral Resources to research the issues and deliver a report on "Impacts of Climate Change on New Mexico Water Resources over the Next Fifty Years."

## KEYNOTE PRESENTATION BY FRED PHILLIPS, PHD



*Dr. Fred Phillips*

Dr. Fred Phillips' keynote presentation had a significant impact on all who watched the Annual Meeting live on Zoom. [Here's the link](#) to watch Dr. Phillips' powerful and sobering presentation on climate change. He increased our sense of urgency, which is spurring us to more action. We

were so fortunate to have Dr. Phillips: he is a recognized leader on water issues and other effects of climate change on the Middle Rio Grande Valley, including Bosque del Apache NWR. His keynote made it clear to us that climate change has negatively impacted our water resources and we must act now with a sense of urgency and hope to sustain Bosque del Apache and environs.

Dr. Phillips asserted that predicting how climate change will impact temperatures is easier than predicting what amount of precipitation we can expect. Starting around 1975, the temperature has no longer been stable. Temperatures have been climbing steadily for the past fifty years, with temperatures rising .6 degrees centigrade per decade since 1980. All places in New Mexico have been and will continue heating up. Warming will not be uniform; we'll have warmer temperatures in northwestern New Mexico first and in the boot heel of New Mexico last. The estimate is that by the end of this century, the average temperatures will be five degrees Fahrenheit warmer than temperatures in the twentieth century before 1980, which will be warmer than it has been in the last ten million years. Our current drought, lasting decades, is the longest drought in twelve hundred years.

With rising temperatures, New Mexico is also becoming more arid. This aridity index is what is most critical and profound to water availability. Low elevations and desert regions already have a high aridity index; the lowest aridity has been in the mountains where we depend upon snowpack. In fifty years, New Mexico's high mountains will become much more arid. Spring will become much drier. As the temperature goes up and increases in a sustained way, as it is now doing, the amount of precipitation will make less and less difference. As the temperature rises, it causes increased evapotranspiration from trees and plants. It also pulls moisture from the soil. As this happens, plants become increasingly desiccated and less resistant to pests, such as the bark beetle. Certain families of trees and shrubs will no longer grow in most of our mountains and will be replaced by others that used to grow at lower elevations. For example, ponderosa pines will be replaced by pinons. With increased aridity, the risk of serious forest

fires increases, such as those in the 2000s near Los Alamos and in the Gila Wilderness. These fires left erosion and permanent damage to the watershed of the Rio Grande and the Gila rivers.

With all this happening, scientists predict that the increased use of groundwater will continue and that our aquifers will correspondingly be increasingly depleted because less groundwater will be recharging. With less water in the river and more groundwater mining, there will only be less water and more competition for what water there is. Water demand for agriculture and landscaping will increase thirty to fifty percent; this will potentially mean that there is less and less water for public lands and wildlife. Water for ecosystems will become scarce in fifty years. In the Middle Rio Grande Valley (including Bosque del Apache NWR), there will likely be twenty-five percent lower flow in the Rio Grande in the next fifty years.

During the question and answer portion of Dr. Phillip's talk, he made some important points on steps we need to take now. He recommended that we do the following: advocate for radical restructuring of water rights in New Mexico; plan for resiliency and do with less over the next twenty years (to affect the next hundred years); get involved in the InterState Stream Commission (ISSC) process; advocate for NWRs and wildlife; and get involved legislatively—ensure that environmental uses of the declining water are protected.

The week after our Annual Meeting, Friends sent a note to our community, sharing steps that Friends is taking to address some climate change effects, as well as actions everyone can take now.

## **FRIENDS OF BOSQUE DEL APACHE IS ALREADY TAKING THESE STEPS:**

1. Our Advocacy Committee continues to reach out to partner organizations (i.e., Wild Earth Guardians, Save Our Bosque Task Force, other NWRs in our region, etc.) and legislators to share our concerns and to collaborate on potential actions. The Friends Advocacy Committee has also reached out and joined the current Basin Study.

2. Over the years, Friends has invested in green energy on the refuge, including installing solar panels, water catchment systems, LED lights, and more. With funds from the Petschek Pollinator Program, we have planted native trees, shrubs, and flowers to provide shade, food, and habitat for birds and pollinators. While this has been primarily in the Desert Arboretum, we plan to install more native plants in the Observation Blind Trail area to support pollinators, particularly monarch butterflies.
3. Through Well of Hope funds and grants, Friends has invested in water infrastructure on the refuge and installed or repaired many wells. While repairing wells is not the long-term solution, it will make our use of groundwater and energy more efficient and effective right now.
4. Join and become active with organizations concerned with climate change in New Mexico, and advocate within these organizations on behalf of the Rio Grande and the refuge
5. Share with Friends of BdA what other climate-concerned organizations are doing
6. Contact our Governor, Michelle Lujan Grisham, and let her know your concerns
7. Make Calls and write letters to elected representatives, encouraging their support of climate change legislation.
8. Talk with friends/neighbors about your personal concerns regarding climate change
9. Write Articles on your own websites about climate change and SHARE them with us!
10. Share all relevant posts on social media platforms

## TEN WAYS THAT YOU CAN PERSONALLY TAKE ACTION NOW:

1. Join The OASIS, our [Sustaining Community of Hope](#)
2. Learn: Watch two videos – one on Dr. Phillips’ keynote and one on Bosque del Apache Water Management - at this link: <https://friendsofbosquedelapache.org/2022/02/27/taking-action-after-dr-fred-phillips-talk/>
3. Read *Reining in the Rio Grande*, primary author, Dr. Fred Phillips

## LASTLY

We live in a time when the actions we take really matter. Waiting is not an option. We must work TOGETHER to assure the worst-case scenarios don’t become a reality - particularly for our beloved Oasis, Bosque del Apache National Wildlife Refuge. Please join the conversation and become a part of our Community of Active Hope. Share ideas about what you are doing, what you are reading, or what you know that others are doing.



*Overnight travelers in spring (and fall), like these American pelicans, rely on the wetlands at Bosque del Apache. Photo taken in March 2022 by Don Boyd.*



## Refilling My Prescription at Bosque del Apache

Feeling emotionally exhausted, I knew I needed to refill my prescription of BdA—Bosque del Apache. The pharmacist said to take one a day and I'd feel better immediately. He also said, "Be very careful if you take more than one: you may become extremely happy." He was right on both counts.

It's been over two years since I last visited Bosque del Apache National Wildlife Refuge. The diversity of wildlife, and humans, at this wonderful refuge allows for many possible surprises. The Bosque is like a box of chocolates: "Ya never know what you're gonna get."

I was hoping to catch a few more of Bosque del Apache's secrets on this adventure. I was not disappointed. As usual, the sunrises were to die for. The sound of the geese and

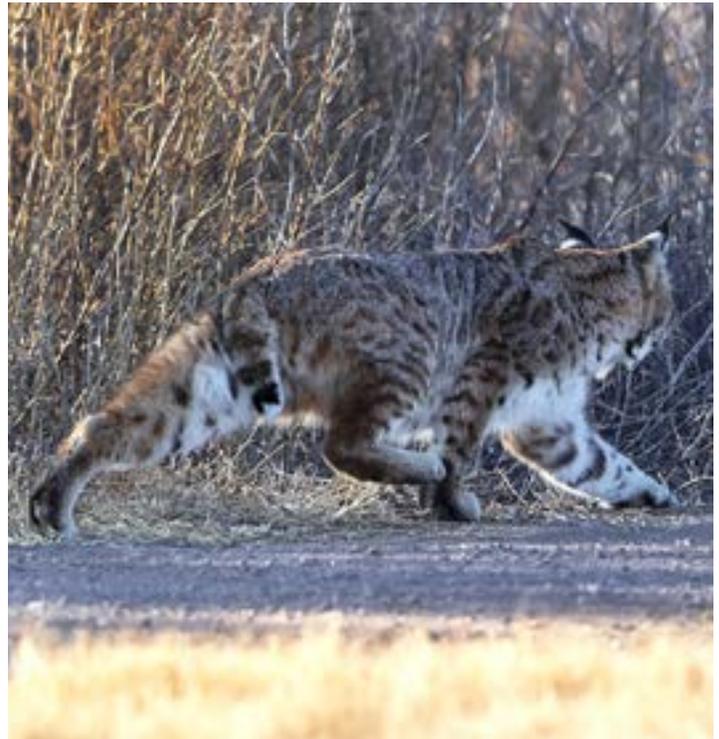
cranes combined with the vibrant colors of the southwest make for an inspirational experience. You've got to see it for yourself.

The people who visit "The Bosque" come from many different parts of the world. I've met people from Argentina, Mexico, Germany, and the UK, and probably some other countries that I can't remember. On this trip, I met a wonderful retired veterinarian from New York. We would greet each other with, "Good morning, New York" and "Hi Tex." Even though we'd probably never see each other again, an instant friendship was born. These are the special people moments. He followed me around thinking that I knew all the special spots to see wildlife. I don't. I told him that if you want to find the geese and cranes, turn off your car engine; get out; and just listen.

Late in the afternoon on my fourth day, I spotted something in the distance. Thinking it might be a wonderful coyote, I readied my camera, hung it out the window, and waited. It was walking right toward me on a trail slightly off to the side. I grabbed my binoculars for confirmation. Mon Dieu! It was a bobcat. I guess I ripped off a few hundred shots before it disappeared into the bush. The Bosque had just exposed another of her secrets.

What is The Bosque's greatest secret? It's the experience, a feeling that is difficult to describe. Maybe it's pure freedom. My advice: get up early and be out there at sunrise. Stay for several days until that good feeling begins to grow. Drive slowly; get out of your car; listen; breathe; take a hike; and then stay late to see the sunset. Oh, and by the way, have a good pair of binoculars. See ya out there.

• *Danny Hancock, award-winning photographer, lover of Bosque del Apache, and Oasis member*



*Photo by Danny Hancock*

## Upcoming Special Issue of Bosque Watch to Highlight Staff Comings and Goings

The last two years have brought many challenges and changes on the refuge, as you know from our reporting. Though we've recently introduced you to some new staff members and bid adieu to others, there have been too many staff changes to include them all in our Bosque Watch issues. In the interest of catching you up to our current state as much as possible, we've decided to issue a special edition in the next couple of months, featuring these staff changes. Watch our website—more to come!



## SAVE THE DATES

April 23

November 18-19

December 1-3

Desert Arboretum Stroll from 10 AM – 12 Noon

Crane Fiesta (virtual)

Festival of the Cranes (in-person)

*Educational videos and webinars released throughout the year  
watch our website for offerings: [www.friendsofbosquedelapache.org](http://www.friendsofbosquedelapache.org)*

# Oasis on the Rio Grande: Rare Birds at Bosque del Apache

Bosque del Apache National Wildlife Refuge is an oasis on the Rio Grande. For millennia, the Rio Grande's seasonal flood filled riverside meadows with water and nutrients. But both the drought and water use by cities, crops, and golf courses have reduced the river to a trickle and eliminated the nourishing floods. Now, to preserve this oasis, the refuge staff pumps well water to simulate the floods, moving water through acequias to certain fields to protect just enough habitat to sustain the migratory birds along the Rio Grande.

and their dawn liftoffs and sunset fly-ins are spectacular. Because only small areas of the refuge can be flooded, birds of all species tend to congregate, making them somewhat easier to find. Winter is not the only spectacular time at Bosque del Apache, however; here are some of the rare and special species seen at the refuge at different times this past year.

## SOUTHWEST WILLOW FLYCATCHER



*Southwest Willow Flycatcher visits Dabblers Deck in Spring.  
Photo by Jonathan Dowell.*



*Sandhill Cranes welcome the dawn at the Flight Deck.  
Photo by Jonathan Dowell.*

This oasis is good news for birds and birders. Founded in 1939, Bosque del Apache records boast 407 species sightings; eBird has recorded 393 species sightings. Hundreds of thousands of sandhill cranes and snow geese overwinter at Bosque del Apache every year,

One of the endangered subspecies protected at the refuge, southwest willow flycatchers nest regularly in the refuge's marsh habitats. Summer 2021 biology interns Abby Bourne, Kristen Hutz, Karly Tellier, Emma Watson, and John Anglin surveyed these flycatchers last summer, documenting at least seven breeding pairs.

Bourne and Watson worked together surveying the flycatchers in the thick willows near the refuge's Rio Viejo Trail. Starting in May, they headed out at sunrise to listen for the males' distinctive call. When the migrants first arrive, the territorial males are active and readily observed. After a few weeks, the numbers decrease as transient birds move on while breeding pairs stay and build nests. Although the interns' diligence found several

nests, many of 2021's nests were unsuccessful. The southwest willow flycatchers' nests are vulnerable to predators, storm damage, and disruption by brown-headed cowbirds. Last summer, under the direction of Jeff Sanchez, the refuge's supervisory biologist, the interns conducted a Flycatcher Disturbance Threshold Study to better define activities that negatively impact the nesting efforts of this subspecies. These interns' experiences are being compiled into guidelines of best practices for other nest surveys by the US Fish and Wildlife Service.

Clearly, habitat loss is a primary reason that the southwest willow flycatcher is endangered. As the drought continues, the Bosque del Apache as a stopgap refuge will be increasingly important.

## WHITE-TAILED KITE & OTHER RAPTORS



*White-Tailed Kite enjoyed a meal at this snag on the North Loop.  
Photo by Jonathan Dowell.*

Although eBird reports sightings of a white-tailed kite at the refuge roughly only every five years, one appeared in June 2021 and was still there in November. Before the acequias were opened, the kite was seen regularly perched in a snag on the refuge's North Loop. When the seasonal fields around this snag were flooded, the kite moved to drier regions of the refuge.

Many raptors frequent the refuge, including bald and golden eagles; Cooper's, sharp-shinned, and red-tailed hawks; northern harriers; kestrels; and merlins. The Refuge's vast expanses of active floodplain, riparian forest, seasonal wetlands, croplands, and Chihuahuan Desert sustain a variety of prey for these raptors. But continuing drought and

competition among raptors concentrated on the refuge will present a challenge of sustainability.

## LEAST BITTERN



*Reclusive Least Bittern makes a rare appearance at the Boardwalk*

Cattails at the refuge's Boardwalk, a year-round wetland, conceal a wealth of secrets. High on the list are the least bitterns. Like many birders, I had read reports of least bitterns at the Boardwalk on eBird, but despite dozens of visits over thirty years had never managed to connect with those recluses.

So, I was thrilled this past summer on a warm July morning when my wife and I walked across the Boardwalk at 9:00 a.m. and glanced casually at the cattails near the outflow end of the wetland, and there, staring back at us, was a least bittern in an iconic brace between two reeds. We enjoyed the spectacle for several minutes, then were amazed when a second least bittern appeared, and the pair flew in broad daylight to the cattails on the other side of the lagoon.

Sadly, the drought is taking its toll on this wetland. Mud flats have appeared; the cattails are dry and brown. So long as the dirt doesn't dry completely, the cattails should survive. The refuge is exploring methods to control silt buildup and open the vegetation to increase species diversity. But without those cattails,

the Boardwalk's least bitterns, Virginia rails, marsh wrens, common yellowthroats, and green herons will be displaced.

## ROSS'S GOOSE



*Ross's Goose enjoys midday sun. Photo by Jonathan Dowell.*

Camouflaged among the tens of thousands of overwintering snow geese at the refuge are a few dozen Ross's geese. Sharp-eyed observers can find them in the middle of the flocks, identified by their smaller size and stubby different-colored bills.

## RUFIOUS HUMMINGBIRD



*Rufous Hummingbird guards the feeding station in the Desert Arboretum. Photo by Jonathan Dowell.*

When Rufous Hummingbirds arrive at the refuge in July, they are already headed south

after breeding in the Pacific Northwest. Although not rare in New Mexico, their vibrant color and flamboyant behavior make them a special favorite of birders.

Rufous hummingbirds are found regularly in late summer at the cactus blossoms and feeders in the refuge's Desert Arboretum near the Visitors Center.

## YELLOW-BILLED CUCKOO



*Yellow-Billed Cuckoos have become regular rarities at the Refuge's riparian forest. Photo by Joel Gilb.*

Although eBird first reported a yellow-billed cuckoo at the refuge in 1978, only 245 sightings have been reported in the refuge and Socorro County since. Considered threatened throughout their range, documenting these rare birds' probable breeding activities at the refuge is important. Senior Visitor Services Intern Joel Gilb joined Bourne, Hutz, Tellier, and Watson in conducting surveys last summer to find yellow-billed cuckoos at the refuge.

Known as rain crows across the South, yellow-billed cuckoos can be identified by their distinctive song. According to Gilb, the interns performed early-morning surveys across the refuge, with each intern covering a separate geographic unit. Consistently, each unit revealed two or three cuckoos. The most common habitat was in forested units where a canopy of mature cottonwood trees covered an understory of willows and salt cedars,

such as along the refuge's Rio Viejo Trail. Although the interns found neither nests nor fledglings, nesting is suspected because the cuckoos were at the refuge in suitable habitat throughout the breeding season.

## BELL'S VIREO



*Bell's Vireo sings along Elmendorf Trail. Photo by Jonathan Dowell.*

Bell's vireos are considered near threatened because of habitat loss. But the dense scrub of the refuge is ideal, and Bell's vireos are found there throughout the breeding season. A reliable location to find them is along the refuge's Elmendorf Trail in the early mornings of early summer.

## BOSQUE DEL APACHE IS YOUR OASIS

The oasis of Bosque del Apache National Wildlife Refuge is made possible by the stalwart effort of the US Department of the Interior. Learn more about the refuge at <https://www.fws.gov/refuge/bosque-del-apache/>, and put a visit on your bucket list before anything more is lost to the drought. Help Friends in their efforts to protect and advocate for our oasis in the desert and join the Oasis membership [friendsofbosquedelapache.org/oasis/](http://friendsofbosquedelapache.org/oasis/). Maybe you will be the next to find the rare rufous-necked wood rail in the cattails at the Boardwalk.

• *L. Jonathan Dowell, Ph.D., photographer, birder, and Oasis member*

## PEREGRINE FALCON



*Peregrine Falcon feeds its brood in Chihuahuan Desert region of the Refuge. Photo by Jonathan Dowell.*

Although not rare in New Mexico, the breeding peregrine falcons at the refuge are a national treasure. For several years, a pair of falcons has nested high on a cliff in a remote canyon in the arid highlands of the refuge.

Like the other species at the Bosque del Apache, the peregrine falcons depend on the environment nourished by the Rio Grande. But as the drought continues, both loss of prey and competition for prey from other raptors concentrated in the refuge will be a concern.



*Snow Geese lift off from the marsh nearly every winter morning. Photo by Jonathan Dowell.*

Consistent income empowers Friends to meet the needs of the refuge  
in every season. Join our monthly givers on a quest to preserve this  
true oasis in the desert, one of the last remaining wetlands in the  
southwest!

MAXIMIZE YOUR SUPPORT | BE PART OF SOMETHING BIGGER

[friendsofbosquedelapache.org/oasis/](https://friendsofbosquedelapache.org/oasis/)



theOASIS

Photo by Don Boyd