The INSTITUTE for BIRD POPULATIONS

2020 Annual Report

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www.birdpop.org

On the cover: California Spotted Owl
Photo: Paul Bannick/PaulBannick.com

Our 2020 annual staff retreat was canceled by COVID, so this photo of IBP's year-round staff plus several board members and research associates is from our fall 2019 annual retreat. We promise we don't look a day older! Left to right, seated, front row: Peter Pyle, Helen Loffland, Meredith Swett Walker. Seated, 2nd row: Ron Taylor, Lynn Schofield, Mandy Holmgren, Bob Wilkerson. Standing: Jerry Cole, Ed Pandolfino, Deborah Mills, Danielle Kaschube, Rachel Blakey, Martin Bern, Steven Albert, Morgan Tingley, Rodney Siegel, Lauren Helton, David DeSante, Chris Ray. Staff not pictured: Jim Saracco.

IBP enables science-based conservation of species and habitats by studying the abundance, demography, and ecology of birds and other wildlife.

IN THIS REPORT

IBP Needs Your Support!

We rely on support from people like you to continue our work. Please consider a tax-deductible contribution, and multiplying the impact by encouraging friends and family to support IBP. Use the donation button below, donate through birdpop.org, or send a check to IBP, P.O. Box 518, Petaluma, CA 94953. Thank you!

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A Message of Hope from IBP's Executive Director

As I write this message in early October, the pandemic is raging, conflict over entrenched racism is reaching a fever pitch, our democracy itself appears to be threatened - and underneath all that, climate change marches forward. It feels like the world is on fire, and in fact much of the West is literally burning, with profound and tragic consequences for people and communities. In this context of disease and turmoil and loss, where is there space for caring about bird conservation, and how can we maintain hope for the future?

For many of us these two questions are intimately linked. In the words of Emily Dickinson, *"'Hope' is the thing with feathers."* Our enduring love of birds, our persistent efforts to conserve them, and our successes in doing so, are the precise things that fuel our hope.

Much like Black-backed Woodpeckers thriving after forest fire, the mythological Phoenix rises from the ashes of its own destruction. Illustration: Lauren Helton

And maybe fire is exactly the right metaphor for our current situation. Fire is a destructive force where it intersects with humans and their property, but nearly two decades studying the response of birds and other wildlife to forest fire has taught me that fire can also be an agent of change and renewal. In Greek mythology, the Phoenix is a fantastical bird that cyclically dies in a burst of flame, only to regenerate from the ashes. Even as it is consumed by fire, its renewal is assured.

Likewise, before a forest fire is even fully extinguished, woodboring beetles may begin colonizing the burned area and laying eggs on the newly charred trees, forming the base of a transformed, but nevertheless vigorous, ecosystem that will soon support postfire specialists like Black-backed Woodpeckers. Woodpeckers in turn excavate nest cavities that are subsequently used by many other wildlife species, and facilitate decomposition of dead wood, hastening the ecosystem's transformation to a changed, but nevertheless robust, ecosystem.

So, too, do I see signs of hope at IBP, even as the literal and metaphorical fires rage. This summer, our dedicated staff overcame huge obstacles and found innovative ways to safely implement many of our field projects (see page 4). And we are already working with partners and funders to launch an exciting slate of new projects for 2021 (see page 16 for an example). As an institution, IBP will survive this.

Let us all hope that our larger society will also emerge from the current fires renewed – more just, more equitable, and more sustainable. In the meantime, I'm taking direction from the words of the great ecologist, Thomas Lovejoy:

"If you take care of the birds, you take care of most of the big problems in the world."

I don't know if that is true, but I do know that taking care of birds is what IBP knows how to do and what we will keep doing, even through the fires.

In hope and friendship,

Rodney Siegel, Ph.D.

Image: Becky Matsubara

Conservation Science In The Time Of COVID

The summer field season of 2020, like so much else this year, was unprecedented. In the spring, as the COVID-19 pandemic rapidly turned the world upside down, we at IBP–like so many people– saw our summer plans fly out the window. We had just recruited dozens of seasonal biologists and volunteers when suddenly it seemed that all our projects might be canceled because of closures at the National Parks and other public lands where we work, or they would be logistically impossible while following necessary public health guidelines.

Facing tremendous logistical obstacles and a fluid situation, IBP staff got creative and flexible. We ordered personal safety equipment, conducted additional training, coordinated closely with our funding partners, and rapidly modified logistics. Despite the challenges, we were able to proceed safely with the majority of our planned fieldwork. It was not an easy summer, but it was great to accomplish our work, doing what we love.

You might expect that outdoor work monitoring birds would be a safe, socially distant activity - away from the crowds, in the fresh air, just you and your binoculars. Sounds ideal right? For the most part, the work itself is safe. But in the time of COVID-19, the logistics supporting all that fieldwork can be a different story. IBP field crews typically consist of employees and volunteers who have travelled in from different regions of the US, who then live in group housing and carpool to their field sites–all of which raise risks of transmission.

Intense logistical planning on short notice combined with a fantastic group of experienced crew members made it possible for us to continue, for example, our bird monitoring in the National Parks of the Pacific Northwest where, since 2001, IBP has been working with the Park Service to study trends in bird populations and responses to climate change. Without their experience and flexibility, fieldwork on this project probably would not have been possible, according to project leader Mandy Holmgren.

“The park biologists and I put together a COVID safety plan for the season, outlining all the adjustments we would be making to ensure crew safety,” says Mandy. “Many conversations and drafts of proposals later, we submitted our plan for approval at all the parks, and we indeed were approved by all the individual parks plus the Inventory and Monitoring network.”

Finding safe and suitable housing was a challenge. While crew members camp during field work, they are usually able to use park housing between surveying trips. That housing was closed due to COVID. Fortuitously, most of the workers this year lived in Washington and were able to return home between surveys. To further increase safety, after a brief and socially-distant training refresher and division into their two-person teams, crews had little in-person interaction with anyone else during the season. “Because the crew was so amazing and experienced, I did not have to supervise them as closely as I would have in other years, so being connected only by email and phone worked well,” says Mandy.

Getting out in the field and collecting this data was important scientifically but was also therapeutic for Mandy and the crew. "It felt amazing!" says Mandy. "Finally some normalcy in our lives after so much stress and uncertainty for months. It was refreshing and grounding to be able to watch the same processes- birds migrating, nesting, defending territories, etc.- going on like nothing had changed."

For another of our projects, collecting data during the pandemic involved putting non-human "ears" out in the field. Our work with California State Parks monitoring birds in the state's vehicle recreation areas took advantage of some relatively new technology called Autonomous Recording Units (ARUs).

Birds in these parks are usually monitored with traditional point counts, where a trained observer stands in one place for a fixed amount of time and records all the birds they hear and see, though birds heard typically make up the bulk of observations. But with coronavirus came stay-at-home orders and sending staff to do the point counts was not possible, so we changed plans on the fly.

ARUs are weather-resistant recording devices that can be programmed to record at pre-set intervals. A skilled biologist later listens to the recording and records the birds they hear -- "kind of like a blindfolded point count," says project leader Jerry Cole. In 2018, IBP conducted a pilot study at Carnegie State Vehicle Recreation Area near Livermore, CA to confirm that ARUs could be an effective bird monitoring tool for these types of parks. The top-of-the-line ARU model worked well, but it was pricey–over $800. We needed to find a less expensive ARU.

The 2020 field season presented an opportunity to do just that. We conducted a pilot study to compare the effectiveness of the pricey ARU to a slightly lower-tech though much more economical device, the Audio Moth, which costs about $50. This study was safe to do in light of COVID-19 restrictions because setting up and programming the ARUs is a one-person job that can be done by local park staff. When recordings were completed, the units were shipped back to IBP, where our staff biologists listened to the recordings. Jerry will soon run a statistical analysis to compare the data collected from each model.

Even though we weren't able to be physically present at the state vehicle recreation area field sites this year, technology made it possible to hear the birds all the same.

Not all of our fieldwork could be done safely during the pandemic. For example, we were unable to conduct bird monitoring surveys in San Juan Island National Historic Park, one of the parks we typically monitor in the Pacific Northwest, as traveling to and from the island field site was too risky. "Traveling to an island via ferry just seemed like a bad idea for everyone: the crew, the residents of the island, and everyone else we would have inevitably come into contact with," says Mandy.

We also decided to put our Black-backed Woodpecker fieldwork on hold due in part to potential risks to local communities in small mountain towns. Our woodpecker crews typically travel throughout the Sierra Nevada for the duration of the summer With everyone advised to stay close to home, this seemed unwise. Also, because these crews cover such a large area, they typically live and drive from site to site together, further increasing risk to our workers.

continued

Townsend's Warbler, a bird frequently recorded during our work in National Parks of the Pacific Northwest.
Image: Becky Matusbara.

Wrentit is one of the species commonly detected during our work on State Vehicle Recreation Areas (SVRAs) in California. Image: Becky Matsubara.

The pandemic may provide unique opportunities for conservation science. Many of the long-term datasets IBP produces will enable us to examine the pandemic's effect on wildlife. As people stayed closer to home to reduce the spread of the coronavirus in the spring, human activity in wildlife habitat went down significantly. Some scientists have begun referring to this as the "anthropause."

This winter, IBP research ecologist Chris Ray will be analyzing a multi-year dataset on bird diversity and abundance, as well as ambient noise from Yosemite National Park, one of the nation's busiest, which was closed for several weeks in March. "It was quite astounding," says Chris, "This is fantastic data."

It will be interesting to see if the anthropause has effects detectable by our other monitoring projects. For instance, the California State Parks vehicle recreation areas, where we monitor birds are typically busy with off-highway vehicle (OHV) riding. But this spring, due to park closures, no OHVs were present during the monitoring period.

In the national parks of the Pacific Northwest, the anthropause was followed by an "anthro-acceleration." After the parks reopened, Mandy reports that people seemed to flood in. "We started seeing extremely high numbers of people, even in deep in remote corners of the parks," says Mandy. "It definitely felt very, very busy, especially during the last two weeks of our season."

Navigating the 2020 field season wasn't easy, but we put two of our well-honed field biology skills to use: attention to safety and the ability solve unexpected problems creatively. Thanks to our fantastic project leaders and excellent seasonable biologists, we were able to meet the majority of our summer research goals despite some unprecedented challenges.

Pacific Northwest Parks Monitoring: 2020 Accomplishments

- Despite all odds, deployed IBP crew in COVID-safe manner for Year 13 of systematic bird monitoring across Mount Rainier, North Cascades, and Olympic National Park.

- Published a scientific paper on Clark's Nutcracker population trends, ecology, and mutualism with whitebark pine.

DONATE

When you support IBP, you support the science that makes conservation work. In these uncertain times, your donations help ensure that IBP researchers can continue to address key conservation questions. Our science directly informs practical solutions to conservation and land management challenges. To make a donation, please click the donation button above.

Sisters Rosa (left) and Emma (right) Cox are field biologists who have worked with IBP for multiple summers as seasonal employees. These talented women are not only skilled at surveying birds by ear, finding Black-backed Woodpeckers, and wrangling bumble bees - they are also a joy to work with.

View From The Field

Emma: "I love working in the field. I have never found anything that compares to a day spent out in the open pine/fir forests of the Sierra Nevada. Even when I don't encounter the birds or bird sign that I am looking for, I'm bound to witness something most people don't get an opportunity to see these days. If I'm lucky, I might have my hat swept off my head by an angry brooding Cooper's Hawk or watch coyotes hunt in the early morning fog. It's never dull.

When the shutdowns hit in March, I had to come to terms with the fact that I might have to find a different kind of work this year. I was disappointed. When I got the call from IBP that they would try to employ as many people as safely possible, I was both relieved and grateful. I have worked with few organizations and people who are as committed to taking care of all of their staff—from crew leaders to volunteers—and I think it reflects the integrity of all the IBP staff."

Rosa: "As a seasonal biologist, I look forward to spring and summer work all winter. It's my chance to be surrounded by the cacophony of singing birds, to watch nestlings fledge awkwardly, to explore new meadows and learn the names of flowers. Best of all, I get to contribute data to important monitoring projects that will inform conservation goals for years to come. Having conducted point counts for IBP for two summers before this, I was eager to return to the Sierra meadows that I'd fallen in love with last year.

When California first shut down due to COVID-19 in March, I was sure that summer fieldwork would be cancelled. So when IBP Meadow Specialist Helen Loffland called to tell me that it might be possible to proceed with our field season, but not to get my hopes up... I immediately got my hopes up. Luckily we were able to have our field season with some modifications.

Despite the challenges of managing a field season with unforeseen obstacles, Helen, IBP Executive Director Rodney Siegel, and the rest of IBP supported us throughout. When fires broke out in the study region in August, their primary concern was for our safety and health. Throughout the season, I was able to work on a variety of projects that would normally be completed by larger crews. While a normal field season might have allowed me to focus on a single objective, getting to try my hand at these other projects was an unexpected perk of the pandemic. I am infinitely grateful for the flexibility and understanding of the project coordinators at IBP during such a challenging year."

Conservation Requires Collaboration

Collaboration isn't always easy–as these Clark's Nutcrackers are demonstrating–but it usually leads to better solutions.

Image: Mandy Holmgren

Science has always been a collaborative process and in our modern, interconnected world it is only becoming more so. Many research questions are best addressed using multiple types of expertise and–particularly in conservation science–many problems occur at large geographical scales that require collaboration across institutions, government agencies and international borders.

IBP has always embraced this approach and in 2020 we have collaborated with scientists from the US Forest Service, the National Park Service, the US Geological Survey's National Climate Change and Wildlife Science Center, Colorado State University, UCLA, the Canadian Wildlife Service, the US Fish and Wildlife Service, and many more institutions (see page 20). The collaborations strengthen our science and magnify its impact.

Our work with the Bird Genoscape Project exemplifies how collaborative science can tackle "big" conservation problems that are large on a geographic scale or that require many types of expertise to address. The Bird Genoscape Project uses genetic sequencing to create comprehensive migratory flyway maps for birds that show which breeding populations of a species winter in which locations. This information can be used to strengthen conservation efforts across geographic and political boundaries, and to understand the potential for bird populations to adapt to climate change.

"The Bird Genoscape Project relies on collaboration because migratory birds travel huge distances that span a local, state and national borders. In addition, creating a genoscape requires expertise in molecular biology, ecology and biological modeling," say Bird Genoscape Project co-founder Kristen Ruegg. "One scientist cannot do it all. The Bird Genoscape Project collaborates with IBP because the MAPS and MoSI programs are ideal platforms to collect genetic samples and connect with on the ground conservation practitioners who can use the resulting information to inform conservation on local scale."

In a paper published this year in the journal *Conservation Biology*, Ruegg, along with IBP Research Ecologist Dr. Jim Saracco and colleagues from the University of California and Tulane University, developed a "genoscape-network" model to help decisionmakers prioritize conservation actions to protect Wilson's Warbler, a Neotropical migrant. The researchers were able to distinguish where warblers from different breeding populations spent the non-breeding season. DNA samples used in the genetic sequencing came from feathers collected by bird banders, many of whom are partners in the MAPS and MoSI programs. The "genoscape-network" model enabled the researchers to evaluate which conservation efforts would be appropriate given different conservation priorities, such as conserving the largest number of Wilson's Warblers possible, or preserving genetic diversity in the species.

Another example of an IBP project that is benefitting from collaboration is our ongoing work with Sierra Nevada pollinators. This year we co-authored a report in the journal *Ecosphere* that will help the US Fish and Wildlife Service determine if the western bumble bee (*Bombus occidentalis*) should be listed under the Endangered Species Act. IBP contributed data to the paper from bumble bee research projects that we have been conducting since 2015.

The western bumble bee is one of many bumble bee species in decline due to a constellation of causes including habitat loss, climate change, introduced species, pesticides and disease. The report reviews the available population data for the western bumble bee, identifies areas where more data is needed as well as priorities for future research, and proposes a sampling design to help collect needed data.

Some of our other pollinator work conducted in partnership with the US Forest Service, resulted in a study published in *Environmental Entomology* earlier this year in which IBP scientists looked at bumble bee flower choices in order to better understand which flowers are the bees' most highly valued food resources. It turns out that one type of flower does not suit all bee tastes – different species of bees favored different species of flowers. Identifying these valued plants can aid land managers working to support bumble bee populations by pinpointing the resources they need to thrive.

IBP will continue to contribute western bumble bee data from our ongoing pollinator research to the team effort to conserve this declining species. We are also working to secure funding to conduct western bumble bee surveys in areas identified in the *Ecosphere* report as having insufficient data. "We have submitted proposals to funding sources to complete surveys in 2021 to fill information gaps in far northeastern California," says Helen Loffland who leads most of our pollinator work. "I plan to conduct a few surveys on my personal time in 2021 in Nevada. It is really a labor of love by all the partners involved."

continued on page 14

Illustration: Lauren Helton

Sierra Nevada Bird Observatory: 2020 Accomplishments

- Conducted Spotted Owl, Flammulated Owl, and Northern Goshawk surveys in advance of intended forest thinning projects across a large swath of the northern Sierra Nevada.
- Surveyed birds and bumble bees at 6 meadow restoration sites as part of multi-year restoration monitoring efforts.
- Conducted automated recording unit monitoring of birds at State Vehicle Recreation Areas across California.
- Provided advice and consultation for 3 meadow restoration efforts at sites in the central and southern Sierra.
- Published 7 scientific papers; an additional 4 papers are in review at various scientific journals.
- Completed an ambitious Willow Flycatcher Conservation Strategy for California.

The MAPS & MoSI Programs

Studying the full annual cycle of birds is essential in developing effective conservation strategies; spending conservation resources wisely means allocating them to the right place at the right time. For example, if a species is declining due to factors operating on the breeding grounds in North America, that's where conservation effort might provide the most benefit to the species. If, on the other hand, the wintering grounds in the tropics appear to be playing a dominant role in driving population declines, that's where conservation efforts would likely have the greatest impact.

The Monitoring Avian Productivity and Survivorship (MAPS) program and the Monitoreo de Sobrevivencia Invernal (MoSI) program are both networks of independent bird banding stations coordinated by IBP. The MAPS program monitors landbirds during the breeding season in North America, while the MoSI program monitors migratory and resident species during the winter in Latin America and the Caribbean. These programs use mark-recapture methods to monitor the demography – including vital rates like productivity and survivorship – of bird populations.

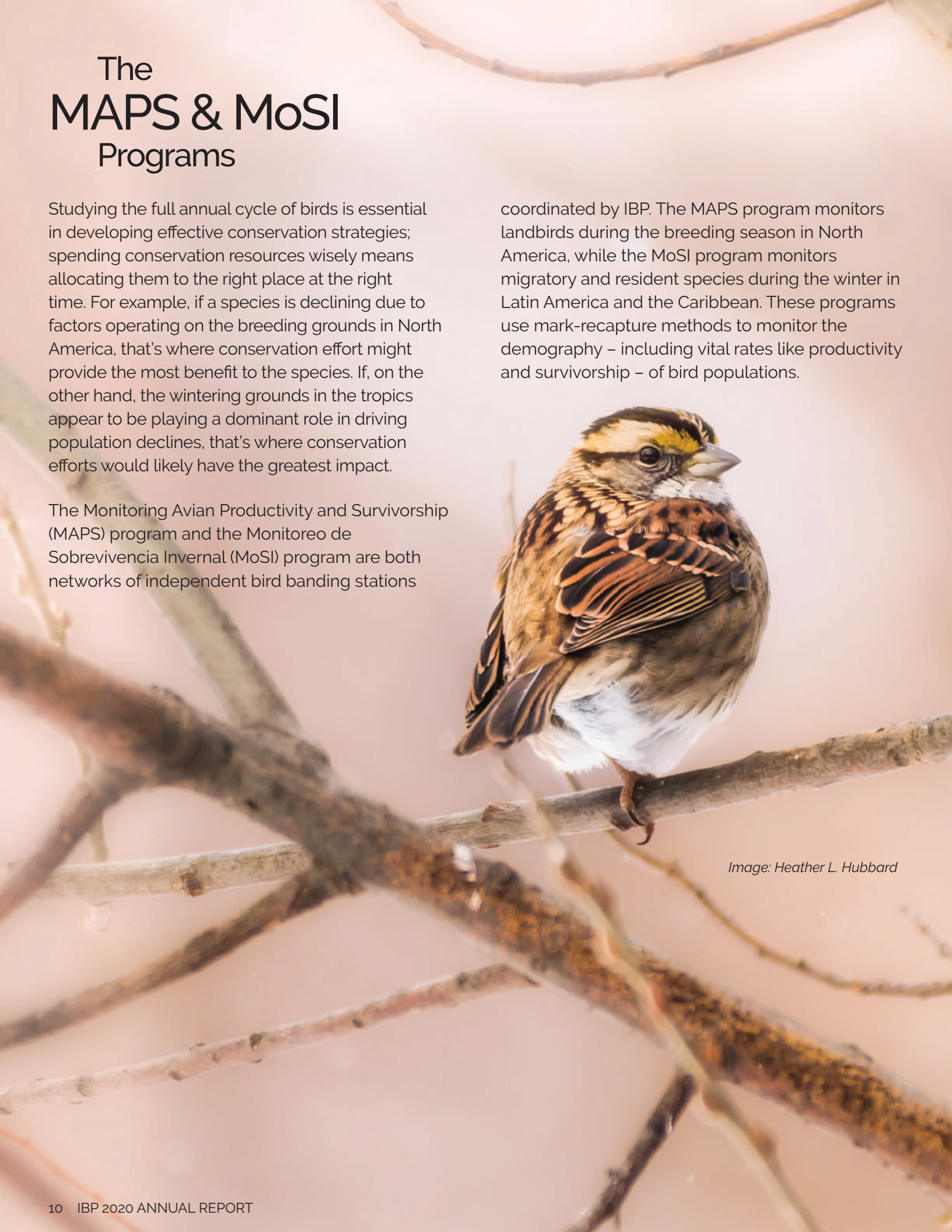


Image: Heather L. Hubbard

How are Wilson's Warblers Responding to Climate Change?

The MAPS program is North America's oldest and geographically most extensive demographic bird monitoring program, but it doesn't examine every aspect of a bird's life history. Combining MAPS data with survey information such as point count data from the North American Breeding Bird Survey (an approach called Integrated Population Modeling), can provide a powerful tool to look at both population change and the demographic factors that may be driving that change.

This year IBP scientist Jim Saracco and colleague Madeleine Rubenstein from the U.S. Geological Survey published a study that examined population trends in three breeding populations of Wilson's Warbler in relation to climate change. Their model showed that spring temperature may be important for determining breeding success for populations in the Pacific Northwest and Sierra Nevada, where springs are cooler but variable year-to-year. This is presumably because warmer springs mean earlier snow-melt and more insects to eat. But the researchers note that there is probably a limit to this effect: if springs become too warm for insects and birds it could depress populations.

The authors also found that drought on the warbler's wintering grounds in northwest Mexico reduced adult survival in breeding populations in the Sierra Nevada and coastal California, where late summer is usually dry, but not in the Pacific Northwest, where it generally is not. Drought at the end of the breeding season leading to fewer insects, combined with drought on the wintering grounds, may be stressing those populations. Unfortunately, most climate models predict more frequent drought in these areas, though targeted conservation efforts could help mitigate this. For example, focusing habitat preservation efforts in drought resilient Wilson's Warbler habitat in Baja and northwest Mexico might be a good way to conserve the species.

Tracking Birds at the Population Level

For migratory birds, conservation through the full annual cycle presents several major challenges. The first is that following migratory birds through their annual migrations is hard! These tiny aviators fly up to thousands of miles across oceans, deserts, and international boundaries. The rapid growth in miniaturized tracking technologies has made it easier to understand the annual movements of many species, and low-cost genetic sequencing has provided new insights into year-round migratory connectivity. IBP is undertaking two studies that use these technologies to track birds across their annual cycle. Both studies are using MAPS stations to assist with trapping efforts.

Ph.D. student Hankyu Kim from Oregon State University is working with IBP in the Sierra Nevada to study the movements of Hermit Warblers using light-level geolocators - tiny devices that, when turned on and attached to a bird on the breeding ground, can estimate their location the rest of the year by tracking local light levels. If the bird is able to be recaptured when it returns to breed the following year, it will be possible to determine

MAPS Program: 2020 Accomplishments

- Helped coordinate COVID-safe operation of about 240 independent stations that were able to operate despite the pandemic.
- Operated 6 stations at Fort AP Hill, VA and provided technical assistance for a cluster of 10 stations in the boreal forest of Alberta, Canada.
- Published 3 scientific papers using MAPS data, covering boreal birds and habitat structure, Wilson's Warblers, and climate change.

Illustration: Lauren Helton

where it went over the fall and winter. In another project in the Sierra Nevada, IBP is studying the annual movements of Black-headed Grosbeaks carrying micro-GPS units. Like the geolocators, GPS units can track a bird through the entire year. Previous work by IBP on this species revealed that the birds breeding in Yosemite National Park are "molt migrants" – flying to northwest Mexico after breeding to molt and to take advantage of the green-up caused by late summer rains in that region, before continuing on to their ultimate winter destination in southern Mexico.

Why Demographics Matter

For bird banders in the MAPS and MoSI programs, it can be one of their most challenging tasks: accurately determining the age of a bird in the hand. Distinctions between very young and mature birds are often fairly straightforward, but figuring out if an adult bird is a second year bird or older can be tricky. Banders rely on subtle clues in the patterns, color, wear, and brightness of feathers, and

Bullock's Oriole
Image: Becky Matsubara

characteristics of the bill, eye, and skull – a suite of characteristics that is unique to each species. The facility to do this is what makes a master bander. But why is it important to accurately determine age? In a study published in the journal *PeerJ,* IBP biologist Peter Pyle and colleagues from IBP and Owl Moon Environmental, demonstrated that the distribution of ages of adult birds in a population can reveal information about habitat quality.

It has long been known that older animals, including birds, often occupy different habitats than younger ones and may have better access to resources such as food, nesting sites, or (in the case of males) mates. This new study, which looked at nearly 30 bird species that breed in the boreal forest of Alberta, Canada is the first analysis to look at how age relates to habitat characteristics across an entire community of landbirds, rather than a single or pair of species. The authors found that yearling birds were more likely to be found in the less desirable habitats.

This may be because older birds are excluding yearlings from the best habitat through territorial aggression and the fact that older birds are more experienced and more likely to be returning to a familiar territory. Or it might be that yearlings' inexperience leads them to select poorer quality habitat – they don't yet know what to look for in good habitat.

In either case, it appears that more older birds are generally found in more preferred habitats. Resource managers can use information like this to determine what constitutes high quality habitat, and adjust their management or restoration planning accordingly.

MoSI Program: 2020 Accomplishments

- Established a cooperative agreement with the Costa Rica Bird Observatories and their 18-station network of stations to share data and other resources, and to develop collaborative research projects.

- Initiated an ambitious program to cultivate and coordinate sponsorship and collaboration between birding clubs, government agencies, and NGOs in the upper Midwest and MoSI stations in Latin America that work with some of the same bird species.

- Co-authored a paper on how incorporating social sciences, such as psychology, economics and political, science can improve Neotropical bird conservation.

- Published a review paper of the habitat ecology of Neotropical-Neoarctic migrants on the non-breeding grounds.

It's Not Just About The Birds

The MAPS and MoSI programs provide critical data that help connect the dots across birds' annual cycles, but these programs also help connect people within communities and across continents. These human-to-human connections are critical to conservation efforts.

Many educators use the MAPS and MoSI programs in their communities to educate and inspire the next generation of conservation scientists and conservation-minded citizens. We recently heard from Dr. Andrew Kinslow, a high school science teacher in Missouri who has operated a MAPS station for over 20 years as part of the summer field ecology course that he teaches. He uses the MAPS program to engage students in actual science research as citizen scientists and apprentice researchers. The students' experience with bird-banding brings science to life and fosters a life-long appreciation for birds.

In the tropics, dozens of MoSI stations offer educational programs. Our partners at the University of Belize Environmental Research Institute use their banding work to instruct students about the ecology of migratory birds, and in Mexico, the operators of MoSI stations at Isla Contoy National Park in Yucatán, and in the states of Sonora, Jalisco, and many others offer educational programs to students of all ages. In Nicaragua, our partners at Paso Pacifico regularly conduct education at local schools.

Abidas Ash, of the University of Belize Environmental Research Institute talks science to high school students at her MoSI station.

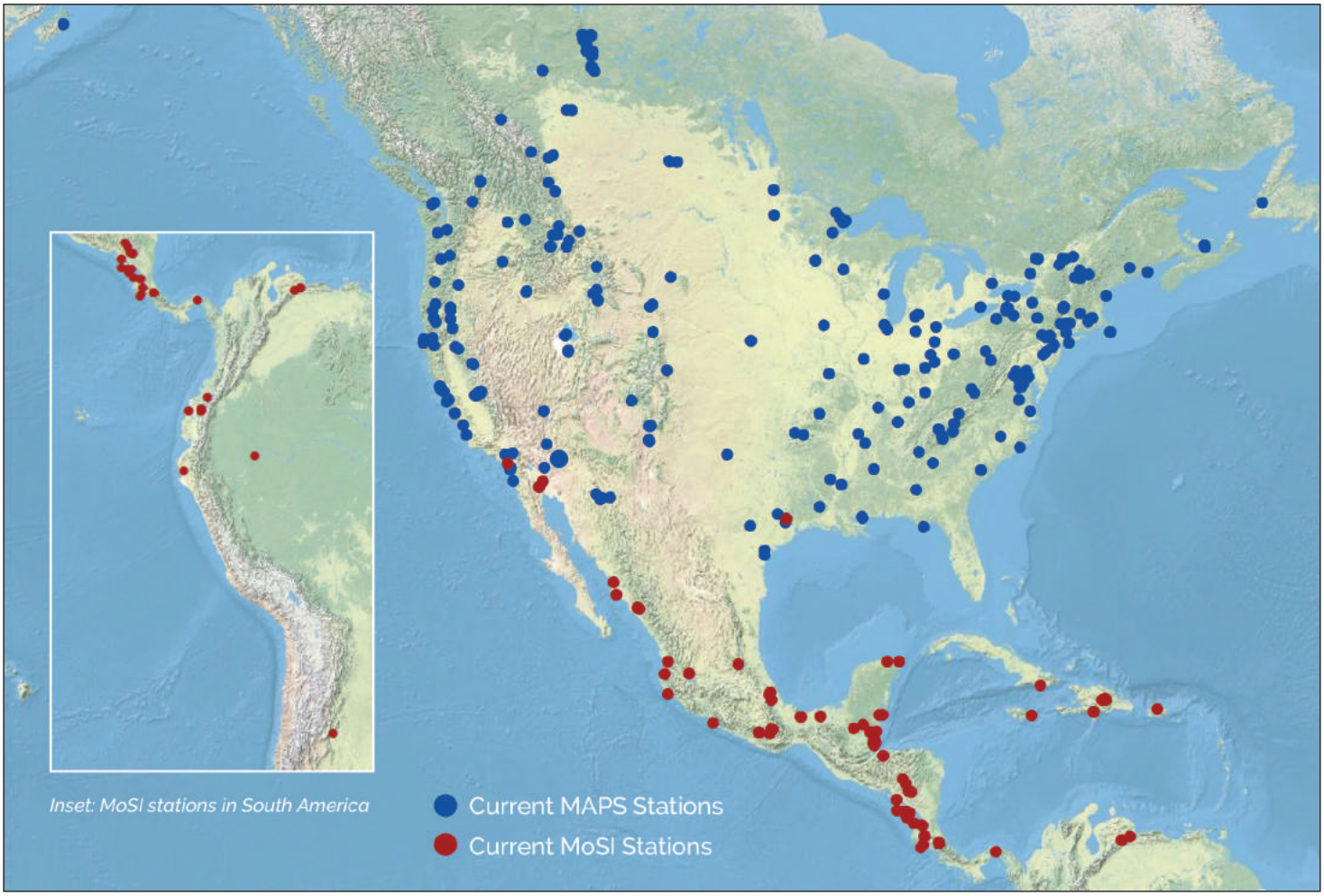
And sometimes, the MAPS and MoSI programs can build bridges between communities at either end of a migration. Starting this year, three local Audubon chapters in Minnesota have initiated partnerships with MoSI banding stations in Belize and Honduras, providing direct support for station operations and fostering a relationship between the humans who live alongside Neotropical migrants on both ends of their annual cycle. IBP was recently awarded a US Fish and Wildlife Service grant to strengthen this people-to-people approach between cooperators in the Upper Midwest and the northern Neotropics.

Our many years of working in Latin America and the Caribbean have taught us the importance of engaging with the human neighbors of the bird populations that we study. Because people make conservation decisions at the individual, group, and institutional level, it makes sense to understand their motivations, decision-making process, and economic priorities.

In 2020, IBP scientists and several colleagues from across the Americas, including Costa Rican MoSI partner Alejandra Martínez-Salinas, published a review of the brief history, priorities, and recent successes from incorporating social science into bird conservation efforts in Latin America. The paper describes how threats such as habitat loss, illegal hunting, and the illegal bird trade could be more effectively addressed by collaborating with social scientists like economists and psychologists.

DONATE

When you support IBP with a legacy donation, you help us expand and sustain the MAPS and MoSI programs. The long-term monitoring data collected by these programs is critical for conserving migratory birds in the face of threats like climate change and habitat loss. Donating stocks, bonds, or remembering IBP in your will helps ensure that we can continue our work for decades to come. Your generosity will have an enduring benefit for bird conservation. To donate now, use the button above. Thank you!



The Birds and the Trees *(continued from page 9)*

In yet another example of how IBP gets things done through collaboration with other institutions, IBP scientists including Research Ecologist Chris Ray recently teamed up with National Park Service plant ecologists in the Sierra Nevada and North Coast/Cascades regions to examine the mutualistic relationship between Clark's Nutcrackers and whitebark pine. Whitebark pine, a keystone species in high-elevation forests of western North America, depends on Clark's Nutcrackers to disperse its wingless seeds. Nutcrackers carry the seeds long distances and cache them in the ground where forgotten seeds can germinate. While the nutcrackers also eat other types of seeds, whitebark pine seeds are an important and preferred food resource for the birds.

But over the last century, whitebark pine populations have sharply declined across their range, due to multiple factors including a fungal pathogen known as blister rust, climate change and fire exclusion. Populations of Clark's Nutcrackers are also declining in certain areas, and there is some evidence that this may be due to loss of the pines.

Above: The MAPS program is over 30 years old and has participating stations in 48 states, 10 Canadian provinces and 1 Mexican state. The data collected at MAPS stations provides an unprecedented capacity to look at effects of long-term ecological processes and stressors, like climate change. The MoSI program has participating stations in 20 countries across Latin America and the Caribbean. Data from MoSI stations provide critical insights into movement patterns and habitat use of migratory and resident tropical birds during the North American winter.

IBP has been collecting bird monitoring data in Pacific Northwest and Sierra Nevada national parks for many years, while the parks' plant ecologists have collected tree monitoring data. Chris examined the two data sets to see if declines in whitebark pine and Clark's Nutcracker were related. She found that the mutualism between whitebarks and nutcrackers is somewhat vulnerable to disruption by outside stressors, like die-offs of pines due to blister rust, but it's not a simple story. The flexible analytical approach developed by Chris and colleagues can be used by land managers to understand trends in Clark's Nutcracker and whitebark pine populations and to plan conservation efforts.

New Edition of the *Identification Guide to North American Birds: Part 1* in the Works

Is your copy of Peter Pyle's *Identification Guide to North American Birds: Part 1* looking a little rough around the edges? Have years of hard work in the field, unexpected rain showers, coffee drips and the ever-frequent smear of bird poop, left the paper wavy and stained?

Good news, Peter and IBP are announcing that a new edition is in the works! A lot has changed since the last edition came out in 1997 so an update is no small task. A publication date is not in focus yet, but at this point a best guess would be sometime in mid-2021.

Prominent changes will include a revision to the Howell et al. (2003) molt terminology including, e.g., "preformative" in lieu of the former "first prebasic" molts. The new Wolfe-Ryder-Pyle (WRP) age classification codes will be incorporated but will not fully replace the familiar Bird Banding Laboratory (BBL) codes.

The introduction and species accounts will be revised to incorporate whatever relevant literature has been published since 1997, as well as a few prior missed publications. Species accounts for nine additional introduced species, including Eurasian Collared Dove, Scaly-breasted Munia, Red-vented Bulbul, and several parrot species, will be added. Once the published version of the guide is completed, we will be exploring the creation of an app version.

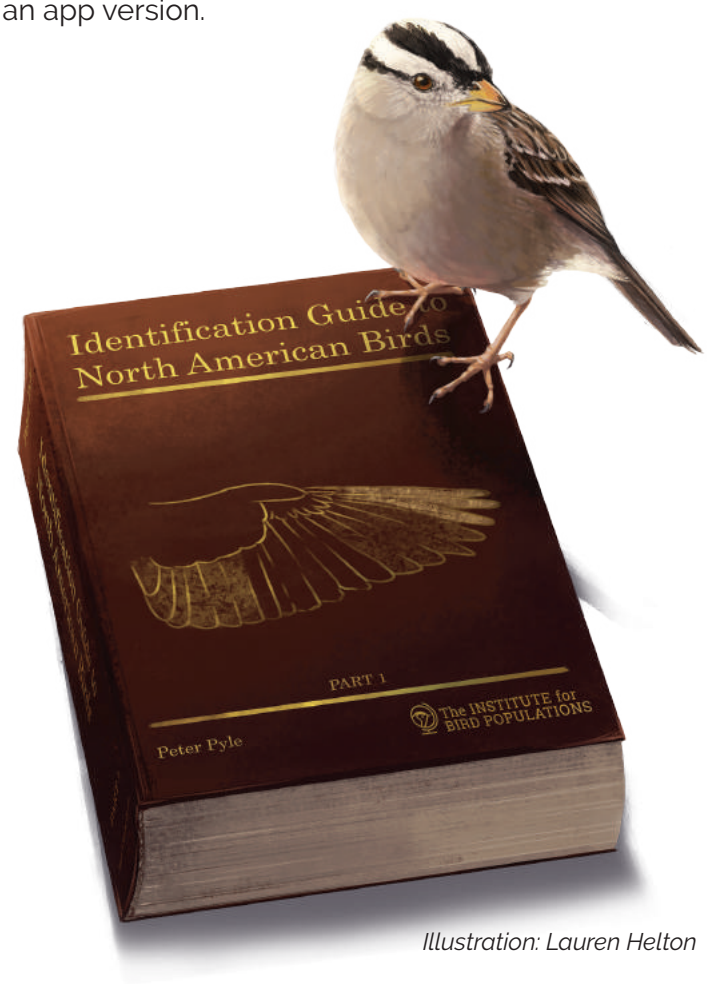


Illustration: Lauren Helton

Eurasian Collared-Dove, one of the species added to the upcoming revised Identification Guide to North American Birds. Image: Carla Kishinami

Molt & Plumage Program: 2020 Accomplishments

- Began work on a second edition of the *Identification Guide to North American Birds Part 1*.
- Published 8 articles on molt and feathers in publications ranging from *Birding* to *Ornithological Research*.

What's Coming in 2021

How do forest birds and insect pollinators respond to forest thinning and prescribed fire?

Land managers across the West are launching ambitious plans for forest thinning and prescribed fire to reduce wildfire risks for forest-adjacent communities and, in some cases, protect mature forests from stand-replacing fire. Rather than producing conditions akin to tree plantations, newer forest treatment approaches such as variable density thinning or group selection seek to restore historical forest structure. But how will wildlife populations and ecosystem function really respond to these methods?

In 2021, IBP will partner with the US Forest Service to produce some answers! In the late 1990s the Forest Service implemented a well replicated study of three experimental forest treatments – including two distinct approaches to forest thinning as well as prescribed fire – intended to accelerate the development of late seral forest characteristics in second growth conifer forest on study plots in the Goosenest Adaptive Management Area of Klamath National Forest in California. In summer 2021, IBP will survey birds, bumble bees, and butterflies across the experiment plots to assess how each group has responded to the treatments over the past 20 years.

We are especially fortunate that pre-treatment bird surveys were conducted on these plots in the late 1990s by IBP Research Associate Dr. Luke George, who is a partner on this effort.

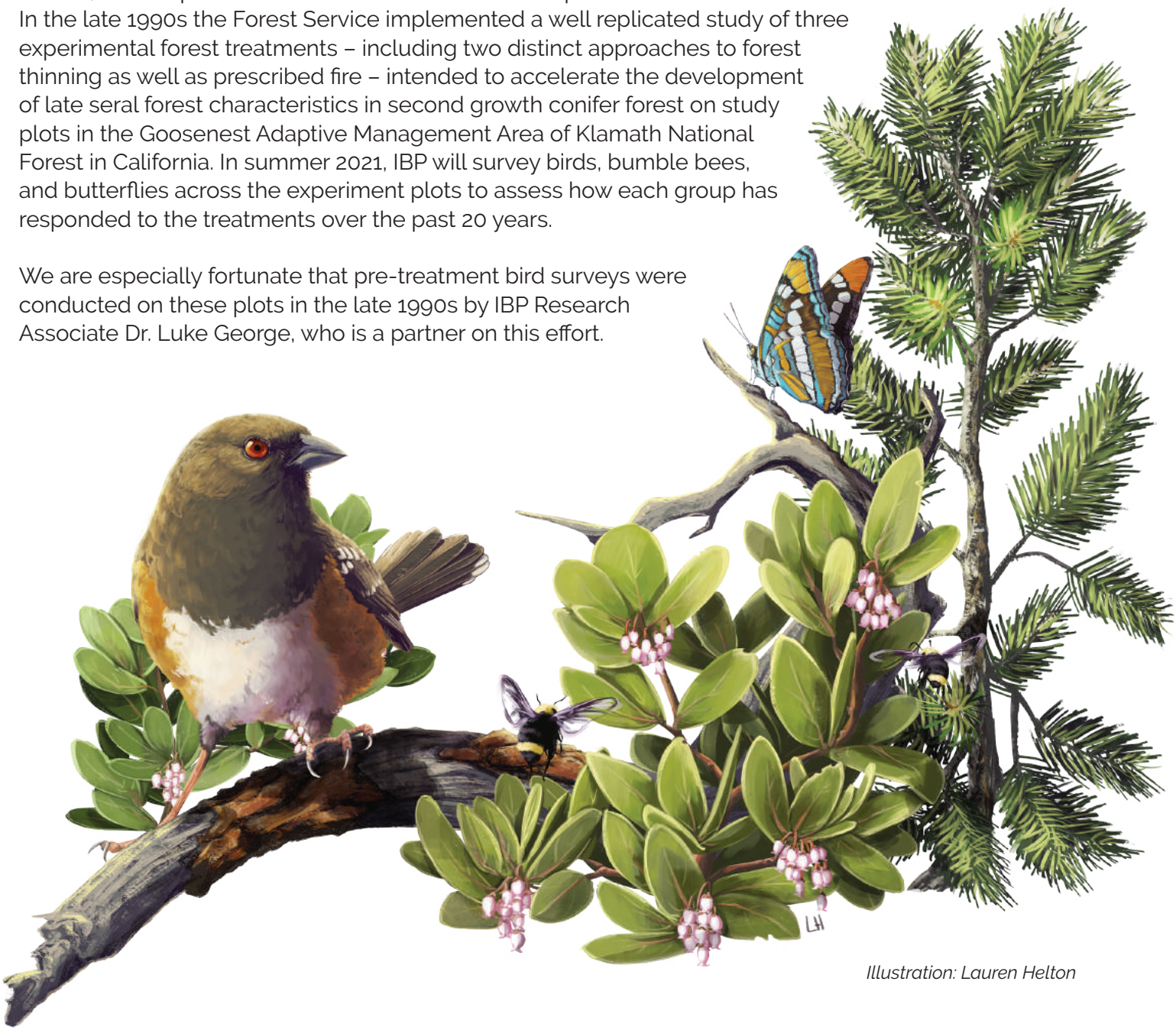


Illustration: Lauren Helton

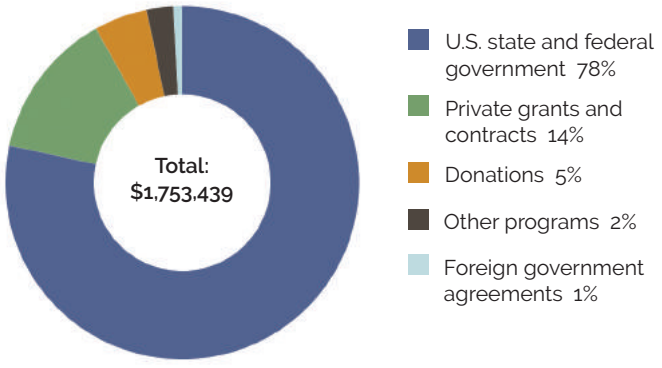
Some Good News

In 2013, the Rim Fire–the largest fire on record in the Sierra Nevada at that time–burned one third of Yosemite National Park's potential habitat for California Spotted Owl, a California Species of Special Concern. But research published this year by IBP and park biologists provides some good news regarding the park's owls. Our study found that Spotted Owl numbers and nesting rates remained stable in areas of the park that were burned by the Rim Fire. It's likely that Yosemite's owl population has benefited from the park's unique history, diverse forest habitats and restored fire regime, and that these factors have allowed them to thrive even after a major disturbance like the Rim Fire.

Image: Paul Bannick/Paul Bannick.com

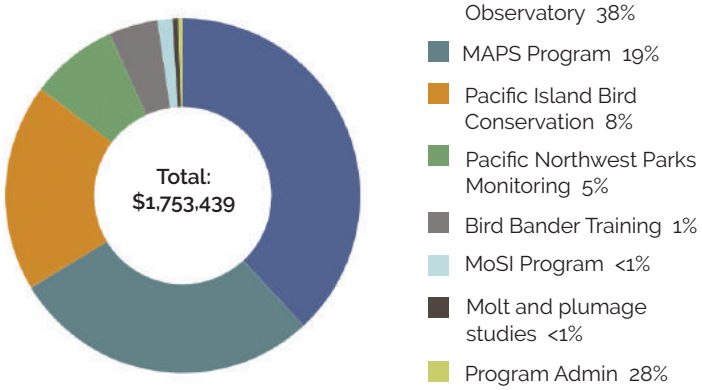
Fiscal Year 2019 Program Revenue & Expenditures

Program revenue and expenditures for 2019 are shown below. IBP's fiscal year runs from January 1 to December 31. Final figures for 2020 were not available at the time this report went to press.



2019 Revenue

Net Assets: $604,799



2019 Expenditures

Peer-reviewed Publications

As part of our effort to disseminate our scientific findings widely, IBP scientists frequently publish results in peer-reviewed scientific journals. In 2019-2020, IBP staff published more than 40 peer-reviewed articles, most of which are available in our searchable database of more than 650 publications at birdpop.org.

Albert, S. In press. El monitoreo de aves migratorias neotropicales-nearcticos en su temporada no-reproductiva: éxitos, desafíos, y nuevas iniciativas en el programa MoSI [Monitoring Neotropical-Nearctic migratory birds in the non-breeding season: successes, challenges, and new initiatives in the MoSI program]. *Ornitología Neotropical.*

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Cedar Waxwing
Image: Kelly Colgan Azar

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Partner Perspective

Dr. Morgan Tingley
Associate Professor at the UCLA Institute of the Environment and Sustainability

"Partnering with The Institute for Bird Populations has been one of the most fulfilling parts of my career in science. I began working with IBP when I was hired as a postdoctoral researcher to work on Black-backed Woodpeckers in burned forests of the Sierra Nevada. I accepted the position because it was an opportunity to learn new skills, broaden the range of topics I studied, and IBP was willing to let me work flexibly. Little did I know that that 1-year position would snowball into nearly a decade of science partnering closely with IBP.

The work on woodpeckers following fire became work on all birds following fire, and as I finished my postdoc, I officially became an IBP partner and started working collaboratively on shared research interests. The more I got to know IBP staff and heard about their research, the more I wanted to continue to work with this amazing group of people. It has been a delight to be able to contribute now to a wide variety of different IBP projects, whether on owls, bumblebees, or MAPS. Many of my students also now work closely with IBP, whether gaining experience as summer interns, or collaborating closely on research like my PhD student Andrew Stillman.

As a scientist, working with IBP is important to my research goals because they form the key linkage between conservation-minded academics like me and on-the-ground conservation managers in state and federal agencies. Saving species and landscapes is a team effort, and partnering with IBP allows my science to have real, tangible impacts on the natural world."

IBP is grateful to our many partners for helping to make our work possible.

Alberta Biodiversity Monitoring Institute, Canada
Amador Calaveras Consensus Group, CA
American Birding Association
American Rivers
Association of Fish and Wildlife Agencies
Audubon Canyon Ranch, CA
Audubon Chapter of Minneapolis, MN
Avinet, Inc.
Avocet Research Associates, CA
Bernice P. Bishop Museum, HI
Birds Caribbean
Burrowing Owl Preservation Society, CA
Calaveras Healthy Impact Product Solutions (CHIPS), CA
California Academy of Sciences
California Cooperative Ecosystem Studies Unit
California Department of Fish and Wildlife
California Dept. of Parks and Recreation, OHMV Recreation Div.
Colección de Ornitología Phelps, Venezuela
Colorado State University
CONABIO, Mexico
Cornell Lab of Ornithology, NY
Costa Rica Bird Observatories
Day's Edge Productions, FL
Devils Postpile National Monument, CA
Div. of Fish and Wildlife, Comm. of the Northern Mariana Islands
Eastern Bird Banding Association
Eco Kaban, Mexico
Environment and Climate Change, Canada
Farallon Marine Sanctuary Association, CA
Fundacion Ara Macao, Venezuela
Gulf of the Farallones National Marine Sanctuary, CA
Horne Family Foundation, ME
Humboldt-Toiyabe National Forest, CA/NV
Inland Bird Banding Association
Kalamazoo Nature Center, MI
Klamath Bird Observatory, OR
Lewis and Clark National Historical Park, OR/WA
Lincoln Land Community College, IL
March Conservation Fund, CA
Michigan Technical University
Mount Rainier National Park, WA
Museum of Vertebrate Zoology at Berkeley, CA
National Audubon Society
National Autonomous University of Mexico
National Ecological Observatory Network Program
National Geographic Society
National Park Service, National Inventory and Monitoring Program
National Park Service, North Coast and Cascades Network, WA and OR
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The Nature Conservancy
North American Bird Conservation Initiative
North Cascades National Park, WA
Occidental Arts and Ecology Center, CA
Olympic National Park, WA
Oregon State University
Oregon Institute of Technology
Osa Birds, Costa Rica
Owl Moon Environmental, Inc., Canada
Partners in Flight
Plumas National Forest, CA
Point Blue Conservation Science, CA
Reserva El Jaguar, Nicaragua
Runaway Creek Nature Reserve, Belize
Saint Paul, MN Audubon Society
San Juan Island National Historical Park, WA
SELVA, Colombia
Sequoia and Kings Canyon National Parks, CA
Sierra Foothills Audubon Society, CA
Sierra Foothills Conservancy, CA
The Sierra Meadows Partnership, CA
Slate Creek Press, CA
Smithsonian Migratory Bird Center, Washington DC
Southern Sierra Research Station, CA
Stanislaus National Forest, CA
Stillwater Sciences, CA
Tierra de Aves, Mexico
Truckee Donner Land Trust, CA
Truckee River Watershed Council, CA
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US Army, Fort Custer, MI
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US Bureau of Land Management, California Office
US Fish and Wildlife Service, Div. of Migratory Birds
US Fish and Wildlife Service, Region 3
USDA Forest Service Northern Research Station
USDA Forest Service Pacific Southwest Research Station
USDA Forest Service Southern Research Station
USDA Forest Service Region 4
USDA Forest Service Region 5
USGS Bird Banding Laboratory
Virginia Tech University
Western Bird Banding Association
Western Field Ornithologists
Wildlife Conservation Society
Wolf Ridge Environmental Learning Center, MN
York University, Canada
Yosemite Conservancy, CA
Yosemite National Park, CA
Zamorano University, Honduras
Zumbro Valley Audubon, MN

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