THE CALIFORNIA ACORN REPORT

Keeping California's Acorns Counted since 1980

Volume 23

The Official Newsletter of the California Acorn Survey Walt Koenig and Jean Knops, co-directors 9 October 2019

Editor: Walt Koenig

TIS THE SEASON FOR ACORN SONGS!

As part of honing my old codgerly instincts, I thought I'd kick off this year's report not only with a song, but by offending Pete Seeger fans as well. Sing out, y'all!

If I had binoculars I'd count acorns in the morning I'd count acorns in the evening All over California

I'd count acorns in the trees I'd count acorns in the fall I'd count acorns that will get eaten by jays All over California

If I had a stopwatch I'd time acorn counting in the morning I'd time acorn counting in the evening All over California

I'd time Bill counting acorns I'd time Jean counting acorns I'd time Mario counting acorns if he ever makes it back All the way to California

If I had an oak I'd count it in the morning I'd count it in the evening As long as it's in California

I'd count it this year I'd count it next year I'd count it every year until I croak As long as it's in California

Well I have binoculars And I have a stopwatch And I have oaks that may or may not have acorns

It's the oaks of Hastings It's the oaks of Sedgwick It's the oaks of San Joaquin Experiment Station And all over California

I can already see Jani Lou (yes, she of the ravishing white hair) rolling her eyes. Speaking of which, perhaps we should move on to this year's family report before things degenerate even further, if that's possible.

ROBOTS: BIG OR SMALL?

I'm often asked what I think about in my spare time, which, as a retiree, is pretty much all day every day. At the top of the list, of course, is: what will the robots that destroy humanity and take over the world look like? Will they be large and scary? or small, insidious, and insanely numerous?

As it happens, we have offspring who are busy at work on this question as we speak, interestingly enough on opposite ends of the spectrum. Dale, who has forsaken the cushy life of an academic topologist for a job with a Tokyo startup by the name of Rapyuta Robotics, is taking the "large and scary" approach by programming large robotic arms to assist in various kinds of tasks rather than eviscerate everyone within their surprisingly extensive reach. Meanwhile, Phoebe is back at Cornell taking the "small and insanely numerous" approach by working with Kirstin Petersen in the School of Electrical and Computer Engineering designing bee-inspired robot collectives. Which will win? Or will they succeed in collaborating with each other, destroying everything both large and small in their paths? We don't know, but are intensely proud of having kids who recognize the inevitable and are hard at work producing the robot armies of the future. Hopefully they (our kids and the robots) will be better stewards of the earth than we were.

Our primary face-to-face contact with our F1s these days—both of whom live many leagues away from Carmel Valley—is when they visit us at Christmas. Here's Phoebe (cheered on by Jani Lou of the RWH) turning to receive her award for expeditious mole-whacking at the Musée Mécanique the day we picked her up in San Francisco last December. She's got talent, that girl!





Along with Phoebe and her boyfriend Benjamin, Dale also came at Christmas with his friend Miya. When he's not programming robots in Japan, he apparently spends most of his time these days literally climbing walls. During his visit this included the rock wall at the south end of Carmel Beach the day we hung out in town.

WARM-UP FOR THE COUNT

As usual, there were a host of fellow acorn enthusiasts to visit and places to see in preparation for the survey in September. Here are a few of the highlights.

Yes, oh yes! It's a selfie with the Fab Five: John, Paul, George, Ringo, and Akiko Satake during



my trip to Liverpool in January where I got to be the Old Fart at a meeting of Mast-Net, a group of mostly British and European mast nuts working on an update of the World Masting Database, earlier versions of which were compiled by myself back in the 1990s and, more recently, Ian Pearse. Of the five, only Akiko turned out to know much about masting, although those other blokes did provide passable background music.

After several days of harrassing the Mast-Net group in Liverpool, I took the liberty of visiting a few old UK subscribers to the Acorn Report, including Tim Birkhead, shown here pretending that the wind isn't about to blow us both off the hilltop the day we hiked around the Peak District. Thanks to Tim and Miriam for putting me up in



Sheffield and let's all give Tim a hearty welcome to the very exclusive Retiree's Club!



Before I move on, I have to give a fond but sad farewell to Tim Halliday, who passed away in April from lymphoma, here with his ever-charming wife Carolyn the evening I was lucky enough to have dinner with them at their home in Oxford during my January UK

excursion. We got to know him back in the 1990s when he did research at Hastings and have enjoyed several highly memorable dinners at their house over the years with the likes of Commoner (now Lord) John Krebs and (still just Commoner) Richard Dawkins.



Jumping ahead to May, we made the journey back to Ithaca, ostensibly for the thesis defense of my last student (Mickey, who did nice work investigating cognition in acorn woodpeckers and is now pursuing his dream of studying elephants as a postdoc) but mainly to visit Phoebe and several of our totally cool Cornell colleagues, including Jim and Anne in our old Cayuga Heights 'hood and Steve and Natalia, shown here during our walk in Cascadilla Gorge on May 31st prior to our annual birthday dinner at Agava. Who's birthday, you ask? I'm not sure; it started out as Steve's and mine, but since we only manage to get together once a year, it's arguably for all of us. Happy birthday, everyone!



June saw us attending the AOS (bird) meetings in Anchorage, a lame excuse for checking off another item on my bucket list, namely taking the Alaska Ferry up the inland passage. Here's Jani Lou not only with her ravishing white hair but also with her beloved fiddle as we boarded the ferry in Bellingham on June 21st. The highlight of the Alaska trip, other than the fabulously relaxing ferry ride, was stopping in Haines to visit Cecily



and Mark, the parents of Janis's first Ph.D. student Caitlin Stern (who we also visited, but not until September when we were in London for a couple of days). Mark and Cecily were gracious hosts and showed us around several of the breath-taking local sights. Here we all are, along with Tristan, a visiting cousin, the day we went out and picnicked on one of the islands in Chilkat Inlet near their house. Pretty spectacular every direction one looked.



I can't move on without a nod to the Haines Hammer We Museum. didn't actually go in, despite the fact that it was clearly one of the highlights of the greater Haines metropolitan area. I will, however, live forever in awe of having had the opportunity to take a selfie in the shadow of what I presume is one of SE Alaska's biggest hammers.

Lest you were living in fear that I'd stick to chronological order, here we back are in March when we got together with Ithaca Chuck friends Barbara and and with old college chums Robert and Tania to share а house in Hanokaa, Hawaii. The many



highlights of the trip included a take-out dinner from Da Poke Shack in Kona, driving up to see the baby silverswords on Mauna Kea, introducing Tania to snorkeling and, as shown here, to hula dancing. She's clearly a natural, expertly mimicking the moves of this lovely, grass-skirted native inside one of the antique stores we checked out in Captain Cook. Last but hardly least was our trip to the UK in September to attend the First International Nickfest—the celebration organized on the occasion of Nick Davies's retirement from the University of Cambridge—where Jani Lou and I spent a memorable mini-sabbatical back in 1988 thanks to Senator William Fulbright. It was during our time in Nick's lab that we met a gaggle of colleagues who would become some of our closest friends, including

(withershins from me, looking even dopier than usual) Martv Leonard. Andv Horn, Jani Lou (not only with her RWH, but giving a Vulcan "live long and prosper" sign), Rosanne



Kennedy, and Jackie Hatchwell, the latter two spouses of whom (Rob Magrath and Ben) were apparently off hobnobbing with more important people. Speaking of spouses, and in any case since Nick, who we love dearly,



got way more attention than he was comfortable with during the Nickfest, on the left in yet another of my bad selfies is Jan, Nick's lovely wife, who I got to sit next to during the celebratorv "Going Cuckoo' dinner in Pembroke College on Sept. 6th. It was all great, and at long last this is my chance to tell Nick to take the rest of the day off!

WHAT'S UP WITH HASTINGS?

Before I get to the so-called point of this newsletter, I wish to give a shout out to the new Director of Hastings, Jen Hunter, who took over late last year.

already Jen has overseen а successful open house. energetically worked to overcome the many bureaucratic roadblocks that impede virtually everything that needs to be done at Hastings, and, in conjunction with her spouse Mike and their two great kids Nick and Miya, resuscitated the somewhat toxic social atmosphere in which the reserve was recently mired. Welcome to the sundrenched upper Carmel Valley, Jen!



Given the moribund status of our sister publication *The California Woodpecker Report,* I also need to acknowledge the efforts of former postdoc Eric Walters and his entire crew doing the hard work continuing the acorn woodpecker project, now entering its second half-century. Eric's work, much of which is done remotely from his home base at Old Dominion University in Norfolk VA, allows me to continue spending the majority of my non-acorncounting hours tending my nails and perfecting my tan. A little more lotion on this side, please....



Here's the 2019 Hastings crew (minus visiting ex-FA and 2005 California Acorn Survey participant Jay McEntee, who was apparently taking the photo) up at The Point at Rancho Searcho-no-Mor'o after the potluck we hosted on July 9th. Clockwise from the back left: FAs Casey, Megan, and Eve, grad student Russell, Janis's ex-FA Kathleen with her (and Jay's) two kids Autumn and River, Jani Lou of the RWH, Eric, moi, Riley, Torrey, Julie Joe, and, both last and least, Beezel, who is still a dog despite years of pushing her to get her act together and shape up.

THE RESTAURANT REVIEW

No, I'm not quite finished with putting off discussing the acorn survey yet. More pressing is answering the question: where did we eat this year and how were the tacos? Spoiler alert! During the survey, we initially lost our way, metaphorically, and ate at a couple of bad restaurants, but quickly came to our senses and subsequently stuck to the tacos we have learned to love. Here's the reviews, starting with one predating the survey:

The Educated Flea, Edinburgh

After attending the Nickfest in Cambridge, Jani Lou and I spent a couple of days in Edinburgh retracing the Scottish roots of the McDickinson and McKoenig clans, both of which were unfortunately

wiped out in the Battle of Culloden in 1746. The Scottish weather in September left something to be desired, and we eschewed trying the Bonnie Burrito food truck ("the best Mexican food with a distinctively Scottish twist") near the University of Edinburgh. Instead, we ate at two very nice restaurants just down the street from our AirB&B. The more intriguing was The Educated Flea at 32b Broughton St., which advertises Punjabi Indian Cuisine but actually serves excellent neo-Californian-fusion dishes including seared scallops with citrus polenta and pink grapefruit, ginger and chive lamb meatballs with miso aubergine puree, and grilled hake fillet with saffron wild rice and basil aioli. Best of all, however, was the juxtaposition of the fleas painted on the front

window with the buildings across the street, apparently searching the roofs for very, very large dogs. **Rating: 4 fleas** (although only 3 made it to the top of the buildings).



Sagebrush Cantina, Calabasas

We had lunch on Day 1 of the survey at In-N-Out Burger in Arroyo Grande after counting at Pozo. Day 2, however, found us in the wasteland of Calabasas, apparently the home of the Kardashians, whoever they were. On the main drag was Sagebrush Cantina, a huge quasi-Mexican restaurant that must have had 100 tables, only one of which was occupied when we arrived at 11:30 am. Perhaps that should have tipped us off? In any case, we persevered, ordering grilled fish tacos (Jean) and BBQ brisket chimichangas (me). Jean's tacos consisted of a flour tortilla with breaded fried pieces of fish inside, while my chimichangas were filled with shredded brisket and were OK, although hardly Mexican. All in all, I recommend staying on 101 a few more miles and eating at the In-N-Out Burger in Woodland Hills. Rating: 1 taco.

The only real redeeming feature of Sagebrush Cantina was the model train as you walk in, a $1/3^{rd}$ scale model

build by the Delaware and Hudson Railroad for the New York World's Fair of 1939-40. All aboard! Take me to a real Mexican restaurant, please?



Riverview Restaurant and Lounge, Three Rivers

OK, so the Sagebrush Cantina could have been worse. And a couple of days later we found out just how much worse when we tried to eat at the Riverview Restaurant and Lounge in Three Rivers, a town where, I'm sorry to say, we've never found a restaurant that didn't suck. I say "tried," because it must have taken an hour for our food to arrive after ordering, and when it finally came (a burger with sweet potato fries for me and ribs for Jean), it was close in inedible. The sweet potato fries were limp, the burger overcooked and served with a pickle and tomato (both of which I specifically asked them to avoid), the ribs tough, the water served in plastic cups, the table right near an outside area where people were smoking (!), and, as a final indignity, they tried to charge us for the ice tea they never brought me. The only redeeming feature was that it was right on the river (one of them, anyway; I don't know where the other two are). If there had been a dipper foraging there, it might have salvaged the evening. As it was, we couldn't, and definitely didn't, get out of there fast enough. Rating: 0 tacos.

Tacos Santa Cruz, Red Bluff

Riverview Restaurant brought us to our senses and we subsequently sought out real taquerias, at which point things improved considerably. Several were very good, including, *Mi Pueblo* in Copperopolis, *Las Chilangas* in Olivehurst (just south of Marysville), and our old favorite *Robertas* in Williams at the turnoff from 15 to Clear Lake, but one of the best was *Tacos Santa Cruz* on Main Street in Red Bluff. *Tacos Santa Cruz* is everything one could hope for in a food truck: friendly people turning out great, cheap tacos, a covered area where you can eat, and extras including grilled onions and jalapeños. Just what we needed to forget the nightmare of Three Rivers. **Rating: 5 tacos.**



Jean planning his attack on the tacos he ordered at Mi Pueblo in Copperopolis on Day 6 of the survey. Jean came all the way from Suzhou, China, where he heads the Chinese National Acorn Counting Institute at Xi'an Jiaotong Liverpool University. With apparently few Mexican restaurants in Jiangsu Province, he was happy to focus on tacos, especially after our failed foray into alternative food genres earlier in the trip.

LET THE COUNT (AT LAST) BEGIN (ACT I)

With our staff of professional acorn counters spread across the globe, conducting this year's acorn survey required even more thought, not to mention a larger carbon footprint, than usual. First up was having Ian come from Fort Collins to spend a day with me counting acorns on valley oaks in the Sacramento Valley, which we did on Aug. 25th when we met in Davis after I drove up from Carmel Valley. The day went well; it wasn't too hot, we were able to drive to a couple of our more isolated trees located in the middle of ag fields, and as usual it was fun seeing what farmers had planted this year. (Not as many sunflowers; a lot of tomatoes; more and more pistachios.) It was, however, at best another fair year for valley oak acorns in the Valley, and we are not vet able to conclude whether isolation does or does not reduce acorn productivity (presumably by imposing greater pollen limition). The good news is: there's always next year. Thanks for coming out, Ian, and see you next August.



Ian during our survey of isolated valley oaks. This particular site was a tomato field a few years ago but has since been taken over by pistachios. Our valley oak is in the rear middle of the photo.

THE COUNT (ACT II)

After counting with Ian, the survey was uncharacteristically delayed in order to attend the Nickfest in Cambridge. We finally returned at 9 pm on Sept. 12th after a 25 hour day getting up at 4 am to fly Edinburgh \rightarrow Heathrow \rightarrow San Jose. Nonetheless, being more or less on UK time, I rose at 4 am the next morning to meet Bill at Jasper Ridge—the traditional warmup for the statewide survey.

Bill was originally planning to stay on for the weekend to help with the Hastings survey, but had somehow hurt his foot (base jumping? heli-skiing? I forget the details) and was barely able to make it around the Jasper Ridge loop, much less consider trudging around Hastings the next several days. Consequently, Bill returned to Mill Valley afterwards to nurse his foot back to health, while I headed down to San Jose Airport to pick up Jean, who had just flown in from Shanghai for the occasion.



Bill dragging his leg up the hill at Jasper Ridge on Sept. 12th. Bill, the official gin and tonic mixer for the California Acorn Survey, has now participated a total of 36 times. including 2012 and 2018 when he filled in for Jean for the entire statewide survey. (Four more times and he earns a pair of coveted CAS cufflinks.) Hopefully he'll take better care of himself in the

future; in any case, counting with him this year made me realize that we should probably have a hand truck available for when one of us needs to be carted around the various survey sites—a prospect that may come sooner than later.

THE COUNT (ACT III)

Having left the University of Nebraska for Suzhou, China, Jean not only came the farthest to take part in the survey, but also had the most interesting stories to relate about living in China and trying to navigate the Chinese academic system. As he points out, there are advantages and disadvantages compared to the US. A simplistic summary is that in the US there are a lot of good people and not nearly enough money, whereas in China there is plenty of money but an intrenched bureaucracy that can make it difficult to use it productively. A couple of other advantages of China is that it's safe (no guns), the cashless economy is great, and thanks to government censorship, one doesn't hear about Trump all day every day. (That last one almost makes it sound worth it to me, I admit.) In any case, with Jean in tow we counted the tanoaks in Santa Cruz and then returned to Carmel Valley, where we spent the next 3 days conducting the Hastings survey.

The Hastings survey dates to 1980, which is, I guess, why it seems like it's been 40 years since we started. In any case, here we are this time around ably assisted by ACWO FAs Clair (left), being





shown what remains of Pat's Cabin, and Lara (right), holding up the calipers used to measure the dendrometers. Many thanks for helping, guys!

As for the acorn crop: it was meh, ranging from poor (black oaks) to medium (blue and canyon live oaks). Overall, the mean number of acorns (per 30 s count) across all trees was 9.73, which puts this year in 29th place in between 1998 (10.00) and 2013 (9.53). The worst year for Hastings so far, by the way, was 1991 (2.22 acorns counted per tree) whereas the best was

1985 (48.97 acorns per tree).

Has there been a long-term trend in overall acorn productivity at Hastings? Not really. As illustrated here, there hasn't been any significant change in the mean number of acorns counted per tree since the survey started. I have to



add that even if there were, it would be hard to know why: after all, both the trees and we are 40 years older now than when we started. (Intriguingly, these differences might be expected to cancel each other out: the larger number of acorns produced by older trees could very well fail to be detected by our degenerating ability to count [or see] them as we get older.) Just some of the problems one faces in long-term studies.

THE COUNT (ACT IV)

With Hastings completed, we were off on year 26 of the statewide survey at 7:15 am on Sept. 17th. Many fun-filled days of (mostly) driving with occasional stops to count acorns ensued, and we finally cruised back to Carmel Valley 2,437 miles and 8 days later on Sept. 25th after counting a grand total of 13,559 acorns. At 5.56 acorns mile⁻¹, that put us a bit behind last year's pace of 6.92 acorns mile⁻¹ and ups our grand-grand total since 1980 to 545,534 acorns. Interestingly, this comes out to 13,638 acorns year⁻¹, which suggests that at least by that measure it was an average year.

One of the more notable aspects of this year's survey was the impact of recent wildfires. This is California, after all, and pretty much the entire state is not only ready but adapted to burn, if it hasn't already. But, with the Carr, Mendocino Complex, and Woolsey fires of 2018, fire seems to have taken an even more prominent role not only in the lives of Californians in general but for the California Acorn Survey in particular. Not only did we have to deal with the aftermath of each of those fires this year, but in addition there had been a fire just 2 weeks earlier in Riverside County that closed Santa Rosa Plateau and kept us from counting the Engelmann oaks there. (I suppose it didn't help that the Volcano Fire [10 acres] was burning on the reserve just as we arrived on Sept. 19th.)

Here's the toll so far:

Palomar Mountain State Park (2007) The Poomacha Fire (49,410 acres) burned the majority of the park including our survey area, where it killed quite a few of our trees.

Switzers (2009) The Station Fire (160,577 acres) didn't burn our survey site but closed the National Forest and kept us from counting for 2 years.

James Reserve (2013) The Mountain Fire (27,531 acres) completely wiped out the coast live oak site we'd set up a few miles down the road from the James Reserve on the way to Banning. We abandoned the site and replaced it with Oak Grove near Warner Springs.

Hastings (2015) The Tassajara Fire (1,086 acres) didn't make it to Hastings but did burn down our house as well as every square inch of *Rancho Searcho-no-Mor'o*.

Malibu Creek State Park (2018) The Woolsey Fire (96,949 acres) burned the park, but didn't significantly damage the valley oaks we survey.

Tower House (2018) The Carr Fire (229,651 acres) killed almost all our black oaks and several of the other trees we survey. We ended up abandoning the black oaks there and setting up a new site near Paynes Creek on the way to Lassen National Park.

Hopland (2018) The Mendocino Complex Fire (459,123 acres), California's largest so far, burned several sites on the station, killing quite a few of our blue and canyon live oaks.

Santa Rosa Plateau (2019) The Tenaja Fire (1,926 acres) doesn't appear to have burned the area where we count, but it closed the park and kept us from gaining access.

A second notable apect of the survey this year was the absence of anyone willing to host us. Not that we blame them; we are something of a pain, and their excuses were plausible: Brad and Louise were in Philadelphia on sabbatical while Kathy Purcell claimed to be attending a family reunion in Utah or some such unlikely place instead of organizing this year's tonic water blind tasting event at her haybale house in Coarsegold. Don't worry; you'll all have another chance to avoid us next year.



They may have failed us this year, but Chez Brad & Louise has been a staple stopping point for the California Acorn Survey virtually

every other year, initially in Davis and, since 2012, in LA. Somehow I generally fail to get a nice photo of them together, so here they are in front of a remnant patch of Venice Beach protected for the nesting least terns we went to see during a visit I made on May 26th.

Jean brought a whole bunch of strange Chinese stuff with him, one of the most intriguing of which was this thing, which looks like a badminton racket but is actually a flyzapper. Apparently those Chinese flies are more sluggish, however, as the face flies turned out to be too fast for it to be very effective.



Several fires, or the threat of fires, have restricted our access to sites over the vears. In a few cases, however, very people nice have helped us count sites



that would otherwise have been impossible for us to get to. In this regard, we particularly thank Jennifer Gibson for making sure we had the permits for Tower House and Vilius Zukauskas, shown here modeling his new US Forest Service vehicle, for shepharding us up to our black oak site on top of Liebre Mountain in Angeles National Forest.



Here's what was left of one of our valley oaks at Tower House that burned in the Carr Fire and was subsequently cut. Fortunately, most valley oaks are sufficiently off on their own that they survive fires pretty well. When they do burn. however. they're usually gonners; sprouting like this one here is rare.

MORE ACORNS, PLEASE?

There isn't much more to say, I'm afraid. All in all, it's an unextraordinary year when it comes to the acorn crop. Three populations failed to produce much, if anything: we counted no acorns whatsoever among the valley oaks at Kaweah Oaks, blue oaks at Sierra Foothills, or black oaks at Hopland. No population broke any record for its acorn crop, although several did well, including the valley oaks at Liebre Mountain and Malibu Creek State Park, the blue oaks at Sedgwick, the canyon live oaks at Palomar Mountain State Park, the black oaks up on Liebre Mountain (after a rare bad year in 2018), the interior live oaks at Dye Creek and Kaweah River, and, as usual, the Oregon oaks in Trinity County and the tanoaks up on Chews Ridge and San Marcos Pass. Otherwise, crops were generally fair to moderate. Is this what we expected given that it was a relatively wet year? Maybe. Sort of. Not really. As I've said many times, someone really needs to study this stuff someday. In any case, if any of you desire more details, feel free to ask.

RANDOM PHOTOS TO FINISH THINGS OFF



In honor of the 40th year of the Hastings Acorn Survey, here's a photo from Ron Mumme (one of the founders of survey) of the vours truly, Nancy Joste, (one of our very first ACWO field assistants), and

Pam Williams, who did her Ph.D. working on the orioles at Hastings, on an expedition to the top of Palo Escrito in March 1980—the first year of the survey and back in the early days of the Mildew Hat. As you can see, even back then I dressed in the latest fashion.

Since we seem to be short on babies in this year's Report, here's twins Elsa and Sophie with their mums Caitlin and Jesse, taken in Haines when they were visiting Caitlin's parents not all that long before we did. We got our chance to teach them all "little bunnies" when we had dinner at their London flat on Sept. 4th.



One of our trips I didn't mention was to Chicago for my niece Stephanie's wedding on July 13th. Besides giving us a chance to note that Chicago (particularly the river) is no longer the hellhole it was when I grew up, the wedding, held in an old warehouse that doubles as an antique store, was great. Here's my niece-in-law Eliza before the wedding imagining what it used to



be like trying to make a call in a phone booth. Hello? Hello? Is this the California Acorn Survey Hotline?



And finally, here's a photo of bro Bill, who was kind enough to take me to a spring training game during our Florida visit in February to see Janis's тит. (Conveniently, Bill and his wife Linda

spend the winter nearby.) Bill, a retired famous actuary, is a world-class beer drinker and the fact that he does not have a bottle in his hand makes this a rare photo indeed.

And that's it for the 2019 *California Acorn Report*. Our editorial office remains:

Hastings Reservation, 38601 E. Carmel Valley Rd., Carmel Valley, CA 93924 (wdk4@cornell.edu)

The California Acorn Survey, founded in 1980, is an international organization dedicated to the understanding of acorn production by oaks in California, and, when the mood takes us, selected other places. Names and years of servitude include

Ron Mumme, Meadville, PA (1980-83) Mark Stanback, Davidson, NC (1989-90, 1992) Elizabeth Ross-Hooge, Glacier Bay National Park, AK (1991) Jay McEntee, Springfield, MO (2005) Xiaoan Zuo & Wenjin Li, Lanzhou, China (2010) Eric Walters, Norfolk, VA (2006-2010) Maria Dolores Carbonero Muñoz, Pozoblanco, Spain (2013) Kyle Funk, Normal, IL (2018) Ian Pearse, Fort Collins, CO (2012-2013, 2015-19) Mario Pesendorfer, Ithaca, NY (2014-2018) Bill Carmen, Mill Valley, CA (1981-88, 90-92, 94-98, 2000-19) Jean Knops, Suzhou, China (1993-2011, 2013-2017, 2019) Walt Koenig, Jamesburg, CA (1980, 1984-2019)

We also wish to thank our dedicated staff:

Janis Dickinson (Chair of Risk Management) Tamara Kaup (Chief Operations Officer, Suzhou Division) Karen Nardi (General Counsel) Dale Koenig (Robot Army Captain) Phoebe Koenig (Beekeeping Specialist)

We are greatly indebted to the National Science Foundation, which is still supporting the California Acorn Survey despite years of congressional inquiries and subpoenas too numerous to count.