

7 January 2012

Dear Friends and Family,

The year 2011 was not an easy one for us, though it started innocuously enough. In December, 2010, after last year's early letter, our friend Petri from Finland joined us for an afternoon during a business trip and we took a lovely hike in the Little Basin area, seeing one of five groves of Santa Cruz Cypress in the world. Just before Christmas, our new pickup truck arrived (a Ford F250), barely in time to have the camper transferred to it for our Christmas trip to the desert. The camper, which weights about a ton, was removed and then remounted by an RV place two hours away, using a pair of forklifts. Despite getting a beefed up truck, we still required after-market suspension enhancement to level everything off, but finally prevailed. The truck is very nice, with the principal improvement over the Chevy being the transmission, which allows much easier control of the vehicle by virtue of multiple shifting modes and coupling to the engine. The latter feature allows automatic engine braking, saving a lot of shifting on downhill stretches.

Our 11-day Christmas trip to southern California started shortly after torrential rains in that part of the state. The first few days were spent looking for western spleenwort, the least uncommon California representative of a fern family we had not yet seen in the state. Our first destination, the San Juan Loop Trail above Lake Elsinore, in the Santa Ana Mtns., could barely be reached because of flood damage. It was a nice hike, but despite 11 species of ferns, no spleenworts were found. The Tenaja Falls Trail father south was flooded waist-deep. The Otay Ecological Area was closed to entry despite website info to the contrary, and our last potential location, Barrett Lake in eastern San Diego Co., proved to require special permission to enter. So after several days, we gave up on the spleenwort and headed to extreme southeast California, near Yuma, AZ, to search again for Koeberlinia, This thorny shrub represents another plant family we have not seen in the state, although we have observed this species in Texas. We checked this area a year before, as it is the only location in California where the species has been positively recorded on public property. But after another day and a half of hiking washes, we were convinced that the species has disappeared, and filed a lengthy report of non-occurrence with the state. There was also a questionable report from vast Chemehuevi Wash, farther north, and we next explored this area. Although we found a roost of ten Long-eared Owls, a treat, no Koeberlinia surfaced, though we saw a similar species that was likely misidentified, generating a false report.

With a string of unsuccessful searches behind us, we headed for Zion National Park, as we were only half a day away and it is a favorite place. It turned out that they had just received 11 inches of rain in one week. The previous record for the whole month of December was 4 inches, and the park had been evacuated for two days, and most trails closed. We camped the first night but then stayed in the lodge to make it easier to drive the roads at night to look for Ringtail. We had seen this striking member of the raccoon family only once before, at Zion, in 1993, though we have seen tracks since a few times. But temperatures plummeted and a new storm arrived, foiling our efforts. I had to sleep in the camper to keep the furnace running so pipes would not freeze. The wet snow that fell brought down large branches all night long, and it felt as if I were under attack. In the morning the road into the canyon was closed. With another bad storm forecast for later in the day, we decided to leave, but just after breakfast, the weather cleared briefly, and we took advantage of this to hike the road for half a day. Zion is usually packed (most of the year

you cannot drive in, but must take a shuttle), so it was quite an experience to have the place completely to ourselves, in a deep, fresh snow – it was dead quiet and simply gorgeous, all cloaked in white. That night found us back in California, east of the New York Mtns., our favorite desert range. We hiked the Piute Gorge the next day, finding more Long-eared Owls. It was interesting crossing the Mojave National Preserve after a rain, though the occupants of a van we pulled out of wet sand may have thought otherwise. On our last night, we camped at a lava tube, and were delighted to find a long-sought species of Mormon Tea.

Early in the year we took some of our traditional winter trips, one to Panoche Valley with friends Rob and Monita, and one to the Los Banos refuges. Highlights of the former trip were Bobcat and many Mountain Bluebirds, and the latter yielded 6 blue-phase Ross' Geese in a flock of 6000, a rather high percentage for this very rare morph. We also took a week off and went to Anza-Borrego Desert State Park, in part to join a Calif. Native Plant Society (CNPS) rare plant survey. As we drove into the park, Eileen spotted a group of Bighorn Sheep, a great thrill as this rare peninsular subspecies has been one of our nemeses for many years. Bighorn Sheep are easy to see in many areas of the Rocky Mtns., but are surprisingly difficult in California. We hiked in Palm Canyon in the rain, which turned to snow overnight and left quite a lovely tableau in the morning. A full day loop hike in the Mountain Palm Springs area led to several beautiful native palm groves and a stand of the scarce Elephant Tree. Other hikes during the week included Little Surprise Canyon, Coyote Canyon, Inspiration Point Wash, Font's Point Wash, the Calcite Mine, and Pictograph/Smuggler's Canyon Trail. At the Mud Caves near dusk, we saw about a hundred White-throated Swifts swirl about and then bed down for the night in a narrow slit in the cliffs. The day before the rare plant survey, we returned to Barrett Lake with permission to hike the 6 miles along the road to look for western spleenwort. After about 7 unsuccessful attempts to see this family in California, our hopes were not too high, but just before the point where we would have to turn around, we came upon a moist grotto that was filled with spleenworts, lush from all the winter rainfall! It was a magnificent occurrence, and we greatly enjoyed seeing this genus again, which we used to encounter frequently in the Northeast. Singing Lawrence's Goldfinches rounded out the day. That night we met up with CNPS members for the 3-day survey, which was a lot of fun despite some frigid weather and being somewhat too early in the season. A number of rare plants were found, and we finished the trip having seen 36 new taxa (species, subspecies, and varieties), including 12 new genera, which was quite a haul. Eileen impressed the group by spotting perfectly camouflaged Bighorn Sheep while we were doing 65 mph on the interstate. Merriam's Kangaroo Rats were common in the campground, and these precious mice were a life species for Eileen. (I had seen them in Joshua Tree in 1982.)

One winter project was to organize our collection of over 1000 plant specimens for donation to a herbarium. We were pleased to find that the State University of New York at Plattsburgh was enlarging their herbarium and was going to be the nexus for a significant effort over the next few years to increase knowledge of the flora of the Adirondack Mountains, where nearly all of our specimens were collected. It was quite a bit of work, but having all the specimen data computerized was a big help. The most challenging item was obtaining an appraisal for tax purposes, which took months. But they all were successfully shipped off and subsequently accessioned into the SUNY Plattsburgh collection, giving us a real sense of accomplishment.

From late March though early June we traveled almost every weekend looking for wildflowers, often joining CNPS field trips. We finally saw the lovely pink Adobe Lily in bloom in March, and spent a weekend with Mike and Sally Parmeter in Napa. In April we did another rare plant survey, in the previously botanically unexplored Soda Mtns. near Baker, which are being considered for wilderness designation. Although few rarities were found, the desert scenery was marvelous. We had an interesting experience in our campsite the morning we were to meet for the survey. Far in the distance, I spotted an enormous desert tortoise cresting a rock formation, grazed by the sun's first rays. We were due to leave in 5 minutes, and debated whether I could hike up to the tortoise and measure it without making us too late. I took off at a bit of a run, and rather sooner than expected, I reached the top of the outcrop. I quickly encountered a small desert tortoise, but searched high and low for the behemoth, even yelling back to Eileen to be sure I was in the right spot. I finally found the distinctively shaped massive slab of rock where we had seen the tortoise, but it was only a couple of feet across, not six or eight feet like we thought ... which meant that the tortoise had only been a foot long ... and I had already found him! It was quite a striking optical illusion that fooled both of us completely.

A somewhat pervasive theme of the field season was vernal pools, which provide some of the most fascinating botanizing in the state. These are depressions that fill with water from winter rains, but then evaporate slowly during the spring. They owe their existence to some type of impermeable layer in the ground that prevents them from simply draining into the soil. Usually this is a dense clay, but rarely it can also be volcanic ash or some other material. As the pools evaporate, concentric rings of different species of wildflowers bloom in the recently exposed soil. Many of the species found are specialized to tolerate the extreme conditions of vernal pools (from underwater to baked dry), and so can be quite rare and local. Locations we visited included Rancho Seco (with a nice nesting colony of Tricolored Blackbirds) , Mather Field, Jepson Prairie (all near Sacramento), Cosumnes River Preserve (not a vernal pool location, but a great place to paddle, where we heard American Bittern) and Vina Plains (farther north, almost to Chico). The latter is a Nature Conservancy preserve, to which we were graciously permitted access though it is not usually open to the public. Our first visit there, in April, mostly served to whet our appetite, as there had been so much rain that the pools had not yet started to dry out, so the most unusual species were not yet in evidence.

Other locations visited during the spring, mostly with different CNPS chapters, included Hunter Valley Mtn. near Mariposa, Sutter Buttes (an isolated volcanic feature rising from the otherwise incredibly flat Central Valley), South Valley east of Mt. Hamilton (where we saw Lewis' Woodpecker and a jewelflower known from only 5 colonies), Jenner Headlands, Mayacamas Preserve in Sonoma Co., The Cedars (where rock from the earth's mantle is exposed), Ring Mtn. in Marin Co., the Feather River area, Hell's Half Acre in Nevada Co. (where a lava cap inhibits drainage, and produces a vernal wet area), and the Irish Hills Preserve in San Luis Obispo, a serpentine area close to the coast with many rare plants. The latter trip marked the 17th CNPS chapter with which we have taken a field trip, of about 26 chapters that regularly schedule such trips. It's a great organization!

June 14 was our 25th wedding anniversary, which we decided to spend in Big Bend National Park in west Texas, a special place for us. It was quite a different experience from our previous four visits, because the region was in a serious drought (the last rain was 9 months before) and

there was a deep freeze in mid-winter (three days running below 0°F). An estimated 25% of the vegetation in the mountains was killed outright by these conditions. There were also wildfires in the Mexican mountains just to the south, which may have displaced some animals. On our first day, we took the 10-mile round-trip hike to Boot Springs in the Chisos Mtns. (about a 2000 foot gain), where none of the oaks had leaves. On two previous hikes along this route we had each time seen about 20 Colima Warblers (which nest nowhere else in the U.S), but this time we had only one. Two Lucifer Hummingbirds, nice males, were only our third and fourth sightings of this species. The second day we visited Rio Grande Village and Dugout Wells, where highlights were an immature Common Black-Hawk (a plumage we had not seen before) and Koeberlinia, just a trifle too far east to count on our California list. A night drive for mammals yielded black bear (we eventually saw at least 6 different individuals in the park), collared peccary, and a big surprise. In Green Gulch, probably half a mile from the rocky outcrops they prefer, we caught the eyeshine of what turned out to be a Ringtail! Like the bears, it may have been searching farther afield than usual because of the drought/freeze/fires. On the third day we headed west to Sam Nail ranch and Cottonwood Spring Campground, finding an active Gray Hawk nest and Tropical Kingbird. On the last day, along Dagger Flat Rd., we had close looks at Spotted Ground Squirrel, a life mammal for Eileen, which I had seen once in 1985 in eastern Colorado. There are now only 6 mammal species in the U.S./Canada that I have seen, but Eileen has not, impressive given the 20-year head start I had. We then spent a few days with Eileen's family in El Paso before heading home. As always, it was great seeing everyone.

June closed with a weekend camping in the highest part of Monterey Co., which we had not visited before. Then in early July we started on our longest trip of the year, 11 days east of the Sierra Nevada. In the Owens Valley we readily found greasewood, a shrub being moved into its own family in the new Jepson Manual, a fact I had somehow missed last year when we were focused on tracking down native families. We then searched in Deep Springs Valley for our last cactus species in California, but had no luck. We then camped in northern Death Valley National Park to climb up Lime Hill, a calcareous knob with several rare plants. Of particular note was a lovely stand of the shrub Fendlerella, a new genus for us. We then drove to the southern Sierras for the main event, a 6-day natural history workshop at Golden Trout camp, an educational tent-cabin facility at 10,200 feet elevation in the Cottonwood Basin. Other than unusually poor weather (thunderstorms all but one day, including extensive hail once), we had a terrific time. It was a great group with excellent instructors. We identified about 140 species of plants, almost 40% of the list for the area, which was compiled over 30 years. The group found 8 new species for the list, a surprising number of additions. In total, Eileen and I saw 44 new taxa. Mammal traps were run for two nights, and we caught a richly colored and charismatic Western Jumping Mouse, a lifer. On the drive home, we spent our last night camped in a fairly remote area near the Owens Gorge, to listen for the elusive Spotted Bat (which have echolocation calls that are barely audible to humans). Though we had no luck in that regard, Eileen discovered a Badger, soaking wet from having just crossed the Owens River, and a Short-eared Owl graced our evening vigil.

The next morning was a shock. I woke up abruptly around 6 a.m. because Eileen was thrashing violently. She seemed to be choking and I could not wake her. My first thought was that it was a delayed effect from our long stay at high elevation. This state seemed to last forever, but I guess it was just a few minutes. Eventually she was breathing more normally again, but I still could not wake her. I tried calling 911 but was apparently right on the edge of cell phone coverage, and did

not get through. To try something different, I speed-dialled Eileen's parents, and this time got a connection, albeit a poor one. I gave Eileen's dad the info, then tried 911 again. This time I got through, so the sheriff's department got the info twice. Soon Eileen woke up, with no recollection of what had happened. At first she did not know where we were, nor remember what we had been doing for the last week. The paramedics arrived and gave her oxygen, but said she seemed fine and had probably had a seizure. To my great relief, her memory did return, and before she was taken to the hospital in Mammoth, she was able to recall the Badger from the evening before. The paramedics and emergency room staff were great, and she was discharged late that morning after a CT scan.

At home Eileen saw a neurologist, and had an EEG and an MRI, These showed characteristics consistent with the potential for additional seizures, so she started on medication. The best guess was that the seizure was triggered by poor sleep the preceding few weeks, which may in turn have been caused by a change in migraine medication. She has not had another seizure since.

About two weeks after the seizure, Eileen's right knee started to tighten up noticeably. The next day she decided to take a walk instead of her usual 4-mile run, and during that walk she suddenly felt something give with a sharp pain, and then could not put any weight on that knee. After an x-ray and MRI, the diagnosis was a badly torn meniscus, and surgery was scheduled. But during the pre-op process, she had an atypical EKG. Our GP still approved her for surgery, but the anesthesiologist wanted further testing. She went to a cardiologist who did a much more reliable neural echocardiogram, which was perfectly normal, thank goodness. (EKGs are quite good at detecting problems, but they have many false positives, as was the case here.) The operation was still put off one week but finally occurred in early October.

While this was happening, I had a routine physical that generated a number of issues: a high blood sugar reading, low pulse rate, and increasing PSA. A more reliable follow-up sugar test was well within the normal range, so that concern was addressed fairly quickly, but the other two required a few months to resolve via a stress echocardiogram and a prostate biopsy – both ultimately normal (as a parting shot, though, the biopsy led to an infection and emergency room trip). But at the time of Eileen's operation, the latter two were hanging over my head and my stress level had been bad since the seizure in July. When I went to bed the night of her operation, I could not get to sleep because the night-time insects were so loud. I got up and shut the window – and nothing changed. I had developed tinnitus, or “ringing in the ears”, though in my case it sounds more like static. Tinnitus is not well understood and there is no effective treatment. I have had it ever since, with no obvious change for the better or worse.

Returning to Eileen's situation, she was in great pain for about five days after the operation, and despite complaints to the surgeon, no better painkillers were ever forthcoming. To complicate matters, she caught a bad cold that lasted over two weeks. But the proverbial straw that broke the camel's back was that the surgery apparently induced a bad case of vertigo, which ultimately lasted 9 days before resolving itself. At its worst, she could not even change the direction of her glance without triggering it. Eileen had held up incredibly well through all the events since July, but this combination of problems was a sore trial.

Eileen had a good physical therapist and was very disciplined about doing her exercises. Although progress seemed slow at first, this was probably not the case, but rather miscalibration due to unrealistic expectations. Recovery times from knee operations are highly variable but a typical period, we now know, might be six months. Eileen's surgeon just said to be sure to take the day after the operation off from work! The physical therapist did not want her walking extensively until 6 weeks after the operation. But from there she built up rapidly, and at the end of December was walking 4 miles per day. She now is happy with her progress and optimistic about continued reduction in the slight pain and swelling that still occur at the 3-month mark.

We managed to slip in a few fun things between mid-July and mid-December. A one-week botanical trip to Cook and Green Pass in the Siskiyou Mtns., just south of the Oregon border, was delayed into August, to see how the seizure medicine was working. We did enjoy the trip greatly when we did finally take it, though we were past the peak of the season, and Eileen could not hike very far on her knee. On the way north, we stopped in Vina Plains again, and the vernal pools were now bone dry, in dramatic contrast to their flooded state in April. We saw three very rare grasses and a rare spurge growing in their cracked, dried mud bottoms – it was really fascinating! Our next stop was at Lake Shasta, where we sought Snow-Wreath, a shrub belonging to the rose family. This species was just discovered in 1992, and the only other known member of its genus is a rare plant found in a small area in Alabama, so it is quite a scientific curiosity. This was our third attempt to find it, and we were finally successful! Once at Cook and Green Pass, we camped for seven days in rather idyllic conditions. The Pacific Crest Trail goes through the pass, so we saw a few hikers each day, and rarely a vehicle. During the week we found 201 native taxa (about 40 of which were new), a great total for an area all within a day hike of one spot. By comparison, we saw only 5 alien species, a remarkably small percentage, indicating how undisturbed the habitat is. One day I did a difficult bushwhack to look for our last native conifer in California – Silver Fir (which we've seen in Oregon and Washington). It took 5 hours to cover 3.5 miles with 1100 feet elevation gain, but the trees were lovely, with some over 7 feet in circumference. Other highlights from the trip were several lovely ferns, Lewisias, Mountain Lady's-Slipper (an orchid found thanks to directions from Carol Ralph), Siskiyou Chipmunk, Snowshoe Hare, Gray Jay, and rather intricately plumaged juvenile Townsend's Solitaires.

Our planned 9-day trip to Death Valley had to be cancelled in entirety because of Eileen's knee, but we did manage a few short trips during the fall. We attended a great CNPS trip for moonwort ferns in Tuolumne Co., finding 4 species, one of which was seen in the state for the first time just one year earlier. Over Labor Day weekend we visited the Sweetwater Mtns., where we have had two abortive visits previously: a CNPS trip where it poured most of the weekend, and a trip on which our Chevy malfunctioned, causing us to turn around and come home (and trade in the truck). This time the trip went well. We got a superb remote campsite at 9800 feet elevation, from which Eileen somehow made the pass at about 11,000 feet, and I reached the summit at 11,700 feet. These mountains are made of a light-colored volcanic rock, rhyolite, which gives them an otherworldly look and feel. We saw Mountain Quail here at the east edge of their range, and Least Chipmunk at the west edge. Some tracks we saw could have been made by the mysterious Pygmy Rabbit, a sagebrush specialist. Another weekend, Shuteye Peak south of Yosemite had lovely scenery.

In late September, we did our first-ever mammal big day, trying to find as many species as possible from midnight to midnight. Birding big days are done all the time, but we've not heard of anyone trying a mammal big day. We have encountered up to 10 species of mammals in a day previously, but these were not planned events. I awoke at midnight and set Havahart live traps in the yard. We got up at 4, checked them, had the expected Brush Mouse, and unexpected Parasitic Mouse, a large species we had never seen before. A drive in the dark produced Mule Deer and Striped Skunk (the latter by scent). We came back to the house for Merriam's Chipmunk, which woke up at 6:56 a.m. We then went tearing off for a whale-watching trip in Monterey Bay, going by way of Ben Lomond Mtn., hoping for Western Gray Squirrel (which we fortunately saw). California Sea Lion, Harbor Seal, and Sea Otter were all guaranteed in Monterey Bay, but the whale watching trip was poor, yielding only Risso's Dolphin, Dall Porpoise, and Harbor Porpoise for 5.5 hours on the water (we got free tickets for another trip as there were no whales, a rare occurrence). We headed inland for Pinnacles National Monument, finding the common California Ground Squirrel along the way. There were several things we could have seen in Pinnacles but did not; what we did find was Western Pipistrelle (a tiny bat), Western Mastiff Bat, and finally a Woodrat, the 16th species of the day. Based on this experience, 20 species seems possible with some luck. But in the mammal department, the high point of the entire year came on Sept. 10, when we walked upstairs first thing in the morning and looked out the window to see, just 30 feet away at the edge of our deck, a magnificent mountain lion!! Eileen and I saw one in the Chiricahua Mtns. of southeast Arizona in 1996, and I had one on Mt. Palomar in 1983, but this was by far our best look ever, and the ultimate mammal to add to our yard list! He looked at us soulfully and then just sauntered off.

With the many weekends we spent at home in the latter half of the year, I tackled the challenging task of making the change to the taxonomy in the new Jepson Manual. This work, which treats all the plants in California and is used almost universally by botanists in the state, was just revised. The printed volume came out a few weeks ago, but an on-line version was available in fairly final form in June. In brief, what I did was: (1) download the nearly 200 web pages containing the information that would be in the book (except illustrations); (2) modify those pages so they would work without access to the internet, adding clickable links to all the families and genera; (3) write a Perl script to parse the pages and abstract all the families, genera, species, subspecies and varieties, their status (native or alien) and their ranges, and place the information in a database to replace my existing one; (4) compare the new database with the old and using a variety of techniques, construct a table mapping old names to new names; and (5) converting all our past records to the updated taxonomy, using that table, and doing research when one species was split into two or more, to try to determine which was applicable. It was a huge effort but all our records and software are now converted over and we are ready to start the new year, fully up to date. With the new taxonomy, our California lists started in 2007 stand at 2650 of 6505 native taxa (41%), 743/993 native genera (75%), and 159/162 (98%) native families. A side benefit of this is that we can now carry around all the text of the book in electronic devices, such as Eileen's smartphone. I will soon see if I can find an efficient way of scanning and organizing the illustrations as well, because a tablet PC is a lot smaller and lighter than the 5½-pound book.

Another winter project was to organize our many Kodachrome slides for scanning, so that we can get them into digital format, before the capability to do so disappears (I suspect that the best scanners and software that will ever be made are on the market now, and they could be

discontinued at any time). Over the course of our film photography, we took something on the order of 100,000 Kodachromes, but we were always ruthless about editing them, and today we have only about 8,000. We are roughly 2/3 of the way through sorting these to reduce the number to our target of 3,000 for scanning.

With it being two years since an international birding trip (Antarctica), and probably two more years to the next one (Thailand), when my company announced closure over Christmas week, we decided to try to schedule something inexpensive on short notice. We ended up spending a week in Amazonian Ecuador at La Selva Jungle Lodge. From Quito, it was a short plane ride east over the Andes to the town of Coca, a 3-hour open boat ride, a 20-minute walk, and a 20-minute paddle to the lodge – a pretty remote location. Although we were on our own (not with a birding tour), we did get a lot of help from the native guides Guillermo and Rodrigo in finding birds and mammals. A notable feature of the lodge is a 140-foot high tower built around a perfect kapok tree, which places you in the canopy, where you can see many birds not usually visible from ground level. A lot of the forest floor birds are dull in color, but up in the canopy there is a dazzling array of colorful birds, most notably tanagers, that are a thrill to see. The tower is made of wood and is rebuilt every four years or so for safety. We spent two mornings and two afternoons in the tower, and would like to have had even more time there. We also hiked extensively, paddled both lakes in the area and their feeders into the Rio Napo (a large tributary of the Amazon), and went swimming with piranhas. We saw just over 200 species of birds on the trip, and 14 species of mammals (including 7 species of monkeys). There were also many beautiful butterflies, exotic insects, and fascinating plants. We even found an anaconda while paddling on our own – the length was hard to judge as it was all coiled up, but it was about 5 inches in diameter. Unfortunately our camera died fairly early in the trip, but we did get some nice pictures before it did. There were too many remarkable birds and mammals to recount in detail, but a few of the rarest birds we saw were Harpy Eagle, Zigzag Heron, and Agami Heron, and among the mammals Pygmy Marmoset and Night Monkey were especially notable.

We arrived home to sad but not unexpected news. My sister Cathy had left a message that my mother passed away peacefully on December 28. She was just shy of 90 years old and had lived a full and rewarding life into her early eighties, when dementia became evident. She still recognized me until a few years ago, and knew Cathy (who lived nearby) to the end. Cathy's children, Sara and DJ, were home for the holidays and so they and Cathy's husband, Doug, were with her in the final days. My mother was a wonderful woman and we will miss her greatly.

We've made no plans for 2012 yet, but will probably try to make a fall desert trip for the interesting annual flowers that appear in autumn (if there are summer rains). Eileen and I hope that you and your families are doing well. We always like to hear from people or have them visit if in the area; our contact info is given below. Happy new year!

Brian and Eileen Keelan
keelan@warpmail.net
580 Burnside Bend
Boulder Creek, CA 95006
831-331-1507 (Brian's cell)
831-331-9590 (Eileen's cell)

Western Spleenwort, Barrett Lake, San Diego Co., CA. This delicate fern was the first member of its family we have seen in California, though we have seen eight species in this genus in eastern North America.



Hoatzin, La Selva Jungle Lodge, east of Coca, Ecuador. This is the quintessential Amazonian bird, which is the only member of its family and so is not closely related to any other bird. The young have vestigial claws at the wrist of the wing to help them clamber about on foliage over water with less risk of falling in.



Zion Canyon, National Park, Utah, in a brief interlude between major winter storms.



Sweetwater Mountains, Mono Co, CA. The pale volcanic rock is rhyolite.

