

4/2/14

Sometimes subtleties can be found in a letter or a word. If you look at the early years archived in Alan's spreadsheet outlining the results of walks going back to 1986, you can tell that he didn't start the walk filtered by an over-weening ambition. Each new walker was given a letter designation. Alan, as you might expect, is "A". Eric Christian, who was with us today, was and is walker #16. As one of the first couple dozen walkers, is also agent "R", "E" having already been taken by Ernie Franzgrote. As you might expect, success ran Alan's initial designation game into the ground and, rather than doubling down with letters, Alan just chose to designate people by ordinal numbers in order of appearance. Kent, who owns the second highest walk total, is walker #47 because he was too late to get a letter. Darren Dowell (somehow, fittingly, walker #100) was also with us. He gave an impromptu lecture on hawk vocalizations in REOMY.

It was a good walk by the avian numbers. We captured 27 species, two shy of the record for week 14 (a distressing lack of a mourning doves comes to mind as hurting our hunt for a new record) but we did see our first Pacific-slope flycatcher and our first black-chinned hummingbird of the year. The killdeer, although a very popular capture, was not a first timer. As I noted above, we didn't match up to the record of 29 species set in 2006 but we were second best all-time, tied with 2010. We dragged the median up to 19 and doubled up on the record low of 14.

See the plots at [http://birdwalks.caltech.edu/bird\\_data/species\\_time.html](http://birdwalks.caltech.edu/bird_data/species_time.html) and [http://birdwalks.caltech.edu/bird\\_data/two\\_plots.htm](http://birdwalks.caltech.edu/bird_data/two_plots.htm)



I didn't get a photo of the black-chinned hummingbird, which was the first of the season. He was in the shady arbor of an oak near the restroom at Tournament Park and probably looking to the hummingbird lady for sustenance. So, I instead give you the photo of a female Alan's hummingbird (or "Selasphorus, species" in the parlance of our fearless leader) taken in Avery garden. These hummingbirds are very active and feisty at the moment as they try to take advantage of the blooms and keep other hummingbirds from getting anything. It's not working but, as the blooms fade over the next two or three weeks, so will the

population. Only if we are lucky will a female or two stick around and nest in the gardens. In case you were wondering, that's a tongue extruding from our hummer's beak.

The nineteenth century was the golden age of naturalism. Every well-bred Victorian had a curio cabinet and anybody with a magnifying glass and an attention to detail could find something new to science in his or her back yard. It was also a time of wildly popular treatises on nature. Hummingbird tongues can extend an inch or two beyond the beak tip, which is flared to allow easy passage. W.C.L. Martin in his General History of Hummingbirds wrote a very nice treatment on hummingbirds in 1833. He knew, for example, that the hummingbirds tongue is bifurcated and, near the end, it is lined with fibrils or

lamellae. This presumably had something to do with how the bird fed. In his treatment, Martin also took a stab at explaining how a hummingbird can empty a quill full of sugar water in practically no time: “perhaps by capillary attraction, perhaps by a sort of pumping, certainly not by licking”. He proceeded to spend the next paragraph extolling the virtues of pumping and sucking, but not licking nor, in a direct sense, capillary action, but it was those four little words on capillarity that stuck. Capillary action was how the hummingbird drew nectar and the models supporting this idea became progressively more sophisticated over the ensuing century and a half, generally crediting Martin in the process. The problem is that nobody bothered to ask a hummingbird. However, we happen to have a very comely young lady, here, so let’s ask her:

“Since you use capillary action to minimize the energy needed to drink nectar, you should like sugar water with about 20 or 25% sugar best. It gets too viscous above that concentration and the energy density is too low below that”. “Oh no,” she says. I don’t know what capillary action is but I do know that the best tasting nectar has twice as much sugar”. Well, that’s disconcerting. Surely, the math can’t be wrong. Well, let’s try this. “If your tongue is essentially a capillary tube, you should like downward facing blossoms the best because you get that little gravity boost for free. Do you have a preference for downward hanging blossoms?” “No sir. Nectar is nectar. I care about how long the blossom is but blossom can point any way it wants to.” Perhaps, we have a failure in communication. After all, we have these big infallible brains and our lady doesn’t. Maybe, the capillary lift rate is so fast that a gravity boost is irrelevant. There is, however, another possibility, however remote. Perhaps, there is a problem with premise. Take a look at this little movie, which is in the Electronic supplement to a paper by Rico-Guevara and Rubega (2011) from the Proceedings of the National Academy of Sciences (readily accessed via Google with keywords Rico-Guevara, Rubega, and hummingbird).

<http://www.pnas.org/content/suppl/2011/04/28/1016944108.DCSupplemental/SM01.mov>

If all you want to do is use your tongue as a capillary tube, why do you need to spray your bifurcated tongue around? These authors suggest that hummingbirds use a capture and seal technique rather than capillary action. Naturally, there is no reason that multiple processes aren’t operative but the important thing from my perspective is that you need to poke at your sacred cows every now and then, even if they fly.

With our capture of the first black-chinned hummingbird of the season and the Pacific-slope flycatcher, we now have a total of 52 individual species for the year. That seems fairly promising for a highly urbanized non-coastal setting in southern California at the beginning of April but, if we are to again threaten seventy species for the year, we had better start stepping up our encounter rate for oddities and, to patinate the inspiration with the in your dreams barely possible, I end with a photo my brother took on Isla Isabella in the Gulf of Mexico on the same day as the walk. Turkey vulture? No, that's not a turkey vulture, although you are on the right track. Look more carefully at the white-dark patterning on the wings (the lighter feathers are restricted to the distal portion of the wing, not flowing all the way across) and the color of the head (black not pink), beak (black not white) and legs (gray not pink). This bird is not currently on the Caltech bird list but we could, in theory, see one. It would be a very serious vagrant were we to do so (as in big time rare bird alert territory for California). Likely? Not even close, but you never know and that's the point. You have to be open to the vibrating peacock's tail of probability. So swallow the token's dream and look to the sky.

The date: 4/2/2014

The week number: 14

The walk number: 1241

The weather: 57 F, partly cloudy

The walkers: Alan Cummings, Viveca Sapin-Areeda, Yoshi Tuttle, Eric Christian, Darren Dowell, Vicky Brennan, John Beckett, Kent Potter

The birds (27):

- 2 Northern Mockingbird
- 3 House Sparrow
- 10 House Finch
- 3 Anna's Hummingbird
- 2 Acorn Woodpecker
- 3 American Crow
- 6 European Starling
- 5 Lesser Goldfinch
- 8 Yellow-rumped Warbler
- 2 Black Phoebe
- 6 Bushtit
- 1 Snowy Egret
- 1 Dark-eyed Junco
- 3 California Towhee
- 2 Western Bluebird
- 1 Turkey Vulture
- 1 Red-whiskered Bulbul
- 3 Band-tailed Pigeon
- 2 White-throated Swift
- 1 Killdeer
- 2 Orange-crowned Warbler
- 1 Common Raven
- 1 Black-chinned Hummingbird
- 1 Pacific-slope Flycatcher
- 1 Hummingbird, Selasphorus
- 1 Bewick's Wren
- 1 Red-tailed Hawk

--- John Beckett

Respectfully submitted,  
Alan Cummings,  
8/15/14

See below.



2014/04/02