Notes based on Joe Morlan's Ornithology class lecture November 18th, 2009 and review-lecture on December 2nd, 2009.
Joe Morlan is not responsible for these notes, any errors or omissions in them are mine.

Mountain Bluebirds are much more migratory than any of the other species of bluebirds. Patterson Pass Road (runs out of Livermore into the Central Valley) is a traditional spot for them. They winter in foothill regions like that. They tend to stay in flocks, so sometimes you will not see them when they are all somewhere on private property. Also look for Rock Wrens and raptors there. Panoche Valley is another place where you can encounter Mountain Bluebirds. They are also on the floor of the Central Valley near the Sutter Buttes and along South Pass Road. They are more common in southern CA in the deserts. In some years they are all over places like the Imperial Valley. They can occasionally show up near the immediate coast, Joe has seen them at Pt Reyes and a few other coastal localities.

A **nice loop to bird** is Patterson Pass Road, then back on 580 and head east a little bit further and then go north up towards eastern Contra Costa County you come to a biker-bar called Mountain House with picnic tables and tall trees outside, mostly Russian Olive, with owls in them. It is a pretty interesting birdwatching spot. Then you can go up eastern Contra Costa County to Byron Hot Springs and Clifton Court Forebay. Lots of raptors and good birding out there.

Courtship is taking place already in **Great Horned Owls**. Nesting will start next month. They will have young in the nest by February or March. Usually the females are larger than the males. If you see them together you may notice that size difference.

There was a mostly white bird in Sunol with some black in the wing tips and tail, probably a **partial albino Junco**. Some thought it might be a **McKay's Bunting**. But McKay's Bunting should show some rusty coloration in the wintertime. Also there was a Junco nearby and the size and shape of the partial albino was about the same. McKay's Bunting should probably best be treated as a subspecies of Snow Bunting. It has a severely limited breeding range, the almost inaccessible Hall and St. Matthew Islands in the Bering Sea. It is unlikely to get to CA. If there was one it would be unlikely to be foraging with juncos in an area with lots of vegetation. It is a bird of the tundra and would have a behavior and a habitat much more like a Snow Bunting. It would be out in the dunes where the grass is sparse or possibly in an overgrazed pasture or a ploughed field where there are large numbers of Horned Larks, which it very likely would be associating with.

The latest issue of **Birding Magazine** has an article by Joe about the term **eclipse** and a letter to the editor by Joe about the term **juvenal**. Joe has PDFs on the Publications section of his website. Currently an older version slightly different from what was printed, Joe did not write the introducing paragraph "Female ducks? No problem...". It got changed prior to printing.

Added after December 2nd lecture:
Of the sapsuckers, the **Yellow-bellied Sapsucker** is the most easterly. But it is also a long-distance migrant and vagrants show up even to CA. There is an adult female in Menlo Park right now. It is readily identified by its all white throat. The back pattern is another thing to look for. It is more extensively spangled with much more pale and more extensive spotting than on the other sapsuckers.

Localities for hummingbirds mentioned in tonight's class:

Wyman Canyon (north of Deep Springs College):
Broad-tailed Hummingbird can be found there in the spring.
From the town of Big Pine, Inyo County, you go on the only road that goes east out of town. It goes to Westgard Pass. There will be a sign "This way to the ancient Bristlecone Pines". This is at high elevations, it is cold there even in the middle of summer. You keep going and come down into Deep Springs Valley. Deep Springs College is there. They are farming there. There are fields with alfalfa. It used to be a fantastic birdwatching spot, but it is no longer, all the trees got cut down. The actual spring is adjacent to the college. It has the endemic Deep Springs Black Toad in it. The college is financed entirely by endowment. There is no tuition. All the students are expected to work and they only accept men. The enrollment is low. You have to get approval of the students' government to birdwatch on the property. Wyman Canyon is to the north of it, it runs from Schulman Grove down to Deep Springs College. It can be accessed across from Deep Springs College off Westgard Pass Road. You need a four wheel drive or high clearance vehicle. Another special bird that breeds there is the Virginia's Warbler.
Before you get to Deep Springs Valley from Big Pine there is a spring that comes out of the side of the road. There is a pipe there and running water that goes into a horse trough. That place is called Batchelder springs. Joe used to camp there. The water is perfectly potable contrary to what the sign says.
Chukars are introduced and quite common in those mountains in more barren areas. They need water. They come to one of the springs early in the morning or late in the afternoon.

Tom's Place:
On the east side of the Sierra Nevada, on Hwy 395.
It is a little town with one gas station and one general store off the road. You walk up behind the store, there is a stream that you walk along. There is a small group of trailers on the other side of that creek. One of them has a sign that says "Mallon's". There are hummingbird feeders in the back yard. They put green dye in those feeders.
Joe saw several Broad-tailed Hummingbirds there several years ago. Jon Dunn now lives not far from there and has during many visits never seen a Broad-tailed Hummingbird. Tom's Place is right at the periphery of the species' range, so they may no longer be there.
It is also a great place for Calliope Hummingbirds. Also a lot of Rufous and a few Anna's.

Kiln Canyon is off Corral Hollow Road, where Carnegie Off-Road Vehicle Park is. On weekdays you can usually hike up that canyon and find quite a few Calliope if you hit the migration right. Also resident Anna's and migrating Rufous.

The place in **Tilden Park** where Joe used to see Calliope Hummingbirds in earlier years:
Just south of the nature area there is an open meadow and a parking area. If you go down Canyon Road and you make a right instead of going left to the Nature Center, go past and around the kid's horses and park. There is this big meadow and a creek that runs south. Joe remembers seeing them up on the hillside to the east of that. Also around the edges of the open fields past Jewel Lake, past the Nature Center.

Calliope Hummingbird

In the genus *Stellula,* but the female looks quite a bit like the *Selasphorus* females.
The smallest bird in NA, one of the smallest in the world.

OCCURRENCE

Breeds in the mountains of CA. Breeds in the Sierra Nevada, breeds relatively early.
Same breeding strategy as other hummingbirds: The males arrive first on the breeding grounds. The females arrive later, set up a territory and build a nest, mate with whatever males they can find, then the males leave for Mexico. Most birdwatchers go to the mountains in June or July. Finding Calliope Hummingbirds is not easy then in places like Yosemite Valley. There may be a few females because they stay longer. But the place is overrun at that season by Rufous Hummingbirds on their southward migration, taking advantage of the flowers that are blooming in the meadows of the higher mountains, particularly the Sierra. Those birds are not breeding there. It is hard to pick out the female Calliopes.
A rare, uncommon migrant through the Bay Area, primarily in April. In a few locations they can become relatively common, mainly in places where there is Black Sage in abundance. That plant grows in the interior foothills, away from the immediate coast. It can be found at the lower elevations at Mt. Diablo and at Kiln Canyon.
Joe used to see them more regularly in Tilden Regional Park in mid to late April. If you went to certain places really early in the morning the Calliopes would be territorial, sitting on perches and defending clumps of flowers. They wander around a bit, are hard to find during the middle of the day. In recent times they don't seem to be regularly in Tilden Park anymore.
The males seem to migrate back through the interior, there are no fall records for adult male Calliope Hummingbirds for coastal CA, at least not in our area. There are a few August records of female plumaged Calliope Hummingbirds, but they are extremely difficult to identify.
You can find it at Tom's Place.
Also at a place called Bassett's Resort, a motel and restaurant near Sierra City, sort of the gateway to Sierra Valley, they have feeders and people report to see Calliope there in the summer.
They seem to like to be on the edges of open areas.

FIELD MARKS

White in front of the eye extending up over the top of the bill.
Tends to have a very short tail.
Wing tips reach beyond the tail tip when perched.
The territorial display is a U-shaped dive, rather slow and equal at both ends.

Adult Male

Purple-rose colored throat that is divided up into streaks. Color similar to Costa's, but all broken up into separate tracks of feathers that can stick out on either side. Gives it a strange look, almost like a porcupine.
Crown green. (Violet in Costa's.)

Female

Entire underparts including the chest area suffused with a light buff coloration.
No white collar.

Selasphorus

A very widespread genus of hummingbirds. It includes two species that we often see in the Bay Area, the Rufous Hummingbird and the Allen's Hummingbird.
They make a kind of humming or shrill zinging sound with their outer primaries as they move through the air. Especially the sound of the Broad-tailed Hummingbird is very distinctive.
All have relatively long tails, when perched the tail extends well beyond the wing tips.
Only *Selasphorus* hummingbirds have red in the tail.

Broad-tailed Hummingbird

OCCURRENCE

Great Basin and Rocky Mountain species that has a toehold in eastern CA.
It breeds in the White Mountains near the Nevada border. They can be found readily in the springtime in the canyon that runs from Schulman Grove down to Deep Springs College.
It is probably easier to get to at Tom's Place.
Also occurs in the mountains of Arizona in the summer, but not particularly common.
Migrates mostly into Mexico.
Rare vagrant to the gulf states.

FIELD MARKS

Long, broad tail, extends well beyond the wingtips when perched.
Very little rufous in the tail, more confined to just the bases of the tail feathers.

Adult Male

Does not look very much like a *Selasphorus*, some resemblance to other hummingbirds, most closely to Ruby-throated.
Iridescent throat more whine colored or magenta, not as brightly red as Ruby-throated.
Green crown.
Outermost primaries very narrow, pin-shaped.

Female

Similar to Rufous or Allen's Hummingbird females.
Much less rusty in the really huge tail.
Distribution of cinnamon on the underparts a little bit different from Rufous and Allen's.
Underparts more suffused with buff, often extending across the chest.
(The Calliope female also has a green back and has a similar pattern on the underparts. Calliope has a shorter bill and a much shorter tail, its wing tips extend beyond the tail when perched.)
No clean white collar.

SOUNDS

In males the peculiar shape of the outermost primaries produces a metallic whirring or shrilling sound that sounds a little bit like a sewing machine or like a Cedar Waxwing, but lower and much sharper pitched whenever they fly.
They molt their outer primaries in the winter during which time their flight is silent.
Females don't have the attenuated outer primaries, they do not make the metallic trill.

Rufous and Allen's Hummingbirds

Two species from the far west which have a lot of red in the tail.
There are other species that look very similar in the tropics, such as the Volcano Hummingbird or the Scintillant Hummingbird in Costa Rica and Panama. If they showed up in CA they would be overlooked.

Allen's Hummingbird is not reliable identifiable in the field, other like using tricks like where it is on a nest.
The males have a green back, that does not prove that it is an Allen's Hummingbird, many Rufous Hummingbirds have red on their backs.
The females of both species are not identifiable unless you got some tail feathers, accurate only maybe.
A proportion of the Rufous Hummingbird males (the ones with the green backs) also not identifiable.

Mike Patterson published a study on back coloring of Rufous Hummingbirds in Oregon, it is here: http://www.pacifier.com/~mpatters/bird/humm/HUMMREPORT.html
He found that most Rufous Hummingbirds show some amount of green on the back. He divided the back into quadrants and assayed the amount of green in each sector. The sectors were then averaged. Of the 37 males captured 16% showed no green. 53% showed 1-25% green on the back. 28% showed 26-50% green, one bird had near 70% green on the back.
Ralph Browning of the National Museum of Natural History checked his collection and found that they have more green-backed birds from the Pacific Northwest and Alaska then from elsewhere in the breeding range.
If you see one with less than 25% green on the back it is probably safe to call it a Rufous. In order to assess that you need to be looking down on its back! At the south end of north Lake in GG Park the creek trickles into the lake. The birds bathe in that area in the evening and the early morning. It is a place where you can look down on them. Unfortunately because of where it is located 99% of the *Selasphorus* using the place are Allen's.

At the Academy of Sciences in the hummingbird collection they have a cheat-sheet for identifying Rufous and Allen's. It consists of a 5x8 card with a row of R5s from female Allen's pasted on with Scotch tape and a row of R5s from Rufous underneath that.
A dead hummingbird that a student brought to class from Richmond in the East Bay one September had R5s that were intermediate however.

A friend of Joe's in Berkeley had a *Selasphorus* wintering at his feeders many years ago in the Clearmont Canyon region. Some top hummingbird experts identified it in the hand by the tail feathers, they kept it in captivity through the winter, and it molted into the other species.

Why are these considered to be separate species?
One reason is that they were historically described as separate species before anybody did a study. The one study that was done on looking for hybridization was done quite a while ago. Gary Stiles gathered together all of the specimens that he could and he made many measurements of these specimens. His idea was that if they were hybridizing, the measurements would be closer to each other in the contact zone, that is in northern CA and southern Oregon, and more disparate in Alaska versus southern CA. He did not find that. He found a suite of measurements that he felt identified Allen's from Rufous and there was no evidence of intergradation of these characters. However, the study used traditional methods of taking lots of measurements and then trying to separate them out by sex and then trying to see if there were characters that separated them and

see how well those characters were in fact separating. He used a priori characters (before you actually do the study you come up with these characters). What should have been done? The specimens should have been skeletonized and the bones measured, independently without anybody knowing which species it was, but separating them by sex and age. Then you run a discriminate function analysis and see whether or not the computer can find a formula that separates these bones out into some kind of clusters. That has never been done. Nobody is likely to do it, it is no longer likely to get funding for that kind of research.

Females are indistinguishable and males are indiscriminate about who they mate with.
It is probably very likely that hybridization occurs between those two. There is not much of a contact zone between the two species, though. There is no way to know if they hybridize. Since we can barely tell the species apart trying to confidently identifying a bird as a hybrid on morphology would require a lot of guts . The problem is that there is no pair bond in hummingbirds. If you see a female on a nest you could infer what the males are by what males are around but you don't know what the actual parent was. It is very hard to observe copulation in hummingbirds, they don't spend much time together.

The courtship displays are illustrated by Sibley.
We see the display of the Allen's quite a bit. A rapid back and forth shuttle followed by a steep rise, followed by a dive which includes a whining whirr at the bottom of the dive.
Rufous does a shuttle also! The old Robbins guide got it wrong, it had the Rufous doing a big oval. Rufous Hummingbird has a core site. It goes up in the air slowly and then it does a steep diving J very similar to Allen's, then it goes up again. The whole thing goes around in a circle so it is moving up to different places instead of going up to the same spot. If it includes a shuttle display with that the difference between it and Allen's is tricky to tell. The sound at the bottom of the dive is different. Rufous stutters or has a staccato quality, there are breaks in the sound. They do not breed here but they will display. Not as a a breeding display, but as a territorial display intended to fend off any other hummingbirds. That is one of the reasons why it may not function as an isolating mechanism to prevent hybridization. It is unlikely that females choose males based on details in their territorial display.

Rufous Hummingbird

OCCURRENCE
The northernmost breeding hummingbird, breeds north from Oregon, Washington, British Columbia, all the way up to Alaska.
Not a breeder in CA. One old breeding record from the Trinity mountains from the 1950s.
They are just migrating through, starting from February and peaking in April, a little bit later than Allen's Hummingbird.
Fall migration also later. *Selasphorus* after the first week of September can be assumed to be Rufous. They migrate through northern CA through September and even early October.
The most common hummingbird in midsummer in the Sierra Nevada. There is a huge migration in mid-summer of Rufous Hummingbirds taking advantage of the flowers that are blooming in the mountain meadows of the higher mountains, particularly the Sierra.
Also an abundant migrant throughout the foothills, the valleys.
Along the immediate coast of CA it tends to be replaced by the almost identical Allen's Hummingbird.
In the fall migration we know very little about what is going on, because the adult males of both species abandon the breeding territories after mating. What we see for fall migration in August

and September are females and immatures. They are virtually indistinguishable in the field. If the birds are migrating through Kiln Canyon or coming to a feeder in Stockton they are not very likely to be Allen's Hummingbirds, much more likely to be Rufous. Along the immediate coast they could be either one. Based on banding data, we found that the Allen's Hummingbird migration finishes by the end of August with virtually no confirmed records after the first week of September. Unidentifiable *Selasphorus* after that we believe are safe to be called Rufous Hummingbirds.
A very interesting place to study those hummingbirds is Mt Davidson in SF. The slopes particularly to the north and east have a lot of flowers year round. Allen's breed there. People that monitor birds there have found *Selasphorus* hummingbirds to be just as common in August as they are in September, there is no break. Those birds in September are very likely Rufous Hummingbirds. Some of the earlier birds in August may be Rufous Hummingbirds also. It is almost impossible to tell because in order to identify them you have to have the birds in the hand and see whether or not there is a notch on R2 and also whether R5 is very narrow or just so-so narrow.
In Tilden Park you get mostly Allen's. But in April, which is the peak time for Rufous, and especially in a place like Lafayette or Danville in the East Bay you are probably picking up quite a few Rufous. It is also the most common *Selasphorus* to be seen on the Mines Road loop.

FIELD MARKS

Adult Male

Very bright red-brown all over, same color on upper parts, crown and flanks.
Green on the wings.
Back all red-brown or with variable amounts of green mixed in.
Gorget very bright red (both species).
Contrasting white collar across the upper chest (both species).
Striking white tufts on the lower flanks that are not illustrated in our books (both species).
R2 has a substantial notch or cutout on the inner web.

Female

Green on the upperparts going all the way down onto the rump.
Females of both species are all green on the back.
White breast collar (both species).
Notch on R2 present but not as obvious as in males.
White spots on R3-R5 about equal in size.
R5 a little bit broader than in Allen's but not by much.

Allen's Hummingbird

OCCURRENCE

Breeds along the coast of CA and to some extent of southern Oregon. Comes very close to being an endemic breeder in CA.
The more fog there is the more they like it. They are way more common in SF than they are even a mile inland in Pacifica where Joe lives. Abundant breeders at Pt Reyes.
Migrate earlier than Rufous Hummingbirds. Start to arrive here the last week of January and are peaking by March. They have left in the fall after August, with virtually no confirmed records after the first week of September (banding data).

Range into the East Bay. Breed in Tilden Park, Coyote Hills. Once you get beyond those mountains and up into Lafayette, Mt Diablo, Livermore, the *Selasphorus* are less and less likely to be Allen's and more likely to be Rufous.
There are records of Allen's from the Gulf states and even the eastern states.
Rufous Hummingbird is the one that occurs as a regular vagrant in the eastern US. Allen's have been identified almost entirely because they have been mist-netted.
Allen's are being claimed as migrants in places like Kern River. Joe is skeptical. If you get a hybrid it may measure out like an Allen's and have the migratory instinct of a Rufous. Even in the hand hybrids would be likely to be identified as Allen's. Joe is skeptical about accepting Allen's records from anywhere outside their range, including the Central Valley.

TWO SUBSPECIES
The nominate subspecies *sasin* is found along the immediate coast.
The other subspecies *sedentarius* was formerly confined to the Channel Islands of southern CA. Its morphology differs very slightly. The birds you see wintering in southern CA are *sedentarius* for the most part. They are called *sedentarius* because they do not migrate like the coastal birds do. They have been spreading onto the mainland where they breed and where they remain through the winter.
Any *Selasphorus* hummingbird in the wintertime in northern CA is worthy a note. Sometimes *Selasphorus* show up on CBCs. Those are usually female plumaged birds, we are not sure which ones they are. Wintering *Selasphorus* hummingbirds in the Bay Area are more likely to be Rufous than Allen's. Allen's is an earlier migrant both in spring and fall. The late stragglers are much more likely to be Rufous Hummingbirds.
Joe is truly skeptic about anybody who claims they can identify the subspecies of Allen's by their vocalizations. Rufous and Allen's have the same vocalizations, Joe doubts a difference between the subspecies is detectable by mortal humans. Probably not even by hummingbirds.

FIELD MARKS

Adult Male
White collar underneath the iridescent red gorget (both species).
Rufous on the sides (both species).
Never all red-brown on the back.
Birds with a red-brown rump are indistinguishable from green-backed Rufous.
If the rump is green it is safely identified as Allen's.
Striking white tufts on the lower flanks that are not illustrated in our books (both species).
Lanceolate R2 with no notch in it at all.
The central tail feathers form a needle-like tip a little like on a Parasitic Jaeger. Joe has been told this helps distinguish Allen's from Rufous, he does not know how reliable it is.
Very attenuated R5, like just out of a pencil sharpener, narrower than in Rufous.

Female
May show a patch of iridescent red throat feathers, especially older females (both species).
The throat feathers may shine green or yellow as well, depending on the light.
All green upperparts.
Rusty underparts, white breast collar (both species).
Narrower outer tail feathers.