Afternoon. Working in area above B arma where I saw several

Black-bellied Silverside: Darker than usual. 4:15. First seen on "beach." 4:30. Lots of individuals around.

For real tubular flowers here now:

3:50. Sea mug & B arma. Flying quite rapidly from brush to brush

in thick scrub - along edge base crop field. Possible human influence. Being followed and

joined by small brown bird (juncus? Hooven?) 3 at least 3 separate examples of joining. As far as I can tell, the B arma is up

away its attendant

4:05. Sea mug on beach alone. dull gray brown. Moderately
dark. Yellow bill. Yellow-orange legs. No bright eye-ring

4:30. See a single B arma. Alone & silent. Feeding on pink go

numums (It must be banding!) There are really quite a lot of birds around here now. But they

are hiding under cover and are very difficult to identify.

A single chaquey, alone. Uttering its high, "feast" notes.

This bird was really very blue-gray underneath.

Sea mug, B arma, saltator on sand. Probably eventually alone

- all the there were also some Andean chachalacas in the same or nearby areas.

4:45. Sea another single thrush alone. Almost certainly the same speci

cus (but not the same individual) seen earlier. But this time I notice tha

that the bird has a distinctly lighter forehead. But not quite white, and not a

reading with the darker color of the rest of the head.
still a weak single thrush alone. Again almost certainly same
species. Faint light, almost far from white (possibly forehead slightly
shaded).

5:15. see 2 more thrushes alone
still now single thrushes and pair, alone. All at distance. App.
arety all same species.

see a single with alone. Apparently Home when
5:27. Starting to rain.

see a pair of warms. Apparently alone. Reenex a singing
5:34. Heard best burst of what sounds like CC song. Half
semi-tweetter, half sobbered triplet. Typical phrase probably
"Ta-a-zee ta-a-zee ta-a-zee ta-a-zee"
Just a few syllables quite clear and distinct. Don't a uttered so rapidly
as to be almost indistinguishable. Songs coming from Eucalypt where
CC sang on previous trip.

6:05. 5:50 p.m. as rain getting stronger.
It certainly doesn't look as if anything is breeding here now.

February 3, 1964
Below Palca

Going to work at relatively low altitude — almost the lowest
place I went on last trip — where I saw the Philopterus. Along edge
of river. Arrive 2:30 a.m. Clear, just beginning to get light. I think
I can hear a few birds (over the roar of the stream) in the distance, but
ain't identify them.

Quite a large number of birds singing before 5:45 a.m. Many
NOTE: There seems to have been a big landslide right where I saw the Thylognopus most frequently during my last visit.

5:37. Getting light enough to see a little.
This whole area (unlike the area above Tarua where I worked yesterday afternoon) looks somewhat drier than during my last visit.
5:54. Hear what may be Bunu song. Without R component.
Area of stink but rather dry looking scrub.

6:04. See a single Thylognopus alone. Apparently same species as yesterday.

"Dawn Chorus" almost stopped 6:08 a.m.

Very dull 6:18 a.m.
6:19. See a single T alone.
See a single Hana Meu alone.

New orange tubular flowers around now.

Growing occasional "Tut Tut" notes. Picks up long leaf or blade of grass. Apparent twist now? ! ! ! Apparently same species seen in this region before (XXXIII)

but looked almost clear gray above, almost white, lower insect and abdomen.

6:50. Again see Thylognopus same area. Again alone.

Incidentally, this Thylognopus is only about 50 yards from where it was seen earlier.

7:12. See a single Orange-billed saltator alone.
4:30. See a single Brun. Alone. Feeding on insects from leaves surrounded by low dry scrub. (This is not far from where the Thalpognatha was seen earlier — on the opposite side of the Thalpognatha from the CC.)

8:04. See a single House Wren and a single American Dipper in same brush. Apparently courting one another.

8:04. See a single Brun (not same individual as before). Feeding on purple trumpet-shaped flowers which seem to be the same species favored by the Hummingbird all over its range.

8:14. See another House Wren alone.

8:14. See a pair of CC's above. Feeding in low-open scrub. Apparently getting insects. (These birds also looked very blue-gray.)

A few minutes later see a single Brun about 20 yards from where the CC's had been (the CC's are no longer visible)

Some distance further on, see a single House Wren singing above.
(one of) the Queto species. foot, Corall bell & legs. Yellow-orange eye ring.
A little further on, see a pair of the "alight-capped'' Thrushes. Close

8:56. Suddenly, come upon another single Braun. Apparently
feeding means on leaves small birds open scrubs near small stream. For minutes on end, a single hummingbird hovers and looks all around the Braun. Epponently coming with 1-2 ft of the Braun. This hummingbird probably no IV, but looks slightly different from previous IV seen. Call it IV A. (See description in list.) Most of the time the Braun ignores the hummingbird, but three
times (at least) it Brauns breaks off feeding to fly at the hummingbird and drive it a few feet away. Attacks are silent. Eventually, the birds separate.

Is hummingbird IV A (also IV A) parasitic on Braun? ?

8:57. See pair of Hlynopous XXXIII feeding together in thick low-
scrub. After several long R's while moving about together. R's are loud,
sometimes slight, fluttering, possibly higher and thinner than those of ruff
ups in Bolivia.

NOTE: Both the brown and the hummingbird involved in the battle in
c곳 descriiption immediately above were not the individuals involved in the
Brown hummingbird incident run earlier this morning.

9:12 a.m. See single Hlynopous XXXIII alone. Perhaps one of pair seen
earlier.

Hence see single Braun alone

Leaving 9:25

With the dubious exception of the Hlynopous, everything here seems
to be in complete non-reproductive mood!

NOTE: The area where I saw the last encounter between a Brown
and a hummingbird was 8,470 ft according to my altimeter, which may be a litt
The afternoon going to walk up to A Peet area. Annie bottom path 2:50 p.m.

See pair of Hylophones alone near highway, then see “light-capped” Hylophones
Then another quite high (almost at upper path), 10,050 ft.
Reach Count trail humid scrub just below A Peet area 3:48. It is now cloudy and very windy. No birds visible at moment.

Drive main grade humid trail 4:04 p.m.

See single Turie belly alone. Sitting 20 ft up in tree, exposed but sheltered.
Here a few phrases of what sounds like Brown song up hill. 4:24. Everything very quiet except for some Brown-tailed Pigeons which may be courting.

4:31. See single Brown Alone. Notes “3uzu3uzu3uzu3uzu3uzu3uzu” as it lands after flying away from me.

4:35 p.m. Reach prairie A Peet area. No signs of cutting A or B Peets. (There has been a little bit of burning & cutting around here) According to my altimeter now it is 10,700 ft.

See a single Turie belly alone. And another (on the same branch again)
Then see a single Brown feeding off leaves.
Then hear burst of what may be Peet song downhill.
Everything very quiet 4:58 p.m.

5:00. See single Brown alone again. Probably same individual as be

Then see another single Brown alone. In one of little areas where B Peet was seen last time.

Then hear burst of song which may be Peet in distance.
Then see single thrush alone. Apparently Queto species without eye-ring.
Then see another single thrush alone. Apparently Queto species with eye.

Jug!

5:14. See another Firebelly above.
Then see another Firebelly above. Again.
Fish coming in 5:25 p.m.

See the same or another Firebelly above again. Again.
Now see a pair of Firebellies together. No other species nearby. Again.
Starting downhill 5:40 a.m. fog is getting thicker.

**General Comment:** It seems obvious that mixed flocks of buntings, tanagers, honeycreepers, and warblers are absent here—just as in the Queto region.

There seems to be a positive correlation between non-passerines—new and prunty of species. I.e. when there are few species in an area are there few or no mixed flocks. Is this correlation direct or indirect? Are there no mixed flocks because there are few species? Or are there few species and no mixed flocks because of some other factor in the environment or because of the history of the area.

On the other hand, one would expect the central part of the Andes to have more species than the periphery. The fact that this is not the case must, I think, be because the central species and central populations of widespread species are more efficient competitors (and have relatively wide ecological niches) than the peripheral populations and species. After all, the central populations and species presumably have had more time on the average, to become efficient competitors.

One might suppose, to put it crudely, that the longer a fauna has remained in an essentially stable environment, the fewer species it will
In my case, it seems likely that the different degrees of gregariousness exhibited by central and peripheral populations are due not only to the advantages of gregariousness to peripheral populations but also to the disadvantages of gregariousness to the extremely competitive central populations. Possibly central species do not exhibit intra-specific gregariousness simply in order to avoid stimulating inter-specific gregariousness.

One might suppose that when two related species come together — if one does not exterminate the other — that there will be strong selection to reduce competition between the two species and permit them to coexist together in relatively large numbers — but then one of the species will emerge as evoking some generally superior "progressive" adaptation and will replace the other eventually.

February 3 1964
Below-Palca

Went to work where I saw last Brian-bamboo interactions yesterday morning. (I understand that this place is called "Valdemar").

Annie (late) 6:28 a.m. Overcast. Warm
See single Brian alone
See single House Wren alone.
See a pair of "light capped" Nuthatches alone.
6:41. Well! Well! Well! see a single Pennsylvania-type. Alone. Got a very good view of it, and should be able to identify it later.
Quite small (i.e. almost certainly Pennsylvania, not Wrensinger. ) Body slim.
above, yellow below. Head-stuffy. Crown large olive, black or blackish in front. Prominent yellow supercilium. Dark streak thru eye. The crown was much less black than that of the B. nigricollis near Quito (or that of the Peruvian nigricollis I saw in the museum in Lima), but appear with somewhat darker in front than the B. lutereviridis I saw in the museum. But I rather think that it must have been the latter. Probably not a juvenile because uttering lots of R's. R's sounded different from the ou of nigricollis near Quito (and probably Humilis). Thinner and weaker, uttered with varying speed. This bird was in thin hedge of low scrub—along edge cultivated field.

see single Bruin alone.
see single Hone alone.

4:56. See same Buncinctus again. In similar hedge. Still alone.
Crown in general looks same color as back. Still uttering relatively soft R's.
see a single Myopis, XXXIII above.
see another single Hone. Then.

4:13 am. See what appears to be no IV hummingbird or something similar. Feeling alone. This time I see that it has white spot behind eye. Presumably Metallura phoebe.

7:40. Have gone up route along small stream. Lots of nice scrub that looks as if it should be full of my birds but does, in fact, seem to be desert. Why? Too wet.

Go on down stream again.
see single Hone. Then alone.

Then see single Hummingbird perched above + quiet. Definitely IV or IVA. Does not have white patch behind eye.

7:35. Starting to rain.
The hammerhead was the local football song and it was sung up high.

It was a hammerbird that was spotted after another bird, which is, 2 theta

This bird, or a Bumi, then the presumed Bumi disappears, and the hammer goes off
to feed by itself. There may be the same 2-birds involved in the incident enc
ounter yesterday.

8:30. See a pair of C's feeding alone. Hummingbirds as "greeting",
see a pair of light capped hummingbirds alone. Joined by a third. One of
the pair immediately circles new corner. 2 C's this species isn't at all sparc
ous now.

See same pair of C's again a few minutes later. Still alone. Silent
Probing at leaves, apparently for insects.

Then see a single C alone. Hummingbird as "landing call"

8:45. See single T. Hummingbird. Perched alone. Got excellent
view of it. See white plumes thereof, entire underside to tail. Observed, now that
II and ITA are the same thing. This bird had little or no-white spot behind
eye. The bill of this species is straight, moderate in length, and somewhat curv-
shaped.

A few minutes later see single Bumi feeding alone

Leave 9:30. Rain getting stronger

NOTE: According to my source, the rainy season here should
be from December to March. But this year it is "delayed" — i.e. it's
has been less rain than usual so far.

This afternoon going to work on lower slopes of Anta to and out
out from high way at some place where one starts for Bot area. Come 3:35
p.m. Overcast, cold, windy.

3:47. See a single Bumi hanging and swooping at a single brown bri
1. The latter is definitely not a humming. How to Write ???
February 4, 1964
Below Palen

Arrive base of path leading to Peit area 5:25 am. Parking quite ra....

For a single Orange-billed Saltator alone. Again.

See a single Houra When alone.

See a pair of Orthopilus quisquius alone. In small trees hedge-like scrub.

(Thys species seems to be almost as much a "brush-finch" as Saltator.)

Arnie lower part of the same ravine where Petra occur higher up

4:05 pm 9483 ft according to my altimeter now.

Nothing at all visible.

See an occasional unidentified thrush fly by.


low scattered scrub and grass

Then see another Brum alone. Again again.

See a single C alone. Silent. Some type of vegetation.

Then see a single Brum fly right by C (or C fly at first apart). The C will

individuals给予 one another

See another single Brum alone & silent. And another

5:08. See a single Houra When alone.

Starting down hill 5:15 pm.

See another single Brum. In grass with only a few tiny bushes scattered at irregular intervals

See a pair of Orange-billed Saltator with some Audience fingers.

See a pair of Orange-billed Saltator alone.

Leaving 5:55
2:26 Going to wait for rain to let up a little (I hope.)

Rain continues. So go on down to Talcahuana area (where I saw the Peruvian birds yesterday and Brum-Brum interactions earlier.)

Am 5:40. Just barely starting to get light.

5:45. Lots of thrush song.

Dawn chorus seems to be large thrush and Andean falcon at first, then a few other things join in.

4:00. Something that sounds like irregular dawn calling, “Whit chur whit chur whit chur...” Also “chua-whit chua-whit chua-whit...” Thrush?

There are really lots of light-capped Thrushes around. Large larks and parrots. All alone. Not going to cite them individually from now on unless there is something special about them.

Rain thinning out to fine continuous drizzle 6:00 am.


Everything very quiet 6:35

6:41. See single IV humming bird alone.

Then see pair of *Thalurania* XXXIII. Feeding together w/ sparrows, larks etc. I.e., apparently picking insects off leaves. Uttering lots of R's as “greeting.” Some (not all) of these R's are fluctuating or “rollicking.” Sound quite like weak or soft versions of some fire belly song.

These R's may be what I thought were Fire belly songs in the desert here, but, the other day. (I have never actually seen Fire bellies in this area this trip. Alas, of course, I have seen them frequently up hill.)

6:50 am. Ahha! See a single Attagetes. Obviously *selvatica*.

Presumably, tschizanieki, although I did not notice black and white on forehead (probably not surprising, as bird was some distance away.)
and the rain continued) Dunging alone exposed on small tree 8 ft above ground. See today's notes on Atlapetes.

6:55. See single Brin alone.

7:00. See single A. schistaceus (obviously same individual) moving thru hedge still alone. Quiet moving, uttering "PN"s and "CN"s.

7:20. See another single Brin.

7:55. See a single thrush, footy all over (Crownshank-roots). Local hill, orange legs, yellow-orange eye-ring. Possibly got the "Guat" 5 species (EVIIA), but it looked larger. Really unusual in fact.

8:10. See another pair of Hylaeopera XXXIII alone. noisy.

See another Brin alone. Silent.

See a IV hummingbird sitting alone and silent.

8:27. See another pair Hylaeopera XXXIII alone. Also noisy.

Leaving 8:35.

Return to hotel in Tarma. Also drizzling here.

While having second breakfast here (ca 9:00-9:15 am) we both a gauji and a Light capped Thrush carrying m.m. !!! The gauji apparently nest building on underside roof of the hotel.

There were 2 incidents — plus the singing of A. schistaceus — would suggest that the breeding season may be beginning with a bang today. Can this be due to the rain? There has certainly been more rain this morning than or any other day of my visit this year (albeit it has been raining at night from the beginning).

The fauna here is really quite surprising different from the Quito fauna. There may be almost as great a variety of species (of the humid temperate bush-warbler, bush-finch, tanager and honey creeper group) here as in Quito, but only a few of the species are common.
Leaving aside the problems of the diggerins, the following questions occur to me.

Why are there so few Bankivories here? Because *Hylopusis* are no common? (Hylopusis are certainly very much more common here than near Quito.)

Why are there so few Altamitas here? Competition with saltator? (Off hand, this does seem to be unlikely.) And why is the local Altamita checklist instead of refringa? (I must check on the distribution of these 2 species. It is possible that they are distributed in mosaic fashion all along the Andes. Possibly it is largely due to chance alone why 1 species has become more competitive in any given area.)

Why are there no bigger blue and yellow tanagers (*Thraupis* spp., *Dubreva*, *Euophus*, *Buthraupis*, etc.) here, and why are few bellies relatively more and (apparently) narrowly distributed here? Competition with Orange-billed saltator and *O. gauzi*? Why are there no *Tyrannus* here? Are tyranid flycatchers more common here than near Quito? (My observations would suggest that this may be so.)

Going to work above Chimana this afternoon. Areas where there were lot of Bunos and CC's during my last visit. Arrive 2:40 p.m. Overcast. Windy cold. Nothing much notable at first.

2:58 p.m. See pair of Light-capped Manchus alone.
3:05. Lot of loud thunder, not too far away. Then a few minutes later, a few-light sprinkles of rain.
See several single Light-capped Manchus alone. Going to stop counting them.

3:17. Three CC's fly by. Apparently hostile chase. Lots of twittering...
No other species near by.

See a snipe Brunn alone.

Rain somewhat stronger, 3:35 pm.

Then flies up a little, 3:50.

See single Brunn alone.

See single C in trees near village. Most or less alone (alito there are a lot of finches, including C. fractiata and Black-headed Goldfinches [magellanica?] sunning in and out of the same trees).

4:28 pm. See a single Orange-billed Tattler alone. Hopping along ground! Apparently feeding. In very open area (mulmul bare ground and small plants) along edge of cultivated field. So this species may provide real competition for Brown-fiches after all!

4:45 pm. See a single Brunn alone and silent in hedge by village.


Then see another single Orange-billed Tattler alone. In hedge.

5:10. See another single Brunn alone in hedge.

Then see pair of C's feeding alone in hedge. The 2 individuals are not very close together, about 5 ft apart. Utter a lot of "Seet" Notes. Also 1 twitter and 1 burst of triplet song! They fly off to another hedge. Land about 10 ft apart. One of them utters triplet song as "landing call"!!!

Leaving 5:35 pm. Still sunning a little

It is really very remarkable that there are no Brown-fiches here.

It looks absolutely ideal for them.

Incidentally, it should be noted that P. gaiyi also seem to be absent from this area. So the absence of Brown-fiches here cannot be due to competition with gaiyi.
February 5, 1964
Below Tanca

Gong to try to go up to Abert area this morning. Arrive base of road 5:00 a.m. Not raining (yet) but there seem to be a lot of low clouds about.

Took my pencils on the climb - so the following is part hazy.
Arrive just patch humid snow just below Abert area 5:55.
See today's notes on Mixed Diglossins.
The results of today's observations on mixed flocks can be summed up as follows:

No Whistlers were seen. They really do seem to be quite absent from this area.

Thyoneps are also seem to be absent at these altitudes. Ditto Barienturns. Why?

There were lots of flycatchers and junco-like birds around here, but they do not seem to associate with mixed flocks.

I heard something not too double complex this morning. The sounds were similar to, but not identical with, the "song" of Dulcina near Guets.

I also heard various sounds which were reminiscent of House Wrens, but they were, I think, uttered by (a) different species.

I saw a single Pict alone at least 6 times, a single Ey-alone once (and I am sure that it was eventually alone all morning), and single and pairs of Breeus alone many times (at least 10 or 17 times).

I saw a single Town Bald alone once. I cannot be certain whether there is more than one pair of Town Balds in this area, but I think that there are at least 2 pairs. In any case, it is obvious that Town Balds...
I saw 3 A. s. tarapovskii alone. Two birds moving about very close together, and a third, associating with them, but keeping slightly further away. Quite alone. Interpreted lots of "Ter" Notes (see today's Notes on Atlapetes). Also began to hop around quite excitedly when they got near to me. Almost no mobility reaction. Nevertheless no other birds joined them.

I heard quite a lot of Atlapetes s. tarapovskii song and PN's (without being able to see the performing birds) earlier in the morning when I first arrived in the area. I am now convinced that there are really quite a lot of these birds in this area, at a high altitude, if not at lower altitudes.

After 17:30 a.m., the whole area was described in fog and light rain. Nevertheless, there were still no signs of mixed flocks. I think that I can be sure that mixed flocks are really absent in this area. Possibly, as near Queto, the birds of different species are partitioning, avoiding one another.

I saw one case of inter-specific aggression this morning. A female Attu attacked and chased a smaller bird (probably a Buitre). The elements of the central Andean area do seem to be very aggressive!

Going to work at base of road to Pecet area this afternoon. Arrive 3:40. Cloudy but no rain (yet). (Note: this is the area where I saw no may Chang-billed Feltatoris during my last visit.)

3:55. See a huge P. guaya alone. Andean scree 5-10 ft high. Not in fields.

Pareja de Attu (flying) uttering "lazett". They land in brush. One uttering twitter as "spooning" or landing call. Their both fed. Apparently in worm clusters
of small purple flowers.

A pair of Brown Jays. Alone. Sound together. One utter a real twitter as "greeting" or "landing call." Then one flies off. Other remains beak-end for a few seconds.

A few minutes later, see same 2 Brown Jays flying in lunch. Apparently pecking leaves off leaves. Alone. One or both utter(s) twitter each time one come in near the otter.

4:36. See single Orange-bell alone
Leave 4:13 PM
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Total: 17 hrs 30 min
Palca Area 1964 (both high & low)
Feb. 2, 3, 4, 5

No fleas seen alone

No fossils in Heck

No fleas seen

No highly organized fleas seen

Largest No. Indus One Heck

Largest No. spp. in One Heck
Central Peru

May 21, 1966
Campbell Pass

Avenue just below top of pass, 8850 ft, 5:45 a.m. Clear.
Cool, just beginning to get light.

NOTE: This is good AS-VSTF vegetation!!

First bird songs 5:52 a.m. Possibly by a species of one of

my groups, but I don't recognize it. Several indigo buntings.

Otherwise, not much in the way of bird sounds.

6:04. Hear a few Whitetail Songs, NODWAH. Then hear

several more Whitetails in distance. NODWAH.

Occasional songs of frog in neighborhood.

Whitetail songs continue. Completely overlapping some

nearly R.'s. (R.'s presumably by Nightingales, not Allos.)

6:10. Rather strong wind coming up.

Quite a lot of miscellaneous "CN"s in neighborhood.

But it would appear that most species are not in full breeding condi-
tion.

6:20. Now there is a greater variety of bird songs and oth-
er noises. But the "dawn chorus" is far from continuous.

6:24. Hear more Whitetail Song. At first, NODWAH.

Then overlaps at random with Altajetes "Quitequap." Then both

species shut up.

A few seconds later, see pair of Altajetes morning thru

mixed bamboo scrub. 1-4 ft up. Quiet. Definitely alone.

Then hear what may be Brown Song in distance. NODWAH
Shut up. Then Whitetails begin again. NODWAH shut up.

6:34. Fog getting thicker and thicker. Very difficult to see anything now. This fog does not appear to be stimulating the formation of mixed flocks.

6:45. Birds noticeable, quieter now.

NOTE: There are a lot of birds around here which sound like Chlorospingus, but I have not been able to identify them yet.

Caught glimpse of 3 birds flitting about very actively. Both low in scrub and moderately high in trees. Appearance "Canfora des-typus." But very noisy. Uttering lots of "song" phrases. And there are very, distinctive! Like very long repeated Whitetail song with lots of added component, including R's! !!!!

General effect is not very Passerines-like! Could these be the Thrushes-Chaffinches? !?? ? Could these be the birds heard uttering Chlorospingus-like sounds earlier? !?? More important, could they also be the birds heard uttering presumed Whitetail song earlier? !?? Birds apparently alone.

Fog lifts completely 14:10 a.m.

14:15. Walking down road. I hear some more songs which do sound more typically Whitetail-like. I only wish that I could see the design things! NODWAH, shut up.

Then see single "Canfora des-type." Definitely alone. 6-8 ft up small trees. (Now) uttering "AOW". Yellow regal are very broad and bright. And bell does look comparatively long and heavy. So I am now fairly certain that this species is
H. frontalis !!!!!


Fun beginning to reach this area 4:28

Then see large mixed flock. Includes at least 2 Whitetails (definite - the yellow-spectacled species), 2 Bettis, 1 Yellow-rumped (4), 1 GT (1) for a nondescript "North American warbler-type", 1 Ruddy Flycatcher, 2 Oecotheras, 1 small brown warbler, 1 Olive woodpecker (possibly CTT), 1 flycatcher (IX 3), 18's, and 1 small dark hummingbird. Probably others. All birds moving 2-10 ft up thru scrub-edge road. The warbler, hummingbird, and Oecotheras may have been "casual" associates. Rest of group certainly highly organized. Most birds uttering lots of "CNs." Whitetailed kingfisher once. No vultures. Difficult to tell who, if anyone was in lead. Certainly not Whitetails or Bettis. Probably CTT or IX's most of time.

It would appear that such flocks as may occur here are characteristic of good weather rather than fog!

Walking up road a few minutes later, came across what seems to be tail end of same flock. Now definitely being followed by a single All-rufous Hypothylaxus. All rufous difficultly bringing up rear. Silent. Rising 1-3 ft up in mixed bamboo scrub.

5:18 a.m. Back up road. Area where presumed Fl. frontalis seen and heard earlier this morning. Few birds of this species are flitting thru mixed bamboo scrub here now. Observe...
Disputing, Very vocal. Also performing ritualized Wing-spreading.
Very close to three birds are 3 All-rufous flycatcher and 1 flycatcher
bird which looks like Hymenops but has some brownish on back.
This must be considered a mixed flock, and probably not a
highly organized one.

8:35. Everything dead quiet now.
8:50. See small, quiet, diffuse mixed flock in mixed bamboo
scrub-edge rock slide. Includes at least 1 H. aequocapilla,
Yellow-bellied, 2 or 3 small flycatcher-warbler type birds of 1 or
2 other species. Group seems to disperse almost immediately.
Green Tree Lizard.
Go on to absolute top of pass (8845 ft according to my
altimeter now) 9:08 a.m.

Note: The hills around here go up 100-200 ft higher, clothed with forest and scrub. To the very top. Or have only tiny
patches of "semi-puna" on top.

See also today's notes on mixedDiglossini.

Comments: This area showing, very unusual on the whole.
There have been lots of tree ferns, also fair amount of epiphytes, at
all the sites where I have worked this morning. (Also, looking over
pan to NE, can see some "white" Cecropias.)

Cloud coming up 10:20 a.m. This is followed, almost
immediately a moderate midafternoon storm sounds

Narrow presided H, supercilivus sounds in usual area.

10:30. Back where diffuse flock seen earlier. Pairs
Whitestarts flitting about in bamboo scrub and second growth tree
1-4 15 ft up. Then I see that they are part of a very large mixed flok.
ch. Group also includes: 1 Lurid which looks like a gray-capped nisce with unusual bars, "Manakinn" 2 Reddish Flycatchers 2 "Asomabas - like" Flycatchers 1 & 2 CC 1; 1 Sutton; 1 Yellow-bellied, 1 Flush-capped Finch (1), 1 GT, 1 Delectatus (1) 2. Atropilens 2 Chlorosprings types 3 CX's 2 Hummingbird 2 of different species (one probably Green & White). A single Peet appears with group for a few seconds, then disappears.

All birds quiet, but utter lots of soft "CN"s.

Group as a whole moves thru a great variety of vegetation. Atropilens and Flush-capped Finch stick pretty much to mixed bamboo scrub, 1 - 4 ft up. GT and Delectatus stay low, 1 - 4 ft up, in greater variety of scrub. All or almost all other species ranging 3 - 20 ft up. CX's probably more frequent than any other species.

White-tant in lead part of time. Then CX's in lead. Group as a whole very diffuse but undoubtedly highly organized. Almost certainly also pretty the same as first large group seen earlier this morning.

Sitti f → CX's twice. Presumed Vireo f attacks White-tant once. GT f → CX once. Reddy Flycatcher White-tant! Group as a whole gradually drifts down hill. Lost to

11:25 a.m. leaving

Note: The "Chlorosprings" types in the last flock pro
bally were configurular or some closely related form. Gray heads
Witches' hats. Boundary between gray and white gradual.
Underparts yellow. Underpants yellow olive. Wing and
tail darker. I.E. these larks looked very much like Cincloscopos
But they definitely had completely dark (not red) bills !!

GENERAL COMMENTS:

Today's observations were rather a surprise to me!
The proportion of larks involved in mixed flocks here is
remarkable high. Probably quite as high as in any other part
of the Andes - even the Western Cordillera of Colombia. Possibly
the observational conditions - or my methods of observation -
tended to exaggerate the percentage of larks in mixed flocks.
Possibly I overlooked many larks not in mixed flocks, or possi-
ibly the larks not in mixed flocks tended to remain hidden. But,
certainly, it would be impossible to explain all the surprising
features of today's observations by ascribing them to artifacts of
this type.

At the same time, the number of flocks seen was not
comparatively high. Many more flocks would have been seen in
similar environments in Colombia!

To sum up, the larks here seem to be similar to those
of the Quito region insofar as some are gregarious while others are
not. But the gregarious larks here seem to be more strongly greg-
arious than the comparable birds of the Quito region.

Possibly it may still be convenient to recognize a extr
eme types of social behavior in this 'Andean Taxer Association'.
A. Strong inter-specific gregariousness throughout a whole region. As in the Western and Central Cordilleras of Colombia.

B. No inter-specific gregariousness. As in large parts of Central Ecuador and Central Peru.

But it may be convenient to recognize two different types of "intermediate" behavior. A. Moderate to weak interspecific gregariousness throughout a whole region. As in the Sierra de Merida and the Eastern Cordillera of Colombia. B. Strong interspecific gregariousness confined to strictly limited areas. As on the road to Santo Domingo in Central Ecuador. And the areas(s) visited today.

The fact that the interspecific gregariousness observed today was "stronger" than any observed in Central Ecuador may be correlated with the fact that the "humid temperate zone" is narrower here than in Central Ecuador. Or perhaps the birds of this area are "tending toward" the extreme gregariousness of their relatives in Bolivia??

(Possibly, some of the gregariousness of the birds observed today may be correlated with the fact that they are very near a major "geographical frontier"?? They are only a few miles from the Huallaga River valley. Thus, their position is not unlike that of the birds around Chachapoyas.)

NOTE: Even though a number of brightly colored tanagers were seen here today, they were still less common than in many other regions of the Andes. (This is all the more significant as the areas visited today were not of very high altitude.) Thus, tod
my's observations do not necessarily conflict with my earlier conclusion that species are more segregated here than in many other regions.

NOTE: It is significant that P. altipetes (and the presumed P. frontalis) definitely were not associated with the flock seen this morning. Possibly also significant that Margaronomus apparently was not associated. (I might add, in this connection, that all other dendrocolaptids appeared to be rare or absent here.) Thus, some species appear to be non-gregarious here — in spite of the fact that there are flocks here, and that the same species are gregarious elsewhere!!

NOTE: One point might be stressed. Altogether in the Central Andes, mixed flocks may be confused to frontiers with the Upper sub-Andean zone, they certainly occur along other types of frontiers in Venezuela, Colombia, and Bolivia!

May 27, 1966
Carayush Pass.

Going to work slightly different area this morning. Just past west of pass, on eastern slope. Arrive 5:30 a.m. still quite dark. NOTE: This area must be slightly lower than the area worked yesterday, but it registers as 9000 ft. on my altimeter now.

Walk down road to 8925 ft. approximately. There seems to be more bamboo and other second growth here than in the area wo
Woke yesterday. But also quite a lot of VSTF-type trees.

Several miscellaneous bird sounds heard ca. 5:30 a.m. Starting to get light now. First DC 5:55. All altricials? Also some other, more elaborate, song phrases. Possibly Whitestarlets. NOD WAH. Also some through sounds (not song) DC stops.

6:01. How there is lots of this presumed Whitestarlet song. By several minutes, overlapping, one another, but all NOD WAH. White starlets shut up. DC starts again. Stops. Presumed Whitestarlets begin again. Then DC starts again. Complete overlap.


DM starting to come in 6:14 a.m. General volume of bird sounds decrease.

6:32. Walking back up road. See single yellow-belly alone.

6:40. St up in isolated VSTF tree.

6:34. See definite mixed flock. Includes 2 PL Altapectes, 1 blue and yellow-tanager (possibly Beallarches eximia). All 3 birds moving 3-6 ft up in region mixed bamboo-scrub. PL's utter lots of "PN". PL's f -> tanager repeatedly!

6:53. Quite a lot more presumed Whitestarlet song. All NOD WAH.

6:59. See a pair of PL Altapectes 3-6 ft up in scrub. Certainly some pair seen with flock earlier. But apparently alone now.

4:03. A single blue chestnut bird (Bealarches ???) flies across road. Silent. Definitely alone.

Sun has reached this area now.
4:16 a.m., Region mixed bamboo-scrub just below 2000 ft. See mixed flock. Includes at least 2 Neshipinguis or Banlewu-kus types (almost certainly B. frontalis), 2 waders, 1 flycatcher, 1 fork or tanager (almost certainly Plumbi-capped). All birds 3-4 ft up Aquiers-type (possibly same species as at Meenchique) group. Group not highly organized. All sorts scatter.

**Note:** I am now almost certain that all the Whitetart-like songs heard this morning were really uttered by the B. frontalis types.

7:40. Walking down road to 8500 ft. There really appear to be remarkably few birds here! In spite of the fact that the vegetation mixed scrub and VSFB, looks quite "promising." Everything very quiet.

A few minutes later, ca 8745 ft, see single Petit in scrub - 2-4 ft up. Silent. Now definitely alone. But probably has just left a mixed flock 40 ft away.

This flock includes at least 1 Whitetart, 1 H. sepiolus, 1 Sitti, and 1 black-grayish diglossa - streaked underneath - i.e. almost certainly a Petit?

H. sepiolus in bamboo-scrub, 1-3 ft up. Whitetart and Sitti in mixed scrub - 3-6 ft up. Whitetart (or mainland Petit) songs. NODWAH. Other birds silent. Flock disappears without my being able to tell who, if anyone, is leading.

A few minutes later, see Whitetart and Petit only a ft apart (again?) Both silent. Petit flies off. Whitetart does not follow.
NOTE: This is a remarkable place to find Bari! Possibly Bari lids tend to "stray" more than lids of other Diglossa species. This would explain why Bari reached Central America.

A few minutes later, ever more Whitetail or, more probably, Pect Song, NODWAH, shuts up.

NOTE: So far this morning, almost all flocks seen have been in sunny areas. Areas still in shade seem almost deserted.

8:13 a.m. Ca 8400 ft. See single Blue & Orange Tanagers (the distinctive local subspecies — identification definite). 20 ft up in VST F tree. Silent. And definitely alone.

Correction: A few seconds later, I see that this Blue & Orange is part of a large mixed flock. Group also includes 2 Yellow-bellies, a H. atricapillus, a E & I (Pseudopsaroclytes-type), a small tree creeper (possibly Mangarevensis), 5 or 6 other small warbler-like birds (probably 2 species). Group as a whole diffuse. But the Blue & Orange and the Yellow-bellies show a definite tendency to stick together. In spite of the differences of the group, all the birds drift in same direction. E. E. group is highly organized. But leadership changing. All birds quiet. Most birds ranging 10-20 feet up in mixed scrub — VSTF. E's and tree creepers seen only in trees. H. atricapillus ranging 10-15 ft up.

8:54 a.m. Walking back up road. See a pair of Yellow-bellies flying. Utter "pw"'s. Alone.

9:03. Further on, see pair Vireo-like birds 10 ft up second growth trees. Possibly same species seen with flock yesterday. But this pair definitely alone now.
Everything dead now, 9:18 a.m.
9:34. Mean can (7,000 ft). See pair White-tailed, Flycatching in trees edge pasture. Alone.

Not starting to come in again 10:13 a.m. This does not provide a new outburst of bird noises.

Leaving 10:40 a.m.

Comments:

My observations here are the "smudging blow" to the theory that mixed flocks are positively correlated with density of population. The population of any species (considering the groups as a whole) are comparatively small, but inter-specific gregariousness is comparatively highly developed!

I did not see any large flocks today as yesterday, but I did see a larger number of flocks today. This is significant because the vegetation of the area worked today was much less nearly "virgin" than that of the area worked yesterday.

On the way home, I tried to survey the areas surrounding Carpinco Pass. Of course, cultivation is spreading in all directions. But it does seem likely that the Carpinco Pass areas where I have worked are nearer to the original boundaries of the Upper Sub-Tropical Zone than to the original boundaries of dry, arid zone. (Chihuahua itself is in a very arid area, but it is 2 hrs drive from Carpinco.)

It is possible, in fact, that the original woodland temperate to Zone of the Carpinco Area was surrounded by Temperate Sub-Tropical Forest on all sides. I.e. there may have been a narrow
"Fringe" of USF between the annual temperate forest and the xeric at dry area.

May 23, 1966
Panar

We came out to this area in the hope of finding montane forest
Without success. Finally arrived at "La Molina" a "tree-raisng

6:10 a.m. Clear. Moderately cool.


6:40. See single Hylaeopus (presumably usual species) in bed
of lupine field. Silent. There also are Andean Sparrows in same hedge.
But the 2 species seem to be ignoring one another. Then the Hylaeopus
flit off. Nothing follows.

See today's notes on mixed Diglossini!

Notes: I saw several single thrushes (apparently footy) and Orange-billed Saltators, alone, at both the front
and several sites visited today.

There were absolutely no traces of any mixed flocks
(species of my groups) at any sites.

May 24, 1966
Carpark Pass

Arnie area 8428 ft., fluorescence - nice day, 5:25 a.m. Still dark
Cloudy. There was occasional rain on top out.

Rain starts again almost immediately. Quite hard.

Miscellaneous bird sounds have begun by 6:00 a.m.

But it is still too dark to see, and rain is getting heavier!

Vegetation here is rather lush but mixed UTCF and second growth.

Most of the bird sounds ca 6:10 are Andean Sparrows, unaries (there is a small pasture and a few shades not far away) and various species which I do not recognize. I can catch very brief and poor glimpses of a few birds moving very low through scrub, but most are quite invisible.

Going to walk along road ca 6:30 a.m.

Hear lots of White-tant-like songs. All NODWATT. Then their step. Then one long phrase which may be by Pit. Only slightly up hill! Stop. Then White-tant-like song again.

Mutual song inhibition (still) seems to be operating perfectly!


Rain is decreasing now. Bird sounds increasing.

6:53. Walking up along ridge path, can hear lots of R's.

Either flycatchers and/or Barnes.

7:04 a.m. 8550 ft. Region very mixed second growth. Coffee across definite mixed flocks. Includes 2 presumed *H. nontalis*. For more Syntaxis. (Latter look rather like All-rufous but are distinctly different species, Apron toward rear below. And have trace of wide, dark light supercilium stripe.) All birds ranging 3-6 ft up. All very
close together. All noise. Presumed A. frontalis utters White-tant
title songs. Synallaxis mob me. Then Atrocipeter torquatus j →
group! beliet. Moving from ground to 7 ft up. Then hummerbor
d (with light crescent on breast) j → group. 4 ft up. Then
group moves off. Can’t see who is leading
4:26 x 2000 ft See pair of birds 10-15 ft up second growth

tree near small picnic. Either tanagers or Pipraeola up. Olivi black an
d wings. Dark head. Beliet. Apparently alone

A few minutes later, some distance away, we definite mixed
ed flock in second growth woods. Includes at least 2 Yellow-bellies, 1
Synallaxis, 1 H. atroplenus, and 2 or 3 birds which are either presum
ed T. frontalis and/or A. m. novaeangliae. Moderate movement. Flock
very dispersed. Possibly not highly organized. Yellow-bellies 10-
12 ft up in trees. Other birds 5-10 ft up trees & scrub.

While this flock is around, I hear what sounds like A
song of northern type. But I can’t see the bird uttering it

NOTE: This atroplenus was not in bamboo (allto ther
es some bamboo several hundred yards away. 9E, it probably
followed the other species out of its usual habitat

4:40. Rain almost or completely stopped. But fog is starti
ng to come in from top of mountain.

Catch brief glimpse single White-tant in valley downhill.

Apparentt alone. Fungi. NODWAH

4:50 x 4000 ft See a pair of thrushes fly by alone

4:53 See group 2 or 3 furnariids 2 ft up second-pie with

scrub. Presumably one of Craniolena. Whole front of face as well as
crown white. Apparently alone.
8:03 a.m. 8,418 ft. Came across diffuse flock. For a Yellow-
bellies, I think in trees. 2013 Hemipogon sp. & for Baselearns.
us type in scrubs. Probably essentially the same as one of the groups
seen earlier.

8:15. Everything very quiet now.

NOTE: General aspect of vegetation in this area is very rem-
inuous of Aguas Bonitas below Bogota.

Starting downhill again. 8:25 a.m.

Some yards down path, see pair of what look like the Ye-
low-billed Caciques of Panama! Alone. 2 ft up very dense scrub
8,660 ft. 8:30 a.m. See a single family Thrush (denti-
frication definite). Silent & alone. 12 ft up second growth tree

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

8:54 8,548 ft. See single large cloudless cloud 10 ft up
in second growth tree. Probably same trip seen below San Juan

Silent Definitely alone.

They then head down hill. Jour 10 → very
diffuse scattered group in second growth woods edge pasture. Group
also includes 1 Cy (definite 1), 1 Th. inaequiptala = 1 CR (Be-
udospogon type) & at least 2 or 3 others

Then Jour 4 Big Bunting (definite) 10-30 ft up in
trees, several hundred yards away. Definitely alone (moving in
opposite direction from flock)

9:25 a.m. 8,445 ft. Come across (another) very diffuse
flock. Includes at least 4 pairs Singeriara type. Converts with faint sup
erhalve, men earlier) low in scrub, i cyanoglophala and i sayy, dus and i all in trees, i Scotty Thrasher, group

Put flies out of brush when hydralaxs flies in. Probably there are still other species in scrub.

This group probably is combination of 2 groups seen earlier

Syndalaxs are noisy. Other species quiet. Syndalaxs app
aren't in lead!

9:33. Almost down to road again. See single D. Attact
is silent. 3 ft up scrub—edge stream Apparently alone.

The PL's here really are remarkably non-gregarious!

COMMENT: The fact that such a high proportion of the ben
as here occur in mixed flocks in large, due to the absence of other
species! (The species of shrub and/or more open habitats, e.g.
A. maphinoba, B. mugecrutatus, Firebecks, carbarranc, &c,
which are of variable gregariousness in other parts of the Andes.)
In this respect, this area differs from the area below San Juan in
Central Ecuador (where the variable species were present and part
ly gregarious).

7:54. Down big road, see single Whitetart in tangle
edge ravine. Silent. Definitely alone

10:02. See a pair of EX' feeding in second growth trees, 60
20 ft up. Silent. Definitely alone. I am sure that these are the birds I sa
with the large mixed flock on May 21 and which I confused with

10:32. A little further up road, see single Budy Flycatcher
Uttering R's. Flycatcher 2-0 ft up now in poor second growth scrub.
Definitely alone

10:46 a.m. Walking back down road; see pair Whitetails feed
nug a-raft up in scrub; Quiet. Definitely alone.

A few minutes later, see a very diffuse but probably highly orga-
nized flock wagging straw tail 15-20 ft up on both sides road. Group
includes: 2 Yellowbells, 1 Tu. cyanoccephala, 20+3 monotypic flyca-
tions (probable all same species), 1-2 of the usual gray-capped vibris,
1 of the manakin-like birds. All birds quiet. Leadership apparently
changing *cyanoccephala* → Yellowbell, Yellowbell, *cyanoccephala* →

11:09 see single Aqueducus (robin-like species) alone

Leaving 11:02 a.m.

Just as I go, see another single feet silent and alone.

COMMENTS:

The area worked today was just at the edge of cultivated
areas (small farms, pastures, a few small and not very successful
looking Eucalyptus plantations) 2/3 as near to the arid temperate
gen as it is possible to get without abandoning natural vegetation
completely. Thus, the mixed flocks seen today were particularly signif-
icant. I saw relatively more single birds and pairs alone
today than on previous day in other parts of this area, but mixed
flocks certainly were at least moderately common today. This is
conclusive!!!

Incidentally, I made another check of the vegetation
surrounding this area on my way home today. Observations of the
few "natural" trees and scrub-patches left between Cahuash and the
nearst town, Ayacucho, would appear to confirm the suggestion that this whole Carpasul area was once completely surrounded by
U.S.F.

If I had made observations only near Carpasul, I would think that mixed flocks were positively correlated with density and extent (height) of vegetation — nothing else. But this probably would not explain variations in mixed flock frequency in other areas. I think that I must involve "frontier concepts" in order to explain the situation in such regions as Central Ecuador.

In this connection, I must try to distinguish between two different types of "frontiers:" 1. Frontier with Humid Upper Sub-tropical Zone vs. total area of region inhabited. 2. Total extent of all "frontiers" vs. total area of region inhabited. Is it possible to distinguish between these two? If so, is the distinction important?

(Probably yes! For instance, both the Western Cordillera of Colombia and this Carpasul area may have such highly developed flocks only because almost all their frontiers are with the Humid Sub-tropical Zone. If they do not touch much Páramo or Páramo or Cool Temperate or Abit Sub-tropical Zones.)

One peculiar feature of this whole Andean problem should be stressed. In the North (and probably the South) it is the total effect of frontiers on whole regions which seems to be important. In the Center, by contrast, it seems to be the effect of frontiers of particular areas on these particular areas which is most important.

NOTE: According to the local people, the reasons here are
almost the exact reverse of those in Panama. Rainy season begins in December. Lasts about 3 (4) months. Rest of the year dry.

May 28, 1966
Canyon Pass

Going to work on Marmoco side of pass again. Another mirage.

Higher than the one worked yesterday. 3,500 ft. according to my altimeter.

Now Arrive 8:45 a.m. Starting to get light. Clear. Fog already present at slightly higher elevations.

A few miscellaneous bird sounds (mostly thrush) ca 5:55.

Vegetation here somewhat mixed. Lots of dense scrub and low forest. Some obvious second growth. Some apparently As.

Hunt Pest or White-tant-like song 6:00 a.m.

6:02. Now I am almost certain that the bird uttering these few

is Pest. Songs quite typical in form. Except that they are divided into

somewhat shorter phrases than most songs uttered later in the day. New

entities, the bird is uttering phrase after phrase at very short intervals.

All songs NODWAH.

Then are pair PL Angels 50 feet away. 2 feet away in AS.

Definitely alone. Utter "Greetings." Completely overlapped by presumed

Pest Song. Then PL's utter 1st a Whistle Song. Also completely overlac

ked by presumed Pest. PL's move away.

Presumed Pest continues as before. Then there is a sudden

outburst of loud PL's and more formless twitters, mingled with song

from same area. And then I see that there is a pair of presumed PL frontal
in this area!!! Apparently alone!!! Range 2-3 ft up. And then
I see that the presumed Petit long definitely is being uttered by one of
these presumed H. frontales.

I really don't see how White-touts, Peets, and the presumed
H. frontales keep themselves sorted out in this region! Do it cry
firing at different periods of the day???

6:30. There seem to be a lot of presumed H. frontales firing
in this general area now. But everything else is rather quiet.

6:32. See a single Yellowbellly. Quiet. Sft up in AS. Appa
rently alone.

6:34. Slightly down road. Hear what may be Altaeites torgu
atus long down in ravine. NODWAH starts up. Then there is another
curst of presumed frontales firing. Also NODWAH

6:41. Walking back up road. See another single presumed
frontales. Sft up second growth. Sft. Definitely alone. Uttering "AL
on 2s. Then off.

Things becoming quieter now. 6:52

Walking up road, see another pair presumed frontales alone.

This certainly is one of the least gregarious species in my groups!

WELL! WELL! WELL! 6:40 a.m. Reach 88'45 ft. Bottom limit
of area reached. May 21. See my pet flock uphill. Includes at least
two Yellowbellies and two Mazarorhous. Flying from tree to tree in
AS. Obviously highly organized. Mazarorhous f. -> Yellowbell
us repeatedly!

At same time another, much larger, mixed flock appears
moving along road, slightly downhill. Includes at least 3-5 x's.
(the Pseudosorus - types), 1 Blue & Orange Darnager, 2 Yellowbells

Acronicta (definite?), 1 Mottled, 2 presumed 11, frontails

Line), all frons Syrallaxis with light eye-marks (CRVII

1 C. Blue speckles (CRV), 1 of the gray capped were types, and one

of the "manahat" (small species). Birds moving their very mixed

second growth scrub and small trees. Syrallaxis and presumed fron-
tails tending to stay low 3-4 feet up. Most others ranging higher

5-20 feet up.

Group obviously highly organized. All birds close together.

At first CR's are in lead. Yellowbell f. -> CR. Then the

Blue & Orange jumps into lead. Yellowbell f. -> Blue & Oran-
ge. Dulcina and Whitetail usually at rear.

Group as a whole moving. Some Whitetail and/or presumed

frontails 'song'.

There certainly were no concentrations with group.

NOTE: I am fairly certain that the presumed "All regions

Syrallaxis" seen in this area before were CRVII's.

COMMENTS: The two flocks described above were only

100-125 yards apart at one time. But, as far as I could tell, they
did not join one another.

The larger of these two flocks probably was largely the

same as one of the flocks seen on May 21. I E. flocks may be "long

sustained" Here.

Fun reaches this area ca. 1412P. At same time, would

starts to come up.

Everything is very still indeed. Apparently deserted, after
these flocks have moved on.

Walling down road, 8:04 a.m. 8245 ft. See very large flock
flying thru tree-tops in VSTT. Down hill in ravine, a considerable distance away. This probably is pretty the same as the large flock seen uphill earlier. But, if so, it has become even larger in size. Now includes at least 20-25 wids. Among them are: 3 TK's, 1 or 2 Yellowbells, 1
Whitethrush, 2 Ruddy Flycatchers, at least 1 Flycatcher (IX-1 Cy (m))
2 Kittis. Group is scattered over a very wide area. But obeying highly
organized. TK's probably in lead, short of time. 

Before group appears, I see a pair of Hylophus feeding low in bamboo scrub. Obviously alone. But then these Hylophus get “swept after” the group. Hylophus feeds f group repeatedly.

8:20. A few yards further down road, see single Pekt. fly out and alone. 2 ft up in low, semi-AS, scrub.

8:36. A few yards even further down road, see pair Hemipus
wings or Band-tailed Pigeons very low in scrub-by slide. Quiet. Definite alone. These birds may have been “true” Band-tailed Pigeons.)

Then hear long Pekt song uphill. NODWAH. Stops. Then hear
“Northern Cy” type song across ravine. Also NODWAH. Stops.

8:44. Same area. See single 7 Yellow-fronted alone. 10 ft up in second growth tree

8:48. See single footy Thrush (definite) feeding low in scrum
or adjacent slide.

9:08. 50.25 ft. Small Eucalyptus plantation surrounded by
thick scrub. See single Yellowbellies. 15 ft up in Eucalypt. Alone now.

Titters “Zeeewee zeeewee zeeewee zwoo” (Very loversious-like!!!)
Then Yellowbelly fly to join mixed flock 100 ft. away in scrub. 
Flock also includes 2 Whitetarts, 2 Maragogrums, 3 or 4 other birds 
(probably 2 or 3 different species). Whitetart is definitely in lead. All others follow repeatedly.

A few minutes later, another mixed flock 9 includes 2 Yellowbellies and 2 Pt's. All 2-4 ft up on roadside numb. P.S. from Yellowbelly.

Note: This area with its rock slides, second growth plantations, etc., looks ideal for A. rufopuncta. Its apparent absence is very remarkable.

9:25 A few yards further on, see what may be same pair of Yellowbellies. Now apparently alone. Feeding becomes c. 1 ft up small tree edge of slide.

Comment: As far as I have been able to tell, all the species here are feeding in the same way as in other parts of the Andes.

9:41 See a pair of Blue & Oranges moving low through numb- 

mark: 2-4 ft up. Very noisy. Lots of "fee see see ... " Notes. But quite definitely alone. (This is area where Pt was seen earlier this morn- 
ing – but it is not audible or visible now.) Then the Blue & Oranges move right past an Oedichena. No evident reaction of any sort between the 2 species.

9:51. Looking down into ravine where large flock was 
seen last. See pair Whitetarts flying high in trees. Also 3 or 
more flavolavus being noisy low in mixed bamboo num-

But then 

2 groups are far apart. I think that they must both be classified as "alon-

The rest of this flock seems to have moved on and/ or involved
For coming back in 10:30 a.m.


Leaving 10:50 a.m.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

May 26, 1966

Canyon Pass

Going to work on Suizo-Maria side of pass this morning. Farther down than on May 22. Avenue area 8650 ft. 8:48 a.m. Clear. Col. now jeg up hill.

This area seems to be thick second growth scrub with patches of

VSTF.

First miscellaneous bird sounds 8:51. Then brief lentent-

White-tailed jay calls type song, NODWAN. Shuts up. Then quite a

lot of hard sounds by 8:58 (Big Buttercampus?? also some R's). Then more presumed jay calls, song, NODWAN

During next few minutes hear a lot more of both R's (which may be uttered by either Baris or flycatchers) and jay calls, song alternating without overlap!!!

Then see group of 3 White-tailed jays 4-10 ft up scrub. Definitely alone, silent at first. Apparently quite unaffected by fact that jay calls are singing (NODWAN) 20-30 ft away. Then Whitetail

art begins to sing. Presumed jay calls shuts up immediately!!!

Then see single Sooty Thrush alone

4:26. See bird uttering R's (NODWAH). It is Ruddy Flycatcher 2 ft up thru scrub of cliff behind alone. 3000 ft.

4:33. Come across 3 atropuluses again. Now see that there are 3 kinds of the species here. All moving close together, 1-6 ft up mixed scrub (with some bamboo in it). Picking variety of great variety of leaves,uttering "chik's. Then single Thlypopsis is

> atropulus. Larks right beside them. Begins to fade.

Then whole group moves off together. Obviously very highly integrated. No sign of hostilities. Thlypopsis 1 and 2 is > atropulus at least a couple of dozen times!!! And, as far as I can tell, the Thlypopsis is feeding in exactly the same places, and using the same methods, as the atropulus!!!

NOTE: All the Thlypopsis seen around here have black and orange heads, and orange underwings except for white patch on breast and bellies.

See single presumed frontalis alone 2 ft up scrub.

Birds are generally much quieter now. 4:48

Walking back up road, see 2 more Sooty Thrushes alone.

4:01. Back down road. 3000 ft. See single Rict. Potent. Alone. Feeding low in scrub. Also feeds on ground at least 3 times.!!!

**Note:** This is just across road from where Hypognathus - atropilus group was seen earlier. But latter seems to have gone on.

A few minutes later, and only 30 ft down road, come across another named flock. Includes 1 flycatcher CIX, 1 lattis, G+1/2, 2 Blue & Orange Tanagers. Three 3-12 ft up small trees edge cliff. Quiet but highly integrated. CIX and G+1's u front but widely separated from one another. Followed by Blue & Oranges, butt bringing up rear.

This group eventually goes up hill. It does not join the P+ Synallaxis-Frontalis group (albeit the latter is quite audible and probably vocal).

1:32 am. 8445 feet. See very large mixed flock. Includes at least 2 Mangaromus (definitely vocal species), 1 flycatcher CIX, at least 4 (probably 5) lattis, 2 or more CIX's, 2 presumed G+ lattis, at least 1 Blue & Orange. When group first seen, the CIX's and Mangaromus were 30-50 ft up in UDF trees. Then these birds slow-down into very low scrub or slide. Only 1-2 ft up.

And it would seem that I became aware of the presence of the other species of group as a whole moderately quiet. Highly integrated Mangaromus usually u lead.

**Note:** The CIX's have light eyes — just like northern
Pseudopodresias
Sun has reached most of this area now.
1:53. 8425 ft. Cattle glumpe. 2013 CX's low in
wound on side. Quiet. Apparently alone.

Go on down to 8350 ft. 8:12 a.m. Then start back up road.
8:28. Not far from where last large mixed flock seen.
see what appears to be small flock in mixed bamboo scrub. under USF
Trees. Includes a H. atrogularis and a presumed frontalis. Possibly
others. Very far away from me and difficult to see clearly.
A few minutes later, somewhat further up road, catch glimpse of apparent small diffused flock in USF trees. Includes 1
menilus-type
White-tail. Mangroorsus, 1 flycatcher
Possibly 40 or 2 others.

Both these groups may be largely remnants of the large flock
seen earlier. But they probably would be classified as separate
non-integrated flocks now.

Everything is dead quiet. 9:00 a.m.
9:03. 8500 ft. See single White-tail. 4-5 ft up second growth
w. Butter "WN" s. Alone.

Go back up to can, then start down road again.
9:12a.m. Cattle glumpe. NODWAH
9:123. See single Rudy Flycatcher alone. Probably same vid. see
s earlier this morning.

9:28. 8500 ft. See pair Blue & Orange Janagers. Quiet. Do
fly across alone. 2" up scrub edge road. Then fly away into second growth
trees.
9:47 8475 ft. see single Pict alone. Feeding small tubular red flowers. 1-4 ft. up scrub-edge road. Silent.

10:01 8350 ft. see single H. cyanoccephala. Apparently alone. 2-3 ft. up second growth scrub.

10:04 Clouds coming up, and I am starting back up hill. Still at 8350 ft. see a single Blue-Orange fly across road. Set out and alone.

10:34 8350 ft. see group 3 Pictiter IX. Head south in semi-N. 3-10 ft. up. Apparently alone. It certainly looks as if mixed flocks tend to "mingle" in mid-morning here.

Also see single Reddy Flycatcher in usual place, 50 ft. away. Also alone.

Speak of the devil! Only a few minutes later see definite mixed flock. Includes 3 Chlorospingus types XII, ICC-like type (XIV)

Red Woodpecker (apparent same species as in Venezuela) XCI

WCC (blue-headed form) and probably 1+ WCC. All birds ranging 2-6 ft. up thick second growth scrub. In exact same area as PL-frontiates flock earlier this morning. All birds close together. All quiet. Chlorospingus-types probably in lead.

1 Reddy Flycatcher. SEE group.

NOTE: The 1+ WCC was behaving in usual Convertrum manner. Picking insects off leaves. But perhaps slower and more sluggish than most other forms of the genus (including the white-capped WCC), with which I am familiar.

Same flock back 10:55. Know now that it also includes 1+ Th.
It may be useful to add a general description of this area. It is a large patch of second-growth forest along stream ravine. Patch is approximately 3/4 mile long, several hundred yards across.

May 2, 1966

Above Pananw
In the center of the ravine are a cluster of tall trees. Most of these obviously second growth. But some or a few appear to be "mature" in general effect. On either side of these trees is thinner and lower scrub, intertwined with small trees. Obviously second growth. This merges into cultivated land (carrowγ fields) and/or very sparse scrub-pass (obviously the result of cutting and burning over the years).

I imagine that the climate of this area is very humid. No to the relative great abundance of hummingbirds! Also the presence of P. Allapetes and Hylorynchus. Perhaps the apparent absence of CC is another indication of relatively great humidity?

My impression, during the course of the actual observations this morning, was that the average population density of birds here was high. Looking over my notes and counting, however, I see that the density of birds of my groups is comparatively moderately low. (All the population is less dense and more spaced here than around Palca.) But it should be stressed that the area is inhabited by a great many hummingbirds, Epacris rubricanula, and a fair number of cotinga flycatchers, in addition to the species of my group. Thus, the population is moderately dense as a whole.

There was a lot of bird move here this morning, this would suggest that many of the birds here are in breeding condition. If so, this is in great contrast with the birds of the Carpish Pass area (except the presumed H. frontalis).

In a way, today's observations were rather a relief to me. I summarized my 1964 Palca notes yesterday — and they seemed
to be far too "extreme" to be true!!! But it is obvious that the situation here above Pampa cannot be too different. Possibly identical (if I overlooked very "diffuse" flocks at Palca). Possibly more similar to the situation in other areas of Central Ecuador, where highly organized flocks do not occur.

The great question now is: **Why is there such an extreme difference between different areas within the Central Peruvian Region?**

Possibly it can (still) all be explained by factors such as density of vegetation and frontiers.

**NOTE:** The area worked today is not far from drier region ("cold temperate") near the town of Pamer. Itself. The original forest here probably also had an extensive frontier with Pampa (mountains here are high). And, of course, as noted above, the area actually is surrounded by cleared land at the present time.

May 28, 1966

Above Pampa

Going to work same place as yesterday. Arrive 4:02 a.m.

Clear. Cool.

SEE TODAY'S NOTES ON MIXED DIGLOSSIA!

COMMENTS:

It would appear that the social behavior of the birds here is more like that of the birds of Central Ecuador than like that
of the birds near Palca

In this connection, it should be mentioned that the area near Palca, around farma, is much more arid than the area around the town of Baran. Thus, one might expect to find moregregariousness here than around Palca.

COMMENT: Working over my Carvajal notes, I find that gregariousness here is quite incredible, like gregariousness in the northern part of the Western Cordillera of Colombia.
Central Peru, 1906
Campus

May 21, 22, 23, 24, 25, 26

No Indo seen Alone

40
80
120
160
200
236

Total = 236
89
325

No Indo seen

26

No Flecks seen

14

No Highly Organized Flecks seen

14
20
21
24
29

Largest No. Indo in one Fleck

25

Largest No. Species in one Fleck

40
19
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Central Penn, 1960
Campbell

Hours

May 21  5 hrs 30 mins
May 22  4 hrs 45 mins
May 24  4 hrs 30 mins
May 25  5 hrs 00 mins

19 hrs 45 mins

May 26  5 hrs 15 min

25 hrs 00 min
Above Pauao

Indo Alone

Indo ni Heklo

(32) 

No Heklo seen

No Highly Organized Heklos

1

Spp per Heklo

4

3

2

2.75

Largest No. Indo in One Heklo

4

Largest No. Spp in one Heklo

4

May 27, 28, 1966

10 hrs 00 min
February 8, 1964
Chechlapoyas

See today’s notes on Mixed Diglossini.

Apart from diglossines, all I saw today were lots of Andean sparrows, gold finches, and a red-breasted blackbird. I heard several vocalizations which sounded very much like the TWA of M. horaeus, but I think that they were actually uttered by the blackbirds. In general, everything was very quiet.

February 9, 1964
Chechlapoyas

Going to work this morning in same area as yesterday afternoon. See today’s notes on Mixed Diglossini.

6:13 a.m. See what seems to be single flower worm alone.

See a pair of Yellow-grosbeaks alone several times.

See a single red-breasted blackbird alone once, in tree which grosbeaks visit from time to time.

7:40. See another single red-breasted blackbird alone, in another area.

9:30 a.m. Finally see a mixed flock of sorts. In area where a bright Coroninius seen earlier (see Mixed Diglossini). When first seen group includes at least 1 bright Coroninius, at least 2 (probably more) dull bonariensis, and 1 cyanecephala. All quite close together in area of dense, moderately high, sand. (This whole area of scrub is quite extensive. Along stream which eventually develops into a barranca) Group as a whole quite more...
Lota of TW's and sometwitter. Most of the noise contributed by the Bonarenum
is, but the cyanophylla may have added a little. Group as a whole is quite
difficult to follow. Keeps appearing and disappearing; from right to
left, Bonner flies toward the group, lands in scrub about 15-20 ft away,
but does not, I think, come much closer (i.e., this Bonner may have been trying
to "excit" the group out of its territory). About this time, the cyanophylla
sudden to disappear. Then, during one of the periods in which the group (now
possible only Bonarenum) is not visible, I catch a brief glimpse of a single
bird which may be A. sufinicola getting thru scrub in exact place where the
Bonarenum were earlier and where they reappeared a few seconds later.
When they reappeared, there was no sign of a sufinicola with them. Then, a few
seconds later, I see a single CC and a single Bonner quite close to one another and
quite close to 1 bright and 1 dull Bonarenum. The Bonner flies off. Then the CC
does. Then, the 2 Bonarenums also leave. This is the last time of either the gr
oup or these Bonarenum.

A few seconds later, I see a single cyanophylla in area where flock was

A minute or so later a single Bonner (cc) appears in same area. Flies

ADDITION: There were several apparently hostile groups among the
Bonarenum in the mixed flock. I shouldn't be surprised if there were a
family groups involved.

Also, it may help to explain why the mixed flock was formed. The nor
ma and activity involved in the intra-specific disputes may be the reason why the
group of Bonarenum was attractive to individuals of other species. (This might
be an indication that individuals who do not usually join other species retain
the capacity to do so.)
If, on the other hand, mixed flocks are unusual here, it must be due to
something like the direct or indirect effects of lower altitude (unproved climate,
etc.). These certainly are no more species of fly-gnats here than near Quito
or Parama-Palea.

Going to work in some general region this afternoon. Arrive area where
mixed flock was seen at 11:30 am. Windy & cloudy. No birds vis-

ile

see a single Bruin alone at 4:41 pm.
4:54, see a single cyanophila above. Probably same individual so
in this morning, listening "ccccc" Notes. Flies away.
5:12. What seems to be unmistakably an Orange-billed falcata flies
by silent and alone.

Incidentally, the altitude of this place now, according to my altimeter
is 8075 ft. As the altimeter in the same place read 7960 this morning, so-
thinking might be going on! (I think the area may be around 8100 ft).

Then see another single Bruin (or the same Bruin again) alone.

Then see a pair of Bruins flying about together. One utters "rrrrrrrrrrrrrrrrrrrrr"
when they land together.

A few minutes later, see a single Bruin alone.
5:54. Definitely see Orange-billed falcata in much silent and
apparently alone.

Then see a single through alone. Apparently same fly-spp. as this.

A few rain drops 5:50. Starting back to town.

NOTE: It seems obvious that mixed flocks are not unusual here, at
least in the absence of brownies.

Just as I am about to leave a flock of at least 6 (probably more)
red-breasted blackbirds flies in fruit lands in scrub, then moves on to adjacent eucalyptus trees, then moves away. Birds apparently alone. Don't attract any of the local students of other species during the brief period that they are there.

6:17. Get back to CC-Brun-Barn area. A Barri sniping alone from perch on jaguar leaf. Then see 9 Barri on jaguar leaf about 3 ft away. Then white line develops, presumably Fading 9. Select. Then both birds disappear.

A Barri back sniping 6:23. But it is now too dark to see well.

February 10, 1964
Chactapayas

 Went exploring for roads up to higher areas at dawn this morning. Found some. Don't know how they will work. May have too late now (7:15 am) to start mountain climbing so will go back to area where mixed flock seen yesterday. Cloudy. No wind. Warm-ish.

See single red-breasted blackbird alone.
Good heavens! See a single yellow-bellied seed eater alone!
See a single bright brown-rumped with some other birds. Panded, a few stop.

Baja. Bright brown-rumped flies off. No other bird does not. Tihucks follow.
See single Brun alone.
See single red breast alone again.

Rising in 7:35.

There may be a CC sniping in group of Eucalyptus invisible. No other brown-rumped sniping at same time.

Have seen several single twintails and pairs of twintails alone. All ap
parently same species seen yesterday (Ex)

Albatrosses according to my altimeter now 7975'
7:47. At starts up. Brun swag a few phrases. Then flies away.
Well well! See single adult Brun feeding single juvenile Brun.
Hatter with adult length wings & tail but complete general plumage. "Begs" by wiggling, with wings spread out horizontally. Accompanied by slight BU, no TV. As far as I could tell, both birds were silent throughout
And at 8:00 see single B. quadriceps magnificus alone. Hopping
silently from tree to tree; where flock was yesterday but where there are no other
birds right now. (Identification definite - crown very black.)

Then see single Brun alone again

See today's notes on Mixed Diglossini

8:55. See another single Brun alone

9:00 see another red Breast alone again

See single of Yellow-footed alone

Leaving 9:07 a.m.

Note: If the cyanoptera here really does associate with the Con
aureus, the reason may be that it is a single bird. There may be no other
cyanoptera around for it to associate with.

This afternoon going to walk up mountain not far from mixed flock
area. Starting 2:15 p.m. 20475 ft according to my altimeter (which seems to
exaggerate in the afternoon)

Cloudy & warm. Not much moving.

While area thinks not many of varying height in different colonies.
8:48. 8550 ft. See single cyanoptera. Probably another bird with
it, but unseen. See only another individual same species
Can hear what may be Boyes vi. distant.

Followed up hill on a single Brum alone.

This area looks very much like some of the areas in the Bogota region on, surprising, as it is lower in altitude (altitude).

I saw Brum again alone. Feeding on white flowers.

Lots of hummingbirds around here.

3:04. See another single Brum alone 8,500 ft.

Reach approximately 9,000 ft the crest of the ridge, 3:25 p.m. Path goes along thorn dense thicket taller than my head. Almost impossible to see anything. Warms.

3:31. See a single Black & Blue Tanager feeding in thick scrub 5 ft above ground. Looks just like Black & Blues seen in months, but I note that this bird has an opalescent green tinge to head & wings. Probably other birds with it. See it again a few minutes later, possibly alone.

3:44. Keep going further, more or less horizontally. Dead quiet. (Thinking it over, there was really quite a lot of noise near that Black & Blue. Possibly was a mixed flock.)

4:10. See a pair of that montane cotunga (Gray with purple necked crest, the one I have seen many places before). Apparently alone.

No red tubular flowers around here.

Up to 9,125 ft. 4:35. Still quiet as the tomb. Standing down hill.

I certainly don't think that anything much can be breeding around here.

Finally see some purple tubular flowers with holes in them.

Still above 7,000 ft, see pair montane cotungas alone.

Then, almost same place, 4:54, see single Digna. Either coeruleus or (less likely) juvenile some other species. Still gray blue (quite blue), darker
above lightly below. Dark eye. Most of upper mandible black. Lower mandible and gape region upper mandible sort of yellowish flesh. (No expanded "wattle" around gape, however.) Bird quite alone. Eats small pumic flower-like fruit (biting or gobbling into fruit) in small tree 2-10 ft above ground. Utters occasional loud single "seecet" notes. Then flies off.

5:00 a.m. See a single cyanocaphala a few feet further on. Utters slender, weaker "seecet" sound.

5:13. See a single bird which I presume is a torquatus hopping thru mud, close to ground, silent and alone. (I presume it is torquatus but the stub on its head looks quite light, almost white.)

Hunting down hill from 7000 ft 5:32 p.m.

8:445 ft 5:47. Hear what sounds like forma caf. singing area thru low bushes. Then shuts up. Then something that sounds like Bein sings thru some alteration. With partial overlap. Then no overlap. Then some overlap. Then finally Bein alone. (I am certain as I can be of their identifications.)

for several dark thrushes without being able to identify them.

Leave at 1:15 p.m.

In general, this area has a "biological fascie" reminiscent of Colombia and Venezuela. Viz Tangara versicolor and (probably) six species Diglossini. Why? Two possibly significant facts occur to me:

1) This area is very close to the Marañon. It is possible that the valley of the Marañon cuts right across the temperate and upper subtropical zones. It is possible, therefore, that this is a "frontier" area. (Which would be particularly nice if mixed flockies turn out to be common here!)

2) The whole physiography of the area is "cut-up" and "jumbled." Mountains (not very high) and valleys all over the place. Thus, even if this
is not a "frontier" area in the sense that the temperate and upper sub-tropical zones are completely cut off from similar zones to the north, the peculiarities of temperate and sub-tropical zones around here may be "semi-temperate."

February 11, 1964
Chechenpaga.

Going up same mountain again this morning.


and a lot of stuff I don't recognize. I am about 1/2 way up the mountain now, and have yet to hear anything very like D.C.

Some Brun "further" type songs 6:02.

A single Brun singing alone.

6:15. Hear what sounds like A. torquatus in area where singer is singing.

A few minutes later, hear what is obviously song of A. m. unica or A. schistacea in adjacent area.

SEE TODAY'S NOTES ON MIXED DIGLOSSIA

Starting up to 7000 ft level 8:00 a.m.

As usual, blue teguatus same place as before.

See a single Brun calling alone. Possibly same individual as before.

(See digital notes). Red patches look quite orange.

See single Brun alone.

7:45. See 1 in a Black & Blue Teguatus apparently alone. Flightless
above 9000 ft

COMMENTS: None of my observations yesterday or this morning would suggest that organized mixed flocks are common here. Even if mixed flocks are more common here than near Quito or in central Peru, this may mean only that the species here are not keeping apart from one another by special methods.

Although both Firebellies and some Altametas of the rufinucha, a-reluctanteeus type occur on the mountain ("Toraja") here, they both may be relatively rare. Nevertheless, by contrast, may be quite common, but they are difficult to see and identify in the very thick scrub here.

Which brings up another point, . . . the scrub on Toraja is probably thicker, on the average, than at any other place I have ever worked.

A peculiar feature of the local avifauna is the relatively low-altitude at which many species occur. The Toraja area is certainly lower than the other subspecies of leucalnager with which I am familiar. The Firebellies also may be relatively low here. And varioii ??

And the "Coq" ??

Going to work below Chachapoyas this afternoon. Started at bottom of barranca leading up to same range of mountains where I worked this morning and yesterday afternoon 4150 ft 2:50 p.m. Cloudy

No! Going to try similar barranca a little higher up 4710 ft 3:00 p.m. Starts out as region low sparse wet scrub, Breckan

Everything seems quite dead 3:30. No birds of this region certainly do not seem to be active in the afternoon!!

Well! 3:35 4425 ft. See single A rufinucha aloof in relative
by dry open scrub near upper edge of canyons. Uttering "Hut." Notes. This rufus was no trace of rufus-tailed. Does have white wing patches.

Actually, when I come closer, I find that there are really 2 Alaudas here. One looks just like the rufus, but is heavily streaked with blackish or yellow underneath parts! Is this a genuine rufus? Also annotated with the birds families are 2 Baurlements. Either superructatus or (more probably) interrrudis also utters AL's or ALCV's. 1 Baurlement us if rufus! Then one Baurle is attracted by the commotion and joins the group, but apparently doesn't stay long. The actual area where the group is at 7470 ft. Group moves down hill out of sight.

4:15. Up to 7650 ft. Area of dense but low, obviously young, and moderately humid second growth. Sun has come out and little wind has started. Still nothing much moving.

God! What a lot of mosquitoes and biting flies there are around here.

Starting downhill 4:35 p.m.

Down at base of canyon at 7450 ft. Large thistles. Same species as around chaira payas itself. So far the only species I have been able to see well in this region.

Leave 5:00 p.m.

Will work in Baurle area.

See single bright burchessi alone

Leaving 6:05

NOTE: I am beginning to think that the occasional occurrence...
ce of mixed flocks in this region is a very good thing for my hypothesis. I don't see how the mixed flocks here can be explained as anything but adaptations to "frontier" conditions. The region certainly is not wetter all over than the French and Polea areas. And not only are there relatively few species here, but there are also relatively few individuals of the species that do associate in mixed flocks.

February 12, 1964
Chelepectranos

Going to work on Juvisa again this morning.
SEE TODAY'S NOTES ON MIXED DICLOSSINI.
14:10. Faded cyanosepalata, pair of Firebells, at least 1
A. submusa in same general area of scrub. But not very close together
and the 3 species seem to move off in different directions. (This area is not far
from the area of the single "coeur" watched yesterday.)
See single torquetas alone in same general area a few minutes later.
A. torquetas is certainly the overwhelming, dominant bird-
found in this area. Between the vegetation is no dense?
This afternoon going to work along another road, the road to
the airport, slightly above the town.
Beach area scattered low scrub, 8170 ft, 3:15 p.m. Area looks rel-
atively arid, but there is no cactus. Apparently nothing around but some Ar-
chen Spanoos. Lots of wind!
Gave up because of wind. Go along another road, the one to Mendoza.
Amure rate 4700 ft 4:05 p.m.
Lots of hedge, with agave, some S. in flower, but nothing except
Hummingbirds moving around yet 4:25. Wind is strong here too.
Lots of hummingbirds in Agave Calibr, coruscans seems dominant.
5:20, see a pair of very light colored thrushes (species unknown) alone.
5:30, see a single Red-Crested Blackbird alone.

February 13, 1964
Chichapoyas

Going to work near the town where I saw the first mixed flock
(himantopus - cyanoccephala etc.)
6:21, see a single large pale thrush (presumably H. Z. alone)
Then what sounds like A. rufouscilla song.
6:45, see single House Wren alone.

SEE TODAY'S NOTES ON MIXED DIGLOSSIN.
I am not sure exactly what is the breeding status of many
of the local species. All or most of the diglossin seem to be more or less in
reproductive condition, so may be the bonariensis (they are uttering lots of
TW's) and possibly the cyanoccephala (I have heard noise 'twitters' on
them). But the A. rufouscilla do not seem to be very active. For the
zcubellus
Northern Peru
Churupayac - Hill above town

No. Inds seen alone

No. Inds in Hocks

Total = 120

No. Hocks seen

No. H. O. Hocks seen

Largest No. Inds on Hock

Largest No. App. on Hock
Northern Peru
Chachapoyas - on hell above town

*Hours Spent*

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
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<tr>
<td>Feb. 10</td>
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<td>Feb. 11</td>
<td>4 hrs 30 min</td>
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<td>Feb. 12</td>
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Arnie town in afternoon. Then moved fog and rain. Altitude of my hotel is 8575 ft, according to my altimeter now. It looks as if there is little or no natural vegetation left near the town. But there probably is some second growth scrub.

As for walk outside town. Reach area much second growth tree small trees scattered in pasture-like field. And see definite mowed flock. Includes 1 Jufjufa. Also mowed and wide All dark gray with definite streaking above and below. Presumably. Also - look looks unusual large. Also at least 2 Brunneteas or Hemspurges types (possibly Squinches). 1 adult and 1 young. Young and is fed by adult. Also 1 bright bandedness and 1 verdorid (either pepper diner or abode verco - which ever one is gray, olive and yellow with conspicuous rufous "spectacle"). I shall call this verco (CXXII).

Group as a whole quiet and diffuse. But possibly highly integrated. All birds going same direction. All in trees a scrub 4-20 ft up. (The rest of) flock

Note: This area approx 3425 ft. I began to observe here ca. 4:20. Saw flock at 4:30 p.m.

Then see single foot through alone.

4:55 p.m. A little further on, region of thick and damp but low scrub. See single Microcyana megaloptera. Silent. Perched 3 ft up. Definite
5:14 p.m. See what appears to be PL Allegories, 2 ft up in "hedge". Silent. Then see pair Yellow-bellies only 1-2 ft away. Apparently this is a mixed flock. But probably not highly organized. Allegories disappear. Leaving Yellow-bellies apparently alone now.

5:44 p.m. Walking back down road. See another single foot y Yellow-bellies, 3 ft above. 10 ft up in tree in "hedge".

5:53. 8650 ft. See single Orange-crowned Slaty-faced alone in "hedge" by road. Slaty 3 ft up.

5:54. Down near where first mixed flock seen this afternoon. See single terrestrial "Slaty". On ground and 3 ft up in shrub. This presumably a bird that was with flock earlier. But now it seems to be alone.

Stopping observations 6:05 p.m.

Catero,
June 13, 1966

Going to work same place this morning. Somehow I overslept and didn't arrive until 6:30 a.m. Relatively warm. Foggy.

7:01 a.m. 8650 ft. See group of 2 or 3 Baird's sparrows moving thru hedge. 3-5 ft up. Apparently ungregarious. Flock. Apparently alone. (There is a Carrion Crow here, but surely this association is either hostile or coincidental.)

A few minutes later, same area, see single T. cyanorex 30 ft up in Eucalypt. Then hear northern T. virginianus thru Nodwah loop. Then T. cyanorex 30 ft up. Nodwah, stop. Then the
two species alternate phrases with overlap. Then cyanoccephala
shuts up. Cy continues NODWAH

There also is a pair of Cinnamon Woodpeckers on some trees

Probably the Cy cyanoccephala and woodpeckers should be considered to form a loose flock.

Then a single Cinnamon Hummingbird attacks one of the Cinnamon Woodpeckers !!!!!

A few minutes later, slightly down path, a pair of Yellow-bellies 4-10 ft up in hedge. At first apparently alone. Then single Digna (probably Ater) → Yellow-bellies. Then Digna flies away. Then I see single Cinnamon Hummingbird near Yellow-bellies.

Is Cinnamon Hummingbird & woodpeckers here now?

7:30. Just a few feet up road. See part of Cy flying about both in hedge and Eucalyptus. Apparently followed by pair of Yellow-bellies. Obviously same pair seen before. They stick to hedge under Eucalyptus. Then single Ater f. → Yellow-bellies. Then Ater goes up into Eucalyptus. I guess territories of Cy and Ater are at least partly overlapping here. Although I have yet to see either of the 2 species close together here.

Cinnamon Hummingbird and Woodpeckers are still around in general neighborhood.

So perhaps all the birds I've seen so far this morning have been members of the same loose social group !!!!

Cy (s) sing(s) again and again. All NODWAH. Then shut(s) up. Then I hear some preserved Ater R-Za-Za patterns. Then I hear
pressed after going NODWARD. Then they shut up too.

Then I see 2 Orange-billed Slaters in same small tree as
Yellow-bellies !!!! Only 3 ft away. One of the Slaters is just
Begs from and is fed by adult!

Fellow-paths up hill. Scrub gets increasingly low and poor
Climbing the further up I go. Finally 8:30 a.m. 9,000 ft. see another
mixed flock in distance. Includes 3 Atta petes tricolor, 1 or 2 Barren
armes types, gamble others. All in low thick scrub 2-3 ft up. All
quiet. But all close together. Group obviously highly integrated
as has lifted now.

8:44. See single Scotti through skinny along

8:57. Jut a little bit down road. See group of 2 or 3 Atta
petes. Low in low thick scrub. The specific identity of these birds
bothers me. Their crowns are definitely rufous in front. Much lighter
(yellowish?) behind. And they do have a white wing spot. Could these
be rufoventra ??? And could they be the same as the birds I identified
as tricolor earlier? ??

Everything dead quiet now

8:42. 9:15 a.m. See single Atta apparently alone. 4 ft
up in fairly thick scrub.

9:55. Down near where large loose flock was earlier. Thin
street, see single Atta, 6 ft up, hugging definite adult, silent. Feeding on
all red berries. Using same technique as Atta in Venezuela.

Then see single Atta cyanocephala. Also silent and alone
at 40 ft up in Eucalypt. 100-150 ft away from Atta

A few minutes later, see definite mixed flock in scrub 40-

There also is some small bird of another species around in general neighborhood. And a single foot through group. Apparently only cruffs.

Comments: Mixed stands seem to be surprisingly common here in view of the fact that the natural vegetation (which must have been UST - A) seems to have been completely destroyed.

This must be correlated with the fact that the area must have had relatively long frontiers with the humid sub-tropical zone. Certainly a good deal of the farm land we passed yesterday on our way up from Chulayso looked quite humid.

Note: We also passed large patches of UST forest ca. 5,500-10,000 ft, near a place called La Montana, not very far from Chulaya (2-3 hrs). Northernmost Peru must be the most southerly part of the tropical Andes where humid forest or the "tropical" of not the "sub-tropical" zone still occurs on the western side of the range.

10.43 a.m. See single Cinnamon Wood-piper. Apparently also in hedge. 10 ft up. Hesit.

Stopping observations 11:00 a.m.

Going to try country side on other side of town. This afternoon marched outskirts 8,500 ft. 1:50 p.m. Cloudy. Windy.

See a single foot through alone. In hedge by road.
2:34 p.m. 8760 ft, see single Atalopetes. Probably mafumcha.

Apparently alone, 2 ft up in extensive area low scrub.

Reach crest of ridge. See what looks like real VSTF a few hundred feet down hill and 1/2 mile away. Not a very large patch, but quite unmistakable. Neverthelss, I am going to explore scrub higher up first.

2:46. Not much further on, see single Th. cyanoccephala fly by.
Silent and alone.

See a tree fern in second growth here.

Then see another single footy Thrush alone.

**Note:** There really are quite a lot of birds here. Unfortunately they are staying hidden most of the time.

Go on down to upper edge first violeted patch VSTF 8760 ft

3:32 p.m. Quite a lot of miscellaneous bird sounds audible, but none visible yet.

3:40. See family Atalopetes. 2 adults, 1 juv, 3-6 ft hedge. In scrub between fields. Definitely alone. Pine are the birds which look rather like Turcoela and mafumcha (XXXIV). But I am fairly certain that they really are pure mafumcha.

3:50. See pair, Blue and Yellow Tanagers. 20-30 ft up VSTF trees. Almost certainly Yellowbells. There may have been another bird of another species (Tecaltith?) with them part of the time.

Then follow narrow path up thru VSTF scrub. 3:58 p.m. 8825 ft. See small flock 2 Blue and Blacks, 3 footy Thrush Call. All 2-3 ft up in scrub under low VSTF trees. All close together.

Footy thrush f -> Blue and Blacks
Go on back up to crest of ridge
5:13. See single presumed *rufouscita* (XXXIV) low in tree
on one side of road. Also hear tawny (probably Yellow-bellied) 20-
30 ft away in hedge on other side road. But the 2 birds do not
seem to be together. Tawny eventually flies off. Notting fellows.
Stopping observations 5:35 pm.

June 14, 1964
Uintana

This morning I am going to work in the same place as
yesterday afternoon.

Arrive crest of ridge 5:32 a.m. Dark. Foggy. Light
rain. Windy. Everything quiet.

First miscellaneous bird sounds 5:44. Lots of Andean
Sparrow Song by 5:45 a.m. But it is still too dark and foggy
to see much at 6:00 a.m.

Quite a lot of bird noises by 6:15 a.m. It also is getting
much lighter now.

6:29 a.m. see single Yellow-bellied. Apparently alone. In patch
of thick high second growth. Going from small tree to small tree.

Walking 12-20 ft up. Stopping
Fog is getting thicker now

see single Scotty Thrush alone

Birds in general have become noticeably quieter by 6:40.

4:10 a.m. Starting down path to VSTF – even though fog is
still think

manage to get myself out of fog, do come on back up to ridge
e. see single Cem (Hummer) alone in scrub of ridge 2:40

Going to try going down hill again

Hear several more Yellowbelleys on the way. The species is

common here.

4:40. 8,700 ft. Hear obvious torquatus song. PODWAH

7:51. A few feet further down, see single Alticetes c. xiv.
silent and alone. Feeding 3 ft up thick scrub. (NOTE: I still think at this is mifinicha. But the back of its crown patch certainly is very pale — almost much too broad to be pallidumicha.)

A little further down, see single bead pecked silent and
alone. Fog is very thick, too impossible to identify bird definitely.

Probably Th. cyanicepsale.

8:03 a.m. Fog starts to lift, a little, just as I am nearing

VSTF area reached yesterday afternoon. This time I found the right
tackle.

See a single footy through fog by alone.

8:14. 8,270 ft. See single Orange-billed Saltator alone, 2 ft

up in thick, moist scrub (yuck)

It certainly looks as if fog does not encourage the formation

of mixed flocks here!!!

8:25 a.m. 8,270 ft. Fog pretty well lifted. See definite mix
col flock. Includes 2 Blue Grosbeaks, 1 Bradenstoma typus. Latter

very noisy. Uttering R's. Sounds like microcircutus. All birds
come together. 10 ft up in VSTF - scrub - edge pasture
8:30. See another Anna Scotti through alone.
Then see another Anna Hummer alone.

8:50. Some distance away, see single Yellowbelly 10 ft up in
tree edge VSFE and young second growth. There also are lots of human
gulls in same tree. All Annas fighting among themselves!!! Annas
are common here. Then Yellowbelly disappears.

A few seconds later, see single Th. cyanoccephala 20-40 ft
away in scrub. Then see pair of Atlapetes XXXIV pressed unusually
close, 20-40 ft away in same scrub.

Some of these species approaches any other. But the XXXIV's
and the cyanoccephala, at least, are moving roughly parallel.

Then all birds disappear, and area is quite deserted for at
least the next 10 minutes. So I think that all these birds (except
the Anna’s) should be classified as forming a loose flock.

Jim trying to break through by 9:10 a.m.

9:12. Some little distance away, see what may be another gr
oup of a 8-3 Atlapetes XXXIV. In scrub edge VSFE. Centrally alon
e (now). Quite noisy, moving 3-10 ft up.

9:20. Then some other birds, almost certainly another species,

| CORRECTION AND ADDITION: 9:23. Go on a little further.
| 8:400 ft. Ahead of path being followed by Atlapetes group. See
| single DC (definite) feeding in scrub 3-5 ft up. Silent. Feeding
| white flower heads. Apparently alone. Disappears. But then,
| immediately, a single Th. cyanoccephala, a single Yellowbelly, an
| d a pair of Atlapetes XXXIV appear in same general area. Then a see
and Yellow-bellies also appears. All three kinds close together now. Yellow-bellies and *Ha. cyaniceps* raung 4-10 ft up. Both feeding on same species small red berries. Altipetes staying low in shrub. I E all my records of Altipetes etc. in this particular area. 2090-2400 ft refer to same birds belonging to single flock. Flock includes 2 Altipetes, 2 Yellow-bellies, 1 *Ha. cyaniceps*, an (presumably) 1 CC. Flock sometimes very coherent, more often diffuse. But certainly highly integrated.

**Comment:** It is my impression that flocks of this region tend to be diffuse more often than not.

**Addition:** A single adult Altipetes (definite) arrives to escort this flock. Feeds tuftular red flowers, silent. CC not visible or audible at the time.

9:30. Flock still here. Now a small Hummer appears. And attacks *Ha. cyaniceps* !!!!!!!

10:00 am. Flock flies down hill. Now I see that there is a second *Ha. cyaniceps* with group.

10:06. See single monarch creation coming along alone.

10:10. Area where *Batis* - Blue & Black flock was seen earlier for another mixed flock. Includes 2 Altipetes **XXIV** (low in shrub). *Ha. cyaniceps*, Yellow-bellies, *Phaethon* (same species seen with another flock a couple of days ago). 1 *Elodina*

**Type of Flycatcher.** All the latter species in trees. Group obviously highly integrated. First Altipetes ni leads, then *Ha. cyaniceps*.
moderately well.

This cannot be same group seen a few minutes earlier. But it certainly looks as if the Attaputes XXXIV - H. cyanoscaphala - yellowish avianation forms the nucleus of most mixed flocks in this region!!

A few minutes later, across pasture, req uirs second growth scrub. Hen B. insignisaltes R. Also see H. Attaputes XXXIV. 

Eluma-like flycatchers, and smaller flycatchers of a different species (possibly C.) Eluma type. 10-12 ft. up trees. All others low, wisec scrub. This would seem to be another diffuse flock.

10:35 a.m. A little further down, see pair of H. cyanoscaphala apparently alone. 10-20 ft. up. VSTF = trees. Felent

Then see a single tawny thornbills alone.

Then see pair Orange-billed Saltators. Alone. 20-25 ft. up edge. VSTF = Quite noisy.

Go on down to 2000 ft. 10:45 a.m. There is another patch VSTF here. But everything seems fairly quiet.

Then see single H. cyanoscaphala. Felent. Apparently above. 6-12 ft. up edge VSTF.

Starting back uphill to ridge 11:10 a.m. Arrive out 11:30. See single Attaputes XXXIV. low vi stur, scrub, old field. Felent. Apparently alone.

Stopping observations 11:45 a.m.

Going to work on opposite side of town. Area first visited June 12th, starting 2:45 p.m. Weather is mixed sun and cloud. Windy.

SEE TODAY'S NOTES ON MIXED DIGLOSSIN!"
3:25 p.m. Reach area where large flock seen yesterday morning. Flock scattered, not here now.

3:35. Going higher now, following different path from eyes today. Scenery getting poor and sparse along this path too. Reaching patches slightly better scrub. 7250 ft. 4:00 p.m. But everything is very quiet. Sun does not reach here, and it is cold and windy.

NOTE: feel is very sandy all over this mountain. Thus much of the sparseness of scrub might be due to edaphic factors.

4:12 p.m. Reach area which looks rather like unpervaded Parano de Guasca! 9310 ft.

4:25. See a single Soapy Wren fly by. Start down hill again 5:00 p.m. Reach area where I have wor

ked before 5:10 p.m.

5:14 8840 ft. Find a pair of small dark birds — apparent
cute Alties — from low-firm scrub. Apparently alone.

A little further down, see single Soapy Wren fly alone.

5:15. Down where large mixed flock seen yesterday, see another flock. Includes 1 Yellow-bellied, 1 Cinclides, obscure bird which appears to be a pair Dignorn (Gy ?), and 1 bird which appears to be tityopus line ! - the species which in orange underneath or
cap for center of breast. All birds quiet. 10-20 ft up in tree. Group

apparently highly integrated.

5:35 p.m. A little lower down, region thick low scrub. See 2 B. nigrocinctatus. Probably adult and juv. Hear begging

notes. Birds apparently alone.
Hopping observations 6:05 p.m.

NOTE: I am not including my high altitude observations this afternoon in my formal counts of gregariousness. But I am including all the others — and lumping them altogether simply because the species are essentially similar in all the other areas.

COMMENT: I certainly saw no mixed flocks at the higher altitudes this afternoon. If this is characteristic of the area, it is easily explained. This area is an isolated "patch" of moderately lush scrub. But it is close to Paramo (Puna) and probably always was largely or completely surrounded on three sides by very poor sparse scrub (produced by edaphic factors).

June 15, 1966
Cerroco

This morning, going to try to reach the higher altitudes reached yesterday afternoon. My departure is delayed by fog.

See today's notes on mixed diglossia.


6:38. 9,375 ft. See a single Attilipes (XXIV). Uttering "PN"s. Apparently alone. 2 ft up region stuff low scrub. Eventually, go much higher up mountain.

8:52 a.m. 10,075 ft. Area mixed scrub and (AS-USF) forest. See pair Yellow-bellies 10-12 ft up AS trees. Quiet. Definitely alone.
Going to start downhill slowly 7:25 a.m.  
10:10 a.m. Queria-like scrub 7,725 ft. See pair Attagets

CXXXIV alone. Probably same pair seen earlier.
Reach area down by town where I have worked before 10:40 a.m.,
11:00 a.m. Down very close to town. See single Cinn. Woodpecker
and single Cinn. Hummingbird close together 4 ft up ledge. Presumably
this must be classified as a local flock. Then Hummingbird flies away
Leaving woodpecker definitely alone.

Stopping observation 11:04 a.m.

Comments: My relatively brief observations of the
higher altitude area worked this morning would suggest that it
is strictly comparable to the area above Palca. S.E. Allogra
gregariousness is O. (The 2 areas also are similar in other ways
both are humid, but are surrounded by areas of grassland and/or
very poor, sparse scrub. Both are inhabited by impoverished
families. Although both faunas include species which are gregarious
elsewhere.)

Why is this area inhabited by Yellow-bellies and (presumed
daily) myrmecia, while the Palca area is inhabited by Firebellies
and P.Altagets???? (This difference may be nothing more
than another example of the random nature of "competitive
success" in the Andes.)

The fact that both the cyanocycla and mixed flocks
are both absent at higher altitudes here might suggest that
cyanocycla is the "metal migrant" in other flocks of this region.

But I doubt it !!!
Mam

Cutervo  Jun. 1946
Areas where fleas seen.

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<tr>
<td>Jun. 15</td>
<td>0 hrs 30 min</td>
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17 hrs 00 min
Cutervo Jan. 1966

High altitude area without fleas.

Hours Spent

June 14

1 hr 00 min

4 hrs 30 min

5 hrs 30 min
Catervo - June, 1966 12, 13, 14, 15.

Areas where flocks seen

No. Jnds seen Above

\[ \begin{array}{c}
42 \\
109 \\
\end{array} \]

No. Jnds in Flock

\[ \begin{array}{c}
61.47% \\
\end{array} \]

No. H.e. flocks seen

\[ \begin{array}{c}
13 \\
2 \\
\end{array} \]

Target No. Jnds in Flock

13

Target No. Spp. in Flock

\[ \begin{array}{c}
5 \\
8 \\
4 \\
2 \\
2 \\
5 \\
5 \\
4 \\
\end{array} \]
Catermo - June 1964.

High altitude areas without flocks

No. Fids. Seen Alone

111 111 1

No. Fids. in Flock

0
January 24, 1964
Nono

Arrive 6:05 a.m. Clear. Not too cold.
Ators apparently in full song. Other songs audible in background.

Pairs of themselves about

0:15: Hear a few Firebelly "In-card" type vocalizations. Uttered by a single Firebelly. Apparently alone.

See what appears to be a single Cy, fluttering about in Eucalypt. Apparently quiet above.

More Firebelly songs.

See a single Firebelly, quite alone.

Ator songs less common now - 6:23. Still some Firebelly songs.

For a single C. feeding alone in scree. Partially gutters, 1st song phrases. 

Disappears almost immediately.

0:24: The single Firebelly uttering "In-card" type songs from upper eyed perch at least 20 ft above ground in Eucalypt. Again - different tree.

0:25: See single Dendremon shrilling 20 ft up in Eucalypt. Presumably Cy, but looking very dull. Juvenile ?? Long phrases preceded by several in modulating "Fet" notes. Each phrase itself quite prolonged. Very rapid and twittering. Also- moderately soft. Not very much like Ator songs. Also - given by type ?

A few minutes later see what is probably same bird uttering similar song in adjacent tree. There is also a Thrynis bouncaeous in same tree. About 20-30 ft away. No reaction between the two birds. Then the bouncaeous flies to another tree 50 ft away. Utters several "See-wee" phrases. Apparent
ly quite alone. In bright plumage. Male

Next to warning phrases “Treee pee treee treee treee tree” No turning or other additional elements. Witnessed while bird perched in tree, exposed, soft above ground. Unnaturalized feature

lots of win songs now 9:45. Almost as completely silent.

some blue Sangers, presumably Cys, feeding and singing high in Eucalypts

6:50. Hear Dubeira singing distance.

6:58. Great distance in almost all song by now. Two Firebells.

Dubeira, or Dubeira's songs. Some Dubeira's songs in distance.

for single Alt. Alone lands in bush with R-30-34. Then feeds

silently. Adult.

Everything very quiet 7:05.

Single thrush flies by.

As a single Atteperes reffacher hopping through scrub. Utterings

lots of "Jit" Notes. Apparently quite alone

see a pair of Atteperes. Alone.

Hear more presumed Cys singing high in Eucalypts. Finally near

own level. Apparently adult Cys songs with introductory "Jit". Many broads

phrase high & forlorn. Apparently overlapping and chucking with another bird

in distance. Latter probably another C. Uttering similar forlorn phrases. Slight

on no tree of doublets in songs of either birds. Then the nearby bird flies

over to form distant bird. Now see that they are both Cys. Apparently mates.

No obvious hospitality. Hop of 5-8 three trees & scrub. Not too close together.

One or both sing(s) from time to time.

I think that my identification of a juvenile C. earlier this morning

may have been mistaken. The bird may have looked dull because of shyness.
More Firebells "Ja-que" performances 7:28.

Are the songs of the Cys heard today less like the songs of Atos than were the Cys songs heard here before? If so, is this because the Atos are not singing? Were the songs of the Cys heard before "contaminated" by Atos songs? In other words, do Cys males tend to sing whatever other Cys songs they hear? In the birds heard in the western Cordillera of Colombia, the pairs of Firebells, *I. albopunctis*, followed all four, close together. Firebells fly away. Atos follow. Then Firebells fly in opposite direction. Atos do not follow. Association apparently "accidental".

A few minutes later, 7:45, saw pair of *rustycheek* in bush where Firebells were earlier. But Firebells apparently gone now. *R. rustycalle* apparently silent.

 saw a single *rustycheek*, supplanted by thrush. Who then moved on. Thrushes here apparently all blackish, with coal bell, lego, and eye ring.

See pair of thrushes alone.

Aerial chase involving 2 adult Atos. Silent. Alone. Then see single Atos alone in Eucalypt.

See single thrush alone. Another, see a single Atos, swinging alone in Eucalypt.

See a pair of Firebells alone in another Eucalypt. 7:55.

Again see single Atos alone. Probably same bird as before.

8:08. See 213 *Berleutemus* type birds moving thru hedge. Gener alle yellow-olive, with greyish heads (dark streak thru eye ?)
8:20. See string of v in some patches of scrub as 2013 other birds of another species flutter not seen well. Probably the Banklentines seen here on previous years (which I shall call "Common Banklentines"). Flies, uttering notes. But A does not follow the other birds when they fly across ravine.

Single Alter flies by. Alone.

Apparent fight between Alter and humming bird. With R-3488.

Absolute no trace Alter songs now.

See a single A alone.

See a single A alone. All Alters seen today have been adult. All references to "Alter" tent court throughout these notes well refer to adults.

Young birds in immature plumage will be specifically referred to as "juvenile.

See pair of Myoparas feeding in thick scrub along ravine. Apparently silent and alone. Apparently feeding on insects. 8:45.

There are enormous numbers of many kinds of wildflowers here now. Probably more than when I was here on previous years. And the Eucalyptus trees are in bloom.

I wonder why I haven't seen any Phyllobates today. ???

8:55. See pair of A's feeding on Eucalypt flowers. 10 ft above ground.

Pair uttering "Zeewee..." type song phrases. Then do not overlap type of song phrases of single G in adjacent tree.

See a single Rufunucha alone in low scrub.

See an apparent pair of adult Alters moving around together without obvious overt hostility! In scrub. Disappear immediately.

See single Rufunucha again. Flies alone.

CORRECTION: It is a pair of Rufunchas.

Alan apparent Alter song 9:14.
Leaving 9:32 a.m.

As far as I could tell today, all or most of the species here were just about as quiet as coyotes (or non-coyotes) as during my previous visits here, so I guess that my published accounts are correct!!

Although quite a number of species sang this morning, most of them did not sing very strongly or for very long. Obviously not the height of the breeding season for them.

The only conspicuous exceptions were the Lys. These sang at least as much as the Lys observed on previous occasions. Possibly breeding. (A difference in breeding seasons might help to explain how the Lys and Asters manage to co-exist?)

This afternoon working in old Daqueto area. Arrive 3:28 p.m. Area very different from a few years ago. Lots of trees cut down. Lots of what was scrub - now planted in crops.

Lots of plain Catharina about. Not singing.

Hear a few bonarcencas uttering twitters. Alone.

Hear a few Catharina songs in distance.

3:45. Hear TW phrases by bonarcencias in distance.

Nothing here. Leaving 4:12 p.m.

Arrive Contesto 4:35 p.m. Lots of trees cut down here too.

See pair (0+Q) of Blue-crowned Expeditions feeding in low open sun - dry grass area. Also, then 1 Phrygillus phrygicus, → Blue-crowns.

Then 1 Cyanecid carbonaria —> 

As far as I can tell, there are neither C.C.'s nor Asters around here. Rather surprising, in some ways, as the general aspect of the area is not much like that of some of the areas where C.C.'s and Brunsw were common near Yuma.
It was also difficult for A's to compete with a population of
plebeians as large and dense as the one here.

Note: This time of the year is supposed to be the beginning of the
mating season. But I am told that the rains have not really started
yet -- or, at least, are much less abundant than usual. Certainly everything
looks very dry.

Leaving 5:25.

January 25, 1964
Atacama

Annie usual spot 6:25 a.m. (after difficulties). Clear and
cold. Little wind.

But note a little "thin." I think that all or most notes have a faint roll
under tone.

6:30. Several other Laf singing in distance.

Hard what is probably one Ate song.

The single thirlls alone.

Diplomate song stopped 6:35. Then hear Laf again.

6:34. The single blue and yellow-tanager in thick scrub. Apparently
alone. Aha! It is Dusius, silent. Stopping about in thick scrub and low-
trees 5-10 ft above ground.

6:45. Still a small amount of song, primarily by cuculotes, the
wakes and wrens. But in general it is very quiet. Gent as it was earlier, w
when I arrived). Obviously not the height of the breeding season here for most
species.


4:10. See a Lef singing from exposed perch. Quiet alone.

4:15. See a single Lef singing from exposed perch. Quiet alone.


4:35. See a pair of Stuf singing from exposed perch. Quiet alone. Singing low-thick scrub. Stuf territory.

4:36. See another single Stuf singing alone. Stuf territory.

3:45. See a single Lef singing, occasionally. Lef territory.


4:00. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.

4:05. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.


4:45. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.


5:00. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.

5:05. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.


5:35. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.


5:45. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.


6:00. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.

6:05. See a single Stuf singing alone. Singing low-thick scrub. Stuf territory.


8:57. See single Alas along. Then another
Then see a third single Alas supplanted 3 or 4 times, by a pair
Without display. Alas soon disappear. Jaffa wavers. I think
Alas. 9:10. See single Alas feeding in scrub. Alone. Litters
on song phrase while other Alas are silent.
see a single unfriendly alone.
Leaving 9:20.
It seems obvious that organized mixed flocks are quite absent
here—austral.
Working along new highway to 1st Auto Domingo & Guayaquil
this afternoon. Annie fruit site, 9:00 ft. 3:30 P.M. Bidges along road.
Returning looking
lots of goldfinches!
Otherwise nothing.
1st another site 9:30 ft. Scrub long well revenue
see a single thrush. Alone.
Then a single Whitetaill. Alone. Probably same species as at Guayaquil.
Or is it? Rufous crown, bordered black. Large diamond-shaped yellow patch
around eyes. Black streak across cheek reaching bill. Otherwise yellow-bellied.
I shall call this TV. Flycatching from tops of low bushes, about 6 ft above
ground. Waltering lots of their high-pitched chirps. Definitely quite alone.
(Correction: See improved description in list of unidentifed species.)
Leaving 4:35 P.M.
Another area, moderately dry scrub 10,075 ft 4:50.
see a single thrush alone
Walk a little further along hedge
4:47. Hear what sounds like Alas singing
see another single thrush alone

Mahan Firebell, "Ju-ju" type song in distance.

see a single Thrush perched, exposed tops of hedgerow, alone.

see a pair of rufous hoppers thru low shrub scum. Apparently alo

me. Absolutely silent 6:03 p.m.

Pair of thrushes alone. One of these birds (at least) looked as if it did

not have a bright eye ring. I may also have seen a bird like this at noon

yesterday.

See a single Firebell up brush. Uttering lots of "Ju-ju" Notes a

few P.M. alone. His aerobatic. Not followed

see another single thrush. This one definitely with eye ring

Leaving 6:23 p.m.

January 26, 1964

Atlegra

This morning going to work along road below San Juan, e. the

old road to Santa Domingo. Clear and moderately cold

Arrive first site 5:52 a.m. According to my altimeter this is 10,750

ft - but I am not sure that the altimeter is working correctly.

Absolutely no dawn song when we arrive

A few-thrush alarm calls 5:55

Various other calls - apparently sub-oscine - a few seconds

later.

First real dawn song. Apparently through 6:00 a.m.

Then a few mores things join in. Nothing like DC yet.

No trace of Dusky thrush song yet 6:11 a.m.
Dawn chorus dying down 6:13 a.m.
the pair finishing moving & feeding in dense scrub. Alone. Then we saw Alex. Alone.
Hey birds calling are not breeding here.
6:40. Come across a single White-tailed 4+ soaring upward perhaps 10 ft above ground. Song sounds very much like the songs of the White-tails near Hunting. Also reminiscent of Loaf. The bird is quite alone.
see a single thrush alone.
Alex! 6:45. Come across a pair of the common hoary Barlentons. They are uttering rattles. There is a pair of Whitetails 4+ near them when I first see them. One of the White-tails picks up a long string of w.m.!!! Then the Barlentons move off in one direction, while the White-tails move off in the opposite direction. White-tails 4+ juvenile after 4 Loaf.
Two species apparently ignore one another. All this occurs in thick scrub 5-10 ft above ground. Then the White-tails disappear. 100s Dymphna. (see a pair of C's feeding in same scrub a few minutes later. Alone. Nervous and disappears almost immediately.
7:05. See group of at least 4+ russetta moving & feeding in low scrub together. And remain together. They all seem to be in adult plumage, but may well be a family group. (lots of R's and then, high "Hascoo" notes uttered from time to time. Sometimes as "Quet"."
see a single C. Alone.

Leaving 7:15, to go lower.
Arrive new site, 10.700 ft, according to my altimeter. Moderate scrub area. Still some on shade.
Than what sounds like Laf song when I first arrive. Soon shuts up.
Then see a whole bunch of little dull colored birds, plus one blue
bird. Presumably (?) different, moving about more or less together. Can't
identify a thing.

Then hear Laf again. Definite.
Then see single Laf, feeding alone, booklet.
Then see pair of Laf fly into bushes where Catarumna is perched. The
latter moves away. One of the Laf flies in opposite direction. The Laf left beh
and begins to sing immediately.

Move on a little further down hill and hear lots of Laf songs in the
general neighborhood.

See one Laf singing alone. Exposed in bush 4 ft. above ground. Most
of song perfectly typical. But also includes loud, moderately long, descend-
ing and de-accelerating R's from time to time. There are very Barlentus-
like. Usually, but not always, followed by brief pause in song. Could this
sound be "imprinted" on Barlentus (other species)?

4:55. See another single through. Alone.

Hear what may be infundibular song

Then see a infundibular bathing n pool. Songs continue - so
they must be uttered by another individual.


Apparantly Cg. learns to have black mask

Laf singing not far away at same time. Then see three singing bein
2. Definitely alone

Then see a few Eucalyptus trees scattered among the scrub here. They
help is explain why Ljg come up to "Laf zone" there. Add to it's Cg may

was flying from some to nest at the time.

Egret was quiet now 8:30 am.

ADDITION: I forgot to mention that one of the R's uttered

by the singing Laf mentioned above was accompanied by a brief aerial

flying, like a horizontal gliding flight.

8:35. Back to area where first saw blue bird (with flock of dull
colour ones). Found Cg singing in tree about 10 ft above ground. (Definitely
identified as Cg. Grey, not noticeable light, but eye red and with black
facial mask.) Song rather interesting. Preceded by 2-4 introductory notes
in their body of phrase repeated, for some time. Then both shut

up.

A few minutes later, the Cg sang a few more phrases while the Laf
remained silent. Then the Cg shut up. Then a different Laf began to

singing in distance. Then the Cg uttered one more phrase, completely overlapping

with the Laf. Then the Laf shut up, the Laf continued singing

A few minutes after, a Laf sang a few more phrases which the Cg

remained silent. Then the Cg shut up. Then a different Laf began to

singing in distance. Then the Cg uttered one more phrase, completely overlapping

with the Laf. Then the Laf shut up, the Laf continued singing

At first, when the Cg sang, there were no other Diglossines singing in the same neighborhood. Then a Laf began to sing typical song,

song of two birds overlapped completely for a while. Then both shut

up.

A few minutes later, the Cg sang a few more phrases while the Laf
remained silent. Then the Cg shut up. Then a different Laf began to

singing in distance. Then the Cg uttered one more phrase, completely overlapping

with the Laf. Then the Laf shut up, the Laf continued singing

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singing in distance. Then the Cg uttered one more phrase, completely overlapping

with the Laf. Then the Laf shut up, the Laf continued singing

Cany tell if Laf & Cg territories overlap. I think so.

No Laf coming 8:30 am

Single Fairbank flies by. Alone

Then see same bird in the same minute later. Still alone.

A Laf flies over single Fairbank alone 9:15 am.
There are few bursts of song, while other species are silent.

It seems possible that mutual inhibitions of song between Lof and Aja here, now, is less efficient than the corresponding inhibitions between Lof-Alter-CC and Alter-CC-Aja studied in previous years. If so, this might be due to a variety of factors; it might be a seasonal effect, and/or due to the fact that Lofs are becoming used to Aja here (as yesterday's comments on Lof-Alter relations on Aja). Or — perhaps more probably — it might be due to the fact that Ajas have reached here only recently. (In this connection, it might be mentioned that all the Encylaptors around here seem to be young.) It may also be significant that the type of song uttered by Ajas here (highly trilled, rapid, & forked) is particularly strongly different from that of the Lofs.

Note: One of the reasons why the Myrioborus & Balemortinae observed near Komo never came together is that the former stuck to the trees while the latter stuck to the mud. It is possible that the Myrioborus might have joined and/or followed the Balemortinae, if the two had ever occurred in the same environment. So it does not necessarily follow that the Myrioborus of the San to region are fundamentally less gregarious than the Myrioborus around La Osa. Possibly the Myrioborus seen this morning were really reacting positively to the Balemortinae. The environment here is the kind where one might expect such reactions to occur — if ever.

Lof

Aja

Alter

CC

Lab

For a single Lof, alone, in area very near where Aja occurred.

Ratter surprisingly, I have not seen a single Alter or CC near the area where Ajas were seen (albeit both Alters & CC's certainly occur up hill).

It looks almost as if Ajas replace Alters & CC's in this particular (small) area.

7:50. One Lof singing while other species are silent. Perfectly typical song. No trace of R's (this is certainly not the same bird that uttered R's earlier this morning.)
February 17, 1964

Arriving at 7:15

This afternoon noticed along path above sea, Arum 3:40. Clear and fairly warm. Some clouds apparent, coming in, in distance. Almost nothing moving now.

4:12, see single thrush alone. See same bird again, still alone, a few minutes later.

4:25, see a single reed warbler alone in low shrub.

Fog coming in 4:32. Leave and go down to outskirts of town itself. Arrive 5:03 p.m.

Driving down the can flushed a pair of thrushes from a small stretch of bush. Looked almost as if they had been in a flock!

Raining gently 5:07.

Everything is unbelievably quiet here this afternoon. See a single thrush fly by, silent and alone.

A pair of thrushes fly by, silent and alone.

See a single individual of what appears to be Buscula torquata

at a hopping trout beside, silent and alone.

See another single thrush fly by.

Leaving 6:10 p.m.

January 24, 1964

Noon

Arrived by village early 5:50 a.m. Still too dark to see anything.

Seems as if it is going to be another clear day! (What has happened to the

rainy season here??) No surfing yet.
First songs (probably thrushes) 5:56.
First diglossine songs 6:02. Almost entering Axr. First few songs have pronounced R components - usually subterminal. Later phrases (after first 4:02) lack the R.
6:06. Hear first Altametus torquatus song. Single high pitched, rather plantive, long whistles, repeated quite rapidly one right after the other. "Seeeccoo - sccceeeessseeecccoco ..." (No notes are not really pronounced as syllables, but they are definite by lower toward the end than at the beginning.) This song is commonly from almost or exactly the same site where I heard torquatus song a few years ago.

Lots of Axr. song 6:12 a.m. Axrs in wood. Then Axrs stop.
Then a Cy song phrase after phrase. All quiet then and formless. Preceded by approximately 4 accelerating, preliminary notes: "Seet but but but but ..." (End of each phrase possibly something like "Eeeggoo") Then Cy falls silent.
So it looks as if the Axr-Cy inhabitation were still working!
6:14 Hear first torquatus song in distance.
6:16 Axrs singing again. Overlapping torquatus. But Cy is silent. Then Axrs shut up again.

See maybe Thrushes perched alone.
6:20 Hear what may be Basileuterus majorisata song.

Dawn chorus definitely weaker by 6:25 a.m.

See a single Whitetail deer (Odocoileus virginianus) in scrub. Silent and alone

See a single though fly by, alone.
6:40. For a single Bunting, swinging energetically in scrub.
Quite noisy, uttering loud "W"s, probably also rattling "songs." When
first seen, there was a Whitestart TV in some patch of scrub about 10-
12 ft away from the Bunting. Also swinging, in typical fashion.
Both birds continue swinging for some minutes. In same general area, the
Whitestart leaving and returning with some appreciable frequency. More
in second Whitestart, same species, in scrub 20-30 ft away. It shows
no tendency to approach the other two birds. Songs from time to time. Then
the Bunting flies 30-40 ft away (into similar looking scrub). Neither
Whitestart follows.

Near first diurnal song 6:14 3/24
See single Altar swinging alone. No other Diapommes audible at
same time.

See single Whitestart swinging alone (probably same bird seen swing-
ing earlier).

Come across Cj swinging in tree. Its song phrases overlap completely
with songs of 1 or 2 CC's swinging in trees and scrub about 100 ft
away. Then Cj shuts up. CC utters a few more song phrases. Then
shuts up. Then the Cj utters 1 more phrase. Then shuts up. 4:05
Thus (written) CC (s) definitely quite alone.

It looks as if the Cj-CC inhibition has broken down par-

It is interesting that these breakdowns occur when at least one
of the species involved is swinging much less frequently than during the height of
the breeding season. (I suppose that mutual inhibition of song is "nece-
sary" at the height of the breeding season, but not "necessary" now.)

It is impossible to determine which species is responsible for the
breakdown of the mutual inhibition when overlaps of song occur.

14:10. Another outbreak of song by CC's. Cy quite silent through
out.

It may be significant that the species which seems to be overlapped
most frequently in this region now, Cy, is the one which is rarest in
the regions of Peru and Bolivia where I have worked.

14:16. See a single Yellow-bellied alone.

See 2 C's flitting about in bushes and trees. One or both begins sing-
ging. No other diggermuses audible at same time. No other birds near the
Cy.

See single Cy alone.

See single Firebell alone.

Single Cy singing alone. This CC begins and starts to sing. Con-
plete overlap. Then 2 birds alternate song. Then continue for some min-
utes, sometimes alternating, sometimes partially overlapping. Then both
fall silent. Then Cy sings alone again.

This looked almost as if the CC were singing in response to the
Cy.

There are certainly Altiss in the same general neighborhood as the
Cy and CC's here. But they have remained silent, or uttered only R-3-30,
while the latter species have sung.

Cy (s) start (s) to sing again. Again this seems to stimulate
the CC (s) Partial overlaps and alternation.

14:30. See an apparent pair of Altiss Alone.

CC singing while other diggermuses are silent. Then another CC
begins to sing in tree about 40 ft away. Complete overlap, song of the 2
individuals. Then the second bird flies over to first. Supplements first see
(I wasn't close enough to see if crown was ruffled or not.)

4:42 A single Forktail flew into a bush where there was blue Dalgona (Blueberry?) flowers about 10 ft away. No apparent reaction between the 2 birds. Then both fly off in different directions.

I see a pair of A's moving through scrub feeding by probing in or at sun all white flowers. Alone. One of both wings occasionally.

All the A's seen in the Guato region this trip have been twit trillers. No triplets. Now pure, distinctively divided into "Three." See single Ater feeding alone.

See pair of Forktails feeding alone.

See an adult and a juvenile (definite!) Ater feeding together on red tubular flowers in scrub. No other species were close by.

8:02 am. See same pair of A's as before. Still feeding alone. See

another Ater alone.

See single Ater alone.

See adult and juvenile Ater feeding together again. Again no other species nearby.

See another Ater alone.

See another Ater alone.

See another Forktail alone.
A pair of B. nigrescens engaged in dispute. Very noisy. Litter

ug SHN's, "long feathers", and HN's (see today's notes on BrezEAsets). Quit alone.

See a Cy alone again.

See another single Cy along. Again.

8:57. Cross a Jerry, a Cy rapidly (probably one of the birds heard
early this morning). No other bigonine audible.

See a single Ata alone.

See a single Cy feeding alone on flowers of Eucalypt. Then twice

attacks hummingbird (possibly Colibri concinna). Feeds (without intr

oduction notes) after attack.

See another single Ata belly alone.

See another single Ata alone.

Leaving 7:10 am.

As a result of my observations in the Quito region, it is obvious

that some of the species observed near Mundavi, Bolivia, were really sho

wing more than the "bare minimum" of inter-specific gregariousness. It is

possible that some of the differences in inter-specific gregariousness between

populations of the same species here and in Bolivia are due to the fact that

there are more flecks of a single species in Bolivia than here (i.e. that there are

more "attractions" in Bolivia than here). But not all these differences can

be explained in this way. The C. sufina, for instance, do really

seem to be less attracted to individuals of other species than the C. su

ruca near Mundavi. There probably are similar differences between the

populations of Firebelles in the two areas. Possibly the same nature of

the populations of M. subalveolatus and B. nigrescens.
Mid-afternoon, walking in area along new highway to Santa-Drew
ings and Greysagul. Same place as day before yesterday in afternoon. 16 km
from Santa.

Am 4:45 p.m. Everything very quiet.
See a single C. alone
More and more single thrushes and pairs alone. I will stop coun-
ting them now.
5:10. See a single Rufiorncha alone. 4 in blast
See a single H. American warbler (probably Bay breasted or Black polk
alone.

Another single Rufiorncha flies by. Definitely alone.
Leaving 6:17.

January 7th, 1969
Atacazo

Going to work at old spot above San Juan, this morning.
Am 5:45 a.m. Cold & clear. Still dark.
Dawn chorus not started yet.
First sounds — thrush began 5:55 a.m.
4:12 a.m. There has been almost nothing with way of a dawn
chorus so far. A few thrushes & clawatores uttering a few sounds—not
necessary song.
Almost dead quiet 6:25 a.m.
6:31. See pair of Rufiorncha vi sculp. Feeding on the same yellow
greenish-white flowers (with red calyxes) favored by Diglemas !!!! Apparen
by looking for water!!! Certainly probing into holes (presumably made by
Pygmyas) already present in flowers. Once one bird bites off whole flower and
“nibbles” it. Both birds quite silent, and definitely alone.
6:45. See another single Rufnincha alone
14.07. Come across single A torquatus w/deer scrub. Stops close
to look at me. Quite silent. With extreme CR, at least moderate MFF, and
very extreme Belly-shuffling. Does a little irregular Bowing, a few extreme
lateral TPs. Then a Taf appears. Silent. Comes closer to me and even
closer to the torquatus (8 birds only 3 ft apart at one point). Taf appear-
ed to be curious about me and/or the torquatus. Then the torquatus gradu-
ally moves off in one direction. Taf flies in another direction.
14.50. Have seen several single torquatus alone here this morning.
All quite similar in appearance — but I am now becoming convinced that
there are at least 2 species involved. The last bird seen definitely did not
have an eye ring.
8:05. Come across pair of torquatus w/scrub. Hidden but probably
down. utter jumble “fleeceoooo” and “Mick—thecececeoo” Notes: High
whtter, but with a definite horse quality. Certainly much clearer than
notes heard yesterday.
Come across same birds again a few minutes later. utter lots of same
utter “fleeceoooo”
8:15. See a pair of torquatus alone. Without eye ring.
8:15. See a single Rufnincha alone
See a single Taf alone
8:22. See another single torquatus without eye ring. Is this the only
species up here???
8:34 The sunflower feeding on red and white flowers. Probably some bee was feeding on some flowers earlier. Definitely making holes (by rubbing) in sides of flowers. Also occasionally pcks off whitish part of flower, holds it in bill, and nibbles it as a whole. Quite silent. Quite alone.

Flowers on small to medium sized branches 4-8 ft high. With lots of small green leaves.

Complete flower commune

...of these petals"

Approximately 10 shorter stamens around central pistil.

The sunflower consistently made its holes near the base of the petals. Some of the flowers investigated had dead insects inside.

7:00 a.m. See 2 thrushes together. One definite, with orange yellow eyes, was one definite without. Otherwise birds appear to be identical; same size, shape, color of plumage, bill, feet. I think that they must be the same species. Probably differ in age and/or sex.

Their nests were in the same patch of shrub - as to 2 Saf and 1 Alter. But the thrushes and honeyeaters seemed to ignore one another.
Leaving 9:20.

NOTE: There is no doubt but that the faunas above and below the 400 yard are strikingly different from one another. The lower faunas are quite reminiscent of 400 yard in some ways (i.e. the presence of Barcolaterus and Nycoloma as well as Cy). The difference between the two faunas seems to be rather large to be explained by altitude alone. It may be equally significant that the lower area receives the sun immediately in the morning while most of the upper area does not.

This afternoon going to work in a place called Omaquki — where I saw the Apatelos livesform years ago. Arrive 4:24 p.m.

Wet and clear

Can hear a number of hoarse voices around.

for a single yellow-greenish g-along.

see a single hoarse voices along. It seems also periodic. Uttering

FW Notes 4:33 p.m.

see a single C. Silent and alone.

see another C. Apparently single & alone. Utters "LOCET" Notes in flight. Sounds rising. Utters brief high call or R on landing. Then flies away

5:04. see a pair of hoarse voices (longish and dull) fly by. Alone.

5:20. see a single C in willow. Excee upplanted by Andean

Spring

Leaving 6:00 p.m.
January 24, 1964
Atacaso

Going to work below San Juan today, same place where I was seen a few days ago. Arrive 5:12 am. Dark and cold. Everything quite silent.

Note: Although I am calling this area “Atacaso” — because it is so close to the area on Atacaso where I have worked before — it is probably actually a foot hill of Picuricumba.

First bird sounds — shrill and piercing — heard 5:55 am.
6:00 am. Still dark. Something uttering “Tweet, tweet, tweet loot, leet, leet, leet, leet...” quite regularly. DC? Stops 6:05 (when thrush starts to sing loudly nearby).
6:06. Can hear rujuancha songs. No R component.
6:17. Quite a lot of rujuancha song. Probably also torquatus in distance.
Strong wind coming up 6:15.
6:30. See single Thrush alone. And another.
6:38. The pair of rujuancha. Followed by a Soprano for a second or so.
But then Soprano turns away and goes in another direction. Rjuancha quite noisy.
4:41: see a single toqueta alone.
Everything quiet now—6:53
see a single toaz alone
still see a single toaz and a pair of rufurinida feeding in same bush. rufurinida apparently looking for insects. rufurinida soon disappears. rufurinida remains.

4:28. see another pair of rufurinida alone.

4:30. hear puluma in distance.

4:50. see a single tozbell alone.

Going to walk down road.

Relatably still 8:14 p.m.

see a couple of tozbell alone. Again.

8:40. see a single toaz and a single tozbell feeding on a foot or so apart. Both silent. toazbell. tozbell does not follow.

Leaving 9:10.

This afternoon, working along path above Honos. See today's notes on mixed diglossini.

4:20 p.m. see an altar alone. Then another.

Then see a single tozbell alone.

Then see pairs of rufurinida alone & select.

4:44. A pair of tozbell/ers lands in a tree, where a cyanidephala is already perched. One of the tozbell/ers twice supplants and chases the cyanidephala. The attacks are accompanied by brief "rattling raups" (almost certainly uttered by the tozbell). The tozbell/ers around here certainly don't appear to be "friendly."

Leaving 5:00 p.m.
Going to walk along path above Hono this morning. Annie very early 5:30 a.m. Clear
Near forest area sounds — monosong — 5:55 a.m.
Dawn chorus in full swing 6:02. T. r. thrush
Lots of moths flying around (I well not enumerate them individually unless there is something particularly interesting about them)
Everything very quiet now 6:30
6:35. Hear first Tricolor songs "tricolor" accelerating into 
"tech" phrases
 several moths of Alces alone.
see a single Tricolor singing alone
6:47. see a single Refinia alone
7:01. see a single T. alone. Then see another Tricolor alone
see another single Alces singing alone
see a single G. feeding on flowers of Eucalypt. several hummingbirds
near by, but the different species seem to be ignoring one another.
8:47 a.m. During most of the last hour and a half, I have been concentrating on reactions between Cyp and Alces (see today's notes on mixed Diglossini). In the course of this — out of the corners of my eye — I have seen an appreciable number (4? 5?) of both Refinia and Fe
nillies. Always alone.
8:46. see a single torquatus alone.
Leaving 9:15.

GENERAL REMARKS: I have been both pleased and somewhat surprised to find the tamarays and finches here behaving now in the same way as on previous visits.

Mixed flocks are so rare here that the different species may be avoiding one another because of special aversions.

SUM TOTAL ALL OBSERVATIONS = \(36 \text{ hrs 00 min}\)

Observations in and around Quito and in cleared or agricultural areas (i.e., where mixed flocks would not be expected to occur) = \(8 \text{ hrs 00 min}\)

Time spent in areas which looked suitable for flocks = \(28 \text{ hrs 00 min}\)

Time spent in areas in which highly organized flocks are known to occur = \(0 \text{ hrs 00 min}\)
Central Ecuador

March 5, 1966
Road to Papallacta (East of Quito)

Get lost on way! But eventually gain Ref., go over crest of range (paramo) and start descent. Reach first patch of AS, in ravine, 4:25 am, 12,400 ft. Vegetation is not very lush. No obvious flowers.

Sky partly cloudy. Little wind.
Everything very quiet.

See several footy thrifties alone.

Ging further down 7:34. Reach another patch of AS 4:43.

Some AS apparently matured. Other part second growth, 12,050 ft.

A few bird sounds audible.

See some Catanemia-type flowers along. 3-4 ft up in scrub.

There are some real tubular flowers around here.

Also see some of the big, unicolored, Phrygipnus alone.

Everything very quiet (again) 4:55. Apparently, this is not the breeding season.

Another single footy thriftie alone.

Aha!!! 8:00 a.m. Heighted down road. Region of slightly denser and taller AS. See definite mixed flock !!! Includes 2 or 3 CC’s (probably largely gray on breast). And 2 or 3 larger black and white birds. Apparently Trogonapus !!! Birds quite close together (usually within 3-6 ft of one another). And stay together at least 5 minutes. Once Black and White f -> CC. Far cc, CC f -> Black and White. All birds very quiet. Only
occasional C/H. All buds apparently piling inward off leaves.
C/H also papering dead flower bracts. All buds beginning 2½-
8 ft above ground.

Group gradually disappears — without my being able
to see where it went. Probably uphill.

8:27. Going back up road. Catch brief glimpse of single
humming bird which may be Aglaeactes. Alone

Then see a single Firebelly. Silent and alone.

Leaving 8:34

Another area; 11,250 ft. 8:48. Area of scrub-scattered
in pasture. Quiet.

8:50. Hear what may be LaS or warbler song in distance

Then see more single footy Thrushes alone. Then more LaS-type
song. NODWA

Then catch glimpse single White-breasted Fuscatera. Silent.

2 ft up in dead scrub. Probably alone; but there are some small ter-
ds (unidentified) in scrub; not too far away across road.

Everything in very sheltering around here now —
I can hear some Ratite-ferns which sound like
Basilurites niciprotatus, but I can't see the birds

Another single footy Thrush alone 9:13 a.m.

Leaving 9:23 a.m.

9:30. Down by Laguna de Papallacta. 10,800 ft. More

scrub-intermingled with pasture

Hear more LaS-like song. NODWA. Then see birds

uttering them. Two Violet-tits. Usual species for the region
(Chalcophapsis). Rupicirrous. Yellow spectacles sound exactly
like the "White spectacled," etc. from Northern Andes. However, a
few species. Fluttering from bush to bush across pasture. 2-20 ft
up. Certainly alone part of the time. But there are some other
bushes in wider general area. Auden's Parnassus, little flycatchers wi
the recurved crests, green hummingbirds, etc. And some of these other
bushes do fly into same bushes as the Whistlers. But this might
be "coincidence."

9:45. A little further along road. See single B. homorhyncha
(??) 6-10 ft up in bush. Fluttering about "Feet Notes. Definitely
alone.

Further along road, hear more Whistling Song. NO GRO.
Then see single Whistling fly from tree to tree. Apparently alone.
Then see green hummingbird (like VII on Purace) feeding
in bushes 3 ft up. Alone. Then see single species hummingbird
(VI) feeding on red and white flowers 20 ft away. I believe I have
seen this form feeding on some species of flower before. Then XVI flies
away. Then I hear a few After Song phrases (with R) near leg, without
looking able to see the bird.

Leaving 10:15 a.m.

COMMENTS: The vegetation of the areas visited today
does not look very much humid. Doesn't look as humid as the
vegetation of some parts of Anterso and Pichincha. But this ap
pearance may be somewhat misleading. The whole region has been
greatly affected by human activities. Both cutting of trees and
grazing of cattle.

In general, this area looks rather like Parque-Lo Neg
in the Sierra de Mérida and the drier side of Purace in the
Central Cordillera of Colombia.

I was struck, however, by the apparently extreme rarity of birds here this morning. This is probably another example of appearances being deceptive. Probably the birds were only hiding.

March 6, 1966
Laguna de Papallacta

Going to start work in the last place visited yesterday.

See plenty of single footy-thrushes alone along road down here.

Everything very quiet in general, except for miscellaneous sounds through bushes (not songs).

6:34. More single footy-thrushes alone. Also some crows among them. (We ought to consequently be the same species that uttered distinctive song in Peru.)

When shut up. They hear presumed Aster songs in distance.


Up in brush in pasture.

Then see single Altijetes pallidinucha (definite)!!! 6’-
2’ up in scrub along road. Flitting CN’s. Also definitely alone.

0:42. Various small humming birds fighting among themselves.
Then some more Diplora-like twitterers in distance. NODWA
Then some Antipodes-type Whittle songs. NODWA
Then more Whitestart songs. NODWA
Lots more hummingbids fighting
6:49. See single Whitestart alone. Silent. Perched 12 ft up in
tree. In usual way, flew 20 ft down road, see another. Perched 12
See pair of Firebulles flying from tree to tree. Swaying occ
aenally. Definitely alone
Then more Whitestart song in distance. NODWA. Shuts
up.

Then Leaf begins to sway. Perched exposed 3 ft up in bush
more lately. NODWA. Definitely alone. Shuts up.
Immediately, Whitestart begins to sway again. NODWA.
Two Whitestarts moving thru bushes (3 ft away from where Leaf
saw) 6 ft up. Definitely alone.

Whitestarts shut up. And Leaf sways in distance!
7:08. Swayer down road. Leaf sways. NODWA. Shuts up.
Whitestart songs. NODWA

More footy humming alone
Then we gain Firebulles. Low in bushes of sparse second
growth scrub. Leaf sways in bush. 20-30 ft away. One Firebulle
Leaf! Leaf flies away immediately. Firebulle does not fol

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI
8:00 a.m. Everything quiet now.
8:11. Leaf SWAYS again. NODWA.
Then see a single Fire-bellied Fly-lug. Silent and alone.

8:22. Walking along path above road. See pair of C's feed
migratory birds, 2-3 ft up. Definitely alone. Twice one supplanted the other.
Silent both times.

A few minutes later, see single White-bearded Flycatcher in
one of the bushes visited by C's earlier. Silent. Apparently alone.
Then see 1 White-beard chasing another. Both fly away. Nothing follow-

There is a small flock of Catamena-type finches (F's with
light bills, dark or face, otherwise grey except for rufous under tail)
moving along edge of scrub here. Nothing else seems to be paying
any attention to them.

I can hear a lot of Rasileutera - type Rattle-fowlers
around here. (As usual) without being able to see the birds

8:41. Again see pair of C's. Silent and alone.

8:47. Largo still singing occasionally. NODWA
Leaving here 9:00 a.m.
Go on down to another site 10,475 ft. Some miscellaneous

scrub here.

Near Altapetes "Greetings." Also Rasileutera Rattle-fow-

9:12. A little further down road. 10,400 ft. Near Alt-

parts type wheateers, and Whitetail song coming from same patch
second growth scrub. Then both species shut up. They are pair C's
other side of road. Utterly silent. NODWA. Then they fly in
a general direction of scrub where Altapetes & Whitetails were
heard earlier. Disappear.
This may have been a diffuse flock. If so, CC's were following
a few minutes later, a single Whitestart feeding in same
muck, left up, silent. And now apparently alone.
A few ft further on, a single warren created montauk cot
craw down hill. Definitely alone.

9:45 a.m. Follow side path down hill. Only a few yards be
low road, came across definite mucked flock. In region of very mucked
tall scrub and woods. Very lush. Some second growth. With some
probably mature as trees mucked in. Flocks includes 2 Whitestripes,
1 Whitestart, 2 Firebellies. Quite diffuse. Birds moderate, many
Whitestripes and Whitestart ranging 5-20 ft up. Firebellies rang
ing 15-20 ft up. Can't tell who, if anyone, is leading.

NOTE: This vegetation looks as if it should occur 1000 ft low
er than it actually does.

Firebellies fly far away. 9:55. Nothing else follows.
Whitestripes and Whitestart gradually move up hill. Staying
close together. Whitestart probably following Whitestripes.

Leaving 10:00 a.m.

March 14, 1966
Road to Papallacta

Going to work below the lake today, just above the tow-
ner Papallacta itself, 7:30 The same area where I worked just
before 10:00 a.m. yesterday.

Arctic air, bright, getting light. Cloudly. Cool. Every-
thing very quiet.
Heard first looser Whistling Song phrase 6:17 a.m. Then another. Apparently Whitestart. NODWA. Then a whole series of phrases. Half NODWA. Then Whitestart songs alternate with Baudiniana-type Pattle-flowerlees. 6:21. Then both species shut up.

Then what sounds like incomplete Attagetus Whistle songs (only 2 notes per phrase) 6:28. NODWA. Attagetus shuts up. Whitestart starts again. NODWA. Then Attagetus starts again. Several complete overlaps with Whitestart songs. But the finch and the Whitestart are at least 100 ft apart at the time.

Whistling shut up. Presumed Attagetus continues. NODWA 6:28. A little further up road, hear 8 note songs which probably also are Attagetus. Also NODWA. (This does not 100% YES, the myfuscina song I remember. Just 2 notes of each phrase end with conspicuous "snaps". Is this pellidinica?)

See a single foot through alon...p

See a single B. nigrocinctatus alone. 2 ft up in secondop ovine scrub edge road.

Presumed Attagetus has shut up now. And then I hear twittering up hill! NODWA. Sound like Cg phrases without intro notes! Then bird shuts up.


Twitters up road, hear more Whitestart song. NODWA. Then Pattle-flowerlees. Complete overlap. Whitestart shuts up.

Pattle-flowerlees continue. Shut up. Whitestart begins again. NODWA. This is almost exactly same place where Whitestripe - Whit...
start - Firebellies flock was seen yesterday! I wouldn’t be surprised if the is part of some group here now.

Ah! I hear Firebellies 10-12 ft up in scrub. And also see single Whitetail 30 ft up in tree, 20 ft away from Firebellies. Whitetail flying NODWA Then hear more Rattle-flowers low in scrub - also about 20 ft from Firebellies.

This is definitely a mixed flock. And certainly partly or wholly the same as the flock seen here yesterday.

Firebellies fly away, Nothing follows.

Whitetail moves gradually uphill, and the birds uttering Rattle-flowers definitely

Whitetail songs and Rattle-flowers sometimes overlap, sometimes alternating.

Then I see a single B. nigropectus f. group 3 ft up in scrub, so I don’t know if the birds heard uttering Rattle-flowers earlier are Whitetripes or (other) nigropectus

Whitetail stops singing. Immediately I hear Duskywren

Sutters in distance (perhaps 100 ft away). NODWA Then stops.

Sutters rejoin group. Then fly away again. Nothing follows.

Then a pair of pallidichroa appears. Moving low then scrub-edge road 2-6 ft up. Flitter occasional “Greetings”.

The pallidichroa pass might fly the flock (perhaps 15-30 ft away) without hesitating for a moment. I.E. they certainly did not join the flock, even temporarily.

Flock is quite stationary. Or, rather, making irregular
I am going to walk back down road 4:03 a.m
See a single Firetail fly by alone.
Passing area where Whistling Turtledoves were heard earlier.
I find that they are still continuing. Still NDWA. And nid still
invincible.

Then, passing area where Altagates 3-note songs were
heard earlier. I hear more songs of exactly the same type further
down hill. Most of them are NDWA. But some are completely overlapped
by Whistling Turtledove. But Whistlingtart and Altagates are very
far apart at the time.

Then hear more Whistlingtart songs down road. NDWA.
Things are getting quieter now. 4:17 a.m.
See a single Firetail fly by alone.
Back to flock area. 4:20. Sounds of Whistlingtart and
Parruternous Vangoftings - types have moved slightly down hill.
Still many, but out of sight. But I do see pair of Firetail's fly
read. At least 100 ft from the other birds, but probably still (or
not) associated with them.

Then see single Whistlingtart. Probably the nid. with flock.
Only very brief glimpse. Ind. on fletching about 2-6 ft up. Well
within scrub. Silent. Disappears.

Then I hear a few Dignissime Turtledoves (Ag ???) commin
g from the immediate vicinity. !!!!

8:02. Going down road. Hear more Altagates 3-
note Whistlingtart songs. NDWA.
See a single Whistlingtart 6 ft up in scrub. Silent. Defin
They alone.

Then hear "fif" ming'up hill. NOVWA

Will, Will, Will, Will, 8:10 a.m. See pair PL Alt. easter.

Moving in scrub, along edge pasture. c" - 4 ft. up. Conspicuous.

Hooting "PN" and "Graaff". Feeding on berries. Also plucking leaves. After they leave one bunch, a single B. nigrobrinatus appears in it. Utters rattles - flourishes. Does not follow PL at first. A few seconds later, I see a single Terapy. 4 ft. up. In scrub, 1-2 feet from PL's. Disappears. PL's continue moving through scrub. Gradually up hill. Then a single CC flies to PL's. Definitely. Lands only a few inches from the PL's.

4 ft. up. CC probes in dead flower heads. Silence. PL's continue moving, CC flies to PL's. Then B. nigrobrinatus flies group repeatedly. Then I see a pair of weevils in scrub. 4 ft. up. When almost certain, same species as on Pineace. When f-group, then a pair of Firebellies (fi) appears. Hitting about eventually. Now. Both join and leave other birds repeatedly. Sometimes in front, sometimes in back, sometimes at sides of other birds.

Then I see single Whitestart 50 ft. up hill. Possibly loosely associated with group.

The whole assemblage gradually moves up hill PL's definitely the nucleus (albeit not always leading). Apart from this group does not appear to be highly organized. Individuals sometimes close together, sometimes very far apart.

Gradually disappear from view ca. 8:35 - 8:40.

COMMENT: It is obvious that real mixed flocks are regular in this region. But they do seem to be comparatively rare.
Presumably the principal difference between this region and the Quito-Pichincha-Antaeas region is that there are nuclear species (e.g., Brotophragmus, Whitetipus, P.) here but not further west. But why are the nuclear species apparently confined to this region?

NOTE: According to all my local informants, it is the rain season here now. But certainly I have been lucky so far. There has been no rain so far during my periods of observation on this side of the mountain.

Going back up road. 8:45 a.m. Hear Whitetipus singing. NODWA. Flute up. Then hear more Altagracka. Whitetipus. NODWA. Flute up. Then more Whitetipus song. NODWA. Flute up. Then see a little bird. Silence and alone. Turn in some b. edge road. 2-4 ft up. Flies away.

Sun is coming out 8:50 a.m. See another rattle-sounding alone. And then another.

Going down same side path as yesterday 9:06 a.m. Hear more Whitetipus song. NODWA. 10,350 ft. Then still more Whitetipus song. NODWA. Flute up. Then hear Rattle-Flowericus. This probably is first flock again. Slow Whitetipus songs and Rattle-Flowericus are alternating without overlaps. Then flute up.

Then I hear brief but unmistakable Laf song in distance NODWA (or Rattle-Flowericus).

Some distance further on come across pair of Ruddy Hyacinthias. Hyacinthia co-10 ft up. Lots of R's. Alone except
Eunifera

for a single 4 or 5, Eunifera sitting quietly 15 ft away. Is this as
southern continental? In any case, Eunifera disappears from view.

Then single Whitetailtart shows up, 20 ft away, 20 ft up in
trees. I can also hear Firebellies in distance "behind" Whitetailtart.

Do the old flock showing up again? Yes! I can also hear Basden
terms on...Heniporus coming up behind Whitetailtart.

But, unfortunately, they go around me in scribb without
my being able to see them.

I have to start up hill again 9:34 am.

A few ft on, come across what may be pretty same flock, on
4 flycatchers and other small birds in tree tops. Undetectable. Also
1 very large dark bird with braided wings!

Also hear Whitetailtart flying close by. Must be members of
flock. Also hear Firebellies. Also must be in flock. (Actually, there
must be two firebellies here.)

Flock going up hill with me. See one of the Firebellies.

left up in small tree.

This flock is quite diffuse now.

Leaving 10:00 am.

NOTE: It is very remarkable that I have not seen a
single gurnaweed or dendrocoptid here. This is another indica-
tion that mixed flocks cannot be very common here.

March 8, 1946
Road to Papaloca

I am going to work alone Pifo today, on western slope
of the mountains, where Jos and Em were seen the day be before yesterday. Arrive 5:59 a.m. Still quite dark. Clear.

SEE TODAY'S NOTES ON MIXED DIGLOSSIA!

6:45. See a single footy thrush alone.

NOTE: I have heard firefly sounds around here.

Without seeing the birds. Also some sounds which might be the bunanums. Again without seeing the birds.


Also see some more footy bunanums alone.

8:15. See a single Yellow-Goldbreck fly by. Silent. Alone.

Also see more footy bunanums alone.

COMMENTS: There is no doubt but that the fauna here, on the western side of the Eastern Sierra, is more like that of the Quito-Pichincha-Atacama region that like that of the eastern slope of the Eastern Sierra. This probably is what should have been expected.

What does surprise me, however, in the extreme rarity of tanagers here and, to a lesser extent, in the Quito-Pichincha-Atacama region. Certainly a lot more tanagers would be found in similar-looking environments in Colombia, Venezuela, and Bolivia.

Is the rarity of tanagers here "simple" due to the fact that there is no good "upper sub-tropical forest" nearby? Does the tanager species need "VSTF" as "refuge" when conditions become unfavorable — in spite of the fact that they can occupy other environments when conditions...
are more favorable ?????

March 9, 1966
Road to Capallacta

Going to work in same place as yesterday morning. Arrive at 08:00 a.m. just starting to get light. Mirror is clear,
see a number of footy figures above Botti singles and
pairs.

7:36. see a group of at least 3 maroon-colored cockatoos
in small trees in distance. Apparent, alone.

Then hear some fireflies in distance

7:34. see single fire-belly perch 2 ft up top tree. Silent and
definitely alone

7:59. hear some broodacious vocalizations.

A few minutes later hear unmistakable Drumbira in distance.

So there are some tamarans here!

8:47. a group of 5 broodacious flies by, overhead. Silent.

Definitely alone

8:54. A couple more broodacious fly by. Also silent and
definitely alone

Then a pair of psamnochlas moving thru this region of thick but
very low scrub. 3" - 5" up. Titter occasional soft "gh"s but oth-

See also today's notes on mixed diglossini
March 10, 1966
Atacosa

Go down Old Road to Santo Domingo Park at 10:40 a.m. at 6:55 a.m. Still quite dark. There is a light but steady rain. Everything quiet.

A very few faint miscellaneous bird's sounds ca 6:08.

Then a few more ca 6:15 a.m. Hurrick etc.

Rain is almost stopped now.

This is a region of rather scattered miscellaneous scrub and pasture.

Near a few R's which might conceivably be Albes!
Near fruit Atapetuses Whistle Songs 6:18. NODWAH.

Then some Firebelly sounds. Completely overlapped by the Atapetuses. Again and again.

Atapetuses shut up. Firebellies continue. Then something negus Rattl-Flourishes ("RFL"). RFL's and Firebelly sounds apparently overlapping at random.

It is still quite dark 6:32. Cloud cover is very thick and very low.

Walking along road, hear another Atapetuses uttering Whistle Songs. NODWAH. But overlapping Firebellies and RFL's in distance apparently completely at random.

Light rain starting again 6:35 a.m.

Walking back along road, hear lots of RFL's, Firebelly sounds, and Atapetuses Whistle Songs. All apparently overlapping com pletely at random.

I think that all 3 species probably are in breeding condition.
See some single footy thrushes alone.
There is a lot of bamboo around here. Area absolutely very humid. Thrushes more humid than areas above Papallacta.
Attapetes lunge continuously full blast 0:36. NODWAH. All other species becoming more quiet too.
Attapetes shut up. Hear single duelling Thrush in distance. NODWAH. Then turn in more Attapetes Songs. NODWAH.
0:40. Luf Lung's one brief phrase. Completely overlapping several Attapetes Songs.
0:43. See single Attapetes moving thru scrub, 2 ft up. Definitely Rufunucha. Noting it. Apparently alone.
Then see another Attapetes lunging down hill. Exposed 3 ft. up. Definitely also Rufunucha and also alone.
Another Luf Lung's far down hill. Again completely overlapping song Attapetes Whistle Songs.

Note: All the scrub here is more or less low. Probably largely second growth. Certain not "Upper Sub-tropical Forest."

Walking further along road. Hear another Luf Lunging up hill. NODWAH. Then a second Luf also Lung. Two pairs apparently overlapping at random. 0:50. Also completely overlapping RF's.
Bravi almost stopped again.

Further downiegel. Hear more Attapetes Songs. NODWAH. Then we might firelessly reached 10 ft up. Silent. And definitely alone.

Also see more footy thrushes alone.

Attapetes shut up. Luf Lung's downhill. NODWAH. Shuts up.
Attapetes resume. NODWAH. Overlapping even songs apparently at random.

Then hear Laf song. NODWAH. Partially overlapping even song.

Then Laf shuts up. Hear Dulcinea twitter down hill. Probably Cy or CC. NODWAH. Shuts up. Laf resumes NODWAH.

NOTE: I find that there are some medium sized trees here. In the ravines. Probably second growth.

7:12. More Laf song. NODWAH. Walking back up road see 3 Attapetes rufinucha feeding together on ground. Two of these probably are "pair" I saw earlier. Quiet near. Definitely alone.

A little twitter on. Hear another Attapetes uttering Whistle song. NODWAH. Shuts up.

Twitter on. Hear Dulcinea sing in distance.

Then see another pair of sunfinches feeding in very low scrub along side of road. Definitely alone.


Twitter on. See a single sunfinch. Silent and definitely alone. Feeding in scrub. 1'-2' up.

Then see a single Ensifera perched 10 ft. up in small Eucalypt. Silent. Alone. Flies off immediately.

4:33 see a single CC. (More or less all buffy underneath.)

Feeding on small cup shaped yellow flowers in bush. 1'-3' up. Hitting occasional "CN". Definitely alone.

Rain starting again.
Men left here, NEDWAH
17:40, Junction up road, near Scan Longs and Flight Displays
This unit is at least near where Lafsong earlier this morning
But scan sounds are NEDWAH near

Then see 4ung Si Longs, Pecked 15 ft up in small Eucalypt
Alone, Identification is definite

Then see pair of Eucalyptus, 20-30 ft up in mixed scrub and laun
also, littering 4A's, definitely alone

Leaving this area 17:50 am

Just as I start to go, I see a peculiar "group" some distance
uphill. One or more Eucalyptus (3) moving thru scrub edge past
me, 1-4' up. There also is a pair of Eucalyptus (same pair seen a
few minutes later) moving thru or less parallel with the scrub
But about 20-30 ft uphill. And there is a single 4C feeding in
lines about 20-30 ft behind scrubluc. All sounds quiet.

There also are 20+ small spiny bush/winds in same general area
Probably scrub/4 flycatchers

"Group" disappears from view, almost immediately.

This might conceivably have been a "real", "organized"

flank. But ... it was remarkably diffuse

Leaving (again) 17:58 am

Go on down to area 10,325 ft. Range of very mixed second

Everything very quiet.

Waiting up road, hear more Lafsong NEDWAH
Then single Lafsong by alone

Well! Well! Well! 18:00 am. See real definite mixed flora.

In truck mouth up hill. Includes 3itters, 2 Whistlingbirds, 2 Thrash
aromas and 100 M. White-headed flycatchers. Margarornis miti "main" species. Some species seen near Andes and elsewhere in Andes.

Whitetsuye a quite small Proenmacul Baulentumus. Far apart of crown and cheek patch really quite dark.

All birds moving thru 1.5-2 ft up. Progressing very rapidly. Quite coherent. Most nests usually 1'-12' apart. Uttering lots of "chirps" but little else.

Leadership definitely changing. Once Margarornis definite vi lead. Once White-beard (5) definitely vi lead. Fittis possibly vi lead at other times.

Both Fittis and Whitetsuye definitely pecking insects off leaves.

Once, two Fittis try to land on same perch. A dispute break as out. Accompanied by long, loud B.

When Fittis were first seen, there was one rufinucha "in" it silent. 2 ft up. In rear of group. But this rufinucha definitely did not follow the flock vi its progress. 2 E the association of the rufinucha with the other birds apparently was "pure" casual!!!

Interestingly enough, there also was a pair of Firebelles about 50-75 ft from the flock at one time. And these Firebelles made no attempt to join or follow the group.

Flock has disappeared by 8:30 a.m.

Lake still singing occasionally 8:37. NIDWAH

Welling down road 9:15 a.m. 10,050 ft. See single rufinucha. Silent. 25 ft up in tree. There also was a flycatcher higher up in same tree. From the sound a White-beard. Then flycatcher flies away. rufinucha does not follow.
A few minutes later, see another Rufuswiza 10 ft up in a different tree. Possibly some individual. Definitely alone now.

Everything very quiet 9:23

And there is another out of sight Long. NEDWA. But this Long does overlap all met seen for away. Then Long shuts up.

See some new feet. Wonder where.

Then see single Cecilia flyer carrying man. "W" adds 9:26. Suddenly catch glimpses of 2 or 3 Buttercups. Unfortuantly, I could not see them from underneath. But I am almost 100% certain that they were the Big species. See 1e, 2e, and even more incredible conspicuous uttering lots of loud, plaintive, "Blieve-blieve" and "Blieve-blieve-blieve-blieve-blieve." One bird leads another another. Both start. Elaborate Bell-ups. Then, apparently, 3e feeds off other. These birds definitely are quite alone. Fly off after a few minutes and disappear.

9:44. Going back up road. See a single Rufuswiza 6 ft up in scrub. Definitely alone.

9:54. 10, 325 ft. Next across mixed flock which alarming is nearly the same as the one seen earlier. Includes 2 or 3 butterflies, 2 Margeromins, 2 Whistletypes, 2e. Two Terebellies, and at least one C. All birds moving thru scrub 4-6 ft up. All uttering Whistletypes also uttering R's. Terebellies also utters "Te-a-tu" song.

Tertis apparently in lead. Whistletypes definitely converging up the rear. C's

Left kept curiously nearby. But apparently does not join our
group. Group moves down hill. But then the Whitetripues come up
hill again! Apparently they have become separated from Pitta-
Margaronias group. But then I see that the Whitetripues are accom-
pained by a single individual bird which is one of those black and
white and pale yellow Marabuin-like birds which I have never been
able to identify! And then suddenly the rest of the group reappears.
Sittis, Pittas, Margaronias. And one White-browed. Now the
whole group continues up hill.

Now Whitetripues are definitely in lead. Sittis follow. Whitetripues repeatedly. All other species follow group repeatedly. Whitetripues leading up the rear.

As far as I can tell, the CC is not associating particularly close
with the Sittis. But it certainly is picking insects off leaves in ex-
sactly the same way in exactly the same places.

Group is very coherent as it goes up hill. Soon disappears
from sight.

Leaving 10:15 a.m.

COMMENTS: It is obvious that mixed flocks occur on
both the eastern and western "frontiers" of the Andes temperate
zone in Central Ecuador.

But their distribution is very narrow. Why?

I might add that the vegetation at the area worked to
day (which I shall call "below San Juan") and at the areas
near Papallacta does not look more suitable now for mixed
flocks than other areas such as Yen-o and the higher parts of Atalaia.
Before seeing the flock today, I was beginning to think that mixed flocks occur only in "Zimmer Sub-Tropical Forest" and semi-adjacent to such forest. This may be largely correct. But the statement probably should be re-formulated. Mixed flocks certainly occur in areas where "Zimmer Sub-Tropical Forest" occurred recently, but from which it has disappeared completely in the last few years or decades. (Probably, I have never worked in mature VSTF except in the Western and Central Cordilleras of Colombia.)

The occurrence of mixed flocks on "frontiers" in this region does not necessarily invalidate my major thesis. The flocks seen so far have been rarer, simpler, and smaller than the flocks seen in Bolivia or the Western and Central Cordilleras of Colombia— or even the Eastern Cordillera of Colombia. (And note that the vegetation around Bogotá and Quindío certainly is not virgin, and not even "real "forest"!!!)

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

March 11, 1966
Atacaco

Going to work below San Juan again. Where mixed flock was seen yesterday. Arrive 5:53 a.m. Just starting to get light, sky partly cloudy. Everything silent. Quito bird sounds heard 6:02 a.m. Through "CN" & "Al (CN)". Then there is silence again (in spite of the fact that it is already quite light).

Then some miscellaneous songs (species unknown) 6:04.
Quite a lot of long by 6:12 a.m.  
Deer first heard a 1:30. Perched up 15 ft up in tree.  

Definitely alone.  
6:28. Walking down road; see a pair of flycatchers.  

Marsh of sunbird, c-10 ft up. Quiet.  
Definitely alone.  
6:34. See single C. Silent and definitely alone.  

Pollen visible in sunbird c-10 ft up.  
6:42. See single humming bird.  

Letting quietly c-10 ft up.  

In sunbird definitely alone.  

Well! Well! Well! 6:50 a.m. Come across a pair of streaked flycatchers.  

Apparent attraction (i.e. XXXX)!!!  

Fleeting about in trees and sunbird, c-12 ft up.  

Very active, but not making any progress in any particular direction.  

Also very very noisy.  Lots of R's and many other sounds.  

Then a single C (definitely adult) flies by silently.  

Makes no attempt to join the flycatchers.  

Leaves 40 ft away.  

Feeds on tubular red flowers.  

Disappears.  

A few minutes later, pair of C's.  

C is silent and apparent. Fly off again immediately.  

The flycatcher does not follow the C's.  

Obviously territories of C and C's are at least partly overlapping here.  

And both probable overlap the territories.  

It looks very much as if their XXXX is some being conspicuous  

Near "in order" to attract other birds to form a mixed flock!!!  

But so far they seem to have been unsuccessful.  

Eventually, the flycatchers disappear.  

Probable go downhill.  

4:04. Further down road: see pair of Whitestarts (usual species) about 100 yds downhill. Flitting about in tops of tall trees.  

De
**Fruity alone. One of the birds sings repeatedly. NODWAH shuts up.
For a single foot, thrush alone.**

**Log**

See a pair of thrushes alone. Then they fly off. One apparently changes the other. With one brief burst of song, NODWAH sun light approaching this area 4:18 a.m.

**Log**

See single thrush perched 3 ft up, flapping. NODWAH: Definite. alone. Flunts up. Immediately, White-tailed down hill begins to fly. Also NODWAH.

4:20. Ca. 10,000 - 10,100 ft. Then Duliana flapping down hill. Then see single thrush in scrub-along road 2-3 ft up. Feeds on tubular yellow flowers. Apparently cutting into bases of corollas! Litter a few rapid twitters. NODWAH. Apparently alone. Starting back up road. 4:26. See another pair of Thrushes.

20-20 ft up in scrub. Quiet. Definitely alone.

**Log**

Then thrush perched. NODWAH. shuts up. Everything very quiet 4:40 a.m.

**Comment**

I still have impression that Rufus press is less abundant here than further up the mountain where mixed flocks do not occur. Is there a causal relationship here? **??** If so, what? (Note: that Rufus press is quite abundant in Papallacta area, this other area where mixed flocks occur. But there they are replaced by other species. Which does not seem to be the case here.)

4:40. See single B. rugicrissatus hopping through scrub. 3-6 ft up. Definitely alone. Fitters some B. B's. (I am quite sure that all or most of the B.'s heard here have been B. rugicrissatus.) It seems to be a common species, in spite of the fact that it is so difficult to see.

Then this bird meets another of the same species. Both fly off.
In long mossy, heathland chase.

Almost another pair of Turbello's. Quiet and alone. 10-15 ft up in sun.

All trees.

It is clearing up again. 4:30 am.

Frozen up, road clear, more jackdaws and PFC's. Overlapping apparently at random.

8:04. One of the sites where mixed flock was seen yesterday.

See 2 CC's and 1 Turbello, very close together. 7-8 ft up. Select CC's fly off. Turbello apparently goes in different direction.

A few yards further on, see what are obviously the same CC's again.

Now definite, alone. Select 3-4 ft up in scrub.

Then see single Dulunia across road. Definitely alone. Joint flocks. Then picks antennae off leaves. 2-3 ft up in scrub. Her off almost immediately.

Then see pair Blue & Orange Tanagers!!! Feeding low, we see 1-3 ft up. Apparently, picking up fruit and seeds. Quite silent.

At same time, I can hear a variety of bird sounds on other side of road, about 100 ft away. This in direction in which Dulunia went a few minutes earlier.

Juvenile, one of the Blue & Orange Tanagers, attached to a hummingbird. Probable SV. Hummingbird doesn't react. Hummingbird leaves.

Then the Blue & Orange Tanagers fly across road into patch of scrub and forest where the other bird sounds have been coming from.

I eventually maneuver around so that I can see some of these other birds. A mixed mixed flock. Observably behavior the same as flock seen yesterday.

Includes 3 fitches, at least 1 (presumably, in fact, 2) Mergansin, 2 Whitestripes, 1 Whiteboard, 2 myiomelaenas, 5, and the Dulunia.
All birds quite coherent, White-shoulder in trees 10-12 ft up. Whitetripes in scrub 2-10 ft up. Littles in scrub 6-12 ft up. Mangar orms in trees 10-12 ft up. Delmaria in scrub ca 4-6 ft up. Scaup in scrub 2-8 ft up. All birds quite noisy. Littles apparently in lead. Delmaria f. → Littles. All other species f. → quiet, in move.

It is obvious that the mixed flock here has a definite nucleus, including Littles, Whitetripes, Mangar orms, and White-shoulder. Other species attach themselves to this nucleus, occasionally and/or when they happen to be in the neighborhood.

**Notes:** I never saw the Blue & Denver again after I caught sight of the main body of the flock. Perhaps the Blue & Denver did not stay long (but they certainly did join it for at least a few seconds)

Perhaps the CC's and Forbibly seen a few minutes earlier were "cutters" of this flock.

Flock eventually moves on. Disappears except for the half nucleus which stay behind. Perhaps they are separating themselves from the other birds.

Walk on further up road. Hear more Yaf song. Nodwah 8:45 am. Phrases found, brief but repeated

See a couple of birds fly low, very low in scrub. They might conceivably be the "All myous like plaza," Apparutty, alone.

8:55. See a group of 3 of the presumed Uromyia's (1 XXXX) fluttering about in trees 8-15 ft up. Moderately noisy. Fluttering occasion al "N"s and R's. Apparutty alone.

**Note:** As far as I can tell, these birds are essentially identical
cal with the Uromyias of Punee in almost all respects. But I have
not (yet) been able to detect any differences in the "ground color" of
different parts of the underparts. Looks all pale yellowish white.

Then a few feet further on come across "usual" flock a
again. Now includes at least the little White-striped and White-headed.
In scrub a 10-20 ft up. Also 1 CC [?] f - > little. Then little
is and [CC] feed in same tree, picking insects off leaves, (only 1 ft or
less), from nearest little. No obvious signs of hostility between species.
Possibly the "All-rouseous Tyrrhæus" and for the presumed
Uromyias (also) were "outliers" of the flock.

It seems to be characteristic of this flock that the "nucleus"
always or almost always coheres, but the rest may be very diff
use.

At one time a single Laf comes within 35 ft of the nearest
member of the flock. Silent. Feeds on red flowers. Goes away again
immediately. (I don't think that this should be called "joining")
The Dulcinea is lingering during part of the time. I have the
flock under observation. It obviously is not with the flock, or not el
on to the other birds, at the time.

Flock eventually goes down hill.
Go on up rath a little further. Hear more Laf song. NDW is
AH. But complete, overlapping long loud, melodious song ley
nearby unseen. This is another indication that song by members of
the "Dulcinea Social Complex" is not inhibited by any loud nearby
sounds!

9:25 10, 425 ft. Come across 1 or (more probably) 2 Attagis
Torqueus. Very low wide scrub. Utterly, lots of short, soft, hoa
rise PN's. Then see single Blue + Orange 4 ft up in scrub about
40 ft. away. Blue & Orange gradually comes closer to Attapetus. Until at 15-20 ft away, I think this must be classified as a case of Blue & Orange in Torquatus. Then torquatus hops further up in scrub. Begins to flutter louder, longer, clearer, more usual "Long" Whutters. Then all birds go flutter back in scrub and disappear.

9:37 a.m. Hear CC-like Whutters in distance. NODWAH A few minutes later, a torquatus back. Still moey. But the Blue & Orange seems to have left them.

Starting back down road, hear Soft Song NODWAH. Fluts up. Then hear 1 CC-like Whutter. NODWAH.

Back to flock area 9:55. Flock apparently gone.

Then go down road a few yards, 10:02 a.m., see what probable part of flock. See 1 White browed, 1 Whitetrip, 1 Blu & Orange, 1 Rufous-chick, and 1 Whitetart (1) All scattered over very wide area (At least 100 square yds). All quiet. All species moving at usual levels

Blue & Orange feeds on whutters.

This group is much more diffuse than earlier. Is this because the Whutters (and Marygorms) have gone elsewhere?

Leaving myself 10:15 a.m.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSIN!

March 12, 1966

Atacosa

Going to work in the same area below San Juan, again today. Arrive 8:58 a.m. Just starting to get light. Rather thick cloud cover. Everything quiet.

Near front miscellaneous bird sounds 6:32. Thunders. See single footy through alone.
Wallin

6:24

6:02

7:25

Unfortunately, I don't get a very good view of it. Coming rapidly up hill. Certainly includes at least 3 fittis, 2 White-troopers, 1

infinitas, and 1 GT. GT disappears almost immediately, and I don't know where it goes.

fittis and White-troopers alternating in lead. fittis f

White-troopers at least 10 times. White-troopers f ——> fittis
at least 10 times. Both species range 10-20 ft up in small trees. Picking insects off leaves. Both noisy. Whitetripes utter many qu "o's.

rufinucha low in scrub. 2-3 ft up. rufinucha f → group at least once. But then seems to fall behind.

fitti - Whitetripes - rufinucha group eventually comes up to where unwrya seen earlier. And unwrya still there. (And now I see that there probably are 3 subs of the species here). unwrya become very vocal as group approaches (altho' this may be a reaction to us rather than to the other birds). And then the unwrya apparently "drift after" the group for 20 or 30 ft or so. Remaining very low in scrub. But the fitti and Whitetripes are moving to keep up. See a couple of fitti stop following.

Note: I would have said that the Blue & Oranges seen earlier were on their way down to join this group, but I don't see them with the group when the latter was visible.

One or more of the local faps sang vigorously when the flock was around. But none of the faps joined or even (as far as I could see) approached flock.

After flock goes, however, I see a couple of faps alone, apparently disputing. lots of sipping. NEDWAH. It is conceivable that this dispute arose because one of the faps "strayed" as a reaction to the flock.

7:55. same area. see pair of rufinucha 2-3 ft up in scrb

& uttering lots of "AUCN"s. Apparently alone now.

8:01. Lower part of "usual" flock area. Fittis and their

rufinucha low in scrub. About 30 or 40 ft away, in one direction, is a pair of Oranges.
Morning about m. 00:30 ft. up. Uttering lots of loud "Kit" notes. Also 1 long phrase. "NOD WAT"

This is exactly where Ref.-Hummingbird reactions we're seen 2 days ago. E. A. Territorial, must overlap that of Ref. completely. And must overlap that of Hum. at least partially. Truth in Ref. is visible or audible at the present time.

About 30 to 40 ft. from the Dubiera in another direction is a pair of Firebells. 1 ft. up in trees.

I think that these Firebells, Eps. and the Dubiera must all be classified as alone.

Firebells fly off down hill. Firebells is → White beard. Then Firebells feed on wildflower. The exact same clump on which Blue-Orange fed yesterday!

Eps and Dubiera disappear. Apparently in different directions. Some minutes later, nearby leaf begins to sing. "NOD WAT"

Then a single Ref-mirid appears in scrub; Uttering lots of "AUVN". "Definitely, alone."

Turn out now 8:15 a.m.

About 100 yds. down road, see single Firebell in tree 12 ft. up. There also is a small flycatcher in same tree (Contopus ???)

Firebell flies off. Flycatcher does not follow.

Then see (another?) pair of Ref-mirids near low-in scrub. Very noisy. Lots of "greeting". Apparently alone.

Cloud is coming up again now 8:30. Everything is matter quiet. At least for time being.

Some Ref. song in distance.

See some more single sooty bushes alone.

Some distance farther down road. Hear more Dubiera.
long. This cannot be uttered by same voice heard previously.
Then see pair of Firebelles 20 ft up in tree tops. Alone.
Also an apparent single Firebell alone 1 ft up in bamboo
ub several hundred yards away.
Then see a single Lof silent and alone 2 ft up in scrub.
Then a single Rufusinchilla silent and alone, 1-3 ft up.

some patches of thick fog coming soon 8:55 a.m.
Reach 10,050 ft level and then start back up road.
See another pair of Firebelles alone 9:00 a.m. 2 ft up in scr
ub along road. Rather quiet.

Then see single Rufusinchilla alone. Undoubtedly same udividu
al seen a quarter an hour ago.

Mean what sounds like Big Buttercup is up hill 9:03.
See pair Firebelles alone (again).
Lof significant occasionally. NODWAH.
See another single Firebell alone 4-6 ft up in scrub. Quiet
9:22. Not far below, "usual" flock area. See pair Rufusinchillas
2-6 ft up in scrub. Nosy. Definitely alone.

See a single Lof alone

Back to "usual" flock area 9:30. Lof apparently not aro
und. So I guess that it does make some appreciable movements somet
times!!! Not a purely resident "clump"!

Leaving this area 9:45 a.m.
Go down road to 9845 ft level. Miscellaneous scrub. Not
very different in appearance from scrub higher up.

Then Lof Long. NODWAH
See a pair of Firebelles. Moving thru scrub and trees, 10-15
Walking further down road, see another single Firebell, alone. 10 ft up in very poor looking scrub.

Then see group of at least 5 Bromygas chasing one another thru tall low scrub. 4-6 ft up. Very noisy. Apparently disputing territory.

Further on down road, 9825 ft., see another single Firebell, alone.

Then see pair CC's 3 ft up in scrub. Side road. Definitely alone on. One wid utters twitter Greeting when it lands near, NODWAH. Then both fly off.

"Well! Well! Well! 10:05 a.m. see single Margarorinus. As far as I can tell, definitely the usual species, tree dwelling in small trees 13-30 feet up. Definitely alone!!! Then single rufiunicha appears. Rufiunicha is Margarorinus. Rufiunicha perches about 5 ft from Margarorinus. Quite silent. Then rufiunicha suddenly swoops at Margarorinus! Definitely supplanting attack!!! Margarorinus flies to an adjoining bush. Rufiunicha flies away. Margarorinus stays for some minutes. Definitely alone all the time. Then it is frantically huddled away by a glistening truck.

This incident would suggest that some of the Altajetes I have seen with flocks have been merely " escorting" - just like Rufiunica!!!

Then hear more Lof song. NODWAH.

What has happened to the Altajes? ?????

But sing White-tart. Solent. Definitely alone. 1-10 ft up.

No matter thick scrub.

10:25 a.m. Come to ravine with much thicker vegetation.

Mount 9,450 ft. Hear more Dubiasi song.

Come across another group of 3 or 4 plumed Bromygas! Yea!
y now, 2 lft up. Apparently all alone! Then see another single Firebell fly by. Definitely alone.

Starting back up road 10:35 a.m.


Alas! 10:52 a.m. 7/25 ft. See single Black Diplona fly by. Alone. Feeding on flowers. 2 ft up in scrub. Shows absolutely no trace of flower petals. ZE. regardless, Alps! Then moves off into scrub.


Whistle along road. See yet another single Firebell alone.

(Then probably the same as one of the individuals seen some time ago.)


ow flowers. Same species on which C was seen to feed yesterday.

4 lft definitely pruning calillies

Leaving 11:02 a.m.

COMMENT: It is quite remarkable that I have seen on

ly one really large, highly organized, long sustained moved flock

here in this region below San Juan. Mixed flocks certainly are

not well developed here!

It is probably not coincidental that this one large flock

spends a large part (not all) of its time in the ravine with the

largest amount of "forest" (i.e. real trees). But the difference be-

tween the vegetation of this ravine and that of many other ravins

in (and other areas) is not very great.

In fact, I am beginning to think that the large moved

flock occurs in this one ravine simply because the latter "happens" to have settled there!
March 13, 1966
Atascosa

Going to work at last place visited yesterday, c. below farm yard, starting at ca. 78 75 ft. Arrive 6:30 a.m.

Dawn chorus already started. At least thrushes
6:18. See mugil mugilina. Hopping thru small trees and
chum. 3-10 ft. up. Definite, alone.

Some distance farther on, see another mugilina perched ex
pend 5 ft. up. Uttering "ch". Also apparent, alone
see some mugil feet. Thrushes alone

Then an apparent, mugil B. nigrocaudatus 6-8 ft up,
dump w/ dense scrub (with some bamboo). Singing. Apparent
alone. B. nigrocaudatus Rf's overlap mugilina songs at random
6:35. Then duludia singing down hill. Also overlapping

mugilina songs at random

Further down road, hear more mugilina and torquatus

Also completely overlapping

6:44 a.m. 98 75 ft. Area mixed bamboo scrub-edge ravine.

There lots of duludia Elliott and other sounds. Then see mugil C. flitting
tree branches, small trees, 4-8 ft. up. A few feet away, there is a pair
of torquatus!!! 3-4 ft up in bamboo. Then, more. Whistles and
R-Switters. This must be considered a mugil flock. But then C. flies
away, torquatus do not follow. They continue on thru bamboo
scrub. Definite, alone below.

Then B. reappears. Feeds in scrub at least 150 ft from
mugilina. It must be considered alone now. Pay no attention to the

**NOTE:** The actual white stripe of the Whi"et"et"i"p"es here is very conspicuous. Quite broad. Going quite far behind eye.

4:06. See single Firebellies. Definitely alone. 3 ft up in scrub. Then bear right. Left long. NO IDEA. Then see 2 Fireb. One chases the other through scrub. These accompanied by lots more bugs. Birds are definitely alone.

4:13. See single All-rufous Tynallaxis moving through scrub. 3-6 ft up. Being quite "tree creeping." Silent. Apparently alone. Then a pair of Firebellies flies into same patch of scrub. Very active and noisy. Slitting about 6-12 ft up. All-rufous flies off at least 4 or 5 times. Then Firebellies fly far away. All-rufous does not follow. Apparently left alone now.

**CORRECTION:** Now I see that there really are 3 All-rufous here. Definitely alone now. Quiet.

**NOTE:** This is almost exactly the place where I saw the single Whi"et"et"i"p"es alone yesterday.

4:28. See a pair of Firebellies. 10 ft up small tree. Definitely alone. Then see another single Firebellies through alone. And a single All-rufous alone.

4:33. Top of road. Big vein rather poor-looking mixed bamboo scrub. See a diffuse flock (or "semi-flock"). 2 or 3 Hemisyrnias flutter about now. 3-5 ft up in bamboo. I can pick up insects off leaves in tree. 10-15 ft up, above them. 20 ft away from Hemisyrnias there is a pair of Phaethornis moving through bamboo. 3-5 ft up. Also 20 ft from the
Uromyces, but in opposite direction, via pair of B. migrorioratus 3-4 ft up in bamboo. Uromyces fly off. Uromyces migroriorus and B. migrorioratus do not follow the others. Both species go their separate way. Both must be considered alone now.

Starting back down road 7:47 a.m. (been finally begins my to reach this area.)

Everything now quiet now.

Leeuwieten muscle flybellies alone. Left up in tree.

Then in pair of flybellies 3-6 ft up in scrub. Also alone.

Go down to 9,650 ft 8:24 a.m. See a single Dendrornia. Mourn

low item love, impoverished scrubb 1-4 ft up. Then begins to sing. Defined alone.

Starting back up road 8:32.

Near 7th Singing at this 9,650 ft level. Not heard. Starts up.

A few minutes later same level see single Whitetail fluttering

from tree to tree silent, definitely alone.

8:58 a.m. Flee clear spot where flybellies and All-rufous

symallaxis ran earlier this morning. See 2 flybellies fluttering about in

trees 4-12 ft up. Also 3 All-rufous symallaxis 1-5 ft up in bamboo

scrub. The flybellies and All-rufous do not seem to be paying much

attention to one another. But they certainly come within 20 ft of one

another occasionally. Then flybellies disappear (probably fugitive edefine).

At approximately same time, 2P3 symallaxis CW appear in

scrub very close to the All-rufous. There is a great outburst of activity

all birds of both species fluttering about close together, with lots of vocal

ations. This looks like a heavy dispute. Then all birds move down

hill. All rufous f CW repeatedly. (But all or most of
this following probably is really. Red-tailed chaser.

9:08. A single Firebell flies thru same area, silent and alone.

COMMENT: Probably other Firebellies and All-rufous are not forming "organized" flocks. Probably the 2 species amonate with one another simply because they tend to stick to same area.

ADDITION: When squallaris dispute was at its most, a single Attaleotes rufinucha approached and came within 10 ft of the dispute. Then went away again. This must be considered a case of joining. But the rufinucha probably was motivated only by "curiosity" or curiosity.


9:24. Just a few-feet farther up road. See pair of Blue & Oranges. Moving their low abdomen 1-3 ft up. Uttering "chew," definitely alone. Some distance further on, see another single Firebell alone. And then another one, 300 ft further on.

9:38 a.m. Same distance further on, come across another pair of Firebellies. 10-20 ft up in trees. Definitely alone. One of the birds (presumably the ♀, and not the driller of the two) is displaying. Moving about, sitting and standing, with wings held slightly away from body and drooped but not spread. Apart from this wing pattern, the rest of her postures and locomotor patterns seem to be quite unritualized. Just and no obvious ruffling or fluffing. Every once in a while, the ♀ utters a "strangled" version of ordinary Ju- and "song." When she does this, she also Q's her wings. The ♀ also utters quite R's from time to time. This is not accompanied by Q. Finally, Q comes closer, immediately assumes a nearly horizontal posture. Also does TV. And Q's her wings
againитель till this time. But a few moves away again and q relaxes again.
Both continue to move around actively.

At one time during this performance, a single female

Fauvelles fly off. Fauvelles do not follow. Fly of

a few seconds later in a slightly different direction.

A similar Fauvelles fly back a few minutes later. Definitely at the

near Heather's mean "PN" and "EN".

Leaving the area 9:35 a.m.

Reach area 9:40 a.m. 10:02. Some quite good-looking AS around

here. Think if not very tall. Everything very quiet.

A little further down road, vegetation is better. Looks almost

at translitral to "USTF".

Everything absolutely dead! Looks almost as if all the birds

had gone off in a huge mixed flock! But this appearance probably is just

leading. The general quiet probably is a reaction to the bright (and hot)

sunlight.

Thar a few bird sounds 9:30 ft. Very low in scrub. Pombeq ten

quakers "PN". Also hear Duluria fluing down bull

Fruit clouds coming up 10:36 a.m. Starting back up road.

See a single Fauvelles fly by. Select 4 alone.

Further up road 10:47. Hear ten quakers Whistle Long." NO DJAWA

H. Only lasts for a few seconds. It looks as if ten quakers may largely

or completely replace rufouswha in this more humid-looking region?

Then we single Cq. Select 4 alone. 20 ft up in tree.

9:50 see group 2 or 3 Whistlers 2-0 ft up in scrub. Uttering

"CN". Definitely alone.

Thar RSF's in distance.

Leaving 11:00 a.m.
SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

COMMENT: One aspect of the fruit area worked today was very striking. This area seems to contain all the species except little that are common in the slightly higher area worked on previous days. But large, long-maintained fields seem to be absent here — while at least one species in the higher area. This suggests that little's play a notably important role in the flora of this region.

March 14, 1966
Atacapo

Going to work below San Juan again. Last place worked
yesterday, i.e. 1400 ft and below.

Actually we overshoot the mark, go down to almost 2200 ft.

Aurora 0:05 am. Getting light. Generally cloudy.

Can hear some DC already. Then near Whistling Songs.

NODWAH. But completely overlapped by DC.

This area seems to have rather good forest sound. Perhaps
intermediate between AS and USTF.

0:12 Fruit rufinucha - type song. Completely overlapped by
DC. Then Whistling Songs again. Partly overlapping R. Rufinucha Elco
(again) completely overlapped by DC.

Then either are some more partial or complete overlaps of rufinucha type and Whistling Songs. Then both shut up.

Then more Whistling Songs. NODWAH. Shut up. Then more
Rufinucha - type Songs. NODWAH. Both overlapping for belly song app
arility at random.

DC might well be very atropeloso.
Mon. Mutantant soup NODWAH. Then see single Mutantant. Do
snuggle alone, 15 ft up.
Then see single friebelie alone. Also pair ruquinchas alone.
Both ranging 10-12 ft up.
Then see pair of Mutantants and single atropelous close together.
4-6 ft up in trees above bamboo under. Mutantants fly off, atrope-
less.
DC starts again 6:29. Now I am sure that it is cry atrope-
less. It sounds as if atropeless here are in breeding condition!!!
Mutantants fly again, completely overlapped by DC. Then be-
th species shut up.

See single ruquincha fly across road, alone, and alone.
6:36. Some distance away, see another pair of Mutantats.
4-6 ft up in bush edge rock side. Definitely alone. Joined by third
Mutantant. This moves close, snuggling. NODWAH

Then see single ruquincha snuggling. Definitely alone. Perched
exposed 20 ft up in tree. At least NODWAH. Then Mutantants fly
again. Complete overlap. Mutantants shut up. ruquincha continues
NODWAH. Mutantants resume. Again complete overlap. Mutantats shu-
tup. ruquincha continues NODWAH.

Certainly, there is no mutual inhibition of song between
Mutantant and Ruquincha!!!

Walking up road 6:45. Near delmana snuggling in distance.
Things are getting quieter now—
See a single friebelie alone. 3 ft up in scrub.
Further along see pair friebelies 8-15 ft up in tree. Appears
friebelie alone.

6:55. Above 9300 ft. Region where I worked yesterday.
See pair rufinucha 2-3 ft in poor scrub-edge rock slide. Definite alone.

NOTE: Rufinucha certainly is not replaced by torquatus here.

4:00 a.m. See pair Blue & Orange, Moving thru low scrub-edge road. 0'-3' up. Utterin' "CN". Eating berries. Definite alone.

NOTE: This may be another species which is less gregarious here than in some other parts of the Andes.

4:05. See group of 3 Big Buttrerausps (identification definite) and 2 Firebellies, all very close together, 20-25 ft up in trees. All feeding on berries. All very quiet. Big Buttrerausps upplants Firebelle, 2 Fasty Thrushes J > group (!!!). Then the Big Buttrerausps gradually move on. Apparently another Firebellies and thrushes follow.

Later: Whitetart definite, alone. 2 ft up in scrub.

NOTE: There is a road marker here which says "30 KM".

Then presumed Aguqru 4:20. NODWAH

Go on up road to 9400 ft. Then start down again.

Then Whitetart Lengus. NODWAH.

COMMENT: It occurs to me that Mutual Inhibition of song probably is most apt to occur between serious competitors. (Viz. different relations of rufinucha and torquatus versus Diploceni.) This would be adventitious. It would tend to prevent a species from settling down in areas where too many competitors are present. It would save time and waste of energy.

NOTE: There are a lot of hummingbirds here. They may help to explain why Diploceni (apparently) are rare here.

4:33. See a couple of fasty Thrushes alone.

Then see single rufinucha alone 20 ft up in tree.

Then see pair Firebellies alone. 1-2 ft up low scrub along.
road. CORRECTION: This is definite mixed flock. Firebellies fly across road. Then I see a pair of rufouschias and a pair of Blue & Oranges as usual. The Firebellies just lift. They also fly across road a minute later. rufouschias f — Firebellies. Blue & Oranges f — group. All birds keeping very low. All birds also very quiet. But group as a whole is very coherent and in almost steady progress in one direction.

4:43. A little further down road. See single Firebelly 20 ft up in tree. Silent. This bird definitely is alone.

Then see group of Big Butterdups in tree tops 40 ft away. They also seem to be quite alone now.

See another single lofely fluff alone.

Everything dead quiet now 4:57 a.m.

Get back to car 8:00. DC seems to be continuing. But it stops almost immediately.

8:02. See single Big Butterdupis. 20-30 ft up in trees. Very near. Rattles and "CN"s. Definitely alone.

Going on down road now. Region largely bamboo-scrub.

See single monarch-sized cotinga perched 30 ft up in tall tree in midst of bamboo. Silent. There are 3 aeries, a clear one another in same tree. Very near. 10-30 ft from cotinga. But there is no scent reaction between the 2 species. P.E. not a real flock. Then cotinga flies off. Flycatchers do not follow.


Sun coming out. 8:15 a.m.

8:17. 2025 ft. Hear hoarse hogging type notes coming from grass between scrub and road. Then see single rufouschias hopping about in nearby scrub. Carrying huge mass of caterpillars in track! Obviously
going to feed young. Bird (or species) definitely alone.

NOTE: Can see White Ceereusas further down valley. I & this region really is very humid.

Go on down to 7000 ft without seeing anything more. To start back up road again 8:45

8:53. Hear what sounds like Go Leucau down hill. NODWAH Back over can hear more Decline a song

see a single Whitetail, split up in scrub. Alone.

9:10. Flock of Whitetails quiet, 2 split up in scrub along road. Here also is one or more Hemipeneus or Basileuterus type in same

numb approx 20 ft away. I don't tell if the 2 species were alternating or not. Then I see a couple of GT's. One is in tree, 20 ft up. About 30

ft from myfija (and even further from Hemipeneus or Basileuterus). The other is about 40 ft away. Both very noisy. Loud metallic

nasal noises single note and R-like pattern(s) high in reminiscence

of Big Bullethaus. Finally, the distant bird joins the nearer one

Both move off. Nothing follows. I think that GT's must have been

fed up alone.

9:33 a.m. Some considerable distance further up road. See

group of more All-rufous Tyllurus. Very low - in very thick mixed


A little further on, single All-rufous. Alone. Goes from tree
to tree over a simply enormous area

Leaving 9:50 a.m.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSS IN I

COMMENT: Atlantous luteusorum here seems to fill much

the same ecological niche as Saltator aureolitrostis in some other

parts of the Andes.
March 15, 1966

Avenue town itself 5:54 a.m. Starting to get light. Clear.
Dawn chorus is in full swing! Loud!!!
6:17. See a couple of single Scotty Thrushes alone
SEE TODAY'S NOTES ON MIXED DIGLOSSIN.
6:24. See single long-tailed. Silent and alone. Walking along a

could be middle of desert path.

NOTE: Looking around, I can see that all the vegetation area

and here, including the scrub, is very obviously

second growth. But so

one of the scrub certainly in lungs!

6:32. See pair of long-tailed. Silent and alone. On ground or

path. One of them presumably the usual individual seen earlier

see lots more Scotty Thrushes alone

7:01. See Altos fly out of scrub. Silent. Then see pair of Thig-

poeis in scrub which Altos has just left. Raging 3-5 ft up. Silent

definitely, alone now. (I presume that this Altos-Thigpoeis group

will have to be classified as a mixed flock, for purposes of statistics, but

it probably was "coincidental."

6:09. See single Fridelly, silent and alone. 3 ft up scrub-

edge never mine. CORRECTION: Here is a pair of Fridellies here. The

are move off then scrub. Nothing follows or gains

8:14. See single Rufouscha. Silent & alone. 2 ft up in scrub.

NOTE: I have seen a lot more Scotty Thrushes alone than I ha

was bothered to record above.

See single Yellow-fronted alone. Perched 1 ft up in conifer.

8:35. See pair of Whitetailed low in scrub-marine. Probably,
same pair seen earlier, still silent and alone.

8:46, fee single Red-bellied alone, 4 ft up in Eucalypt in eruvre

9:13. Rather noisy

9:21, see single maroon crested cottinga, silent and alone, low
in hedge.

9:33, see single B. magnirostris, 3 ft up in scrub. silent.

Also see single A. turrius, 10 ft away. Warbler moves on. Ater
does not follow.

March 14, 1966
Atacazo

going to work above San Juan this morning. Area where I wo
rk in previous years. Annie 5:50 a.m. just starting to get light. Sky
partly cloudy. According to my altimeter now, the altitude here is 115
100 feet.

Everything is very quiet now.

Near fruit bear sounds (chamomites) 5:52 a.m. Followed by a
few thumb sounds. Then a somewhat greater variety of songs and oth
er noises.

NOTE: The vegetation around here is rather "patchy." But qu
ite a lot of it looks like mature A.S. And up here we are at the head of a
valley which has quite a lot of nice forest in it.

6:14. fee pair of birdfulches. Ranging 4-6 ft up in A.S. Utter
ing lots of ON's. Definite alone.

6:27. fee pair birdfulches. 1-3 ft up low scrub edge. Probably
same pair seen earlier. Very noisy. Lots of qu/elings. Quelings
very elaborate.
Twitter: R = "Zoo-woosh, woosh, woosh, woosh" type series
Length of phrases somewhat variable.

Is this Diglossini-like????
This pair definitely is still alone.

Then see single hummingbird, silent and alone. Feeding
on yellow-white flowers. (Same species on which it was seen to feed a few
years ago.)

6:35. Things really are very dull here.
See some single bees, flowers alone.

6:47. See same pair of rufinichas. Still where they were. Still a
low chattering "PN", 1-3 ft up in scrub.

6:51. See single C, silent and alone. Perched 3-6 ft up in dea-
d bushes. Feels quite dull (Brown, rich gray) underneath. (But certainly
not brownish gray). He's off immediately.

Then hear some Twitters in distance. Can't tell if they are C or
hummingbird. But certainly completely overlapped by rufinicha Son
q. Then Twitters stop.

6:53. See single F. Perched exposed at 6 ft up in AS. Silent and
definitely alone.

7:02. Some rufinichas still singing. LADWAH
See also today's notes on Mixed Diglossini.

7:55. Hear Ambuna flying down hill.

8:13. See another pair of rufinichas, 2-6 ft up in AS. Definitely
alone.

8:14. Twitter along path. See another, single rufinicha alone
2-4 ft up in scrub. Uttering "PN"s
8:41 a.m. Single Firebelly flies by, definitely alone.
Leaving 9:40 a.m.

March 17, 1966
Road to Baeza.

Going to try to get part of Capella today on the road to Baeza. Finally arrive region 7870 ft. 6:20 a.m. Quite light. Patchies of

Jogging along by

Area of mixed (AS - USTF) and pasture

Many matches of what is either for White-tailed Sagebrush Flock or NODWAH. Also Firebellies sounds. Also B. microscristatus sounds.

Pleasant mix of Firebellies flies by overhead. Alone.

Also see single White-tailed flying from bush to bush. Apparently

Alas, from sound, there are lots and lots of birds here!


2 White-taileds and 2 White-trupes. Range 6-15 ft up in trees. White-tailed

White-trupes White-trupes White-tailed

Both up

Wise-faced White-tailed Flock NODWAH,

Also hear some Anteaters Quirting 30 ft away. But Anteaters

apparently do not follow flock.

Then see single Yellow-bellied. Perched 20 ft up in tree, 45 ft from

flock. May flies away. Goes past flock without any indication of joining

DE this Yellow-bellied is alone.

Walking along path, hear more White-tailed Flock NODWAH.

Bird sounds are numerous by 6:45 a.m.

6:50. Then Dulciaa song in distance.
Then hear lots more Whitetants song. NODWAH.

Then see single Whitetant. Flew. Definitely alone. 3-6 ft up in sumb-edge pasture.

There is slight rain. Fog. Windy all together now. 7:00 a.m. I

During all the birds are keeping under cover as much as possible.

Still more Whitetant song in distance. 7:00. NODWAH. See single Whitetant. Alone.

14:15. See single pair Basiletes canis. Or Henry pinguis - types. 3 ft up in second growth shrub-edge pasture. Probably Whitetatars. (But possibly, same species as "Black check" seen above Padawa.) Definitely alone at first. But then they go further into shrub. And then I hear Atteletes ON's from their new area.

14:19. Hear some Atteletes Whittle song in distance. NODWAH.

14:21. Not far from where mixed flock seen earlier. See what is large, pure flock again. Includes pair of Whitetants. 2 Whitetatars, 2 flycatchers. X, and 1 or 2 Firebells. All moving around 6-20 ft up in trees. All moderately noisy. But I can't tell what anyone is calling.

Notes:

1. Identification of Firebells (yes) definite. DE this is one of the few places where Firebells and Yellowbellies overlap.

2. The flycatchers. I'm undoubled were with same flock when seen earlier this morning. (I didn't mention them because I didn't think they were "relevant").

3. The Whitetatars here seem to have definitely gray cheeks (and probable caps). I did not notice this in the Whitetatars seen above Papalluta last week.

4. Once, a Firebell flew 40 ft away from flock. Nobody followed. Eventually, Firebell flew back and rejoined flock.
Rev almost stopped 7:35 am.
Go on down road to 9400 ft 7:40. Region rather similar vegetation. Very quiet. Rain coming back.
See some more foot-hummingbirds.
Wind really in enormous strong 8:00 am.
Go on down mile path to 7550 ft. See single yellow-belly, 3-6 ft up, wind growth, sort edge old pasture. Calling "PN"s and song. But definitely alone.

Note: Population of yellow-bellies here does not seem to be very large. Less dense than in Central or Western Cordilleras Colombia.

Then hear more Whitetail frog, NODWAH.
Then see another yellow-belly fly by. Definitely alone.
Go on down to 7200 ft 8:20 am. Without seeing anything more to start back uphill again.

Then quite a lot of B. microsculptatus off's. Without being able to see the birds. But it must be a common species here too.

Note: Possibly the firebellies does not occur as far down hill as here. Possibly the level 7800-7900 ft is the only place where firebellies and yellow-bellies overlap (vs Central Cordilleras).

Go on down highway to 7625 ft. More mixed pasture and scree. With USF up hill.

Speak of the devil, see single firebelle (definite), 20 ft up tree edge pasture. Definitely alone. Then flies up into isolated USF tree.
Still alone. Quiet throughout.

8:45. Going down hill through pasture. Reach 7445. See single Blue-black (definite) flying from tree to tree edge pasture. 10-40 ft up. Fluttering in's. Definitely alone at least part of the time.

Once lands in tree where there is foot's, flutters 25 ft away.
But the 2 species do not react to one another. Blue & Black flies on. Scotty Thrush does not follow.

Then see pair of Littis in an isolated VSTF tree, which the Blue & Black passed apparently without stopping. Littis ranging 20-40 ft up. Pecking meets off leaves. Also feeding on red and yellow flowers. Long, thin, tubular flowers. And definitely picking at base of corollas.

**Note:** This species of flower is common all over Quite region now. Also have seen it in other parts of the Andes. But certainly more of the other diglemias around live bird feed on it while I was watching.

Then Littis certainly are alone at least part of the time. While they are in this tree, I hear very long fluctuating notes coming from it.

This must, I think, have been uttered by one of the Littis. Presumably the song of the species. It may be significant that this was uttered while the birds were not in a mixed flock.

Littles eventually fly off into another VSTF tree 100 ft away. Scotty Thrush is Littis (?) Can’t tell if the association is “coincidental” or not. Then all three birds disappear.

A few minutes later, a single Thrush, billed, Definitenly alone. Feeding isolated clump scrub in middle of pasture. Range from ground (2 ft) to 2 ft up.

Still later, see pair of Blue & Blackes feeding in trees edge pasture. 20-30 ft up. Definitely alone.

Beginning to rain hard 9:05 a.m.

9:10 a.m. Only a Litte left further down pasture. See group of 3 *Altacites pallidimandia*. Moving through scrub 2-4 ft up. Then hear or saw sound noises same pitch as scrub. Then hear B.
migratory Off also same patch scrub. Then a single Blue & Black fly in to the 20-30 ft above scrub brush. I think that this must all be considered a mixed flock but it certainly does not appear to be very highly organized or coherent.

Blue & Black fly off. Nothing follows.

It probably is significant that the fliers who may be not far away do not join this group!!!

Scrub winds drift off and disappear. A few minutes later pair of Blue & Black fly into nearly VSTF trees. 15-30 ft up. Definitely alone - altitoxoner non.

9:28 a.m. Wind also is somewhat weaker. And everything becomes quiet all of a sudden!


9:48. Again, see single Blue & Black fly in alone. (As far as I can tell, there is only one pair of Blue & Black here)


In second growth scrub. Includes at least 1. White-tant 2. Whitt/ta.

Up (greater group of birds more conspicuous) 1. Woodpecker C.

2 Blue & Blacks. All birds were quiet. Blue & Blacks 10 ft up. All other birds moving 2-8 ft up. White-tant in lead.

9:58. Toward left that there are 2 Whittants with group Blue

Blue & Black.

Also see single Dubia with flock! Dubia f.
White-tailed Whitestripes → White-tailed repeatedly. Woody-Huck
en CVI → group repeatedly.

Blue-throated road runners seem to have left group now.

Note: Again, it probably is significant that betts are not with this flock.

Walking up road, see some more footy thrushes alone.

Leaving 10:10 a.m.

Comments:

1. I am not sure that the social behavior observed today was typical of the area or not. But certainly, there was no great number of large flocks when the weather was bad!!!

2. In general, this whole series of regions on the slopes of Antisana looks very similar to Purace. And, with today's trip, I have covered a series of environments roughly comparable to all the environments visited on Purace (with the exception of the lowest site on the wet, east side of Purace). And certainly, flocks are fewer, smaller, and simpler throughout this Antisana region than in the equivalent areas on Purace.

3. There may be some difficulty in comparing some of my observations in different parts of the Andes because of differences in altitude. Thus, for instance, I have worked only at very high and moderately high altitudes in Central Ecuador. But there is one point that should be remembered in this connection. The vegetation of some or all areas here resembles the vegetation at somewhat lower altitudes in other (only northern?) parts of the Andes. (Is that the area worked this morning is far below the upper limit of AS!!!)

4. In general, this morning's observations confirmed one
of my previous conclusions. Some (not all) of the species which are
important in mixed flocks in other parts of the Andes play simil
ar roles in Central Ecuador. But they are comparatively rare her
e. (Note: I have been rather surprised not to see Pseudoptery
gus or Butorrhynchus here. They must be very rare indeed!)

5. I think that I have finally solved the whole proble
m of geographic variation in flock-formation.

Flocks certainly are correlated with frontiers. But pro
bably only one type of frontier. Frontiers with the humid sub-
tropical zone. Flocks do not seem to be particularly character
istic of frontiers with humid temperate zone, or humid lowlands,
or humid Paramo.

Of course, it is obvious that species inhabiting scrub-
and forest of the humid temperate zone must stray into scrub-
and forest of the humid sub-tropical zone more frequently than
they stray into any kind of grassland or arid scrub.

Thus mixed flocks seem to be characteristic of such those
frontier areas where different fumacs are likely to overlap and
mix !!!!

This, and some other considerations, may help to explain
or identify, the principal advantages secured by the habit of forming
mixed flocks:

At one time I thought that the principal advantage secu-
red by most (not all) of the members of mixed flocks was added
protection against predators — and that this was particularly im
portant in very humid areas, where the flocks are most highly de
veloped, because of poor "visibility" (dense vegetation, frequent
rain, cloud, fog, etc.)
But it must be significant that mixed flocks are not partic-
ularly highly developed in dense, humid vegetation near the fron-
tiers of graneland and Paramo. (Ig the areas jacket below Para-
mo on Atacasa and the forest near Palca, in Central Peru.)
This in spite of the fact that some of these areas seem to be just as
humid (e.g. covered by fog as frequently) as other areas near the
frontiers of the humid sub-tropical zone!!!

This indicates (indisputably, I think) that the prin-
cipal advantage of "allo-gregariousness" is social, and connect-
ed with the mixing of flocks of different life zones. I.e., it will
permit an individual straying into a new life zone to take
advantage of the knowledge (of both food and predators) of the
old inhabitants of this zone. Similarly, it may facilitate lear-
nmg useful information from "strays" from another zone. And
of course, it may also reduce hostility in areas where "strays"
are likely to be encountered comparatively frequently.

SEE ALSO TODAY'S NOTES ON MIXED DIGLOSSINI

Atacasa,
March 18, 1966

Going to work below San Juan again today. The low-
alt area worked previously. Arrive 5:30 a.m. Just starting to get ligh-
t. Sky largely cloudy. Few faint miraculous bird sounds 5:35 a.m.
CORRECTION. We stopped at wrong place! Go on down to right of
at. Arrive 6:03 a.m

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

Will! Will! Will! 6:15 a.m. See pack of Whitetarts to 4-6 ft up

W
ni scrub side road. One flies repeatedly, NDWAH! Then A (!) appears in same scrub. A ( ) → Whitetailt. AUTILITY. Then A spying out WhitaKart. It is not unkind, but the result of the fact that A is following me. Then flies. WhitaKart flies across road. A ( ) → Whitetailt (again).

Then WhitaKart moves up hill thru scrub. A disappears from my sight. Probably left area. Then the pair of Whitetails runs into a third pair of the same species. A dispute breaks out. Lots of flitting around, 6-8 ft up. Also lots of song, NDWAH. Then a pair of WhitaKart shows up ni scrub. Ranges 6-22 ft up, 3-30 ft away from WhitaKart. A single Firebell also shows up. Perches in tree, 10 ft up, near both Firebells and WhitaKart. Then Firebell disappears. Fletch stays around for a minute or so. Then flies off into distance. Apparently no one follows.

Their "assemblage" must be classified as a flock. But neither could be characterized as "highly organized." They appeared to be the result of the usual "tentative early morning milling about."

Note: When these WhitaKart moved up hill, they gained sight by a bird uttering DC (presumably altrupheus) without pausing for a moment. Thus, the DC-ing bird should not be considered a member of the flock.

6:30 am Some distance up road. See single Blue + Orange and single rusinucha together, 3 ft up roadside scrub. Quiet. Then Blue + Orange flies across road. rusinucha f. → Blue + Orange. Birds gradually moving up hill. In direction of a pair of Whitetailts. Ranges (NDWAH) 30-40 ft away. Then Whitetailts suddenly fly down hill. Whitetailts' → group. All birds feeding below us
nrml. Then a second Blue + Orange appears. The 2 Blue + Oranges fly about, apparently chasing for some seconds. Then settle down peacefully close together. Then Whittier-tarts fly down hill, rufusvicia f.

**White-tart**

This leaves Blue + Oranges alone temporarily. Then group's

Uromyias s. → Blue + Oranges! Blue + Oranges still low in's crub, 1-2 ft up. Uromyias 10-12 ft up small trees

Then Blue + Oranges fly down hill. Abnormal, joining

White-tart - rufusvicia group. This leaves Uromyias up hill alone.

**NOTES:**

1. The Uromyias here probably are less "allogregarious" than those of the Central Cordillera of Colombia.

2. If the rufusvicia do play a special role in flocks here, they are followers, i.e. active nucleus. But I seem to remember that they were genuine nucleus in some parts of the northern Andes. Thus, the variation within this species may be much the same as in the BCBT

7:01. Walking up road. See a B. nigrocristatus. Very many lots of B's. About 10 ft apart. 2-4 ft up. Both definite, alone

Bird sounds beginning to decline by 7:12 a.m.

7:21. See pair Uromyias 2-10 ft up road side crub. Both noisy Apparently alone. (All the I can hear both Whittier-tarts and nigrocristatus is not all far away.)

**Note:** There are lots of Guans around here. Which suggests that there has not been much hunting here.

See some single Sooty Thrushes alone

7:41. See single rufusvicia s. → group of 2-3 flycatchers in second growth crub. Rufusvicia ranges 1-3 ft up. Flycatchers 2-6 ft up. Flycatchers noisy. Lots of B's rufusvicia silent. Then flycatchers appear to be CV - the species seen below Papallacta yesterday!
Go on up to 9425 ft. Everything dead quiet 4:55 a.m. Starting back down road again.

8:13 Apepe of the level! See group of 3 GT's moving rapidly by uphill. 6-10 ft. up in scrub. Uttering nasal "ca". Definitely alone.

A minute later hear Big Butterflies whistles for down hill.

Then see pair Big Butterflies flying from tree to tree, 20-30 ft. up. Definitely alone. Not following route taken by GT's earlier.

Then see single Fieldbilly. Perched silent and alone 25 ft. up in tree.

8:21 hear Dubious long down hill.

Down by car see another single Fieldbilly alone 6 ft. up in scrub.

8:33 see pair GT's. Range 6-15 ft. up thick scrub. Quite noisy. At first definitely alone. But then single Fieldbilly is definitely GT's. The 2 GT's do not stay close together. Ranging from 2 to 50 feet apart. (This may be characteristic of the pairs of this species.)

Singly and sinuously go group. Then I see that there is also a pair of GT's in neighborhood (dull colors, black bell). Some distance further down road hear torquatas Whistles.

NODWAH.

8:56 a.m. Large region bamboo scrub, with a few scattered USTF trees. Below where car is parked see pair GT's fly into tree. Land 25-30 ft. up. Feed on white berries. Then single maroon checked cottinga lands right beside GT. Stands with crest erected and spread. Then attacks GT. A vicious peck. GT flies off some yards. Then cottinga...
flies off to chase the other G.T. G.T. quit keeps retreating but stays in same tree. Then a group of 3 Blue & Black (definite) fly off. Grum

Then pair of G.T.'s flies off. Nothing follows. G.T.'s must be considered "alone" now.

Then 1 Blue & Black flies far away in opposite direction. Also must be considered alone now. Other 2 Blue & Blacks stay in tree. 

The leotiga does not attack them, even though they seem to be feeding on same type of berries as the G.T.'s earlier!!! Then I see that there is also a single vanderberg quite near the Blue & Blacks. Apparently Black burrow

Eventually, the two remaining Blue & Blacks fly off in same direction as first. Nothing follows.

7:02. See pair of All-tinamous Tinamou is moving. They moved to bamboo scrub. Running & cast up "like creeping." One out west of nor

re. Connection to me. Otherwise quiet. Apparently quite alone

Light rain starts. 7:10 a.m. Steps Pt. 9

7:25. See pair. Vandenburgh cast up in bamboo scrub. Quiet qu

iet. Apparently alone.

7:32. Flew over (and where Hellis seen earlier this morning) 

See definite mixed flock. Uphill. Rigan very mixed scrub and forest, with some bamboo. Group includes 2 Whitetarts, 2 Tromays, 1 chubb, 2 munchea, and 2 Plush-capped Finches (definite).

Vandenburghs and Plush-capped Finches stay fairly low. 4-10 ft up. All other species range 10-30 ft up. All very quiet. Except Whitetarts which fly occasionally (NOIWAH). Whitetarts in lead most of the time.

Tromays fly. Whitetarts repeatedly. All other species fly

PT group repeatedly. Only once, in the Vandenburghs. Lead briefly.

Whitetarts fly. Vandenburghs. ADDITION: New I see that there
are 2 Firebells with group.

When group first appears, a pair of B. nigrocinctus down hill in bamboo scrub, luego to yetter B's. Then gradually move up hill toward group. Then 1 nigrocinctus is > group. The other moves away from group! (Was this "joining" actually "escorting"?)

NOTE: Were definitely are no felts with this group

Leaving 10:30 a.m.

COMMENT: Until this morning I thought that mixed flocks probably were more common around Papallacta than below so in Juan. Now I am not so sure!

If flocks were more common around Papallacta, this could be easily explained. However, temperate fauna of the eastern slopes should have more extensive frontiers with humid subtropical fauna. If flocks are not more common around Papallacta, why not???

March 17, 1966

Euno

Going to work on pets above town. Actually we have a little trouble finding it. But eventually arrive 6:03 a.m. Quite light. Clear up here. Fog in valleys.


Ignore from 10 ft away. This Firebell should be classified as alone.

6:31. See a single rufina. Perched silent, alone, 6 ft up.

6:33. See a single Tody, Tody alone.

Then see pair of rufinada moving thru scrub 3-12 ft up.

Very noisy. Lots of Greetings. Longitude, "Wheely" Notes, semi-
Futterw. Birds definitely gone.

Going down path, see another B. myoporontus 4-6 up in scrub. Very noisy. Possibly disputing. Certain alone.

More foot-thrashes alone!

Further down path, see another B. myoporontus alone.

4:12. See a single Th. cyaneoplaga. Silent and alone. Feeding small fruits in tree. 10 ft up.

7:55. See single Firebell alone. 30 ft up in Eucalypt.

Going back up road. 8:15. See another Firebell alone. 6-10 ft up in scrub.

See also today's notes on mixed diglossini.

March 20, 1966
Atacasso

Going to work below San Juan again. Same place worked last before yesterday. 2:30 the lowest area visited. Arrive 5:55 a.m. Starting to get light. Sky clear. Particles of fog, which were in valleys earlier, seem to be lifting now.

Bird sounds have already begun. DC starts 5:57.

6:10 a.m. Same place where flock with litters seen day before. Today none. A single atroporps (identification definite) utters DC in bamboo scrub. Ranging 3-10 ft up. Definitely alone. Then a pair of Whitetarets appears. About 50 ft downhill. Alone. Gradually move up toward atroporps. Ranging 0-15 ft up in scrub. Eventually...
Waltz into group > atropelus. Flitting about very erratically. Sometimes close to atropelus, sometimes 20-25 ft away. B. nigricinctus being occasional. Never get complete overlap ped by atropelus D. Then gain of Firebelles j > group. Range 0-20 ft up in scrub. Then group starts to move off, atropelus us f > Waltz into. Then lose sight of bands. This certainly is a flock, but probably not a highly organized one.


Then see single feet up alone. Further down road, see a pair of nigricinctus. Definitely alone. Range: 3-4 ft up in bamboo. Our male utters RFL's.


Some distance further on, single Firebelles type 2 ft up in bamboo. Apparently medium sized gray all over. Silent. Alone. Could this be juv. All spurious ??

Reaching region of thick but obviously second growth scrub.


Go on down to 8372 ft. Then see pair of Firebelles. Ground to 2 ft up edge road, definitely alone.

NOTE: This area looks very humid. Lots of bamboo. But also a few potatoes (SFE) left.

7:30: See single Firebelles ponded off up in scrub. Silent. Apparently its "center" of a sort of coherent flock. I can hear flight clunk (3) about 15-20 ft away. Also see a single at 10-15 ft up, so
me general area. Also see single Whitetart to same general area. Cy flies on. Nothing follows. Other birdsquit seem to disappear. Presumably gone downhill.

Go on down to 8870 ft 17:50. Then start up road again. Near some more Whitetarts song. NODWAI.

Turn beginning to reach this area 17:58

8:06. Same area where Cy - Whitetarts - fly south flocks seen earlier. See 2 Hornymas flying about, 2-0 ft up in scrub. These probably all are the birds that were with flock earlier. But now definitely alone.

8:27. 8950 ft. See pair. Leucosticatus in bamboo scrub.

4-10 ft up. Silent. Definitely alone.

See a single bird, through scrub, and alone.

8:45. 9010 ft. See group of 3 Blue butterflies flying from tree to tree. Definitely alone.

Then see group of 3 Whitetarts 2-0 ft up in poor scrub on rock slide. Also alone. Then pair of litties appears. Coming from far down hill. Land in small trees, more than 50 ft from Whitetarts. 9:0 they must be classified as alone now. Rifling insects off leaves in usual way. Then litties fly Whitetarts. Then one little flies away.

Far across valley in one flight. Nothing follows. And I don't see that there are any other birds in the tree in which this little eventually lands. 9:0 this little must be classified as alone again. A few minutes later, the other little leaves the Whitetart group. Goes from tree to tree in short hops. Probably heading in direction of its companion. The Whitetart do not follow this little either. And certainly, there are no other birds in the trees wanted by this little. 9:2 this little also is definitely alone again.

COMMENT: It now seems very probable that the little of this re
geen occur by themselves alone more often than the fitties of other regions
and/or tend to occur in much "looser", more distant associations
with other species !!!

Several minutes later, ca 9:03, a pair of Bog Burrunpuns (c.r.)
appears. Feeding 20-25 ft up in trees. Often quite widely separated from
one another. At same time, I also see single Firebells 75-100 ft away,
low in shrub. There is no overt reaction between the 2 species, so
I shall have to class them both as alone. Altho I shouldn't be at all sur-
pried if the behavior of the Firebells is being influenced by the presence of
the Bog Burrunpuns

Cloud cover has come up 9:10 a.m.
9:20, ca 9:45 ft. First far from where first Albii type R's heard
early this morning, see definite mixed flock. Unfortunately, silhouetted aga
ast sun. But group includes at least 2-3 Whitertars, 1 or 2 Baslen
rows or Hemispinguig types (almost certain, Whiterumpes), 1 Uromyas,
2 Blue & Orange. Firebells. Presence Whitertapes in lead. Followed
by Uromyas and/or Whitertars. But Whitertars disappear after
a few minutes. Blue & Oranges (group repeatedly, Firebells
(group repeatedly, Firebells always or almost always lead
g up the rear.

Firebells usually 6-10 ft up trees. Blue & Oranges usually 2-
6 ft up in shrub. Premised Whitertapes and Uromyas usually 6-10
ft up in shrub. Whitertars ranging 10-20 ft up.

Group as a whole very coherent. But quiet
At one time Albii (identification definite) appears right in
middle of group. Silent. 2 ft up in shrub. They flee away. Nothing fol-
ous. Then Albii flies back to group !!! Still silent. Range 2-4 ft
up. Then disappears again.
Group as a whole gradually moves up hill. Start to snow.

NOTE: This is less than 3/4 mile from where Bettie seen earlier. If they had been looking for a flock, they could have found one without too much difficulty.

COMMENT: It is possible that the Bettie here are breeding (note separation of the 2 birds this morning). But surely they must also be breeding in some of the other regions during my periods of observation??

9:40. A few yards further up road. Site where All-rufous—

* Synallaxis D. encounter was observed some days ago. Near a lot of sunbird type sounds. Possibly dispute between same species. But unfortunately I can't see the birds.

* 10:00. Getting back up near car. Large area bamboo scrub. Near Whitestart Song. NODUH.

Then see single Firebellie fly by alone

Beginning to come in again. Leaving 10:30 a.m.

COMMENTS: I must get more counts! It is beginning to look as if a lot of species join flocks less frequently here than elsewhere, even when both the species themselves and mixed flocks are common here. Viz. Uromyces and Margaromas as well as Bettie.

It should be mentioned, in this connection, that some of the Doglasses, especially Laf and Ater, also seem to "escort" mixed flocks less frequently here than elsewhere. This is further evidence that the habit of associating with other species has been selected against here. But I am not sure that I understand the disadvantages (for Laf and Ater) here.

Could the explanation be as follows? A Doglassa " escorting" a flock probably increases the attractiveness of a
flock and at the same time may "harrow" the other birds away.

In regions like those of the northern Andes, the increase in attractiveness probably is relatively minimal. Simply because most flocks of these regions are already large and very attractive. But the increase in attractiveness might be much more significant here simply because most flocks here are not very large or attractive.

Thus the disadvantages of "excorting" probably are greater here than in the northern Andes, while the advantages may be the same.

(Of course, this whole discussion is based on the assumption that their particular Diploica species do not derive advantages such as increased food or protection from mixed flocks!!! And that they do not accrue more advantages of such types in the northern Andes than down here!!!)

ADDITION: A thought has just occurred to me! I may have discovered another general rule! The species for which the principal advantage of joining mixed flocks is protection are usually brightly colored (e.g. the brightest Archilochus tanagers). While the species for which the principal advantage of joining mixed flocks is increased food are usually cryptically colored (e.g. flycatchers and Leucositt stops).

This would suggest that the brightest species have developed the habit of joining flocks simply in order to get protection. Of course, they could also get protection by becoming cryptic. But this might raise havoc in their intra-specific social relations.

Of course, a prime exception to this general rule would be provided by "still neutral" genuine nuclear species. But are there any species of this type in the Andes??? How about Cinemonasorus???
(Actually, I think Camaropsocidae may be both insectivorous and cry-
utie.)

Which brings up another problem. Why are full neutral species comparatively rare or absent in the Andes? Are the fleas here younger and/or less specialized than those of lowland Panama?

March 21, 1966
Atacama

Going to work in same area again today. Arrive at site just after where Alli was seen yesterday. 3:58 am. Just starting to get light dew and low cloud cover. Light rain!

6:16. See a couple of helobellies. 10-12 ft up in scrub. Alone
6:32. See some single foot-thrushes alone

See today's notes on mixed diglossini

4:05. comment. So far there has been no indication that mixed fleas become more common when the weather becomes bad here. In fact, rather the reverse!

This confirms the impression I received below Papallacta a little earlier. But today's observations probably are more significant. There has been no wind here today, while there were very strong winds at Papallacta the other day.

Go on down to area where fettes seen yesterday. Arrive 4:14. There are a lot more bird sounds around here. Primarily wren songs. Also some Whitetart song downhill. No warbler. But overlapping Wren song at random.

4:17. See pair of manakinias. 2-5 ft up in poor scrub on
rock slide. Quiet. Apparently alone.
Then see single Blue + Change 1-3 ft up in dense AS edge of another part of the same rock slide. Also quiet. Definitely alone.
Rain much lighter now.
7:40 1000 ft. Near (presumed) second Alli area. See group 3
Kromiyas 4-10 ft up bamboo scrub. Going Alone
Then see pair B. nigrocrinatus 4 ft up in bamboo scrub
25 ft away across road. Noting RLC's. They also in (and) 1 or 2 small Contopus - Alli pigattures in tree near warblers. But the 2 species go in different directions. I E these nigrocrinatus should be clumped as alone.
Going down road 8:22 8700 ft. See group of 2 Alli-rufous small axis and 1 torquatus (see III). All very close together 2 ft up scrub. Uninstructive; they begin to "speak". me. So I can't tell how coherent the group is or who is leading.
Rain worse again 8:25
8:31 8717 ft. Region new, wooded bamboo scrub-edge area.
L. See group 3 Kromiyas 4-8 ft up small tree. Also 2 rufinichas 2-3 ft up in scrub very nearby. Then Kromiyas fly into tree 20 ft away rufinicha do not follow. Then group of 7 Kromiyas appears. Ranging 2-4 ft up Whutetans - > rufinichas Whutetans small
Nob. W. A. Then group starts to move uphill. rufinichas small
Whutetans repeatedly. Whutetans - > rufinichas repeatedly.
Then rufinichas f - > Whutetans. Then all Kromiyas turn on sound and fly - > group. This must be classified as a coherent flock.
8:47 flaglet Sutton down road. Region mixed bamboo-scrub
See another mixed flock 2 H. atriplicoides and 2 Rush-capped Finches (to identify definitively). All birds moving 2-4 ft up H. atriplicoides.
very many, Pluck-capped flowers
Rain almost stopped again 8:53 a.m.
Got down to 8450 ft. Then started back up again 9:02 a.m.
just as I started to go, I see a very large and very diffuse flock
Scattered in large VSTF trees, at least 100 yds apart. Group incl
Including at least 3 BYB's (!), 2 Blue & Orange, & 2 or 3 GT's (one pair ?)
Firebellies, 1 Whitetail, 2 Barnegaters or Hemisphugius types, and 2
Cincl. Pumilio others. Most birds quite noisy. (42) Long, repeated, NOD
WATT. The Blue & Orange and the GT's fly back and forth across ravine
The others stay on one side or the other. (Actually, the BYB's are on one
side, and all the other species on the other side.) All birds visible ranging
20-40 ft up. Group as a whole doesn't seem to be making any move
or in any one direction.

Ver. a few unmistakable reactions within the group. GT's

BYB's, Blue & Orange, F, Firebellies repeated.

NOTE: There may be two party-repeated types of more ela
bore, flock in this region. 1 the "blue-orange flock" 2 the "VSTF
tree flock".

NOTE: As far as I could tell, there were no fettis in this flock.
I looked for them particularly carefully.

9:35. Rain quite stopped now. And sun is dull; very little sun
clouds! Birds in general very quiet.

9:40. 8550 ft. A group of 4 All-rufous Tyranellas flies across
road from bamboo scrub to mixed second growth. Definitely alone.

9:48. Down distance further on. Sun just tickly, alone. 2-5 ft
up in scrub.

9:58. 8950 ft. Come across large flock which may be party the
same as large flock seen earlier lower down. How includes at least:
1 BYB, 1 GT, 2 Freckling, Blue + Orange, 2 Mynahs, Canibucus, 2 Hemipusus, 2 Sittas. All birds quiet. Group as a whole cohesive. All birds varying 2-10 ft up scrub-wet steep slope. GT and B and 2 Freckling. Hemipusus group up into tall VSTP tree. Can't tell who is leading. Lead probably changing. BYB bringing up near Blue + Orange also usually ratted far back. GT and Freckling usually near front.

**ADDITION.** 9:07. I can hear Whitestart singing in group near where NODWAN. Now all bird. 30 ft up VSTP tree.

**COMMENT.** Now it would appear that flock formation upon arrival made of good weather!

10:23. 9100 ft. See pair of Mynahs low in scrub on old slide. Probably same pair seen earlier this morning. (Still) alone. thinner single Mynah also alone, 40 ft away.

Leaving 10:35 am

March 22, 1966
Atacama

Going to work same area again today. Avenue site above terraced groined area. Second Albi 5157. Just starting to get light. Heavy cloud cover but no rain.

SEE TODAY'S NOTES ON MIXED DIGLOSSIA!

6:27. See single Mynahs alone. 2 ft up in sparse scrub. Then 2 group 3 Big Buthorpsus down hill in trees. Heavy but apparent.

See some feet. Thermals alone.

Also a pair of B. microactatus alone. 2-4 ft up in bamboo.
Going down road 17:35 see single Trogonas Near, Pecual 4-6 ft up. Bamboo occurs. Definitely alone.

Notes:
1. This bird is not very far from large mixed flock (Described in Di Grasmini notes) which also included Trogonas. But it always had a tendency to join or follow our flock.
2. This bird definitely has "background" color of chin and throat, "background" color of throat and breast, yellowish.
3. It is exact like the birds of the Central Cordillera of Colombia.

Comment: The Green and White hummingbird must be one of the species which deserve protection and little or nothing else from mixed flocks. I have never seen it feed on anything except flowers while it was with a flock. (The bird with flock seen earlier this morning was feeding on bromeliads and a species of pink tubular flower which the local Di Grasmini apparently do not touch.)

14:51. Hear more White-tailed Song. NODWAH. Stops. Then hear Cy group down hill. NODWAH stops. Then more White-tailed Song. NODWAH stops. These species are seen to be inhabiting same altitude well.

8:00 am. 8700 ft. See another group of 3 Trogonas in bamboo, climb Rangi 3-10 ft up. Near but definitely alone.

Then reach top this area now.

See a group flying thru bamboo uphill. Includes 2 firebellies and 1 wid of another species (quite similar, Dabnica).

Everything very quiet now. 8:15 a.m.

8:27. 8480 ft. See single Grey and White hummingbird. Alone. Suddenly it is attacked by another wid. of the same species! Both fly off. (One of their wids. at least, appeared to have whitish or greyish forehead, dark or pollen.)

8:31 A single bird flies by. Definitely alone. It appeared to be Campylopus all keeps !!!!
Go on down to 8450 ft. Then start back up road 8:37.
Clouds coming in again.
Just a few feet up road, single Redbill flies by alone.
Then see some more single forty-thousand alone.
9:01. See pair B. magenta-tatius. Fleez but definitely alone. Range 2-3 ft up scrub side road. Then see another magenta-tatius 10 ft up in scrub across road. Also exam and alone.
9:11. 8710 ft. Come across definite mixed flock. Moving rapidly downhill. Only see birds as they are passing. Then very low scrub-along edge road. Fortunately I can see precisely the order of progression of the flock. First comes 1. all-rufous Hypallaxis, then 2. Redbills, then 2 more all-rufous Hypallaxis, then 2. Yellow-tarts, then 2. White-striped (one at least of these birds had grayish check, but apparently brownish crown), then one Betty, then one Allee 7 (nic!), then one Blue and Orange. All then arrived in a tight coherent group. Moderately noisy. All ranging 2-0 ft up.
Then the all-rufous Hypallaxis discover me and begin to "mo-4" very noisily. This alarms all the other birds. Good evidence of the protective value of Allee conspicuousness. Some of the birds scatter.
At about this time, 3 large dendrocopots appear in open air. I can't see where they come from. (I am sure I've seen this species elsewhere in the Adirondacks but I can't remember where.) NOTE: This may well be the species which I thought was Gramolena when seen earlier this morning!!!

The Allee's presumably doesn't stay with flock very long. Written few minutes, I hear Allee-type R's about 30 ft away. This may be further evidence that the " escorting" by Allee's is fundamentally hostile.
COMMENT: It must be significant that "escorting" by Diplodons is common only in this area, where mixed flocks are relatively highly developed (see below).

It also is significant that Cape do not seem to form flocks very frequently here (altho the local population of Cps may be quite substantial).

Finally, after a considerable delay, 2 GT's join group. Then whole group moves down hill and disappears.

COMMENT: I am beginning to think that Allegrajurasness was well developed in this particular small area as in the Sierra de Aracena and the Eastern Cordillera of Colombia!!

9:45. A little further up road, single firebells fly by alone.
Then see single Triniaras alone in bamboo scrub:
10:01. 9,325 ft. Region mixed bamboo scrub. See single Triniaras as alone on side road. Also pair B. margaritatus alone 30 ft. away on the other side of the road.

Leaving 10:06 a.m.

COMMENTS:

It is obvious that Allegrajurasness increases as one goes downward along the road below San Juan. Compare observations at different "stations", i.e. around 10,850 ft., around 10,500 ft., around 10,000 ft., around 9,350 ft., and around 9,000 - 8,750 ft. This increase is more or less gradual — altho there may be a sudden "jump" a disproportionate increase, when one gets to the 9,000 - 8,750 ft. level.

Flocks are not only common at this lowest level but also comparatively varied. Around 10,500 ft. for instance, I saw only one large huddled, organized flock (Sitta macroura, etc.). Around 9,000 - 8,750 ft., however, one sees a variety of huddled, organized flocks.
This increase of Allogregariousness with decreasing altitude supports my hypothesis that such gregariousness is an adaptation to life near a humid frontier with the Upper Sub-tropical Zone.

Closely, the increase of Allogregariousness is not directly correlated with any (other) obvious factors of the environment. It is not directly correlated with humidity. (The upper reaches of this valley, ca. 10,500-11,000 ft are more humid than the lower levels, simply because they are more often in cloud.) It is not directly correlated with tallow, maturity, or apparent roughness of forest. (The forest around 10,500 ft and around 9,350 ft seems "better" in all respects than the forest ca. 9000-8750 ft.) It probably is not directly correlated with density of population, i.e., number of birds per square foot. (The population of birds of species that form flocks does not seem to be more dense at 9000-8750 ft than at 7350 ft.) Nor does it seem to be correlated with number of species present. The number of species present seems to be approximately the same at 9350 ft and at 9000-8750 ft. (The 9350 ft level has some species, e.g., Loa and Blue and Black, which apparently are lacking at the lower level. While the lower level has some species, e.g., the BYB and Basilisk, which apparently are lacking at the higher level.)

And certainly the species which are most important in mixed flocks are identical at both levels !!!!

It is particularly significant, therefore, that the large...
est increase in Allogegnomy men occurs at the exact same level
7000-8450 ft, where some species of a definite "sub-tropical aspect
(i.e., the BYB, B. coronata, and possibly dianthocapilus R.) first
appear !!!! I might add that these "sub-tropical" species are
not more gregarious, per se, than many of the species of higher
elevations.)

ADDITIONS:

1. The 9350 ft and 7000-8450 ft levels are less than 1/2 Km
apart by road.
2. The vegetation of the 2 areas is similar. Except that the
9000-8450 ft level has even more extensive patches of bamboo. Usually
in other areas, an indication of impoverishment.
3. It is probable that some of the "facultative" members of
mixed flocks (such as myFunny and the Tumble) occur relatively
more frequently in mixed flocks at the 7000-8450 ft level than at the
9350 ft level.

March 23 1966
Atacaso.

—going to work same area again today (i.e., the "7000-8450 ft lev-
el"). Arrive 5:34 a.m. Clear. Relatively cool. Getting light.
NOTE: The car is parked just above the second Alli territory.
And this is 7200 ft according to my altimeter now!
Go on up to area where thrushes were seen alone a few days ago. This
also is near area where third Alli was heard singing yesterday. It says
approximately 7200 ft according to my altimeter now. I shall use this as the
upper limit for my special count of this "level."
lee mugs foot. Think alone.

614. Lee mugs blue-black. Alone. 2 ft up second growth scrub. Then see mugs singly fly by alone.


Then little flies into another bush bamboo scrub. Continues DC. Now I can see it well. Definitely astepilus. Then flies across road. Apparent that pears mate in bamboo. Both birds move gradually move off. Apparently still alone.

6:35 am. Same distance down road. See pair atripilus 6 ft up bamboo scrub. Now Apparent, alone.

Bushes in general already noticeably quieter 6:34.
See some more foot thrushes alone.

6:42. 9390 ft. See mugs B. mijacronotus uttering RG C's 4 ft up in brush. Apparent, alone.


Everything certainly seems dead today. Is it because of the cold?

4:01. 8910 ft. See single atripilus alone 20 ft up bamboo.

5:15. Ca. 8345 ft. See group 4 full-eyeless synallax. Region very mixed bamboo scrub. Range 2-3 ft up Quiet. There also is a single synallaxia in scrub 6-8 ft from synallaxus. I can't see any obvious reaction between the 2 species, but I shall have to call this a mixed flock.

4:25. Go on down to lowest point usually visited in this area.
It is just about 3805 - 3810 ft according to my altimeter now. So I think
we could probably describe this area as the "3800 - 3820 ft level"

NOTE: All altitudes quoted in my notes this trip are uncorrected

4:40. Place where All-norfus - Rufunichas group, saw earlier.
No All-norfus are still there. Ranging 1-3 ft up in bamboo - Quiet
Then a Rufunichas 1  All-norfus. Then a Rufunichas appears in group. Rufunichas fly off across road. Rufunichas 1 All-norfus. No All-norfus do not follow. Then they start to "mob" me. Interesting concept. This "mobbing" does not seem to attract any
thing else. All-norfus difficult to alone now.

Then the All-norfus quiet down. Resume feeling peacefully. And
then a single tergatina 1 All-norfus.

COMMENT: The All-norfus tergatinae may be parasitic nucleus
or here, whenever they are in mixed flocks.

A few minutes later, catch glimpse pair Rufunichas up hill
Probably same birds seen with All-norfus earlier. Ranging 3-6 ft up
in bamboo. Tergatinae seems to have disappeared. But there is a clearer
observation with the Rufunichas. At first. Then Rufunichas disappear
car. Presumably move on. Tergatinae does not follow. Alone now.

4:58. Further up road. See single Tergatinae alone in bamboo
(again). 10 ft up. Moderately warm.

6:02. Still further up. See single Rufunichas alone, 2-3 ft
up in very poor bamboo scrub.

8:04. Sun beginning to reach this area. At last!

SEE TODAY'S NOTES ON MIXED DIGLOSSINI

9:02. Ca 7100 ft. Then what sounds like Big Buttrumpis.

For the first time today, Downhill

Starting down road again.
9:13. Near area where Ag-Firebell, flock seen earlier this morning. Flock away from Ag-Firebells in scrub. Flock not visible by probably joining the Ag-Firebells.

9:20. 8,750 ft. See single Ag-Firebell 5 ft. up dense scrub. Select App aren't alone.

Go on down to low point of area 7:45 a.m. Then start up again. See an occasional bird fly overhead, without being able to identify it.

9:30. A little bit up road, hear what may be large mixed flock for an on ravine. Far away to see birds. But both Ag & White-throats (?) singing. Pretty overlapping. Then a single Green and White Hummer (bird) flies by. Silent. Definitely alone at this time.

Now I am beginning to hear more bird sounds all over the place.

9:58. a.m. It looks sound as if flocks are assembling.

Then we single Ag. Alone. Select left up in scrub. Flies across ravine to where flock sounds are coming from! A single Big Bultraurus flies to Ag. And some brown bird (Call-morneys (?) or Big Bultraurus. Looking over to where flock lands and see a couple of green birds fluttering about in trees. Geese?? Also a Shaggy-capped Robin (definitely). Also Sooty Throats. Then a single Blue & Black flies away from group. Nothing follows. Blue & Black must be considered alone now. But it must have been with group earlier.

I think that all these birds, up to and including the Green and White hummingbird, must be classified as forming a single flock. But a very diffuse one.

This may be partly the same as the very large and diffuse flock I saw in the same general area a few days ago.

10:15. Hear first Dulciana song of the morning.

10:44. Area where atroctepus was earlier this morning. So S Big Buttercups. In small trees and low in scrub. Very noisy. Lots of whistles, rattle-like patterns, and HAC-type Notes. Apparently disputing. One pair flies off in one direction, Group of 3 in another direction.

Both groups, apparently, alone.

Leaving 10:55 a.m.

COMMENTS:

In general, the behavior of the birds here today was rather different from their behavior on previous days.

This must, I think, have been due to the cold. What seems to have happened is that some of the species which are important in mixed flocks left the area. Presumably they went to some warmer place. Presumably to some place in the Upper Sub-tropical Zone.

Note: The species that disappeared were all of almost all brightly colored tanagers, e.g. Blue and Orange, the Big Buttercups, the GT. Possibly also the Plum-capped Tanager. The only two brightly colored tanagers that remained were the Firebell and the Blue and Black. It probably is significant that these are the two species which seem to be least closely tied to mixed flocks.

Apparently, the Dusky, bush-finch, bush-tanagers, and bush-warblers did not move at all. Nor did the White-tailed

Probable the Green and White Hummingbird moved with the brightly colored tanagers. Again, another "split up" communal! I am not sure what happened to the Gilties. Possibly the last Giltie left after my observation of the atroctepus - Giltie "group"
It is only after the bright tanager and their associates re-
turned on mid-morning; that a large flock was seen again.
This morning's observations would suggest that there
are more species here at 9200-8800 ft level, than at the "9350
ft" level. (The difference is due to the "Upper Sub-tropical" spe-
cies here.)

There probably is a general rule that within any given reg-
ion, allogregariousness is most highly developed where the num-
er of species is greatest. (Of course, this cannot help to explain the differ-
cut degrees of Allogregariousness in different regions.)

There is a causal relationship here. Either allogregarious
ness is absent in some parts of some regions because certain parti-
cular species are absent from those parts. Or, much more probably,
certain particular species are absent because they "need" to gain
mixed flocks and the formation of mixed flocks would be disadvan-
tageous in those parts.

Certainly the whole of this 9200-8800 ft area is basically
humid temperate. Thus I can only study the interaction of strays fro-

m the Upper Sub-tropical Zone into the Humid Temperate Zone here.
I probably will have to rely upon my notes taken in Colombia andVe-
nezuela for descriptions of the interactions produced when strays from
the Humid Temperate Zone wander into the Upper Sub-tropical Zone.

It probably is significant that the most characteristic Up-
ner sub-tropical Species observed at this 9200-8800 ft level have
been seen only with mixed flocks.

**NOTE:** I still do not understand why *A. politiceps schistac-
cus* (and *A. pallidivirga*) do not occur along this road below
fan Juan. It looks very much as if the local *rufifrons* have com
March 24, 1966
Atacama.

Going to work at "9,350 ft level" this morning. Arrive 5:55 a.m. Starting to get light. Clear, cool, windy.

Car stops at usual site. This is 9,410 ft. according to altimeter now! Waiting usual flock of atriplices uttering DC in bamboo scrub. Cat and alone at first. Then, as usual, pair of White-throats gradually move up hill in general direction of atriplices. White-throats lingering frequent company overlapped by DC. White-throats eventually \[ \rightarrow \] atriplices.

Then pair of firetails appear in adjacent scrub. 4:15. I think that they must be classified as having joined \[ \rightarrow \] group. But group certainly is not coherent (yet). Then White-throats fly away. Nothing follows. And Firetails seem to drift away in another direction. So all 3 groups should be considered alone now.

**NOTE:** In general, birds are quite noisy here this morning. Sounds of breeding season were coming on.

6:24 a.m. Near can see single Blue-Black Finch. Apparently alone. Feeding low (2 ft up) in rather poor scrub edge slide.

Then we pass White-throats Moving their needle 4-13 ft up. At first alone. Then move up hill White-throats \[ \rightarrow \] Atrixus. They (2 pairs) stick close together for some time (albeit they don't show anything else in the way of reactions to one another). I think that this must be classified as at least a temporary coherent flock.

6:30. See single Blue + Orange Finch. 2 ft up low scrub. App. alone. 

show been able to "take over" the "usual schistaces niche"!!!
Mom we group 3 Big Butterflies. Up till in tree tops. Very noisy.

Definitely alone.

Starting up road 6:45 a.m.

See single Firetella. Silent. Alone. 6 ft up in small tree.

NOTE: There is one point which I may not have stated sufficient by using comments yesterday. It is only where the Humid Temperate Zone meets the Humid Upper Subtropical Zone that species can pass zonal boundaries in response to changes in weather.

6:50. 9440 ft. See single footy Thrush alone.

Then see pair Fireygays alone. 4-10 ft up in bamboo - wall. NOTE: the local Fireygay seems to have a definite preference for bamboo. Almost as much as the Plum-capped Thrush and alpine Griffin.

6:58. 9500 ft. See mixed flock. Includes 2 Whitetarts, 2 Firetglls, 2 Fireygays (not definite, identified, but probably Fireygays) and one Blue and Black. Rather coherent. Whitetarts in lead. All birds ranging 2-15 ft up in small and medium size trees.

Good heavens! Fog is approaching this area. 7:05

7:10. 9515 ft. See single Blue and Orange. Silent. 2 ft up in wall.

Also a single Firetella. Silent. Also 2 ft up in wall. But at least 40 ft from Blue and Orange. I & E both birds alone.

Also hear definite Leaf Song. NODWAH. Stops. Then Whitetart song. NODWAH. Stops.

Some distance further on, see single B. (unrecorded) 2 ft up in bamboo - wall. Definitely alone.

Then see single Whitetart alone.

More Leaf Song in distance. NODWAH.

Some yards further on, see what are undoubtedly same Whitetart and same unrecorded quite close together. There also is a single Firetella.
as only a few ft away. This must be considered a flock. Probably not cohe-
reent. And then 10 ft further on, see another Stronny and a single White-
striped only 2 ft apart. Here on a few ft. Then a single Stot, and a double
ampelus appear in same bunch! All birds 1-3 ft up. All quiet. All very
close together. All obviously are members of same flock.
And flock is coherent. CC b $ rufocristatus.

A few minutes later, and a few feet further on, hear unmistakable
GT sounds. Possibly GT also a member of flock?

Then au same flock again. Hill includes Whist-tripe, 2 Stronny-
as, and rufocristatus (not!!!) Also 1 Stot, 1 rufumicho, and 1
Blue & Orange. And I am that these really are 2 Jubelbies with group.
This really is a very large flock for the region!!! I think it
contains as many species as any flock seen down below at the 9200 -
8500 ft level!

All birds low in scrub. And all birds still quiet. Group as a
whole still coherent.
Whist-tripe definitely in lead at front. But gradually moves so
far ahead that it seems to become separated (at least temporarily).
Must be considered alone at this time.

Blue & Orange and rufumicho associating particularly closely.
Blue & Orange f $ rufumicho repeatedly. rufumicho f
Blue & Orange repeatedly.

Fog lifting at 7:50 a.m. Wind has dropped. Getting warmer.

NOTE: This area where particularly large flock was seen is
9500 ft. And it is covered with not very dense or richlooking scrub!!!
No USTF near leg!

Everything now quiet. 7:55 Sun is beginning to reach area.
8:00 a.m. 9630 ft. See single Whist-tripe alone.
Then we single Hikurika silent and alone.

8:07. Further up read, hear another 24 singing. NOW WHAT! So
we 2 Taos churning one another then snap. Firerbell 4 → Taos!!!

Then a Dugon was move on. Firerbell does not follow.

Oh oh!!!!!! See some 2 Dugones a few feet further on. Fly into
small tree. Reach 3-4 ft up. Now I see that one is definitely Taos. Firer the
other appears to lack humeral pinettes. Presumably other. The 2 Taos hop
around seemingly only a few inches apart. No display or actual fighting.
Then Taos flies to reach a few feet away, fuzzy. NOW WHAT. Then stands up.
Flies away. Then presumed Taos flies away too.

COMMENT: I think that this must have been a horitite inter-specific

for encounters.

It probably is significant, therefore, that the Taos here do no

't seem to be in breeding condition. At least not for advanced. It would

seem to be a general rule here, that horitite inter-specific encounters occur

only when one of the species involved (always Taos ??) is not in breeding

condition !!!

NOTE: This is an area which gets sun relatively early in the morn-

ing. Also there is an old slide here which is covered by relatively sparse

scrub. Several factors must favor Taos.

NOTE: It probably is characteristic of inter-specific disputes that

they are not accompanied by display postures or movements.

8:10 a.m. Same distance further on. see another Black Dugone.

Scant and alone. 3 ft up scrub. Probably Taos.

8:29 a.m. Reach 7400 ft level, Start back down road again.

8:34. Down where dispute between Taos and presumed Taos was

seen earlier. Amigo Taos flies by. Definitely alone.

8:52. 9300 ft. 4 group. Whitetoppe feeding in tree-top uply
ll. Apparent, alone

NOTE: KM 30 part is here. I have made most of my observations at this "level" below this marker

Dear Mom and Dad, Also NODWAN (Say we judging quite frequently here)

Further down road, 8 groups of Firebellies, a "1" up in scrub-oak

ll. Quiet. Apparent, alone

9:10, 9450 ft. See male Firebell alone. 10 ft. up in tree.

A minute later, see second flock in scrub of ravine. Includes 1 White-throated, 1 White-throated, 1 Snowy, 1 Flycatcher, 1 Blue-orange. 1 group. Then apparently leaves again.

Interruption: I know that there are both G (3) and L (3) in the neighborhood. But apparently neither of these species joins the flock.

ADDITION: There is at least 1 marmota with group. Also a sec. and Blue + Orange. Another 2 flocks appear. Anmate particularly closely with Blue + Orange for at least a few seconds.

Then a guano of Blue + Black flies overhead, without pointingflock. (No hesitation at all!)

A little further on, 9:14, see 3 Firebellies alone.

NOTE: This level probably does have approximately as many species as the 9200-9800 ft level. The 9200-9800 level has the Open and White hummingbird, B. coronatus, etc. B. and T. cyanocapillus. But this level has C. L. L. and Flycatcher, etc.

Back to car 9:47. This is now 9400 ft according to altimeter!

9:50. Just a little bit below car. Come across another and quite different large mixed flock. Includes, B. auricollis, at least
Whitetailed 3 GT's. Firbell. Hromyas. Also 1 Green and Whit.

A Hummingbird (the first I have ever seen at this level). And 2 or

more probably 3 of the very large woodpecker C剂, and at least 3

All-rufous Equatorius

This flock is in area very unusual vegetation. All-rufous rang

ing 2-3' up. B. majorcritatus much the same. Whitetail ranging

4-12' ft up. Firbell. much the same. Hromyas 8-10' ft up. GT's 2-

10' ft up. (GT's definitely feeding on fruit.) Green and White were only 3

ft up. (Feeding on same species pine tubular flower as yesterday.) Wood

peckers ranging from ground to 4' ft up.

All species very noisy. Especially All-rufous GT's. and wood

peckers. !!! Whitetailed. Long NODWAH. majorcritatus utter RFH's.

I saw a number of reactions within flock. GT j -> Firbel-

Failed GT j -> Hromyas. Whitetail j -> B. majorcritat

us. Firbell. The flock as a whole did not appear to be very coherent

Birds often moved. Dispersed.

10:37. Same area. Hear two quatrains. Whitettes NODWAH.

10:30. Go on down to 9300 ft. This is the bottom of this level.

(What I have been calling the "9350 ft level" should really be the

"9300-9100 ft level")

Cloud is coming up now. It is getting very warm. I am startin

g back uphill. Everything very quiet.

COMMENT: This morning's observations certainly suggest

that Alleghaniesmen can be as conspicuous and highly developed here

as at the 9200-8800 ft level!!!

10:44. Back up hill can see many big Buttercups, 20' up

on USF tree. Very noisy. Lots of Whitettes. This away. Definitely alone.

10:50 a.m.
NOTE: I have worked along approximately 1 km of road at both
the 9700-9300 ft and 9200-8800 ft levels. These stretches are separated by approximately 14 km. The combined stretches, with intervening
gap extend from well above the 30 km marker to just below the
32 km marker.

MORE COMMENTS. I have now worked out my figures on
both the 9700-9300 ft and 9200-8800 ft levels.

It turns out that the Allegreagueness of the birds of these
two areas is quite remarkably similar!!

This suggests that the birds of the 9700-9300 ft level are
"prepared" to "receive" species of the Upper Sub-tropical Zone
("USTZ") — even when the latter are absent.

It also suggests that the Allegreagueness of the birds
of the 9200-8800 ft level is in some sense "intrinsic." It probably
is not purely a reaction to the actual presence of USTZ species
(at any given time).

Apparently, the population is somewhat denser at the
9700-9300 ft level than at the 9200-8800 ft level. Presumably, this
is because the vegetation is slightly richer at the higher level (at
these particular sites).

There are some indications that a slightly higher proportion
of nids. occurs in mixed flocks at 9200-8800 than at 9700-
9300. Also flocks may be slightly larger at the lower level. These
differences, if real, may be due solely to the presence of USTZ species
at the lower level.

Everything seems to be working out beautifully!!!!!
March 25, 1966
Atacama

Going down juniper along road below San Juan. Aridic region
5000 ft 5:50. Just starting to get light. Cloud cover.
Dawn chorus in full swing when we arrive. DC: 6Fi's. All sorts
of things. There may also be duskywren sounds in the general hubbub, but
they are rather drowned out.

Certainly a lot of birds in this area must be in breeding condition.
NOTE: There is rather good scrub-and pasture on one side of the
road here, and rather lush forest and scrub on the other side (across ravine).

See today's notes on mixed diglossini.

6:44: See single Remizinae type. Probably microceristatus. Tho
my term "hedge" edge pasture. Silent. Definitely alone.

Then see single Attagetus lunging. Definitely rufinucha. 4-5 ft
up tree edge pasture. Definitely alone. Then joined by mate. Both birds
move off from "hedge." Lots of PN's and Quetruans. Birds ranging 2-6 ft
up still definite alone.

6:58: See single B. coronatus. 0-20 ft up mixed forest and som
o aren ravine. Apparently alone.

Fog coming in. 1:08 am. Go on down to area 8445 ft. Lots
of bamboo. Some scrub. Occasional trees. Everything quiet. Fog is begin
ning to turn into very light rain.

See a mule Turkey thrush alone. 7:15. 8390 ft. Correction: Th
is thrush is adjoining with a definite mixed flock. Other birds include
at least 1. Neomygnae, 1 Remizinae or Hesperiparus type, 2 rufinucha
and 1. Plum-headed Juncos. All birds very quiet. Morning 2-8 ft up thin
mixed-bamboo scrub. Neomygnae definitely in lead throughout.
Flourish flies away. Nothing follows. Group as a whole is quite coherent, as far as almost all birds stick close together. Then 2 Albi fly away. Group disappears almost immediately. Then single Albi  

Then group disappears uphill.

Further down road, bear Whitetail fuguing. NODWAH 14:40. 8325 ft. See very loose, apparently non-coherent flock.

Uplift all birds, mixed growth. Second growth, low scrub. Includes at least 2 Firebellies.

Caj, 2 alder birds. Scot's Junco fly away. Then Junco turns a little further down road, we single Blackburnian. Apparently alone.  

A few up mixed bamboo, scrub edge pasture.

Then see 1 or 2 B. nigricinctus. Alone on up bamboo, scrubby stream.

4:50. 8245 ft. Region mixed second growth, trees and bamboo scrub. See single B. nigricinctus. Running, 10 ft up. Also 2 pairs Whitetails. Running 5-10 ft up. Also single Albi 10 ft up. Also single Rufous 2-10 ft up. Whitetails and nigricinctus now. All turkeys about 20-30 ft apart. Then nigricinctus flies straight uphill. Then group of 1-2 Blackburnian (black and orange with white on wings). 2 Blue and Black, and 2 Firebellies appear. Running 10-12 ft up. Blue and Black, Black, and Blackburnian moving particularly close. 

Blue and Black 1-2 

Blackburnian 

Blue and Black, Firebellies fly away. Group repeatedly. Then the whole assembly gradually drifts uphill. All species (Whitetail, sunflower, a etc.), with the possible exception of Albi. Blue and Black - Blackburnian movement probably in lead most of time. But group as a whole is not coherent.
Is there a special relationship between Blue & Black and Black-browed wrens? Yes, the observations the other day at 2,400-2,300 ft level.

Note: It is quite remarkable that I have seen only Humid Temperate Zone species here today!!! This must, I think, be correlated with the fact that most of the original forest here has been destroyed. Apparently the most characteristic VSTZ species have not been able to adapt to the scrub which has replaced forest. As a result, they have been replaced by Humid Temperate Zone species — which are used to scrub in their normal environment.

It would appear that, along this road, the VSTZ species have surmounted only higher up near the border of the Humid Temperate Zone in what was once the highest limit of the VSTZ.

Starting back up road 8:17 a.m.


Probably same bird seen earlier.

8:33. 8,350 ft. Group of 5 \textit{Tragopan} geese rapidly then mixed bamboo scrub. Definitely alone.

See some new footprints alone.

Aha! See group 3 or 4 BYB in. Feeding on small berries. Icicle up 10-20 ft up. Here but definitely alone.

8:54. 8,375 ft. See single + (1) Alli. 2 ft up roadside scrub. Definitely alone.

Note: It has just occurred to me that "exacting" flock seems to be done only by male Allis here!!!

9:10 a.m. 8,500 ft. Region of rock slide covered with miscellaneous scrub, between mixed bamboo and VSTZ. See mixed flocks. Includes at least 2 Whitetails, 2 Flycatchers etc. - All put on Quail-like.
Firebellies + Plush-capped Thrashers 1 Blue + Black. All quiet. All ranging 2-10 ft up. Different kinds often are very far apart from one another. At least 100 yds. But all gradually moving up hill at same speed.
This in defiance of a coherent - yea widely scattered - flock. Difficult to tell who, if anyone, is leading. Common Hydaticus at least 5 out of the five.

Light rain starting at 9:14.

Comment: Physically, this environment looks perfect for Yellow-bellies. And yet they seem to have been replaced by Firebellies throughout the whole of their western range. Why???

Note: It is possible that the Plush-capped Thrasher completely replaces Blue at this level. Possibly only because bamboo is common here.

Note: Salts seem to be completely absent here. And yet it does not seem to be replaced by WC. Why ?? Too warm here for salts, and not enough forest left for WC?

Laving at 9:35 a.m.

Comments: Another thought has just occurred to me.

The very poor development of Allopecocephalines at Horse and Lloa must be significant.

The avian fauna might have been in contact with typical humid WSTZ forest (or scrub) at one time. Viz. records in char. prairies. At which time Allopecocephalines presumably was highly developed. But now the local fauna has "frontier" only with "graz" (pasture). And they seem to have become adapted to this new situation by losing Allopecocephalines.

This would suggest that changes in gregariousness occur rather rapidly!!!!!
NOTE: I have been a little careless in my use of terms this morning and on previous day. When I said "USTZ", I meant USTZ with more or less "normal" forest and scrub.
SUM TOTAL ALL OBSERVATIONS (1966) = 84 hrs 15 min

Observations in cleared land not suitable for flocks
= 4 hrs 15 min

Time spent in areas which looked suitable for flocks
= 83 hrs 00 min

Time spent in areas where highly organized flocks actually seen
= 62 hrs 45 min
Partial area from Central Ecuador.

All areas which look suitable for flocks 1964-1966

28 hrs + 83 hrs = 111 hrs

Indo seen alone = 239 + 606 = 845

Indo seen in flocks = 30 + 453 = 483

Total no. flocks = 11 + 78 = 89

Total no. highly organized flocks = 0 + 34 = 34

Largest no. species in flocks = 10

Largest no. indus in flocks = 17

Total no. species in flocks = 23 + 278 = 301

which is still a considerable number.

Areas in which highly organized flocks seem (only 1966)

42 hrs 45 min.

Indo seen alone = 600 - 134 = 472

Indo seen in flocks = 453 - 16 = 437

Total no. flocks = 78 - 5 = 73
Total no. highly organized flocks = 34 - 0 = 34

Largest no. species in flock = 10

Largest no. inds. in flock = 17

Total no. species in flocks = 278 - 11 = 267

Areas which looked suitable for flocks, but in which highly organized flocks were not seen - 1964, 1966

48 hrs 15 min

Inds. seen alone = 239 + 134 = 373

Inds. seen in flocks = 30 + 16 = 46

Total no. flocks = 11 + 5 = 16

Total no. highly organized flocks = 0 + 0 = 0

Largest no. species in flock = 3

Largest no. inds. in flock = 4

Total no. species in flocks = 23 + 11 = 34
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Ecuador

Areas apparently suitable for flocks but lacking highly organized flocks
All observations 1964 +

Indo Alone

Ima

Indo in Flocks

Ima

In highly organized flocks

0

Ingest nr Indo in flocks

4

Ingest nr Species in flocks

3

All this to be multiplied from observation

Species in Flocks

3 2 2

11

See Over
| March 10  | 2 hrs 00 min |
| March 15  | 3 hrs 45 min |
| March 16  | 3 hrs 45 min |
| March 19  | 3 hrs 15 min |
| Also March 8 | 3 hrs 45 min |
| March 7   | 3 hrs 45 min |

20 hrs 15 min.
Central Ecuador
9700 - 9300 ft below San Juan
March 13, 14, 18, 20, 24

Indo Above

Indo on Hechas

Total No. Hechas

Highly Organized Hechas

Target No. Indo on Hechas

Target No. Species on Hechas

App. on Hechas

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14 hrs 00 min
Central Ecuador
9,000 - 8,000 ft below San Juan
March 20, 21, 22, 23

Inds Alone

No. of Hills

93

Total No. Hills

19

Highly Organized Hills

6

Target No. Hills in Hecks

17

App. No. Hecks

4

2

2

24

98

29

10

10

Target No. Species in Hecks

10

Ar. project

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**Total** 14 hrs 30 min
February 12, 1964

SOUTHERN PERU

Going to work around hotel first this morning. Altitude of my room is 2150, according to my altimeter last night.

Rain! Pouring rain!!!

6:05. See a pair of Phlyopus moving thru scrub alone. Light is very poor, but they look like the Underwing birds, i.e., refugees fluttering "Secret" Notes and R's.

A second later see a single Orange-bellied Saltator in nearly same lat. Apparently not following the Phlyopus, song a little.

6:10. Single Orange-bell, probably same bird, singing expose d top small bush. Note or less "Whit-chit-chee-koo" phrases (last note clean and more or less musical whistle). Bird apparently alone.

6:14. Hear what may be Brown song in first time. "Twitter" but quite regular, with few or no fluctuations.

Then hear some more, similar song.

See single Phlyopus alone, Yellowish. Probably one of same birds seen earlier.

Then see what looks like a small all-black bird!! Perhaps a Slaty-tailed Flycatcher of the Phlogopus type??

Rain getting worse 6:45 a.m.

See a single House Wren alone.

7:13. See another House Wren alone.

7:45. See another Orange-bellied Saltator alone

Also one of the House Wrens seen earlier. Still alone.

Stop observations 8:10 a.m.
A four minutes later and a little further on, I saw  the seat of a large flock quietly perching on the shore of the river. A loud noise of a large flock of birds coming from the opposite bank...
What seemed like Brown singing 3:05.

4:30. Just below 9,100 ft. just over crest of mountain. Very thick and
mumb with lots of low-flying. Definitely mixed flock. Includes at least 1
*Hylophilus*, 1 *Arundina* (possible with white supercilium; could
very well with rufous crown) 1 *Myioborus* (same species as *Andean*) 2
Ocellated flycatchers; probably more.

Rain starts hard 4:40 p.m.

This mixed flock seems to be moving very slowly. Difficult to see
can't tell who is leading when it disappears in a few minutes.

Rain stopped 4:50.

Hear what seems to be *Myioborus melanocophilus* song again 5:00.

5:15. Sounds as if mixed flock seen earlier were remaining in almost
exactly the same place. Can hear *M. melanocophilus* still singing from time to
time. And what sound like CN's other species. Unfortunately invisible.

Then we flock. At least 3 birds. Possibly all one species now. Basil
eterus types. One of the birds (at least) seems to be the "White stripe" see
in near *Pitohui*. One of the birds (the same individual?) seems to have
white outer tail feathers. All the birds are quite quiet. Just occasional single
"CN"s. In thick mumb, 4-10 ft above ground.

This group is very reminiscent of the mixed flocks near *Pitohui* in
so far as it doesn't seem to be getting anywhere.

Going to start gradually back toward hotel 5:35 p.m.

5:42. Hear what might be *C. Juvetin*. Composed of long series
rapid "Dul-de-dul"'s. 8900 ft.

6:01. Hear much Brown singing alone. Song a fast, furious Juvetin

But not fluctuating

Arrive back hotel 6:50, without seeing anything more.
NOTES: The environment around here is peculiar. The whole slope of the mountain above the hotel on the same side as the hotel and the ruins seems very lumpy. But not covered by as much vegetation as might be expected. Extensive areas of thick but low scrub—lots of bamboo. Some regions are largely open. Arborescent scrub—pretty much confined to barrancas. The whole area looks like second growth. But I find it difficult to believe that such a steep slope was ever farmed (without terracing—of which there is no trace away from the ruins). In many places the slope is approximately 75°. And looking at even steeper slopes across the river, I see that they are covered by similar vegetation. So perhaps the (comparative) sparseness of the vegetation on this slope is due to its steepness and nothing else??? But it is remarkable that the whole of the other side of this mountain across the river seems to be covered with arborescent scrub—as far as I can see—which isn't too far. And at least one other mountain close by seems to have similar contrasts on the corresponding sides—one side with arborescent scrub and the other with low scrub and grass. And on the mountain here, at least both slopes look equally steep. How can this be explained??
melting waters). So the upper slopes here are as near the frontier as they could be. (It might also be noted that this region is quite safe to the east, i.e. we are near the eastern border of the temperate zone as a whole.)

A thought has just occurred to me. Are mixed flocks particularly likely to be found where the humid temperate and upper sub-tropical zones merge gradually into the humid lower sub-tropical and tropical zones?

In connection with the hypotheses that species in the central Andes tend to be restricted to comparatively narrow "specialized" niches, it may be significant that I have seen Cyp eating fruit so frequently here as in Chachapoyas. They may be outside the "regular" Diglossa niche in these regions.

February 14, 1964
Manchu Pichu

Going to work in same areas again this morning.

See today's notes on mixed Diglossini.

Coming back toward hotel 8:30 a.m., 8500 ft. Came across a pair of Hy. the "unknown tuareg" species. Very similar to, or identical with the Hudson's bird(s). Looking somewhat plainer above, but this is probably an effect of the rain. Today I notice that the sides of the neck (and head?) are chestnut like the underparts. Also that the bill is forked-like (could it be "plum-capped finches"?). The two birds were silent and alone. In area of low, thick scrub. Bambos with a few orange things scattered about.

I must keep my eye out for this species. It may be a good example of a species that is gregarious (forming mixed flocks) near the southern
border of the humid temperate Andean region but not near the center.

Incidentally, speaking of "frontiers"... I think that mixed
flocks are surprising rare here, considering how close to the eastern
frontier of the climatic region we are here — and how close there are
qualities of warmer climate, vegetation, etc. Mixed flocks seem to be
primarily characteristic of only the montane and southern frontiers of the hu
mid temperate zone (ie where there is a "actual" frontier on all 3 sides)
not the eastern and western frontiers alone).

This afternoon going to start working near hotel 2:30 p.m.
Rain has stopped and fog is partly lifted,
2:55 p.m. see a single cyanocalida alone. Rightly below hotel.
Matter never usual of moderate height, on the average.
3:55 p.m. see minge house when alone near seines
Then there is rain. Which stops 4:30 p.m.
4:35. see a single philocephala alone. Definite ruficaps (shall just
call it species "change-colored" from now on.) Rightly below hotel. Area of
thick low scrub.

5:15 see single cyanocalida alone. Possib same bird seen earlier
this afternoon. In small tree 6 ft above ground. Silent
5:28. just below belt level. See a pair of the peculiar small 10-12"

Then see single cyanocalida alone again. In thick scrub.
Possibly a different. About 20 ft behind the cyanocalida is at least 1 Argent
certain type. Either young ruficapsus or (more probably) cissifronsides
Definite, olive crown, but crown slightly darker (perhaps blackish) at edges
yellow-austral races. Wambrer may be following tanager. A minute later,
catch a very brief glimpse of a single C about 30-40 ft behind warbler. Don't know if it's communicating with the latter or not.

5:45. Catch a good view of what may be same warbler (s). A plier together now. Crown definitely olive (i.e. definitely not supracristatus). Yellow supercilium, quite broad, but seems to end fairly abruptly behind eye. Legs flesh colored - face bright, almost coral. One or both heads very vocal. Uttering lots of thin, guttural, mattered, urgent, sounding "see see see see see see see see...

Notes. Also occasional brief R's (hardly more than "Bump"). In low-mour, also landing on gray verge of road. At this time, these warblers are not accompanied by or accompanying either cyanorhynchus or C. But they are associated with one Orange head. Close together. Orange head apparently silent. At least once, warbler f = Orange head.

These warblers were so vocal that I am inclined to think they must have been adults (?). Appeared to be approximately same size as the Orange head. If I remember museum specimen correctly, this would indicate that they are Parkulerturus, not Hemispeucus. (Their bill appeared to be moderately long - probably not too long for Parkulerturus.)

Stopping observations 6:00p.m.
Why are there no Fireballies or Anoletes around here? Too wet??

February 18, 1964
Walter Peckin

Walking above hotel, in same places as yesterday morning.
SEE TODAY'S NOTES ON MIXED DISLOSSINI
Sheet-uncr, mowed flock just over crest of ridge. For a long time, remains just out of sight down hill. Apparently, not making much progress. Sounds diffuse. Obviously contains Cyg (5), at least occasionally, White-tart (5), and others.

Ca. 7:30 a.m. Call its brief glimpse of what is either advance guard or trailing part of the flock. Is stuck less 10-20 ft above ground.

Two Callidroma-type finches (LXII), one unknown type, pink, fumarid (LXIII), and one Octoidea-type flycatcher. They take one look at me and retreat down hill.

7:50 a.m. Get a very good view of what is either the whole of the mowed flock now, or the main body of the flock. Includes 2 Ays, Variancips, 1 Buff and Blue Finanger (LXV), 2 White-tarts (neuavegeta bus), 3 "Local White-tutes" (LXIV), and almost certainly one Sitt.

The two Ays, the cyanocips, and the Buff and Blue were in the lead. As definite f → Buff and Blue. There seemed to be a slight but definite leading for these three large, or completely blue, species to keep more or less together. Three three were followed by the pair of white-tarts, 2-20 ft behind all or most of these three. The white-tarts definitely followed and formed the three large, or completely blue, species separately.

The rearguard was composed of the Local White-tutes. Definitely, followed by the other birds. I think that a single Sitta was associating with the Local White-tutes. (It certainly was not associating with the other three largely or completely blue species.)

The flock was not very noisy at this time. Lots of single "CN" s by all or most members. Occasional R-type calls by the Local White-tutes. Some song by one or both white-tarts.

All the birds were moving quite rapidly, in one direction (at
And quite close together. Flocks as a whole much more coherent and purposeful than usual. I think this was because they had run up against the path, were following it uphill, and then (almost all of them) chose to run the path at the same point.

When the vultures ran up against the path, they did not cross it when the others did (later). They circled it by flying diagonally down hill. And all the other birds went downhill in the same direction as the vultures coming.

I think that the nucleus of this flock can be considered "semi-permanent".

8:15 a.m. Catch brief glimpse of Ateles geoffroyi - like lemur in scrub, where flock was earlier but is no longer. Rufous crown. Quite dark medium gray below, blackish above. Didn't notice much color variation.

**ADDITION:** All the birds in the flock observed 7:50 ranged them into layers of scrub, from approximately 3 to 20 ft. above ground. Hakes and the white-tailed probably stayed higher on the average than the others.

**NOTE:** It is beginning to look as if there is one "ideal color pattern" for members of mixed flocks in the southern Andes. Gray-blue above, and buffy to chestnut below.

Going to go a different way this afternoon. Along a path which I think will lead to Huayna Pichincha eventually. Starting out 3:05 p.m. Finishing all things.

Nothing! 4:30 p.m. I suppose the little darlings are too hot!

4:35. See group of Black & Blue Tanagers in trees on very steep slope. Definitely alone. This area is 8150 ft. according to my altimeter now. Vegetation looks "virgin," short old twisted trees. Lots of moss.
6:05 p.m. Right down beside ruins. See a pair of Caimanocphala alone
In virgin looking shrub. Altitude 7875 ft
Caimanocphala's here are certainly not obligate commensals!!

February 19, 1964
Macchu Picchu

Lots of fog this morning. Going to work around base of
Huayan Picchu, near ruins of Macchu Picchu itself.
Dusk shows starting 5:40 a.m. No Big lots sounds
Poulter. This whole area, ca 7500-7700 ft seems to be quite lechu
in Diglonini. Part of the vegetation looks second growth (bamboo, etc.)
Part looks "virgin".

> see single Caimanocphala alone 6:10 a.m.

6:20. Hear something which sounds like brief snatches of lajumayo
sip song. Part way up slopes Huayan Picchu 7900 ft

6:40. See a pair of Black & Blue Jewelers come place as yesterday of
lumber. At first alone, except for some Elehnia & Ctenopus-type flycatchers,
with whom they do not seem to react. Then associated with a pair of something
else, possibly Caimanocphala. Then disappear.

A few minutes later, in low scrub-under trees, see a single atta
pites of a new type. Yellow below, black above, yellow-crown (alight), brigh
er than underparts, slight, orange-urb on forehead. No wing-patch
Apparenty alone. Uttering "w"s

This species quite reminiscent of "PR". It is no. EXVI. Shall
call it "Yellow crown Attapectes"

All this is at 8000 ft. A relatively large (for this mountain) pa
tel of very mixed scrub. Some looks old, some new; some trees, some low-areas

4:30. 80' 45' ft. Region rather sparse scrub. Hear a unmistakable
Cy song, without seeing the individual uttering them. Then hear a few more
song a few minutes later. No R components.
Black Rua Runun on top mountain 4:40 a.m., 8450 ft. Starting
down again.

4:35. Heightly under 8400 ft. Hear another Cy singing. "Ina ta ta
zeeece zeecce zeecce" type phrases.

Possibly 2 are breeding in this region. They certainly seem to be mo-
re widely distributed than any of the other local diglosses.

Cy sang right thru House Wren song
For single House Wren alone.

See also today's notes on mixed diglossini.

Rain in the afternoon. Also fog coming up. Going to try working
just below hotel.

4:50. Come across pair of Bandotanies gutturalis types same pla-
ic a couple of days ago. One or both still uttering launch "zeecce" Notes.

To the FB. Also occasional bush R's. Definitely alone until 5:08.

5:18. Hear what sound like Basi R's; see bird in silhouette in
bad light. Might well be diglossa. But color looks wrong. Appears greyish
underneath.

For a single Orange bright alone.

5:58. See again of C's. At first with another bird (unidentified)
marking. Then C's fly away. Other bird does not follow. C's utter rece-
al twitterers as "Greeting" when landing together. 1400 ft.

Ending observations 6:15 p.m.
February 20, 1964
Martin Pecher

Heavy fog and rain 3:20 a.m. Going to try working near hotel and road leading downhill — but without much hope of getting results.

6:14 see pair of Orange-heads alone. In garden-like area of ferny tall but scattered bushes right in front of hotel. Alone at first. Then joined by single House Wren. No reaction between the 2 species. House Wren flies away. Orange-heads do not follow. This mixed flock obviously purely "coincidental."

6:20 Rain stopped, but fog still very thick. Going down road catch glimpse of several House Wrens apparently alone.

Gave up 7:40 a.m.
8:30 a.m. Hear Cj singing outside my room. "Ta seeee seeee seeee seeee... phrases.
Then resume operations, as fog seems to be lifting.
9:00 See a single cyanocephala alone. In thick low-scrub.
7:25 See a single Orange-bill alone.
9:35 Hear Barri-like songs coming from same area as yesterday afternoon. Again can't see the bird. Rain or fog again!

Note: I am told that the wet season here is December-March.

The real dry season is April-August.

Going to try again 10:08 a.m.
Rain starts again.

Get back to my room 10:30. Hear Cj singing for a long time. Oh
use after phrase, with only the barest jarring between

Working same area after lunch

2:15 - 2:45. Caught several snow glistens of a Poncleterus lutrenoides
type. Still uttering harsh "klee" notes to busy R's. This bird seems to
be more vocal than the lutrenoides - types near Undawue. Is it the same
species? ??

Then catch another glister. Actually two birds. Quite alone

SEE ALSO TODAY’S NOTES ON MIXED DIGLOSSINI

February 21, 1964

Machin Picchu

Going to work above Machin Picchu this morning. Past the road
that goes to the west of the ridge. The one that is supposed to go to the peak of
Machin Picchu mountain. Some fog. Otherwise clear.

Near first presumed Brum songs 5:30 a.m. Area dense low - scrub
750 ft. Songs are whistles. Rather fluctuating

CORRECTION: At least some of these Brum - like songs are being utte
really a small grayish gull. (C ?? ? ??)

See a single g or pair, Baru alone 8150 ft. Region thick low - scrub
silent.

Probable overlap ? and Baru territories or home ranges.

Dyonomy songs much less frequent 5:38 a.m

SEE ALSO TODAY’S NOTES ON MIXED DIGLOSSINI

6:40 8350 ft. See single f* alone. In low - scrub
7:00 a.m. 8800 ft. Region of thick low scrub open with. Nearly
singing. Also what sounds like reluctant up bull. No overlap,
NOTE: In summing up, all I can say about mixed flocks is that they seem to be relatively rare at relatively low elevations here. The few mixed flocks seen at relatively low elevations may also be transitional and relatively loosely organized. There are at least some highly organized flocks ca 9000 ft and slightly above. One flock quite reminiscent Andean flocks 10,000 - 11,000 ft. Are birds at 9000 ft here more gregarious than birds at same elevation near Andes? If so, is this significant? Are the different faunal levels just lower here than near Andes??

Perhaps the most specialized intra-specific relation here is...
Number Indo seen alone

111 (a)

No. Indo seen

111 3

No. H.O. Holes seen

111 3

Largest No. Indo. One Hock

14

Largest No. spp. One Hock

9
Marina Picchu

Feb. 16, 17, 18, 19, 20, 21

All other areas
1964

No. Inds. seen alone

\[ 0 \]

No. Inds. in Hecules

\[ 20 \]

\[ \text{Total} = 26 \]

23.24%  

No. Hecules seen

\[ 2 \]

No. H.O. Hecules seen

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Largest No. Hecles One Hecle

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Largest No. spp. One Hecle

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24 hrs

TOTAL = 24 hrs 30 min
Working below Pico this morning. Area where I fell in river today
ear! Path begins at 9,000 ft according to my altimeter. Now - above 5:50 a.m.
Already bright
He single Unzag bell alone,
6:10. See very big roots through. Alone. Orange bell o legs. So bright
exiting
6:19. See what appears to be juvencile Bream. Is narrow stripe along
migration delta. Possibly not alone

Another single Orange bell. And another.
Then heard a few songs which might be Bream. Rapid, regular, non-
fluctuating tuckettes
6:55. Another single through alone. Apparently same species
Quite a lot of Agave in forest nearby. Don't see or hear any Bawas,
however.

Not far away a pair of CC's in hedge. Utter long very rapid tuckettes as
"Greetings." Fly into tree next to agave, but apparently not into agave itself.
7:15. Highly different area. See single Bream singing alone. Each song
phrase rapid tuckettes. Not very fluctuating. "Decending" eyeo at end. Phrases
much shorter and appreciably less rapid than CC. "Greetings" tuckettes. This Brea
m. pretty quite a lot of phrases one after the other. Interwening pauses of variable
length. See new struck and rather moist-looking hedges here. Bream in one he
edge, 10-15 ft abobe ground
CC's here are definitely very gray underneath here - except for under ta
covets
9400 ft. Going up through. Came to area where there are lots of tubular red flowers. Some with holes in corollas. Also some pink trumpet shaped flowers. But no minibe or audible differences.

Incidentally this looks like sex good area for Hylaeopus. I wonder why there aren't any. Surroundings outside stream area too dry.

NOTE: Pheromone area is now flooded than when I was here last year.
8:05. See single Brum feeding on insects? alone in outer mile along edge ravine.

There is a small humming bird visiting tubular red flowers by stream itself. Could this bird be making the holes??

Near what may be GC in distance.

Hearing down hill 8:15 a.m.

See single Hume. Then alone.

8:34. See another single Brum. Silent. Alone. Again in outer mile.

Toward edge of ravine

8:50. Down almost to road level again. See another single Orange-

bull above.

Then see bright conamenes. At first has dull livid (which I think is "gay") with hum. Then the latter disappears. Bright conamenes seen in Ever light. Heaters lots of TW phrases. "Wheat chw wheat chw wheat chw which"

After a minute or so, the sound of these phrases seems to stimulate an (unseen) presumed Brum about 50 ft away. It also begins to sing. "Tweeters. Sometimes phrases of 2 species overlap, sometimes they alternate! Then the bro conamenes shut up. And the presumed Brum dies too!"

It looked as if this Brum were "put up" desperate to react with somsitting vocally. Probably not getting enough vocal stimulation from other digites in this area now.
Stopping observations 9:00 a.m.
The situation here this morning certainly appeared to be much the same as last year.
Would also seem to confirm my impression that the fauna of the central - south central Andean area is highly impoverished. Some of the areas visited this morning appeared to be perfectly suitable for Turdus bellus and/or Actigalitas sp. Also, Conchaetus spectabilis. (And we commented about the Palaipar on the plateau.) Certainly, the region as a whole is not too-wet!
This afternoon, going to work along road parallel to RR to the chin Perico. 

Bach barnecula 11,625 ft. Some scree. And then rain starts heavily! Let's up a little 3:25 p.m. Going to get out and take a look.

3:36. See a single Colibri coruscans alone.

Eucalyptus trees (apparently same species as at Jeta) are in bloom here. Also where I worked this morning. But nothing seems to be using them but humming birds.

No sooner said than done. Something calling loud. footsteps up and down on Eucalypt sounds like Brum. Quite a lot of phrases in fairly rapid succession.

Then see single Brum feeding on Eucalypt flowers for minutes on end. Looks rather dull. Maybe juvenile. Silent except for "oh" while feeding.

Then see another, Brum in Eucalypt 40 ft above ground. Perhaps same bird, wings quite a lot in distance.

Then see same Brum in tree again.

Brum (5) quoting Black-headed Goldfinches same tree.

See single Brum fly by hands high in Eucalypt. Utters one Brum.

Steps. As soon as it stops, a single Brum in dry scrub up hill utters one brief Brum.

No overlap. But it certainly looks as if the Brum were stimulated to sing by the sound of Brum song. At least up. Brum utter occasional Fruiter of
During the next 3 minutes A remains quite silent. Then Brain shouts up 4:30 p.m. Presumed Brain sings again from time to time. No other differences audible or audible.

**CORRECTION:** I think that the presumed Brain shouts up an alarm, moves into another tree, where in a pair of Black-headed Goldfinches (Fig. 9) flies into the tree in which he is singing. !

Leaves 4:40. Everything quiet.

**Note:** I don't think that I worked in this area last year.

On my way out, see Brain fly out of small branch-like tree along side.

M. Quite alone.

This Brain was certain, surprisingly vocal this afternoon. Coming in (not) of breeding condition. 💅

Going to work in another area, 11,450 ft. Am at 4:55 p.m.

Lots of Eucalyptus around here. Some scal-wounds underneath the trees. The single Orange-bell alone.

See a single Robin conversing alone.

Ending observations 5:30 p.m.

February 23, 1964

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Going to work same place this morning as yesterday morning.

SEE TODAY'S NOTES ON MIXED DIGLOSSINI