Rock or Purple Sandpiper?

Rock or Purple Sandpiper?

Peter Pyle
25 April 2016

Based on comparison on images with specimens at the California Academy of Sciences (CAS) and Museum of Vertebrate Zoology (MVZ), I present several lines of evidence suggesting that the Salton Sea sandpiper observed and photographed at Salt Creek from 25 March to 17 April 2016 was a Purple Sandpiper. These include:

1) Amount of white in the secondaries

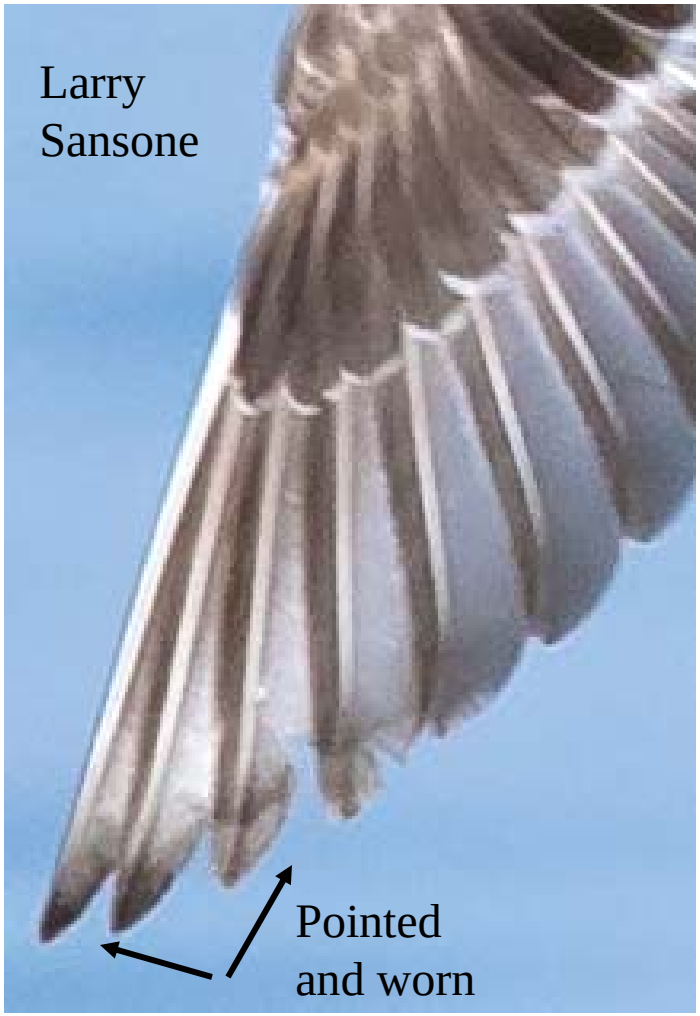
2) Pattern to alternate upperpart feathers

3) Lack of black alternate feathers to breast and belly relative to the progression of the prealternate upperpart-feather molt.

Several other factors have been mentioned to support one or the other species: dull greenish legs and bill base (better for Rock Sandpiper), and amount of white in the primaries, amount of dark in s6, and triangular spotting to the sides (better for Purple Sandpiper). I have not had time to examine these characters in specimens but could in the future if it is deemed useful to the identification.

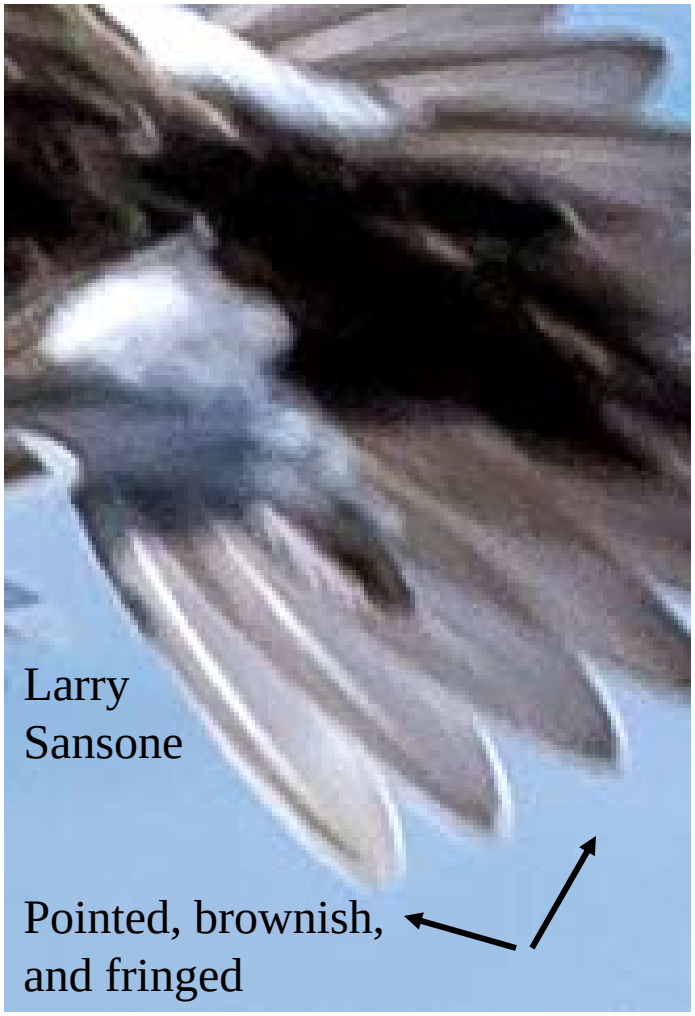
Rock or Purple Sandpiper?

The Salton Sea sandpiper is a first-cycle bird based on the pointed primaries and rectrices and the worn juvenile median and greater coverts, as compared with specimens



Salton Sea, CA,
27 Mar 2016

Rock or Purple Sandpiper?



Salton Sea, CA,
27 Mar 2016

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Amount of White in the Secondaries

Rock Sandpiper (ROSA) averages a bolder wing stripe than Purple Sandpiper (PUSA). When I looked at specimens for this in 2006, I found that separating these species based on the extent of white in the wing and all other characters (especially in formative and basic plumages) was a lot more difficult than I thought it would be. I concluded that the pattern to the outer secondary, s1, was a good character to represent this difference in the hand (Pyle 2008); however, on photos of the Salton Sea bird the white pattern on s1 is obscured by the greater coverts. Looking at the open-wing images of the Slater Museum site (next Slide) the single PUSA there showed more dark to s7 and s8 than the one ROSA collected in Washington State, presumably of subspecies *tschuktschorum*, the subspecies of ROSA reported to most-regularly migrate south of Alaska. On 6, 11, and 22 April 2016, I examined specimens at CAS and MVZ to see if the pattern to these feathers could be used to help identify the Salton Sea bird. I scored the pattern to s7 and s8 on each of 21 specimens of PUSA and 89 specimens on *tschuktschorum* ROSA, representing all specimens at CAS and MVZ except for chicks and birds molting s7-s8. I also scored these feathers on all 20 specimens of *ptilocnemis* and all 23 specimens of *cousei* ROSAs at CAS. Data are in the file ROSA-PUSA.xls.

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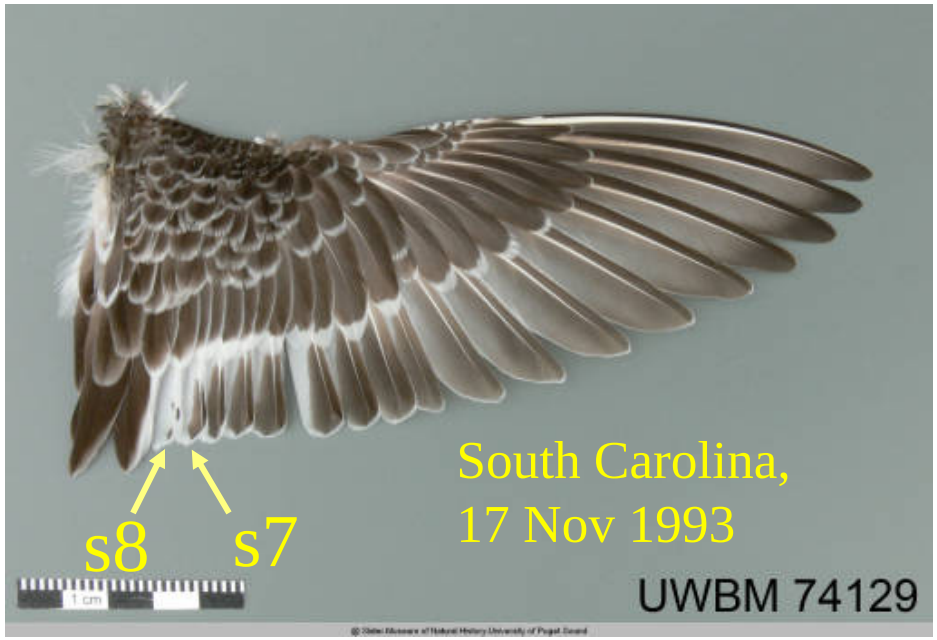
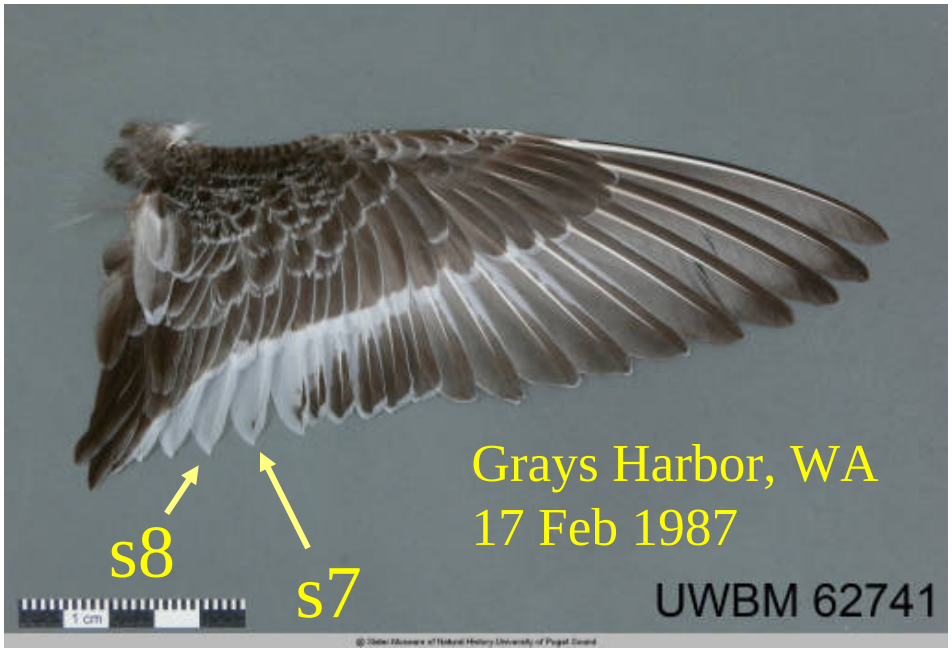




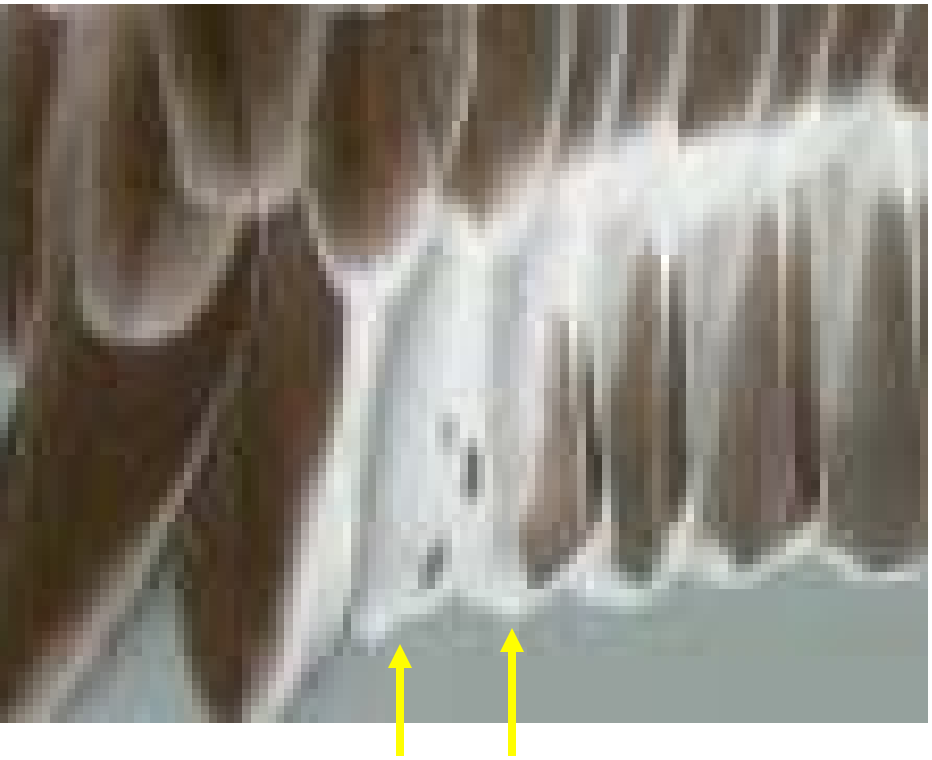
Rock

(*tschuktschorum*)

Slater Museum Wing Image Collection:

http://digitalcollections.pugetsound.edu/cdm/search/collection/slaterwing

Rock or Purple Sandpiper?



s8 s7

Purple Sandpiper

s8 s7

Rock Sandpiper

Slater Museum Wing Image Collection:

http://digitalcollections.pugetsound.edu/cdm/search/collection/slaterwing

Rock or Purple Sandpiper?

I scored the pattern on s7 (left in these images) and s8 (right) on specimens at CAS and MVZ

(specimen numbers are from CAS)

Rock or Purple Sandpiper?

SPEC	ssp	n	s	mean (range)
PUSA	mari.	21	7	4.33 (4-5)
ROSA	tschu.	89	7	2.25 (0-4)
ROSA	cous.	23	7	2.70 (0-5)
ROSA	ptil.	20	7	0.80 (0-2)
PUSA	mari.	21	8	2.43 (2-3)
ROSA	tschu.	89	8	0.69 (0-2)
ROSA	cous.	23	8	1.09 (0-3)
ROSA	ptil.	20	8	0.00 (0-0)

Rock or Purple Sandpiper?

First-cycle only*

SPEC	ssp	n	s	mean (range)
PUSA	mari.	7	7	4.43 (4-5)
ROSA	tschu.	27	7	2.70 (1-4)
ROSA	cous.	5	7	3.40 (2-5)
ROSA	ptil.	13	7	0.77 (0-2)
PUSA	mari.	7	8	2.57 (2-3)
ROSA	tschu.	27	8	1.00 (0-2)
ROSA	cous.	5	8	1.80 (1-3)
ROSA	ptil.	13	8	0.00 (0-0)

*Averages more than adult but not significantly. No evident difference between sexes.

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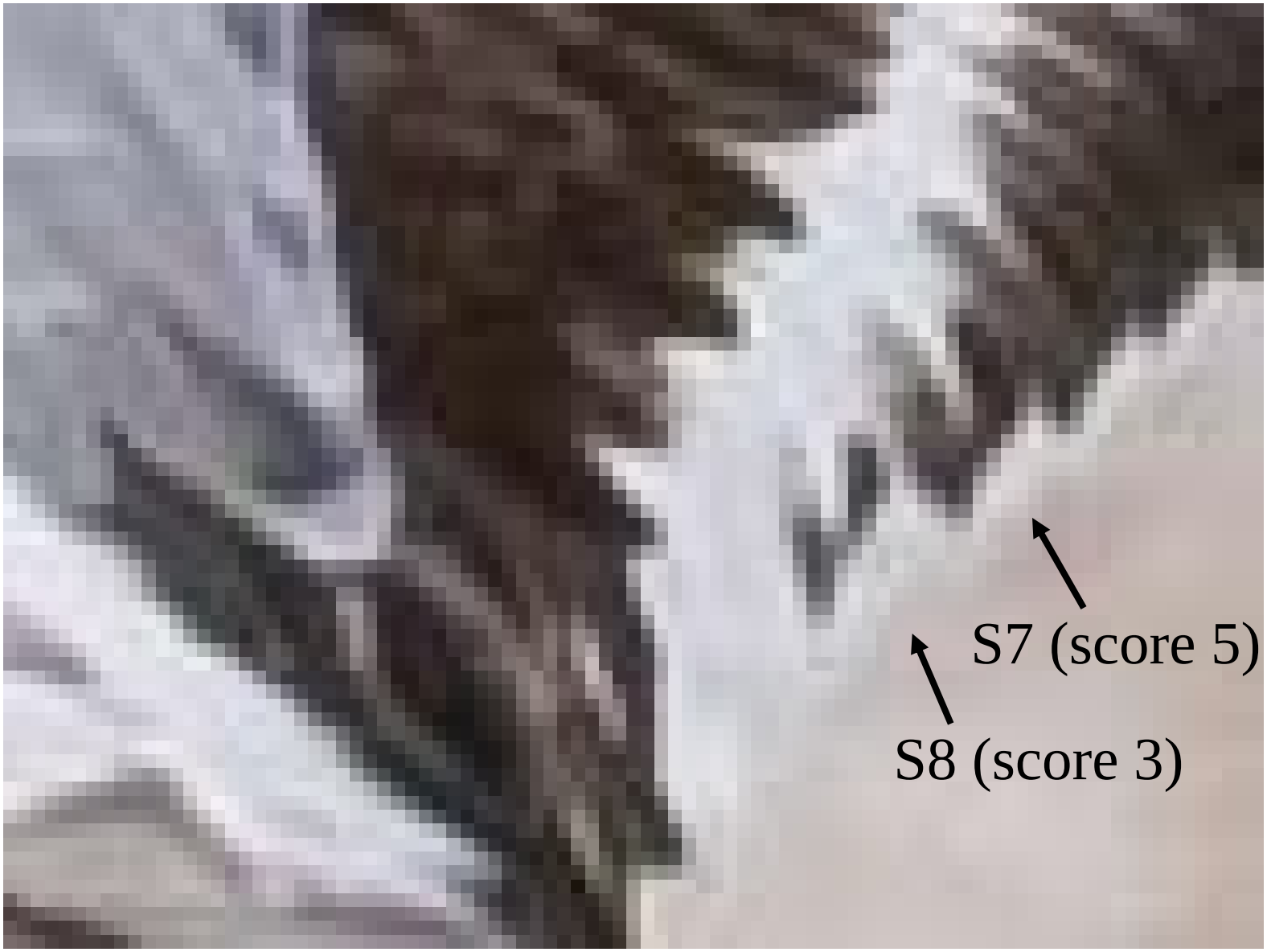
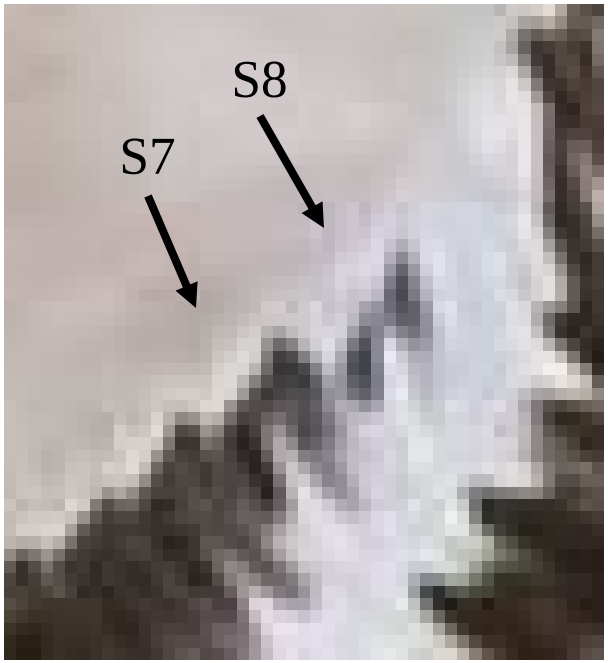
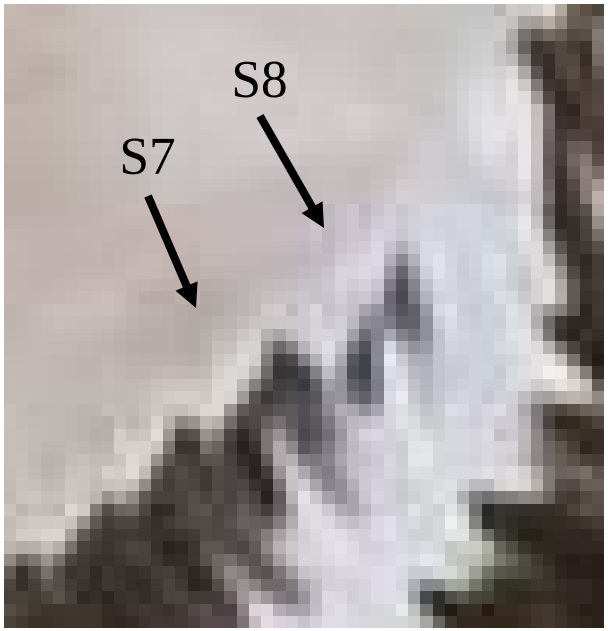


Rock or Purple Sandpiper?



The above images show the Purple Sandpiper specimen with the least amount of dark to s7-s8 (left) and the *tschuktschorum* Rock Sandpiper with the greatest amount of dark to s7-s8 (right) of all specimens of these taxa at CAS and MVZ. The amount of dark to s7 and s8 in the Salton Sea bird (center) is average for PUSA but greater than any of the 89 *tschuktschorum* Rock Sandpipers at CAS and MVZ, so I think we can assume *tschuktschorum* ROSA is ruled out for the Salton Sea bird.

Rock or Purple Sandpiper?



However, ROSA subspecies *cousei* shows the most variation in the amount of dark to these feathers (see tables above) and can match the Salton Sea bird in this character. I also scored these feathers on all 61 *cousei* at MVZ. Although my electronic data did not save for some reason, the results were the same, with one bird showing an s7-s8 score of 5-4, many showing 4-2, 3-2, and 2-1, and some showing 0-0. The above two *cousei* show dark in s7-s8 that exceeds the Salton Sea bird so, although the majority of *cousei* have less white than the majority of PUSAs, we cannot rule out *cousei* based on this character.

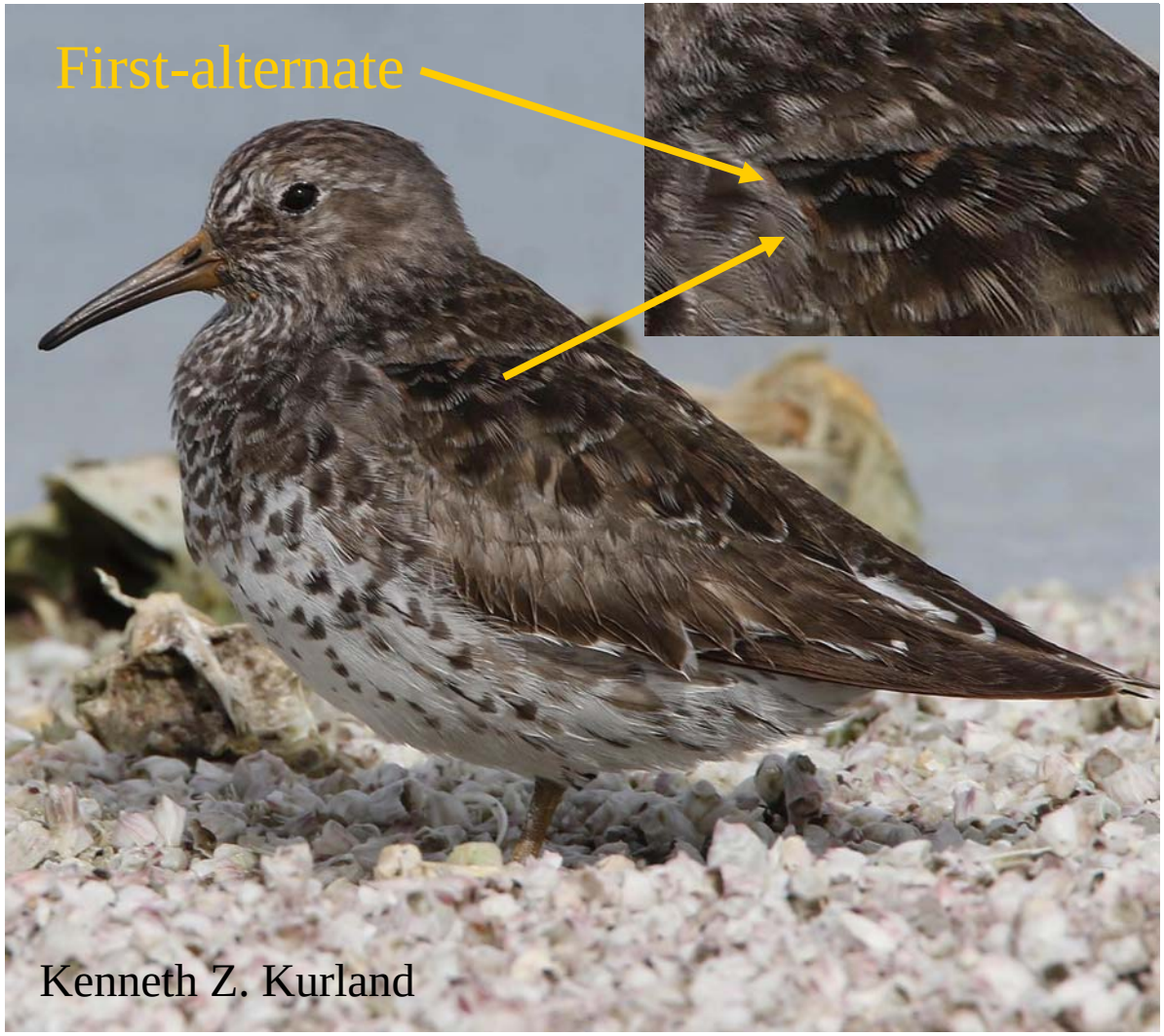
Rock or Purple Sandpiper?

Alternate Feather Patterns

I went back and forth on what generation the darker feathers to the upperparts were when the sandpiper was first found on 25 March. After specimen examination on 11 April, I surmised that they were formative feathers replaced on the winter grounds, contrasting with more-worn formative feathers replaced before migration, as observed on at least one specimen (right). Also, without rufous fringing, the newer feathers did not seem to show an alternate pattern for these tracts.

Rock or Purple Sandpiper?

However, photographs taken on 14 April show these feathers in more detail and indicate that they do indeed have partial rufous fringes. I was able to match these rufous-fringed feathers with the same replaced feathers in the images from 25 March. So I now think these newer feathers have been first-alternate all along.



Rock or Purple Sandpiper?

Rock or Purple Sandpiper?

Salton Sea, CA, 10 Apr 2016

The pattern to this alternate scapular includes two patches of rufous fringing along each edge and a white tip. Notably there are breaks between the two rufous patches and between the distal rufous patches and the white tip, where the blackish of the center extends to the feather edge.

Rock or Purple Sandpiper?

Specimen examination indicates the pattern to this scapular closely matches that of this same alternate feather in Purple Sandpiper. Note the breaks of dark between the rufous on the sides and the white tips, as in the Salton Sea bird's scapular. The above three specimens indicate range in variation at MVZ (n=6).

Rock or Purple Sandpiper?

In *tschuktschorum* Rock Sandpiper this alternate feather has more extensive and brighter rufous edging, which is not broken along the sides. The above three specimens indicate range of variation in all alternate *tschuktschorum* at MVZ (n=24), none of which showed breaks to the rufous and white fringing.

Rock or Purple Sandpiper?

In *cousei* Rock Sandpiper the pattern to this feather resembles that of *tschuktschorum* but with duller rufous. Again note the lack of breaks along the sides. The above three specimens indicate range in variation in all alternate *cousei* at MVZ (n=21), none of whixh showed breaks.

Rock or Purple Sandpiper?

Thus the pattern to this one scapular indicates PUSA and Michael O'Brien came to the same independent conclusion based on the same feather in the same photos:

Subject: Re: Thanks, and rock/purple pics**Date:** Mon, 11 Apr 2016 22:25:30 -0500**From:** Michael O'Brien <tsweet@comcast.net>**To:** Paul Lehman <lehman.paul1@verizon.net>

My gut reaction to the first photo was that I wasn't sure, so I didn't want to send any off-the-cuff opinions. Looking at the photos again (with more time), I have to say that I think this is a Purple Sandpiper. The most compelling features are the incoming breeding plumage on the breast and scapulars. The one obvious breeding scapular shows the typical Purple Sandpiper pattern, with a narrow edge of rust separated from a narrow white tip. Rock Sandpiper would normally show wider rust edges connected seamlessly to whatever white tip may be present. Even more convincing is the pattern on the underparts. All those triangular or diamond-shaped black spots, heaviest on the lower breast and sparser on the belly, are typical of breeding Purple and not matched by any plumage of Rock (note that the blacker spots are fresh breeding feathers, the paler spots worn nonbreeding feathers). The dull bill and legs are normal for spring Purples, and the trashed wing coverts should be expected for either species if they overwintered at the Salton Sea! Best,

Michael O'Brien Victor Emanuel Nature Tours, www.ventbird.com

Rock or Purple Sandpiper?

By 15 April a lot more alternate feathers were present on the back and all showed the same pattern with breaks between the patches of rufous and white fringing. The smaller upper back feathers that had been replaced by 25 March had no bright rufous fringing. The cumulative effect is for a fairly dark and subdued alternate upperpart plumage.

Rock or Purple Sandpiper?

The alternate plumage of the Salton Sea bird matched quite well that of Purple Sandpipers. These two specimens represent the dullest and brightest alternate plumage among 6 specimens of PUSA in this plumage at MVZ (in this case, both adults).

Rock or Purple Sandpiper?

By contrast the alternate upperpart plumage is much brighter and more rufous on *tschuktschorum* ROSA. Besides differences noted on the scapluars (above), the smaller back feathers are fringed bright rufous. Again, these two specimens represent the dullest and brightest alternate plumage among 24 specimens in this plumage at MVZ (including a first-cycle bird, above, and an adult, below).

Rock or Purple Sandpiper?

Alternate upperpart plumage in *cousei* ROSA is similarly brighter and much more rufous than the Salton Sea bird. Again, these two specimens represent the dullest and brightest alternate plumage among 21 specimens in this plumage at MVZ (including a first-cycle bird, above, and an adult, below).

Rock or Purple Sandpiper?

Progression of the prealternate breast-feather molt

During the last week of observation of the Salton Sea bird (though 17 April) there was no sign of complete black feathers to the breast as is found in ROSAa, just grayish feathers fringed white and spotted feathers to the sides, as typical of PUSA. The question is whether this amount of upperpart feather molt could occur in a ROSA before black belly feathers come in. There were not enough specimens of ROSA at CAS and MVZ collected in March and April to answer this question, so I looked at the same question in Dunlin at MVZ.

Robert McKernan

Rock or Purple Sandpiper?

In Dunlin, alternate upperpart and underpart feathers come in together, as evidenced by these four specimens (3 adults and one first-spring bird, MVZ120869). Molt sequence in birds is very fixed and thus I see no reason why ROSA would differ in relative progression of molt than Dunlin, supporting the Salton Sea bird being a PUSA

Rock or Purple Sandpiper?

Assuming the MVZ specimens are representattive then the combination of the pattern to s7-s8 (ruling out *tshuktschorum* ROSA), the patterns to the alternate feathers and plumage, and the lack of full black feathers to the belly by the time many if not most of the alternate back feathers had molted in, supports the Salton Sea bird as a Purple Sandpiper.

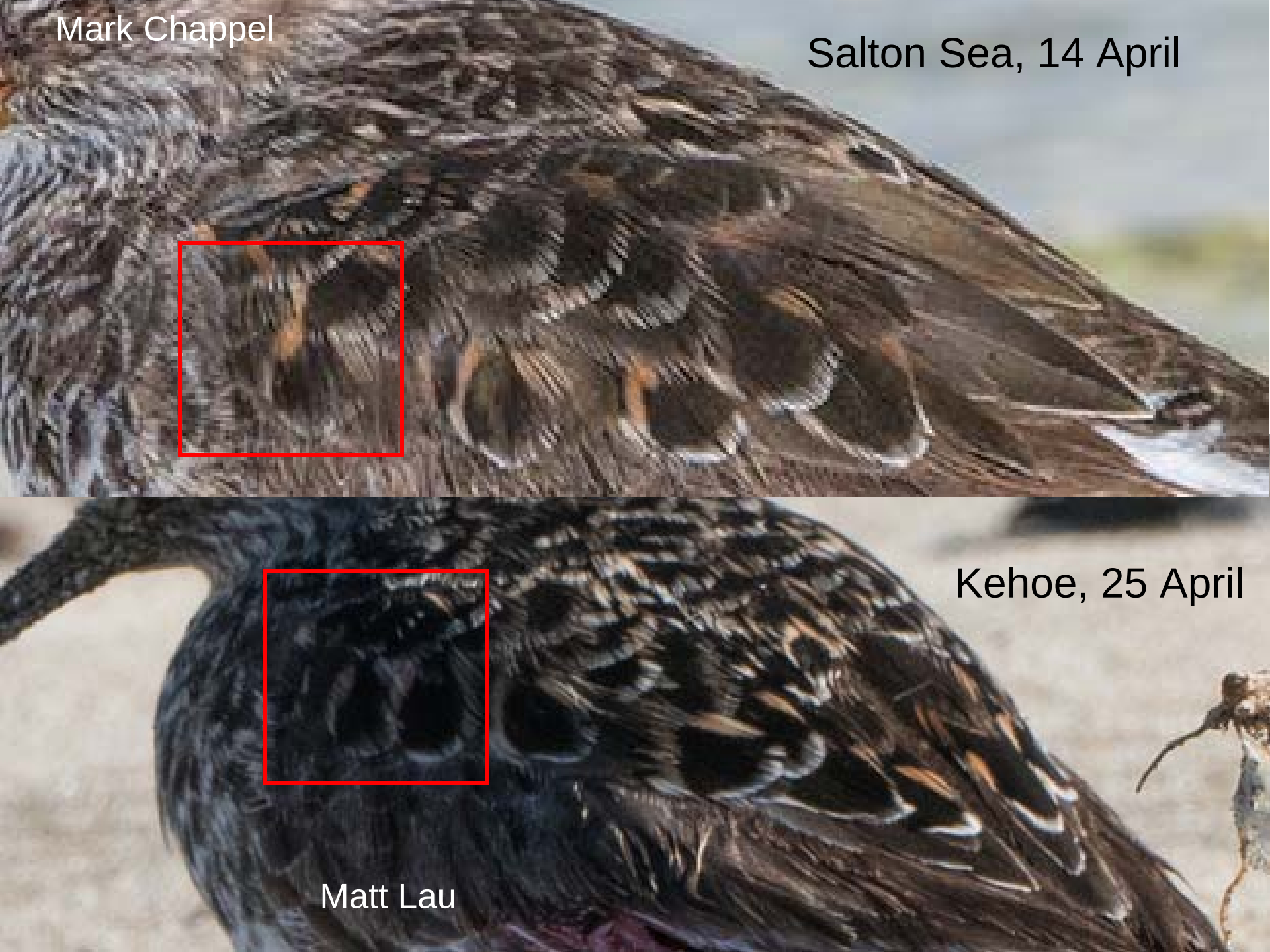
Rock or Purple Sandpiper?

P.S. (26 Apr 16): Within hours of my completing this summary a very similar first-cycle bird sandpiper found by Matthew Lau on Kehoe Beach, Point Reyes National Seashore. This bird shows the same alternate-plumage patterns as the Salton Sea bird and, if the above analysis of the Salton Sea bird holds, is a Purple Sandpiper. In the following slides I present evidence that it is likely the same individual.

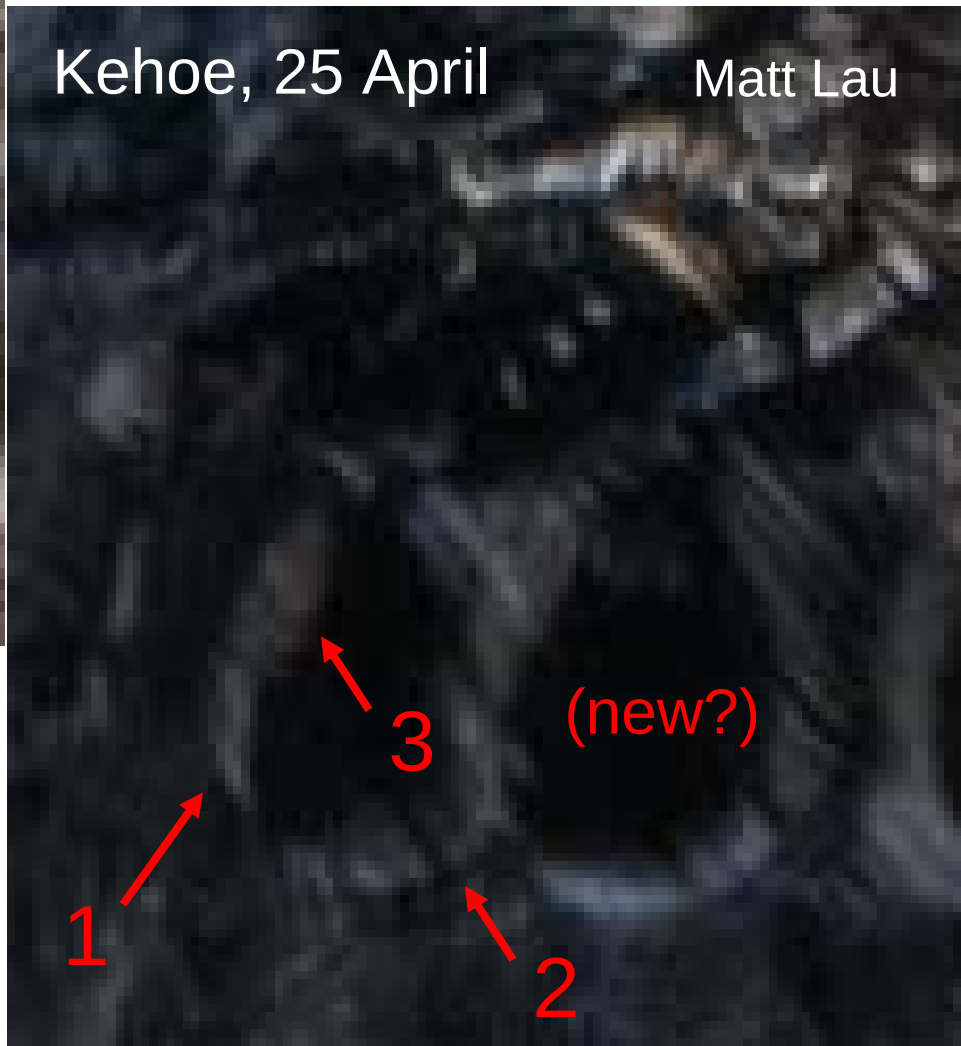
Point Reyes National Seashore, 25 Apr 2016

The following slides indicate that the (presumed) Purpled Sandpiper observed at the Salton Sea 25 March – 17 April 2016 appears to be the same bird photographed on Kehoe Beach, Marin County, on 25 April 2016. Comments welcome.

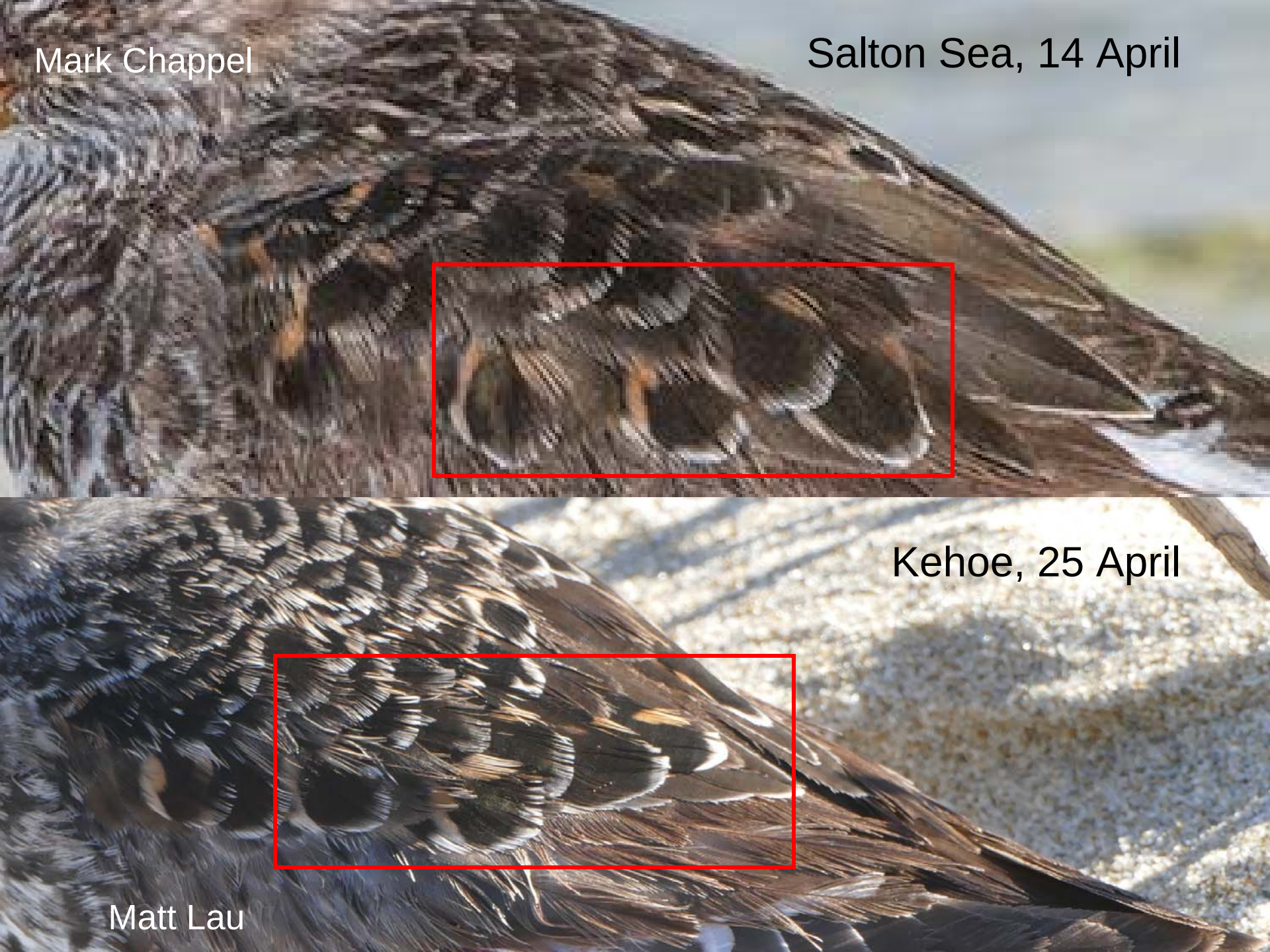
Peter Pyle
ppyle@birdpop.org
28 April 2016

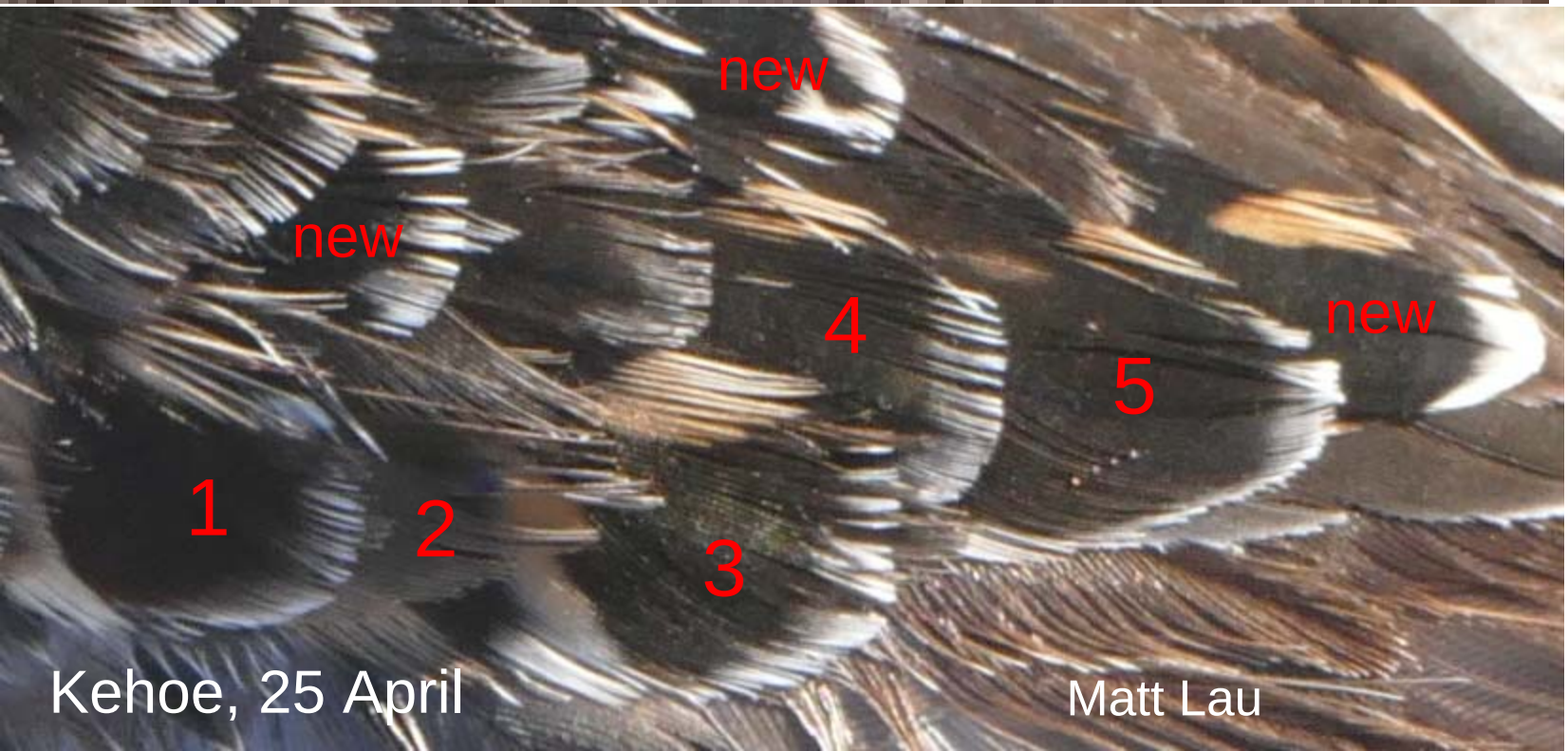

Mark Chappel
Salton Sea, 14 April
Kehoe, 25 April
Matt Lau

The spiky feather (1) is extremely similar-looking in these two images. Feathers 2 and 3 also match up nicely.

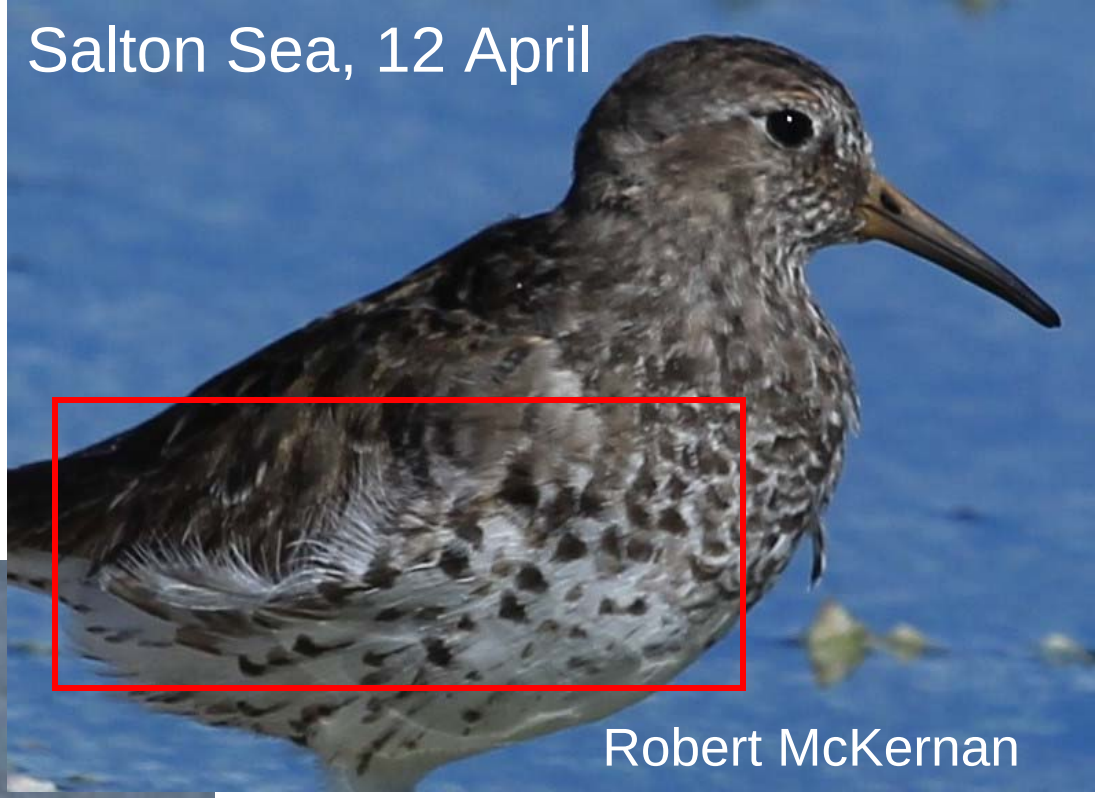


But this scenario would mean that the next covert outside of 2 has been replaced and grew in within 9 days (possible, I think).


Mark Chappel
Salton Sea, 14 April
Kehoe, 25 April
Matt Lau



These feathers match up almost exactly. Note especially the cycle-shaped fringing to feather 1, the shape of the rufous fringing in feather 3, and the split to the tip of the inner web of feather 5. The fringing in all feathers match up nicely..


Salton Sea, 12 April
Robert McKernan


Kehoe, 25 April
Matt Lau

These spots also match up almost exactly. Having looked at variation in underpart spotting in specimens I think these matches are too similar not to conclude that this is the same bird. I'm sure other matches can be found among other tracts with a bit of sleuthing.