M E M O R A N D U M

To: Paul Griffin, Bryan Fuell, Alan Shepherd, Amy Dumas, Bea Wade, Patrick Ferris, Steve Surian, Garrett Swisher, Mike Tupper, Dean Bolstad (BLM)
From: Bruce Lubow, IIF Data Solutions
Date: 4 February 2016
RE: Statistical analysis for 2015 horse and burro surveys in Northern California DO and western Winnemucca DO.

I. Summary Table

HMAs and Dates*	April 28, 2015:	Twin Peaks HMA (CA0242: Dry Valley Rim West portion, Skedaddle portion)
	April 29, 2015:	Twin Peaks HMA (CA0242: Dry Valley Rim East portion, South Observation portion, North Observation portions), New Ravendale HMA (CA0243)
	April 30, 2015:	New Ravendale HMA (CA0243), Twin Peaks HMA (CA0242: North Observation portion), Coppersmith HMA (CA0261), Fort Sage HMA (CA0241)
	May 1, 2015:	Twin Peaks HMA (CA0242: Northern Twin Peaks portion, North Observation portion), Buckhorn HMA (CA 0262)
	May 2, 2015:	Buffalo Hills HMA (NV0220), Twin Peaks HMA (CA0242: North Twin Peaks portion)
Type of Survey	Simultaneous Double-observer	
Aviation Company	John Kelly (pilot), El Aero Services, Inc., Bell Jet Ranger B206III (N555PP)	
Agency Personnel	Patrick Farris, Doug Satica, Rocky Satica, Thad Waltman, Steve Surian, Garrett Swisher (BLM): Jeremy Stocks helicopter manager (BLM)	

*HMAs are listed for any day on which they were surveyed, and any day on which an animal found outside the HMA boundaries was closest to that HMA.

Table 1. Estimated population sizes (Estimate) are for the numbers of horses and burros in each surveyed area at the time of survey. 90% confidence intervals are shown in terms of the lower limit (LCL) and upper limit (UCL). The coefficient of variation (CV) is a measure of precision; it is the standard error as a percentage of the estimated population. Number of horses or burros seen (No. Seen) leads to the estimated percentage of animals that were present in the surveyed area, but that were not recorded by any observer (% Missed). The estimated number of horses outside each HMA is already included in the total estimate for that HMA.

(A) HORSES

Area	Age Class	Estimate (No. Horses)	LCL [a]	UCL	Std Err	CV	No. Horses Seen	% Missed	Estimated # of Groups	Estimated Group Size	Foals per 100 Adults	Est. No. Horses Outside HMA
Buckhorn HMA	**Total**	168	161	175	4.3	2.6%	165	1.7%	25	6.7	8.4	0
	Foals	13	13	14	0.3	2.3%						
	Adults	155	148	161	4.2	2.7%						
Buffalo Hills HMA	**Total**	630	618	637	6.8	1.1%	626	0.6%	55	11.4	19.0	16
	Foals	101	98	103	1.3	1.3%						
	Adults	529	519	536	5.7	1.1%						
Coppersmith HMA	**Total**	99	87	111	8.1	8.1%	94	5.5%	21	4.7	6.7	0
	Foals	6	5	8	1.3	20.3%						
	Adults	93	81	103	7.3	7.8%						
Twin Peaks HMA, Dry Valley Rim (E)	**Total**	32	32	33	0.5	1.4%	32	0.3%	5	6.3	18.5	31
	Foals	5	5	6	0.0	0.1%						
	Adults	27	27	28	0.5	1.7%						
Twin Peaks HMA, Dry Valley Rim (W)	**Total**	70	67	72	1.3	1.9%	69	0.8%	8	8.5	15.1	0
	Foals	9	8	10	0.3	3.5%						
	Adults	60	58	63	1.1	1.8%						
Twin Peaks HMA, North Observation	**Total**	441	427	458	9.6	2.2%	432	2.1%	60	7.4	14.2	33
	Foals	55	52	58	1.6	3.0%						
	Adults	386	374	403	8.6	2.2%						

Twin Peaks HMA, North Twin Peaks	**Total**	657	648	668	6.7	1.0%	652	0.7%	80	8.2	13.4	0
	Foals	78	75	79	1.2	1.5%						
	Adults	579	571	590	5.9	1.0%						
Twin Peaks HMA, Skedaddle	**Total**	239	224	254	8.6	3.6%	235	1.8%	25	9.6	14.2	0
	Foals	30	27	33	1.8	5.9%						
	Adults	209	197	222	6.9	3.3%						
Twin Peaks South Observation	**Total**	161	152	172	5.8	3.6%	159	1.3%	17	9.3	12.1	0
	Foals	17	15	20	1.1	6.4%						
	Adults	144	137	152	4.8	3.3%						
Subtotal Twin Peaks HMA	**Total**	1600	1576	1634		1.1%	1579	1.3%	196	8.2	13.8	64
	Foals	194	188	200	18.03.3	1.7%						
	Adults	1407	1385	1433		1.1%						
					15.2							
Total Complex, Twin Peaks / Coppersmith / Buckhorn / Buffalo Hills	**Total**	2650	2603	2687		0.9%	2616	1.3%	307	8.6	14.5	134
	Foals	335	329	341	25.1 3.9	1.2%						
	Adults	2314	2273	2348		0.9%						
					21.9							
Fort Sage HMA	**Total**	113	109	118	2.1	1.9%	113	0.4%	7	16.0	17.7	54
	Foals	17	17	18	0.3	1.8%						
	Adults	96	92	101	2.0	2.1%						
New Ravendale HMA	**Total**	39	39	40	0.3	0.8%	39	0.1%	2	19.5	14.7	0
	Foals	5	5	6	0.0	0.2%						
	Adults	34	34	35	0.3	0.9%						

(B) BURROS

Area	Age Class	Estimate (No. Burros)	LCL [a]	UCL	Std Err	CV	No. Horses Seen	% Missed	Estimated # of Groups	Estimated Group Size	Foals per 100 Adults	Est. No. Burros Outside HMA
Twin Peaks HMA, Dry Valley Rim (E)	**Total**	65	51	70	6.3	9.6%	60	7.9%	8	8.4	8.8	0
	Foals	5	4	6	0.6	10.9%						
	Adults	60	47	65	6.1	10.1%						
Twin Peaks HMA, Dry Valley Rim (W)	**Total**	2	1	3	0.5	23.5%	2	8.9%	2	1.0	0.0	0
	Foals	0	0	0	-	-						
	Adults	2	1	3	0.5	23.5%						
Twin Peaks HMA, North Observation	**Total**	5	4	6	0.5	10.1%	5	6.4%	5	1.0	0.0	0
	Foals	0	0	0	-	-						
	Adults	5	4	6	0.5	10.1%						
Twin Peaks HMA, North Twin Peaks	**Total**	209	176	219	13.8	6.6%	196	6.2%	31	6.7	6.6	0
	Foals	13	9	14	1.2	9.2%						
	Adults	196	164	205	13.0	6.6%						
Twin Peaks HMA, Skedaddle	**Total**	178	141	185	13.4	7.5%	160	10.2%	39	4.6	7.6	0
	Foals	13	10	14	1.1	8.4%						
	Adults	166	130	172	12.8	7.7%						
Twin Peaks HMA, South Observation	**Total**	10	1	11	2.5	25.1%	9	9.9%	2	4.4	0.0	0
	Foals	0	0	0	-	-						
	Adults	10	1	11	2.5	25.1%						
Twin Peaks HMA, TOTAL	**Total**	470	398	478	22.6	4.8%	432	8.1%	88	5.3	7.0	0
	Foals	31	26	33	1.6	5.3%						
	Adults	439	370	449	21.7	4.9%						

[a] 90% confidence interval based on percentiles of bootstrap simulation results. The lower 90% confidence interval limit (LCL) is actually less than the number of animals sighted during the survey for some estimates. This is a normal statistical result and reflects the fact that a confidence interval expresses what would likely happen if the survey were repeated. If repeated many times, some surveys would miss more animals and produce lower estimates, even after corrections, than were actually observed during this survey. Clearly, I conclude that there are at least as many animals as were observed during this survey, rather than using the lower confidence limit as a minimum number.

II. Narrative

In April and May 2015, Bureau of Land Management (BLM) personnel conducted simultaneous double-observer aerial surveys of the wild horse and burro populations in the New Ravendale herd management area (HMA), Fort Sage HMA, and Twin Peaks-Coppersmith-Buckhorn-Buffalo Hills complex of HMAs (Figure 1). Surveys were conducted using survey methods recommended by BLM policy (BLM 2010) and a recent National Academy of Sciences review (NRC 2013). I analyzed these data to estimate sighting probabilities for horses and burros, which I then used to correct the raw counts for systematic biases (undercounts) that are known to occur in aerial surveys, and to provide confidence intervals (which are measures of uncertainty) associated with the estimated population sizes.

Population Results

The estimated total horse or burro populations (Table 1) within or associated with the 6 HMAs that were the focus of the surveys were relatively large, resulting in a sample size of 296 horse groups (Table 2, Figure 1) and 79 burro groups (there was some overlap due to 14 mixed groups containing both horses and burros). Only 241 of those horse groups and 74 of the burro groups had data recorded in a way so that they were suitable to be used in computing statistical estimates of sighting probability. Nevertheless, all observations made during aerial surveys were used to inform the total estimates of population size. Observers recorded 34 mules in the Twin Peaks HMA. All species, including mules, observed in mixed groups were counted toward the group size covariate to predict sighting probability for that group, but each species was treated independently for estimation of population size. I did not analyze mule abundance statistically and I ignored groups only containing mules in the analysis. Therefore, I can only conclude that there were at least 34 mules in the surveyed areas. Confidence intervals and coefficients of variation for the total horse and burro abundance estimates are within acceptable levels of precision for management purposes (Table 1) and are even high enough to make useful inferences about populations in individual units (HMAs) and sub units (ranges identified by the BLM Eagle Lake Field Office WHB specialist).

I estimate the mean size of detected horse groups, after correcting for missed groups, to be 19.5 horses/group across surveyed area, with a median of 5 horses/group. For burros, the mean and median number of burros per group were 5.3 and 4, respectively. I note that the detected groups may have been composed of more than one social band. I estimate an average composition of 14.7 foal horses per 100 adults and 7.0 foal burros per 100 adults at the time of these surveys, but these vary substantially among areas (Table 1). Given the springtime dates of the surveys, these values are very unlikely to represent all foal horses or burros born in 2015.

Sighting Probability Results

For this analysis, I did not pool the current data with the double-observer data from any other surveys. The sample size of observations (241 usable horse groups and 74 usable burro groups) was more than sufficient to parameterize sighting probability functions, although less than desirable for burros, given the excessive number of different observers used in these surveys (see discussion).

The front observers saw 80.5% of the horse groups (92.7% of the horses) seen by any observer, whereas the back seat observers saw 84.6% of all horse groups (85.5% of horses) seen (Table 2A). The front observers saw 77.2% of the burro groups (84.7% of the burros) seen by any observer, whereas the back seat observers saw 77.2% of all burro groups (78.2% of burros) seen

(Table 2B). These results demonstrate that simple raw counts do not fully reflect true population size, without statistical corrections for missed groups made possible by the double observer method and reported here.

Informed by preliminary analyses, past analyses for this survey area, and *a priori* reasoning, the baseline models used in this analysis for both horses and burros contained estimated parameters for the following combinations of observer and animal position:

1. An intercept.
2. An additive effect for front observer's sighting probability for groups located on both sides of the flight path and available to both front observers.
3. An additive effect for the back seat observers for a group passing directly below the aircraft (thus, not available to them).

Horses–Preliminary analysis of the horse data revealed overwhelming support (>98% AIC_c model weight) for including several additional parameters in all models:

1. Individual intercepts for each unique observer, rather than a single common intercept for all observers;
2. An effect for the front observers when a group is on the same side of the aircraft as the pilot;
3. An effect of distance of observers from the group; and
4. An effect of group size.

I considered 8 alternative models including the baseline model (with only the effects listed previously). In these alternatives, I considered all possible combinations of the following 3 additional covariates believed *a priori* to be likely predictors of sighting probability: (1) rugged terrain, (2) tree vegetation cover type, and (3) vegetation cover percent. I did not consider several other potential covariates due preliminary analyses indicating minimal support (<30% of AIC_c model weight) for them: horse activity, broken vegetation cover type, and an incremental average effect (across observers) for observations made from the back seat relative to that same observer's performance in the front seat. Of all these additional covariates tested, none were strongly supported. Support was only moderate (52.8% of AICc model weight) for the effect of rugged terrain, followed by weak support for vegetation cover percent (34.7%), and tree cover type (30.3%).

Sighting probability for front seat observers was higher for groups that were visible on both sides of the aircraft, but lower for groups on the pilot's side. Sighting probability was higher for all observers for groups that were larger, in less vegetation cover, and closer–all of which are typical and expected results. Unexpectedly, sighting probability was found to be higher in rugged terrain than in smooth terrain, although the difference was relatively small. This result might be partially explained by the pattern of closer recorded distances associated with groups seen in rugged topography; the modal distance for horse groups in 'rugged' topography was less than ¼ mile, while the modal distance for horse groups seen in 'smooth' topography was 0.25-0.5 miles. In other words, there may be an interaction between distance and topography causing the effect of distance to be greater in rugged terrain. Sighting probability varied considerably among the 6 individual observers ranging from 73.2% to 90.9%, with all other covariates set at the baseline values (Table 3). The lowest combined sighting probabilities were for small groups (1-5 horses) located on the pilot's side at >0.5 miles.

The estimated sighting probabilities for the combined front and back observers ranged across horse groups from 55.7%-100%. Comparing the numbers of actual horses seen to the estimated population sizes computed from the estimated sighting probabilities, I estimate that <2% of the horses in each HMA were never seen by any of the observers, except in Coppersmith where 5.5% were missed (Table 1). Lower sighting probabilities result in higher uncertainty (wider confidence intervals).

Burros–I considered 16 alternative models including the baseline model with only the 3 parameters common to all models listed above. In these alternatives, I considered all possible combinations of 4 additional covariates believed *a priori* to be likely predictors of sighting probability: (1) an effect for the front observers when a group is on the same side of the aircraft as the pilot, (2) group size, (3) broken terrain type, and (4) observer location in the back seat. There was insufficient data or variation in values to reliably estimate effects of individual observers and tree cover type. Effects of burro movement, rugged terrain, vegetation cover percent, and distance were determined to have essentially no support during preliminary analyses of the data and were dropped from further consideration.

Of the 4 covariates tested, support was strongest for group size (72.0% of AIC_c model weight), followed by observer position (57.6%). Weak support was found for the effect of broken vegetation type (31.1%) and groups on the pilot's side (29.8%).

Average burro sighting probability was slightly higher for back-seat observers. Sighting probability was also higher for groups that were visible on both sides of the aircraft, larger, and not in broken vegetation, all as expected. Groups on the pilot's side were slightly less likely to be seen by the front observers, which is also typical (Table 3).

The estimated sighting probabilities for the combined observers ranged across burro groups from 62.6-100%. Comparing actual burros seen to the estimated population size computed from the estimated sighting probabilities, I estimate that 8.1% of the burros in these surveys were never seen by any of the observers (Table 1). Even for identical covariates values, estimated sighting probabilities for burros were inherently lower than for horses, which is typical. Furthermore, although groups containing burros were as large as 32 animals, 76% of burros were in groups of <10 animals, so predominance of small group sizes was an important contributing factor in further reducing burro sighting probabilities, relative to horses.

Assumptions and Caveats

The results obtained from these surveys are estimates of the numbers of horses and burros present in the areas surveyed at the time of the survey and should not be used to make inferences beyond this context (Figure 1). The reliability of results from any population survey that is based on the simultaneous double-observer method rests on several important assumptions.

First, I must presume that pre-flight planning by the district specialist led to the surveyed areas including as much as possible of the areas used by each population of horses using the surveyed HMAs. It is important to note that the survey area included areas outside of any HMA. Although some fences, highways, mountain ranges, and dry lake beds provide deterrents to animal movement that help to contain them within the areas surveyed, these barriers are not continuous, unbroken or impenetrable. Consequently, the numbers of animals found within the survey areas at another time could differ substantially. It is possible that temporary emigration from the surveyed areas may have contributed to some animals of a given population not being present in the surveyed areas. Also, the estimated distribution of animals between BLM lands in the larger Twin Peaks – Coppersmith – Buckhorn – Buffalo Hills complex should only be considered specific to the times of this survey; that spatial distribution almost certainly varies throughout the year.

Second, the accuracy of these estimates assumes that all groups of animals are flown over once during a survey period, and thus have exactly one chance to be counted by the front and back seat observers, or that groups flown over more than once are identified and considered only once in the analysis. Groups counted more than once would constitute 'double counting,' which would lead to estimates that are biased higher than the true number of groups present. Additionally, groups that were never available to be seen (for example, due to temporary emigration from the study area or due to moving, undetected, from an unsurveyed area to one that was already surveyed) can lead to estimates that are negatively biased, compared to the true population size. Although attempts were made to minimize the potential for animal movement among survey days by making use of fences, roads, and topographic barriers, inter-day animal movements during a multi-day survey could potentially bias results if those movements result in unintentional double counting or unavailability of groups. The identification of 'marker' horses (horses with unusual coloration) in each group, variation in group sizes, and the use of photography in some cases, all helped to reduce the risk of double counting during aerial surveys. The results presented here are based on a survey design and methods that assume that any unobserved movements were random, so the effects double counting and undercounting would cancel each other out.

Third, this method assumes that all animal groups with identical sighting covariate values have equal sighting probability. If there is additional variability in sighting probability not accounted for in the sighting models, such heterogeneity could lead to a negative bias (underestimate) of the population. However, this problem is of minimal concern given the high overall sighting probabilities for these populations.

A fourth assumption is that the number of animals in each group is counted accurately. In very large groups it may be common to miss a few animals unless photographs are taken and scrutinized after the flight. Relying on raw counts made from the air could lead to biased low estimates of population size. Group sizes ranged from 1 to 78 animals for groups containing horses and 1 to 32 animals for groups containing burros in this survey, with 73 (23.1%) horse groups and 19 (24.1%) burro groups containing ≥10 animals, so undercounting was a potential risk. Observers circled over large groups to get as accurate a count as possible and used photography to confirm aerial counts of some groups.

Given these potential sources of bias, it is more likely that the estimates are somewhat lower, rather than higher, than the true population. However, given the high sighting probabilities and precision estimated for these surveys, the population estimates I present here provide a sound and reliable basis for management decisions.

Recommendations for Future Surveys

Protocols used on this survey adhered closely to those prescribed, and represent continued improvement in survey execution for these surveys in this third survey using the current methods (prior surveys were in 2012 and 2013). Specifically: observers were all sufficiently capable; a large area was surveyed together to obtain a large sample size of observations; the pilot accurately followed the predefined transects, which were adequately spaced; data was collected and recorded correctly and accurately (with one possible exception noted in #3, below); and photography was used to confirm counts of large groups. With only a few exceptions mentioned below, these methods should be continued. Several observations about the data may offer opportunities to improve future surveys.

1. This survey was conducted with 6 observers, 5 of whom took turns in the front seat and 4 in the back seat (3 took turns in both positions over the course of the survey). The dataset was large enough to estimate individual sighting probabilities for each of these observers with respect to horses; however, the sample size for burros was not large enough to determine individual sighting probabilities for each observer with respect to burros. More reliable estimates would be obtained by substantially limiting the number of observers, especially the number in the front seat position. Ideally, only 1 observer should be assigned to the front seat for the entire duration of the survey and as few as possible (2 is optimal) to the back seat. Back seat observers must be rotated between the left and right seats, but it is not desirable to rotate observers between front and back.
2. The pilot followed predetermined transect lines that were loaded into the pilot's GPS unit during most of the fights. Transects were generally spaced about 1 mile apart throughout the entire survey area, with spacing widening to 1.5 miles in a few open areas. Although wider spacing (up to 2.0 miles) would be justified for horses over additional areas with unobstructed visibility, the lower sighting probabilities for burros indicates that current spacing is probably the best compromise for these multi-species surveys.
3. The anomalous finding that horse sighting probabilities were higher in rugged terrain than in smooth terrain are concerning. This may suggest some deviation from protocol in determining which category to assign for given observations or errors in data recording. All observers should be thoroughly briefed on the definition of the covariates to ensure that the data are as accurate as possible. The open terrain in parts of this study area contains scattered boulders that can be difficult to distinguish from animals in some cases; this may necessitate a separate topography category for this and similar survey areas. BLM and USGS should review the definitions and range of options for covariates and consider supplementing them. It is also possible that there is some interaction of the rugged terrain effect with some other covariate such as movement or distance that was not tested in this analysis.

Table 2. Tally of raw counts of (A) horses and horse groups and (B) burros and burro groups by observer (front, back, and both) for combined data from the Northern California areas surveyed in 2015.

(A) Horses

Observer	Groups Seen (Raw Count)	Horses Seen (Raw Count)	Actual Sighting Rate[a] (groups)	Actual Sighting Rate[a] (horses)
Front	248	2,438	83.8%	93.2%
Back	259	2,348	87.5%	89.8%
Both	211	2,170	71.3%	83.0%
Combined	296	2,616		

(B) Burros

Observer	Groups Seen (Raw Count)	Burros Seen (Raw Count)	Actual Sighting Rate[a] (groups)	Actual Sighting Rate[a] (burros)
Front	61	366	77.2%	84.7%
Back	61	338	77.2%	78.2%
Both	43	272	54.4%	63.0%
Combined	79	432		

[a] Percentage of all groups/animals seen that were seen by each observer.

Table 3. Illustration of the effect of observers and sighting condition covariates on estimated sighting probability of horse groups (A) and burro groups (B) for both front and rear observers. Baseline case (**bold**) for horses presents the predicted sighting probability of a group of 5 horses (the median group size) that are not on the pilot's side of the aircraft, the centerline, or both sides, located in 0% vegetation cover, smooth terrain, between 0.25-0.5 miles from the flight path (the most common distance), and for the average front and back seat observers. The baseline case for burros is for a group of 4 burros (the median group size); not on the pilot's side of the aircraft, the centerline, or both sides; in smooth terrain; 0% vegetation cover; and for the average front and back seat observers. Other example cases vary a covariate or observer, one effect at a time, as indicated in the left-most column, to illustrate the relative magnitude of each effect. Sighting probabilities for each row should be compared to the baseline (first row) to see the effect of the change in each observer or condition. Baseline values are shown in bold wherever they occur. Sighting probabilities are weighted averages across all models considered (8 models of horse sightability and 16 models of burro sightability; Burnham and Anderson 2002).

(A) Horses

	Sighting Probability, Front Observer	**Sighting Probability, Back Observer**
Baseline	**83.7%**	**85.2%**
Effect of group on centerline	**83.7%**	0.0%
Effect of group on both sides	100.0%	**85.2%**
Effect of group on pilot's side	61.8%[a]	**85.2%**
Effect of group size (N = 1)	78.3%	80.3%
Effect of rugged terrain	89.1%	90.2%
Effect of tree cover type	82.7%	84.3%
Effect of vegetation (80%)	80.0%	81.8%
Effect of distance (x = 0.125)	91.4%	92.3%
Effect of observer DS	81.2%	n/a
Effect of observer RS	83.5%	83.5%
Effect of observer TW	73.2%	73.2%
Effect of observer SS	88.9%	88.9%
Effect of observer GS	88.2%	n/a
Effect of observer PF	n/a	90.9%

(B) Burros

	Sighting Probability, Front Observer	Sighting Probability, Back Observer
Baseline	**61.5%**	**67.5%**
Center	**61.5%**	0.0%
Both	100.0%	**67.5%**
Effect of Pilot's Side	58.0%[a]	**67.5%**
Effect of group size (N=1)	56.7%	63.0%
Effect of broken vegetation type	50.6%	57.2%

[a] Sighting probability for the front observers acting as a team when the animal group was on the pilot's side of the flight path, regardless of which of the front observers saw it first.

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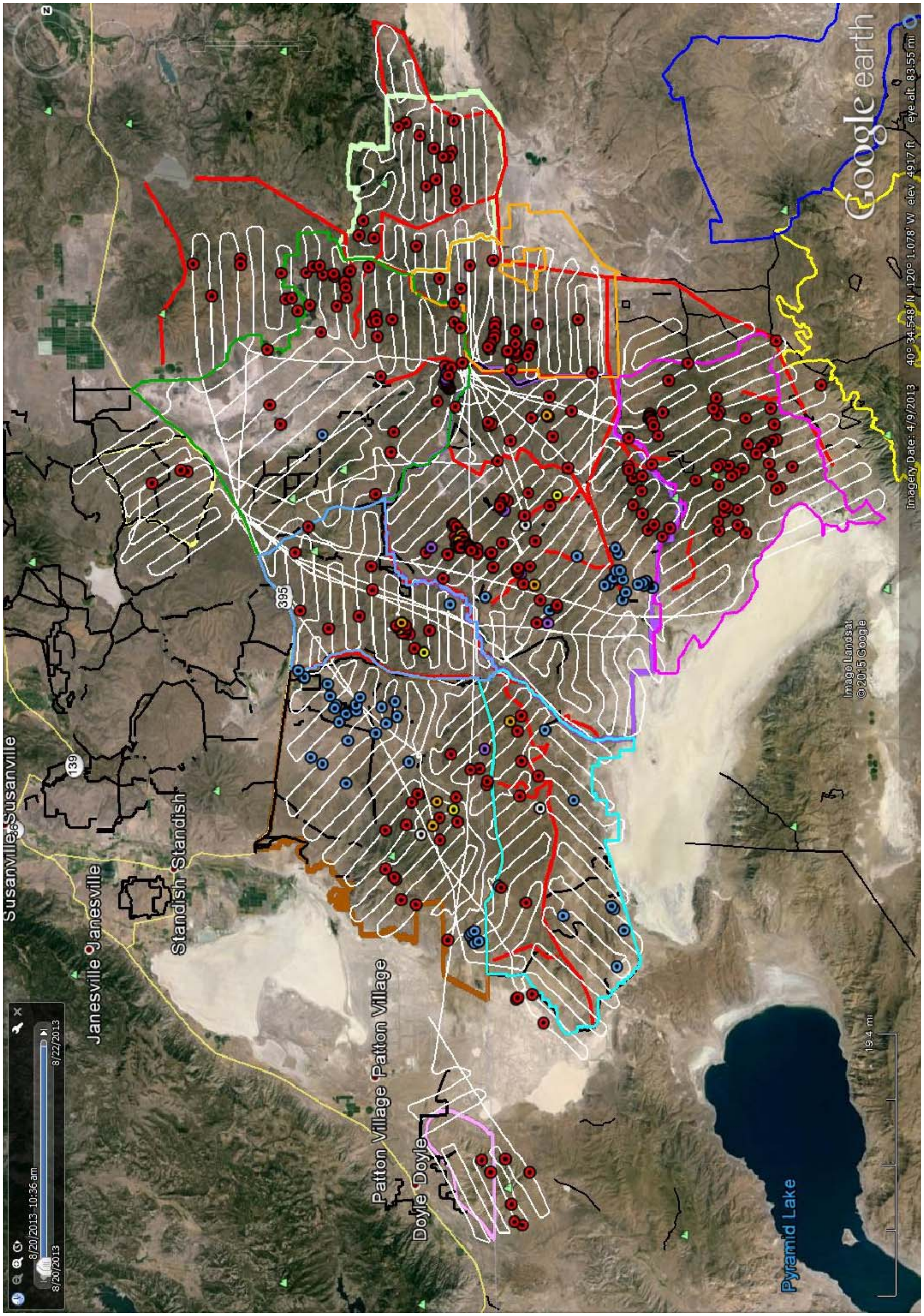
Figure 1. Map of survey tracks flown (white lines), fences (black lines), and locations of horse groups (red circles), burro groups (blue circles), mules (yellow circles), mixed horse and burro groups (purple circles), mixed horse and mule groups (orange circles), and mixed horse, burro and mule groups (white circles). Surveyed HMA boundaries: New Ravendale HMA (light yellow, far west), Twin Peaks HMA, Observation North home range (dark green, northwest), Twin Peaks HMA, North home range (purple, central), Twin Peaks HMA, Observation South home range (light blue, west), Twin Peaks HMA, Dry Valley Rim home range (turquoise, south east), Twin Peaks HMA, Skedaddle home range (brown, south west), Coppersmith HMA (light green, far north), Buckhorn HMA (orange, north), Buffalo Hills HMA (magenta, east), Fort Sage HMA (pink, far south). Nearby HMAs shown for reference: Granit Range HMA and Fox Hog HMA.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