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EXECUTIVE SUMMARY

The "rinnell esurvey" of Yosemite ational ark was extended during the field season for two specific subprojects at the request of ark biologists we completed a small non volant mammal survey of upper errick eadow below uckeye ass and west of eeler ake in the northeastern corner of the ark as part of a targeted goal of generating base line data on species diversity in parts of the ark that had never been surveyed Ten species of small mammals were trapped including the northern most records in the ark for the yell shrew dditionally we also trapped the eather Sorex lyelli and Ipine chipmunk Tamias alpinus vole *Phenacomys intermedius* a species targeted at the beginning of the resurvey project in as of special concern by ark biologists verall this fauna is rather typical of the community that occurs along the crest of the Sierra evada in the ark from t yell north to Targeted resurveys for the presence of Ipine chipmunks and merican pika this locality chotona princeps two species for which our revisits to the original "rinnell sites" throughout the ark had suggested upward retraction of their lower elevational limits The focus of these targeted resurveys were those localities where only limited work was done during the including a number of specific talus slopes where pika had been rinnell era" observed These targeted resurveys confirm that the Ipine chipmunk now cannot be found ft elevation where it had originally been found down to below about ft len ulin and was common around Tuolumne eadows or the pika while this species ft is now apparently extirpated at the lowest elevational sites where it was recorded during the rinnell surveys Ien ulin down to Waterwheel alls elevations of ft the to species is still present on the talus slopes east of Tenaya ake at an elevation of ft The elevational retraction of this species is thus not as substantial as that of the lpine chipmunk We will target additional talus slopes and granite outcrops in the elevational range between

and ft in the coming year to get a better idea of the overall distribution of this species in the ark

INTRODUCTION

We completed the resurvey of birds mammals and herptiles amphibians and reptiles at the original set of "rinnell sites" along their Yosemite transect in This past year we focused attention on three research areas that either stem from the original rinnell survey and our resurvey results or extend those surveys to new parts of Yosemite ational ark ach of these involves only species of small mammals

Two species of small mammals that have apparently experienced range retraction at their lower elevational limits over the past near century are the alpine chipmunk *Tamias alpinus* and pika *Ochotona princeps* The distributions and status of both species has thus become a focus of interest by us and ark biologists Survey methods and results for both species in are detailed in art and art of this report respectively ne of the goals of the increased alpine

chipmunk surveys was to obtain adequate modern tissue biopsy samples for molecular genetic comparison to that has been extracted from museum specimens collected during the original rinnell surveys. We are interested in determining to what degree there has been a loss of genetic diversity coordinate with the species' range retraction

We also completed the small mammal survey in upper errick eadow in the northeastern corner of the ark as detailed in art t the request of the S we identified three sites in the northern tier of the ark for mammal surveys all areas that had never been visited nor surveyed in the past These sites included upper Virginia anyon below Virginia orothy akes and race eadows and errick eadow ur original goal was to visit ass all three areas in summer but delay in the melting of the heavy snowpack that year restricted access such that we rescheduled the errick eadow survey until summer Specimens collected under the terms of our S permit have been deposited in the useum of Vertebrate Zoology all data are available from the archival database via the VZ website http mvz berkeley edu under accession number

Pending approval by the NPS, we intend to revisit Yosemite National Park in 2007 to extend our targeted surveys for both alpine chipmunks and pikas and to resample key high elevation sites. Also, in collaboration with biologists with the USGS-Yosemite Field Office, we will begin targeted small mammal surveys in the more isolated high elevation ranges within the Park that have either not been surveyed before or not visited in recent decades. These areas include the Clark Range, Cathedral Range, Kuna Crest, Mt. Hoffmann, and Young Lakes-Mt. Conness. Species of special concern in each of these five areas are alpine chipmunks and pikas, but general small mammal surveys will be undertaken in each area as well.

Part I: Alpine Chipmunk Survey

Three general localities in the park were surveyed for alpine chipmunks *Tamias alpinus* between uly and ugust ue to heavy snowfall last year Tioga ass oad did not open as early as expected and we were unable to get to all four sampling areas that were proposed for the summer We did however manage to sample for T. alpinus at embert ome eadows ocality and ingley ome near Tuolumne Upper yell anyon ocality and Il three of these localities were sampled by the Ten akes ocality areas igure rinnell and his team and a series of T. alpinus were collected at each of these sites in n our contemporary resurvey of the park the Tuolumne eadows area and the Upper yell area and Upper yell was also sampled in owever Ten akes had not were sampled in been visited by the resurvey team before the summer of in the Tuolumne n eadows area the resurvey team sampled on uniper idge where T. alpinus were found in the The target species was not caught or seen on uniper idge in nly one T. alpinus The lack of alpine chipmunks in these areas was caught at Upper yell anyon in suggested that perhaps there has been a decline in alpine chipmunk populations in Yosemite ational ark since the rinnell era. The objectives of our sampling for the summer of ncrease our existing contemporary sample size of n from Upper yell anyon were to To resurvey the Tuolumne eadows area again to gain confidence in the apparent absence of T. *alpinus* at a site they were once abundant and To resurvey the Ten akes area an area that had not yet been visited by the resurvey team and one at which rinnell and his team had found alpine chipmunks

Methodology

t each locality at least one trap line of Sherman traps was set for a minimum of nights Traps were placed in alpine chipmunk habitat such as at the edges of meadows in open granite areas with sparse stunted vegetation and at edges of boulder and talus fields Traps were baited with oats spaced about mapart and checked twice a day II chipmunk species caught were weighed and a small piece mm x mm of ear tissue was taken for analyses fter sampling the animals were released Upon capture species identification i e alpine chipmunk *T. alpinus* or the lodgepole chipmunk *T. speciosus*, the two species found in these areas was recorded II field identifications have now been confirmed with mitochondrial cytochrome b sequences

Locality 1: Vicinity of Tuolumne Meadows; Lembert Dome, Delaney Meadow and Dingley Dome, Yosemite National Park (17 July – 23 July)

ustin rashares ole urton and mily ubidge worked in the vicinity of Tuolumne eadows between elevations of feet from uly ulv We set up three trap lines in the general area The first trap line was set up on the northwestern side of embert ome The trap line began in a small talus slope and continued through the saddle that consisted of an open lodgepole pine stand with large boulders and a lot of dead logs The top of the dome was east of the trap line The end of the line went through an open granite slab with few downed logs boulders and lodgepole pines total of traps were set here for four nights and then another for the last two nights The total number of trap nights was at embert ome Table

Figure 2. Photos of habitat at Lembert Dome trapline

fter setting up the trap line at embert ome we continued along the og ake trail and then went north up the Young ake trail towards ingley ome n harles amp's field notes from they found *T. alpinus* three miles north of Soda Springs near the headwaters of ingley reek Ithough we didn't make it to this exact location we did trap in the same vicinity n the way to ingley ome we set traps at the north edge of elaney eadow about m east of the trail igure This trap line followed the meadow edge through moist grass with lodgepole pine and ended in a drier area with large rocky outcrops The trap line was about m from elaney reek

Figure 3. The first photo in the sequence is Delaney Meadow looking east and the last two photos show the trap-line habitat at the meadow edge.

We continued on the Young ake trail until we could see ingley dome and then headed towards it north off the trail We stopped when the forest opened up into to what looked like good chipmunk habitat We set up Sherman traps starting out in a mainly lodgepole pine forest with some whitebark pine and junipers and then continued through a more open area with large boulders and rock slabs under the face of the dome igure The traps were left for nights and full days ecause we did not catch any chipmunks at this site and because it took an hour to get to the trap line from our camp we decided to pull the traps at the end of the third day

Figure 4. Habitat of the Dingley Dome trap-line.

Specific Trap- line	Latitude	Longitude	Elevation (ft)	Trap nights (#traps*#nights)	Habitat
embert ome					odgepolepine graniteslab boulders.dead.logs
elaney eadow					eadow lodgepolepine stream edge rocky outcrops
ingley ome					odgepolepine whitebarkpine junipertalus boulders

 Table 1. Summary trap line information for locality including location trap effort and habitat type

Results for Locality 1

o alpine chipmunks were captured or seen at any of the three specific trapping sites within the general locality of Tuolumne eadows area Table The lodgepole chipmunk *Tamias speciosus* was abundant at the embert ome site as was the golden mantled ground squirrel *Spermophilus lateralis* and the deer mouse *Peromyscus maniculatus* o chipmunk species were caught at either of the other trapping sites. We did however see at least one *Tamias speciosus* at the ingley ome site We caught deer mice at both the elaney eadow site and at ingley ome and also caught two *Sorex monticolus* at ingley ome

 Table 2. Summary of species sampled or captured and not sampled at ocality

Specific Trap-line		T. alpinus	T. speciosus	Additional species
				captured
embert	ome			Peromyscus maniculatus,
				Spermophilus lateralis
ehlaney	eadow			P. maniculatus
ingley	ome			P. maniculatus, Sorex
				monticolus

Locality 2: Upper Lyell Canyon, Yosemite National Park (10 August – 18 August)

eslie how mily ubidge im atton and arol atton revisited oore eggy anyon for a week in ugust specifically to obtain larger samples of alpine Upper vell chipmunks for mily's genetic analyses ive traplines were established at elevations between Three of these traplines and had been trapped in and feet iq and single alpine chipmunk had previously been trapped on line in and on line trapline had been surveyed in both years but had yielded no alpine chipmunks only in the lodgepole pine chipmunk *Tamias speciosus* The paucity of alpine chipmunks in

is in contrast to the observations of harles amp and other members of the "rinnell" team who had visited this area in and collected individuals The habitat of traplines and is dominated by whitebark pine with some lodgepole pine and mountain hemlock and followed along a meadow edge to the west and willow on the banks of the yell ork to the east igure Trapline is in the bowl below t yell and above tree line among granite slab exposures Trapline or the "ridge" trap line is above tree line and consisted mainly of talus and boulder field interspersed with stunted whitebark pine shrubs and grasses igure

Fig. 6. Position of five traplines in upper Lyell Canyon, August 2006. Traplines 2 and 4 had been trapped in both 2003 and 2005; trapline 1 had been trapped in 2005.

Figure 7. Upper Lyell Canyon lower trap-line habitat

Figure 8. Upper Lyell Canyon ridge trap-line habitat

ighty Sherman traps were set up on the ridge line and left for four consecutive nights y the third morning we were recapturing the some of the same individuals as identified by the small snip of tissue missing from their ears The number of trap nights for ridge line was n the fifth day we moved traps to the lower site and trapped there for two nights therefore the number of trap nights at the lower site was Table

Specific	Latitude	Longitude	Elevation	Trap	Habitat
Trapline			(ft)	nights	
Trapline					Talus boulder field
					white bark pine shrubs
					grasses
Trapline					Talus boulder field
					white bark pine grasses
					willow riparian
Trapline					Talus boulder field
					stunted white bark pine
					grasses shrubs
Trapline					Whitebark pine
					meadow edge stream
					edge rocky outcrops
Trapline					short grass granite slabs
					· · · · · ·

 Table 3. Trap line information at ocality including location trap effort and habitat

Sherman live traps traps over nights and pitfall cups cups over nights

Results Locality 2

Ipine chipmunks appeared to be abundant at Upper yell anyon in compared to total of were sampled for analysis then released n additional and were collected from the ridge trap line and prepared for museum specimens bringing the total for this year T. speciosus was captured trapline but none sample size for analysisto were seen or captured on traplines or both of which are above tree line Two common species captured included deer mice *Peromyscus maniculatus* which was exceedingly abundant in all habitats long tailed voles *Microtus longicaudus* dditional records of the rare nyo shrew Sorex tenellus first captured here last year and the first record of this species in the ark and heather vole also captured here in both and ika Ochotona princeps were both captured and observed as were golden mantled ground squirrels Spermophilus

lateralis elding ground squirrels *Spermophilus beldingi* and yellow bellied marmots *Marmota flaviventris* were common

Specific Trap-line	T. alpinus	T. speciosus	Additional species captured
trapline			Peromyscus maniculatus,
[Sherman traps			Microtus longicaudus
only]			
trapline			Sorex monticolus, Sorex palustris,
[Sherman traps			Sorex tenellus, Spermophilus
pitfall cups]			lateralis, Peromyscus
			maniculatus, Phenacomys
			intermedius, Ochotona princeps
trapline			Sorex monticolus, Peromyscus
[Sherman traps]			maniculatus
trapline			Peromyscus maniculatus
[Sherman traps]			
trapline			Peromyscus maniculatus
[Sherman traps]			

 Table 4. Summary of species sampled or captured and not sampled at Locality 2

trapline consisted of Sherman live traps placed in a boulder field in open whitebark pine and pitfall cup lines in the willow thickets lining both sides of yell ork. If but one shrew came from the pitfall cups of the presence of *S. tenellus* which is the second record for the ark. This species was trapped here in

Locality 3: Ten Lakes, Yosemite National Park (21 August – 26 August)

isa Sargent and mily ubidge worked at Ten akes between elevations of – feet for five days at the end of ugust Walter Taylor and Tracey Storer sampled the Ten akes area in ctober They collected seven alpine chipmunks at this site Similar to the Tuolumne eadows area Ten akes is at a relatively lower elevation than we currently are detecting alpine chipmunks so it was important to determine if these chipmunks were still present at this site

We sampled two sites within Ten akes one on the talus slope south of the trail as you come down off the pass igure and the other up on the pass through the meadow and into the sandy and rocky outcrop habitat at the meadow edge south of the trail igure n the talus line there was sparse vegetation clustered at the bases of rocks with the occasional stunted mountain hemlock or whitebark pine We set traps for four nights on the talus line trap nights Table

Figure 9. Habitat of Ten Lakes talus trap-line. The first photo is looking north towards the trail and the second is facing south

The Ten akes ass line started north of the trail in an open mountain hemlock and whitebark pine stand with large rocky outcrops and boulders t then continued across the trail through the meadow which consisted of sagebrush willow around the creek and corn lilies The end of the trap line went back into the open forest on the southeast side of the meadow where the soil was sandy and there were a lot of big boulders and rock slabs in and amongst the trees total of traps were set on the pass line for the first two nights and then we added more through the meadow for the last

chipmunk species were caught on the higher elevation "pass" line and the majority of them were caught either in or within m of the meadow oth alpine and lodgepole chipmunks were seen foraging in meadow o chipmunks were seen or captured on the lower talus line We did however catch a number of deer mice one shrew *Sorex monticolus* and one long tailed vole *Microtus longicaudus* eer mice were also very abundant on the pass line and we caught and released one juvenile elding's ground squirrel *Spermophilus beldingi* in a trap near the edge of the meadow This species was seen frequently while walking through the meadow

t is important to note that this site now represents the lowest elevation feet that we have detected alpine chipmunks from the contemporary resurveys rinnell et al were detecting them as low as feet n order to ascertain an elevational shift we must visit all low elevation sites with the appropriate habitat and sample for the presence of alpine chipmunks

Specific Trap-line	T. alpinus	T. speciosus	Additional species captured
Ten akes			Peromyscus maniculatus, Sorex monticolus, Microtus longicaudus
Ten akes ass			P. maniculatus, Spermophilus beldingi

Table 6. Summary of species sampled or captured and not sampled at Locality 3.

<u>Summary</u>

We collected a total of ear tissues from alpine chipmunks from our sampling efforts in the summer of ost of these came from Upper yell a locality where T. alpinus was abundant in the past but where the resurvey team had difficulty capturing this species in The relative abundance of this species this year is most likely due to natural variation and in population size The presence of T. alpinus at Ten akes is encouraging as it is the lowest elevation site that the contemporary resurvey team has found alpine chipmunks. The high number of individuals sampled over the summer brings a very important and needed influx of contemporary samples to enable comparison of genetic variation between historical and rior to this summer we only had contemporary populations alpine chipmunk tissues from the park available for modern genetic analyses now we have We can compare these data to

extracted from the individuals collected from the park in the rinnell era

Future Sampling

n the summer of we will continue our sampling of alpine chipmunks for our contemporary analysis of population genetic structure of this species within the park and across their range in the Sierra evada We propose to revisit both t offman and len ulin both "rinnell" sites where alpine chipmunks were found in the past but have not yet been detected in our present resurvey. We would also like to survey the aylor akes areas n uly we observed alpine chipmunks at aylor akes along the edge of the talus slope on the southwest side of the lake about m west of the trail. It hough not a rinnell site we propose to sample

the area because it represents a population relatively adjacent to that historically present in Tuolumne eadows ther areas we hope to visit are both the athedral and lar

	talus boulder field		
Ten akes	Two talus slopes a	ua	ΥY
	Talus field south of	uy	
	trail as you descend		
	towards the lakes		
	b Talus slope south		
	of oblong shaped		
	lake		
rant akes	ock slide talus east	ua	ΥY
	of first lake	5	
len ulin	Three talus slopes	ct	ΥY
	a overgrown		
	boulder field north		
	of trail b small		
	talus slope right		
	next to the trail near		
	al alls c Talus		
	on southside of river		
	near footbridge		
Tenaya ake	arge rock	ct	ΥY
	slide talus slope		
	southeast side of		
	lake near stream		
	inlet		

ur surveys consisted of timed searches of talus slopes rockslides and boulder fields The time was noted at the beginning and end of every survey We searched for pika scat piles hay piles and urine stains between rocks and under overhangs and in crevices n every case where pika sign was detected ie pika sighting call scat or haypile or any combination of these we detected this sign within the first minutes of our search n sites where no pika sign was detected our searches lasted between and minutes S waypoints were collected at locations where pikas were seen where old haypiles were located and at scat piles When we heard a call we noted the direction that the call was coming from and took a waypoint n addition to notes on pika sign we also recorded general notes about the to mark that point habitat such as average diameter of rock in talus field and the surrounded vegetation. The results of these surveys are shown in igure and Table

Figure 11. Map showing location and results of pika surveys conducted between July and October 2006.

Site Name	Pika or pika sign detected	Other species observed in pika habitat
embert ome	pikas scatpiles old hay	Spermophilus lateralis,
	piles calls	Marmota flaviventris
ingley ome	scat piles	Marmota flaviventris
Soda Springs	pikas calls scatpiles	Marmota flaviventris
aylor akes	pikas scatpiles calls	Marmota flaviventris
Ten akes	pika scatpiles calls	Marmota flaviventris
rant ake	pika old hay piles scat piles	Tamias speciosus near edge of
		rock slide
len ulin	o sign	one observed
Tenaya ake	alls scatpiles old hay piles	one observed

 Table 8. Summary table of results of Pika surveys, YNP 2006

<u>Site Photos (Figures 12 – 15)</u>



Figure 12. Lembert Dome talus slope (9243 ft) where pika, scat and hay piles were found. Photograph of pika on the right was taken the lower elevation Lembert Dome talus slope surveyed (9040 ft).

Figure 13. Scat pile and pika habitat surveyed at Dingley Dome site

Figure 14. Large talus/boulder field north of Soda Springs and Tuolumne Meadows. Pika can been seen in photo on the right between the large slabs of rock. No pikas were trapped in 2005 when Sherman live traps were used to detect the presence of alpine chipmunks.

Figure 15. Scat pile and habitat surveyed at the head of Tenaya Lake. This site represents the lowest elevation (8331ft) that pikas have currently been detected in the modern surveys in Yosemite.

Summary and Future Work

ikas or pika sign in the form of scat old haypile and or calls were detected at out of sites surveyed in n the rinnell era pikas were detected in the talus slopes and rockslides around len ulin at a recorded elevation of about ft We visited this site in and again in and no pikas or pika sign were detected on either of these trips rom the field notes written in several pikas were seen at the Soda Springs talus and the Tenaya talus slopes ur results suggest that pikas still inhabit these same slopes today The Tenaya ake site represents the lowest elevation that the resurvey team has detected pikas in the park ft

ikas are not readily detected using the traditional trapping methods for small mammals The resurvey team has trapped some pikas but to rigorously determine the presence of these animals at sites surveyed in the past systematic survey techniques similar to the ones described here will likely provide more reliable results or example pikas were not detected via trapping but they were detected by surveying the talus in uly on the Soda Springs slope in ur recent results from the resurvey of the park prior to this work suggested that pikas had retracted their range by more than ft in the park but the results from just one site Tenaya n order to accurately assess the ake in this survey have reduced that retraction by ft elevational range of pikas in Y and if it has changed since the rinnell era we need to do a number of things irst mine the rinnell field notes for observational as opposed to specimen data and map these sites across the park Second stratify our sampling effort to ensure that a number of lower middle and high elevation sites are surveyed and third carry out systematic surveys at each of the selected sites

Part III: Small mammal Survey at Kerrick Meadow

im atton arol atton es how and eggy oore conducted small mammal surveys in the upper part of errick eadow from uly to ugust We used commercial stock from the Virginia akes ack Station to carry gear to the campsite This area was to be surveyed but the effort was postponed because of the heavy snowfall that year We in summer established Sherman trap lines in areas ig encompassing all habitat types meadow riparian conifer forest rock slab within approximately a square mile area at the head of the eadow including uckeye ass just west of eeler ake. The entire area had been errick heavily impacted by water runoff presumably from rapid snow melt a short while previous to our visit as dried water runnels were evident down all slopes even those of shallow inclination debris piles surrounded the base of willows along the streams green grass stems were still bent over pointing downhill and lower spots in the open meadow were still inundated t is unclear how the heavy snow pack influenced small mammal abundances Table provides a list of species surveyed with comments on significance otable records include the vell shrew Sorex lyelli and heather vole Phenacomys intermedius both species on the ark's list of special concern at the beginning of our surveys in We have now documented the presence of the yell shrew at four localities within the ark boundary with this record in errick eadow the most northern for the entire species' range The heather vole is a rare animal throughout the entire length of the Sierra evada with only a handful of records known prior to the initiation of our surveys While apparently rare everywhere we have now recorded this species at five localities within the ark all at elevations above ft len ulin Snow lat upper yell anyon Virginia anyon and errick eadow

Fig. 16. Upper Kerrick Meadow with general areas of each trap line marked by black lines. GPS corrdinates for each Trap area (typically taken at midpoint of trapline) are: **Trap area 1**: $38.12290^{\circ}N - 119.47851^{\circ}W$, 9495 ft. **Trap area 2**: $38.12444^{\circ}N - 119.48238^{\circ}W$, 9473 ft. **Trap area 3**: $38.11821^{\circ}N - 119.48570^{\circ}W$, 9470 ft. **Trap area 4**: $38.11973^{\circ}N - 119.48435^{\circ}W$, 9472 ft. **Trap area 5**: $38.12110^{\circ}N - 119.48235^{\circ}W$, 9362 ft. **Trap area 6**: $38.11740^{\circ}N - 119.48120^{\circ}W$, 9355 ft. **Trap area 7**: $38.13027^{\circ}N - 119.47916^{\circ}W$, 9650 ft.

Trap area 2 contained a mixture of both Sherman live traps and 32oz plastic pitfall cups placed specifically for shrews; Trap area 5 contained both pitfall cups and Macabee gopher traps set specifically for pocket gophers; Trap areas 1, 3, 4, and 7 were Sherman live trap lines only; and Trap area 6 had only Macabee gopher traps. In general, population numbers of all species, with the exception of the deer mouse (*Peromyscus maniculatus*) were low, and overall trap success was poor as a result. Species diversity was also less than might be expected for a "typical" high elevation site in Yosemite, with species such as the water shrew (*Sorex palustris*), Belding ground squirrel (*Spermophilus beldingi*), alpine chipmunks (*Tamias alpinus*), bushy-tailed woodrats (*Neotoma cinerea*), and montane voles (*Microtus montanus*) not detected in our trapping effort or otherwise seen directly or by sign. Similarly, we found no fresh evidence of either marmots (*Marmota flaviventris*) or pika (*Ochtona princeps*). Each of these species is expected to be present in the vicinity of Kerrick Meadow, and in the case of two species (*S. beldingi* and *T. alpinus*), specimens were either collected or otherwise seen here in August of 2005 by Adam Leache and colleagues during their herpetological surveys.

Family	Species	Habitat	Commonness	Number of trap areas	Numbers captured
Soricidae	Sorex lyelli ¹	stream side, riparian	uncommon	2	4
	Sorex monticolus ²	stream side, riparian, forest	uncommon	5	7
Sciuridae	Spermophilus lateralis ³	conifer forest	uncommon	4	5
	Tamiasciurus douglasii	conifer forest	uncommon	***	
	Tamias speciosus	conifer forest	common	2	14
Geomyidae	Thomomys monticola	meadows	common	2	6
Muridae	Peromyscus maniculatus	forest, riparian	very common	5	166
	Microtus longicaudus	riparian, meadow	common	3	10
	Phenacomys intermedius ⁴	conifer forest	rare	1	1
Dipodidae	Zapus princeps	riparian	uncommon	2	4

 Table 9: Kerrick Meadow: mammal species present, by habitat. *** denotes observation only.

1 Sorex lyelli caught only along edge of fast moving stream in pitfall cup. This is the northern most record for this species, and extends the range over most of the alpine and subalpine habitats in Yosemite National Park

2 *Sorex monticolus* caught both in riparian zone along stream edge, in both slow and fast moving water, in pitfall cups, and on drier slopes among heather and granite boulders with Sherman live traps.

3 *Spermophilus lateralis*, usually one of the most commonly seen diurnal ground squirrels in Sierran conifer forests, was very rare during our visit in Kerrick Meadow, suggesting that overwinter mortality had been high, possibly due to the heavy, and later, snow pack two years in a row.

4 *Phenacomys intermedius* is one of the species of special interest to the YNP biologist at the beginning of our resurveys—nowhere common, we have found this species at nearly every site we have visited at an elevation above 8000 ft.