

Relocation of Long-term Monitoring Points
Saguaro National Park Expansion Area and the Rocking K Ranch

Final Report

Daniel M. Bell

December 1, 2001

Final Report – Relocation of Long-term Monitoring Points, Saguaro National Park Expansion Area and Vicinity

Daniel M. Bell

INTRODUCTION

Since 1993, Saguaro National Park has worked in partnership with a number of cooperating organizations, including the Rincon Institute, the University of Arizona, Arizona Game and Fish Department, and Harris Environmental Group to inventory the natural and cultural resources of the Park and the adjacent Rocking K Ranch. Part of the 4,500 acre Rocking K Ranch was acquired by the Park in the mid-1990's and is now called the Saguaro Expansion Area. Development of the remaining part of the ranch was initiated in 1999 and is expected to be completed during the coming years.

Monitoring began on the Rocking K and Park Expansion Area in 1993 (Harris and Schwalbe 1995, Harris 1996, Swann in prep.). More recently, studies of individual species, including desert tortoises (Swann et al. 2000), tiger rattlesnakes (Matt Goode, pers. comm.) and elf owls (Robert Steidl, pers. comm.), have been initiated. Access to Rocking K lands for research is provided through a cooperative agreement between the Rincon Institute and the ranch owner.

Although the original studies recorded locations of points using Global Positioning Systems (GPS) technology, the data associated with these points was subsequently lost, and efforts during the past few years to relocate electronic or paper copies of these data

has been unsuccessful (Don Swann, pers. comm.). The purpose of this contract was to relocate these points and map their precise location using GPS technology and Geographic Information System (GIS) software.

The information available for finding the lost points included the following data obtained from Lisa Harris of Harris Environmental Group:

1. Small, very general maps showing point locations in the project reports.
2. A large paper copy of a digital orthoquad (DOQ) image with locations of points indicated. This image included only the Rocking K.
3. Photographs taken from each point in the north, south, east, and west directions. This set of photos was mostly complete for the Rocking K, but only a few photos were available from the Saguaro expansion area.
4. Rebar stakes at each point. Most of the riparian points were placed in the drainage channel and have been lost, but most upland points in the Rocking K are still marked in this manner. The points in the park were apparently never marked with rebar.

METHODS

In this study, I used the maps and DOQ to visit the general location of original points, then used the photographs to look for landmarks that might lead me to the original rebar stakes. The points were occasionally easy to locate, but most of the time extensive searching was required.

When each point was located, I replaced the rebar if it was missing, then took a field GPS reading using a hand-held Garmin etrex unit. I also collected data using a Trimble GPS unit to be brought back to Saguaro National Park for post-processing; the Trimble unit can provide very accurate (<1 m) geographic data.

I also took four photographs from each compass direction. I used 35 mm camera with a 50 mm lens. Where possible, the original photos from 1993-1995 were replicated, but these original photographs were variable in terms of precise compass direction and camera angle. I made an effort put the horizon high up in the photo frame so that less sky and more ground would be visible, and I used a compass to determine the camera angle. I also recorded other notes on data sheets provided by Saguaro National Park, including the condition of the rebar, unusual animal sightings, comments on photographs, etc.

In the Saguaro expansion area, in addition to locating the points, I established new vegetation transects (Anderson 2001). Transect directions were randomly selected by the Park and were approximately 50.5 meters in length so that a 50 m transect could be measured. At the end of each 50 m transect I put in a new rebar. All rebar stakes were capped using standard caps for vegetation transects in the Park labelled "Saguaro –

Transect Start” or “Saguaro – Transect End.” I took both field and Trimble GPS data on both ends of each transect.

RESULTS and SUMMARY

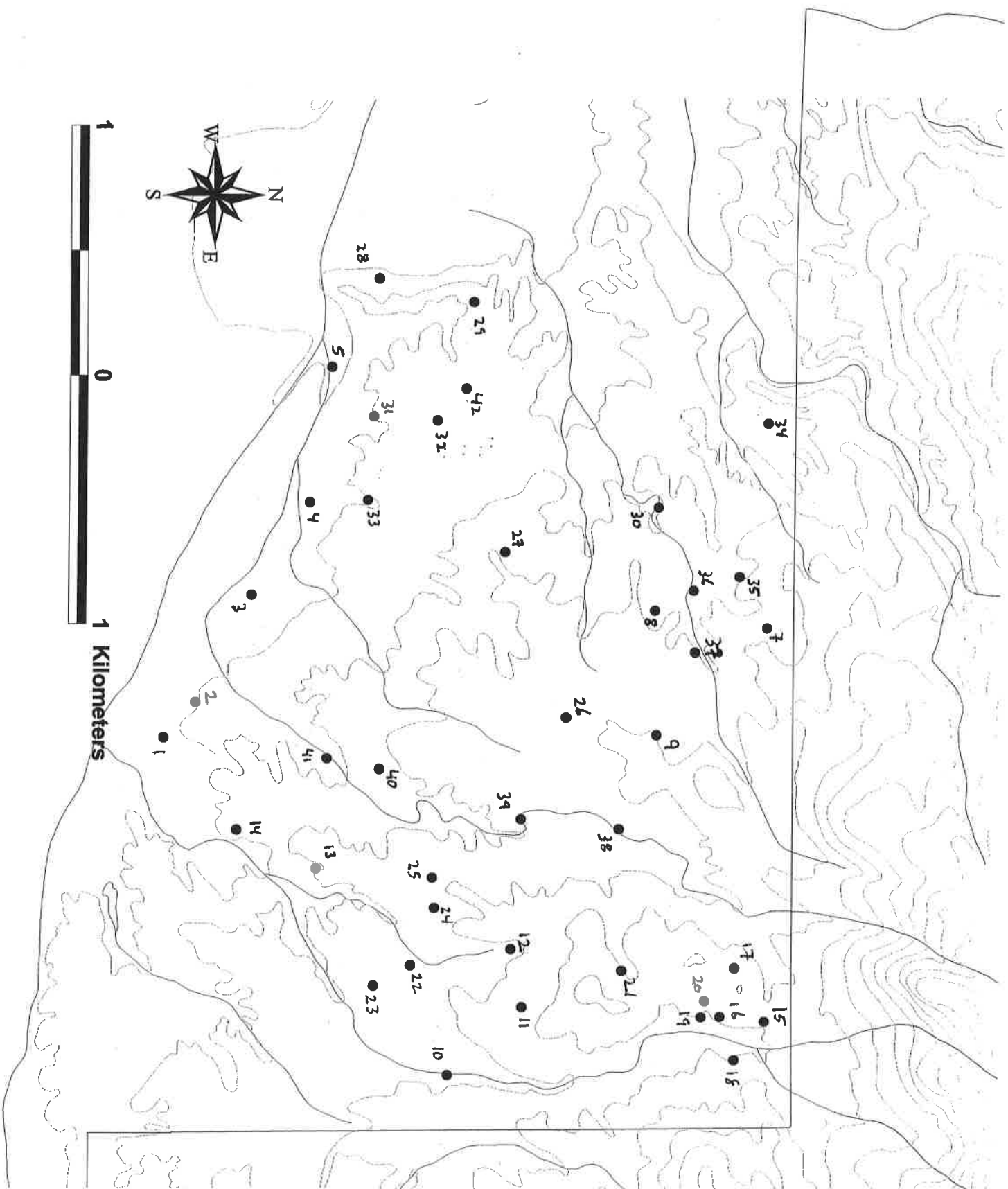
Based on the field GPS data, I mapped the location of each of the points in the Rocking K and Expansion Area. I was able to relocate all of the points in the Rocking K Ranch except for points 13 and 6. Despite an extensive search, point 13 could not be relocated; there were no original photographs, and the DOQ and the report maps provided contradictory locations. Therefore, I created a new point 13 based on where it appeared to be on the DOQ. Point 6 is in the yard of the Rocking K Ranch house, and it was decided that there was no need to disturb the caretakers. Figure 1 is a map of all the points in the Rocking Ranch.

In the Saguaro expansion area, it was extremely difficult to find points because of the lack of photos, lack of a DOQ, and absence of rebar. Despite extensive searching, no rebar stakes were found. Park personnel have not been able to find these points either, and it is clear that they were never marked with rebar. I therefore placed new points, guided by the small maps and by the location of bird surveys done by Powell (1999) and subsequent mammal and herp surveys (Bucci 2001, Swann in prep.). In two cases there were photos that made it possible to locate the original points. Figure 2 is a map of all the points in the Saguaro Expansion Area.

Table 1 is a table that includes all of the field UTMs collected during this project, and attached are copies of all the original data sheets. I have also provided all slides of all points raw data from the Trimble GPS unit to the Park.

LITERATURE CITED

- Anderson, G. 2001. Rocking K Ranch and the Expansion Area: Vegetation surveys
2001. Unpublished report to Saguaro National Park. 6 pp.
- Bucci, M. 2001. Small mammal trapping, Saguaro National Park expansion area and
Rocking K Ranch. Unpublished report to Saguaro National Park. 11 pp.
- Harris, L.K. and C.R. Schwalbe, eds. 1995. Wildlife inventory of the Rincon Valley.
Final report to Arizona Game and Fish Dept., Heritage Project U93007, Phoenix,
Arizona. 168 pp.
- Harris, L.K., ed. 1996. Wildlife inventory of the Saguaro National Park expansion area.
Final report to Saguaro National Park, Tucson, Arizona. 69 pp.
- Powell, B. 1999. Bird surveys at Rocking K Ranch development and Saguaro National
Park East expansion area. Unpublished report to Saguaro National Park. 7 pp.
- Swann, D., C. Schwalbe, D. Prival, and T. Volz. 2000. Effects of urban development on
desert tortoises: summary of 2000 field season. Unpublished report to T&E, Inc.,
Cortaro, Arizona. 14 pp.
- Swann, D.E., in prep. Long-term monitoring of vertebrate diversity on the Rocking K
Ranch and Saguaro National Park expansion areas. Final report to Saguaro
National Park.



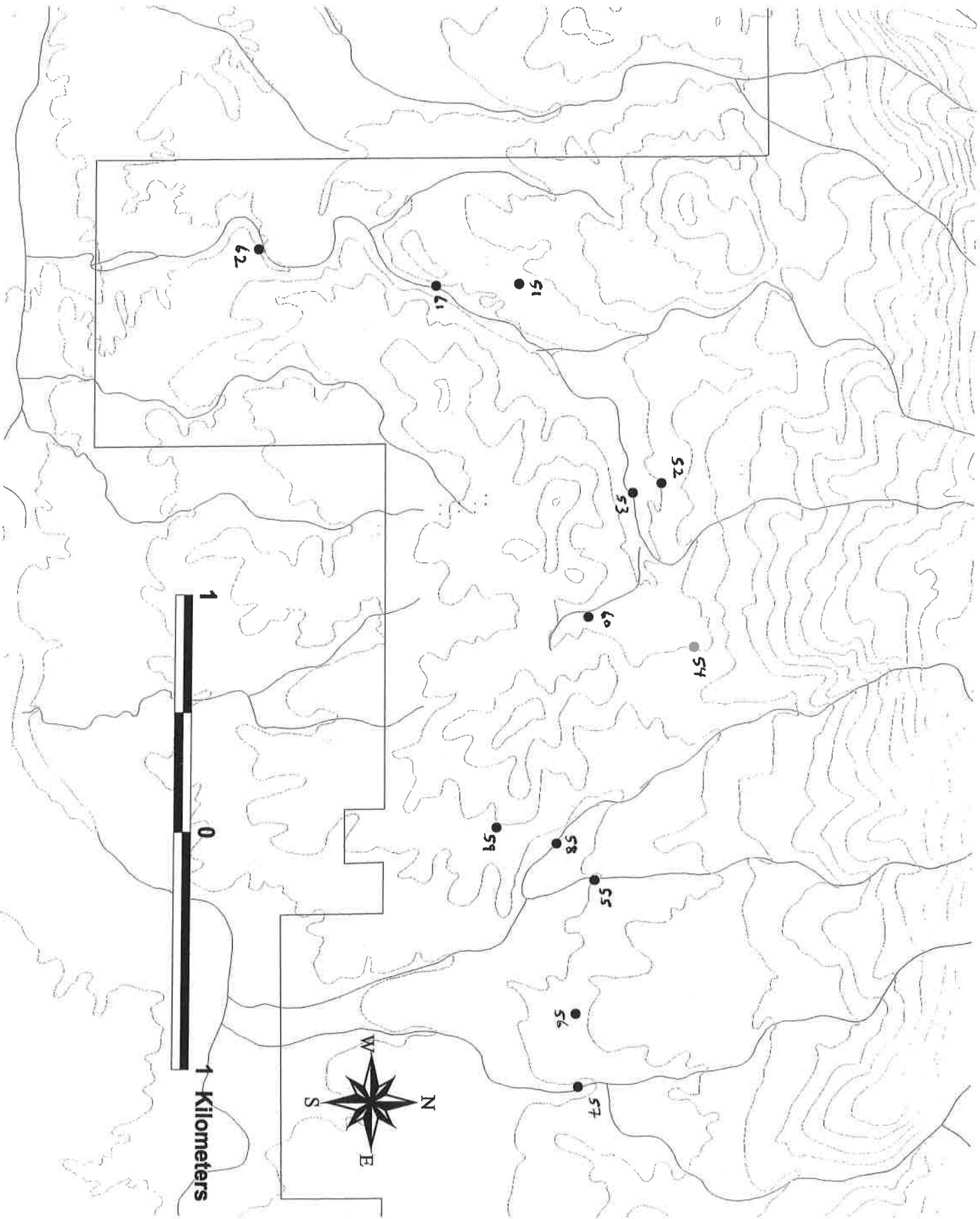


Table 1. Rocking K-Expansion Area monitoring point locations
 Field Locations based on uncorrected data, 11/2001
 (no locations were mapped for Rocking K transect end points)

Poir Loc	FieldUTM1	FieldUTM2	TransDir	TransEnd1	TransEnd2
1 RK	527985	3554106	98		
2 RK	527843	3554233	159		
3 RK	527407	3554453	266		
4 RK	527032	3554687	186		
5 RK	526489	3554772	252		
6 RK	NONE				
7 RK	527536	3556540	326		
8 RK	527467	3556086			
9 RK	527971	3556095	208		
10 RK	529338	3555263	38		
11 RK	529062	3555563	201		
12 RK	528829	3555516	345		
13 RK	528511	3554724	151		
14 RK	528356	3554400	298		
15 RK	529119	3556539	214		
16 RK	259100	3556361	232		
17 RK	528904	3556414			
18 RK	529274	3556417			
19 RK	529101	3556283			
20 RK	529034	3556297	18		
21 RK	528914	3555960	333		
22 RK	528895	3555109	107		
23 RK	528976	3554959	123		
24 RK	528668	3555205	308		
25 RK	528547	3555195	292		
26 RK	527900	3555731	79		
27 RK	527230	3555481	229		
28 RK	526136	3554964	270		
29 RK	526229	3555350	60		
30 RK	527050	3556099			
31 RK	526688	3554941	96		
32 RK	526702	3555204	139		
33 RK	527024	3554921			
34 RK	526711	3556540			
35 RK	527329	3556429	39		
36 RK	527386	3556243			
37 RK	527635	3556250			
38 RK	528349	3555946	237		
39 RK	528310	3555553	222		
40 RK	528109	3554978	35		
41 RK	528067	3554763	219		
42 RK	526575	3555322	315		
51 EX	530088	3555603	289	530045	3555628
52 EX	530919	3556210	283	530861	3556219

53 EX	530961	3556089	98	531023	3556081
54 EX	531611	3556353	227	531575	3556316
55 EX	532591	3555941	124	532634	3555918
56 EX	533153	3555864	12	533167	3555916
57 EX	533462	3555877	342	533451	3555928
58 EX	532439	3555778	106	532488	3555760
59 EX	5322373	3555525	230	532329	3555495
60 EX	531485	3555906	304	531450	3555938
61 EX	530096	3555255	129	530144	3555226
62 EX	529946	3554499	53	529983	3554523

Checklist for Expansion Area/Rocking K Points

Point No 19	Date 25 Oct 01	Person/s Dan	
New Photo # - E 27	New Photo # - W 29	New Photo # - S 28	New Photo # - N 26
UTM1 529101	UTM2 3556283	Trimble File # R102523A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

Dan misidentified the above UTM's as pt. 16 on 10/10/01
 photos confirm that it is pt. 19

Checklist for Expansion Area/Rocking K Points

Point No 17	Date 25 Oct 01	Person/s Dan	
New Photo # - E 3	New Photo # - W 5	New Photo # - S 4	New Photo # - N 2
UTM1 528904	UTM2 3556414	Trimble File # R102523A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

② Searched again for pt. 13 in area ~50m N of the new faux pt. 13 (an area closer to the pt on 00Q) but still no rebar. 10/26

There is flagging ~80m N of faux 13 - but I haven't seen this type of flag used on any other point. .

Point No 18	Date 25 Oct 01	Person/s Dan	
New Photo # - E 11	New Photo # - W 13	New Photo # - S 12	New Photo # - N 10
UTM1 529274	UTM2 3556417	Trimble File # R102523A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

rebar was laying on ground - pounded back in - it won't go very deep here due to bedrock.
(new photos taken @ dusk - may be a bit dark)

Checklist for Expansion Area/Rocking K Points

Point No 8	Date 26 Oct 01	Person/s Dan	
New Photo # - E 15	New Photo # - W 17	New Photo # - S 16	New Photo # - N 14
UTM1 527467	UTM2 3556086	Trimble File # R102620A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

Checklist for Expansion Area/Rocking K Points

Point No 37	Date 26 Oct 01	Person/s Dan	
New Photo # - E 19	New Photo # - W 21	New Photo # - S 20	New Photo # - N 18
UTM1 527635	UTM2 3556250	Trimble File # R102620 A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No
 Do we have a set of original photos? Yes X No

Notes

rebar is in a dirt bank of a drainage - is in danger of washing out in next big rain/flood

Checklist for Expansion Area/Rocking K Points

Point No 36	Date 26 Oct 01	Person/s Dan	
New Photo # - E 27	New Photo # - W 29	New Photo # - S 28	New Photo # - N ~~26~~ 26
UTM1 527386	UTM2 3556243	Trimble File # R102620 A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No
 Do we have a set of original photos? Yes X No

Notes

the est. GPS given for 36 was the same ^{as} ~~for~~ 37. Was able to find pt using DOQ (w/ a scale of 1 cm = 48 m)
 Aha, a 10 minute later newsflash - est. GPS for pt 30 ~~is~~ actually belongs to pt. 36. Fortunately have other

Checklist for Expansion Area/Rocking K Points

Point No - 34	Date 26 Oct 01	Person/s Dan	
New Photo # - E 3	New Photo # - W 5	New Photo # - S 4	New Photo # - N 2
UTM1 526 711	UTM2 355 6540	Trimble File # R102620A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

Found by photos, 162m from est. GPS. Point is
 mismarked on DOA. original rebar missing.

Checklist for Expansion Area/Rocking K Points

Point No	Date	Person/s	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1	UTM2	Trimble File #	Rebar: Old or New

Was the original point located? (indicated either by rebar or photo) Yes ☐ No ☐
 Do we have a set of original photos? Yes ☐ No ☐

Notes

Roll #6

34

Checklist for Expansion Area/Rocking K Points

Point No 30	Date 26 Oct 01	Person/s Dan	
New Photo # - E 31	New Photo # - W 33	New Photo # - S 32	New Photo # - N 30
UTM1 527050	UTM2 3556099	Trimble File # R102620A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes X No _____
 Do we have a set of original photos? Yes X No _____

Notes located point w/ photos - no rebar. Sandy soil - so only about 4" of new rebar is showing.

There are flags in a shrub about 12 m North of point. One is old -- white w/ black stripes, the other is orange with "31" written on it.

Checklist for Expansion Area/Rocking K Points

Point No	Date	Person/s	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1	UTM2	Trimble File #	Rebar: Old or New

Was the original point located? (indicated either by rebar or photo) Yes _____ No _____
 Do we have a set of original photos? Yes _____ No _____

Notes

Checklist for Expansion Area/Rocking K Points

Point No 6	Date	Person/s	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1	UTM2	Trimble File #	Rebar: Old or New

Was the original point located? (indicated either by rebar or photo) Yes _____ No _____
 Do we have a set of original photos? Yes X No _____

Notes point too close to ranch house - did not do

Checklist for Expansion Area/Rocking K Points

Point No 33	Date 27 Oct 01	Person/s Dan	
New Photo # - E 15	New Photo # - W 17	New Photo # - S 16	New Photo # - N 14
UTM1 527024	UTM2 3554921	Trimble File # R102718A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No _____
 Do we have a set of original photos? Yes X No _____

Notes

memory filled up during/after point, so I
 re-took the reading for pt 33 as R102719A
 just to be safe.

71.5... from rest of pts

Checklist for Expansion Area/Rocking K Points

Point No 9	Date 7 Oct 01	Person/s Dan	
New Photo # - E 2	New Photo # - W 4	New Photo # - S 3	New Photo # - N 1
UTM1 0527971	UTM2 3556095	Trimble File # R100718A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

flag in Palo verde

(balloon
528130/3555858)

Checklist for Expansion Area/Rocking K Points

Point No 39	Date 7 Oct 01	Person/s Dan	
New Photo # - E 6	New Photo # - W 8	New Photo # - S 7	New Photo # - N 5
UTM1 0528310	UTM2 3555553	Trimble File # R100718A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes ☐ No ☒
 Do we have a set of original photos? Yes ☒ No ☐

Notes

According to photos - the new pt. is pretty darn close to the old one (which probably got washed out)

advised

Tortoise #479. mt. 528365/3555524 1137 (time)

Checklist for Expansion Area/Rocking K Points

Point No 12	Date 8 Oct 01	Person/s Dan	
New Photo # - E 10	New Photo # - W 12	New Photo # - S 11	New Photo # - N 9
UTM1 528 829	UTM2 3555516	Trimble File # R100817A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

Will photograph later due to rainy/overcast conditions
 note: memory on trimble became full during pt 12, so I
 deleted old files and retook the reading.

Checklist for Expansion Area/Rocking K Points

Point No	Date	Person/s	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1	UTM2	Trimble File #	Rebar: Old or New

Was the original point located? (indicated either by rebar or photo) Yes ☐ No ☐
 Do we have a set of original photos? Yes ☐ No ☐

Notes

Checklist for Expansion Area/Rocking K Points

Point No 7	Date 8 Sept 01	Person/s DAN/PHIL	
New Photo # - E 20	New Photo # - W 21	New Photo # - S 22	New Photo # - N # 23
UTM1 0527536	UTM2 3556540	Trimble File # R090815A	Rebar: Old or New old - painted white - left old flagging

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes old flagging in shrub

Checklist for Expansion Area/Rocking K Points

Point No 35	Date 8 Sept 01	Person/s DAN/PHIL	
New Photo # - E 24	New Photo # - W 25	New Photo # - S 26	New Photo # - N 27
UTM1 0527329	UTM2 3556429	Trimble File # R090815A	Rebar: Old or New New

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

rebar missing - put in new.
E photo taken 3 m East of rebar to avoid obstruction of tree
(and to match old photo)
old flagging in tree.

rebar missing - put in new

~~0000~~

Yell #2

3
59
12
10
11
21
38
24

Checklist for Expansion Area/Rocking K Points

Point No 10	Date 13 Oct 01	Person/s Dan	
New Photo # - E 14	New Photo # - W 16	New Photo # - S 15	New Photo # - N 13
UTM1 529338	UTM2 3555263	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes original rebar located lying on ground in side of drainage
repositioned in a more secure spot ~ 2 or 3 m E of orig. location

Checklist for Expansion Area/Rocking K Points

Point No 21	Date 13 Oct 01	Person/s Dan	
New Photo # - E 22	New Photo # - W 24	New Photo # - S 23	New Photo # - N 21
UTM1 528914	UTM2 3555960	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

note an old car door @ 528874/3555884

2011 #3

Checklist for Expansion Area/Rocking K Points

Point No 25	Date 13 Oct 01	Person/s Dan	
New Photo # - E 3	New Photo # - W 5	New Photo # - S 4	New Photo # - N 2
UTM1 528547	UTM2 3555195	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

note large predated bird under 3 big palo verdes

Checklist for Expansion Area/Rocking K Points

Point No 13	Date 13 Oct 01	Person/s Dan	
New Photo # - E 7	New Photo # - W 9	New Photo # - S 8	New Photo # - N 6
UTM1 528511	UTM2 3554724	Trimble File # R101317A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes ☐ No ☒
Do we have a set of original photos? Yes ☐ No ☒

Notes

searched within 25m of est. GPS coordinates -
no luck. Put in new point using est. GPS.

Checklist for Expansion Area/Rocking K Points

Point No 22	Date 13 Oct 01	Person/s Dan	
New Photo # - E 11	New Photo # - W 13	New Photo # - S 12	New Photo # - N 10
UTM1 528895	UTM2 3555109	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

→ N, W, E photos only

Checklist for Expansion Area/Rocking K Points

Point No 23	Date 13 Oct 01	Person/s Dan	
New Photo # - E 15	New Photo # - W 17	New Photo # - S 16	New Photo # - N 14
UTM1 528976	UTM2 3554959	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

mylar party balloon

528998/3554934

Checklist for Expansion Area/Rocking K Points

Point No 38	Date 13 Oct 01	Person/s Dan	
New Photo # - E 26	New Photo # - W 28	New Photo # - S 27	New Photo # - N 25
UTM1 528349	UTM2 3555946	Trimble File # R101317A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes X No
Do we have a set of original photos? Yes X No

Notes Found old flagging on ground, photos match up.
old rebar missing

Checklist for Expansion Area/Rocking K Points

Point No 24	Date 13 Oct 01	Person/s Dan	
New Photo # - E 30	New Photo # - W 32	New Photo # - S 31	New Photo # - N 29
UTM1 528468	UTM2 3555205	Trimble File # R101317A	Rebar: Old or New O

Was the original point located? (indicated either by rebar or photo) Yes X No
Do we have a set of original photos? Yes X No

Notes

Jan

* photos: trimble for 5, 31, 32, 33, 42, 28, 29
on 27 Oct 01. DB

Checklist for Expansion Area/Rocking K Points

Point No 5	Date 14 Oct 01	Person/s Dan	
New Photo # - E 7	New Photo # - W 9	New Photo # - S 8	New Photo # - N 0
UTM1 526489	UTM2 3554772	Trimble File # R102718A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes original rebar missing. Pasture.

new pt established using photos (which would have been a lot easier had the orig. photos been taken on a clear day)

Checklist for Expansion Area/Rocking K Points

Point No 31	Date 14 Oct 01	Person/s Dan	
New Photo # - E 11	New Photo # - W 13	New Photo # - S 12	New Photo # - N 10
UTM1 526688	UTM2 3554941	Trimble File # R102718A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

nearly all the flagging I put up last week
is already gone.

Checklist for Expansion Area/Rocking K Points

Point No 32	Date 14 Oct 01	Person/s Dan	
New Photo # - E 19	New Photo # - W 21	New Photo # - S 20	New Photo # - N 18
UTM1 526702	UTM2 3555204	Trimble File # R102719A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No _____
 Do we have a set of original photos? Yes X No _____

Notes

Checklist for Expansion Area/Rocking K Points

Point No 42	Date 14 Oct 01	Person/s Dan	
New Photo # - E 23	New Photo # - W 25	New Photo # - S 24	New Photo # - N 22
UTM1 526575	UTM2 3555322	Trimble File # R102719A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No _____
 Do we have a set of original photos? Yes X No _____

Notes

Checklist for Expansion Area/Rocking K Points

Point No 29	Date 14 Oct 01	Person/s Dan	
New Photo # - E 27	New Photo # - W 29	New Photo # - S 28	New Photo # - N 26
UTM1 526229	UTM2 3555350	Trimble File # ~~R102719A~~	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes
original rebar was laying on the ground
I pounded it back in where it lay - photos matched

Checklist for Expansion Area/Rocking K Points

Point No 28	Date 14 Oct 01	Person/s Dan	
New Photo # - E 31	New Photo # - W 33	New Photo # - S 32	New Photo # - N 30
UTM1 526136	UTM2 3554964	Trimble File # ~~R102719A~~	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

GOAG CARC. Full shell, right side up in small drainage
back half of plastron broken out, full of leg bones, etc
still stinks. MCL ~220. Not an old tortoise. Unmarked
the burrow right above it. 526166/3555118 27 Oct 01

Checklist for Expansion Area/Rocking K Points

Point No 15	Date 10/10/01	Person/s DES	~~10/25 DB~~
New Photo # - E 7	New Photo # - W 9	New Photo # - S 8	New Photo # - N ~~6~~ 6
UTM1 529119	UTM2 3556539	Trimble File # ~~R102523A~~	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No
Do we have a set of original photos? Yes X No

Notes

¹⁹⁹⁴ Original photos were taken about 10 m South of the rebar (529120/3556530). New photos were taken at the present rebar location.

Checklist for Expansion Area/Rocking K Points

Point No 20	Date 10/10/01	Person/s DES	~~10/25 DB~~
New Photo # - E 23	New Photo # - W 25	New Photo # - S 24	New Photo # - N 22
UTM1 529034	UTM2 3556297	Trimble File # ~~R102523A~~	Rebar: Old or New OLD

Was the original point located? (indicated either by rebar or photo) Yes X No
Do we have a set of original photos? Yes X No

Notes

Missing E shot
photos/trimble on 10/25

Checklist for Expansion Area/Rocking K Points

Point No 11	Date 10/10/01	Person/s DES	
New Photo # - E 18	New Photo # - W 20	New Photo # - S 19	New Photo # - N 17
UTM1 529062	UTM2 3555563	Trimble File # ~~R101317A~~	Rebar: Old or New OLD

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

~~photos + trimble taken on 10/13~~
 my UTM1 = 529067

Checklist for Expansion Area/Rocking K Points

Point No 16	Date 10/10/01	Person/s DES	10/25 DB
New Photo # - E 31	New Photo # - W 33	New Photo # - S 32	New Photo # - N 30
UTM1 ~~529099~~	UTM2 ~~3556287~~	Trimble File # ~~R102523A~~	Rebar: Old or New OLD
~~529100~~	~~3556361~~		

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

Somehow I failed to record the UTM's!
 This point is approximately 70-100 m due east of point #20. It is well-flagged, maybe 30 m west of road.

* See note for pt. 19

Cell #2

9
39
12
10
11
21
38
29

Checklist for Expansion Area/Rocking K Points

Point No 10	Date 13 Oct 01	Person/s Dan	
New Photo # - E 14	New Photo # - W 16	New Photo # - S 15	New Photo # - N 13
UTM1 529338	UTM2 3555263	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes original rebar located lying on ground in side of drainage, repositioned in a more secure spot ~ 2 or 3 m E of orig. location

Checklist for Expansion Area/Rocking K Points

Point No 21	Date 13 Oct 01	Person/s Dan	
New Photo # - E 22	New Photo # - W 24	New Photo # - S 23	New Photo # - N 21
UTM1 528914	UTM2 3555960	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

note an old car door @ 528874/3555884

Checklist for Expansion Area/Rocking K Points

Point No 22	Date 13 Oct 01	Person/s Dan	
New Photo # - E 11	New Photo # - W 13	New Photo # - S 12	New Photo # - N 10
UTM1 528895	UTM2 3555109	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

→ N, W, E photos only

Checklist for Expansion Area/Rocking K Points

Point No 23	Date 13 Oct 01	Person/s Dan	
New Photo # - E 15	New Photo # - W 17	New Photo # - S 16	New Photo # - N 14
UTM1 528976	UTM2 3554959	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

mylar party balloon 528998/3554934

Checklist for Expansion Area/Rocking K Points

Point No 38	Date 13 Oct 01	Person/s Dan	
New Photo # - E 26	New Photo # - W 28	New Photo # - S 27	New Photo # - N 25
UTM1 528349	UTM2 3555946	Trimble File # R101317 A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes X No _____
Do we have a set of original photos? Yes X No _____

Notes Found old flagging in ground. photos match up.
old rebar missing

Checklist for Expansion Area/Rocking K Points

Point No 24	Date 13 Oct 01	Person/s Dan	
New Photo # - E 30	New Photo # - W 32	New Photo # - S 31	New Photo # - N 29
UTM1 528468	UTM2 3555205	Trimble File # R101317 A	Rebar: Old or New O

Was the original point located? (indicated either by rebar or photo) Yes X No _____
Do we have a set of original photos? Yes X No _____

Notes

Roll #3

Checklist for Expansion Area/Rocking K Points

25
13
22
23

Point No 25	Date 13 Oct 01	Person/s Dan	
New Photo # - E 3	New Photo # - W 5	New Photo # - S 4	New Photo # - N 2
UTM1 528547	UTM2 3555195	Trimble File # R101317A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

note large predated bird under 3 big palo verde

Checklist for Expansion Area/Rocking K Points

Point No 13	Date 13 Oct 01	Person/s Dan	
New Photo # - E 7	New Photo # - W 9	New Photo # - S 8	New Photo # - N 6
UTM1 528511	UTM2 3554724	Trimble File # R101317A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes ☐ No ☒
Do we have a set of original photos? Yes ☐ No ☒

Notes

Searched within 25m of est. GPS coordinates -
no luck. Put in new point using est. GPS.

Checklist for Expansion Area/Rocking K Points

Point No	Date	Person/s	
56	27 Sept 01	Dan & Phil	
New Photo # - E 2 (fence corner)	New Photo # - W 4 (dead logs)	New Photo # - S 3	New Photo # - N 1 (Phil)
UTM1 533153	UTM2 3555864	Trimble File # R092715C	Rebar: Old or New N
end pt: 533167	3555916		

Was the original point located? (indicated either by rebar or photo) Yes _____ No X

Do we have a set of original photos? Yes _____ No X

Notes located an old white flag near fence corner about 30 m from estimated GPS pt. Could not locate Brian's green flag.

12° end point labeled pt 66 in trimble, R092715C

Checklist for Expansion Area/Rocking K Points

Point No	Date	Person/s	
57	28 Sept 01	Dan / Phil	
New Photo # - E 6 (rocks)	New Photo # - W 8 (rocks)	New Photo # - S 7 (cholla)	New Photo # - N 5 (mtns)
UTM1 533462	UTM2 3555877	Trimble File # R092815A	Rebar: Old or New N
end pt: 533451	3555928		

Was the original point located? (indicated either by rebar or photo) Yes _____ No X

Do we have a set of original photos? Yes _____ No X

Notes

342°

Trimble # R092815A
pt 67

located an old white flag
~20 m from est. GPS pt, about
15 m N of fence on W side of drain
compass direction chosen to avoid
crossing fence and/or rock outcrops.
Noted bees on transect.
end pt a few meters off to side
to avoid putting in middle of drain

Checklist for Expansion Area/Rocking K Points

Point No 55	Date 28 Sep 01	Person/s Dan / Phil	
New Photo # - E 10 (trimble)	New Photo # - W 12 (prickly pear)	New Photo # - S 11	New Photo # - N 9 (wash)
UTM1 532591	UTM2 3555941	Trimble File # R092815A	Rebar: Old or New N
532634	3555918		

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
 Do we have a set of original photos? Yes _____ No X

Notes

124°

R092815A pt 65

point placed at
est. GPS coordinates
on side of drainage

Checklist for Expansion Area/Rocking K Points

Point No 58	Date 28 Sept 01	Person/s Dan / Phil	
New Photo # - E 14 (wash w/ tape)	New Photo # - W 14 (wash w/ tape)	New Photo # - S 15 (tree)	New Photo # - N 13
UTM1 532439	UTM2 3555778	Trimble File # R092815A	Rebar: Old or New N
532488	3555760		

Was the original point located? (indicated either by rebar or photo) Yes (X) No _____
 Do we have a set of original photos? Yes X No _____

Notes

106°

R092815A pt 68

2 photos only

white flag found on
ground - but point
matched the photos.
(~20 m from given GPS pt)

Checklist for Expansion Area/Rocking K Points

Point No 59	Date 28 Sept 01	Person/s Dan/Phil	
New Photo # - E 18 <i>line on pk</i>	New Photo # - W 20 <i>uphill w/ sag</i>	New Photo # - S 19	New Photo # - N 17 <i>mitas</i>
UTM1 5322373	UTM2 3555525	Trimble File # R092815A	Rebar: Old or New N
<i>end pt</i> 532329	3555495		

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
Do we have a set of original photos? Yes X No _____

Notes

230°

R092815A pt 69

(3 photos taken from ridge)

point put in
at est. GPS

Checklist for Expansion Area/Rocking K Points

Point No 54	Date 28 Sept 01	Person/s Dan/Phil	
New Photo # - E 22 <i>uphill</i>	New Photo # - W 21 <i>bluff sag's</i>	New Photo # - S 23 <i>scrub</i>	New Photo # - N 21 <i>close sag</i>
UTM1 531611	UTM2 3556353	Trimble File # R092815A	Rebar: Old or New N
<i>end pt.</i> 531575	3556314		

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
Do we have a set of original photos? Yes _____ No X

Notes

227°

R092815A

pt 64

est. GPS pt
used

Checklist for Expansion Area/Rocking K Points

Point No 51	Date 14 Sept 01	Person/s Dan/Phil/Don	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1 0530088	UTM2 3555603	Trimble File # R091413A	Rebar: Old or New New

later →

Was the original point located? (indicated either by rebar or photo) Yes X No
Do we have a set of original photos? Yes No

↓
by green flag

Notes

289° 0530045
3555628

Checklist for Expansion Area/Rocking K Points

Point No 61	Date 14 Sept 01	Person/s Dan-Phil-Don	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1 0530096	UTM2 3555255	Trimble File # R091413A	Rebar: Old or New N

later

Was the original point located? (indicated either by rebar or photo) Yes X No
Do we have a set of original photos? Yes X No

↓
2 photos only

Notes

129° 0530144 3555226

rebar behind boulder on w. side of stream

Map, flag, sharpie, random compass pts. 51 tape

Checklist for Expansion Area/Rocking K Points

Point No 62	Date 14 Sept 01	Person/s Dan/Phil/Dan	
New Photo # - E 31	New Photo # - W 30	New Photo # - S 29	New Photo # - N 28
UTM1 0529946	UTM2 3554499	Trimble File # R091413A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
 Do we have a set of original photos? Yes _____ No X

Notes

53° 0529983 3554523

- old flag ~ 10m to west (0529936 3554505) ± 4m

Checklist for Expansion Area/Rocking K Points

Point No 52	Date 14 Sep 01	Person/s Dan Dan Phil	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1 0530919	UTM2 3556210	Trimble File # R091413A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
 Do we have a set of original photos? Yes _____ No X

B. Powell bird pt

Notes

283° 0530861 3556219

- stake is +4m beyond the 'real point'

Checklist for Expansion Area/Rocking K Points

Point No 53	Date 14 Sep 01	Person/s Dan Don Phil	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1 0530961	UTM2 3556089	Trimble File # R091413A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
Do we have a set of original photos? Yes _____ No X

Notes

98° 05310²³ 35560⁸¹

*B. Powell
bird point*

Checklist for Expansion Area/Rocking K Points

Point No 60	Date 14 Sept 01	Person/s Dan Don Phil	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1 0531485	UTM2 3555906	Trimble File # R091413A	Rebar: Old or New N

Was the original point located? (indicated either by rebar or photo) Yes _____ No X
Do we have a set of original photos? Yes X No _____

Notes

*3 photos from ridges looking back
at the point - not very useful*

304°

0531450 3555938

Note: forgot a sharpie on 20 Oct - ^{is} ~~no~~ writing on flags

Checklist for Expansion Area/Rocking K Points

Point No 14	Date 20 Oct 01	Person/s Dan	
New Photo # - E 19 ^{rimun pk}	New Photo # - W 21 ^{flag}	New Photo # - S 20 ⁵¹²⁵	New Photo # - N 18
UTM1 528 356	UTM2 355 4400	Trimble File # R102017 A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☐ No ☒

Notes

est. GPS 17 m away

night blooming cereus 528 326 / 355 4463

Checklist for Expansion Area/Rocking K Points

Point No 41	Date 20 Oct 01	Person/s Dan	
New Photo # - E 23	New Photo # - W 25	New Photo # - S 24	New Photo # - N 22
UTM1 528 067	UTM2 355 4763	Trimble File # R102017 A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
Do we have a set of original photos? Yes ☒ No ☐

Notes

orig. rebar loose and at an angle but still in place.
I pounded it in again.

78 m from est. GPS

Checklist for Expansion Area/Rocking K Points

Point No 40	Date 20 Oct 01	Person/s Dan	
New Photo # - E 27	New Photo # - W 29	New Photo # - S 28	New Photo # - N 26
UTM1 528109	UTM2 3554978	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

pt was 227m from est. GPS and 487m from Dan's given GPS
 (The previously given UTM's go to a flag and a pile of rocks - but are ~~are~~ incorrect) Point located using photos

Checklist for Expansion Area/Rocking K Points

Point No 1	Date 20 Oct 01	Person/s Dan	
New Photo # - E 31	New Photo # - W 33	New Photo # - S 32	New Photo # - N 30
UTM1 527985	UTM2 3554106	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

33 m from est. GPS

Checklist for Expansion Area/Rocking K Points

Point No 2	Date 20 Oct 01	Person/s Dan	
New Photo # - E 3	New Photo # - W 5	New Photo # - S 4	New Photo # - N 2
UTM1 527843	UTM2 3554233	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No _____
Do we have a set of original photos? Yes X No _____

Notes rebar was laying on ground - pounded back in

10.8m from est. GPS

Checklist for Expansion Area/Rocking K Points

Point No 3	Date 20 Oct 01	Person/s Dan	
New Photo # - E 7	New Photo # - W 9	New Photo # - S 8	New Photo # - N 6
UTM1 527407	UTM2 3554453	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes X No _____
Do we have a set of original photos? Yes X No _____

Notes

38m from est. GPS

Checklist for Expansion Area/Rocking K Points

Point No 4	Date 20 Oct 01	Person/s Dan	
New Photo # - E N	New Photo # - W 13	New Photo # - S 12	New Photo # - N 10
UTM1 527032	UTM2 3554687	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

27.4m from est. GPS

Checklist for Expansion Area/Rocking K Points

Point No 27	Date 20 Oct 01	Person/s Dan	
New Photo # - E 15	New Photo # - W 17	New Photo # - S 16	New Photo # - N 14
UTM1 527230	UTM2 3555481	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

missing W pic

-my UTM's different than Dan's

Checklist for Expansion Area/Rocking K Points

Point No 26	Date 20 Oct 01	Person/s Dan	
New Photo # - E 19	New Photo # - W 21	New Photo # - S 20	New Photo # - N 18
UTM1 527900	UTM2 3555731	Trimble File # R102017A	Rebar: Old or New 0

Was the original point located? (indicated either by rebar or photo) Yes ☒ No ☐
 Do we have a set of original photos? Yes ☒ No ☐

Notes

157m from est. GPS

Checklist for Expansion Area/Rocking K Points

Point No	Date	Person/s	
New Photo # - E	New Photo # - W	New Photo # - S	New Photo # - N
UTM1	UTM2	Trimble File #	Rebar: Old or New

Was the original point located? (indicated either by rebar or photo) Yes ☐ No ☐
 Do we have a set of original photos? Yes ☐ No ☐

Notes